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EDITORIAL.

PLACARDING MEASLES.

From the daily press we learn that Dr. Struthers, Chief Medical Inspector of Public Schools for Toronto, is trying to devise some means of checking the spread of measles. He is credited with making the statement that the disease is one of the most contagious, and the after-effects may be serious, affecting the eyes and lungs, and sometimes opening the way for tuberculosis.

Dr. Struthers said: "Measles cases should be quarantined for three weeks, or at least placarded." We do not agree with this. We have said that there is grave fear of too much placarding being done. If we are not entirely wrong in our notion regarding certain diseases, we think that one cannot pass through life without contracting measles, chickenpox, mumps, and whooping-cough. This is not so with regard to diphtheria and scarlet fever. If these diseases are escaped in youth they may always be escaped. We think that to placard for measles would do more harm than good in the long run.

THE CARE OF DELIRIOUS PATIENTS.

From time to time one reads of accidents to delirious patients in hospitals, due to jumping out of windows, being burned, or committing suicide in the wards or on the grounds. All this is very regrettable. But how is it to be remedied?

If the windows are barred so as to prevent a patient escaping one element of danger would be removed. But we can recall several instances where many patients lost their lives in this way when a fire occurred in the building, and this means of getting the patients out was closed. Barred windows should mean fireproof buildings, and the majority of the hospitals are not fireproof, and cannot be made such. New hospitals should all be of this class.

To keep special nurses on such cases would entail a very heavy outlay on the hospitals, which have a hard struggle now to make their incomes meet their disbursements. The lot of the mixed or general hospital is, therefore, not always a happy one.

Notwithstanding all these facts, well known to anyone engaged in the management of hospitals, steps must be taken to reduce accidental deaths among hospital patients to the lowest minimum. This will mean more attendants, and this means added cost. It will become necessary for the hospitals everywhere to demand more money from their patients, and larger municipal and government grants. Hospitals cannot run their work without money; and, if extra burdens are going to be imposed on them, they must impose heavier charges upon those they care for. This is a matter for the Hospital Association to take up and give a careful deliverance upon.

Hospitals regret such accidents exceedingly. There must be careful and thorough consideration of this subject. From time to time we read of fires in hospitals and asylums where the open window was the means of averting a holocaust. If there had been barred windows we would have had a repetition of the Chicago disaster in a hospital fire of a few years ago.

The real solution, therefore, is more money for the hospitals to enable them to keep more attendants. They cannot do the impossible.

THE CARE OF CONSUMPTIVES.

This question is bound to come up from time to time. The consumptive we have in our midst always. Some of these could pay for their care and treatment, while others could not.

In our former issue we expressed the opinion that every large city should own its sanatorium. In small cities and in counties there should be a union of effort. The Association for the Prevention of Tuberculosis, which met recently in London, came to the conclusion that many small sanatoria, scattered throughout the country, would serve the needs of the people much better than a few large institutions far apart. This is sound ground to stand upon.

In Toronto the situation has come up for settlement. Dr. Hastings is urging that Toronto secure a sanatorium for itself. The National Sanitarium Association is opposing this view, and asking for a considerable sum for the work that is being carried on at Weston.

We have nothing but the highest praise for the work of the National Sanitarium Association, but we hold to the position already expressed, that the plan advocated by Dr. Hastings is the true one for Toronto to adopt. If the medical profession of Toronto is wise in its day and generation it will bend its energy in support of a hospital for consumptives for Toronto, where every physician may attend his own patients. Such an institution would be, in part, self-supporting. Those who could pay

would be charged for their hospital care. For the poor there would be free accommodation. This, we are confident, in the end would not come to more money than the alternate plan of handing over a large sum to the National Sanitarium Association, with the understanding that a certain amount of accommodation be furnished the city. Weston is too far away from the city. We must consider the future, the comfort of the people, and the convenience of the medical profession. We ask the doctors to look into this matter promptly.

SMALLPOX.

This disease may be said to be constantly present in this country. One can scarcely pick up a paper in which he does not see cases of the disease as occurring in some portion of the country.

It is not necessary to argue the merits of vaccination. By every test known this has been settled in the affirmative. Yet legislators do not embody this knowledge in a clear and distinct pronouncement of law.

When one asks why this is so the answer is two-fold: First, the fear of offending those who have votes; and, second, the ignorance of law-makers. It is rather a strange thing that Britain, which gave vaccination to the world, keeps smallpox.

It should be borne in mind that much of the vaccination of the past has been very questionably performed, and so the operation has fallen into disfavor when it ought not. The arm is not made clean or kept clean, poor vaccine is used, the arm is too deeply scratched, the markings are too close to each other and become confluent, or only one tiny mark is made. From all this the public see poor results, and conclude that the science of vaccination is wrong rather than that of application.

But medical men are very much at fault. They should inform parents about vaccination. They should make it clear that it should be done, and also what disease it protects against. This, we think, is but little done. The cost of smallpox to this country is now becoming a serious question.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

Wherever medical inspection of school children has been adopted the facts revealed have fully justified the expenditures. In Britain, the United States, and Canada use has been made of medical inspection of school children to some extent.

In the large cities in Britain the results were just what might have been expected. So in some of the large cities in the United States. Here

in Canada many have been surpris'd, however, at the revelations. In Montreal a few years ago the showing was very bad. Prior to the medical inspection of children in Toronto there were those who held that it was quite unnecessary. The facts brought out prove quite the opposite view.

But the \$30,000 expended on medical inspection will not do much good unless the children found diseased and who cannot afford to pay for treatment have it provided for them. This is a natural sequel to that of medical inspection. We have often pointed out the great value of human life to the state, and every effort should be put forth that makes for the health of the people.

THE ONTARIO MEDICAL ASSOCIATION.

For nearly a third of a century the Ontario Medical Association has been holding its annual meetings. During these many years it has been the means of much good. There are very few who at some one or other of these annual gatherings have not met their brother practitioners and enjoyed the gathering.

The association has, also, been the means of sending abroad throughout the province a vast amount of valuable information. The papers and discussions have been the best that the contributors could give to their fellow-workers in the field of relieving human suffering. This is a great field to work in, and is of far more importance to mankind than "to plow the classic field" or "to hale the Pleiades or catch the full moon's earliest glance." From year to year papers are read setting forth the results of study and observation. How much this has raised medical thought in the province no one could venture an opinion, but all can say that it has been very great. Of these papers and discussions we may say, with Shakespeare: "These are begot in the ventricles of memory, nourished in the womb of pia mater, and delivered upon the mellowing of occasion."

There is one thing that has been apparent to those who take the trouble to look at things as they really are, and it is that there has always been a tendency for a certain group to keep together and rotate the offices among themselves. This is not for the good of the association. The selection of officers should be as free as the air we breathe, and should not be influenced in any way. We are firmly of the opinion that some other method should be devised than that now in use of making up a slate by a nominating committee. Elections should take place at one of the general sessions. Several could be nominated for the various offices and a vote taken. This might consume more time, but it would give much better satisfaction, and introduce more interest into the meeting, and make everyone feel that he had a reasonable chance.

There are those in every association who think they should always be in office. There still exists some of the old doctrine of the divine right of kings, where

“The breath of the wordly should depose
The deputy anointed by the Lord.”

THE DUTY OF GOVERNMENTS WITH REGARD TO PUBLIC HEALTH.

It is becoming more and more apparent every day that preventive medicine is what must receive the most attention for the future. In the past the medical man fought disease single-handed and alone. Then came a time—and comparatively recent at that—when the profession became organized to press upon public authorities the necessity for legislation that would make for the health of the people.

What could any medical man do in the prevention of tuberculosis, the control of the plague, or the cure of rabies? The first of these calls for public aid to provide sanatoria, etc.; the second demands a proper quarantine system, with officers to carry out the regulations; and the third can only be possible with a Pasteur institute to furnish the facilities for treatment.

That an immense loss to the country is caused by the death of citizens from preventable diseases we have shown many times. As an ordinary investment some money spent in this way would be a good investment.

We are glad to notice from the *Transvaal Medical Journal* that there is every possibility of the Government creating a health department, with a medical man at its head. If this is done, the other portions of the British Empire will have a good example to copy from.

THE ONTARIO MEDICAL COUNCIL.

For a considerable time we have contended that the Ontario Medical Council should amend its ways. We have often pointed out that its methods lead to an expenditure of money that is not justifiable. There are too many committees and too many examinations.

The Medical Council should come to some arrangement with the universities so that these bodies would do all the examining in the earlier portion of the students' course. This would gain two useful reforms—marked economy in money and the doing away with needless examina-

tions, which impose a very heavy burden on the students and accomplish no good.

The medical faculty of Queen's have issued a statement, from which we condense the following:

The matriculation should be uniform with the junior matriculation of the education department. The universities should be free to arrange the details of the course, the council demanding a five-year period of study. The council should conduct one final examination at the end of the fifth year. The council should reduce the fees imposed on students. The council should be reduced in size to, say, eight territorial, three collegiate, and one homœopathic.

SIR JAMES YOUNG SIMPSON.

We should not too soon forget our great men. In this busy world there is a danger that this may be the case. Sir James Simpson was certainly "one of the few and immortal names that are not born to die." All of his great contemporaries had no hesitation in stamping him a genius. He was a most unique man in mind, body, and manner, and, with all this, he was one of the humblest men that ever trod this world. Those who had much to do with him spoke of him as "the most lovable man since the world began."

DR. ANDREW McPHAIL'S ACCIDENT.

We regret exceedingly to notice the painful accident which befell Dr. Andrew McPhail, of Montreal, the editor of the *Journal of the Canadian Medical Association*. A bottle containing aerated water burst and drove broken glass into his eyes. The surgeon who operated on his eyes said that one eye could be saved and that there were some hopes of saving the other. Dr. McPhail was for many years editor of the *Montreal Medical Journal*, and is a well-known writer.

SIR WILLIAM OSLER, BART.

It is with much pleasure we announce that Prof. W. Osler has been created a baronet. He will do the title as much honor as the title will do him. He and the title will be like the two cherries spoken of by Shakespeare as so beautifully joined together as one. We congratulate Prof. Osler on his merited distinction.

ORIGINAL CONTRIBUTIONS.

PRESIDENT'S ADDRESS, ONTARIO MEDICAL ASSOCIATION, 31ST MAY, 1911.

By H. R. CASGRAIN, M.D.

MEMBERS of the Ontario Medical Association,—I must thank you sincerely for the honor you have done me in electing me, for two consecutive years, to the highest office in the gift of this association. I wish, further, to thank those who have labored with me in the work of the association, at the sacrifice of much valuable time and the expenditure of no small amount of effort, in order to make these annual meetings a success. We have to present to you this year a rich and varied program for a portion of which no small thanks is due our medical brethren of the great neighboring republic. To them I extend a hearty welcome from this association. They are, in reality, part and parcel of ourselves, inasmuch as medicine recognizes no national boundary. In extending to them the invitation to address us, we recognize the great work that is being accomplished in the domain of medicine and surgery in the United States.

In reviewing the progress of medicine for the past two years, we note that while the results of research and observation on internal diseases have presented little that can be called spectacular, much of practical importance has been accomplished, and at least one or two striking discoveries have been announced. Within the time under consideration we have the vaccine method of treating typhoid fever. It is probably too soon to pronounce as to the merits of this mode of treatment, yet, according to Anders (*Jour. Amer. Med. Assoc.*, Dec. 10, 1910), the value of vaccine for the following purposes must be conceded: (1) As a means of prophylaxis; (2) in suitable cases when continued during convalescence, to prevent relapses; (3) to combat local infections with the typhoid bacillus, as, for example, bone suppurations which arise in the period of convalescence; (4) for the removal of typhoid bacilli from the feces and urine in the case of typhoid carriers.

Syphilis.—During the past year numerous papers dealing with salvarsan, generally known as "606," have appeared. This is probably the greatest discovery that has taken place in the domain of medicine for probably the last decade. The papers published in regard to its effects have been numerous and optimistic. Granting that the tone of medical opinion has been too optimistic, there yet remains little doubt that remarkable results will be obtained from this mode of treatment.

It would require too much time to enumerate in detail the progress that is being made in the various branches of medicine. While, as has

been said, the past two years have, with possibly the two exceptions noted, not been productive of any startling discoveries, they have been years of activity in the line of medical research.

Progress in surgery depends, to a large extent, upon the earliest possible recognition of the surgical lesion and the technique of its treatment. The early recognition of the surgical lesion is really more of a medical problem than it is surgical. This, in itself, constitutes a problem of no small magnitude, inasmuch as it includes the education of the public. The laity must be informed, to a certain extent, in regard to the signs and symptoms of those diseases for which at the present time they do not seek the advice of their family physician, the general practitioner. The results obtained by associations organized for the study and prevention of tuberculosis show the value of a propaganda for public instruction along these lines. The surgical diseases about which the public should receive instruction are numerous. The first dressing of a wound is one of the most important factors in the prevention of infection. Incipient cancerous lesions, especially when located upon exposed mucous membranes of the skin, are apparently insignificant—so much so that very few persons seek professional advice before the lesion has grown and has reached a stage of lymphatic involvement. Women should be educated in regard to the possible significance of uterine hemorrhage, if the results of operation for cancer of the uterus are to be improved. Side by side with this education of the public must progress the education of the general practitioner in the recognition of the earlier signs and symptoms of surgical lesions.

The technique of treatment has been designated the second factor in the progress of surgery. The surgical treatment which promises the best immediate and permanent results in the largest number of cases must be undertaken earlier, and must depend upon a more accurate diagnosis. The earlier the treatment is instituted the more difficult is the subject of diagnosis. In order to attain the requisite skill in diagnosis the surgeon must study not only his own results but the results of his colleagues throughout the world. A fortuitous trend of the times is the greater tendency for surgeons as well as physicians to spend time at post-graduate work and in attending upon the clinics held in the larger centres of population. This tendency is bound to lead to better days in both medicine and surgery.

I wish to emphasize the importance of greater solidarity in the organization of the Ontario Medical Association. I am firm in the belief that this association should preserve its autonomy. There should be a more intimate relation between the provincial association and the county associations. A requirement for membership in the provincial organization should be membership in good standing in the local society.

This will improve the personnel of the Ontario association. The members of the local society are in much better position to judge as to the professional and social standing of applicants for membership than is this association and, furthermore, qualification for the Dominion Medical Association should depend upon good standing in the provincial association. Such procedure would go a long way towards making the medical profession of the Dominion a united body, able to accomplish all that can be accomplished by unity of action. I hope soon to see the day when this matter will be considered seriously, and when the provincial and local societies will prove a greater stimulus to each other than in the past.

This province has enjoyed a reputation for its high standard of entrance upon the study of medicine. The standard should be still further advanced. In the first place, we should have a uniform entrance as well as graduation standard for all candidates who would practice medicine and surgery. The minimum of matriculation should be a degree in arts from a recognized university, and such degree should be required to include special work in the natural sciences and modern languages, and also Greek, inasmuch as this latter language is the international language of science, and especially medicine.

I further hold it that osteopaths and homeopaths should be required to take the same examinations as regular candidates. The only exception being modes of treatment, except surgical, for which all should be required to pass a uniform examination.

We have this spectacle—of two or three defunct universities with representation on the Ontario Medical Council Board. This should not be. Only those institutions actively engaged in the teaching of medicine should be represented on the Ontario Medical Council.

Some overzealous friends of the provincial university have urged the claims of that institution that its graduates be granted license to practice upon the presentation of their graduation diplomas, without further examination. I am utterly opposed to this. Not that I have any ill-feelings against the medical department of the University of Toronto, which I consider one of the best on the continent, but I consider such action would be unfair towards the medical department of Queen's University and the Western University, both institutions of which have been strong in their endeavors to uphold the standards of medical education in this province.

Medicine, let me repeat, is a science of practical utility. It found its origin in the necessity of relieving human misery. It was, at its birth, but a simple and rude empiricism. When we behold that to-day, with the most rigorous and exact methods, that the natural sciences can place at our disposal when we contemplate that our scientific efforts have already won a well-attested success, by means of incorruptible statistics when

we realize by what means medicine is now able to protect the life and health of the individual, and how it can save a whole continent from the ravages of epidemics when, in fine, our hearts may, with just pride, exult at this noble conviction—that no other science is as generous and as altruistic as that of medicine. It is not the solemnity of this moment, it is not the éclat of this meeting, that force me to make the assertion that each of our confreres and collaborators, the youngest as well as the most modest, even he, whose name is yet unknown, and who seeks in the seclusion of a laboratory the thread of a truth, the solution of a problem, the answer to a question that he has asked himself each, has reason and right to exclaim “It is an honor, a privilege, and a joy to be a physician!”

THE RELATIONSHIP BETWEEN THE DUCTLESS GLANDS AND CARBOHYDRATE METABOLISM.*

By THOMAS B. FUTCHER, M.B., Baltimore, Md.

IN accepting the kind invitation of the chairman of the Medical Section to address this association, it seemed that it might be profitable to review a field which has been made fertile by the researches of many workers in an effort to throw light on a problem which, as yet, is only partially solved. It occurred to the writer that a review on the subject of carbohydrate metabolism, with especial reference to its bearing on the etiology of diabetes mellitus, would be of interest not only to the physician, surgeon, and obstetrician, but also to the physiologist and pathologist. As the subject is such an enormous one, I have decided to confine myself to a consideration of the influence of the ductless glands on the warehousing of the ingested carbohydrates. Since the scope of such a paper must necessarily be limited, a review of the investigations carried out along these lines must consequently be brief and rather fragmentary.

The glands that I have considered are the pancreas, adrenals, thyroid and pituitary. At this point an explanation is necessary. The pancreas in the ordinary sense is not a ductless gland, but, as we shall see later, it contains innumerable small groups of cells, which are really ductless glands, whose function is entirely different from the ordinary acini of the pancreas, and whose secretion passes directly into the surrounding vessels. Further, it remains to be shown whether the pituitary is in a true sense a ductless gland, for, as we shall subsequently see, Cushing has almost conclusively shown that the pituitary secretion is poured directly into the cerebro-spinal fluid rather than into the blood stream.

* Address in Medicine, Ontario Medical Association, May 13, 1911.

For a proper appreciation of what happens in true diabetes mellitus, or in a temporary glycosuria, a brief statement of our present conception of carbohydrate metabolism in the normal individual is necessary. Although Pavy and others deny Claude Bernard's glycogenic function of the liver, until more convincing evidence is brought forward we must accept this theory, and still accord to this organ the important duty it is believed to perform in the disposal of the carbohydrates taken in the food and those metabolized from the ingested proteids. According to most physiologists, the carbohydrates eventually reach the liver by way of the portal vein, largely in the form of glucose, or grape sugar, and are there converted by the liver cells into glycogen. The glycogenic function of the muscles is also generally accepted, and it is believed that the whole muscular system contains an amount of this polysaccharia equivalent in weight to that contained in the liver. The muscles, therefore, constitute a second great reservoir for the storing up of a supply of carbohydrates. When the system demands more fuel to produce energy and heat, the liver reconverts the glycogen back into glucose by the action of a special enzyme produced in the liver cells, and this glucose reaches the systemic circulation by way of the hepatic veins.

In the normal individual it has been shown that at all hours of the day the glucose in the circulating blood ranges within narrow limits, variously stated as being between 0.1 and 0.15 per cent. and 0.1 and 0.2 per cent. Why is it that after a meal rich in carbohydrates this normal glycaemia is still present? It is due to the fact that the surplus of glucose is stored up in the liver and muscles as glycogen, and is only slowly reconverted again into glucose and given up to the system as the latter demands it. It has been supposed that the ultimate combustion and disposition of the carbohydrates takes place in the muscles. The actual means by which this is brought about has been the subject of innumerable investigations by physiologists for years. We shall see later whether a satisfactory explanation has been found. Whenever, for any reason, the percentage of glucose in the circulating blood reaches more than 0.2 per cent. we get a condition of hyperglycaemia, and the excess passes over into the urine and produces either a transitory glycosuria or a permanent glycosuria, as in diabetes mellitus. In marked cases of the latter disease the percentage of glucose in the circulating blood may reach as high as 0.5 to 0.7 per cent. One can conceive of such a hyperglycaemia occurring chiefly in one or two ways—either as a result of overproduction or, what is much more likely, a deficient combustion of glucose. The problem as to how this hyperglycaemia occurs is the one that has for so long occupied, and still occupies, the attention of those who have made a special study of the etiology of diabetes. We shall endeavor to see whether the study of the functions of the ductless glands has thrown any light upon this puzzling question.

THE ISLANDS OF LANGERHANS AND CARBOHYDRATE METABOLISM.

The first observed to suggest a relationship between the pancreas and carbohydrate metabolism was Thomas Cawley, who, in 1788, found calculi in the pancreatic duct and marked atrophy of the gland in a fatal case of diabetes. This clinical relationship has since been amply confirmed. It remained for Minkowski and von Mering, whose brilliant experiments were published in 1889, to demonstrate in animals that an intact pancreas was absolutely essential to normal carbohydrate metabolism. They showed that complete extirpation of the gland in dogs and other animals was invariably followed by the development of a typical diabetes mellitus, with all its characteristic symptoms as seen in man, including a fatal acidosis. If one-tenth of the gland were left intact, diabetes did not develop. They were not aware at the time of the true explanation for the occurrence of diabetes in the pancreatectomized animals, nor of the reason why it did not occur if sufficient of the gland were left behind. In 1892 Lépine of Lyons, was the first to suggest that the pancreas produced an internal secretion containing a "glycolytic ferment," which was necessary for the proper burning up of the glucose in the tissues.

The year 1900 marks a new era in our knowledge of the etiology of diabetes. In that year Opie published from Welch's laboratory a pathological study on interstitial pancreatitis, in which he, for the first time, demonstrated a connection between the islands of Langerhans and diabetes. These groups of cells were first described by Langerhans in 1869, but little or no attention had been paid to them. They were composed of columns of cells, having no communication with the ducts of the gland, but being in intimate relationship with a rich capillary network. They are about the size of a kidney glomerulus, measuring 0.2 mm. in diameter. The islands are situated for the most part in centres of the ordinary gland acini, and are quite distinct, structurally and functionally, from them. They are distributed throughout the whole gland, but are more numerous in the tail than in the body or head. In tissues treated with Müller's fluid they appear, under low magnification, as conspicuous points of a bright yellow color. With high magnification they are found to be composed of small polygonal cells, having a round nucleus and homogeneous protoplasm. These islands, therefore, are really ductless glands imbedded in the substance of the pancreas.

Without going into details, it may be briefly stated that Opie found that in a certain percentage of the cases of interstitial pancreatitis diabetes was an accompaniment of the disease. He showed that the diabetes occurred, especially in the interacinar form of pancreatitis, in which the interstitial tissue grows in and surrounds the individual acini, rather than in the interlobular type of the disease. What was of most

importance, however, was the observation that diabetes was associated only in those cases where the islands of Langerhans were practically completely destroyed, and this was naturally most likely to occur in the interacinar type. The thought naturally occurred to Opie to make a systematic histological examination of the pancreas in a consecutive series of fatal diabetes cases. He found that in nearly every instance the islands were almost completely destroyed and had undergone a hyaline degeneration. Ssobolew, working independently, published in 1901 practically identical observations on the relationship between disease of the islands and diabetes. In view of the intimate relationship, in his series, between involvement of the islands and diabetes, Opie was led to conclude that there was a very intimate connection between them and carbohydrate metabolism. Laguesse and Schäfer had previously suggested that the islands furnish an internal secretion in the same manner that the thyroid and adrenals do. Owing to their minute size and the impossibility of isolating them from the rest of the gland substance, it has been practically impossible to produce experimental evidence supporting this view, although Ssobolew claims to have done so. Occurring as ductless glands, and being surrounded by a rich capillary network, it is extremely probable that these islands secrete some substance—call it a “glycolytic ferment” after Lépine if we will—which enters the circulating blood, and which is necessary for the proper combustion of carbohydrates in the system.

From what has been said it will be perfectly obvious to everyone *that* a careful microscopic examination of the pancreas is necessary before excluding it as a cause of diabetes. The gland on macroscopic examination may appear perfectly normal, while on microscopic study these small islands may be found completely degenerated, the remainder of the gland structures being perfectly intact. Opie's observations have been confirmed by numerous observers on this continent and abroad, but it must be pointed out that a number of instances have been recorded in which diabetes has occurred without any microscopic changes in the islands having been found. These negative results are subject to two interpretations. One inference is that all cases of diabetes are not actually of pancreatic origin, which is probably true. The other is that, although the islands show no microscopic change, they may be functionally inactive and fail to secrete their specific enzyme, just as we may have a functional inactivity of the oxyntic cells in the gastric mucosa with resultant acidity of the gastric juice.

Following closely upon these important researches. Otto Cohnheim, in 1903 and 1904, published results of experiments which seem destined to solve the problem of how the glucose of the circulating blood is ultimately burnt up in the body. This is the mystery which has puzzled

physiologists for generations. By means of the Buchner press it is possible to compress the juice out of all the cells of any gland or fibre of any tissue. In this way he secured quantities of juice from the pancreas and muscles of cats and dogs. With each of these juices he first experimented separately. Each juice when added alone to a solution of glucose is inactive. When, however, muscle juice and glucose solution were first mixed together, and then the juice of the pancreas added, there was a rapid and complete conversion of the glucose into carbonic acid and alcohol. Cohnheim at first thought that the chemical change that occurred was analogous to Pawlow's researches concerning the relationship between trypsinogen, the proteid enzyme of the pancreas, and proteid digestion in the intestine. Pawlow found that trypsinogen itself was inactive on proteids, but when it came into contact with the "enterokinase" of the intestinal juice it was converted into trypsin, which then caused rapid digestion of the proteids. Cohnheim believes that the ingested carbohydrates are finally burnt up in the muscles. He holds that both the pancreas and the muscles produce substances that are necessary for normal carbohydrate metabolism. He was led at first to the belief that these substances were of the nature of enzymes or ferments. According to this hypothesis, he held that the muscles produced a proenzyme which requires the action of another ferment, produced by the pancreas and contained in its internal secretion, before it can become active on carbohydrates. Later researches convinced Cohnheim that the activating body produced by the pancreas was really not a ferment. It withstood boiling, and was soluble in 96 per cent. alcohol, but not in ether. He consequently concluded that it was closely related in its characteristics to such other well-known secretions as adrenalin, iodothyryn, and secretin. An interesting feature is that an excess of this pancreatic product hinders, and, when present in large quantities, absolutely prevents, carbohydrate combustion. Cohnheim suggests two explanations for this remarkable finding. The first is that the pancreas produces two substances, one of which favors and the other hinders sugar combustion. For various reasons he sets this aside as a possible explanation. The second is based on the observation of Neisser and Wechsberg, that the destruction of bacteria by a bactericidal serum is due to the combined action of amboceptors and complement, and that an excess of amboceptors destroys the bactericidal action of the serum. By analogy, he suggests that by adding an excess of pancreas juice to a mixture of glucose solution and muscle juice, an overabundance of amboceptors is provided, thus destroying the glycolytic action of the two juices.

Cohnheim's work seems to have pretty well withstood the attacks of various workers up to the present time. The claims of Claus and

Embeda that the sugar destruction was due to the effect of bacterial contamination seems to have been amply disproved. Rahel-Hirsch has confirmed Cohnheim's research. His observations would seem to show that tissues other than the muscles—for example, the liver—yield a substance which can be rendered active by the pancreas juice and then cause rapid destruction of glucose.

Cohnheim's researches undoubtedly have gone a long way toward solving the problem of the ultimate disposal of the carbohydrates in the normal individual. In combination with Opie's investigations they seem to afford a satisfactory explanation for the occurrence of the hyperglycaemia in diabetes. There seems little doubt but that the activating agent produced in the pancreas is a product of the islands of Langerhans. When these are destroyed, as they are in such a large percentage of diabetic patients, the substance produced by the muscles, and possibly other tissues, is not converted into the form which is necessary for it to be capable of burning up the glucose in the muscular tissues. Consequently a hyperglycaemia, with more than 0.2 per cent. of glucose in the circulating blood occurs, and a transitory or permanent glycosuria ensues.

Although these investigations have thrown a flood of light on normal carbohydrate metabolism, as we shall later see, the problem is not a simple one, as the other ductless glands have been shown to have a marked influence on the warehousing of the carbohydrates in the system.

• THE THYROID AND CARBOHYDRATE METABOLISM.

Every observer who has had a wide experience with diseases of the thyroid gland has been impressed by the fact that in hyperthyroidism and hypothyroidism there is marked disturbance in the carbohydrate metabolism in many of the cases. F. Kraus, Ludwig, Chvostock, and others have observed that spontaneous glycosuria is not uncommon in exophthalmic goitre. Moreover, it has been shown that the administration of small amounts of carbohydrates in this condition often cause an alimentary glycosuria. In other words, in over-activity of the gland the tolerance for carbohydrates is reduced. Glycosuria in animals is not uncommon as a sequel to ether administration. Gray and De Sautelle have shown that when the thyroid is removed the amount of glucose put out in the urine, under the above conditions, is strikingly less, demonstrating that when the restraining influence of the thyroid is thus removed the pancreas is more efficient for carbohydrate metabolism.

On the other hand, in hypothyroidism, myxedema, the occurrence of spontaneous glycosuria is so rare as practically never to occur. Hirsch found that in an outspoken case of myxedema the administration of 200 to 500 grams of grape sugar did not produce alimentary glycosuria.

This would seem to show that the tolerance for carbohydrates in this disease is increased two to five times. Knöpelmacher has confirmed these findings, and has shown that the limit of sugar tolerance sinks to the physiological level as improvement takes place under treatment with thyroid.

King has recently conducted some interesting experiments which seem to adequately explain how the thyroid gland influences carbohydrate metabolism. Following the line of Cohnheim's experiments, he added together weighed amounts of crushed muscle, pancreas, and dextrose. He then carried out three series of experiments. He first added a weighed quantity of normal thyroid gland and found that there was a decided lessening of the breaking down of dextrose by muscle and pancreatic juice as compared with the control. The same experiment was carried out with boiled thyroid with identically the same action as with the unboiled gland, *i.e.*, a very definite retardation. This showed that the substance is not a ferment, but is thermostabile, in that it resists boiling. The next series of experiments was made with the active principle of the gland, the iodothyron of Baumann, and revealed the fact that the retarding effect on the breaking down of the glucose was even more striking than when the whole gland was used. To use King's words: "These results, therefore, show that the thyroid gland influences definitely the carbohydrate-destroying mechanism of the body, and render intelligible the clinical findings in myxedema and exophthalmic goitre. Increased activity of the thyroid we should expect from the above experiments to be associated with a decrease in the power of the carbohydrate-destroying mechanism, and such is clinically shown to be the case by the finding of glycosuria in Graves' disease."

"Decreased activity of the thyroid should, on the other hand, at least not diminish the power of the carbohydrate destructive mechanism of the body, and this view is rendered very probable by the rare occurrence of glycosuria in myxedema, and, in addition, by the extremely high assimilation limit for dextrose in this condition."

From the foregoing it will be seen that we have an example of the retarding action of the active agent of one ductless gland on that of another (it being taken for granted that the active agent of the pancreas is provided by the islands of Langerhans). It will be of interest in this connection to discuss at this point the noteworthy work of the members of the Vienna School—Falta, Eppinger, and Rudinger—who have devoted especial attention to the study of the inter-relationship of the action of the ductless glands. They have correlated their results, and have come to the following conclusions:

1. The thyroid and pancreas mutually retard the action of one another.

2. The pancreas and chromaffin system mutually retard the action of one another.
3. The thyroid and the chromaffin system mutually increase the action of one another.

THE ADRENALS AND CARBOHYDRATE METABOLISM.

Although clinical experience has given us little or no evidence from which we could draw the conclusion that the adrenals materially influence carbohydrate metabolism, yet laboratory experiments have adduced ample testimony that they do. In 1901 Blum reported that the subcutaneous injection of an aqueous extract of adrenalin produced glycosuria in 22 out of 25 animals experimented upon. Herter, in the following year, published the results of a series of instructive experiments, in which he showed that the subcutaneous, intravenous, and intraperitoneal injection of adrenalin chloride solution into dogs was almost invariably followed by glycosuria. He demonstrated that marked glycosuria followed the application of small quantities of adrenalin directly to the pancreas—quantities which when applied locally to other parts of the body either gave rise to no excretion of sugar or to a trivial glycosuria.

Zuelzer has shown that an antagonistic action exists between the adrenal secretion and the so-called internal secretion of the pancreas. He found that when normal blood was allowed to flow through the liver of a dog whose pancreas had been extirpated the sugar in the urine increased from 50 to 70 per cent., but this percentage was decidedly increased when the liver used was from a dog in whom suprarenal diabetes had been previously induced. He thinks that the internal secretions of the pancreas and adrenals react upon each other within the liver in such a way as to maintain the normal sugar elimination. When the pancreatic secretion is wanting, as in pancreatic diabetes, the unhindered adrenalin produces an increase in the sugar. When the function of both the pancreas and the adrenals was destroyed, glycosuria failed to occur. After the pancreas was removed and the suprarenal veins were ligated there was again an absence of diabetes. Zuelzer has experimented upon a very large number of pancreatectomized animals, and, except when the suprarenal veins were also tied off, glycosuria always followed. He is convinced that one of the most important functions of adrenalin is its effect on sugar metabolism in the liver. The adrenal and pancreatic secretions seem to be antagonistic in their action so far as carbohydrate metabolism is concerned.

Lépine, in working on a method of estimating the functional activity of the pancreas, in regard to both its internal and external secretions, has made some interesting observations, which have a bearing on this

interaction of the internal secretion of the two glands. It has been found that a weak adrenalin solution instilled into the eye of a pancreatectomized animal causes mydriasis. Fifty-five percent. of the eighteen diabetics into whose eyes Lépine instilled adrenalin showed dilatation of the pupil; whereas, in thirty non-diabetic persons so tested only two showed dilatation of the pupils. The inference from these results is that in over one-half of the diabetics tested there existed, in all probability, some abnormality of the internal secretion of the pancreas, and consequently the effect of the adrenalin in dilating the pupil was not hindered. The test may, therefore, prove of value in helping to determine clinically whether we are dealing with a case of pancreatic diabetes or not. If, on instilling adrenalin solution into the eye, dilatation of the pupil results, we must be strongly suspicious that the islands of Langerhans are largely destroyed or functionally inactive.

THE PITUITARY GLAND AND CARBOHYDRATE METABOLISM.

One of the most important contributions to our knowledge of carbohydrate metabolism has recently been furnished by the brilliant researches of Cushing and his co-workers, who have shown that the pituitary secretion has a remarkable influence on carbohydrate tolerance. Until a very recent date the hypophysis was believed to be a functionless structure. Cushing and his assistants—Crowe, Homans, and Goetsch—have shown that complete hypophysectomy in animals is invariably fatal. Clinical observations and the knowledge acquired from surgical operations for diseases of the gland in man confirm these laboratory results. A thorough consideration of our knowledge of the influence of the gland on body growth, and the physiological action of pituitary extract is beyond the scope of this paper. Consequently only those phases which have a more or less direct bearing on the subject under consideration can be dealt with.

A brief account of the anatomy of the gland will be of interest. Following the description of Herring, we speak of three divisions—the anterior lobe, or *pars anterior*; the posterior lobe, or *pars nervosa*; and the modified cellular structure derived from the anterior lobe, which surrounds the posterior lobe, and extends upward along the stalk of the infundibulum—the *pars intermedia*. The anterior lobe is derived from the pharyngeal pouch described by Rathke in 1838, and is consequently of ectodermic origin. The gland is situated in the *sella turcica*, and, when normal, is very small, its weight being 0.6 grams. The anterior lobe resembles the thyroid somewhat in structure. It is extremely vascular, the blood supply being derived most probably from branches of the carotids. The cells of the anterior lobe are classified according to their

ability to take stains. Some are chromophile (either of the eosinophilic or basophilic variety) and the remainder chromophobe.

"In the *pars intermedia*, investing the posterior lobe, the cells are of a different type, without eosinophilic granules, and it is here chiefly that one finds a tubular or acinous distribution of cells which have a tendency to secrete colloid, resembling in appearance the secretion characteristic of the thyroid gland. These cells are seen, under certain circumstances, actually to invade the *pars nervosa*, into which the product of their secretion is directly discharged, whence, as Herring first pointed out, it seems to pass through tissue channels towards the infundibular cavity, to find its way ultimately between the ependymal cells into the cerebrospinal cavity of the third ventricle." (Cushing.)

The *pars nervosa* is composed of neuroglia and ependymal tissue, and serves probably to transmit the secretion of the *pars intermedia* and perhaps of the anterior lobe.

The researches of recent years have shown that pituitary extract possesses very powerful physiological properties. Oliver and Schafer showed that it caused marked increase in the blood pressure from action both on the peripheral blood vessels and the heart. It is a powerful diuretic. Both these properties are attributable to the posterior lobe. Injections of extract of the anterior lobe cause an increase in temperature. Over-activity of the anterior lobe leads to gigantism if this occurs during the period of an individual's growth, and acromegaly if it occurs only after the usual period of growth is over. Absence or disturbances of the secretion produce the so-called "Froehlich's syndrome," described by this writer in 1901, and to which he gave the name *dystrophia adiposogenitalis*. It is characterized by small stature, amenorrhœa, infantile genitalia, hypotrichosis, and an excessive disposition of fat. Cushing and his associates have reproduced experimentally an exact counterpart of this condition in hypophysectomized puppies.

It is only within the last few months that it has been definitely demonstrated that the posterior lobe of the gland has a most powerful regulating influence on carbohydrate tolerance. Although Marie first described acromegaly in 1886, it was not until 1889 that he pointed out its association with pituitary enlargement. Since that date numerous observations have shown that carbohydrate metabolism is materially disturbed in acromegaly. Out of 176 cases of the disease reported in the literature up to 1908, Borchardt found that glycosuria occurred in 35.5 per cent. of the cases. He conceived the idea that this glycosuria might be the result of a perversion of the pituitary secretion. He proceeded to demonstrate this experimentally by injecting extract of hypophysis obtained from men and horses into dogs and rabbits. In dogs although after large doses of this extract glycosuria sometimes occurred, no uniform

result was obtained. In rabbits, however, a glycosuria varying from the slightest trace of sugar to 4.2 per cent. occurred constantly. Two rabbits showed a hyperglycaemia. As a result of his experiments, Borchardt was led to conclude that the glycosuria associated with acromegaly was possibly due to over-activity of the hypophysis.

It remained for Cushing and his associates—Goetsch' and Jacobson—to solve the problem of the influence of the pituitary secretion on carbohydrate metabolism. They find that it is the posterior lobe that exerts this influence. For a few hours to a few days after removal of the posterior lobe of the pituitary gland they observed that there may be a temporary glycosuria or a lessened tolerance to ingested cane sugar. This is followed later by a great increase in the animal's tolerance to saccharose, so that the animal is capable of warehousing two or three times as much as was found to be its normal tolerance before operation. They are of opinion that the normal tolerance of animals and also of the human individual is dependent upon the effect of the pituitary secretion, which eventually reaches the circulatory blood. Cushing has shown that the secretory product of the posterior lobe of the hypophysis enters the cavity of the third ventricle by way of the infundibulum and becomes dissolved in the cerebro-spinal fluid, a medium which passes from the ventricle to the subarachnoid spaces and thence in all probability enters the blood stream by way of the dural spaces. That it is contained in the subarachnoid fluid he has repeatedly shown by causing a glycosuria or a lowered tolerance by injecting the fluid into dogs. The glycosuria or diminished tolerance just after operation is believed to be due to an increased amount of pituitary secretion being forced into the cerebro-spinal fluid by manipulation. The phenomenon is analogous to the increased symptoms which follow thyroidectomy after the operative treatment of exophthalmic goitre.

Cushing comments on the discordant results that different observers have found in the study of carbohydrate tolerance in acromegaly. Some have found, as already stated, an actual glycosuria; others only a diminished tolerance, and still others decidedly increased tolerance. He is of the opinion that these discrepancies are entirely dependent upon the stage of the disease at which the case comes under observation. He holds that the adenomas or other tumors of the anterior lobe of the pituitary, which cause the characteristic features of acromegaly, also produce hyperplasia and over-activity of the posterior lobe in the early stages (hyperpituitarism), with the result that an excess of the secretion reaches the circulation and a lowered tolerance to carbohydrates ensues. In the later stages a hypoplasia, with partial destruction of the posterior lobe and consequent lack of its secretion, occurs, with the result that there is an increased tolerance to carbohydrates.

Clinical observation on cases of infantilism (hypopituitarism) in the human individual confirm the correctness of Cushing's theory. Since we know that this remarkable condition is due to absence of the secretion of the pituitary, we would expect the tolerance to carbohydrates to be markedly increased. Feeding tests with glucose prove this to be the case, for the patients can ingest three to five times the normal amount of glucose without glycosuria resulting. It should be emphasized here that in the experimentally produced infantilism of dogs the carbohydrate tolerance is also markedly increased. The deposition of fat in human infantilism, as well as that experimentally produced in dogs, is directly dependent on this increased tolerance to carbohydrates, and is probably due to lowered powers of oxidation in the tissues, with consequent conversion of the ingested carbohydrates into fat instead of into their customary end products.

Cushing has shown that injection of pituitary extract into dogs causes regularly a glycosuria, and the blood shows a hyperglycaemia, as proven by quantitative analysis. He suggests the explanation that this hyperglycaemia and glycosuria may be due to the pituitary secretion causing an increased glycogenolysis in the liver. Whether this be the true explanation or whether it be due to the pituitary secretion having an inhibitory action on the special internal ferment of the pancreas remains to be demonstrated by further experiments.

It will be readily seen that these researches of Cushing and his pupils have a most important clinical bearing. "As polyuria is apt to be associated with these pituitary lesions, whether experimentally produced or the outcome of disease, a clinical picture readily mistaken for diabetes mellitus or insipidus may be present. It is not improbable, furthermore, that the temporary glycosurias following fractures of the base of the skull are induced by trauma of the posterior lobe or its infundibular attachment—glycosurias in other words which are comparable to and which follow on the operative manipulation of these structures." (Cushing.)

From the foregoing it is obviously apparent that the question of carbohydrate metabolism in health and in diabetes is a complicated one. Every year new light is being thrown on the problem. While positive proof that all cases of diabetes are due to disturbance of the normal function of the pancreas is still lacking, yet it is the conviction of the writer that eventually it will be shown that most, if not all, of the cases are due to absence of the special internal secretion of the pancreas or to interference or retardation of its function by the active principle of some one or other of the various ductless glands. Although, as yet, these researches have given us little assistance in the treatment of diabetes along the lines of organo-therapy, yet the writer is encouraged in the belief that the future holds out the prospect of encouraging results in this direction.

ONTARIO MEDICAL ASSOCIATION.

THIRTEENTH ANNUAL MEETING, NIAGARA FALLS, 30TH
AND 31ST MAY AND 1ST JUNE, 1911.

The association met at 10 a.m. on Tuesday, 30th May, 1911, for the purpose of registering members. The meetings throughout were held at the Clifton House.

At 2 p.m. the president, Dr. H. R. Casgrain, of Windsor, delivered his address.

SYMPOSIUM ON APPENDICITIS.

Pathology With Lantern Slides.

N. T. Maclaurin, Toronto.—Researches by Askof on 1,000 cases showed this disease to be commonest between the ages of 10 and 40 years of age; cases occur before and after these ages, but the chances decrease as the patient gets older. Males are affected twice as often as females. Increased blood supply from the appendiculo-ovarian artery probably accounts for this.

Heredity does not play any part in the causation of the disease. According to some authorities occupation does not predispose to appendicitis; it may be brought on by fatigue, irregular meals, and exposure to cold, causing congestion of the organ; it can also be caused by strains, violent purgation, and blows over the cæcum. Foreign bodies do not seem to be of much importance as a cause, although bristles, hairs, bits of lead, sand granules, and worms, etc., have been found in the diseased organ. The shape is very important, as kinks and bends may cause congestion or obstruction to the onward flow of its contents. The presence of feces, rather than being a cause, may prevent infection by protecting the glands of Lieberkuhn and the mucous membrane. Fecal calculi are formed in the appendix itself and contain mineral salts; these cause desquamation of the cells and an increase in the number and virulence of the organisms. The calculus *per se* is harmless; some say it causes the inflammation, while others state that the inflammation causes the calculi. By occluding the lumen, irritating the mucous membrane, and increasing the virulence of the organisms, they may cause appendicitis; on the other hand, they may prevent perforation by keeping back internal pressure from the apex. The micro-organisms oftenest found in the early acute cases are the streptococci and bacillus coli communis. One investigator states that in 90 per cent. the *b. coli communis* and 50 per cent. streptococci were found.

The little emboli found in the vessels of the removed organ, the so-called hematogenous cause, according to Ashof, are due to trauma while removing the organ.

Appendicitis is caused by kinks and stenosis, keeping up congestion; faecal matter, concretions, tumors (rare), foreign bodies, etc., block the lymphatics, cause hypertrophy of the organ and a deepening of the grooves; this, in turn, causes an increase of mucus that forms pabulum for the invading organisms.

According to Ashof, three-fourths of all people suffer from appendicitis some time during their life.

Surgical Treatment.

H. A. Bruce, Toronto.—Operation is the only safe and sure cure. The so-called medical treatment may give temporary relief, but a recurrence is liable to occur at any time, and maybe at a time most inopportune to the patient, when he may be far away from good surgical treatment. Even in mild cases we get abscess formation, which is only cured by operation.

Appendicitis may be divided into acute and sub-acute classes, the acute being again subdivided into (a) simple acute; (b) with perforation; (c) with gangrene; (d) with localized abscess; (e) with general peritonitis; (f) the acute fulminating in which there is no time for adhesions to form and we get a general septic peritonitis.

The simple may be cured by the so-called medical treatment—ice-bag, rest, abstinence from food, etc. The danger, however, is in the occurrence of a future attack. There is no mortality in early operation in these cases; the danger is not so great as in delay. For acute appendicitis the treatment is removal at the earliest possible moment; there is no time limit, as a general rule—judge each on its own merits. Early operation is the best of all. Do not wait for a more favorable opportunity; we do not know what is going on inside; we can only guess at the pathological condition; we may not get abscess formation nicely walled off, but general peritonitis may follow. Nature provides anti-bodies to combat the infection. Rather than trust to the uncertainties of nature we prefer opening the abdomen, walling off with gauze as a protective, remove the source of infection, and thus assist nature and prevent complications. The best incision is along the outer border of the right rectus muscle; for early operation a small incision is best; a long one is certainly harmful; the gridiron incision leaves a strong abdominal wall, and we can drain here without fear of a hernia. For removal use a strong clamp on the base of the appendix; use a purse-string suture, and invaginate the ribbon-like stump; the use of carbolic or the tying of the stump are

unnecessary. To make sure that the stump is well out of the way put on a second purse-string, then sew the mesentery to the cecum; manipulate the bowels as little as possible; do not bring them out upon the abdominal wall if it can be avoided; use no antiseptics to the peritoneum; for closing use layer sutures; have the patient sitting up within a week and out of bed in ten days; have them up as early as possible in interval cases; the earlier we get them up the earlier we get them back to work; the longer they are kept in bed the longer it takes to get them back to normal.

For an acute case we make our incision along the outer border of the right rectus, pack off carefully with gauze; if an abscess has formed, remove the appendix, if one can do so without breaking down the natural adhesions; in any case remove the appendix before the patient leaves the hospital, and close the abdomen so as to guard against a future attack.

In case of acute fulminating, open the abdomen, remove the appendix, and drain with two drains, one in the pelvis and one in the appendix region; rubber tubes may cause ulceration of the bowel and set up a fecal fistula; better not use them at all, but use cigarette drains instead; if, however, rubber tubes are used, they should be removed within 24 hours.

One cannot emphasize too strongly the importance of Fowler's position for drainage in these cases.

Non-surgical Treatment.

R. D. Rudolf, Toronto.—Some say always operate; others say never operate except in case of pus formation. Until recent years the treatment was entirely medical, and in those days of up-to-date surgery we find that the death rate from appendicitis constantly on the increase. In England in 1901 the reported deaths from this disease were 1,244; in 1902, 1,485; in 1903, 1,729. In Ontario in 1898 there were 384 deaths reported, while in 1908 there were 429.

It is only fair to judge the results of the general treatment of any disease by its death rate. For example, since the introduction of diphtheria antitoxin the death rate has been greatly reduced, while since the general treatment of appendicitis has been surgical the death rate has greatly increased, as shown by the above figures. This increase in death rate may be the result of:

- (a) An increase in the prevalence and virulence of the disease.
- (b) More or less complete abandonment of the medical treatment.
- (c) Surgery as operated to-day not in skilled hands.

The tendency nowadays is for the physician to temporize, and not to use the recognized forms of medical treatment.

As soon as you have recognized the disease, start the following treatment:

1. Absolute quiet and rest.
2. Prohibit water only in sips; absolute prohibition is best.
3. No purging on any consideration.

Relieve thirst by giving normal saline per rectum; for vomiting use lavage; purging causes perforation; Munyon tersely puts it: Pain—aperient—perforation. Oshner says give no cathartics whatever. There will be no perforation if there is no aperient or anything else given by mouth. Purgation usually spells perforation; absolute starvation and the use of opium freely, it lessens the suffering and stops peristalsis. If the pain is not too severe we omit the opium and apply heat or cold, but not both alternately, as this sets up peristalsis. Treat even suspicious cases this way, omitting the opium, as it masks the symptoms. Many practitioners see cases clear up in a few hours under this treatment. The advisability of operation depends upon whether skilled surgery is available or not. The severity of the case may be estimated by the leucocyte count, the pulse, and temperature. With temperature 99, pulse 96, and leucocytes 14,000 the condition is probably catarrhal, while if the pulse, temperature, and respirations are high and the leucocyte count low, look out for general peritonitis. Give opium enough to keep the patient comfortable, avoid long journeys to a hospital or any unnecessary movement of the patient. Oshner says: Feed entirely by enemata, positively omit food by mouth, give absolute rest, salines per rectum for thirst, in every case too early for late and too late for early operation even in perforative and gangrenous appendicitis, and remove them later. He reports a death rate of 2.2 per cent. in a series of 1,000 cases all treated in this way.

When a patient recovers he may never have another attack. Some say take it out after one attack; others say take it out after two or three attacks. There is no fixed rule to lay down. If skilled surgery is obtainable it is wise to have it removed after the first attack has been recovered from. We occasionally get a patient who never gets perfectly well after a first attack; these should have the appendix removed.

During the discussion that followed, Dr. Howitt, of Guelph, emphasized the importance of getting the patient up early. He said that you should never go through the right rectus muscle.

Dr. Cruickshank, of Windsor, made the following pointed remarks: To say that operation is the only treatment of appendicitis is absurd. Where operation is fashionable the death rate is enormous. Ordinary medical treatment, including purges, is worse than surgery. From 25 per cent. to 75 per cent. of the human race have had appendicitis, and therefore these all require operation.

In Boston and New York, where the operation is fashionable, the death rate is much higher than in Vienna.

Purgation is absolutely bad treatment.

There is no specific treatment for appendicitis.

We use common sense instead of drugs.

The appendicitis exists from two to seven days before the onset of pain.

When asked what he would do if he had appendicitis, he said: I would have an operation if (1) the pain is real severe; (2) enough attacks to be a nuisance; (3) abscess or perforation; (4) chronic stomach trouble.

ADDRESS IN MEDICINE.

Dr. Thomas B. Futcher, Baltimore, gave an address in medicine. He chose for his subject "The Relationship Between the Ductless Glands and Carbohydrate Metabolism." He thanked the association for the great honor that had been done him in asking him to give the address.

He took up the functions of the pancreas, the adrenals, the thyroid, the pituitary glands. The opinion was expressed that we must still adhere to the view of Bernard on the Glycogenic function of the liver. When a person takes a meal that is rich in carbohydrates the liver acts as a storehouse, and the amount of glucose in the blood is thus kept down to normal limits. The amount of glucose in the blood ranges from .1 to .12 per cent.

With regard to the pancreas it must be said that the Islands of Langerhans are really ductless glands embedded in the pancreas. When these are destroyed diabetes has been known to ensue. In this respect the work of Opie is very valuable. On macroscopic examination the pancreas may appear normal, but minute study of it will show that these islands have undergone degeneration. In 1904 Otto Conheim found that a combination of pancreatic and muscle juices was capable of converting glucose in carbonic gas and alcohol. He came to the conclusion that glucose is anetabolized by the muscles when pancreatic juice is produced in normal amount and quality.

The thyroid gland plays an important part in the final disposition of carbohydrates. When the gland is too active the tolerance for carbohydrates is reduced, and glycosuria may result. In the opposite condition of hypothyroidism, or myxedema, glycosuria is very rare, if not unknown. The recent done on thyroid proves that it definitely influences carbohydrate metabolism. This explains the occurrence of glycosuria in Graves' disease.

With regard to the adrenals, it was shown by Blum that the injection of an extract of adrenalin caused diabetes. It has also been shown

that this substance in the adrenals is antagonistic to that from the pancreas. When adrenalin dilates the pupils it has been noted the pancreas is at fault, and there is likely to be present diabetes.

The pituitary gland has a very marked influence in giving tolerance to carbohydrates. When the gland is removed the animal dies because of its inability to metabolize carbohydrates. This regulating influence of the pituitary lies in its posterior lobe. The injection of pituitary lies in its posterior lobe. The injection of pituitary extract causes regularly glycosuria. When the gland is removed the animal can tolerate large quantities of carbohydrates.

EVENING SESSION.

In the evening session two very important addresses were given by Drs. Harris, of Chicago, and White, of Pittsburg.

THE RELATION OF LABORATORY WORK TO MEDICINE.

Dr. Norman N. Harris, professor of bacteriology, University of Chicago, gave his paper on this subject. He commenced by pointing out that at one time medicine was held in the clutches of superstition; at another by religion. Then, later, by a metaphysical school, and now by true, scientific workers. This study was very fascinating, and during the history of medicine from time to time there were important discoveries made. The recent developments of the sciences had aided very much. Of all the factors that entered into the progress of medical knowledge none took a higher place than that of the modern laboratory. We have not yet fully realized to what an extent the laboratory has revolutionized the science of medicine.

The laboratory, in the first place, is where inductive method of imparting knowledge finds its place; in the second place, it's where the student receives his best mental discipline; thirdly, it represents applied science; and, fourthly, it is where the research work is being done.

The laboratory has now taken the place of the older method of teaching by didactic lectures. Lectures have their value, but are quite subordinate to this more practical teaching. In the laboratory the student receives his best training along the lines of close observation and the application of science to medicine.

The most important roll played by the laboratory is in the field of research work. It is the great testing shop of ideas and theories. The German ideal, that the true physician must be both a genuine clinician and a thorough expert in laboratory methods, is the correct one. The tendency of the present day is quite clear that the clinician of the future

will first receive a thorough training in the scientific workshop of medicine—the laboratory. This does not mean that the great work of the clinician is under-valued, but the ward must be aided by the laboratory, or, indeed, become a sort of clinical laboratory. This change will create men of better thought and greater power.

PUBLIC AND PROFESSIONAL ASPECT OF THE PNEUMONIA QUESTION.

By Dr. William Charles White, medical director Tuberculosis League, Pittsburg, Pa.—Pneumonia frequently doubles tuberculosis in the number of deaths per month. This is a true and alarming statement, yet millions of money are spent annually in trying to stamp out the latter disease, while very little, if any, is spent publicly in the fight against pneumonia.

Why do we not grapple more successfully with this disease?

1. Our inability to produce lobar pneumonia in animals as we see it in man. In animals we get all conditions from immunity in pigeons to septicæmia in rabbits on injection of pneumococcus.

2. A second difficulty lies in the symbiotic action of micro-organisms which surrounds the action of pneumococcus infection of the human body. The pneumococcus is so frequently associated with other organisms that more than a suspicion is justified that the secondary organisms have some relation to the virulence of the infection. The symbiotic organisms are: *Streptococcus pyogenes*, Friedlander's bacillus, *staphylococcus albus* and *aureus*, influenza bacillus, a pseudo-diphtheric bacillus.

This gives some representation of the task of isolating and segregating pure cultures.

3. The relation of the leucocytes to this infection; whether they exercise a phagocytic function on the pneumococcus is in grave doubt. Ruth Tuncliffe has published the results of her experiments, as follows:

(a) There is an increase in the phagocytic power of the leucocytes in mild cases of pneumonia.

(b) In severe cases the power of phagocytosis is diminished until the patient improves, when it rises above normal;

(c) There is no specificity in the phagocytic power of the leucocytes.

4. Lack of knowledge of the chemical processes which occurs in the lobe of the lung, which bears the assault of the infection and goes through the various stages of gray and red hepatization and resolution. The lung tissue itself will not serve as culture medium for pneumococcus; and it also has some baneful action on tubercle bacilli *in vitro*.

5. Our lack of knowledge of the composition of serum of pneumonia patients, and of these animals that have been rendered, or are naturally immune to this organism.

What we do know positively about pneumococcus:

There is a uniform presence of this organism in the nasal discharges and buccal cavity of practically every city dweller during many months of the year, and it is a striking fact that these are just as virulent as germs obtained from lungs of patients dying of pneumonia. The pneumococcus can live in the dark and dried sputum for 35 days or more, in diffuse light for 30 days, and in sunlight for only a few hours; on cloth it will live longer. We are positive, further, that pneumococci free persons may acquire the germ from positive cases, *i. e.*, those harboring pneumococci, that handkerchiefs, dishes, drinking cups, etc., are capable of transferring the organism; cases of house infection are fairly common. Also we get chronic conditions due to pneumococcus—*e. g.*, chronic endocarditis, malignant endocarditis, arthritis. The disease is a bacteræmia, and has therefore the whole body for a field, and often infects serous membranes; it causes otitis media, meningitis, bronchitis, conjunctivitis, etc.

With such facts, why are we so slow to utilize our knowledge for the suppression of this disease. We should use the same methods as we do for tuberculosis, namely, education, segregation, and fumigation.

The usual objection raised to this suggestion is that the two infections are so different that they cannot be handled in the same way.

This objection seems invalid in view of the following facts: Both are mainly pulmonary diseases; both are the result of organisms that are constantly present within and without the human body; both infections are contracted mainly by inhalation and hastened to their maturity by bad housing, bad food, and unhygienic conditions; both are accompanied by cough and sputum containing myriads of the infecting agent; both are infective through droplets and air-dried sputum; both often result from unconscious carriers of the infection; both are house diseases; both have no specific cure; both have relapses; both produce sickness in lower animals; both become virulent by animal passage; both are capable of life outside of the body for days or even weeks; both remain quiescent in the body for varying lengths of time and both are responsible for secondary chronic conditions.

Knowing these facts, we are very neglectful in (1) not educating the public to this knowledge; (2) handling such patients in hospital wards without segregation of patients or their utensils; (3) neglecting special instructions to nurses, students, and attendants about its infective nature.

The following suggestions seem timely and useful:

Segregation of patients and utensils, cleansing the noses and throats of all attendants by sprays and wash; careful washing of hands of all attendants; careful destruction of sputum and other discharges; steriliza-

tion of linen of patients, fumigation of rooms after occupancy, and the use of gauze, which can be burned, instead of handkerchiefs. Also to have nurses in dispensaries to do home nursing work in all cases of pneumonia.

THE RECEPTION.

After the reading of these papers the president, Dr. H. R. Casgrain, gave a reception for members and guests in the ballroom of the Clifton Hotel. It was well attended, and was a most enjoyable event.

After the reception there was a smoking concert in the convention hall.

SURGICAL SECTION.

In the surgical section on Wednesday morning, 31st of May, and Thursday morning, 1st of June, a number of papers were read and discussed.

Aids in the Diagnosis of Surgical Diseases of the Kidney and Bladder.

Dr. J. K. McGregor gave a paper on this subject. He paid special attention to the information that could be gathered from the direct examination of the parts. The X-ray and the cystoscope are now of the utmost value in revealing certain conditions. The X-ray will show stones in 90 per cent. of the cases. The cystoscope, however, is the most important means of diagnosis. A general anæsthetic is rarely required. A hypodermic injection of morphia gr. $\frac{1}{2}$ before the examination is useful. Alypin, in tablets of gr. $\frac{1}{8}$, several being applied to the urethra, novocaine, or cocaine in 20 per cent. solution are also required sometimes.

The patient is placed on the back, with the hips slightly raised. Thorough antiseptic precautions are taken, both with the patient and the instruments. The cystoscope will reveal the presence of a calculus. The cystoscope is of the utmost value in diagnosing sarcoma, papilloma and carcinoma. It has been held that 90 per cent. of tumors in persons over 50 years of age are malignant. This is the view of Young, of Baltimore, and Mayo, of Rochester. Some other authorities regard most of these growths as benign. As so many of these tumors are malignant, it is best that the cystoscope be used early, so as to settle any doubt there may be.

The meatoscope is of much value in clearing up certain conditions to be found in the anterior portion of the urethra.

The presence of pus or blood in the urethra should be noted. The catheterization of the urethra is fairly easy in normal bladder. There may be considerable difficulty in cases of cystitis, as the parts may be drawn out of position, or hidden behind an elevated tubercle.

There may be obstruction of the urethra from stone or growths or tubercle. By means of the cystoscope the output of each kidney can be secured separately. When there is a hydronephrosis the fluid comes fast at first and then slower. In the normal kidney pelvis the fluid comes in jets. The normal kidney pelvis will contain 7 to 15 c.c. If it contains 25 to 40 c.c. there is likely some nervous disorder. If there be 50 to 150 c.c. there is hydronephrosis. If there be more than 150 c.c. the case will usually require nephrectomy.

The functional action of the two kidneys may be determined by various tests. Of these cryoscopy the injection of indigo carmine, gr. 0.16 in normal salt solution into the gluteal muscle, and the phloridzin test, may be mentioned. Pyelography is a useful means of diagnosis. The patient is cystoscoped and a ureteral catheter passed, and a 5 to 15 per cent. solution of collargol injected slowly, while the radiograph is being taken.

The X-ray is of value in determining between conditions in the kidney and external to it, as gallstones.

A SHORT TALK ON THE SHOULDER, HIP, WRIST, AND ANKLE.

Dr. McKeown, Toronto, took up this subject. Many cases of dislocation of the shoulder joint are unrecognized by the ordinary man. There is only one sure and certain way of diagnosing a dislocation of this joint, and that is by ascertaining the position of head of the humerus. Normally it is situated external to the acromial process: if it is anywhere else it is dislocated. The reduction by Kocher's method is not always satisfactory. It is much better to rotate the arm externally very slowly, taking about five minutes to do it; then it will slip in very easily when the arm is brought across the chest with the elbow flexed.

Colles' Fracture.—The impacted form is often hard to recognize, and, if unable to be broken down easily, it is far better left alone. Some do better who never see a doctor, but simply put on a splint, without any manipulation of the arm. A good way to reduce this fracture is first to bend the wrist away back, using a fair amount of force; then it will be comparatively easy to slip it back to its right place. Once it is set there will be a great deal of difficulty in getting it out again. A splint is unnecessary to retain the fragments in place in any case a splint should not be kept on longer than ten days. Early manipulation of the wrist joint is very desirable.

Hip Fracture.—The important signs of fracture of the hip are crepitus and shortening. Never look for crepitus, as it always causes greater injury, and may break down a slight impaction that may be present. It is impossible to differentiate between an intra and extra

capsular fracture, and it does not matter, as the treatment of both forms is the same. Look at the iliofemoral crease. If it is abolished more or less on the affected side, due to the effusion into the joint, it is a pretty sure sign of fracture. Luckily, impaction usually occurs; therefore, never manipulate, as we are nearly sure to get a poor result in unimpacted cases. Even if the toe is very much everted, leave the position alone. Better to have a leg that will carry weight than a weak one with a nice position.

Pott's Fracture.—The pain in this fracture is due to

1. The foot being too far back.
2. The foot being too far up.
3. The astragalus pressing on the internal lateral ligament by eversion of the foot.

The joint should be moved three or four days after the accident, and every day afterwards; one cannot displace the bones in this way. The patient should walk in three or four weeks. Put up the foot in an over-inverted position, using a Dupuytron's splint.

OPEN METHOD OF TREATING FRACTURES.

Dr. F. N. G. Starr, Toronto, gave a series of lantern slides, showing the results of the open method of treating fractures. The series included fractures of the humerus, head, and shaft: the olecranon; radius and ulna: femur, head and shaft, and the tibia. In cases of a fracture of the leg it is only necessary to plate the tibia as the fibula will then come into position and remain there. The results obtained had been most encouraging. A noteworthy fact was the absence of all pain as soon as the ends were brought into apposition and kept there. He told of one case in which he plated the shaft of the femur, and the patient walked out of the hospital in eight weeks. In every case the results were obtained sooner than is got by the splint treatment. One has to be sure of asepsis, and the rest is easy.

Dr. Wilson, Niagara Falls, said: Plating is the best means of getting excellent results, especially of the thigh and oblique fractures of the tibia and fibula. Pain is relieved at once by perfect apposition of the fragments.

Dr. Primrose, Toronto, said: The important thing is thorough asepsis, and then ordinary skill is sufficient. There are some cases where plating is absolutely necessary—for example, the head of the humerus with the upper fragment rotated outward. He never had a case yet that gave him the least bit of anxiety or worry as to the final outcome. He did not advocate treating all cases in this way, but only those in which we could not get good apposition by the ordinary way. In these open up and either plate or wire.

Dr. W. W. Jones, Toronto, said: Always give an anesthetic in the reduction of fractures, especially in children and near joints. Always have a fellow-practitioner present to share the responsibility. Use considerable force in reducing fractures, especially of the lower extremity. We can often get good results by flexing the limb and taking away the muscular action and spasm.

This paper was discussed by Dr. T. W. E. Wilson, Niagara Falls; Dr. A. Primrose, Toronto; Dr. W. Burt, of Paris; Dr. Ross, Barrie; Dr. Warner Jones, Toronto, and Dr. Ernest Wilson.

THORACIC SURGERY, WITH LANTERN DEMONSTRATION.

Dr. E. Von Eberts, Montreal, in his address, confined himself to the surgery of empyema, and illustrated with a number of lantern slides.

By experimentation on rabbits and dogs in Montreal it was found that by removing the pleura, part of a lung, or even a whole lung, the space was obliterated subsequently by hypertrophy of the part of lung left on the operated side, bulging of the mediastinum, and bulging upwards of the diaphragm. This is especially true on removing the lower lobe. One case was shown where the left upper lobe had been removed, and the space was obliterated by hypertrophy of the right upper lobe, and not by the hypertrophy of the left lower lobe, which was encased in a fibrous sheath and bound down to the thoracic wall. This obliteration only occurs if there is a negative pressure in the space. This is the important principle to recognize and carry out. Have a tension equivalent to or slightly less than the average intro-pulmonic tension.

The persistence of empyemic cavities is due to the pneumothorax, which occurs at the time of dressing, and the greater the pneumothorax the slower the cavity is to fill up.

During inspiration we get negative pressure for a short time, and nature takes advantage of even this brief period to close up the cavity by granulation tissue and not by expansion of the lung. There is also a slight negative pressure produced when the cavity has been packed with gauze at time of dressing.

The tendency heretofore was to ignore completely this physiological principle and fact, and to make the chest wall conform to the cavity, instead of making the thoracic viscera conform to the cavity.

Several schemes have been devised to produce and maintain this negative pressure:

1. Continual pneumatic drainage is good treatment.
2. Some valvular apparatus for allowing pus and air to escape, and preventing ingress of air. There have been a number of these devised, but all are deficient in not continuing to work properly along this line.

At present there are two efficient methods:

(a) Rib-trephining, devised by Dr. Robinson, of Boston.

(b) A special drainage tube devised by the speaker. This tube is made of rather stiff rubber, with a bend on the part to be inserted into the wound. It is conical in shape, so as to efficiently fill the wound.

The tube passes through (from within outwards) a sterile felt pad, smeared with zinc oxide ointment. This is put on the chest wall, then a layer piece of ordinary thin rubber; outside this a harder piece of rubber, all three closely fitting round the tube. This constitutes the thoracic dressing, and is attached by means of adhesive plaster over the middle rubber. Outside this dressing the tube is flexible and softer, and has a valve on it that can be opened and closed by means of a screw. The tube is attached to a glass bulb, and to the opposite end of this bulb is attached a second rubber tube with a valve.

Technique of Operation.—Always use local anæsthesia, cocaine 1 per cent., and, if properly used, the operation can be absolutely painless, even in children.

A circular incision is made; skin flap elevated; muscles split along line of fibres; periosteum incised and flaps raised. Then a special periosteal elevator is used to insert beneath the rib; a curved one, with a groove in it to hold the saw, as a saw is always used instead of bone forceps. Two or three centimetres of rib are resected. The ends of the ribs are then plugged with Horsley's wag to prevent their infection and necrosis, which always takes place in small amounts when bone forceps are used. (The necrosis may be unobserved and go off in the discharge in cases of long suppuration.)

The lower periosteum is now incised, the pleura opened, and the pus escapes. As soon as air begins to go into the cavity plug with one finger. Now the advantage of local anæsthesia is shown in the assistance given by the patient in forcing the pus out of the cavity, holding his breath while you insert a finger or the drainage tube. The tube is always inserted with the inner valve closed. Then attach the glass bulb and a Politzer's air bag to the distal rubber tube. By this means a negative pressure is established. Tighten the outer valve, remove the Politzer, loosen the inner valve, and the drainage is established. The glass bulb shows the kind of discharge and collects the amount. When you wish to change it, close the inner valve, remove the glass bulb, dispose of the discharge (and there is no odor), sterilize, and fasten up again. The tube in the wound is left for three or four days before it is changed, and then it is done constantly by having a second tube ready to insert when the first is withdrawn, the patient helping by holding his breath.

The advantage of the curved tube inside the thorax is to prevent the too rapid filling of cavity by the lung and diaphragm. It has a disad-

tage, however, of causing pain by pressure on the diaphragm. Another cause of pain is pressure of the ends of the ribs on the diaphragm after three or four weeks.

Cases of Acute and Subacute Empyema.—Of peripheral lung abscess, of pyo-pneumo-thorax with lobe of lung collapsed and its function lost by infiltration and adhesions of the alveolar walls, have been treated by this negative pressure device, and in every case the cavity has been obliterated by compensatory emphysema of remainder of lung, bulging of mediastinum heart and diaphragm, and was conclusively shown by a series of lantern slides of X-ray pictures.

In one case of acute empyema the cavity was obliterated in thirteen days. In this class the negative pressure should be kept up for some days after obliteration of cavity in order to be sure that we have firm, plastic healing. During the treatment of any of the cases use the modern hygienic treatment of fresh air and forced feeding during convalescence.

The paper was discussed by Drs. Primrose and Bruce, of Toronto, and Robert Lucy, of Guelph.

TWO CASES OF PHLEGMONOUS ENTERITIS.

Dr. L. W. Cockburn, of Hamilton, reported these cases. He referred to the statement of Moynihan, that acute intestinal obstruction was one of the most urgent conditions the surgeon had to do with. He mentioned that obstruction was one of the most prominent symptoms in these two cases. In both cases an operation was performed. The diseased portion of bowel was removed. Both patients made good recoveries.

These cases were discussed by Drs. Primrose, Gunn, Parry, Ewart Wilson, and Marlow.

CURE OF INGUINAL HERNIA.

Dr. Robert Lucy, Guelph, read a paper on this subject. The incision should be made by beginning one inch external to Poupart's ligament and curving upwards and inwards; it is made to end at the pectineal eminence. This flap is dissected down to the muscle and turned downwards. The sac is invaginated by means of curved forceps into itself. The forceps retain a hold of the invaginated fundus and bring it out through an opening in the abdominal wall one inch external to end of wound, the skin being retracted. The sac is drawn taut, cut off, and the stump dropped back into wound. Goldspohn's and Bassini's technique were mentioned. From outer angle sew external oblique to upper edge of Poupart's ligament down to point where the cord and vessels emerge over pubic bone.

BACILLUS AEROGENES CAPSULABUS.

Dr. R. H. Patterson, of Hamilton, took up the subject of bacillus aerogenes capsulatus. The characteristics of the bacillus were given. The bacillus divides by fission, but it will spore in suitable media. The gas formed by the bacillus contains 64 per cent. hydrogen and 28 per cent. carbon dioxide, and burns with a bluish light. The bacillus has been found in connection with infected uteri, lungs, pleuræ, meninges, and necrosing surfaces. It has also been found in connection with pernicious anemia.

A case was reported of a young man of 33 years of age who sustained a compound fracture and dislocation of the tibia and fibula. The wound was thoroughly cleansed and a drainage left. The conservative treatment is by free incisions and injections of peroxide of hydrogen. The safest is amputation above the line of infection.

Drs. Garrow and Lincoln, of Montreal; Dr. Williams, of London, and Dr. Ewart Wilson, Toronto, discussed the paper.

DIAGNOSTIC VALUE OF THE CYSTOSCOPE.

Dr. George Ewart Wilson, Toronto, read an exhaustive paper on this subject. He referred to the discovery of this useful aid to diagnosis and their varieties. For catheterization No. 22 French is employed, while for examination only No. 18. Before using the instrument one should study its use on the cadaver or on the phantom bladder. It must be borne in mind that objects are reversed in position, though now some instruments correct this. In making the examination the urethra must be made to admit a 22 French; there must be about four ounces of clear fluid in the bladder, and some prefer the urine if it is of average color. The patient should be given ten grains of urotropine three times a day for twenty-four hours prior to using instrument, and a pint of Vichy water half an hour before. For a lubricant glycerine is preferred.

The catheter for the ureter should be a No. 7 French. The opening should be viewed as nearly as possible at right angles.

The reader of the paper gave a careful description of the interior of the bladder and the various objects that would be seen. It is now generally held that there are scarcely any conditions that contraindicate the use of the cystoscope.

A careful description was given of the various diseased appearances that would be met with, such as acute and chronic inflammation and ulceration. The examination of an ulcerated condition is of much importance on account of the possibility of tuberculosis. With regard to tumors, the two varieties met with are papillomata and carcinomata.

In tuberculosis of the kidney there comes to be an irritation at the orifice of the ureter, and the patient may complain only of bladder trouble. In addition to tuberculosis, the cystoscope aids in diagnosis of stone in the kidney. In all cases of blood in the urine the instrument is of much use.

The paper was very fully discussed by Dr. Warner Jones, Toronto; Dr. E. E. King, Toronto, and Dr. Nagle. They gave their technique and methods as to the use of local anæsthetics, etc.

THE SECTION OF MEDICINE.

This section met on the forenoons of 31st May and 1st June. During these sessions a number of papers were read and discussed.

UPPER AIR TRACT INFECTIONS.

Dr McPherson, New York, considered that this subject was coming more and more into prominence. Very many infections found their way into the system through the upper portions of the respiratory and digestive tracts. From these infections in these regions many poisons found their way into the general system.

DIAGNOSIS OF CONDITIONS CAUSING HEMATURIA.

Dr. J. J. Mason, of London, Ont., gave a paper on this subject. Patients with hematuria should be examined thoroughly, both generally as well as locally. Some drugs, such as senna, rhubarb, carbolic acid, and excess of bile pigments and uric acid in the blood, gave rise to a bloody color in the urine. The microscope would distinguish between hematuria and hemoglobinuria. Falls and injuries might throw light on the condition and enable one to arrive at a correct conclusion. The history of certain diseases was also of much importance. Tuberculosis, rheumatism, valvular disease, scarlet fever, septicemia, or influenza might cause nephritis and give rise to hematuria. Certain drugs could also inflame the kidneys, such as cantharides and turpentine. The general examination should be taken up first. All general and local diseases in any part of the body should be noted.

When the urinary system is taken up, it is well to remember that the trouble may not be in that part to which the symptoms point. A patient with renal calculus may have all the bladder symptoms. If the blood is intimately mixed with the urine the source is likely the kidneys. If renal blood casts are present the kidney is bleeding. If the blood comes in a gush at the end of urination and urine and blood combined make up more fluid than normal, the blood is likely from the kidney. If there is

terminal hematuria with cystitis, the blood comes from the bladder. If the bleeding is at the onset and the end urine clear, look to the urethra. If the blood is shaped like a worm, it likely was formed by the urethra.

The kidney conditions giving rise to hematuria are calculus, tuberculosis of the kidney, malignancy of the kidney, chronic interstitial nephritis, acute or sub-acute parenchymatous nephritis, renal infarct, movable kidney, acute suppurative conditions, hemorrhage following catheterization, angioma of renal pelvis, polycystic kidney, and essential renal hematuria.

The bladder conditions causing hemorrhage are calculus, tuberculosis of bladder, tumor of bladder, acute cystitis, varicose veins, and atheromatous arteries.

The prostatic conditions causing hematuria are enlargement of the gland, acute prostatitis, calculus of the prostate, cancer.

The urethral causes of hemorrhage, posterior urethritis, tuberculosis, anterior urethritis.

THE PRESENT STATUS OF RADIUM THERAPY.

Drs. W. H. B. Aikins and F. C. Harrison, of Toronto, presented a paper with lantern slide demonstrations on this subject.

As a result of the experimental work done chiefly by Dr. Louis Wickham of Paris, radium therapy has been placed on a sound and scientific foundation. During the past year many new methods of using radium have been discovered. The older and original methods by means of plaques and tubes still hold a large place, but by using small quantities of radium salts in solution injected into the tissues, the Alpha rays which form about 90 per cent. of the available radiation can be utilized, whereas by the former methods they were practically prevented from exercising any action. The use of radio-active waters and baths has been found of great benefit in various diseases of metabolism. Radium ions have also been used with the continuous electric current, and by this means the radium can be introduced to a depth of five to nine centimetres into the tissues.

The various diseases in which radium may be of service were then discussed, some very excellent lantern slides being used to illustrate the subject. As an adjuvant in many chronic skin diseases as eczema, psoriasis, lupus, etc., radium is invaluable. Naevi and angiomas can be made to disappear without scarring. The writers had had very excellent results with the use of radium in goitres. In the treatment of malignant disease, radium has a definite place. In superficial cancers it should be the treatment of election, as practically all conditions respond well to its use. In more deeply seated lesions the procedure at present should be

to combine radium treatment with surgery radiating the field before operation, with extensive post-operative use to prevent recurrence. Statistics show that with this procedure the chances of recurrence are much diminished.

ETIOLOGY AND PATHOLOGY OF CHRONIC CONSTIPATION.

Dr. S. H. McCoy, St. Catharines, read this paper. The phenomena of passage of food along the intestines is caused by really two mechanisms. It is under the control of the sympathetic nervous system as far as the sigmoid flexure, and from thence it is also aided, or otherwise, by conscious cerebration.

Hertz divides chronic constipation into two great classes: First, detention of bowel contents from the stomach to the pelvic colon; second, inability to empty all below the pelvic colon.

The first may be caused by:

(a) Deficient motor activity caused by poor muscle, due to senility, anæmia, cachexia, and constitutional condition.

(b) Obstruction.

The second may be caused by functional or organic depression of the nervous system, as seen in neurasthenia, tabes, and senility—in fact, constipation is often one of the earliest symptoms of a nervous breakdown.

All of us have seen patients with indigestion who imagined it could be cured by eating less. They tried it, and chronic constipation developed, making the last case worse than the first. Altho the food of the well-to-do is so concentrated that there is not enough residue left from absorption to produce a stool. Anything stimulating the solar plexus produces inhibition of the intestine from the splanchnic supply, the chief inhibitor being prolonged abdominal pain.

Obstruction may be caused by hard feces, having many causes, *e. g.*, diabetes, excessive sweat, deficient intake of water, etc. Kinking of bowel associated with visceroptosis and peritoneal adhesion has been regarded as cause of chronic constipation, but Hertz shows it rather to be due to weakened abdominal muscles in these cases, which act, first, by not having muscles sufficiently strong to start act of defecation; second, their laxity allows over-distension of the bowel by gas, and thus weakening the bowel.

Nerve bankruptcy, by causing loss of muscle tone, may be a cause and not a result of the disease.

As to adhesions, Mollisin, Cameron, and Virchow find intestinal adhesions at nearly all autopsie, and yet no chronic constipation in the living subject.

Arbuthnot Lane considers these adhesions and bands as cause of many cases. On this belief he has perfected his operation of short-circuiting the intestine and doing away with the function of the colon.

Loss of reflex action and dilation of lower part of colon are both usually produced by disregarding nature's call to defecate; laziness, pressure of business, false modesty, fear of pain from hemorrhoids or fissure, etc., are responsible for the procrastination. Resistance of each subsequent call makes the call weaker and weaker, until a person can go around with the rectum loaded for days without the desire to defecate returning.

Bowels can be trained very accurately to habits of regularity, and, if allowed to carry out their function, will do so without trouble.

Obese people who lead a sedentary life are very prone to chronic constipation, not always on account of weak abdominal muscles, but because of fatty infiltration in the muscles of the bowel, causing slow passage of feces. Constipation found in enteroptosis is due to weak abdominal muscles and not to kinking of bowel. Anything affecting the relaxation of the diaphragm, *e. g.*, emphysema and asthma, tends to produce constipation; and, lastly, constipation is produced by spasm of the sphincter ani, caused by anal ulcer, hemorrhoids, fissure, or neuresthenia. This is benefited by stretching.

THE TREATMENT OF CHRONIC CONSTIPATION.

R. D. Rudolf, Toronto, took up this topic. Chronic or habitual constipation is perhaps the most common ailment to which mankind is subject.

Some people have a gloomy outlook on any day in which the bowels do not move, and if this function has been satisfactorily performed the outlook is bright accordingly. If, however, they should chance to forget the omission they feel no ill-effects. We conclude, therefore, that the result is largely psychic.

For this condition the laity resort very largely to medicines, but lately there has been a great wave of opinion against this wholesale purging, and some physicians declare that practically all cases of chronic constipation may be permanently cured by psychic means alone. Dr. Lyon, of Buffalo, two years ago reported 68 cures out of 69 cases.

Normally the bowels should move once daily. There is no strict rule to this effect; some people are in good health whose bowels move only every second or third day; others need two daily movements to keep healthy.

One might define chronic constipation as a state in which the bowels move less frequently and thoroughly than is the custom of the individual under consideration.

A. F. Hertz makes two classifications:

(a) Those called intestinal constipation, in which the passage through the intestine is delayed while defecation is normal.

(b) Those in which the feces reach the colon without abnormal delay, but their final expulsion is not adequately performed. Hertz states that normally the rectum is empty, and when feces enter the pelvic colon a sensation is at once produced by stretching of the muscular walls of the rectum, which is interpreted by the brain as a desire to defecate. Resist this desire and soon the rectal wall relaxes, the sensation disappears, although the contents are still in the bowel.

Causes of constipation:

1. Bad habit.
2. Diet errors: (a) Not enough indigestible material; (b) not enough water; (c) astringent.
3. To complete absorption of fluids, due to (a) exercise; (b) sweating; (c) urination.
4. Deficiency of intestinal, biliary, and pancreatic secretions.
5. Loss of tone of muscular wall of the bowel.
6. Obstruction due to (a) foreign body or hard feces; (b) spasm, (c) paralysis of a portion of the bowel.

Very often several of these causes are at work in the same case. In treatment, find the underlying cause and remove it if possible. Patients should be enjoined to go to stool regularly, and at a fixed hour every day. If unsuccessful that day, miss it altogether and go at same time next day; this helps to train the muscles to periodicity. Do not fly to laxatives, as these disturb the natural function and rhythm for several days. Diet should contain lots of debris material in its composition, and thus ought to include much vegetable material. Astringents and farinaceous foods and strong tea should only be taken in moderation. Plenty of fluids, especially in cases of excessive sweating from either exercise or disease.

When the tone of the bowel is at fault, cold baths and abdominal massage are useful.

In the majority of cases of chronic constipation we can, by enjoining regular attendance at stool, giving plain and bulky and non-astringent diet and lots of water, and advising plenty of exercise, completely cure the condition.

But in many cases we need the aid of a drug to establish the regular habit of the bowel.

Drugs either increase the watery contents of the intestine as salines and various mineral waters; or, by stimulating the muscular wall to better tone and contraction. Most of the vegetable cathartics act in this

way. With care these vegetable aperients may be gradually reduced, while the good effect remains, markedly seen in cascara sagrada.

Sulphur is much used in this disease, and is very valuable. When the trouble is due to inadequate expulsion, the enemata are valuable. Plain cold water or warm soap and water are usually used, and just sufficient should be used as is needed to set up the reflex act of defecation. In these cases, where there is a want of tone in the bowel, strychnine is a valuable addition to any remedy.

Agar has been advocated lately, as it swells up, and thus enlarges the stool; given in doses of about an ounce a day. In spasmodic constipation, due to fissure or other painful lesion, belladonna is the best drug, owing to its anti-spasmodic action.

Castor oil and calomel are rather adapted for occasional than chronic constipation, while operative treatment is useful in cases of mechanical obstruction.

A NEW FUNCTIONAL TEST FOR THE KIDNEY BY THE PHENOL SULPHONE PHTHALEIN TEST.

Drs. L. G. Rowntree and J. F. Garaghty, Baltimore, contributed this paper. It was read for them by Dr. H. A. McCallum, of London.

The chemical composition of this substance is very complex. It is one of the derivatives of phenolphthalein, is easily soluble, is alkaline, is non-toxic to the tissues, and is excreted by the kidneys very rapidly. It begins to appear in the urine from three to ten minutes after being taken, and within two hours from 60 per cent. to 85 per cent. is recovered.

When it is excreted slowly, or in small amounts, we suspect chronic interstitial nephritis; if none is excreted we suspect the near onset of uremia, and give a grave prognosis, even if there are no clinical symptoms of a uremic condition. Two cases were cited in which this test was tried, and denoted a serious kidney lesion, although there was not a single clinical sign or symptom pointing to any kidney trouble. One of these died the same night from uremic convulsions, and the other from the same cause one week afterwards. It gives an accurate idea of the amount of destruction of the kidney. The amount of the drug excreted and the time taken before it appears in the urine are the important points. One can give a definite prognosis—good if the amount and time are normal; bad if otherwise. One can also tell if a given kidney lesion is purely cardiac or due to Bright's disease. In the former the output is fairly normal, while in the latter cases there is a deficiency in amount as well as delay of time in appearance. It is a much better and more reliable test than blood pressure.

It is a very valuable test in surgery. Before undertaking an operation this test should be made. In cases of urinary obstruction, where there are casts in the urine, the output of urine and, therefore, no contra-indication to operation. On the other hand, there may be no casts discoverable in the urine and yet a serious urea may be normal and no serious kidney lesion present, and kidney lesion may exist. In cases of slight lesions we can test repeatedly, and thus tell whether the condition is getting better or worse. We can, therefore, select the time of operation; never attempt to operate if the drug is not secreted well.

Every practitioner cannot have a sample of urine tested in a well-equipped laboratory to tell the amount secreted in a given time, yet there is a very simple way in which one can tell roughly and fairly accurately the amount excreted:

Take, say, twenty minims of a solution of phenol sulphone phthalein of any strength—it does not matter how strong; inject it into the patient either subcutaneously or intravenously, and collect all the urine passed for the next two hours; put a definite quantity of the urine (10 cc.) in a test tube, and half fill the test tube with water, adding a few drops of sodium hydrate solution to make it alkaline; then put twenty drops of the same phenol sulphone phthalein solution in a second test tube of the same size as the other; add water, so as to have an equal quantity in each test tube; now compare the colors of the two tubes; if of about equal densities, then the secretion of the kidneys is good; if the color in the one containing the urine is about one-third as deep in the other; then we know that there is some lesion of the kidneys whereby they are only doing one-third the work they should be doing. Now, if we want to find out which kidney is affected most we simply do ureteral catheterization and test the urine from each side.

Conclusions.—It is of great value in diagnosis and prognosis in nephritis—it shows the degree of the trouble; in cardio-renal trouble it tells whether the heart or the kidney is most at fault; it shows impending uremia even when there are no clinical symptoms present; it tells when to operate and when not to operate; it tells whether the condition is unilateral or bilateral when separate catheterization is done; any person can do the test without any elaborate apparatus at the bedside.

In discussing the paper, the speaker was asked if the giving of the drug might not have brought on the uremic attacks in the two cases cited. He replied that the discoverers of the test claimed that it had no baneful influence on the kidney whatever.

OUR RESULTS WITH "606"

Dr. Campbell, Montreal.—Report of 128 cases, with 165 injections.

As to the method employed: The first 19 were given in an alkaline solution by the intramuscular injection. This was very painful, and was

abandoned mainly for this reason. The next 10 or 11 were given intramuscularly in a neutral solution. This was not quite so painful afterwards, but the results were not so good. All the others have been given intravenously.

The apparatus used is simplicity itself. It consists of a small glass funnel, holding three or four ounces, about three feet of rubber tubing in two pieces, joined by a glass tube, to enable one to see that the fluid is flowing, and an ordinary aspirating needle of size to suit the vein.

Mix the solution according to printed directions. It is very important to have the needle into the vein before giving the injection, as the fluid in the tissues around the joint causes intense pain. The dose given is always 0.6 gram.; he gave larger doses in one or two cases, and in cerebral lesions the dose is smaller. No matter what the result, he always gives a second dose wherever possible within six weeks of the first. The more sclerotic the sore the longer it takes to heal; healing depends on the free flow of lymph.

The dangers of intravenous method are:

1. Sepsis. This should easily be prevented by adhering strictly to the rules of aseptic surgery.

2. Embolism of air or particle of precipitate. This is not a serious one—an air bubble that may get through the needle is so small as to be of no harm in the blood stream, and is readily absorbed. The speaker saw several particles of the precipitate get into the vein with no untoward effects.

After Effects.—Some showed no reaction at all; some were very sick for three or four days afterwards; most are sick for a couple of hours, and are all right in the morning; nausea and vomiting were seen in every case where food was taken within two hours after the injection; many will have a rigor and chill for one hour, sometimes with headache and diarrhoea; herpes was noticed in quite a number of cases, labial generally; one case had herpes zoster; in four cases jaundice developed three or four weeks afterwards.

Objections to this Method.—The only objection is the rapid elimination of the arsenic. The arsenic disappears from the urine about ten days after the injection, while intramuscularly we get arsenic in the urine three or four weeks after, and it persists in the muscle for months, and is apparently not absorbed.

Advantages of the Intravenous Method.—1. It is easily done and cleanly given. 2. There is no pain, and therefore no difficulty to get the patients to submit to a second injection. 3. We get the effect of the full dose of the drug, and at the shortest possible time.

Results Obtained.—Those with intramuscular injection gave as good results as is now got by the intravenous method. With the neutral sus-

pension the results were not as good, and the lesions disappeared more slowly. Intravenously the results were spectacular—the lesions and spirochætæ disappeared with remarkable rapidity.

Recurrences.—There were three recurrences in the intramuscular series. Two of these were cases of secondary syphilis, one of which, after four months, showed an atypical rash, which disappeared on giving a second injection. This rash looked like a rosacea, was extremely itchy, and deceived the dermatologists. The 11 cases of neutral solution gave four recurrences, one of secondary in a week, and one of congenital after three months; this one was given an intravenous injection, and still there was a recurrence. With this exception, there was no recurrence after intravenously given.

In this series there were primary, secondary, combination of both, tertiary, congenital, locomotor ataxia, cerebral, and eye cases.

There seems to be a greater tendency to pigmentation than when mercury is the treatment.

Does "606" kill spirochætæ? Yes, shown by their disappearance and by the absence of the Wassermann reaction. The spirochætæ changed in two or three hours afterwards; they become less lively, and some are broken up. By the next day most cases showed none; in a few instances they were present for 48 hours this does not include the recurrences.

Does it affect the eyes? In the literature there is one case of blindness reported; this patient had had several injections of mercury before the giving of "606." In his series there were three with affected eyes, two with definite syphilitic lesions before the treatment; the other had no eye symptoms before, but a retinitis developed after that readily cleared up in a few days.

Does it cause any other danger? In the literature there is one death reported—that of an adult who was given the intravenous treatment. There was no death in his series.

The effect on the Wassermann reaction is a marked weakening in every case, and sometimes it disappeared in seven or eight weeks.

Does it cure syphilis and prevent recurrence? Time only can tell. It must be judged only by a series of intravenous injections with the maximum dose. In his series there were two who returned some time afterwards with a primary sore—a reinfection.

What is the need of mercury with "606"? It should be used, as we have not a sufficient knowledge yet as to the permanent value of "606." The objection to this is that we will not be able to tell if the results are due to the mercury or to the "606." There will be, however, many cases where mercury will not be taken from which we may get statistics of the value of "606." If it only kills the spirochætæ it is indeed a very useful remedy.

Dr. A. McPhedran, Toronto, stated that his experience was limited to a rather small number of cases, and the results of these did not make him very strongly impressed with the efficacy of the drug. He uses small doses—in most of his cases from 0.3 to 0.5 grams. He cited one case of a man who had severe shooting pains in his legs and serious eye trouble, but no optic atrophy, to whom he gave the maximum dose, and followed it in three days with a second dose of 0.3 grams. The symptoms disappeared in a few days, and the man felt perfectly well for about four weeks, after which the symptoms began to return, and he is gradually getting back to his original condition. He also told of using it in a case of pernicious anemia, with some little improvement at first, but nothing permanent.

Dr. G. W. Ross, Toronto, cited two cases in which there was clotting of blood in the veins on attempting to give "606." One of these was given citric acid for a while, to lessen the coagulability of the blood, and a second injection was given successfully subsequently.

Dr. R. A. Gordon told of two cases which showed alarming signs of shock and collapse immediately after the injection. It lasted for half an hour, and then the patients felt all right.

Dr. W. B. Thistle told of trying it in two cases of pernicious anemia. In one he gave two doses and the red blood count had increased from 1,300,000 to over 3,000,000, and the hemoglobin improved in proportion. The other cases had only one injection, and showed some improvement.

One man stated that if the hypodermic needle was washed in normal saline solution or sterile water before being injected, and washed out before being withdrawn, it would minimize the pain, as the greater part of the pain was caused by the irritation of the drug.

Another stated that the medical profession should drop the name "606," and somebody else said that the name "Salvarsan" was just as objectionable, as neither meant very much; better use the name "Arseno-Benzol."

Dr. Strathy, Toronto, said that in his experience with the Wassermann reaction it disappeared in some cases after giving "606," while in others it was present after, but not before, the injection.

Dr. McPhedran suggested that the cerebro-spinal fluid be taken for the Wassermann test in those cases that did not give it with the blood serum.

THE BIOLOGICAL ASPECTS OF TUBERCULOSIS.

Dr. A. H. Caulfield discussed in his paper a number of the recent views on the immunity in this disease and the relationship in the various types of the bacilli. It was stated that patients may reach immunity along

different biological paths. Attention was directed to the marked variations in the clinical course in many cases. The subject of the tuberculin test was gone into and reasons given for positive and negative results. The reactions that occurred in the antigen serum combination were carefully considered. The topic of opsonins was then taken up. This was followed by some remarks on precipitants.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

Dr. F. C. Neal, of Peterborough, introduced this subject. He emphasized the great importance of an early diagnosis. Consider carefully all former illnesses, and the possibility of exposure to infection. The patient's condition of health should be carefully considered. Every indication of debility ought to be investigated. The usual symptoms and signs of cough, hemorrhage, pleurisy, hoarseness, and fever should be searched for.

The physical examination of the patient was gone into fully. The test methods were also discussed, such as the tuberculin applied in various ways by von Pirquet, Calmette, etc.

THE FUNCTIONAL ACTIVITY OF THE HEART.

Dr. V. E. Henderson, Toronto, gave his paper on this. He went over the recent work that had been done on the heart, and referred to his own. He called attention to the five properties of the heart muscle, namely, irritability, rhythmicity, contractility, conductivity, and tone. The various theories governing these were mentioned. Much attention was paid to the importance of tone and its bearing on the causation of murmurs. Disturbance in conductivity would cause such a condition as Stokes-Adams' syndrome.

CAUSE OF INCREASED HEART RATE IN FEVERS.

Dr. V. H. K. Moorhouse, Toronto, offered a contribution on this question. The increased temperature of the blood acted in two ways—locally on the heart and through the nervous system. Increased respiratory activity will lessen the quantity of carbon dioxide and accelerate the heart's action. There is no good reason for believing that toxins cause increased heart action, apart from the fever they give rise to, which has been already shown to stimulate the heart.

SERUM TREATMENT OF PNEUMONIA.

Dr. J. H. Duncan, of Chatham, gave his experiences with this treatment. He had employed Stearns' pneumolytic serum in thirty cases.

The conclusions arrived at are: 1. The early use will produce prompt relief, and almost certainly lead up to a rapid recovery. 2. That badly-complicated cases will derive much benefit. 3. No bad results have been noted so far from the urticaria or rheumatic pains. 4. That the serum method of treating pneumonia is worthy a much more extensive trial than it has received.

CAUSATION OF BRONCHIAL BREATHING.

Dr. George S. Young, Toronto, read his contribution on this subject. Some remarks were made on vesicular breathing, and its causes set out. Some held that it was merely a modified laryngeal sound; others that it was produced by a rush of air into the alveoli. In the case of bronchial theories of local causation they have not had much support. Highness or lowness of sound is due to the length of tube involved. The consolidation may not stop the tubes, and so the conductivity of the sound is increased. If the consolidation is complete, no air passes along the tubes, but only over their openings. In this case an entirely different sound is heard.

SECTION OF GYNECOLOGY, OBSTETRICS AND PEDIATRICS—FORENOONS OF 31ST MAY AND JUNE 1ST.

POST-PARTUM HEMORRHAGE.

Dr. Robert Ferguson, London, set out in his paper what was sometimes a very grave condition, and would prove a tax upon the resources of the practitioner. There were two main causes—injuries during labor and failure of the uterus to contract. The latter might be caused by frequent child-bearing, syphilis, prolonged and deep anesthesia, non-use of ergot over-stimulation of the uterus, and too much compression of it.

It is to a great extent a preventable condition. The causes point to the preventive measures likely to yield the best results. Any debility must be treated. Proper measures taken if syphilis be present. For the early pains of labor a hypodermic injection of morphia is much better than any other agent. As a stimulus to the uterus quinine in solution is valuable. Another cause for hemorrhage is allowing a patient to become greatly exhausted by a long labor that should be terminated by proper assistance.

In the treatment of hemorrhage there should be made firm and steady manual pressure. A 1 per cent. hot iodine douche, vaginal or uterine, may be given. If hemorrhage still persists, a gauze packing may arrest. Forcible anteflexion of the fundus upon the cervix will at times succeed. Compression of the abdominal aorta above the level of the fundus.

DIAGNOSIS OF EXTRA-UTERINE PREGNANCY.

Dr. James A. McLeod, of Buffalo, reported two very interesting cases. He went fully into the diagnosis of the condition. He held that it was impossible to distinguish the several varieties until the abdomen was opened. In classic cases the diagnosis was comparatively easy, but in irregular cases this was difficult. As the fetus grows the pain becomes more or less constant; the uterus is pushed over to the other side. If the fetus lives, the conditions remain and increase. During the course of an extra-uterine pregnancy the endometrium is converted into a membrane that is shed when the extra-uterine fetus dies or is removed. The hemorrhage that takes place may vary greatly from a small to a fatal amount when rupture occurs.

In the diagnosis one must keep in mind appendicitis with abscess, salpingitis with abscess, as the two conditions that may give rise to most confusion. If there be a pelvic abscess the laboratory methods of settling the presence of pus should be had recourse to. In all cases of abscess the careful study of the history will throw much light on the true nature of the case.

In extra-uterine pregnancy the onset of the symptoms is very gradual. It is not likely to be confused with appendicitis or pelvic abscess until the occurrence of abortion. Following the hemorrhage, if marked in amount, the patient is in a state of collapse, with alteration in temperature and pulse, due to shock. When the reaction sets in and the pulse becomes fuller and slower there may be distinct rise of temperature, caused by the absorption of fibrin ferment. This may subside, or the pulse and temperature may remain above normal, when it is due to infection of the blood clot. On the death of the fetus the uterine discharges may acquire a distinct odor.

In endometritis there is cell infiltration, but this differs from the condition of the endometrium found when a pregnancy exists in a tube. The microscopic findings are of much value as an aid to a correct diagnosis.

When rupture and hemorrhage have occurred there will be a leucocytosis, which must not be confounded with that found where an abscess may exist. When a hemorrhage occurs in addition to the leucocytosis there is a marked decrease in the red corpuscles.

TREATMENT OF EXTRA-UTERINE PREGNANCY.

Dr. W. Krupp, of Woodstock, covered this topic carefully in his paper. He mentioned that ovarian pregnancy was a rare occurrence. Fertilization usually takes place in the tube. The cause for the non-pas-

sage of the ovum into the uterus is not fully settled. The ovum may die in the tube, causing a tubal mole. The causes of rupture are varied. The rupture may be intra-tubal or extra-tubal. The former is merely a rupture of the capsule enclosing the embryo. The extra-tubal variety may be intra or extra-peritoneal.

In cases of diagnosis before rupture an operation should be performed. In cases of rupture with bleeding and shock, it may be necessary to wait an hour or more, and give morphia per hypodermic method. As soon as shock abates operate. The foot of the bedstead should be elevated and the arms and legs bandaged, to keep the blood in the vital organs. Strychnia gr. 1-40 may alleviate the shock. Adrenalin chloride, 1 in 1,000 in doses of 20 to 30 m., may be injected. Saline injections may have to be given.

In those cases where the shock and collapse is extreme, to operate would be fatal. One must wait for reaction. By carrying out the foregoing treatment the crisis may be overcome.

In all cases where the shock has passed off the operation should be performed as soon as possible. The technique of the operation was briefly described.

INFANTILE ECZEMA.

Dr. Moorehouse, of London, read an exhaustive paper on this subject, in which he set out the treatment fully, and gave a number of very useful formulæ. Among the causes should be mentioned the direct and exciting action of germs, the internal and constitutional, and those due to local irritants.

In the treatment attention must be given to remove all sources of local irritation. The local treatment must be carefully selected to suit each case, and the child must receive careful internal and hygienic treatment.

TORSION OF THE PEDICLE OF OVARIAN CYST.

Dr. E. R. Secord, Brantford, gave the history of an interesting case. The patient was pregnant, and passed successfully through her accouchement. She was taken with severe pains. An operation was performed. There was a gangrenous condition of the bowel, and an artificial fecal fistula resulted. This later on was cured by operation.

ECTOPIA VESICA.

Dr. J. B. Coleridge, of Ingersoll, reported a case of this condition and the details of the Peters operation. The distal portion of the ureter, with a goodly rosette of bladder, was freed and implanted in the rectum.

The patient did well. Dr. Coleridge paid a high tribute to the late Dr. Peters, whose genius had devised this operation.

SURGICAL TREATMENT OF INFANTILE PARALYSIS.

Dr. John R. Parry, of Hamilton, discussed this subject at considerable length. He gave in detail the best methods of dealing with these cases, both by mechanical appliances and by surgical intervention. The paper was one of much merit, and showed great care in its preparation. He pointed out that a very large measure of relief may be afforded these patients by well-devised surgical treatment.

GENERAL SESSION. WEDNESDAY AFTERNOON, 31ST MAY.

At this session two very important addresses were delivered. One of these was by Dr. Crile, of Cleveland, and the other by Dr. Cullen, of Baltimore.

PHYLOGENETIC ASSOCIATION IN RELATION TO GRAVE'S DISEASE.

Dr. G. W. Crile, Cleveland, gave his paper on this subject.

By phylogenesis is meant our tendencies and actions passed down through the decades of our ancestors to us. Perhaps the strongest of these is self-preservation and fear.

Grave's disease is a disease of the entire motor mechanism of the body. Our sensations and emotions are simply unexpressed motor mechanism, inasmuch as both emotion and motion cause the same metabolic and other physical phenomena.

Grave's disease is an expression of emotions as seen in rapid heart, tremor, nervous symptoms, bulging of eyes, etc., and is, therefore, motor activity. Man is essentially a motor being; he is essentially in action of some kind. Bind a man so that he cannot move, and let him try his utmost to break the cords, and we get phenomena identical with that found in Grave's disease and from emotions as fear and anger. All emotions are the result of self-preservation. Fear is the strongest of these, and can be elicited only in animals with motor power to fight against enemies or run from them. Animals that cannot run away show no evidences of fear.

Fear produces the phenomena of excessive stimulation as expressed in rapid pulse, acceleration of heart, tremor, excessive internal secretions, rise of blood pressure, cold sweat, erection of hair, etc., and while this condition exists no part of the body can respond to any lesser stimulus.

At this time the digestive and procreative functions are inhibited: all other functions are increased, and those that are increased are all useful for protection. Even the special senses are stimulated so as to be able more definitely and quickly to perceive danger. Those that are inhibited are useless as protectives, while those increased in function are our real preservatives. While we are under tension from fear and on the alert we get stimulation of muscle, blood pressure must go up to supply it, heart accelerates to supply the demand, pulse rate increases; a greater amount of muscle sugar is burnt up, and hence a call on the liver to produce glycogen and on the adrenals to raise blood pressure. Stimulation of preservative apparatus gives motion or emotion. We fear in heart, brain, and every other tissue of the body, and each is stimulated or inhibited according as it is a hindrance or assistance to self-protection. Hence the increase of strength noticed at time of excitement, with stage of weakness afterwards.

The same thing is seen in animals; they are frightened in all their organs. All forms of fear express themselves in similar terms and in similar phenomena. Fear in an animal means trying to escape, *e. g.*, rabbit; anger in an animal stimulates fight, *e. g.*, rat. Animals that have no power for attacking an enemy experience no anger; animals having no power to run experience no fear. In all stages of life difference of opinion leads to argument; this to fight even unto death.

The human being is in a continual state of auto-captivity. In spite of all the training a child gets at home, at school, at Sunday school, and elsewhere, his tendency is against this training, or why should training be necessary at all. Owing to this auto-captivity we are made to express our actions by emotions. Our forefathers had an impulse, and acted upon it; we have impulses, and have to restrain them owing to the laws of our auto-captivity. A soldier waiting for orders to attack an enemy suffers more than when in action under fire. Action relieves the emotions. When we get emotions and do not act, we are more hurt by the excessive stimulation and production of the internal organs.

Experiments on the brain cells of rabbits run from an enemy, and on dogs that fought an enemy, showed much greater physical exhaustion and changes in those of the rabbit. Emotion is stimulation for action.

In Grave's disease we get a history of strong emotions—enough stimulus to keep the patient awake during the night and to keep his attention during the day. Symptoms of Grave's disease follow any emotion, kept up for a certain length of time. A typical case of Grave's disease develops in a man who had lost his fortune and worried greatly over it. Another case in a young woman who was disappointed in love. How could this cause the disease? By theory of emotion instead of

action, *e. g.*, heightened pulse, blush, etc., and the addition of worry. Marriage has been known to cure Grave's disease. Emotions in this disease are very acute.

Phenomena are always the same, no matter what the cause of fear is. We cannot find typical Grave's disease in animals, but we can often see some of the more prominent symptoms. When our ancestors were unrestrained there was no Grave's disease among them, because they got action for their emotions instead of repression.

Increase of heart beat, heightened pulse, increased pallor, protrusion of eyeballs, loss of weight, tremor, etc., are all produced in animals during great fear. The increase of adrenalin in fear is for the purpose of raising the blood pressure to drive blood into the contracted muscles; increase of glycogen in fear is for the purpose of oxidation so as to give power to the body for physical action. Adrenalin is found increased in fear and Grave's disease. Glycogen and blood-pressure increased in both. Tremors, digestive disturbances, higher susceptibility to stimuli, and brain cells show marked physical change in both. There are no changes in cells of the spinal cord in either, because the spinal cord has no associated membrane (association fibres), while the brain is made up of it.

In Grave's disease, if the thyroid is decreased in size from any cause, the symptoms diminish. Therefore, the thyroid has something to do with the disease. Again, if thyroid extract is fed to an individual in large doses, we get most of the symptoms of Grave's disease, and then, if we withhold these doses, the symptoms may disappear.

Too little thyroid secretion either abolishes or lessens both activity and emotions.

Tie off the blood supply of the thyroid, remove it, or give the patient rest, and the symptoms diminish. Fear shows psychic shock, which is identical in results with physical shock. The fear of an operation gives same condition of shock as does the operation itself.

In Grave's disease there seems to be a pathological chain of reciprocal action between the brain and the thyroid. Break the chain anywhere and improvement follows.

When we give the patient and the brain rest the thyroid diminishes in the same proportion as the symptoms disappear.

The mechanism expressing motor function is the same as that expressing emotion. Our progenitors gave action to stimuli; we withhold it, and get not action, but reaction. Rest to brain, or remove the thyroid, are the recognized forms of treatment.

SURGICAL DISEASES OF THE UMBILICUS.

Dr. Thomas Cullen, associate professor of Johns Hopkins, Baltimore, gave an address on this topic, with notes from a series of lantern slides.

The commonest disease of the umbilicus, namely, umbilical hernia, is quite easily recognized, and requires the usual operative procedure for ventral hernia.

Among the rarer conditions are: 1. Abscess formation, below the umbilicus and extra-peritoneal, simply a collection of pus in the abdominal wall, which necessitates only a superficial incision without going through the peritoneum. 2. Diseases of the umbilico-mesenteric duct. This duct may not become entirely obliterated, and hence may give cysts or concretions in the abdominal wall, if not obliterated in the centre; if the outer part remains open, it being lined with intestinal epithelium, and showing the typical glands of Lieberkuhn, keeps continually pouring a secretion on the abdominal wall. It appears on the abdominal wall as a little red nodule or cyst. One such of these poured out gastric juice, and on microscopical examination proved to be lined by mucous membrane identical with the mucosa of the stomach.

There are four cases of these cystic nodules described in the literature occurring in women, which increased in size during menstruation and also during pregnancy. Microscopical examination of one of them showed it to consist of typical uterine mucosa.

When the inner part of the duct remains patent we get a Meckel's diverticulum attached to the abdominal wall. One should be careful in operating here, as there is a danger of cutting the diverticulum and intestinal obstruction following. Treat it in the same way as an appendix—by cutting off and putting in a purse-string suture.

3. Umbilical concretions have been known, and there are two or three cases of cysts of the sweat glands of the umbilicus on record. There is also described one case of Paget's disease of the umbilicus identical with Paget's disease of the nipple.

4. Malignant growths, primary or secondary. Primary may be either squamous epithelial in origin or glandular from the remains of the old duct. Either of these is very rare.

Secondary, however, is not so uncommon, and is usually from stomach, gall-bladder, intestine, uterus, or ovary. It may come from stomach or gall-bladder via the liver and falciform ligament or ligamentum teres; direct by the stomach being in apposition to the umbilicus, or by way of the mesentery. When secondary from the pelvic organs it travels by way of the urachus.

5. Diseases caused from the urachus. This duct may remain patent or may be obliterated only in places, so that we get all the diseases common to a duct of this nature. Small cysts at various points along its course are fairly common. There is one case on record of a stone being found in the urachus. There are quite a few cases of patent urachus that discharged urine at the umbilicus as well as from the external geni-

tals. We may get an infection of a patent urachus. There was one case cited in which a patient consulted the speaker, complaining of a hard, board-like abdomen in the middle line, just above the symphysis pubes; operation showed it to be due to an inflammatory thickening following an infection of the urachus. After removal the abdomen became as soft and flaccid as normal.

6. Infections of the umbilicus. These are fairly common, and may be from almost any germ. It must be specially borne in mind that in cases of puerperal septicemia the umbilicus of the babe is very liable to the same infection. Several cases have been noted where babies have died from septicemia which gave the same organisms as were found in the puerperal septicemia of the mother.

THURSDAY FORENOON, 1ST JUNE.

SECTION OF PREVENTIVE MEDICINE.

Greater attention to the preservation and care of children was urged by several speakers at the Ontario Medical Association meeting. "Governments apparently forget that children are the greatest asset any country can have," said Dr. J. W. S. McCullough, secretary of the Provincial Board of Health. He remembered that while both Federal and Provincial Governments encourage immigration, even paying \$5 per head to those bringing in immigrants, a mother who brings a native-born child into the country is given nothing at all. "We hear a great deal," said he, "about race suicide and the duty of raising families, but not much help is offered to the mother. He advocated giving her a small sum when the child reaches five years.

The deaths from digestive diseases furnish a wider problem than epidemic diseases, said Dr. McCullough. The feeding of children, in which milk is the chief element, is thus of dominating importance. Dr. J. H. Mullin, of Hamilton, described the system by which Hamilton, at a cost of more than \$1,000 a year, supplies modified milk for infants, greatly reducing the mortality.

The mortality of infants is almost double that of persons from every form of tuberculosis, said Dr. John Phillips, associated professor of medicine, Western Reserve University, Cleveland. For the most part, this mortality could be prevented, the two great causes being poverty and ignorance.

Dr. Phillips described the elaborate measures adopted successfully in Cleveland to lower infant mortality and to care for the children.

Slow sand filtration, followed by treatment with chlorine, was advocated by Dr. J. A. Amyot, of Toronto, as the best method of obtaining a pure water supply.

Dr. Amyot said chlorine was not injurious to man. Other explanations were found for the harm done to plants. In this connection Dr. Francis E. Fronczak, health commissioner of Buffalo, explained that the chlorine combines chemically with the chlorophyll in the plants, thus causing the plants to die, but, being vegetable, it did not form a chemical combination in the human organism.

Dr. Amyot complimented the men who had to deal with the water situation in Toronto. While the "raw" water reaching the intake was worse this year than it had been for years, yet there was a lower typhoid rate than for years. This was due to the backbone of the men in charge, who, in spite of all protests, had gone on with the chlorination, even increasing the dose, but they had saved the city from a far worse visitation of typhoid.

Dr. Fronczak said the odor and taste of chlorine-treated water could be removed by "cascading," as tried at Marseilles, or by storing for some time after disinfection. He strongly urged the formation of an international commission to study the conditions and to furnish a pure water supply for the whole Niagara District, where typhoid was almost endemic, for there was no use in one community adopting sanitary measures while others continued to pollute the same river and lake.

Dr. Helen MacMurchy read a carefully prepared paper on medical inspection of schools. A helpful address on surgery was given by Dr. A. E. Garrow, assistant professor of surgery in McGill University, Montreal, and the so-called "infantile paralysis" was dealt with in two important papers read by Dr. Robert Parry and Dr. John Parry, of Hamilton.

SECTION OF EYE, EAR, NOSE, AND THROAT, WEDNESDAY FORENOON, 31ST MAY.

This was a very busy section, and got through a number of papers of marked ability.

PREVENTION OF BLINDNESS.

Dr. Thomas A. Woodruff, of Chicago, handled this topic with clearness. He dwelt at length on the value of prevention. He discussed blindness and injuries to the eyes in industrial diseases, and the best methods of preventing these. He then took up wood alcohol and its effects on vision. His next topic was trachoma. He directed attention to its increase in the United States. Lastly, he spoke of ophthalmia neonatorum. The child's eyes may be infected in utero, during labor, or just after birth. In the treatment he gave the first place to nitrate of silver. He then emphasized the value of preventive measures as laid down by Riedé many years ago.

HEADACHES FROM HETEROPHORIA.

This was the title of Dr. G. Sterling Ryerson's paper. He pointed out the cause and symptoms of headache from this condition, such as the pains, nausea, and vomiting.

This paper was discussed by Dr. C. Campbell, Toronto; Dr. Norman Price, Niagara; T. A. Woodruff, Chicago, and Dr. Reeve, Toronto, all laying stress on the suffering this condition could produce.

NASAL ACCESSORY SINUSES.

Dr. Lee M. Hurd, of New York, dwelt on the different methods of treatment. He discussed the acute and chronic inflammations. He related the best methods of dealing with disease in these sinuses. The paper was replete with information supplemented from the writer's own wide experience.

EQUILIBRIUM TESTS.

Dr. J. P. Martin, of Hamilton, took up the various means of testing equilibrium. He went fully into the causes of loss of equilibrium. The tests as used in Prof. Brucht's clinic in Berlin were given. These tests are known as rotation tests, caloric tests, pressure tests, static tests, galvanic tests. The various morbid conditions of the ear that cause loss of equilibrium were taken up.

OTITIS MEDIA PURULENTA CHRONICA.

Such was the title of Dr. Price-Brown's paper. Attention was invited to the teachings of many that this condition, where there are no complications, can be cured by treatment through the natural passages. In cases of marginal perforation an operation is almost certain to be required. Proper treatment must be given to the adenoids and faucial tonsils. Irrigation with warm boracic lotion, and then applying pure glycerine, is helpful in many cases. Alcohol of 95 per cent. may cure some cases.

SUCCESS IN CATARACT OPERATIONS.

Dr. W. M. Brown, of Newstadt, Ont., pointed out that these operations called for skill and nerve. The following points should be observed: Wash with soap and water, wash with sulphuric ether, wash with bichloride (1-4,000), evert the lids and wash with bi-chloride (1-4,000), add 1 drop eserine (1 per cent. solution), half-hour before, and repeat 15 minutes before operation, 3 drops cocaine, 4 per cent., at

intervals of two minutes for five times before operation; boil instruments; put them in alcohol, then in carbolic solution 1 per cent.; use lint out of bichloride 1 in 4,000; withdraw the knife slowly; the knife must be very sharp.

THE BANQUET.

The banquet on Wednesday evening, in the Clifton House, was a marked success. The gathering was addressed by Hon. Justice W. R. Riddell, of Toronto, who took as his subject "The History of the Medical Profession in Upper Canada."

Speeches were also made by Dr. Rosweil Park, Buffalo; Mr. I. H. Cameron, Toronto, and Dr. James Samson, of Windsor.

A resolution was moved by Dr. J. H. Elliott, and seconded by Dr. H. M. Parsons, that all general hospitals should make provision for the care of tuberculosis patients, or have the government grant withheld. This was approved of by the meeting.

There was no grant made to the library this year.

There were a number of other pleasant features of the meeting, such as an outing to Dr. Grant's place up the river beyond Dufferin's Island. There was the "Maid of the Mist" trip, which many took in and enjoyed. The golf club threw open their club and grounds to the members of the association.

The local committee had worked hard, and with the result that the meeting was a very successful affair. The Niagara Falls medical men won for themselves the highest praise for their efforts to make the gathering both profitable and pleasant, for it certainly was both.

There were about 250 delegates present, from all parts of Ontario, and some 50 visitors from other provinces or the United States. The programme was unusually interesting. Many very valuable papers were contributed by the members from Ontario, as well as some guests from the United States.

The meeting will be held next year in Toronto. The following officers were elected: President, Dr. Herbert A. Bruce, of Toronto; first vice-president, Dr. F. W. E. Wilson, Niagara Falls, Ont.; second vice-president, Dr. William Hall, Brampton; third vice-president, Dr. F. Drake, London; fourth vice-president, Dr. George Field, Cobourg; general secretary, Dr. F. A. Clarkson, Toronto; treasurer, Dr. J. Heurner Mullin, Hamilton.

Mr. and Mrs. W. F. Cockshutt, of Brantford, have given \$500 to the National Sanitarium Association for the support of two beds.

CANADIAN MEDICAL ASSOCIATION.

The forty-fourth meeting was held this year in Montreal, on the 7th, 8th, and 9th of June. It was not very largely attended, though the papers were good. There were several topics discussed of a public character and of general interest.

Dr. G. E. Armstrong's Illness.

A dramatic incident occurred at the opening of the forty-fourth annual meeting, when the president-elect, Dr. G. E. Armstrong, of Montreal, took suddenly ill and collapsed on the point of delivering his inaugural address. Dr. Armstrong was hurried home, where it was seen that his illness was not a temporary fainting spell, but of a serious nature. Overwork is said to have caused a nervous breakdown. Illness overtook Dr. Armstrong just as Dr. Adam H. Wright, of Toronto, retiring president, introduced him. Later on Dr. Armstrong recovered, and was able to preside over subsequent sittings of the association.

Mayor Guerin welcomed the visiting doctors at the opening session, and spoke highly of the work of the medical profession. Principal Peterson welcomed the guests on behalf of McGill.

Luncheon was served in the new medical building, following which the convention divided into groups to discuss technical subjects. An interesting feature was the study of such eminently practical questions as the white plague and the pure milk supply campaign. A garden party in the university grounds completed the day's programme.

The Prevention of Insanity.

The prevention of insanity was the subject dealt with by Dr. W. H. Hattie, of Halifax.

The chief preventible causes of insanity mentioned were useless worrying, the intermarriage of feeble-minded people, whom Dr. Hattie thought should be institutionally treated, and the abuse of alcohol. There are now 12,000 insane people in the Canadian asylums who cost the country about two million dollars a year. Dr. Hattie suggested that incipient insanity should be treated in the general hospitals. The percentage of cases due to alcoholic excess was about 16 per cent., and cities supplied 4 per cent. more patients than country districts, owing to the greater rush and worry of city life.

Luncheon at Hunt Club.

The ladies accompanying the members were entertained at a luncheon at the Hunt Club. The tables, which were laid for 125 guests, were effectively decorated with a variety of cut flowers.

Garden Party at McGill.

The garden party given at the grounds of McGill University by the ladies' committee of the Canadian Medical Association in honor of the visiting ladies was highly successful. A large number of guests were present, and, fortunately, the rain was not sufficiently heavy to mar the pleasure of the event. A military band played during the afternoon, and refreshments were served in a marquee on the lawn, the tables being decorated in the McGill colors, with red and white peonies. The guests were received by Mrs. W. W. Chipman, Mrs. Birkett, Mrs. William Gardner, and Mrs. Peterson.

The Pollution of Water Supplies.

That there is no pure natural drinking water left in Canada, and that all drinking water must be filtered if a recurrence of typhoid epidemics is to be avoided, was the sensational statement made at a largely attended meeting of the medical section. It is also a statement to which they unanimously subscribed.

Dr. T. A. Starkey, chairman, at a symposium on typhoid fever and water supplies by members of the association, read a paper in which the foregoing statement occurred, and it was endorsed by all the other members present. In fact, the general trend of the papers read on the subject was to show that the typhoid epidemics of the past have all been due to water-borne infection, and that natural drinking water, which was once pure, has now all become more or less contaminated owing to the increasing density of the population.

The most prominent feature of past epidemics was considered by the meeting to be the fact that as soon as there was competent and complete supervision of the water supply the epidemic was stopped. The sole means of controlling an epidemic, they were agreed, must consist of either purifying or cutting off the water supply that has caused it. Filtration of all drinking water was strongly advocated as a preventive of typhoid.

Dr. Starkey cited an instance of a lake in Newfoundland, four miles long, into a corner of which one farm house, and one only, was drained. As a result the whole community that drew its water supply from that lake was infected with typhoid.

Dr. Starkey repeated that the Laurentian and all other sources of supply of drinking water were either infected or in process of becoming polluted. There was no natural drinking water left that could be relied on without filtration. Although the chlorine treatment of water was good, it could only be regarded as a stopgap. Filtration was the only real remedy.

Sir James Barr on Some Medical Problems.

The hope of the human race lies in the physician, according to Sir James Barr, consulting physician to the Royal Infirmary, England, who in a vigorous address before the Canadian Medical Association submitted that as nearly all diseases which flesh is heir to arise from the stomach, they might be prevented. If the public were only alive to their own interests, he said, they would pay medical men liberally for directing them in the paths of truth and in the ways of health rather than for treating their diseases.

"If," he further declared, "the money which is spent in the treatment of disease were devoted to the preservation of health, our huge hospitals would not be half filled, purveyors of synthetic remedies and artificial foods might find a suitable place in a home for the destitute, the necessity for surgeons and specialists would largely disappear, and physicians would be fully occupied in advising their clientele on the preservation of health and in looking after the aged.

Sir James admitted, however, that we are still a long way off the halcyon days when our hospitals will be pointed out as relics of a decadent age, but we ought to aim at transmitting high ideals to our successors.

In a sentence the lecturer showed how very much better prevention was better than cure, and incidentally this led him to rap the surgeon.

"So far as preventive medicine is concerned," he said, "very little can be placed to the surgeon's credit. About the only diseases which they attempt to prevent are those which spoil their operations—erysipelas, pyæmia, and septicæmia. The surgeons largely live on the failures of the physicians and general practitioners, and I hope they will not take any umbrage at what I say here and in other parts of this address. They can, if they choose, put down my remarks to envy, jealousy, and all uncharitableness, but I shall not acknowledge any malice. I intensely admire their work and envy their fees, which are, like the falls of Niagara, magnificent.

"But the health of a nation is its most valuable asset, and the maintenance of health is of much more importance than the treatment of disease. The struggle for existence is not merely an individual question,

but it is becoming more and more a national question, and the nation which produces the finest race is sure to win in the long run. As Prof. Arthur Thomson says, 'What children usually die of is their parents, and what a nation dies of is lack of men.'

Those countries which have to a large extent suspended a selective death-rate, but are not wise enough to establish a selective birth-rate are certain to decay, and go the way of all the ancient nations who disappeared and made way for more vigorous races. You have got here a young country, a virgin soil, and you should see that it is peopled by a vigorous and intelligent race. You should shut out all degenerate foreigners as rigidly as you would exclude a mad dog. Do not follow our example, and make your shores a dumping-ground for the rubbish of Europe. I believe you have already got a fair share of degenerates, but your population is still small, and there should be no difficulty in eliminating the unfit in the course of a generation or two.

Above all, both for the prevention of insanity and consumption, discourage and prevent the propagation of the species by the mental and physical weaklings. Raise up a race which will not be catching tuberculosis or anything else. I would advise you, while showing all possible kindness to the insane and mentally defective, give them clearly to understand that with them their breed must come to an end. Insanity and mental deficiency are largely questions of inheritance. With the insane, the imbecile, the idiot, the mentally defective, the criminal, the ordinary wastrel, the loafer, the professional pauper, the tramp, the footpad, the drunkard, and other mental and physical degenerates, prevention is certainly better than cure, but you will never succeed either in prevention or cure by maudlin sentimentality.

Sir James insisted upon the prevention of tuberculosis, and in reply to Dr. Osler's assertion that "we know that the disease is not hereditary," he said: "We know nothing of the kind, although we are constantly having it dinned into our ears by medical men who ought to know better. We know that the tubercle bacillus, which is a necessary element in the production of tuberculosis, is not transmitted in the germ plasma, but the long, narrow, flat chest, delicate lungs, and feeble resisting power to the tubercle bacillus and to many other germs are undoubtedly inherited, just as much so as the shape of your nose or the color of your hair. Medical men who are shutting their eyes to the truth, and encouraging matrimony and the propagation of the species of mental and physical weaklings are incurring a fearful racial responsibility, and their action should be condemned in no uncertain language."

On the subject of children's complaints the lecturer said: "It will be very difficult to prevent the spread of infectious diseases among children so long as we have overcrowding, defective ventilation, dust, and want

of cleanliness in the homes, schools, and public conveyances. However, a great deal can be done for local conditions by looking after the children's teeth, by seeing that their teeth and jaws get plenty of exercise in chewing food, by keeping their mouths and nasal passages as aseptic as possible, and by removing any obstructions, such as adenoids and large tonsils."

Referring to appendicitis, which he described as "a fashionable disease," Sir James Barr said it was significant that surgeons were never found to contract the complaint, and was of the opinion that if people were not so fond of keeping a cesspool in their interior, the bacillus coli and other organisms would not become virulent, and appendicitis would be a comparatively rare disease.

"Pneumonia," he said, "is a common disease at the extremes of life, and, in the aged, it is often a terminal disease. Like typhus fever, it is a good racial disease—it kills the weaklings and, as a rule, causes no permanent injury to the survivors. The disease is short, and therefore inexpensive, so that no one makes much out of it, except the undertakers, who grow fat on the misery of others. The case mortality is high, but yet no serious attempt has been made to curtail its incidence.

Dr. Armstrong Presided.

Dr. George Armstrong, who had recovered from his slight indisposition, presided at the lecture, and concurred in a hearty vote of thanks which the large audience passed to Sir James Barr for his address.

Officers Elected.

Dr. Mackid, of Calgary, was elected president, and Calgary was chosen as the place of meeting for 1912. It is expected to hold one of the meetings in Edmonton.

Other officers elected to the Executive Council are: J. H. Elliott, Toronto; F. G. Finley, Montreal; Murray MacLaren, St. John, N.B.; Alex. McNeill, Summerside, P.E.I.; A. McPhedran, Toronto; I. Olmstead, Hamilton; R. A. Reeve, Toronto; F. N. G. Starr, Toronto; John Stewart, Vancouver; Dr. Halpenny, Winnipeg; Dr. Low, Regina; Dr. Whitelaw, Edmonton; Dr. Adami, Montreal; Dr. Mackid, Calgary; Dr. McKechnie, Vancouver.

The Dominion Commission on the conservation of national resources of Canada has decided to make an investigation into the cause and frequency of infantile spinal paralysis. The medical men of Canada will be asked to report their cases.

PERSONAL AND NEWS ITEMS.

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ONTARIO.

The Hamilton Council has taken steps to have the terms of the Pure Milk Act incorporated in a civic by-law.

The Ontario Medical Association passed a resolution calling upon general hospitals furnishing some accommodation for consumptives.

Dr. Thomas J. Rigby, who was accused of having performed an illegal operation, was acquitted by Magistrate Kingsford.

Dr. Reid, of Toronto, has been elected a fellow of the Royal College of Surgeons of England.

Dr. A. J. Brown, of Holstein, has gone to Britain for a year, where he intends taking up special work.

In Hamilton the birth-rate was last year 27 per 1,000. The death-rate was 13.8 per 1,000, and the infant mortality 285 per 1,000 born.

Dr. W. E. Gallie, 143 College Street, has recently passed his primary examination for the diploma of F.R.C.S.

Dr. W. T. Sheriff, of Hazeldean, has been appointed medical health officer of Ottawa.

Dr. James A. McCammon, of Gananoque, has been appointed sheriff of the United Counties of Leeds and Grenville.

The Ontario Medical Association will ask that the Canadian Medical Association will only admit through a local or provincial society.

The late Richard P. Smith, of Strathroy, left \$20,000 to the Sarnia Hospital.

The County Council of Waterloo has granted \$5,000 each to the Berlin and Galt hospitals for the additions that are to be built this year. There is also a grant of \$1,500 to each for maintenance.

Dr. Hastings, M.H.O., Toronto, is confident that a new isolation hospital will come in the near future. He also contends that the campaign against tuberculosis must be pushed.

It is announced that Dr. Hastings, M. H. O. for Toronto, is going to institute a vigorous campaign for pure milk this season and of a quality up to the best standard.

The University of Toronto medical graduates of the class 1901 held the second reunion at the Prince George, Toronto, Thursday evening, 1st June.

The lady doctors of Toronto dined at McConkey's on the evening of 5th June. There were thirty present. The president of the society, Dr. Margaret Johnston, occupied the chair.

Dr. Wilfrid T Grenfell, the noted medical missionary among the Labrador fishermen, had the degree of medicine, *honoris causa*, conferred upon him by the University of Toronto at the recent commencement.

A room is to be arranged in each of the public schools in Toronto for the purpose of conducting school inspections. There will be appointed a medical inspector to specially look after mentally defective children.

In Ottawa a couple of weeks ago there were 34 cases of smallpox. One boy died and a woman was in a critical condition. All this would have been averted by a little vaccine properly used.

The Jewish societies of Toronto are going to erect a relief station, to cost \$20,000. Considerable money is now on hand, and an effort will be made for the balance.

Dr. B. L. Riordan, of Toronto, has sufficiently recovered from his illness to take a trip to Europe, which his friends hope he will return quite recovered.

Dr. George W. Badgerow, formerly of Toronto, has been appointed to the senior staff of the Throat Hospital, Grosvenor Square, London, Eng.

The Kingston Medical Association will urge on the Minister of Education that instructions be given in the Normal and Model Schools in Medical Inspection in Schools.

Dr. J. H. Elliott, of 611 Spadina Avenue, Toronto, will spend the summer at Port Carling, Muskoka, from 1st July to 1st September; and will conduct his practice at that place.

George H. Perley, M.P., has given \$50,000 for a tuberculosis hospital for Ottawa. Of this sum \$30,000 will be used for a building in Ottawa and \$20,000 for a farm a short distance out of the city. The hospital is in memory of the late Mrs. Perley.

A young lad named Gordon Henderson was recently bitten by a rabid dog. It was ordered that all the dogs in Scarborough Township be kept "on chain" for ten days, as a period of test if any others develop the disease.

The bill to prevent the pollution of public waters, such as lakes and rivers, has passed the Senate, and there is every reason that it will pass the Commons and become law. All sewage must be treated before it is allowed to escape into any open water.

In the early days of June there were 30 smallpox patients in the Isolation Hospital at Ottawa. Nine fresh cases were admitted in one day. This will cost a good deal more than the prevention by vaccination would have done.

Dr. Hardlicka, anthropologist to the Smithsonian Institute, of Washington, D.C., said recently to the Association of Ontario Dentists that a careful study of the teeth showed that the advent of the monkey was more recent than that of man upon the earth.

The Hospital Trust in Brantford has decided to ask the city and county to provide \$100,000 for a new hospital building. The John H.

Stratford Hospital is to be utilized in the new building. Miss Carson, of Owen Sound, was appointed superintendent.

Public health matters in Toronto have been boiling rather briskly for some time. The outcome of the discussion is that the water for the Island is to be chlorinated and the common drinking cup in the parks are to remain for the present.

An interesting decision was given by Judge Morson, of Toronto, when he held that such operations or medical attendance as was necessary to save life came within meaning of the act. He held that the husband must pay a bill for such an operation.

Quite recently Dr. Garrett and Dr. H. Glendenning, both of Toronto, were fined \$20 for overspeeding their cars in making urgent calls. Perhaps if one of the magistrate's family was injured on the highway and a doctor came to him in a hurry he would not be too particular about the speed the doctor made. A good deal depends on the ox that is gored.

The vital statistics of Toronto for the month of May are: Births, 935; marriages, 343; deaths, 545. The deaths from contagious diseases were as follows: Scarlet fever, 15; diphtheria, 9; measles, 9; whooping-cough, 2; typhoid fever, 7; tuberculosis, 37. Tuberculosis averages about 37 or 38 a month, or 450 per year.

The Wellesley Private Hospital is to be the name of the new private hospital that is to be opened in the residence formerly known as "The Homewood," the residence of Mr. Frederic Nicholls. Dr. J. N. E. Brown, who was at the head of the Toronto General for six years, will manage the hospital. It is stated that \$150,000 will be expended on improvements.

QUEBEC.

Dr. A. H. Pine, of London, England, has been appointed as x-ray specialist to the Royal Victoria, Montreal.

Earl Grey laid the corner stone of the new General Hospital, of Montreal, a short time ago. He also opened the new Medical Buildings.

At the banquet of the McGill medical re-union there were present 520.

Dr. George E. Armstrong has been appointed Chief Surgeon to the Royal Victoria Hospital in succession to the late Dr. James Bell.

By the will of the late Augustine S. Hurd \$8,000 was left to the Sherbrooke Protestant Hospital.

The discovery recently of a smallpox patient in the Hotel Dieu caused considerable excitement among the patients.

The Montreal Health Department reports a considerable falling off in the number of contagious disease cases.

Montreal is to have a modern and well-equipped dispensary for the treatment of tuberculosis. Dr. Roger Doyen, of Paris, gave a demonstration of a new method of treating the disease.

During the month of May the civic authorities of Montreal removed sixty persons to the asylum. This is a large number of insane persons for one month.

The plans have been completed for the filtration plant for Montreal. The cost will be about \$2,000,000, and the capacity about 50,000,000 gallons daily. It is expected to be completed by the end of 1913.

The Quebec Provincial Board of Health propose taking action against the St. Jerome Convent for allowing the children to go home after a case of smallpox had been discovered.

Dr. A. D. Blackader, of Montreal, has been elected president for the ensuing year of the American Climatological Association. This is the first time a Canadian has held this honor.

The National Council of Women have opened a pure milk depot in Montreal for poor children, and have secured the assistance of two doctors and two nurses to give advice.

Lord Strathcona recently gave \$100,000 for the equipment of McGill Medical College. The announcement was made on the occasion of the reunion of McGill graduates. This gift will place McGill Medical College in the first rank. The building cost \$1,000,000.

The report of McGill Medical College shows that the medical students registered numbered 380. Of this number 75 came from Quebec Province. The remainder came from the other provinces. Almost every portion of the British Empire sends some students.

The authorities of the Hotel Dieu Hospital, Montreal, announced on 10th June, that the institution would be closed for some time, on account of some cases of suspicious eruption. There was fear of a general outbreak of smallpox in the wards.

Montreal is quite agitated over the smallpox scare. A by-law has been passed making vaccination compulsory on all persons who have not had the disease or been vaccinated within seven years. A doctor's certificate that health will not permit of vaccination exempts. Those who cannot pay are vaccinated at the city's expense.

The McGill Medical Library has received some valuable additions lately. Dr. Casey A. Wood, of Chicago, gave some rare books on the diseases and surgery of the eye. Dr. Gordon Byers gave 2,500 reprints on ophthalmology. Dr. W. Osler and Sir Lauder Brimton have donated a series of fine engravings.

MARITIME PROVINCES.

At a recent meeting of the Medical Society of St. John, N.B., Dr. Bentley gave a paper on "The Physician's Fee." He pointed out that,

while the cost of living was steadily rising, the physician's fees remained practically the same. He also compared the fees in St. John with other cities.

The officers of the College of Physicians and Surgeons of New Brunswick are: President, Dr. J. D. Lawson; treasurer, Dr. Thomas Walker; registrar, Dr. Stewart Skinner. The council will ask the Legislature to pass an enabling act to permit the Canada Medical Act to come into operation in the province.

The report of the Provincial Sanatorium, at Kentville, N.S., is a very encouraging one. During the year 71 patients were admitted. Of these 54 were discharged. The report goes to show that 11 per cent. were cured, 43 per cent. arrested, and 33 per cent. improved. There were no deaths in the institution. When patients remained less than three months the results were not very satisfactory. Those who remained a sufficient length of time made satisfactory progress.

WESTERN PROVINCES.

The Dominion Government has notified the hospital directors in Calgary that it would cede three large lots, aggregating twelve acres, if the hospital would use the grounds as a park.

Last year the Winnipeg General Hospital cared for 5,935 patients. The death-rate was 6.82 and, excluding deaths within 48 hours, it was 4.9. The hospital follows up discharged patients.

A new sanitarium is to be erected on the Red River, at Elmwood, Winnipeg. The building is to be a four-story structure and is to cost \$70,000. Dr. A. D. Carscallen is at the head of the company.

At a meeting of the Vancouver Medical Society Dr. McKee reported for a committee "that the society recommend to the City Council that the health department be placed under a health commission, consisting of the Mayor and two aldermen, representing the council, and three medical men, elected by the city at large." The report was adopted.

FROM ABROAD.

Dr. Gerald Mesny, a French doctor working among the plague victims in Manchuria, was taken ill with the disease and died.

In France in 1859 the birth-rate was 1,018,000. Last year it had fallen to 774,358, and was only 70,000 in excess of the deaths.

The North American Sanitarium, for the treatment of surgical tuberculosis in children, is located at the Surrey Ave., Ventnor, Atlantic City.

In a hospital in Hartford, Conn., while an operation was in progress at 2 a.m., the lights went out, and the operation was completed by the nurses lighting matches.

China is waging a splendid fight against the growing and importation of opium. The cultivation of the poppy is rapidly being discontinued

Justice Howard, in addressing the graduating class of nurses of Troy Hospital, called upon them to use their influence against high heels, as a cause of much discomfort and injury to health.

A very successful course of post-graduate lectures were concluded recently at the Johannesburg Hospital. It is the intention to make the course an annual affair.

The June issue of the *Edinburgh Medical Journal* is a special one, in celebration of the hundredth anniversary of the birth of Sir James Young Simpson, which occurred at Bathgate on 7th June, 1811.

During the year 1909 there were reported 24,000 cases of smallpox in the United States. Several states did not report, and it is estimated that the total number of cases was considerably over 30,000 for that year.

According to Secret Remedies, as quoted in the Medical Press and Circular, the composition of Mother Seigel's Syrup is dilute hydrochloric acid, 10 parts; tincture capsicum, 1.7 parts; aloes, 2 parts; treacle, 60 parts.

It is announced that the University of Harvard will in a very short time start a medical college in Shanghai for the purpose of supplying medical men for China. There are now many large and populous districts without a doctor.

At a recent meeting of the Transvaal Medical Council a very strongly worded resolution was adopted with the view of preventing medical men giving to the lay press accounts of cases and operations and interviews on medical topics with the view of gain thereby.

Dr. Emma W. Mooers, of Boston, died recently. She was custodian of the neurological collection at Harvard Medical School at the time of her death. She suffered from a septic wound on her hand, and was attacked with streptococcic meningitis.

Dr. Joseph Price, the distinguished gynecologist, of Philadelphia, died on 6th June, immediately after an operation for appendicitis. He operated on a patient for a similar condition just four hours before his own operation.

Drs. Mooers and Southard, pathologists to Harvard Medical College, while performing a post-mortem on a man who had died of tonsillitis, became infected by handling the brain with a virulent form of streptococci. Dr. Mooers died and Dr. Southard was almost despaired of, but finally recovered.

A short time ago the Medical Council of Great Britain removed from the register the names of three practitioners because they had become connected with some institution for physical culture. It was held

that they were guilty of infamous conduct in a professional respect. The public press has condemned the action of the Medical Council. This is what might be expected.

BOOK REVIEWS.

A TEXT-BOOK OF MEDICAL DIAGNOSIS.

A Text-Book of Medical Diagnosis. By James M. Anders, M.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, and L. Napoleon Boston, M.D., Adjunct Professor of Medicine, Medico-Chirurgical College, Philadelphia. Octavo of 1195 pages, with 443 illustrations, 17 in colors. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$6.00 net; Half Morocco, \$7.50 net. Sole Canadian Agents, J. F. Hartz Co., Toronto.

There is nothing in medical diagnosis that cannot be found here. The authors are experienced writers and accomplished clinical teachers and observers. Speaking of the book from the mechanical aspect, one can only say that it is as near perfection as one could wish. The paper, type, and illustrations lend a charm to the volume. But it is the contents that the profession is specially interested in. A handsome book with poor reading matter would be a case of "O, that deceit should dwell in such a gorgeous palace!" Of a few books such as this is one could truly say: "My library is dukedom large enough." It is a splendid achievement of both authors and publishers.

HOSPITAL MANAGEMENT.

Hospital Management, A Hand-book for Hospital Trustees, Superintendents, Training School Principals, Physicians, and all who are actively engaged in promoting hospital work. By Charlotte A. Aikens, Author of "Hospital Training-School Methods and the Head Nurse;" "Primary Studies for Nurses;" "Clinical Studies for Nurses. 12mo of 488 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$3.00 net. Sole Canadian Agents, J. F. Hartz Co., Toronto.

This is a medium-sized volume, edited by Charlotte M. Aikens, and made up of a series of contributions from the pens of well-known writers and persons who have had much experience in the management of hospitals. The subjects discussed in the book by these writers are all of a very practical and useful character. We feel that this book should be in the hands of everyone who has to do with the management of hospitals. If the information to be found in these pages were put into general use in hospitals there would be much saving of time and money, and the patients and the public would be much better served than they have been in the past.

WHAT TO EAT AND WHY.

What to Eat and Why. By G. Carroll Smith, M.D., of Boston, Mass., Octave of 310 pages. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$2.50 net. Sole Canadian Agents, J. F. Hartz Co., Toronto.

Books on dietetics are often rather dry and unattractive reading. This is just the reverse. This book is got up to be read. It is not a compilation of tables and chemical formulæ, but reads on in a continuous manner. The conditions that can be influenced by diet and what diet will effect the best results are set forth in a clear and readable way. A feature of the book that is quite original is the use of side marginal titles of what the paragraphs deal with at length. This method of indexing paragraphs has long been customary in law books. It forms a very attractive feature of this book. This book is a genuinely good one on a certain phase of therapeutics.

DISEASES OF INFANTS AND CHILDREN.

A Manual of Diseases of Infants and Children. By John Ruhrah, M.D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. Third Revised Edition. 12mo volume of 534 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Flexible leather, \$2.50 net. Sole Canadian Agents, A. F. Hartz Co., Toronto.

This is a new edition of an old and esteemed book. On several occasions we have had the pleasure of reviewing this work and recommending it to our readers. That pleasure has come to us once again. Everything in the book is so neatly arranged that it is one of the most convenient and trustworthy volumes on the diseases of children that one could consult. The illustrations are especially good. The publishers have given the profession an attractive volume. This, third, edition, with many improvements, should meet with a large sale.

PROGRESSIVE MEDICINE.

A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., L. F. Appleman, M.D. Vol. 11, June, 1911. Lea and Febiger, Philadelphia and New York. Price, paper, \$6.00 a year.

This volume deals with hernia, the surgery of the abdomen, gynæcology, diseases of the blood, diathetic and metabolic diseases, diseases of the spleen, thyroid gland, nutrition, the lymphatic system, and ophthalmology. The contributors to this volume are John G. Clark, William

B. Coley, Alfred G. Gerster, Edward Jackson, and Alfred Stengel. The articles are up to date in every way. They give an excellent resumé of what has been done in these fields during the quarter just past. As we have often said, this series of volumes constitute a very useful working library. The publishers deserve great credit for the manner in which the volume appears.

OBITUARY.

THOMAS HENRY BRENT, M.D., C.M.

Dr. T. H. Brent died at his home, 22 Rathnally Avenue, Toronto, on 3rd June. He had been ill for several years, and was confined to his house for some months. He was born in Kingston sixty-two years ago. After graduating from Victoria College he practised at Newcastle for some years. In 1883 he removed to Toronto. He was a cousin of Bishop C. H. Brent, of Philippines, nephew of the late Canon Brent, of Newcastle, and a cousin of Miss Brent, superintendent of the Hospital for Sick Children. He is survived by his widow and two sons—W. C. Brent and Harold Brent.

GLENHOLM MACDOUGALL, M.D.

Dr. Macdougall, of Port Arthur, died suddenly and was buried in Toronto on 5th June. He was a son of the late Alfred Macdougall, of Toronto. He served as a surgeon with marked distinction in the army during the Boer War. At the close of the war he settled in Port Arthur, where he conducted his practice ever since. He leaves his widow and child and his mother and sister to mourn his loss. At the time of his death he was president of the Thunder Bay Medical Society. He was of a most genial disposition and deservedly popular.

GEORGE BAYNHAM, M.D.

Dr. Baynam was born in Ontario in 1880. He went west and studied in medicine in Winnipeg, and graduated in 1908 from the University of Manitoba. He located in Brookdale, Man., where he died last April.

MISCELLANEOUS MEDICAL NEWS.

UNIVERSITY OF TORONTO.

FACULTY OF MEDICINE.

Final examination—Degree with honors—1, H. W. Benson; 2, C. Bouck; 3, C. C. Birchard; 4, W. D. Smith; 5, E. W. Mitchell; 6, J. A. Gardiner; 7, H. H. Gordon; 8, L. Broe; 9, W. J. Leach; 10, C. A. McQuibban.

Medals—J. M. Livingston, gold; A. S. Eagles, first silver; C. Bouck and N. A. Christie, second silver; J. G. A. Campbell, third silver.

Chappell prize in clinical medicine—H. W. Benson.

George Brown memorial scholarship in medical science—J. M. Livingston, L. A. Roy, L. O. C. Skeeles, and J. G. A. Campbell rank in the order named.

Graduates in arts, in natural sciences, or in the biological and physical sciences—A. H. Baker, J. G. A. Campbell, G. G. Copeland, J. A. Gardiner, R. E. Guyatt, T. R. Hanley, I. D. Hayes, P. V. Helliwell, C. O. E. Kister, J. M. Livingston, A. I. McCalla, T. W. Nancekivell, F. S. Park, L. A. Roy, Miss I. M. Roberts, H. J. Shields, L. O. O. Skeeles, H. G. Smith, G. B. Stalker, W. L. Whittemore, W. A. Wilson.

Group I.—Medicine, clinical medicine, pathology, and therapeutics—1, H. W. Benson; 2, J. M. Livingston; 3, L. A. Roy; 3, C. Bouck; 5, A. S. Eagles; 6, R. D. Defries; 7, F. S. Park; 8, N. A. Christie; 9, Miss I. M. Roberts and G. G. Copeland; 11, W. O. Bonsor and H. J. Shields; 13, C. W. Sinclair; 14, E. W. Mitchell.

Group II.—Surgery, clinical surgery, surgical anatomy, and pathology—1, R. D. Defries; 2, H. W. Benson; 3, N. A. Christie and A. S. Eagles; 5, J. M. Livingston; 6, C. Bouck; 7, C. W. Sinclair; 8, W. D. Smith; 9, A. H. Baker; 10, T. R. Hanley.

Group III.—Obstetrics, pædiatics, gynæcology, and pathology—1, C. Bouck; 2, A. S. Eagles; 3, N. A. Christie; 4, J. M. Livingston; 5, T. R. Hanley; 6, L. A. Roy; 7, H. W. Benson; 8, F. S. Park and Miss I. M. Roberts; 10, J. A. Gardiner; 11, W. D. Smith; 12, C. C. Birchard; 13, A. H. Baker and R. D. Defries; 15, W. J. Leach; 16, H. H. Gordon; 17, E. W. Mitchell; 18, J. G. A. Campbell; 19, L. Broe; 20, Miss S. A. Cunningham; 21, G. G. Copeland.

Group IV.—Medical jurisprudence, toxicology, hygiene, and psychiatry—1, T. R. Hanley; 2, A. S. Eagles; 3, J. G. A. Campbell; 4, C. G. Birchard and F. S. Park; 6, C. Bouck; 7, J. A. Gardiner; 8, G. G. Copeland, H. G. Smith, B. R. Burwash, E. W. Mitchell, H. E. Thompson, N. A. Christie, R. D. Defries, A. P. Hart,

W. A. Wilson, C. R. Wilson, 18, H. H. Gordon and H. M. Mosdell; 20, H. W. Benson and L. O. C. Skeeles; 22, G. A. McQuibban.

Pass—C. C. Alexander, A. C. Armstrong,* H. R. Barker, W. D. Barrett, N. J. Barton, H. Bell,* R. Blanchard, J. C. Bradley, L. F. Brogden, F. T. Bryans, F. S. Burke, C. M. Burroughs,* H. C. Burroughs, W. H. Butt,* W. C. Campbell, W. R. Cann, G. W. D. Carleton,* G. M. Carson, J. P. S. Cathcart,* W. E. Caven, C. W. Clark, G. H. Clement, L. H. Coates, M. G. Cody, W. M. Cody, C. F. Connolly (æg.), W. A. Costain, H. C. Davis,* D. L. Dick,* R. G. Douglas, E. V. Emery, D. T. Evans, N. J. Ferrier, A. Fettes, E. J. J. Finnerty, Miss S. L. Fotheringham, C. L. R. Fuller, A. R. Gilchrist, T. J. Glover, R. M. Gorssline, L. O. Griffin, J. E. Hagmeier, L. G. Hagmeier, W. R. W. Haight, H. H. Harvie, H. Heffering, C. W. Henders, G. L. Hodgins, R. O. Hodgson, W. L. Hutton, R. A. Ireland, L. P. Jones, L. A. Jones, A. J. Keeley,* W. W. Kells,* E. E. Kells,* T. F. Kelly* (æg.), L. W. Kergin, A. N. Kitt,* I. M. Lajoie, J. C. K. Langford, J. G. Lee,* A. V. Leonard, A. F. Lepper, M. Levy,* R. D. Mace, J. E. Macklin, M. R. Mahlangeni, W. Mainprize, H. K. Manning, A. C. Martin, W. G. Martin, A. F. Maverty,* J. J. Middleton,* H. B. Moffatt, J. K. Mossman, R. W. Munro,* C. J. McCabe, P. S. McCaffrey, J. F. McCracken, C. D. McCulloch,* W. B. MacDermott,* M. McDonald,* V. A. McDonough, G. L. McFarlane,* E. H. McGavin, F. E. B. McGilvery, W. J. McKenzie, E. A. Mackenzie, J. Maclean, A. H. MacMurphy,* J. A. McPherson, J. W. McQuibban, G. A. O'Leary,* H. Orr, T. D. Park,* M. A. Pollock,* A. G. Poole, J. A. Reid, J. C. Richards,* E. A. Richardson,* J. F. Rigg, D. Rigg, G. B. Rose,* A. E. Ross, A. Rossell, H. L. Rowntree, M. C. Salmon, F. R. Scott, L. J. Sebert,* T. J. Sexton,* N. Shachnove, N. C. Sharpe,* R. L. Shields, W. W. Smith,* R. S. Smith, I. R. Smith,* H. F. Sproule,* F. Stainsby, Miss E. L. Stewart, R. R. Stirrett,* J. D. Struthers,* P. J. Sweeney,* D. Sweeney,* W. C. Swencrton, F. L. Thompson, R. N. Tripp, W. R. Tutt, M. C. Vaughan, A. H. Veitch, C. W. Waldron, F. B. Ware,* F. W. Weston,* W. M. Wilkinson, J. P. Wilson, H. M. Yelland, C. R. Young, R. W. Young,* E. W. Zumstein.

C. F. Connolly is granted ægrotat standing in the subjects of medicine, surgery, pathology, obstetrics, gynæcology, hygiene, ophthalmology, otology, laryngology, and rhinology, and pædiatrics.

T. F. Kelly is granted ægrotat standing in the subjects of hygiene, ophthalmology, otology, laryngology, and rhinology and pædiatrics.

The following students have completed supplemental examinations in the following subjects: Medicine—A. Steinberg, G. L. Williamson. Surgery—A. D. W. Kay, A. Steinberg. Pathology—T. A. Brandon.

Gynæcology—A. Steinberg. Clinical medicine—Miss M. A. Doherty, K. M. Murray, A. G. Scott, G. L. Williamson. Clinical surgery—T. A. Brandon. Hygiene—F. O. Mahoney. Ophthalmology, otology, laryngology, and rhinology—A. Steinberg.

The following students are required to pass supplemental examinations in the following subjects before completing the fourth year: Medicine—J. G. Lee, G. L. McFarlane, L. J. Sebert, R. W. Young. Surgery—C. M. Burroughs, C. D. McCulloch, W. B. MacDermott, G. A. O'Leary, I. R. Smith, D. Sweeney, F. B. Ware. Clinical Surgery—J. P. S. Cathcart, H. C. Davis, A. N. Kitt, M. Levy, R. W. Munro, C. D. McCulloch, M. McDonald, G. A. O'Leary, M. A. Pollock, J. C. Richards, E. A. Richardson, J. D. Struthers, D. Sweeney. Clinical medicine—A. C. Armstrong, H. Bell, W. H. Butt, G. W. D. Carleton, H. C. Davis, D. L. Dick, H. Heffering, G. W. Kells, T. F. Kelly, J. G. Lee, M. Levy, J. J. Middleton, C. D. McCulloch, W. B. MacDermott, M. McDonald, A. H. MacMurchy, T. D. Park, J. C. Richards, E. A. Richardson, G. B. Rose, L. J. Sebert, T. J. Sexton, N. C. Sharpe, W. W. Smith, I. R. Smith, H. F. Sproule, R. R. Stirrett, P. J. Sweeney, F. B. Ware, F. W. Weston, R. W. Young, J. H. Travis. Pathology—H. Bell, C. M. Burroughs, W. H. Butt, P. J. Emerson, H. Heffering, A. J. Keeley, G. W. Kells, J. G. Lee, J. C. Richards, E. A. Richardson, L. J. Sebert, I. R. Smith, H. F. Sproule, F. B. Ware, R. W. Young. Obstetrics—J. J. Middleton, W. B. MacDermott, R. W. Young. Gynæcology—J. G. Lee. Hygiene—A. J. Keeley. Ophthalmology, otology. Laryngology, and rhinology—P. J. Emerson, A. J. Keeley, A. F. Mavety, C. D. McCulloch, W. B. MacDermott, E. A. Richardson, H. F. Sproule, F. B. Ware, R. W. Young.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

The facts brought out by the medical inspection of the school children of Toronto are somewhat alarming. During the month of May 14,740 pupils were examined. The conditions found were reported as follows:

MEDICAL INSPECTION.

Physical defects found, 642; with defective vision, 110; with defective hearing, 28; with hypertrophied tonsils, 300; with defective nasal breathing, 99; with enlarged glands, 62; with defective teeth, 36; with defective palate, 2; with orthopedic defect, 5; complete physical examinations, 14; defects found in these, 15; normal, 3; with defective teeth only, 7; diseases found, 677; with diphtheria, 1; with scarlet fever, 4; with

measles, 62; with chickenpox, 16; with whooping-cough, 3; with mumps, 23; with pulmonary tuberculosis, 8; with acute tonsillitis, 4; with acute conjunctivitis, 35; with scabies, 11; with ringworm, 17; with impetigo, 4; with favus, 1; with cardiac disease, 1; with malnutrition, 6; with miscellaneous diseases, 477; excluded for contagious diseases, 169; excluded for suspected contagious diseases, 10; excluded for exposure to contagious diseases, 48.

NURSES' INSPECTION.

Schools visited (kindergarten rooms only), 10; children examined, aged 4 to 7, 402; children with abscesses in teeth, 127; number of abscesses, 211; children with 6-year molars defective, 23; number of 6-year molars defective, 100; children with cavities in temporary teeth, 363; number of cavities in temporary teeth, 2,093; children with perfect mouths, 39; children who masticate food well, 169; children who masticate food fairly, 126; children who masticate food poorly, 69; children not able to masticate food, 38; children with comparatively clean mouths, 63; children with fairly clean mouths, 173; children with unclean mouths, 166; children who brush teeth daily, 58; children with temporary teeth permanently lost, 76; number of temporary teeth permanently lost, 311; number of irregular teeth, 27; number of lectures given, 10.

DENTAL INSPECTION.

The dental inspection revealed a condition equally bad, and calling for proper treatment. The number of children with carious teeth were 3,921. Many other oval defects were found. As a result of this work 1,195 children have had teeth filled, 111 children have had tonsils removed, 105 children have had glasses fitted, 442 treatments and 818 instructions being given.

JOHN J. WARD, POET.

Controller Ward, of Toronto, is somewhat inclined to poke fun at Dr. Hastings' radical views as to germ dangers. When the Health Officer was denouncing the common drinking cup before the board the other day the Controller dashed off the following gem, in which President-of-Council Spence figures as a victim:

"Hurrah for the Doctor of Spotless Town!
 He spotted a germ on Spence's gown;
 It would not be meet, for justice's sake,
 To burn the President at the stake;
 But he'll go behind the bars, we hope.
 Bars of what? Why, bars of soap!"

A NATIONAL LABORATORY.

A national laboratory is to be established in Ottawa, under the auspices of the Health Committee of the Conservation Commission. The proposal, which was made by the commission, has been approved by a sub-committee of the Cabinet Council, and it is expected that it will be given effect to very shortly.

The plan was evolved by the Health Committee, the idea being the creation of a permanent national council of health under the Conservation Commission acting in an advisory capacity to federal and provincial governments on questions affecting public health and hygiene.

A national laboratory was part of the plan, and it is proposed that it shall manufacture toxins, anti-toxins, sera, etc., while conducting analyses. These products, it is believed, will be purer than the common run and cost less.

THE APOLLINARIS WATER.

This is one of the finest natural waters in the world. Professor Kionka, who has made a careful examination of it, speaks thus: "Therefore, the Apollinaris spring, as a table water, and also in therapeutic respect as a healing water, is one of the valuable mineral springs in Germany." The methods of collecting and bottling the water are the best that can be devised.

THE DOMINION SCHOOL OF NURSING, 263 COLLEGE STREET, TORONTO.

It has long been felt that some arrangement should be made whereby well-trained nurses at moderate charges could be furnished for families who could not afford the fees usually charged by the regular professional nurses. It has also been felt that the visiting nurse is far from satisfactory in many ways, the patient requiring the constant attendance of a nurse.

The school of nurses which Mrs. Rachel Smythe has founded meets these two conditions perfectly. She gives a thorough training and supplies well-qualified nurses at fees ranging from \$7 to \$15 per week. This plan fulfills the three conditions of efficiency, moderate charges, and continuous attendance on the patient. Mrs. Smythe admits only those to her school that are likely to make good nurses and that are of the best character.

Mrs. Smythe is a thoroughly trained nurse, receiving her own training in the famous school in connection with St. Thomas' Hospital, London, England. In her school she uses the most approved text-books. She is also an authoress on nursing and massage subjects.

the public shall at all times be required to provide that such drinking water shall be pure and wholesome.

GEORGE BERNARD SHAW AND THE DOCTORS.

Shaw's latest book, containing three plays, of which "The Doctor's Dilemma" seems most deserving of attention. The dilemma is essentially this,—whether the doctor shall save from death of tuberculosis, by means of a "culture" whose use he alone understands, a noble, worthy, but unsuccessful friend, or a worthless but brilliant artist with whose wife the doctor happens to be in love. The doctor saves his friend, the artist falls into the hands of a less expert physician and dies. And the play stops inscrutably. Apart from the medical impossibility of the plot and the absurdity of depicting a physician in such a situation, the conclusion is not even convincing as to whether the doctor followed the higher or the lower code of ethics, the former being, of course, that which Mr. Shaw professes.

In the preface to "The Doctor's Dilemma," Mr. Shaw expounds his theory of the problem by explaining that the fault is with the public, which persists in idealizing the doctors, and, by expecting them to live up to impossible standards, forces them into a perpetual bluff. This somewhat "lame and impotent conclusion" hardly seems to consort with Mr. Shaw, the realizer of ideals, but so Mr. Scott would interpret it. Mr. Shaw's own attitude towards the medical profession is summed up in the fourteen conclusions and maxims with which his preface ends. In substance, these are as follows:

"1. Nothing is more dangerous than a poor doctor—not even a poor employer or a poor landlord.

"2. Of all the anti-social vested interests, the worst is the vested interest in ill-health.

"3. Remember that an illness is a misdemeanor and treat the doctor as an accessory unless he notifies every case to the public health authority.

"4. Treat every death as a possible, and under our present system a probable, murder by making it the subject of a reasonably conducted inquest, and execute the doctor, if necessary, as a doctor, by striking him off the register.

"5. Make up your mind how many doctors the community needs to keep it well. Do not register more or less than this number, and let registration constitute the doctor a civil servant with a dignified living wage paid out of public funds.

"6. Municipalize Harley Street (the chief place of residence of London doctors).

"7. Treat the private operator exactly as you would treat a private executioner.

"8. Treat persons who profess to be able to cure disease as you treat fortune tellers.

"9. Keep the public carefully informed by special statistics and announcements of individual cases of all illnesses of doctors or in their families.

"10. Make it compulsory for a doctor using a brass plate to have inscribed on it, in addition to the letters indicating his qualifications, the words, 'Remember that I, too, am mortal.'

"11. In legislation and social organizations, proceed on the principle that invalids, meaning persons who cannot keep themselves alive by their own activities, cannot, beyond reason, expect to be kept alive by the activities of others. The theory that every individual alive is of infinite value is legislatively impracticable. The man who costs more than he is worth is doomed by sound hygiene as inexorably as by sound economics.

"12. Do not try to live forever. You will not succeed.

"13. Use your health, even to the point of wearing it out. That is what it is for. Spend all you have before you die, and do not outlive yourself.

"14. Take the utmost care to get well born and well brought up. Be particularly careful to have this done at the expense of the nation, the chances being about forty to one against your being able to pay for it directly yourself." *Boston Med. and Surg. Jour.*, 30th March.

MEDICAL PREPARATIONS, ETC.

AN IMPROVED HYDRATED MAGNESIA.

An agent which undoubtedly deserves to be more widely employed than it is at present is magnesium oxide. While long held in high professional favor, many physicians in the past have refrained from prescribing it because of the many faulty preparations which found their way upon the market. Practitioners who have felt this restraint would do well to make a test of Milk of Magnesia, P., D. & Co., an improved hydrated magnesia which lacks the objectionable features of many similar preparations, and which may be depended upon for uniform and certain results.

Milk of Magnesia, P., D. & Co., is a purely aqueous mixture, concentrated and active, each fluid ounce representing about thirty-two grains of magnesium hydrate. It does not contain sodium sulphate. It is entirely stable under ordinary conditions, remaining unchanged indefinitely. The product is valuable as an antacid and gentle laxative in dyspepsia, sick headache, gout, and other complaints attended with hyperacidity and constipation; in diarrhea due to intestinal fermentation; in gastric disorders peculiar to children in which acidity of the primæ viæ is often a prominent feature; and whenever gastric irritability and deranged function are present, as evidenced by nausea, gastralgia, eructation, pyrosis, and other manifestations of hyperacidity. It is pleasant to take, being readily accepted by children and persons of fastidious taste.

QUININE WITHOUT EBRIETY.

When two such well-known drugs as antikamnia and quinine are offered to the profession it hardly seems necessary to indicate the special classes of affections which call for their use. Antikamnia is unquestionably a perfect substitute for morphine for internal administration. It has complete control over pain, while it is free from the undesirable after-effects of the alkaloid of opium. In cases of malarial fever the combination of antikamnia and quinine should be given. For all malarial conditions quinine is the best remedy we have. But, associated with this condition, there is always more or less pain, and antikamnia will remove these unpleasant symptoms and place the system in the best condition for the quinine to do its work. There are a number of ailments, not closely defined, which are due to the presence of malarial poison. All such conditions are greatly benefited by the use of "Antikamnia and Quinine Tablets." The Antikamnia in these tablets not only relieves the pain, but prevents the ebriety or ringing sensation produced when quinine is administered alone. In headache (hemicrania), in the neuralgias occurring in anæmic patients who have malarial cachexia, and in a large number of affections more or less dependent upon this cachectic condition, the regular administration of these tablets is indicated.—*Medical*

ANTIPHLOGISTINE.

This remedy is spoken of highly for sunburn, bee stings, insect bites, sprains, bruises, etc. It is a valuable remedy for many summer accidents.