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INDEX TO VOLUME XLIII.

The Canada Lancet

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EDITORIAL.

TWO HONORED DOCTORS.

It does not fall to the lot of doctors often to have monuments erected to their memory after they are dead by those whom they had aided with their medical skill, or by gifts of money.

For forty years there lived and practised in Dufftown, Banffshire, Scotland. Dr. James A. Innes. In a recent issue of the *British Medical Journal* he is described as a man of much ability and large culture, but of a most retiring disposition. He gave his whole time to his patients; and it would appear much of his money, also. He was a true medical hero.

Ian Maclaren was once asked if there was ever any doctor of such self sacrificing characteristics as Weelum MacLure. He replied by saying: "Not one, but many." Dr. James A. Innes was such.

After his death in the year 1905, no fewer than 1178 subscribers erected in the churchyard where he was buried a beautiful monument to his memory. It is in the form of a tall obelisk with an ornamental base on a granite pedestal.

The other one is Dr. Carroll, of yellow-fever fame. He lost his life in his devotion to medicine, and the sacrifice of one has been the gain of many.

It became known that his widow was in financial difficulties, and that her home would be sold over her head. The medical societies and the medical profession of the United States responded promptly to the call for assistance and raised the money required to lift the mortgage and give her some ready cash.

He too was a medical hero and honored in his death.

JEALOUSY IN THE MEDICAL PROFESSION.

There are few better marks of a weak character than jealousy. Just about in inverse ratio to one's judgment will be his suspicion. If he cannot place confidence in himself, he will be very liable to mistrust others.

The following from Professor William Osler is to the point. We quote it from a recent issue of the *Jour. A. M. A.*:

"If you have the sense to realize that this is inevitable, unavoidable, and the way of the world, and if you have the sense to talk over, in a friendly way, the first delicate situation that arises, the difficulties will disappear and recurrences may be made impossible. A man of whom you may have heard as the incarnation of unprofessional conduct, and who has been held up as an example of all that is pernicious, may be, in reality, a very good fellow, the victim of petty jealousies, the mark of the arrows of a rival faction, and you may, on acquaintance, find that he loves his wife and is devoted to his children, and that there are people who respect and esteem him. After all, the attitude of mind is the all-important factor in the promotion of concord. When a man is praised, or when a young man has done a good bit of work in your special branch, be thankful—it is for the common good. Envy, that pain of the soul, as Plato calls it, should never for a moment afflict a man of generous instinct and who has a sane outlook in life."

We have known some excellent members of the profession hounded in a most disgraceful manner by others in the profession. This is a very poor business. In the end it does not pay. The sooner the members of the medical profession frown down this sort of thing the better it will be for all.

There is room for all; and one has as much right to share in what room there is as another. The only requirements should be that he is a true professional gentleman. Size of practice, quality of clientèle, style of residence, appointments held, should count for nothing. Think of Carroll, Innes, Maclure!

ALCOHOL AS A BEVERAGE.

From the Revenue Departmental returns for Canada we learn that during the fiscal year ended some time ago, the consumption of alcoholic beverages in this country was per capita as follows: Spirits, .806 gallons; beer, 5.348 gallons; wine, .085 gallons. This gives a total of 6.239 gallons for each person.

Whatever may be the views of various members of the medical profession as to the value of alcohol as a medicine, there need be very little difference of opinion as to its uselessness, and even harmfulness, as a beverage. We think the amounts shown above, as the consumption in this country, were quite sufficient to have caused a very great deal of crime, poverty, ill health, suffering, and many deaths. Certain causes

of death are mainly due to alcohol, such as cirrhosis of the liver, granular kidney, and delirium tremens. Taking our last census it may be safely said that at least 1,500 deaths yearly are caused by the use of alcohol as a beverage. But many more are influenced indirectly by the cause. For example, many cases of pneumonia are indirectly caused by intemperance and the fatal issue almost solely due to it. Accidental deaths are in not a few instances dependent upon the abuse of alcoholic beverages. This is true also of many instances of homicide and suicidal deaths.

But a careful study of the children of drunken parents has proven that a very large percentage of them are either dull, or vicious, or both.

Enough has been said to show that the medical profession should use its influence against the consumption of alcohol as a beverage. Such eminent names as Treves, Horsley, Marcy, Woodhead and others can be quoted as holding this view.

PREVENTABLE DEATHS AND SICKNESS IN CANADA.

There are in Canada 260,000 persons always seriously ill. Of this number about 45,000 are consumptives. At least one-half of all this illness is preventable. If we put the deaths and lost time from the preventable causes into dollars it would amount to $125,000,000. In the face of this are we doing our duty towards preventing disease?

One of the things in vital statistics that at once strikes us is that life is lengthening in many countries. The death rate is gradually being reduced, and, consequently, the duration of life is being lengthened. In the United States the death rate is 16.5 per 1,000, in France about 20, in India 42. In some cities it is still very high. In Dublin it is 40, in Moscow 37, while in Frankfort and the Hague it is only 16. In London the death rate is now about 15, whereas in the 16th and 17th centuries it was high and varied from 40 to 80, according to the presence of epidemics.

Turning for a moment to certain diseases we meet some marked changes. The death rate from tuberculosis in England is now only one-third of what it was 70 years ago. The death rate from pneumonia now almost equals that of tuberculosis. The typhoid fever rate for sickness and deaths is falling very much in many places. Better water and purer milk has cut down the death rate from such figures as these: 291 to 10 per 100,000, or 105 to 22. In the United States cities watered from polluted rivers have a typhoid fever death rate of 62 per 100,000, while cities receiving water from conserved rivers have a death rate from

this disease of only 18 in the same population. We all know the story of small pox in pre-vaccination days and in countries where vaccination is neglected. Yellow fever in the past has been one of the greatest of scourges in certain localities. As the result of our knowledge that a mosquito spreads the disease the malady has been almost banished from America. In the case of typhoid fever it has been calculated that for every death prevented by purifying the water and milk supply two to three other deaths are prevented as well by these better conditions.

Taking the statistics of other countries, such as Britain and the United States, it has been estimated that there are approximately 125,000 in Canada who have or have had syphilis. Syphilis and gonorrhœa are responsible for many of our defectives. It is held that one-third of all the blindness is due to gonorrhœa.

In many civilized countries there has been a marked reduction in the death rate under 50 years, but practically none in ages over 50. This fact alone would go far to show the advances that have been made in preventive medicine.

In the great work of preventive medicine the medical profession must rise to a true conception of its duty in the matter of the use of tobacco and alcoholic beverages. In Great Britain the per capita consumption of alcoholic beverages of all sorts amounts to some $20. This is too much, as it is the cause of much crime. The investigations made by the Massachusetts Bureau of Statistics some years ago proved that intemperance caused in that state 84 per cent. of the crime, 48 per cent. of the pauperism, and 35 per cent. of the insanity. Life insurance companies have found by actual experience that the death rate among abstainers is about 25 per cent. better than among those who drink, and many of these would be classed as moderate users, so that the death rate must be very much increased among those who indulge freely.

In the matter of tobacco there is no doubt now but that the endurance of those who do not use it is greater than among those who do use it. Just the other day the returns were given out that the average daily use of cigarettes, for those old enough in the United States to use them, is eight per day. But many do not smoke them, and, therefore, the real consumption must be nearer double this number for the users. The sad part of it all is that they are consumed largely by young boys. The total results are most disastrous and tend enormously to lower the nations' vitality of the people. Many of the cases of heart trouble after mid-life are due to the abuse of tobacco before mid-life, and similarly the abuse of alcohol lays the foundation for much of the nations' crime, pauperism, insanity, sickness, misery, loss of time, and for many of the cases of cirrhotic livers, granular kidneys and apoplexies.

In face of these facts it may be said boldly that the Federal Government, the Provincial Governments, and the Municipalities are not doing their duty. A conservative estimate of the monetary loss to the country of the deaths and sickness of a preventable character has been shown to be at least $125,000,000. Is it worth while to do something to stay this loss? We think it is the first question of the day and the statesmen must deal with it without delay.

THE WAYS OF THE PATENT MEDICINE MAN.

It would be difficult to think of any way by which the virtues of certain proprietary medicines could be brought before the notice of the people that has not been thought of.

The secret nostrum, the composition of which is studiously concealed, but the claim made that it contains some rare plant from Egypt, or South America, etc., is lustily advertised. The preparation is surrounded by all the mysticism possible. The cures it has made are vaunted; and the bold claim put forth that there are many fraudulent imitations, because of the virtues of the remedy. The vendors of this remedy decry all others as they decry the usefulness of the medical profession.

Then there is another class that publishes the composition of the remedies. Many ingredients are named on the wrapper that may or may not be found in the bottle—oftener the latter than the former. Great claims are made for the mixture. The poor layman does not know any better. What does he know about the medicinal value, or the absence of such, of cherry bark, or celery, or couch grass, or dogwood, or burdock, or dandelion? Extravagant claims are made in the lay press by means of advertisements and paid for readers, and he comes to believe them.

Then, again, there is the prescription. Go to your druggist and buy some of this thing, and some of that thing, and some of another thing, all common enough; but there is an ingredient with a coined name. This represents some article put on the market by certain persons. Of recent date we have seen Kargon and Marmola advertised in this way. Here is where the secret part of the business is to be found.

But the advertiser is busy. He thinks of all sorts of ways and means of pushing his remedy. Some person writes to the press setting forth his sufferings, and another replies telling him where to find a "sure cure." All this, of course, is paid for. It is thus very hard to oppose this business, because the public press is run to make money, as well as to give news.

But there is some daylight ahead. Many countries are now becoming aware of the fact that quite a number of the remedies on the market are useless, and others are positively injurious. In the United States, the villainous vending of cocaine has been put a stop to. Many remedies that were only disguised alcoholic drinks for the "dry states" have also had their wings clipped.

Several things are greatly needed; one of these is courage. Medical societies should take up some proprietary remedy that is advertised with loud claims. An analysis should be secured and the said society should then send the results of its findings with suitable comments to the public press as items of news of its proceedings. We must try to cure poison by the suitable antidote. Medical journals, medical men and medical societies have been remiss in their duty to the public in this regard. They have been lacking in courage. When any one advertises a cure for consumption this should be promptly branded far and wide as a lie.

Then we should constantly seek to secure such laws as will forbid making claims that are beyond the range of truth. No Government would allow merchants to sell by light weights or short measures. Why then should we allow another class to sell by light quality? In other words, to sell something to do something which it cannot do. To sell by light quality is just as bad as to sell by light weight. Some countries are awakening to this fact; and a stop is being put upon the loud mouth.

But there is more than this to be done. The medical profession should insist that the laws should be so amended that no habit-forming drug would be allowed the market in any proprietary mixture. Why should the right be accorded a shark in human form to sell chloral or opium, or cocaine under any pretence whatever? Preventive medicine demands this. A man cannot go into a drug store and buy ergot, but he can go into a drug store and buy emmenagogue pills in any quantity.

Well, we must keep at it. The lay press will not be with us to any great extent. The history of the fight in the States for the Pure Food and Drug Act proves this. It was then made plain that the adverising patronage pretty well settled on what side the press would range itself. But the fight must be for light, and light will come.

THE PRESENT STATUS OF THE ANTI-TUBERCULOUS WORK IN CANADA, 1908.

Such is the title of a neat pamphlet that has reached us. It was prepared by Dr. J. H. Elliott, of Toronto, for the International Congress on Tuberculosis which was held last year in Washington. It has been adopted by the Canadian Committee and bears the name of Dr. J. G.

Adami, as chairman, and Dr. J. H. Elliott, as secretary. We welcome this pamphlet. It contains much very useful information. Dr. Elliott is to be congratulated upon the results of his labors It is not a difficult matter to write a pamphlet of 32 pages, but the difficulty comes in finding the accurate facts to put in it. In this respect we can bear testimony of the labor Dr. Elliott must have bestowed upon this work. We recommend its careful study. Copies can be had from Messrs. James Hope and Sons, Ottawa.

From it we learn that the death rate from tuberculosis in all forms is 180 per 100,000 of the population. In England and Wales it is 180.6, and in the United States 196.9, while in Massachusetts it is 234.5.

The Federal Government of Canada is doing careful work on tuberculosis problem among the Indians, with immigrants, in the matter of importing and exporting cattle, and in the control of diseased animals.

Taking the census of 1901 as a basis it is estimated that on our present population the death rate is not less than 11,700 a year from all forms of tuberculosis.

British Columbia has enacted that tuberculosis shall be reported, that the house shall be disinfected, that spitting in public places is unlawful, and that milk dealers must show by the certificate of a veterinary surgeon that cows are free from disease. In Alberta notification is compulsory as well as change of address. Disinfection after death or removal is exacted. In Saskatchewan there are compulsory notification and disinfection. In Ontario the government makes a grant of $4,000 to aid in the erection of buildings, and a weekly allowance of $1.50 towards the keep of public ward patients. In Quebec notification is compulsory and disinfection after death or removal. Regulations are enacted as to the cubic space of dwellings, factories, educational institutions, etc. Diseased meat can be confiscated. In Nova Scotia spitting is prohibited in public places, city schools are inspected, but notification is not yet exacted. In Manitoba and New Brunswick there is no special legislation as yet.

Much information is furnished as to what the municipalities are doing. An account is also given of the anti-tuberculosis leagues of the country. We think the perusal of this pamphlet will do much good. It should be given a wide distribution.

ANAPHYLAXIS.

Of late this subject has received much attention, and, while there are many problems in connection with it that are not yet solved, there are many features of it that have been fairly well settled. As every

aspect of immunity is highly interesting, that phase of it known as anaphylaxis should receive due consideration.

When certain serums or proteins are introduced into the body of an animal there frequently develops a marked hypersusceptibility to any further quantity of the same serum or protein.

The problem of anaphylaxis appears to be a specific one. In other words, the animal does not respond to the injection of another serum or protein than that first administered. For example, if a rabbit be given a dose of horse serum the sensitiveness of system thus caused will not respond to egg protein, but will to a second dose of the horse serum. So if egg protein be given, the animal will not respond to horse serum. It thus becomes clear that if the first dose of serum or protein is followed at a later date by a second dose of the same serum or protein, very serious or fatal effects may follow. All this lies very close in with the phenomena of immunity. The injection of a serum appears to produce an antibody, and this is known as anaphylactin. If a guinea-pig be injected with horse serum it will become sensitive to further doses of serum. It has been shown that if serum from a sensitive guinea-pig be injected into another guinea-pig which has received no previous injection, it will be rendered sensitive. There is, therefore, some sensitising body developed.

This bears very importantly upon treatment. There may be great danger in giving sera a second and third time to patients. The first injection results in the formation of an antibody, which unites with the serum of a second injection, the union being a toxic material.

A NEW VOLUME.

For a period of forty-two years the CANADA LANCET has paid its regular visits to doctors' offices in every portion of the British Empire and throughout the United States. To its many readers the best of greetings are extended. No effort will be spared to make this volume the best in the long series. Our motto is *A United profession in Canada and the highest ideals of health for the people.*

ORIGINAL CONTRIBUTIONS.

THE ACTIONS OF DRUG-STUFFS UPON THE HEART.*

By V. E. HENDERSON, M.A., M.B.,
Associate-Professor of Pharmacology, University of Toronto.

THE last few years have led to a very great increase in our knowledge of the pharmacology of the heart, and we are to a large extent dropping the use of many of the older terms, such as "cardiac stimulant," because they are no longer precise enough and no longer convey any exact indication of the changes which they denote. This great change has been due to the advance in physiological knowledge of the heart-muscle which was begun by Gaskel and extended by Englemann, Langendorff and many other workers. The result of the physiological advance has been a corresponding one in pharmacology, and Williams, Gottlieb and Magnus, Böhme and others have cleared up many of the intricacies of the action of drug-stuffs upon the heart.

The recent physiological advance has taught us to look upon the heart as a great muscular mass, in which each muscle cell is in intimate muscular union with its fellows on all sides. The muscular mass is a unity, nowhere interrupted from the venous orifices to the arterial outlets. We long ago learned that the two auricles were in muscular union with each other, and hence beat synchronously; and that the same facts held good for the two ventricles. Between auricles and ventricles, however, there was supposed to be a fibrous interval, bridged only by nerves. The fibrous interval does indeed exist about the circumference of the mammalian heart, but in the septum it is not complete, as there passes through it a bundle of peculiar muscle cells which extends from the auricular septum (part of the auricular muscle mass) downwards in the ventricular septum, and from its apex radiates out into all parts of the ventricular mass. This connecting link is known as the bundle of His.

We have also learned that if the cardiac muscular mass is supplied with oxygen and certain salts in solution, it has the power of contracting rhythmically, and will continue to do this for hours, even if removed from the body, provided it be kept warm. Indeed, each muscle cell seems to have this property of contracting rhythmically, though it is not equally developed in all. Contractility is a common property of all muscle cells, but a contraction occurs in skeletal muscle only in response to a stimulus. Automatic contractivity, or the power of contracting rhythmically without being in receipt of a rhythmically recurring stimulus seems to be normally absent in skeletal muscle, but occurs in the intestine and the uterus as well as in the heart. In all these three cases we

* An address delivered before the Hamilton Medical Society, June 21st, 1909.

find individual nerve cells and ganglia disturbed throughout the muscular mass. These peripheral ganglia undoubtedly play an important part in the rhythmical movements of the intestine, and may do so in those of the heart and of the uterus. Rhythmical contracticity might be absent, if the ganglia cells were completely removed, but of this, we have for the heart, no definite proof. In the heart itself this property of rhythmicity seems to be much more highly developed in the cells at the mouth of the great veins and in the coronary sinus than in the bundle of His, and much more highly developed here than elsewhere in the heart.

We have thus referred to two physiological properties of the heart muscle, contractility and rhymicity. There are, however, others of equal importance. We believe that a wave of contraction arises at the mouths of the great veins or of the coronary sinus, then spreads over the auricles from these points. From the auricle it passes to the ventricles over the bundle of His. The proofs of this lie in the fact that, firstly, the sinus venosus (the cavity formed by the junction of the great veins in those animals in which it is present) contracts before the auricle, and in all animals the auricle contract before the ventricles. Second, it is now certain that if you cut the bundle of His only, or if this bundle becomes damaged by poison or by disease, the contraction of the ventricles does not regularly follow that of the auricles, while all nerve connections between auricle and ventricle may be broken without in the least interfering with the auricular-ventricular sequence, if this muscular bundle is intact. We are forced to conclude that each muscle cell conveys to its immediate neighbour the impulse to contract which it has received. The conductivity (as we can name this property of conveying impulse) is so good in the cells of the auricles and of the ventricles that all the cells forming the muscle mass of each chamber contract practically simultaneously, while the conductivity of the bundle of His is so much poorer that there is a distinct interval between the contraction of the auricle and that of the ventricles.

The property of irritability is one to which we need to refer only briefly. All living matter is irritable, that is, it will respond to appropriate stimuli with some change. The change in a muscle is manifested in its change of form, its contraction, and the heart, we find, will respond to an electric shock or a mechanical stimulus with an extra contraction which will begin at the point stimulated and spread to every part of the heart.

The last property is that of tone, often referred to as the elastic state. Every muscle cell is elastic. If you stretch it, it returns to its previous length. Every muscle cell when it contracts actively, only returns to its previous length if it is forced to do so by some force. The heart

muscle cell relaxes because the blood enters the cavity of the heart. The muscle cell when contracted is shorter and thicker than a normal cell, and it will now require a greater force to stretch it. If stretched when contracted, and the stretching force be removed, it will return to its contracted length. An increase in tone may be described as an increase in the state of partial constant contraction normally present. The uterus after parturation contracts rhythmically, but each contraction is not followed by a complete relaxation; the tone of its muscle cells gradually increases. Each muscle cell is getting shorter and thicker; the force needed to stretch its cells is becoming greater. Changes in tone also occur in the heart muscles, and can be brought about by the action of drugs.

This analysis of the activities of the heart has disclosed five physiological properties, viz., rhythmicity, contractivity, conductivity, irritability and tone. These properties can be influenced by the central nervous system, and we find that increased activity of the cardio-inhibitory centres or the stimulation of its nerve, the vagus, decreases the rate, the contractile force, the power of conduction, the irritability and the tone of the heart muscles. These effects are manifested usually by a slowing of the heart and a weakening of the beat. The decrease in conductivity is but rarely noticed, and, when it occurs, is evidenced by the auricle beating twice or thrice as often as the ventricle. The wave of contraction has been blocked while passing over the bundle of His. Stimulation of the sympathetic or of the cardio-augmentor centres seems to increase all these properties.

Digitalis acts on the heart both indirectly through the central nervous system and directly on the muscle cell. It stimulates the vagus centre in the medulla and also the vagus endings in the heart, and thus decreases the rate. This effect is usually absent unless toxic doses be used if the heart rate is normal. Roughly, the higher the rate, the greater the effect of the drug. This effect will, however, only hold good if the vagus endings, the cardio-inhibitory centre and the muscle cell are in normal functional union with each other. Digitalis has no effect on the heart rate when it is greatly increased due to severe intoxication such as supervenes in sepsis and in pneumonia. The action upon the heart muscle directly is most manifest in increasing its contractile force, and in increasing its tone. The heart is, therefore, able to throw out an increased amount of blood at each beat. Any dilatation tends to be decreased by the increase in tone. Attention must again be called to the fact that with normal hearts these effects cannot be noted with therapeutic doses, but are readily observed in cases of broken cardiac compensation. As a consequence of the increase in contractivity more blood is forced into the circulation at each beat, and in consequence more work is done,

but as the number of beats per minute is decreased the amount of work in a unit of time is not necessarily increased, and is indeed, in the majority of cases, decreased. The action of digitalis on the vessels in therapeutic doses seems to be so slight as to influence but little the work of the heart. On the coronary arteries it seems to decrease vaso-constriction, and in consequence the heart is better supplied with blood. Loewi has also shown that it dilates the vessels of the kidney.

The action of caffein seems in many respects to parallel that of digitalis. It increases the contractivity and the tone of the cardiac muscles, and also its irritability and conductivity. It seems, however, to have little or no effect upon the rhythm. Such action as it has seems to be through the cardio-augmentor centre. This action seems to be very slight in normal hearts, and my observation has convinced me that it is not marked in hearts with a supernormal rhythm. If one contrasts the indications for the use of digitalis and of caffein, it would seem that digitalis should be given the prefernce in all cases where the beat of the heart is fast, while in cases where the beat of the heart is slow and at the same time the tone and contractivity poor, caffein is indicated. Great care should be taken not to use digitalis in a case where the conductivity is poor; that is, in those cases where the auricular rhythm differs from that of the ventricle. In these cases caffein would be preferred.

Camphor has been long made use of by some physicians as a cardiac remedy. The results attendant upon its use, however, have been very uncertain. The reason for this seems to be that it has a highly specialized action on the heart. It has been shown by Böhme that when the rate of the heart has been greatly reduced by such a poison as chloral, camphor has the ability of restoring the rhythm. It is hard to say what physiological property is affected, but we can hope that camphor will prove a useful agent in cases of low heart, especially if this follows intoxication with such drugs as chloral. One might note that the ordinary method of administering camphor per os is not one which leads to either rapid or constant results. Camphor is absorbed with difficulty from the intestinal canal. It is much better given as a subcutaneous injection of the camphorated oil, or may be introduced intravenously suspended in physiological saline (the suspension may be conveniently produced by pouring physiological saline rapidly into spirits of camphor).

Adrenalin has an action which seems closely to resemble that of digitalis. It has, however, the added advantage that it increases blood pressure. It might, therefore, be used with great advantage in cases of shock. To produce any effect it must be given intravenously and can perhaps be best administered in small quantities introduced from time to time in physiological saline. The effect on heart and on blood vessels is so transitory that small quantities must be frequently repeated. The

intervals between doses should not exceed ten minutes, if any success is to be expected.

Alcohol in · ch solutions as it can possibly reach the heart in therapeutic doses, seems to have little or no effect upon the heart muscle or on its blood supply. Its chief action must be reflex from the stomach or other site of administration. It must be remembered that it is a foodstuff, and one which furnishes great energy and is very readily made use of by the organism. It may from this fact alone have a beneficial action upon the heart. Strychnine was formerly classified as a cardiac stimulant. We have, however, at the present moment every reason to believe that it has no action whatever upon the heart muscle or its constituent ganglia. Acting upon the cardiac centre it increases its irritability, as it does that of every reflex centre in the spinal canal, and in consequence tends to slow the heart. It also, acting through the vaso-motor centre, tends to increase blood pressure, and these two factors are, under certain conditions, beneficial to the circulation.

It is perhaps worth while to draw attention to the rapidity with which some of the pharmacological actions referred to above may be expected. If one administers digitalis per os, no effect is likely to be seen in less than twenty-four hours. Strophanthus may show pharmacological action in seventeen hours. If one gives Strophanthin subcutaneously its action is often not manifest for some four or five hours. An even longer time is usually required for the action of Digitalin when administered in the same way. Strophanthin, owing to the fact that one can obtain a glucoside comparatively readily soluble and definitely pure, can be administered intravenously. In this case its action appears in thirty minutes or less. This fact is of great importance, as it puts in our hands an emergency weapon of great power and potency. The following case will serve to indicate how useful this procedure may be

Case 1. J. McB., aged 65, has led a worrying life; generally in good health until three years ago, since when he has had several attacks of cardiac weakness. The present attack began about six weeks ago, but has been much worse during the past week, so that the patient has been confined to bed—Status Presens, patient robust, muscular; arteries somewhat sclerosed; pulse 140 (?), at apex 160 beats were counted, irregular, weak. Systolic blood pressure 160 cm. of water; diastolic pressure 120 (the measurements were made with a Von Recklinghausen sphygmomanometer). Cardiac dullness from one-half inch to the right of the sternum to the mid-axillary line. Area of pulsation from one-half inch internal of the mammary line to the mid-axillary line in the fourth, fifth and sixth interspaces. Marked liver pulsation. Liver one inch below the sternum. One and a half inches below the right costal margin in the mammary line. Some oedema about the ankles. The quantity

of urine has been failing and up to the time of examination, eight p.m., only two or three ounces have been passed since the preceding evening. Cheyne-Stokes respiration of the type, beginning with a gasp and gradually decreasing in depth to a pause.

——	A Pulse.	B Systolic Pressure.	C Diastolic Pressure.	D Difference (B—C).	E Work AxD.
December 12th—					
8.35 p.m.	163	160	120	40	6640
1 mg. of Strophanthin intravenously.					
8.55 p.m.	150	174	132	42	6300
9.30 p.m.	66	180	110	70	4620
9.45 p.m.	64	190	100	90	5760
11.00 p.m.	60	180	100	80	4800
December 18th—					
6.00 p.m.	64	188	105	83	5312
December 19th	64	185	103	82	5284

At 8.55 the amplitude of the pulse, both felt with the finger and as observed in the swinging of the sphygmomanometer needle, seemed better. At 9.45 several ounces of urine were passed, and urine was passed again at eleven o'clock. On the following day the liver pulsation was absent, though the liver was still palpable and about one-half inch below the right costal margin. The area of cardiac pulsation and dullness was slightly less than it had been. The Cheyne-Stokes respiration had completely disappeared. Beyond rest in bed no other treatment of importance was adopted. A subsequent attack, which came on some months later was relieved in the same manner.

Caffein is comparatively readily absorbed, and its action would appear within a few hours. It may be given subcutaneously in solution with sodium salycilate or may even be administered intravenously in this way, thus enabling its action to be almost instantaneous. Camphor is also much more certain in its action when administered subcutaneously or intravenously.

As I have called attention to the intravenous method of administration of these powerful remedies, it may not be out of place to point out how simple and free from danger the method really is. After careful sterilization of the skin over a superficial vein, either an assistant or with your other hand, the vein is constricted centrally. The point of the syringe is then plunged boldly through the skin in the line of the vein, making with the vein an acute angle so as to pierce the wall diagonally. In this way there is little danger of penetrating the posterior

wall of the vein. It is an advantage to use a glass-barreled syringe, as in this case a little retraction of the piston will enable a little blood to enter the syringe, and so one is satisfied that the needle is within the vein. The pressure on the vein is then relieved, and the injection made very slowly, not more than one c.c. (15 min.) should be given in a minute of such active solutions as Strophanthin or caffein, while a saline solution of camphor or of Adrenalin may be given more rapidly.

MUNICIPAL CONTROL OF TUBERCULOSIS.*

By W. B. HALL, M.D., Chatham.

THE people of Ontario are looking for some workable system for the proper care and regulation of this disease in the Province, up to the present time no definite line of action has been laid down.

Something should be decided on at once. About two thousand of our people die each year of the disease and nearly ten thousand are suffering with it, causing financial loss to the Province of a large sum of money, variously estimated at from $50,000 upwards; not to mention the privations, sorrows and sufferings too great to enumerate.

We acknowledge that tuberculosis is a contagious disease, and therefore a preventable one, and 80 per cent. of all cases if placed under proper conditions can be cured.

The necessity and importance of taking up this work in the most effective and successful way must be apparent to all.

The object of this short paper is to bring out discussion on how this can best be done without penalizing the subjects of the disease and their friends and without unduly and unnecessarily burdening the country with expense.

Anti-tuberculosis societies, philanthropists, medical men and others are doing, in this province, a great and noble work along these lines, but more system is required, a simple system that will not call for the outlay of too much money, and will not revolutionize our present procedure in dealing with contagious diseases.

A community should have the right to regulate its members for the best interests of the community; the interest of the whole community being greater than that of one of its members. It should have the right to protect itself against the ignorance, carelessness, selfishness and filthy habits of its members as well as against their viciousness.

When a member of the community is seized with a contagious disease, he should do all he can to protect others from taking his disease, and if he neglects to do so, he should be compelled to, and the community

* Read at the meeting of the Ontario Medical Association, 2nd June.

should stand ready to do for the member the things he cannot do for himself.

A person seized with a contagious disease should not have the whole burden of protecting the public against the disease he is suffering from thrust upon him, but the community should bear their share of the burden, their proper proportion of the expense of protecting themselves against it.

Tuberculosis is a contagious disease, far more contagious in advanced cases than in incipient cases, but in all cases the source of contagion is under the control of the patient or his attendant, and differs from other contagious diseases in this respect, that if the patient and attendants are properly informed and careful the danger of infecting others is comparatively small.

Patients properly educated may continue to live at their homes without danger to their families; may continue to transact business in offices, stores, factories, and other places of business, while others who remain ignorant or are careless, or are vicious, or filthy in their habits should be put under restraint; still others who lack the means of properly taking care of themselves, should be taken care of by the municipality in which they live.

When an individual meets with an accident, or is seized with a disease, the expense of his care and treatment falls on himself if he is able to meet it, if not his near relatives or friends take up the burden; if he has none, then charity or the municipality in which he lives.

If he is seized with small-pox certain regulations are enforced by law; if scarlet fever other regulations, if diphtheria certain other regulations, etc., not for the protection of the individual suffering from the disease, but for the protection of the community surrounding him against the disease he is suffering from. There is a chain of responsibility; first, the individual, and relatives and friends, then organized charity, and then the municipality. The dictates of humanity demand that he be cared for.

Tuberculosis does not differ from the other contagious diseases so much that it should have separate and distinct machinery to deal with it, but simply different regulations just as all other contagious diseases require regulations to deal with them, and they should be as simple as possible, not exacting or burdensome or hard to comply with, for they are not for the individuals' benefit, but for the protection of the public.

If our present methods of controlling other contagious diseases, viz.: Municipal control through local Boards of Health under provincial regulations, are the best for other contagious diseases, they are the best for this disease in my opinion, after a few suitable changes have been made.

The first and most important of which is that it be classed with the other contagious diseases dangerous to public health, and that physicians be required to notify the local Boards of Health whenever a case occurs in the municipality.

In my opinion, the present township health units are too small, they are not large enough to require the whole time of a M.O.H., and should be changed to County Divisions or Health Districts so that a M.O.H. should be required to give his whole time to the work and special regulations should be issued applicable to the disease.

Hospitals for the education, care, treatment and cure of tuberculosis are badly needed in the Province. In 1908 only 871 cases were admitted into the special hospitals, etc. established for the treatment of this disease. When we consider the number of cases requiring such treatment was probably not far from 8,000 the necessity of more accommodation becomes apparent. Dr. Bruce Smith, in his excellent report on public hospitals, charities, etc., to whom I am indebted for much of my information, gives as a chief reason for the small number availing themselves of their privileges, the great distances between the patient and the institutions.

The present institutions are doing excellent work for which the promoters and supporters deserve our gratitude and all the encouragement and support we can give them.

Dr. Smith points out that we have in Ontario sixty-nine hospitals and twenty-eight County Houses of Refuge. The smaller ones of which in almost every case have sufficient grounds upon which to establish tuberculosis wards or buildings, the support of which would not add much to their fixed expenses for maintenance, and the government makes a grant of $4,000 toward the erection of tuberculosis hospitals and a liberal grant per week for each patient.

If fifty or sixty small inexpensive institutions almost at the doors of the patients, accessible at all times to their friends, were available, a very large number of those who suffer most would be provided for, and means of combating and limiting the disease very greatly increased, and the expense to the patient so lessened that many would be self-supporting who otherwise would require help.

RESUME.—In the light of present knowledge on the subject of tuberculosis, the situation calls for more action, which we should aim to make sure and effective, and in my opinion, should start in the units that go to form our health organization, viz., townships, villages, towns and cities. We should not wait for further legislation, but seek to make what we have now do effective work.

The Public Health Act was so amended last year as to give the Provincial Board of Health the power to declare or say what diseases

are contagious, and issue and enforce regulations respecting them, and the Board have this matter in hand now.

In the opinion of many the present township division is too small a unit to do effective work, and that such units should be merged into County or Health Divisions large enough to give constant employment to a trained M.O.H.

How far can the present Hospitals and County Houses of Refuge be utilized in our struggle against tuberculosis, and what is the best manner to proceed to have them so utilized?

BIER HYPERAEMIC TREATMENT.

By S. H. WESTMAN, M.D., Toronto.

THIRTY years ago artificially induced hyperaemia for the treatment of diseased and traumatic conditions, occupied the attention of such men as Thomas, of Liverpool, Dumreicher, and many years before this, of Farre, Travers, Louis. While to Bier, therefore, cannot be credited the treatment of inflammation by induced hyperaemia, to him must assuredly be given the credit, of placing before the profession, a method of combating disease which in his hands at least, has given such uniformly good results.

Bier's teachings in regard to the inflammatory process are as interesting as are his methods of treatment. He maintains, rightly or wrongly, that the phenomena of inflammation are not those of a diseased condition, but are physiological changes in the tissues and circulation, for the purpose of neutralizing, destroying or eliminating such disease.

He also maintains that in the majority of infective inflammations, the inflammatory reaction is inadequate to destroy the invading organism, and therefore, whenever possible, an endeavor is made to increase the amount of blood in the part, promoting thereby greater redness, swelling and heat.

It would consume too much time to discuss here the many theories advanced, to explain the beneficial effects of hyperaemia, but looking at the subject from a practical standpoint, we find that it has the following advantages:

If used in the early stages, it is of material benefit for the suppression of the infection, for the relief of pain, and for the prevention of suppuration.

In cases where suppuration is unavoidable, owing to the intensity of the infection, it has been found that the application of hyperaemia has

* Read at the meeting of the Ontario Medical Association, 2nd June, 1909.

more rapidly localized the inflammatory process and hastened suppuration.

In Volume L. of Keen's Surgery in the article on inflammation, we read, "Recent researches on the subject of inflammation have proved conclusively that the empirical use of hot fomentations, poultices, counter-irritation by heat and vesicants, have a direct congestive effect upon the deeper vessels, and that one and all of these methods tend to induce a greater amount of blood to the part. For example, branding the skin over the vertebral column on either side, instead of blanching the cord, brings about pronounced local hyperaemia of this structure."

There are two varieties of hyperaemia used by Bier:—

(1) Obstructive (Passive or Venous).

(2) Non-obstructive (Artereal or Active).

The Obstructive variety is induced by,—

(*a*) Constriction with an elastic rubber bandage.

(*b*) Suction apparatus such as cupping glasses fitted with rubber bulbs, and larger glass apparatus in which the air is rarified by means of an exhaust pump.

Obstructive hyperaemia by means of an elastic bandage, can only be applied in diseases of the head and extremities. Where the disease is situated on the breast, back, spine or surface of the body generally, the hyperaemia is induced by means of the smaller cupping glasses.

Non-obstructive or arterial hyperaemia is induced by means of hot air boxes especiallv designed by Bier and others and heated by electricity or gas. This form of hyperaemia is used in traumatic, rheumatic and neuralgic conditions of joints, tendons and nerves.

General rules for the application of the elastic bandage,—

The bandage used to produce the obstructive form of hyperaemia is composed of soft India rubber, and should be about two and a half inches wide and from two to three yards long. It should be wound around the limb six or seven times so that each fold will overlap the previous one for about one-half to three-quarters of an inch. The favorite site of application on the limbs is the lower part of the thigh above the knee, and around the lower part of the arm above the elbow, that is, provided the diseased conditions are below these two points.

When the bandage is properly applied the subcutaneous veins become dilated and prominent; the limb becomes reddish blue and slightly swollen, and the pulse can be felt beating distinctly below the constriction. The pain as a rule is relieved and the part becomes numb and feels heavy. If the bandage be applied too tightly, the limb will become blue and later will show red blotches here and there. If such constriction be kept up, paresthesias will be noticed and finally obliteration of the pulse.

Where the skin at the site of application of the bandage is tender, or the bandage has to be kept on for a long period, a thin layer of lint is put on the limb before the elastic bandage is applied.

When abscesses appear, as they often do, during the course of this treatment, they are opened and the pus evacuated.

All tight bandages or dressings should be removed while the elastic bandage is in place and a loose protective dressing used instead. In acute septic inflammations, and in some cases of infective arthritis, requiring prolonged hyperaemia, considerable oedema results. After the bandage is removed the limb should be elevated to get rid of as much of this oedema as possible.

Before each application of the bandage, the part should be carefully examined for any degree of improvement, or for the presence of pus.

When the shoulder joint is under treatment, a piece of rubber tubing is used instead of the elastic bandage. It is wound beneath the axilla and over the shoulder. A loop of gauze bandage is placed around the neck and an end of this is passed through the rubber loop to keep it from slipping down the arm. trips of bandage are also fixed to the rubber loop in front of and behind the chest, and the ends are tied in the opposite axilla. These loops serve to hold the tubing in piace. The proper degree of constriction is now obtained and the rubber tube is clamped over the top of the shoulder.

For the hip, no practical method has been evolved for its hyperaemic treatment.

For the production of obstructive hyperaemia in the head, Bier uses a strip of garter elastic $\frac{3}{4}$ inches wide, with a hook at one end and a number of eyes at the other. The elastic bandage may be used here also with equal facility. I need not mention that certain precautions are to be observed when constriction is applied around the neck, especially in children. The face has a swollen bluish look, and some oedema is present, but no actual distress or headache should result. The patient should be able to go about, eat and sleep as usual.

Obstructive hyperaemia by means of suction apparatus,—Klapp, an assistant of Bier, developed a small cupping glass with rubber bulb. The glass is made with a thick rolled brim, and of different sizes and shapes, for convenience of application. The rim of the cup is smeared with vaseline, the air is rarified by pressure of the bulb, and then it is placed firmly on the skin to be cupped. Care should be taken to have the cup much larger than the area to be treated. A medium pressure of the bulb is all that is necessary. When the rubber bulb is released, the area under the glass becomes reddish blue and bulges into the cup. The suction must never be strong enough to create pain, and the cup must be large enough so that the brim will not press on the inflamed surface. The cup

should be left on for three minutes, and then removed for an interval of three minutes before being applied again. The whole treatment given once daily and including intervals of rest and of application, lasts about three-quarters of an hour.

These cupping glasses are used for the treatment of boils, carbuncles, small abscesses and sinuses. The effect of applying the cup to a sinus or abscess opening, is two-fold. First, the aspiration draws out pus, bacteria, broken down tissue, and sometimes small sloughs, and is therefore of value for its mechanical action. Its chief use, though, is for the induction of obstructive hyperaemia in the focus of disease, and it has an extremely powerful action in this respect. It have seen the skin around the sinus marked with small ecchymoses as the result of too forcible application of the suction glass. Where the sinuses are deep, tortuous or long, I have not seen much benefit result from the use of the cupping glasses. Where a foreign body, sequestrum or suture material, is at the bottom of the sinus, cupping will undoubtedly help these to come away. In the use of these glasses, strict asepsis, is of course absolutely essential. After use, the glasses should be washed in soap and hot water and then boiled. The rubber bulbs put into 1-1000 bichloride of mercury for a few hours. The surrounding skin should also be cleansed and sterilized, after the cupping, to prevent it becoming infected with the discharge. Where an abscess has formed, it must be lanced before applying the cup, but as a rule only a very small incision is necessary.

The other variety of suction apparatus perfected by Klapp consists of larger vacuum glass chambers for the reception of the larger joints, such as knee, ankle, elbow, wrist, and for the hands and feet. These are made of much heavier glass and are fitted at one or both ends by rubber cuffs and the air is exhausted by means of a hand or foot pump. These glass chambers are used for the treatment of stiff joints, the result of traumatic arthritis and for some cases of infective arthritis. The treatment lasts three-quarters of an hour daily, carried on intermittently, with three minute intervals of rest and of suction, the same as with the cupping glass. For two or three minutes after the joint is removed from the apparatus, it is possible to move it more freely and with little or no pain to the patient. In this way, passive motion of the joints is carried out daily.

A non-obstructive or arterial hyperameia is induced by means of hot air boxes, designed by Bier, Tallerman and Bettz. This hyperaemia has been found of great benefit in rheumatic and neuralgic affections of joints and tendons and is more or less familiar to all.

I now come to the treatment of acute infective inflammations with hyperaemia.

For furuncles and carbuncles and abscesses of the face and soft parts, the cupping glass is employed here with the directions given above. If applied early in the trouble, suppuration will be prevented, but if pus has already formed, a small incision is made and the pus and sloughs drawn out by means of the cup. In the course of a week the inflammation will have largely subsided.

For lymphangitis and infected wounds.

In infected wounds, whether following operation or not, much benefit is obtained from the cupping glass, and where the focus is on arm, leg or head, by the application at the same time of an elastic bandage for eighteen to twenty hours as above directed.

For whitlows and suppuration in the tendon sheaths,—

Whitlows are treated with an elastic bandage around the arm, above the elbow for eighteen to twenty hours continuously.

In cases of infected fingers, with lymphangitis, while the bandage is in position, the finger, hand and fore-arm are redder, feel hotter and appear to be more acutely inflamed and swollen, but to the great relief of the patient there is entire absence of pain.

It is in cases of suppuration in the tendon sheaths that obstructive hyperaemia has given us most brilliant results. Where pus has formed, quite small incisions are made for its evacuation, so as to avoid exposing the tendon too freely. Elastic constriction above the elbow or knee is employed and throughout the treatment gentle active and passive movements are carried out. By these methods stiffness of the fingers is avoided, and the patient is often saved weeks of suffering.

In streptococcal inflammations Bier employs hyperaemia and makes small incisions to relieve tension, even where no pus has formed. Many other surgeons, including our own, have given up the use of hyperaemia in these streptococcal infections.

In the *Lancet* of November 14th, 1908, Buchanan, Assistant Surgeon to the Western Infirmary, Glasgow, reports twenty cases of cellulitis of the upper limb, treated by obstructive hyperaemia with excellent functional results in sixteen cases. His results in infections of the lower limb were bad.

Of seven cases of suppurative mastitis treated with a large cupping glass to include the whole breast, every one showed rapid improvement and were readily cured.

Acute infective arthritis of joints and the gonorrhoeal variety in particular, are treated by Bier with obstructive hyperaemia, induced by the elastic bandage for eighteen to twenty hours out of the twenty-four, or by large suction apparatus for three-quarters of an hour daily. The relief from pain is striking and enables the surgeon to carry out the active and passive movements so essential to a good functional result. If pus or

sero-purulent exudate is discovered, the joint should be punctured with a large needle or trocar and then irrigated with saline or weak antiseptic solution. When the temperature becomes normal, the treatment is shortened by two hours each day, and at the end of two weeks the disease has usually subsided.

For tuberculous bone and joint disease.

The constriction bandage is applied more tightly than in cases of acute septic infections, but is only kept on for two hours at a time. It is, however, applied twice daily. These treatments are carried on daily for a period of nine months. This treatment affords the best results when the disease affects the small joints and bones of the carpus and tarsus and phalanges. When the disease affects the larger joints, such as the knee, or ankle, temporary fixation splints are applied and the patient refrains from walking about, but gentle active and passive movements are carried out daily after removal of the bandage. When abscesses form they are evacuated and many of these are now curretted out with iodoform gauze and sutured without drainage. Tuberculosis sinuses heal more quickly under treatment with the elastic bandage than by cupping, and where necessary the removal of a sequestrum or caseous focus is accomplished by operation.

Not all cases of acute and chronic inflammations, as classified above, admit of the Bier treatment. For example, it is not employed where tuberculosis of the lungs is present, or in turberculous joint disease, where there is much deformity, or where the joint is filled with pus. The constriction bandage is never employed in a limb with varicose veins, nor is the constriction bandage around the neck ever used where arteriosclerosis is present; and lastly, in all streptococcal inflammations, including erysipelis, the hyperaemic methods of Bier are contra-indicated.

In conclusion I should like to state that Bier's treatment is not a panacea. It is, in fact, only on its trial among the profession, and we are only just beginning to appreciate its great possibilities. It is often not easy for the surgeon to decide when hyperaemic treatment should be employed, especially in advanced cases. He will more readily trust to radical cure with the knife than submit his patient to a somewhat more tedious method of hyperaemia. Improper use of Bier's methods have resulted in harm rather than good, and many of the failures have been due to improper application of the method. Even in hospitals it is exceedingly difficult to carry out Bier's methods, for the simple reason that the House Surgeons have neither the training nor the time to supervise the treatment; consequently many of the infections are treated by the older methods of poultice and knife. However, the future may discover a method whereby one of the younger men of the hospital staff

could be put in charge of all the infectious cases suitable for Bier's treatment, and the experimental knowledge which he could thereby obtain, would, I am sure, prove of great benefit to the patient, the profession and himself.

TUBERCULIN THERAPY.*

J. H. ELLIOTT, M.B., TORONTO.

IT was in April, 1882, that Koch announced his discovery of the tubercle bacillus; in 1890 he announced that he had found a substance in cultures of the bacillus which, when injected under the skin of patients with tuberculosis, would produce a specific reaction, while healthy people did not react. When this substance was administered for a sufficient length of time a tuberculous process would undergo arrest.

Many of those before me will remember the universal interest and enthusiasm aroused by this announcement of the therapeutical value of tuberculin, and of the disappointment which followed, for in spite of Koch's precautions as to the method of its employment, this potent drug was administered with no due regard for proper dosage and the results secured were not those promised by the great bacteriologist. Almost everywhere it was abandoned by clinicians and it fell into disrepute.

In the years which followed a few men continued its use, endeavoring to convince themselves of its value or uselessness by fair clinical and laboratory tests. Many modifications of Koch's original tuberculin have been brought forward by patient investigators, and of these a number have been extensively used in treatment.

Before discussing the tuberculins, a few words are necessary as to the condition of those more commonly used. The following table gives this as concisely as possible. It is unnecessary to tabulate more of the fifty or sixty tuberculins which have been prepared by different workers.

It is to be noted that Koch's old tuberculin and Demy's B. F. are preparations of the soluble toxins of the bacillus formed during growth with the altered and unaltered substances found in the culture medium after full growth, whereas Koch's newer tuberculins are suspensions and solutions of the bacilli and their contained substances.

The serums of Marmorek and Maragliano are not tuberculins, they are serums from animals in which an attempt has been made to produce immunity by increasing doses of dead bacilli and fietrates. Marmorek's preparation contains also anti-streptococcic serum.

Standardization.—Although T.R. and B.E. contain stated amounts of bacillary substance, none of the tuberculins are physiologically stand-

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ardized. Their potency varies as does the potency of any one tuberculin if made from different cultures, even though the process of manufacture is identical. It is important to remember this, if in the administration of tuberculin it becomes necessary to use that of another laboratory, also when beginning the use of a fresh supply.

Immunity.—The work which has been done with tuberculin during the past ten years does not lead us to hope that with the present tuberculins we can secure more than a relative immunity to tuberculosis. The greatest immunity which has been experimentally produced is perhaps that produced in cattle by Behmy and others in Europe, by Pearson in America. This has been induced by vaccination of calves with virulent bacilli. Adult cattle are not as readily influenced by the injections, although age in itself appears tc produce in some a partial immunity. The immunity induced extends over a period less than three years.

It is a great question whether we shall ever be free to induce immunity in the human through the use of living virulent bacilli even if animal experimentation shows us a method of inducing a permanent immunity through this method. Thus far the intravenous or subcutaneous injection of living bacilli into cattle cannot be regarded as safe since the bacilli have been discovered in subcutaneous abscesses and milk at least nineteen months after the protective inoculation.[1]

There is then no complete immunity to infection conferred by the toxins or extracts of the bacillus. The tuberculins give us but a relative antitoxic or antibacterial immunity. The immunizing substances are apparently not in the serum, but rather in the cells of the body, and the recent studies of Bartel[2] would indicate that the cells of the lymphatic system may play an important part.

Choice of Tuberculin.—This is a difficult subject to discuss, and it has been impossible to secure from those clinicians who have worked with several tuberculins a definite opinion as to their relative value. Personally, I have seen good results from four tuberculins I have used. Others report favorably on forms I have not used.

The emulsions are not as readily absorbed as the filtrates and extracts, and the site of injection requires more careful watching.

Some workers have combined the emulsion with filtrate in order to secure the action, both of the eudo toxin and cellular body, and of the soluble toxins, i.e., an antibacterial as well as antitoxic immunity.

We have yet to learn which is the most suitable tuberculin. T. R. seems to have given splendid results in hands of some workers in genito-urinary tuberculosis

Spengler, Portenger, Raw and others believe that the tuberculins made from bovine bacilli have greater power to produce the antibodies necessary to cure tuberculosis than have the human tuberculin. One

of my own patients who made no improvement under B. E. made immediate improvement on changing to Perlsucht B. E.

Administration of Tuberculin.—Tuberculin is usually given subcutaneously; some workers give it intravenously, by the mouth, and by rectum. I shall only consider the subcutaneous administration.

Dilution.—The tuberculin can be procured from reliable laboratories in individual doses, ready for administration, or in quantities of one to five cubic centimeters which will require dilution before administration. A suitable diluting fluid is 25 per cent. phenol in normal saline. The undiluted tuberculin will keep indefinitely in a dark, cool place. The higher dilutions should be kept on ice, and preferably not over two weeks.

Syringe.—As the dilutions are best made in the metric system a 1 c.c. syringe graduated in hundredths of a c.c. will be the most convenient form to use. An accurate syringe will be of great use in making dilutions. Absolute cleanliness must be observed, both with syringe and solutions

Dosage.—It must be remembered that the relative dose is more important than the absolute dose, e.g., 1/100 m.g. may be a large dose for one patient, yet we may not consid r 90/100 m.g. a large dose for another patient who has had a previous dose of 80/100 m.g.

Tuberculin is a very powerful drug and is to be used by no one without a proper respect for it. Should a patient have an unsuspected use of temperature he may be made very ill with a dose of 1/5000mg., i.e., about three one-millionths of a grain. We must begin with small doses, and endeavor to avoid reactions. The susceptibility of patients to tuberculin varies greatly; with some the dose may be rapidly increased, with others little increase is possible.

There are two general methods of administration, one, in which the dose is gradually or rapidly increased to the point of tolerance in order to secure a tuberculin immunity, the other in which the dose is not materially increased and the interval is regulated by the observation of the opsonic index. Of this latter method Baldwin says "it appears to be a rational method for localized forms of tuberculosis," but the results do not encourage us to expect much practical use of the index in pulmonary tuberculosis. It is not applicable in general practice, and even in hospital work special facilities are needed. The difficulties of technique, and the great variations in readings unless made by a careful and well-trained observer make it impracticable except in a comparatively few cases, favorably situated. Trudeau uses the words unreliable, impracticable.[3]

For the present the clinical method of administration is the one which must be followed. The main features of treatment as laid down by Trudeau[5] are:

(1) To raise the degree of tolerance to tuberculin to the highest point attainable in each case by an almost imperceptible and long-continued progression in dosage.

(2) To avoid general and focal reaction as much as possible and consider them merely as evidences of intolerance.

(3) To follow no arbitrary rule as to rate of increase or the maximum dose to be reached, but to be guided merely by the degree of toxin tolerance of each patient as shown by the symptoms and general condition, whether the highest individual maximum dose attainable be only a small fraction of a milligram or a cubic centimeter or more."

With B.E. and B.F. the initial dose may be 1/10,000 milligram. T.R., 1/5,000—1/1,000 mg. old tuberculin 1/100 to 1/10 mg. The dose should be such as to avoid reaction. If we remember that old tuberculin is used in diagnosis and 1/10 mg. may produce reaction we can estimate readily the amount which may be safely given.

The susceptibility of patient to tuberculin varies very much. With some the doses may be rapidly increased with no reaction resulting, with others it is very difficult to increase the dose to any great extent. With tuberculin, as with other measures in treating tuberculosis, the patient must be carefully watched and closely studied, and the success attending the use of the tuberculin will vary with the attention bestowed on its administration by the physician. The increase in dose at each injection may be 20% or 100%, and each case must be treated according to the indications present. Usually an increase of 20% to 50% is sufficient. By running up to the larger doses we confer a certain amount of tuberculin immunity, and most men prefer this to a continuation of small doses, when the increase produces no reaction.

Interval.—Many German writers direct intervals of one or two days while the smaller doses are being given, increasing the interval to four or six days with the larger doses.

Where B.E. and T.R. are used a longer interval would seem advisable on account of the slow absorption—an interval of three to seven days at first, increasing to seven to twelve with larger doses. Old tuberculin and B. F. are more readily absorbed, and with more show of reason may be given at three or four day intervals, increasing gradually to seven days. Twice a week is a very usual rule with these up to doses of 100 mg. With slow absorption a longer interval is indicated.

Reaction.—A rise in temperature of one degree or more within twelve to sixty hours after injection is to be looked upon as a reaction. If there is a sharp rise it is usually accompanied by malaise pain and aching through the body, headache. There may be nausea and vomiting, a feeling of fatigue, faintness, giddiness, depression, increased cough, op-

pression in the chest. Any or a number of these symptoms may be present without rise of temperature.

In addition to these general symptoms there may be a focal reaction —i.e., new or increased physical signs present at site of the disease or symptoms referable to this point. This focal reaction is rather infrequent. Some writers speak of it as frequent, personally, I have rarely found it.

Haemoptysis rarely occurs after administration of tuberculin, and is not to be feared by a careful physician.

Local reaction at the site of injection is to be watched for. B.E. is sometimes absorbed very slowly and a swelling, more or less painful may form at site.

Trudeau[4] warns against the following as productive of failure: (1) Beginning treatment with too large amounts. (2) Raising the dose too rapidly or at too short intervals. (3) Injecting again before all effects of a reaction have pased away. (4) Increasing a dose after a reaction has occurred. (5) Neglecting to consider malaise, headache, loss of appetite, and increased cough as evidence that limit of patient's tolerance has been reached, and that an interval of rest or a reduction of the dose is indicated.

Selection of patients.—Tuberculin being a toxin it is a requisite of its administration that there be ability of the body to respond, otherwise there can be no good result anticipated. A patient with daily rise of temperature, whose system is flooded with more toxin than he can manage is not to be given tuberculin. It is to be used only in apyretic cases. If we are endeavoring to estimate its value it is not to be given in a routine way to all patients presenting themselves; its value can best be judged by using it on those patients who are no longer improving under other methods of treatment. With these it has a fair trial, but to use it on all patients and to ascribe all improvement secured to the tuberculin is wrong, for we know what a large proportion of patients with slight tuberculosis make improvement if instructed in hygienic living.

Patients with haemoptysis should be closely watched during administration of tuberculin. We do not want a focal reaction which may cause bleeding. Tuberculin in pulmonary tuberculosis is perhaps best suited in treatment of early and moderately advanced quiescent cases—those in fair general health, whose cough and expectoration does not disappear under general hygienic treatment. I would not counsel its use when the patient is making good improvement without it. It is to be avoided in rapidly advancing disease and where the temperature rises to 99 degrees each day.

Duration of Treatment.—This will necessarily vary. If reactions appear we must at times be satisfied with small doses over a short period

of time, repeated again in a few months. With those who can readily go through the gradual or rapidly increasing dosage without reaction, it may be given over a period of six to eight months, the course being repeated after an interval of six months to a year.

Effect of Reaction on dose and interval.—With slight reaction accompanied or unaccompanied by temperature disturbance the dose is to be repeated, not increased at next injection, with moderate reaction the next injection should be less than that producing the reaction, and is not to be given until all reaction has passed off. With severe reaction the dose must be much lessened and usually the interval prolonged to the extent of missing one or more doses.

Care of patient during administration.—Rest in bed is not essential. Indeed, tuberculin can readily be given to patients who are at work daily. It is preferably given during afternoon or evening, and with an injunction to avoid heavy work if possible during the next day. From hourly temperature, observations should be made during the succeeding 24 to 48 hours, and the patient should also record any subjective smyptoms which may arise, whether general or at site of inoculation.

Results of Treatment—Pulmonary Tuberculosis.—Practically all clinicians who have given tuberculin a fair trial are convinced that a greater percentage of their pulmonary cases improve with it than when treated with tuberculin. Brown,[5] who has had a large experience with tuberculosis believes that in the incipient stage the results with tuberculin are but little better than those secured by Sanatorium treatment without tuberculin. In the moderately advanced stage there is a greater difference in favor of the tuberculin-treated patients, and his figures would tend to show that tuberculin finds its best application in febrile cases in the moderately advanced stages, and he recommends that it always be used in those patients who, having followed careful hygienic treatment for some time seem to have come to a stand-still,—there is no fever, body weight above normal, some cough, expectoration containing bacilli, and physical signs persisting. I have seen many such patients do exceedingly well under tuberculin and feel that its careful administration is indicated. Pottengen has reiterated that with any line of treatment one positive case should carry more weight than a dozen negative ones, and though I have seen many improve under tuberculin who were stationary without it, I would like to outline one case which causes conviction. A girl, Miss K. had Sanatorium treatment for several months following hygienic dietetic treatment at Sanatorium and at home for about two years; general health became splendid, weight increased, good color and was a picture of healthy womanhood. Some dyspnœa on exertion persisted, and sputum averaged two ounces daily during the two years, never lessening materially. Initial dose of B. E. 1/4,500 mg. gave sharp reaction with

fever malaise and headache for 36 hours. In two weeks second dose of 1/10,000 mg. was given and dose was gradually increased weekly until in seven months she was given ½ mg.. The sputum gradually diminished until only a trace remained. There was no change made in the method of living. It was the same as during the two previous years. Yet the sputum began to lessen when the tuberculin was used. This is one of many cases which show positively that the tuberculin was of decided value in treatment. We must remember that all will not show this improvement, some will improve only after one or two months' treatment, some not at all—yet we may be sure that given carefully no harm can follow, and our patient should have the benefit of tuberculin, especially if at a standstill without it.

REFERENCES.

[1]Baldwin—The Problem of Immunity in Tuberculosis. Am. Jour. Med. ci., January, 1909.

[2]VIth International Conference, Vienna, 1907.

[3]E. L. Trudeau—Antibacterial or Antitoxic Immunization in Tuberculin treatment. Jour A. M. A. Jan. 23, 1909.

[4]American Jour. of Med. Sc., June, 1907.

[5]Osler's System of Medicine, Vol. III., p. 434.

RADIO-THERAPY.*

By CHARLES R. DICKSON, M.D., Toronto.

THE ten minutes allotted permits merely a most rapid glance at the present status of Radio-Therapy, and much of interest must necessarily be omitted.

Recent apparatus aims to protect the X-ray operator and his patient from unnecessary irradiation by constructing the tube of glass impervious to the ray with the exception of a window through which alone the rays pass, and their action can thus be restricted to the locality requiring them. Treatment is thus rendered much more safe for both operator and patient, and is also facilitated by constructing the tube in such a manner that the target can be brought much closer to the point to be treated, thus lessening materially the length of exposure necessary. In some cases the tube is held directly against the part treated, thus adding a high-frequency effect.

*Read at the meeting of the Ontario Medical Association, 2nd June, 1909.

Some of these local treatment tubes have also been used as low frequency high potential electrodes in connection with the static machine after the manner of the static wave current.

Present technique favors shorter exposures, discourages raying for long periods, and the production of marked reactions, unless in exceptional cases.

The present consensus of opinion is that the more superficial the condition treated, the better the result.

Thus, in many affections of the skin the X-ray more than holds its own. For instance, in acne vulgaris, chronic eczema, sycosis vulgaris, alopecia areata, psoriasis; likewise lupus vulgaris, epithelioma, and rodent ulcer. In tubercular adenitis it has many friends. In inoperable cases of exophthalmic goitre it has been advocated. The hemostatic action of the ray has been utilized for relief of the hemorrhage occasioned by uterine fibroids, menorhagia, and metrorhagia, and by tuberculosis and ulcer of the stomach. It has also been successfully employed to bring on the menopause artificially.

In deeply seated growths, while the chance for absolute arrest is very much less, yet progress is markedly retarded, pain frequently relieved, the patient made much more comfortable, and undoubtedly life often prolonged. Thus mediastinal tumors of presumed malignancy are often diminished in size to a very noticeable extent.

Early post-operative raying of malignant cases is a wise precaution, thus utilizing the inhibitory action of the ray.

By employing light energy from powerful sources, arc or incandescent, the tendency to ray dermatitis is greatly lessened.

In *La Monde Medicale* for February, 1909, Dr. J. Audan, Director of the Medical Clinic at Grenoble, following up the history of patients whose cases he had reported formerly, published the following conclusions based upon the information obtained. (1) Radiotherapy gives durable results in most cases of cutaneous cancroid and different forms of lupus. (2) It procures a tangible prolongation of life in cases afflicted with various slow superficial cancers. (3) It exerts a very powerful action in sarcoma and cannot be dispensed with in the treatment of this disease in which it greatly assists surgical intervention. (4) Lastly, mention must be made of its action on all new growths of lymphoid tissues, the various adenopathics and more particularly manifestations consequent upon leukemia, especially splenomegaly, of which indeed, it constitutes the only really efficacious treatment.

In Denver, Colorado, the X-ray is used as an adjuvant in the treatment of tuberculosis pulmonalis.

As for Radium, when it can be sold for somewhat less than $5,200 a grain we can afford to experiment with it more extensively.

In the recently founded Royal British Radium Institute, where impartial research work may be carried on, it is to be hoped that we may at last learn the truth about Radium. If it bears out one tenth part of the claims made for it by enthusiasts, some one will discover still more cheap and expeditious methods of extracting it from the uranite or pitchblende which now seems so loth to part with its treasure. Other sources may be found and it may shortly come within the reach of ordinary mortals.

At present, a favorite method of using is in tubes containing 10 milligrams of radium bromide of 1,800,000 activity. These are sometimes in turn placed in covering tubes of gelatin and inserted in the growth to be treated, a small portion of the growth having been removed with a punch.

It is likewise spread over rods and discs to ensure greater active surface by a suitable varnish.

Much attention has been directed to it recently by a lecture delivered at the London Hospital by Sir Frederick Treves, and reported in the London *Lancet*.

The only cases dealt with were those seen and examined by the lecturer, who said that radium could cure all forms of nevus, port wine marks, pigmented and hairy moles. A nevus the size of a gooseberry on the head of an infant was entirely cured in a short time, likewise an angioma the size of a plum on the eyelid of a girl, while an angioma affecting practically the whole side of the face of a young woman, on which operations innumerable had been useless was cured.

Keloid vanished in an uncanny manner, rodent ulcers on which Finsen Light, X-ray and cataphoresis were useless succumbed to radium.

Epithelioma of lip, tongue, hard palate, and one of the face that had perforated the nasal passage were cured by radium.

If radium can accomplish this, it will have to be reckoned with in the future.

Abbe, of New York, who has done much work with radium reports excellent results in the treatment of small, round-celled sarcoma of the eyelid, and in giant-cell sarcoma considers it almost a specific. He reports some striking successes in sarcoma of the lower jaw.

The new President, Mr. Butlin, of the Royal College of Surgeons, England, has drawn attention to the urgent need for further legislation in regard to the supply of milk. Much of the milk sold to the lower classes is poor in quality and deleterious in character.

CURRENT MEDICAL LITERATURE

MEDICINE.

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

DIET AS A MEANS OF INCREASING VITAL RESISTANCE IN TUBERCULOSIS WITH SPECIAL REFERENCE TO THE PROTEIN RATION.

In the *Medical Record*, Feb. 13th, '09, Kellogg, of Battle Creek, discusses this question. He emphasizes the fact that tuberculosis is no longer considered a local disease, but that its presence is a sure indication of the weakening of the bodily defences, and the problem of treatment is to increase bodily resistance, to create immunity; and as methods of artificial immunity have to date proved unsatisfactory, we must consider the raising of natural immunity. One method of universal acceptance is life in the open air, another as important is the means of nutrition. There is at present a great divergence in the matter of food rations, as much as 3,100 calories between that of the Roten-Kreutz Sanatorium and that of the Brompton Hospital. Both cannot be right; if the latter gives its patients enough, the former must compel its patients to do an enormous amount of unnecessary work in elimination.

During the last ten years there has been a steady tendency towards the lowering of the protein ration in our dietaries, as seen in the work of Chittenden, Herschfeldt, Klemperer and others, and the writer has for 42 years lived on a diet from which meats have been excluded and for half that time milk and eggs have also been excluded. During 32 years he has had charge of a medical institution in which a low protein diet is made part of the regime for both patients and attendants. An experiment made ten years ago on 265 persons for 14 days showed no difference in weight, but a decided gain in strength. Examination of the blood shows that it is well up to the standard, in all respects. An examination of the urine in case of 46 persons, 24 men and 22 women, aged between 20 and 30, occupied as nurses or assistants shows when compared with persons on ordinary high protein diet gives indubitable evidence of the diminished work required of liver and kidneys in dealing with waste and toxic products. Professor Fisher's tests seem to show that the low protein diet gives a much increased endurance as compared with those on the ordinary amount of proteid.

At the Battle Creek Institution there are an average of 7,000 persons treated yearly. During the last three years the Chittenden diet of .80

grams of protein per kilogram of body weight has been adopted, the food values on calories are always closely calculated, there has been noted (1) clearing of the skin; the disappearance of skin eruptions, sallowness, etc., and improvement in the blood count and hemoglobin. Another important effect noted has been a fall in the blood pressure in those cases in which it was above normal, and without the use of any blood pressure lowering drugs.

Modern research confirms the conception of Liebig that protein is essentially a tissue building substance and not a body fuel. As a source of energy it is much inferior to either fats or carbohydrates. The digestion of fats requires 2½ per cent. of the total energy represented, in starch 10 per cent. of the total, while protein requires 16 per cent.

Vital resistance depends on the condition of the blood, the alkalinity of the blood is synonymous with organic protection, the blood of an animal subjected to a high protein dietary is overcharged with waste products, deficient oxidation results in reduced alkalinity, as indicated by a high degree of urinary acidity. CO_2 is the end result of the digestion of fats and carbohydrates, and is quickly eliminated through the lungs, while the poisonous products of protein metabolism are excreted in a manner which requires the work of the liver, kidneys, adrenals, thyroids, etc. Sir M. Foster stated that the lowering of the proteins reduced the tuberculo-opsonic index, but this was not borne out by the investigations made at the institute where in almost all cases this reaction was found to be above normal.

There is a relation between intestinal intoxication and tuberculosis. The increased growth of bacteria in the intestine is accompanied by an increase in the intestinal intoxication in cases of high protein dietary. The presence of putrefactive bacteria was thought to be an aid to digestion, but recent researches have shown that the intestinal canal in many animals, as example, the polar bear, is sterile. In 212 observations it was found that the amount of intestinal putrefaction varied directly with the amount of protein in the dietary as judged by the excretion of indol and indican. Experiments made by mixing various food stuffs with indol containing feces and incubating showed that cereals produced only 3 per cent. as much indol as did flesh food; general vegetable food gave an average of 2 per cent. All these facts seem to justify the conclusion that a high proteid diet tends very generally to weaken vital resistance through the enormous extra resistance that it imposes upon the liver and other poison destroying glands and upon the kidneys, the most important poison destroying glands.

The marked tendency of the tuberculosis patient to lose fat has directed the attention of the physician to the increase in the fat forming foods. But the first requisite is that the food materials must be meta-

bolised and eliminated, as fermentation and putrefaction may render the food not only noxious but useless; the integrity of tissue and function must be improved. In preparing a therapeutic regimen for the average tuberculosis patient we must bear in mind the following pathological conditions:

1. Diminished alkalinity of the blood.

2. Diminished hepatic efficieny. In tuberculosis, according to many authorities there is constantly passive congestion of the liver due to reduced æration of the blood, and there may be degeneration also. High protein diet favors hepatic congestion and tends to break down its organic efficiency with the result that it yields easily to the bacilli, and Ullom found in 37 autopsies in pulmonary tuberculosis, 81 per cent. diseased, while in only 2 cases was the liver normal.

3. Degeneration of the thyroid gland. Recent observers mention the occurrence of sclerosis of the thyroid in the presence of tuberculosis affecting other parts of the body, showing that special labor is given to this structure. It is known from experiment that a dog from whom the thyroid has been removed will die if fed on meat, while he lives indefinitely if fed on milk and bread. The inference seems clear that meat diet is unsuitable in tuberculosis. A similar argument may be adduced from the study of the adrenals.

4. Concurrent diseases of the kidneys. Nephritis occurs very commonly in tuberculosis. The third annual report of the Phipps Institute gives 84 per cent. of the cases as showing nephritis at autopsy, tuberculosis of the kidney being present in 58 per cent. Evidently the elimination of toxins causes a nephritis and the organ falls an easy prey to the bacillus. That renal lesions may result from the absorption of toxins resulting from putrefaction in the intestinal canal is well known, and also that the elimination of the products of nitrogenous metabolism falls to the share of this organ. From this standpoint it would seem wise to avoid the use of a high protein diet, and especially a flesh diet:

1. Flesh proteins more readily undergo putrefactive decomposition than do vegetable proteins.

2. Flesh foods as eaten always contain, ready formed, a considerable amount of toxins which have resulted from putrefactive processes which take place in the flesh after killing, while being "ripened" in preparation for the market.

3. Flesh foods always contain multitudes of putrefactive bacteria in active growth, and hence introduce into the intestine an agent in the highest degree calculated to encourage intestinal autointoxication and to aggravate some of the gravest features of the disease. In the early stages of the disease in which hyperhydrochloria frequently exists, the

putrefactive bacteria contained in the infected meat may be destroyed by the free hydrochloric acid present; but later on in the disease, when free hydrochlyoric acid disappears from the gastric secretion, this germicidal action is lost and the billions of putrefactive bacteria which may be swallowed at a single meal pass on into the intestine where they may be able to develop without hindrance, aggravating the toxemia which is produced by the disease itself, thus rendering futile efforts which might otherwise succeed in arresting the disease, and so hastening the patient's demise.

The main points of this paper may be summarised as follows—

1. A low protein dietary, .80 to 1.00 gram of albumin per kilogram of body weight per diem, is entirely consistent with health, vigor, and a high degree of efficiency and endurance in health.

2. While a patient suffering from pulmonary tuberculosis doubtless requires a small increase in the intake of nitrogen, an excessive increase involves grave dangers to the patient, both (*a*) by decreasing his general vital resistance, and (*b*) by imposing unnecessary and dangerous burdens upon the liver, kidneys, thyroid, and other organs which are already overburdened and often seriously crippled in this disease.

3. There is no evidence that a larger proportion of cosumptives recover under a high protein diet than under a protein ration sufficiently above the Chittenden standard to replace the nitrogen loss due to febrile conditions in certain states of the disease.

4. The majority of consumptives die from disease of the liver and kidneys. The toxins peculiar to this malady and to the process of immunization against tuberculous disease, while tending to cure the latter, tend at the same time to produce disease of the kidneys, and to such a degree that patients not infrequently die of renal disease after having apparently recovered from tuberculous disease.

5. In consumption the organism is required to deal with various highly virulent poisons which over-stimulate and ultimately cripple or destroy the thyroid, adrenals, liver, and other antitoxic organs. A high protein diet produces similar effects in healthy animals and persons, and destroys life in animals whose poison-destroying functions are seriously impaired.

6. A high protein diet is recognized as an important factor in the causation of renal disease and is universally condemned in grave affections of the liver and kidneys. Vegetable proteins are much less objectionable than flesh proteins for the reason that they are entirely free from toxins and very much less readily undergo putrefactive changes in the intestine.

GYNÆCOLOGY AND ABDOMINAL SURGERY.

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

OPERATIONS FOR BACKWARD DISPLACEMENT OF THE UTERUS.

Dr. Henry Jellett, the well-known gynacoiogist of Dublin, concludes his article in the *Medical Press and Circular* of 24th February, 1909, in these words:

I should like to state shortly why I consider that Alexander's operation is the operation of choice in uncomplicated cases of backward displacement of the uterus. To my mind the only operation which comes into competition with it is Kelly's method of ventral suspension. If there is any appreciable element of risk attachable to either operation, I think that it attaches itself more strongly to the operation which necessitates the opening of the peritoneal cavity, and that if both operations are equally suitable, the one which does not necessarily involve such an opening is the one to select. Further, I think that Alexander's operation is more likely to lead to permanent results after parturition, though I quite recognize that it is not infallible. The false ligament formed during Kelly's operation must either stretch during pregnancy or break. If it stretches it must practically extend from the symphysis to a little below the ensiform cartilage. It is only a peritoneal band, and to expect it to contract again to such dimensions as to exert a restraining influence on an unimpregnated uterus is to expect too much. The round ligament, on the other hand, undoubtedly possesses the power of contraction, and normally elongates during pregnancy and again returns to its former length. We can, therefore, look forward with some degree of confidence to the shortened ligament involuting after pregnancy to an extent which will again enable it to exert a restraining effect on the movements of the fundus.

The Kelly operation possesses one advantage, namely, that it enables one to inspect the uterus and pelvic organs generally during its performance, and so to make sure that there is no adnexal disease. The Alexander operation, on the other hand, compels one to depend on the results of a bi-manual examination. In this respect the question becomes one of diagnosis. Alexander's operation is only suited for uncomplicated cases. If there is any doubt as to whether the case is or is not uncomplicated, by all means give the patient the benefit of it and perform Kelly's operation. So far as my own experience goes, however, it is only in a small percentage of cases that such a doubt exists.

The difference between extra-peritoneal and intra-peritoneal shortening of the ligaments is that after extra-peritoneal shortening the uterus is held by the srongest proximal portion of the ligament, while after intra-peritoneal shortening the uterus is held by the weak distal portion. For this reason the former operation is much more satisfactory.

I began this paper by saying that, provided operative procedures are safe and give a good after-result, they are preferable to the prolonged wearing of a pessary. I have quoted statistics, including my own, of 385 cases, amongst which there were, so far as is known, about three failures and one death. The latter was due to croupous pneumonia, and save that it occurred after the operation had no other conection with it. I think, therefore, we may consider that Alexander's operation affords a certain and safe cure of all uncomplicated cases of backward displacement of the uterus, and that it entitles us to advise operation in all such cases which require treatment.

CARCINOMATOUS DEGENERATION OF THE UTERINE STUMP AFTER SUPRAVAGINAL HYSTERECTOMY FOR FIBROMYOMATA.

R. Lesobre (*Thèse*, Paris, 1907), states that the cervical stump after subtotal hysterectomy can become the seat of cancerous degeneration is a noncontestable fact.. The author has collected thirty-one cases where this degeneration was indubitable. In eight of these cases, however, we have to deal, not with a secondary degeneration of the stump, but with a coexistent cancer of the cervix—unrecognized at the time of the operation for the fibromyoma. These cases have been seen after subtotal hysterectomy for fibroma. Richelot and Picquand claim that fibroma predisposes to cancer. The longer the interval after the hysterectomy the more infrequent become these cases of cancerous degeneration of the cervical stump. We know that subtotal hysterectomy is an operation easy of execution. It can be performed with great rapidity and thorough hæmostases easily obtained. In the presence of this accident, cancerous degeneration, the total removal of the cervical stump and of the infiltrated tissue is indicated. The abdominal route appears preferable to the vaginal route. Often the cancerous stump is adherent to the neighboring organs; omentum, bladder, rectum, etc. It is easy to separate these adhesions if the abdominal route be employed. If the lesions be too far advanced palliative treatment may be employed; curettage and thermal cauterization. The curette must be handled with caution to avoid the danger of perforation. Two of Maclaire's unpublished cases are reported.—*Surgery, Gynæcology and Obstetrics*, March, 1909.

INTESTINAL OBSTRUCTION DUE TO ROUND WORMS.

B. F. Van Meter, Lexington, Kentucky, states that though intestinal obstruction due to round worms is not so common yet that the following report is worthy of being placed upon record.

Case 1. George S., colored, male, age five years. Referred to hospital by Dr. O. F. Brown.

May 27th.—Examination showed sausage-like mass little above and to the left of McBurney's point. Gave a history of nausea and vomiting; no history of bowel movement for twenty-four hours; had taken calomel and santonin without effect; some days previous had passed worms, temperature, 102-6; pulse, 130; diagnosis, "Intestinal obstruction probably due to worms." Operation proceeded with immediately. Abdomen opened through right rectus, large mass in lower end of ilium about six inches long immediately delivered, intestine considerably over distended from a great mass of round worms, obstruction complete. Gut opened by a two and half inch incision, nearly a wash basin full of worms removed. Gut closed with double row of sutures, returned to abdomen. Abdomen closed in layers; patient returned to bed in fair condition. Rallied from operation well. Dressed on tenth day, stitch abscess. Discharged from hospital in two weeks; wound healed perfectly.—*Surgery, Gynæcology and Obstetrics.*

URETERAL ISTHMUSES.

T. B. Wood, Chicago, *American Journal of Urology,* January, 1909, calls attention to the three constant constrictions found by Robinson. They are a proximal ureteral isthmus located practically at the distal renal pole (averaging 1-12th of an inch in diameter), the middle, situated at the point where the ureter crosses the iliac artery (averaging 1-7th of an inch in diameter), and the distal, located in the vesical wall (about 1-10th of an inch). It is at these points that ureteral calculi are most apt to lodge.—*Am. Jour. of Surgery,* April, 1909.

OBSTETRICS AND DISEASES OF CHILDREN.

Under the charge of D. J. EVANS, M.D., C.M., Lecturer on Obstetrics, Medical Faculty, McGill University, Montreal.

FOOD INTOXICATION IN INFANCY.

Food intoxication, *Jour. A. M. A.,* February 27th, 1909, as defined by the author, Brennemann Joseph, is a metabolic disturbance and is not due to putrefactive intestinal changes. The trouble lies beyond the

lining of the intestinal canal, the toxins being elaborated in the intermediary metabolism. The condition may arise in breast-fed as well as artificially fed infants, and is usually due to children receiving an amount of food exceeding their ability to metabolize.

A typical case is described in which a child shows a slight febrile action, with three to six bowel movements a day, which are sour, pale yellow or greenish in color, containing curds and show every evidence of indigestion. Later the child becomes pale and listless and appears somewhat prostrated. It then refuses food, but takes water freely. The temperature may rise to 103 degrees F., and the respirations may rise to 50 per minute in frequency, and are labored in character. If treatment is not instituted the child commonly gets rapidly worse, goes into collapse with marked loss of weight, and may die in a terminal coma.

This symptom complex is not rare in infancy. The most striking symptom is psychic depression, the child not only looks drowsy, but is in a stupor which varies from the mildest degree to a condition of coma. The next most striking symptom is a peculiar type of respiration; the child breathes more rapidly and deeply than normal and there is practically no pause between breaths as in the healthy condition.

The temperature is variable but may reach 105 degrees F., but in practically all cases it is steadily above normal. There is always present a distinct leucocytosis of moderate degree. This leucocytosis is dependent on some other cause than a bacterial one. The bowel movements are not characteristic. The urine always shows the presence of sugar (milk sugar and galacotose) and albumin and some casts. Finkelstein has given a very careful description of this symptom complex in infancy and has always found these changes in the urine in hundreds of examinations. The intoxication is never a primary condition. It appears most commonly as an accompaniment of nutritional, digestive, and infectious disturbances of all kinds. Whenever the general condition of the whole organism has been reduced to a certain point there is only one other factor necessary to elicit an intoxication and that is food of sufficient quantity and of a certain composition. The giving of food, especially of certain composition, will lead to toxic products of an adequate metabolism that may and does lead to death, and the absolute withholding of food quickly restores the organism to a state of health.

The author considers that fat is by far the most depressing element in the feeding of children. The result of this fat intoxication and the favorable outcome of starvation is certain in proportion as fat is eliminated, or used with extreme caution.

Sugar is even more liable to cause an intoxication and is second only to fat in its tendency to produce a relapse.

The author is firmly convinced that milk proteid is not hard to digest and he states that it is a matter of fact that neither casein or albumin will bring about an intoxication nor will they bring about a relapse although fed in large quantities.

He thinks that the intoxication is probably analagous to an acid intoxication and that the exact nature of the toxins is as yet unknown

With regard to the treatment he insists upon the value of withholding all food for from 24 to 72 hours according to the severity of the case. Water must be given freely during this time. If necessary it may be sweetened with saccharin, 1 grain to the quart. Weak tea or thin barley water may also be given. At the end of from 24 to 48 hours if the temperature is normal and the toxic appearance has subsided, though the motions be slimy and greenish brown in color, small quantities of food may be administered. Usually, skimmed milk is what the author recommends, beginning with five ounces, for instance, in the total daily food mixture.

If at any time during convalescence the food is too rapidly increased in quantity, relapse may occur. A re-intoxication thus occurs and the whole plan of treatment must be started again from the beginning.

As a rule the author has had no difficulty in getting the parents to carry out the starvation diet.

With regard to prophylaxis the author states that overfeeding must be avoided, and considers the practical value of a strict caloric control of the healthy infant's dietary, along the lines laid down by Heubner, can hardly be over estimated as a check on overfeeding and the resulting intoxications.

Cream mixtures should be avoided on account of the danger of fat.

The paper includes several typical cases in both artificially and breast fed infants and altogether the author presents a very interesting report of this symptom complex and it treatment.

THE CAUSES OF DEATH OF THE VIABLE FŒTUS BEFORE LABOR.

According to Dorman in *Amer. Jour. of Obstet.* Feb., 1909, the causes of fœtal death in the eighth month of pregnancy may be classified as maternal, intermediate conditions involving the placenta, and fœtal. Death of the fœtus is common in cases of acute nephritis, but is even more frequent in chronic nephritis.

In one hundred cases of eclampsia occurring at the Sloane Maternity, in 15 per cent. of the cases the fœtus died some time before the beginning of labor, 9 per cent. of which were children which might be classed as viable.

A series of 229 cases of antepartum fœtal death were collected from 10,000 consecutive deliveries at the same institution. Eighteen per cent. of these showed that the cause originated in toxæmia or renal defect. Sixteen of the 47 cases showed a certain degree of the condition known as "accidental hæmorrhage."

Reference is then made to diabetes, high temperature associated with pyelitis, endocarditis, exopthalmic goitre, pernicious anæmia and chorea as rare causes of fœtal death.

Among the acute maternal affections which bring about death of the fœtus the author mentions pneumonia as being a frequent cause, also typhoid, malaria, influenza and the acute exanthemata.

Syphilis accounted for 48 deaths out of the total of 229 recorded in the author's series. He states that "it would be interesting to learn positively, in view of our knowledge of the spirocheta, and of the reliability of Wasserman's serum test, how many more cases of fœtal death are due to this infection." These tests so far seem to result in discrediting Colle's law.

The author then deals with the changes induced in the placenta by syphilis.

Tuberculosis infrequently acts as a cause of fœtal death, and when it does so it is probable that fever and asphyxia bring about the result.

The author then gives a table analysis of his 229 cases, but as a whole his paper gives very little light on the causation and none on the treatment of this class of case.

FŒTAL MORTALITY DURING LABOR; ITS CAUSE AND PREVENTION.

Simon Marx, *Am. Jour. of Obstet.*, Feb., 1909, is very bitter at the manner in which the "average medical man" conducts a case of labor. The essentials in reducing fœtal mortality are, study of the woman, the apreciation of the position and presentation of the fœtus and its relation to the pelvis, the control of the fœtal heart action and the maternal condition, and interference only when there are positive indications to warrant it. He truly says "that the better obstetrician is he that knows when to operate, not how. The best accoucher is he who knows both when and how." He states that the most prolific cause of fœtal still birth is vicious presentation.

Every case should be looked upon as being abnormal and proved normal. He pleads for delay in interference with obstetric cases, and very careful diagnosis before any interference in undertaken.

The author is in favor of early version in cases where supra pubic pressure fails to cause the head to engage. He has found the Walcher position surprisingly successful in his experience. He is decidedly opposed to either symphsiotomy or pubiotomy, as neither has proved successful as a child saving operation, the fœtal mortality ranging between 6 and 12 per cent. He is in favor of Caesarean section where this operation is possible.

As an oxytoxic in cases where the uterine contractions are inefficient he recommends one to two grams of quinine, by mouth or rectum, Chloral in divided doses up to three grams is useful in neurotic cases or where there is present a "spastic" condition of the os uteri.

Throughout the article the author plainly shows that his opinion is that the furor for operating during labor "has swung the pendulum too far," as he states it. When the child is suffering or already dead, one of the destructive operations is indicated. In the presence of pelvic tumors complicating pregnancy the author recommends immediate removal preceding the onset of labor, but he considers that uterine fibroids no matter what size, so long as they do not tend to obstruct the passage of the living fœtus, should be left alone.

OPHTHALMOLOGY AND OTOLOGY.

Under the charge of G. STERLING RYERSON, M.D., L.R.C.S., Edin., Professor of Ophthalmology and Otology Medical Faculty, University of Toronto, and F. C. TREBELCOCK, M.D., Ophthalmologist, Toronto Western Hospital.

THE PROPER METHOD OF DETERMINING ERRORS OF REFRACTION AND THEIR ACTUAL RELATION TO THE AILMENTS OF THE HUMAN BODY.

By the late ST. JOHN ROSSA, M.D.,
In *Journal Am. Med. Assn.*, Feb. 13, 1909.

"How Should we Determine Errors of Refraction and What is Their Actual Relation to General Conditions?"

By OSCAR WILKINSON, M.D., Washington, D.C.,
In *Virginia Medical Semi-Monthly*, Sune 25, 1909.

What part uncorrected eye-strain plays etiologically in remote local or in systemic disease remains the controversial point it has ever been, since refraction became an exact science. A paper upon this subject by the late Dr. St. John Roosa, published after his death, has been the sub-

ject of much criticism; we shall refer especially to an answer from the pen of Oscar Wilkinson, M.D., of Washington, D.C.

The trend of the former articles is that the unnatural reflex from physiologically abnormal eyes had not the causative importance which many ophthalmologists would have us believe; in short, that any pair of eyes, which are "strained" in the act of seeing, shew first and always some local, abnormal reaction; e.g., redness, burning, lacrimation, etc., before any general lesion can be charged to their account.

Secondly: That the art of estimating the refraction of the eye is a comparatively easy one and ought to be part of the qualifications of the general practitioner.

Thirdly: That no lenses need ever be worn in front of any eyes, which do not manifestly raise the visual activity thereof; and fourthly, that the prescribing of prisms for extrinsic muscle unbalance is a delusion and a snare.

The courteous protest which such teaching has called forth from Dr. Wilkinson is carefully written. It is a collection of evidence to prove that Dr. Roosa's teaching is as dangerous as that which he refutes. The first paragraphs assert that eye-strain may be a causative factor in certain diseases having a neurotic basis. On this point most men are agreed, and not many practitioners would treat a case of chorea, tic, migranic, or any symptom-group with a definite nervous taint, without eliminating first all sources of aberrant reflexes, of which the seeing mechanism may certainly be one.

He next criticizes the right of the general practitioner to do refraction. His saving clause is, "The only excuse a practitioner could have for fitting glasses would be that he lived in a district remote from a competent specialist." The Licensing Board of the State of Michigan are demanding now that their candidates must have a working knowledge of refraction; evidently they cannot entirely agree with Dr. Wilkinson, nor will most of us in Ontario, though distances are great and much of the practice rural. It is our opinion that if the practitioner would take some interest in refraction, the work would be done by him better by far, than it is at present by the druggists and jewellers, nor would these men be loath to yield the field of examination to him so long as they remained the distributing agents of the glasses.

Upon the point of prescribing lenses in selected cases which do not manifestly improve the vision we must agree with Dr. Wilkinson. As he says, there are patients with low degrees of long-sight who are kept busy under the most favorable circumstances in keeping their nervous equilibrium; the overcoming of this slight refractive error becomes a source of measurable ciliary fatigue. Every oculist has young patients of both sexes wearing with great satisfaction low spheres which fully correct; the testimony of one such contradicts whole volumes of theory.

"Farm hands, drivers, or those whose occupation does not demand close work may go through life with a defect of 2 D without inconvenience, but that is not the class of persons who come to us with the various asthenopic and neurasthenic conditions."

The question of the value of prisms in the various kinds of muscle unbalance is too large a one to open in a review. As upon every other debatable point there are those who take extreme positions. Our critic has perhaps wisely given this subject a wide berth. However, there can be no reasonable doubt that in some Heterophorias, especially in unbalance of the elevator and depressor muscles, prisms are of use; also in a few cases where a high degree of conveyance may be necessary to see at all as in some advancing cataracts; but it is always safe to make the prism the very last resort. One has said that the most satisfactory practice man can have with prisms will be in taking off those which others have prescribed.

The remainder of these very interesting papers is given to a discussion without any very cogent argument upon the value of mydriasis in the estimation of refraction, and the relative value of the reteroscope and the astignometer in the measurement thereof. Dr. Roosa speaks of skiascopy as "that ancient method of determining refraction," his critic calls it "the accurate method of estimating the error of refraction;" obviously the man behind the mirror is the important element in the test.

"TRACHOMA BODIES."

BROWN PUSEY, M.D.,
In Bulletin North-Western Medical School, Chicago, June, 1909.

"TRACHOMA."

Dr. STANULEANU,
Bucharest Ophthalmoscope, June, 1909.

"The etiology of Trachoma is at last to be discovered." Trachoma has been up till now such a comparative rarity in Canada that many physicians have never seen a case, but the coming of the foreign immigrant will bring it more and more into the practice of our practitioners. We are glad to notice the work of these men above who have followed in the steps of Prawozek, Greef and others. By special staining methods very small granules in masses have been discovered hugging the muscle of the epitheliae cells in the trachoma bodies. These individual granules are smaller than the smallest cocci, and it is considered they may be the long-sought trachoma parasites. The findings are too indefinite as yet to make any positive statement regarding them. All the investigators have so far failed in their attempts to cultivate the organism, if such it be; but as Pusey says, this is not absolutely necessary for proof, for neither has the plasmodium malariae been cultivated.

"THE RELATION OF CORNEAL OPACITIES TO VISUAL ACUITY."

Pfalr calls attention to a point which is often forgotten by the practitioner when discussing with his patient the chances of good vision after a corneal injury, which has left an opacity. Corneal opacities if they do not cover the entire pupillary area may not per se interfere to a great extent with good subsequent vision. It is the pulling upon the surrounding clear areas in the process of scarring which destroys perfect corneal rotundity and so causes irregular astigmatism, that does more harm. So that an opacity may be large in proportion but if there have been little traction in the healing process, the resulting vision may be very good; on the contrary, an opacity may be small but if the ulceration have been deep and the resulting dragging marked, the vision may be very poor. The irregular astigmatism in every case tends to become more regular and vision may ultimately be much helped by suitable cylinders.

ELECTRO-THERAPEUTICS AND RADIOLOGY.

Under the charge of JOHN STENHOUSE, M.A., F.Sc., Edin., M.B., Tor.

RADIUM.

In a very clear and interesting lecture at the London Hospital, Sir Frederick Treves gives an account of his visit to the Paris Institute and the work accomplished there with Radium, (*British Medical Journal*, Feb. 6, 1909).

Radium is obtained from pitchblende, a compound of uranium not unlike hard coal. It is not known in the pure state but as a salt, radium sulphate, carbonate or bromide. It is phosphorescent, gives off heat and is soluble in water which it decomposes. Its chief characteristic is that it is radio-active which means that its rays penetrate solio F opaque substances, affect photographic plates, cause fluorescence, and render air or other gas, a conductor of electricity. These rays are of three kinds, the alpha, beta and gamma rays. The alpha and beta rays are material, as they may be stopped by a filter of cotton wool. The alpha ion, equal in mass to that of an atom of hydrogen, carries a positive charge of electricity, is of slow velocity and has little penetrating power. The beta ion carrying a negative charge, is much smaller (1-1000 part of the mass of an atom of hydrogen), but moves with great velocity and is of high penetrating power. The gamma ray which travels with the velocity of light contains no ions (that is, it is not material with our present

methods of measurement), carries no electrical charge but has enormous penetrating power. Hence, taking the penetration of the alpha rays as 1, they may be stopped by a sheet of mica. The beta rays would then be represented by 100 and will go through a sheet of lead 2-5 of an inch thick. The gamma rays would be represented by 10,000 and will penetrate an inch of steel.

The alpha and beta rays may be found alone, but the beta and gamma rays are never found apart. The alpha rays give heat and may cause troublesome ulceration; they correspond to the "canal or diacatiode" rays of the vacuum tube; whereas the beta rays have the same properties as the cathode rays of the x-ray tube.

There are also ultra-gamma rays which are most penetrating of all. By screening the rays of less velocity those of higher frequency may be allowed to act for hours at a time.

Another interesting property of radium is that it confers its radioactivity upon objects placed near it. Screened, even by thick lead, a copper will become radio-active if placed near a tube of radium.

Radium is more useful spread over a flat surface than in the form of a bead; its distribution being arranged to accommodate it to the contour of the part to be treated.

In treatment radium may be applied for the cure of obstinate skin affections, such as prurities and chromic eczemas. It will also remove pigmentid and hairy moles. Angiomata too large to be removed by any other method than by the knife and "port wine" stains too extensive for operations are successfully treated by this means. It has proved effiacious in such cases where repeated operations have failed. Under the influence of radium, beloid arising from various conditions gives place to normal and pliable skin.

Rodent ulcer, even of advanced type and apparently adherent to the bone, where Finsen light, x-rays and cataphoresis have failed yields to radium. Such have been cured in two sittings of an hour each, leaving a scar free from deep attachments.

Epithelioma of the tongue and lip, and commencing epitheliomata of the inside of the mouth are successfully treated by radium. One case is quoted where the growth on the face, which had perforated into the nasal passages was healed after frequent sittings. Such cases remained sound after two years.

THE SPECIFIC ACTION OF RADIUM.

Dr. Robert Abbe in the *Transactions of the Sixth International Dermatological Congress*, quoted in the *Medical Review of Reviews* for

April, 1909, holds that radium has two methods of action, one a specific retrograding effect on neoplasms where there is an erratic overgrowth of epithelial, embryonal or glandular tissues; and the other is the occlusive blockade (obliterating endarteritis) of highly vascular tumors by irritant action, as in angiomata. That its specific effect is not due to the mere production of inflammation is shown by its retarding effect upon the growth of dry seeds and meal worms.

The working force of any given radium specimen is determined by comparing its effects upon a photographic plate with those of a standard specimen of known strength, *e.g.*, 10 mgr. of pure German radium bromide. Thus a ten-minute exposure to such a tube produces, on the unbroken skin a red spot, with itching and burning. This reaction disappears in one week. A thirty-minute exposure gives a more severe reaction lasting two weeks. If an epithelial growth has been treated, its retrogression begins about the tenth day. There is sometimes a specific toxæmia where an ulcerating surface is treated or the tube is inserted in a wound for 24 hours.

When treating tumors of the eyelids, the eye is protected by a piece of thin sheet lead covered by gutta-percha. This is placed under the cocainized lid and the radium tube pressed against the lesion. Superficial epitheliomata, lupus vulgaris, various types of warts are thus successfully treated. Radium seems to have a specific action in giant-celled sarcomata. The spindle-celled variety may be modified but not cured.

Treatment by radium is supplementary to that by the x-ray, and in some cases is efficient when it fails. The best results have followed one hour's exhibition of the working unit for small growths, and three to four hours for larger ones, with an interval of one month to study the effects. Its action is greatly enhanced by ischæmia of the parts during treatment.

RADIUM AND SPRING CATARRH.

At the Ophthalmological Society of the United Kingdom Messrs. MacKenzie Davidson and Arnold Lawson, reports (*British Medical Journal*, May 22, 1909), the case of a boy, aged 12, who suffered from chronic photophobia, lacrymation, and slight conjunctival discharge. It persisted for nearly a year, but no exciting cause could be discovered. Both tarsi were covered with dense, hard excrescences, closely aggregated, and separated by deep, narrow fissures. The retro-tarsal tissue was swollen and hypertrophied, and the viscid discharge was spread over the conjunctival surface. The disease was confirmed by examination of the discharge. All ordinary remedies having failed, Mr. Mackenzie

Davidson was consulted as to the possibility of treating the case with radium. Such treatment was carried out for a year, each eye being treated eight times. No pain or other immediate effect was produced, but the granulations gradually subsided. After the eighth application he was quite cured, but an interval was allowed to elapse before publishing the case, so as to be sure there was no recurrence for a long time; 39 mg. of radium were used for fifteen minutes at first, and then 44 mg. Mr. Lawson thought few applications with a potent dose of radium were better than many applications with a weaker quantity. Mr. Mackenzie Davidson discussed the case, pointing out the importance of being sure the strength of radium used was what it was said to be, as he had found serious discrepancies. It was also very important to cut off those radium emanations which were not needed in the cure.

TORONTO ACADEMY OF MEDICINE.

SECTION OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Meeting of November 19, 1908.

D. J. GIBB WISHART, M.D., Chairman.

Reported by Dr. J. PRICE-BROWN.

ABSTRACT OF PROCEEDINGS.—CASE IN PRACTICE.

Dr. Geoffrey Boyd reported a case of hyperplasia of the nose, in which the bridge, the turbinates, and the septum were affected. Diagnosis being doubtful, antisyphilitic treatment was tried. For a while it was attended with marked success, the hyperplasia being materially reduced. After some months the case returned for treatment, with more definite symptoms of lupus. Surgical treatment was now resorted to by curettage, etc., resulting in cure. During the last year there has been no return.

Question: Was this a case of syphilis, tuberculosis or lupus?

Dr. Price-Brown was inclined to think that it was a case of development of lupus in a syphilitic patient, in which the specific symptoms occurred first; the lupus being controlled subsequently by the operative treatment.

Hyperpyrexia and Death after Tonsillotomy. By D. J. GIBB WISHART, M.D.

This was the case of a girl, aged 18 years, presenting no symptoms out of the ordinary, excepting the presence of enlarged faucial

tonsils and adenoids. The tonsils were coated with secretion, the crypts being charged with the ordinary cheesy deposit, so frequently found in these cases.

Double tonsillotomy and adenectomy were done under a general anesthetic. The hemorrhage was not very great. An hour or two later febrile symptoms set in, rising, almost hour by hour, to 101, 102, 103, 104, 105, 106, 107 degrees. With the development of high temperature there was advancing cyanosis and coldness of extremities. The patient died twelve hours after the operation.

Dr. Perry Goldsmith congratulated Dr. Wishart on his readiness to report such an unfortunate result. Medical men are prone to report their brilliant results, and not their poor ones, forgetting that they learn more from the unfortunate experiences of themselves and their confreres than they do from the most brilliantly devised operation. He would suggest that this case might have become rapidly and fatally ill, even without operation.

Dr. Geoffrey Boyd regarded Dr. Goldsmith's explanation as probably the right one. Had the operation been deferred, a folicular tonsillitis might have developed—in fact, there was an incipient inflammation. The shock of operation aided absorption, the consequent toxemia and the unfortunate result.

Dr. Price-Brown looked upon this case as unique. He did not know of a similar case recorded in our text books, or in the reports of clinical histories. While the operation was in every way justifiable, he regarded the case as one of acute septic infection, due to absorption of toxins, through the several crypts, by the large blood vessels and lymphatics, situated at the base of the tonsil. It is a case that should be given a wide record.

Frontal Sinus Disease. By PERRY G. GOLDSMITH.

Case, with a history of large external opening in region of frontal sinus, accompanied by excessive foul crustation, within the nasal cavities, and deviated septum, by Dr. Perry Goldsmith. The patient, a woman aged 30, having a history of syphilis, had been placed under specific treatment with the result of complete healing of external wound. Lavage had reduced the nasal discharge. There was still an atrophic condition, with free discharge of pus through the nose from the affected sinuses.

Dr. J. P. Morton believed, contrary to the general opinion, that atrophic rhinitis, in a very wide nostril, was often the result of septal deviation and both these conditions being present, it might apply to this case. In the present patient, syphilis had been added to the above conditions and sinusitis had followed as a result. He would advise a con-

tinuation of the antisyphilitic treatment for a time, before interfering with the sinuses, except by free local cleansing of the parts.

Dr. C. M. Stewart thought that this was a case of syphilis in a woman, who previously had a deflected septum. The sinusitis was most likely due to the filthy condition of the nose. Would advise that the specific and cleansing treatment be continued.

Laryngeal case, presented by Dr. Perry Goldsmith for diagnosis. In this patient the left lung was affected with tuberculosis the larynx seemed to be free from disease, with the exception of paralysis of the left cord. To what was this paralysis due?

Dr. Geoffrey Boyd said that the case was specially interesting on account of the ease with which it could be examined and the nature of the case. He thought that the left vocal cord was quite fixed, and that the right swept well beyond the median line, with such force as to impart a perceptible movement to the left arytenoid. He would suggest the use of the X-ray to clear up the matter of etiology. The condition was probably due to pressure from a mediastinal gland enlarged through the original lung infection.

Deflected Nasal Septum. By J. PRICE-BROWN.

Case of severely deflected nasal septum, after operation and complete recovery, by Dr. J. Price-Brown. This man, aged 30, mouth-breather from childhood, had extreme curvature of septum to right, with attachment to lower turbinate; also compensatory hypertrophy of left middle and inferior turbinates. After removing a segment of latter, to allow for replacement of septum in the centre, an H operation was done from the convex side—the parallel cuts being made horizontally. In this operation all the cuts are made obliquely through both mucous membrane and cartilage. The segments, gliding over each other, were pressed beyond the median line toward the concave side, and held in position by a single soft rubber splint slid into the convex side.

The splint was not removed for a month, the passage being cleansed daily by pledgets of absorbent cotton. At a later date, the anterior end of the left middle turbinate, cystic in form, was taken away (specimen exhibited).

Result, as shown in patient, true cartilaginous septum in the median line, covered on each side by normal mucous membrane, with perfectly free respiration through either nasal passage. Case shown as a protest against indiscriminate submucous resection.

Dr. Gibb Wishart had never tried the H operation; but in this interesting case the result seemed to be very good. Both nasal passages were free, but the anterior part of the left passage perhaps not quite so free as the right. If the case had been his, he would have performed

operation by submucous resection. He would ask the doctor how he came to remove the middle turbinate?

Dr. C. M. Stewart thought that the reason that the doctor removed a portion of the middle turbinate was because of its cystic condition. Concerning the H operation, he had never tried it; but he did not fall in with any operation that would forcibly straighten the deflected septum. His experience with such operations was, that they might be successful at the time; but in the course of a year or more, the septal condition was as bad if not worse than at first. He was a strong advocate of Killian's submucous resection operation, and had never seen any bad results follow in adults.

Meeting of December 17, 1908.

D. J. GIBB WISHART, M.D., Chairman.

ABSTRACT OF PROCEEDINGS.

The Treatment of Chronic Suppuration in the Maxillary Antrum.

Discussion opened by G. R. McDONAGH, M.D.

In leading the discussion Dr. McDonagh advocated conservative measures, condemning too frequent radical operations. He considered that opening the antrum through the alveolus was out of the question, and should never be resorted to. Operation through the canine fossa was also condemned.

In ordinary cases which could not be treated successfully by lavage through the ostium maxillare, he always operated through the middle or inferior meatus, the latter preferred, the anterior end of the inferior turbinal having been first removed. All necessary lavage could then be readily carried out. In extreme cases where other methods of treatment proved unavailing, the radical, Caldwell-Luc operation must be done.

Dr. Gilbert Royce thought the points made by the leader in the discussion were well taken; and was glad to know that he advocated conservative measures. He cited a case in which, after a severe head cold, a medical man complained of a bad odor which emanated from the nose. Examination revealed some flocculi of pus on the middle turbinate; and a swab of cotton passed under the turbinate emitted a bad odor. The case promptly recovered on irrigation.

He also agreed with Dr. McDonagh in condemning the alveolar route. He did not like the removal of the entire outer wall of the nose, as advocated by some, owing to the irritation the impact of cold air produces upon the antral mucous membrane. He liked Ingal's chisel, designed for opening the inferior meatus; and he used as a mallet a

piece of lead folded in a towel. In this manner the operation can be done very quickly.

Dr. Price-Brown was glad to hear conservative measures advocated in the treatment of these cases. His personal experience led him to reserve operation by the alveolar method in antral disease to cases of dental origin. In such cases, after removal of the affected tooth, lavage usually resulted in cure.

In cases where there was reason to believe that the antrum contained polypi or polypoid tissue, he first relieved the middle turbinal region, when necessary, by intranasal operation; and then made a free opening through the canine fossa, following this by whatever curetting was necessary. After packing the cavity for two days with iodoform gauze, the subsequent treatment was by irrigation, the result as a rule being cure.

In cases of suppuration in the antrum, without the presence of polypi, he preferred to operate through the inferior meatus, after removal of the anterior end of the inferior turbinate, the subsequent treatment being lavage.

During a special practice of many years, he had never found it necessary to do a complete radical, or Caldwell-Luc, operation. In a record of a large number of cases the treatment on the whole had been attended by very good results, each case being dealt with individually on its merits.

Dr. Geoffrey Boyd agreed altogether with the rational and conservative treatment advocated by Dr. McDonagh. He had cured several chronic cases by means of injections of idoform emulsion after lavage. This had a marked effect in diminishing fetor. The way of choice seemed to be the inferior meatus, after removal of the anterior third of the lower turbinate. The difficulty, even after a fair opening, was that in time the wound closed completely. He preferred the removal of the anterior instead of the middle third, so that the patient could personally wash out the cavity. He condemned the alveolar method of drainage altogether, even though the teeth were at fault. In his opinion the opening through the canine fossa alone, had all the disadvantages and few of the advantages of the radical or Caldwell-Luc operation.

Meeting of January 21, 1909.

D. J. GIBB WISHART, M.D., Chairman.

ABSTRACT OF PROCEEDINGS.

1. Dr. Gibb Wishart exhibited a case of pre-laryngeal swelling for diagnosis and suggestions for treatment. The patient, a young woman,

had been troubled for a long time with a growth lying external to the upper thyroid and subhyoid region. It was near an inch in diameter each way, and perhaps three-eighths of an inch in thickness, lying slightly toward the left side. It was subcutaneous and attended by neither pain nor discoloration.

Dr. Price-Brown did not think it was cystic, nor a mal-developed thyroid. As it seemed to be solid, he favored dissecting it out. He cited a similar sized tumor of the neck of a phantom character which he would show at a later date.

Dr. Stewart thought it might be of an embryonic character, due to the nonclosure of the thyrolingual duct; and would recommend thorough dissection out, removing every particle of mucous membrane it might contain, or there would be a recurrence.

Dr. Morton referred to a similar case that he had seen, agreeing with Dr. Stewart in his conclusions, and method of treatment advocated.

2. Dr. Wishart next exhibited a case of prolapse of the right laryngeal ventricle. The patient, a student, brought it on suddenly, six weeks ago, by shouting at a football game. There was redness and swelling above the internal to the right vocal cord, attended by hoarseness as the cords could not be perfectly adjusted in vocalization to other signs present. How should the case be treated, as there was no improvement in voice production? Should it be by intra-laryngeal operation? If so, what? or by thyrotomy?

Dr. Price-Brown suggested intra-laryngeal incisions under cocaine. If these failed, cocainizing the larynx thoroughly, and then reducing it, little by little, with the electro-cautery needle. Did not think thyrotomy would be advisable.

3. Dr. Wishart also showed a case of deafness from gun explosion close to the ear.

4. And one of Heath's operation on child a year old. Result, excellent, having but still slight weeping from the wound. As card specimens he exhibited portions of bone and cartilage after submucous resection.

Presentation of Papers.

Etiology of Nasal Polypi. By J. Price-Brown, M.D.

Abstract.

The writer reviewed the many theories that have been advanced upon this subject by different authors, dwelling particularly upon Woakes' theory of ethmoid disease as the cause; Grunwald's, that sinus disease was the etiological factor in all cases of true nasal polypi; and Yonge's that they were due to degeneration of the glands in the sub-

epithelial tissues of the middle turbinal region. The latter was the one favored by the writer. He also drew attention to two varieties of hypertrophy of the middle turbinal. The one being compensatory to deviation of the septum into the opposite nasal passage; the other being compensatory to atrophy of the inferior turbinal on the same side. While in the former class he had frequently seen fully developed nasal polypi, in the latter he had never seen any. When, added to this, we find that nasal polypi developed, as a rule, in the wider nasal passage first, and in the narrower one afterwards, it was reasonable to believe that deviation of the septum had some influence in the primary etiology of some of these cases.

Dr. Wishart said that in his cases of deviated septa, polypi had never been conspicuously associated, certainly not in exaggerated cases. The theory advanced did not explain single polypi, nor those situated elsewhere than in the middle meatus. Lately he saw a solitary polypus in the superior meatus unassociated with any other lesion.

Except in a few cases in which the whole middle turbinal tissue was diseased, he had never had to remove bone as a part of preventive treatment.

Dr. Trow said in recurring polypoid growths in the nose, there is generally, if not always, either suppurating sinusitis or ethmoiditis. Contrary to the experience of the reader of the paper, he had seen several cases of polypoid growths in the upper part of the nose, where there was an atrophic condition of the inferior turbinates.

Dr. Campbell saw no clashing of theories in the views advanced by different writers. All usually meant the same thing, namely: Chronic inflammation of the submucous tissues, in varying degrees of severity.

The Toilet of the Tympanum, and its Relation to the Success of the Radical Mastoid Operation. By GILBERT ROYCE, M.D.

ABSTRACT.

Although the first consideration, in the radical mastoid operation, is the cure of the discharge, the preservation of the hearing should not be lost sight of. The writer contends that improper treatment of the tympanic cavity accounts for many failures; and he gives in detail the technique and precautions necessary in dealing with it. Special stress is laid on the importance of thorough work done about the mouth of the Eustachian tube, so as to induce rapid dermatization from the anterior canal wall. The stapes should be carefully preserved in position, and no curetting should be done about the window; otherwise, impaired function might result. The cavity should be rendered as smooth and even as possible, so as to be accessible to after treatment. Firm pack-

ing with strips of plain gauze is the only reliable prophylactic measure against excessive granulation. The hearing should not suffer much more than in ordinary ossiculectomy.

Dr. Gibb Wishart congraulated Dr. Royce on his familiarity with the tympanum. He said he had always paid particular attention to the region about the tube, and thought the after treatment was quite as important as the operative part. He had found that the stapes was often difficult to see.

PERSONAL AND NEWS ITEMS.

ONTARIO.

Hon. Dr. Reaume has been visiting in England, France and Italy.

Drs. W. B. Thistle and J. F. Fotheringham have been taking a trip to the west coast.

Dr. John McCollum has returned to Toronto after a three-years' course of post-graduate study in Europe.

Dr. J. H. Elliott, of Toronto, is at Port Carling, where he will remain till September 17th.

Dr. J. F. W. Ross has taken a motoring trip through the Western Provinces.

Dr. E. P. Hardy, of Toronto, was elected president of the Ontario Medical Council.

A good start has been made on the New General Hospital, of Toronto, the old buildings are now down.

The Milk Commission of Ontario is making good progress. It has visited a number of model dairies in the United States and several in this province.

Dr. Samuel Webster, of Norval, has been appointed by the Ontario Government to the position of Sheriff of Halton County. Dr. Webster is well known in the medical profession. He assumes the duties of his office at once.

Drs. Oswald Dimick, H. J. Hamilton, T. S. Webster, Brefney, O'Reilly, A. Primrose, I. H. Cameron, R. A. Reeve, W. H. B. Aikins, H. A. Bruce, A. N. Maybury, E. H. Adams, are in Europe, and will take in the International Congress at Budapest.

The Woodstock Hospital was quarantined sometime ago on account of a case of smallpox in it. The quarantine had just been raised when four cases appeared in the institution, causing the quarantine to be restored.

The annual meeting of the Medical Association of the Niagara District heard a paper from Dr. L. F. Barker, of Baltimore, on "New methods of Diagnosis in Heart Diseases." Dr. F. W. E. Wilson, Niagara Falls, was elected President; Dr. J. Sheahan, St. Catharines, Vice-President; Dr. N. Walker, Niagara Falls, Sec.-Treas.

QUEBEC.

Vaccinators are busy in Montreal. The factories have recently been visited by the vaccinators. The hotels will then be attended to.

Dr. J. N. Roy, of Montreal, has had the order of the *Dragon de l'Annam* conferred upon him by the French Government. He is the first Canadian to receive the honor.

During the week ending 16th August, the death rate among Montreal children was very high. There were 308 deaths of all ages. Of these 148 were under 5 years and 83 under six months.

Lord Strathcona has now given over $1,000,000 to McGill Medical College. His latest donation was for $500,000. Of this sum $50,000 goes to augment professors' salaries, and $450,000 to complete the buildings.

At a meeting of the Provincial Cabinet recently, an important commission was appointed. It has for its mission the study of tuberculosis and the adoption of proper measures for its preveniton. The commission is composed of fourteen surgeons: Drs. Roddick, Gueron, Adams, Dube, Lessard, Burland and Vilan of Montreal. Simard, Ahern, Paquin and Rosseau from Quebec, and Mr. Holt, advocate, of Montreal. Dr. E. Pelletier of Montreal is the secretary of the commission.

MARITIME PROVINCES.

The Provincial Board of Health of Nova Scotia has issued a circular dealing with milk supply, bovine tuberculosis, and sewage disposal.

Medical men have addressed public meetings at Sydney, North Sydney, and Sydney Mines, N.S., on tuberculosis with the object of trying to establish local leagues in these places.

A public meeting was held a short time ago in Middleton, N.S., in the interests of the anti-tuberculosis workers. Dr. DeWitt gave an address on preventive medicine, paying special attention to tuberculosis.

At the 56th annual meeting of the Medical Society of Nova Scotia it was unanimously resolved that the efforts of Dr. J. B. Black in attempting to secure for Canada a Bureau of Health be approved of. It was also carried that the Federal Government be urged to establish such a bureau.

WESTERN PROVINCES.

Dr. Halpenny, of Winnipeg, has been in Europe attending the International Medical Congress.

Dr. Duncan C. McKenzie, of Bellevue, Alta., was married on 11th August, at Matteawan, on the Banks of the Hudson, to Miss Myrtle M. Lawrence.

At the annual meeting of the Alberta Medical Association a resolution was passed to affiliate the Alberta Association with the Dominion Association. Dr. Kennedy of MacLeod and Dr. Lafferty of Calgary were appointed delegates to endeavor to arrange the affiliation. The discussion of interprovincial registration resulted in a resolution that the four western provinces, British Columbia, Alberta, Saskatchewan and Manitoba, unite, and that one board be appointed to examine applicants for registration, thus giving physicians who pass the examinations and register the right to practise in any of the four provinces. Delegates were appointed to meet the representatives of the associations of the other three provinces with this end in view.

FROM ABROAD.

Ophthalmia neonatorium is the cause of one-third of all the cases of blindness in the British blind schools.

Mr. Alexis Thomson has been unanimously elected to the chair of systematic surgery to succeed Prof. John Chiene, who recently resigned.

In Scotland from 1880 to 1908 the number of lunatics in the asylums had increased 8,185.

The report of the Inspectors of Lunatics in Ireland shows that since 1880, the number of persons confined in the asylums have increased by 10,949.

The eleventh annual conference of the American Hospital Association will be held at the New Willard Hotel, Washington, D.C., September 21, 22, 23 and 24.

Dr. John H. Musser, of the University of Pennsylvania, has received a gift of $200,000 for the establishment of a department of medical research in connection with that institution.

Mr. H. T. Butlin has been elected to the high office of President of the Royal College of Surgeons, of England. He will do honor to the position.

Dr. William Hunter, who has held the position of Government bacteriologist at Hong Kong since 1901, died suddenly at the age of 34. He was a brilliant investigator.

Rayner W. Batten, M.D., F.R.C.P., Consulting Physician to the Gloucester Royal Infirmary, died July 15th, at the age of 74. He was a very distinguished member of the profession.

From *The Antiseptic,* published in Madras, we learn that the sanitary conditions of that city is in a bad way. The journal remarks that the Madras corporation is "moving backwards like a crab." There are other corporations that act the same way.

Francis Galton is now 86 and has given the world his autobiography. He has been a most extensive writer on sciences. His range of study has been of a most varied nature. He is the author of 183 books and memoirs.

The Endowment Fund for the proposed University at Hong Kong is growing rapidly. Locally, $168,000 had been raised. Messrs. Rutherford gave an additional sum of $200,000, and the Viceroy of Canton telegraphed that he could send $200,000 when required.

Germany untilizes about 7,500 hopitals, in which some 1,200,000 patients are annually treated. Adding to these the inmates of private sanatoria and patients treated at home, it is estimated that at all times one person in sixty of the population is seriously ill.

There were over 1,000 deaths from tuberculosis in Belfast during the year, and there are over 5,000 ill with the disease. The total number of deaths in Ireland was 76,891. Of these, 11,293 were due to tuberculosis in some form.

The law demanding that those who wish to marry in the State of Washington must pass a medical examination and produce a certificate that they are in sound health, has gone into effect. Already many have failed to qualify.

The Playground is the name of an interesting little journal published at 1 Madison Avenue, New York, in the interests of playgrounds for school children, and the sort of games that should be played and how to play them.

The American Academy of Medicine will hold a session of two days' duration, November 11th and 12th, at New Haven, Conn., to study the subject of infant mortality. There will be discussions on Medical, Philanthropic, Institutional, and Educational Prevention. An interesting meeting is expected.

The plans are now completed for the Phipps Psychiatic Hospital at the Johns Hopkins University, Baltimore, Md. Phipps donated $500,000 for this purpose. Dr. Adolph Meyer visited various asylums in Europe, and along with the architect, Mr. Atterbury, has supervised the plans.

A bill has passed the French Senate imposing a tax on all persons who visit health resorts or mineral springs in France. Hotel keepers

and owners of boarding houses must collect the tax. Property owners and permanent residents are exempt. The bill is very comprehensive and applies to all inland, seaside, mineral springs, and mountain resorts.

The Asylums Committee for London urges upon the London County Council the necessity of providing a receiving house for incipient cases of insanity. This would enable the true condition of these cases to be observed before they are committed to an asylum. This is truly a move in the right direction.

The Metropolitan Life Insurance Company, of New York, has expressed its willingness to spend $100,000 a year on the up-keep of a sanatarium for its policyholders for the treatment of tuberculosis. The company is sending out 3,500,000 pamphlets on the means of preventing the disease.

Mr. Haldane, M.P., in a swering a question in the British House of Commons, said that nurses trained in Colonial schools in connection with hospitals are accepted for the Queen Alexandra Imperial Military Nursing Service, provided the Nursing Board is satisfied with the training school.

The Labanon Hospital for the Insane, at Beirut, Syria, is doing good work. During the year 122 patients were admitted, and 75 remained at the close of the year. All creeds and nationalities are admitted. Some years ago, Mr. Waldemeier, seeing the need for such an institution, though 70 years of age, travelled through Europe and America in search of the funds for its establishment. His efforts were successful.

Medical inspection of schools in South Australia is doing good work. Dr. H. S. Rogers reports that he found from 60 to 70 per cent. of the school children affected with adenoids or enlarged tonsils. Grave defects of eyesight were common. Curvature of the spine was not very prevalent. The lighting of many of the schools was very bad. His recommendations regarding the feeble-minded pupils are timely.

A number of cases of pellagra have been detected in Maryland. There appears to be good grounds for believing that the disease has existed throughout the southern states for a long time. It is said to be caused by the consumption of mouldy corn. In Italy the disease is only found among those who use spoiled corn. In the *Johns Hopkins Bulletin* for July, Professor Thayer gives an excellent account of the disease.

A study of the statistics of Chicago and other large cities shows that the diseases causing most of the deaths are tuberculosis, diarrhœa, pneumonia, heart and vascular disorders, nephritis, and violence of all sorts. There is an immense waste of life under one year of age. Scarlet fever, measles, diphtheria, whooping cough, typhoid fever, and small pox now figure but lightly.

The medical profession of Queensland, Australia, is asking for a medical bill to make the course of study for registration five years instead of three as by the Act of 1867. It is also asked that a registration fee of £5 be charged, and that power be given to remove the name of a practitioner from the register for improper conduct. The Home Secretary promised his assistance.

In the State of Massachusetts factories may be inspected by the Health Officer to find out if there are any cases of ill health among the employees from the ages of 14 to 21. Many industries have voluntarily agreed that this may be done in the case of adults. Several firms have agreed to become responsible for $4 a week for the care of consumptives at the sanatorium. This is something practical and might well be followed elsewhere.

Our supply of doctors will, it is expected, number 154,000 in 1910, versus 132,000 by the United States census of 1900; giving with the increased population an increased clientele for every doctor of from 572 to 594. In Europe, states the *Post-Graduate,* one physician can care comfortably for 1,000 of the general population; even with more stringent requirements than now obtain to diminish our ranks, it will be past 1949 before a proportion is reached which is in Europe deemed normal.

As a permanent and practical result of the tuberculosis conference there has been formed a British league against tuberculosis, the objects being to instruct the public in the dangers of communicability from animals through diseased meat and milk. Special efforts will be directed to an active propaganda through educational and local governing bodies. It is anticipated that this will create an insistent popular demand for further legislative powers for administrative action where necessary.

King's College Hospital, London, is to have a new building on Denmark Hill. A site of twelve acres has been secured beside an open park area of thirty acres. His Majesty, King Edward, laid the foundation stone on 20th July. The front elevation will be 1,000 feet, and there will be accommodation for 600 beds. The removal fund amounts to £229,000. Towards this fund the King Edwards' Hospital Fund had given £27,000. The King said that this was the hospital identified with the great work of Lord Lister.

The report of the commissioners of lunacy contains ominous figures regarding the increase of insanity in Great Britain. There are now 128,787 of certified insane, an increase of 2,703. The women lead the men by 10,000. The criminal lunatics have increased 3.5 per cent. in the year. A feature is the high rate of insanity among persons of learned professions. Civil and mining engineers show the highest ratio. The commissioners favor farm colonies for the mild cases, and also on extension of the boarding-out system, under supervision, with observation wards.

BOOK REVIEWS.

THORNTON'S POCKET MEDICAL FORMULARY.

New (9th) edition. Containing about 2,000 prescriptions, with indications for their use. In one leather-bound volume. Price, $1.50 net. Lea & Febiger, publishers, Philadelphia and New York, 1909.

It would be difficult to mention a more frequently useful work than *Thornton's Formulary*. The author is peculiarly qualified to render such a service, as he unites in himself a knowledge of the three necessary branches, being a graduate in pharmacy, a professor of materia medica in a leading medical college, and an active practitioner of many years' standing. He has here presented the collective experience of the medical profession as to the best measures for combating each disease. He has arranged the various diseases alphabetically, and under each has given the best formulæ for simple cases, as well as for the various stages and complications, with quantities both in the ordinary and metric systems. A feature peculiar to this work, and one of obvious value, is found in the *Indications* and annotations for a choice between the various formulæ according to the conditions to be met. Critical study has been given to each formula in all its parts, as well as to palatability and compatability. No point desirable in such a work has been overlooked. The most experienced physician will find it useful as a reminder, and his younger confrère will perform his duty better both to his patient and himself with the best collective knowledge of his profession at hand for quick reference. That practitioners widely appreciate its value is shown by the frequent demand for new editions, a point of special importance in a work dealing with so rapidly advancing a department as therapy. In each of its nine editions, the author has embodied the latest and best information, so that the profession may consult this hand-book with confidence in finding it always up to date.

THE AFTER TREATMENT OF OPERATIONS.

A Manual for Practitioners and House Surgeons, by P. Lockhart Mummery, F.R.C.S., Eng.; B.A., M.B., B.C., Cantab.; Senior Assistant Surgeon, St. Mark's Hospital, for Fistula and other Diseases of the Rectum, and of the Queen's Hospital for Children, London; Jacksonian Prizeman, and late Hunterian Professor, Royal College of Surgeons. Third edition. London: Baillière, Tendall & Cox, 8 Henrietta Street, Covent Garden. 1909. Price, 5 shillings, net.

The first edition of this little book appeared in 1903, and now we are favored with the third edition. This speaks well for the book, and shows

that it has filled a place in reading matter of the medical practitioner and house surgeon. We have examined this book with care. The present edition is brought thoroughly up-to-date. The directions are sound and useful. There are many events that may follow operations, such as shock, haemorrhage, the after-effects of the anaesthetics, and other complications. These are well gone into with much care. We can recommend this book to our readers as one that is likely to prove interesting and useful. Any one chapter is worth far more than the whole cost of the book. The book is got up in a very attractive form, and the publishers deserve praise for their share in its preparation.

INTERNATIONAL CLINICS.

A quarterly of Illustrated Clinical Lectures and especially prepared original articles on Treatment, Surgery, Medicine, etc., etc. Edited by W. T. Longcope, M.D., Philadelphia. Write the Collaboration of Professors Osler, Musser, McPhedran, Billings, Mays, Rotch, Clark, Walsh, Ballantyne, Harold and Kretz. Vol. II., nineteenth series, 1909. Philadelphia and London: I. B. Lippincott Company. Price, $2,25.

The present volume has articles on Medicine, Treatment, Surgery, Gynaecology, and Obstetrics, Ophthalmology, Otology, Proctology, Psychiatry and Pathology. There are four colored plates, sixteen plain plates, and a number of figures. The work is worthy a place in any medical library. We cannot say more.

PRINCIPLES OF PHARMACY.

The Principles of Pharmacy, by Henry V. Arny, Ph.G., Ph.D., Professor of Pharmacy at the Cleveland School of Pharmacy, Pharmacy Department of Western Reserve University. Octavo of 1,175 pages, with 246 illustrations, mostly original. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; half morocco, $6.50 net. Toronto: Canadian Agents, The J. F. Hartz Company, Limited.

This is a very comprehensive work in Pharmacy. The material of the book is divided under the headings Pharmaceutical Operations, Galenic Pharmaceutical Preparations, Inorganic Chemistry, Organic Chemistry, Pharmaceutical Testing, The Prescription, and Laboratory Exercises. The author adheres closely throughout the entire work to his special topic, Pharmacy. The description of methods is exceedingly well done. The account of the various drugs and their preparations leaves nothing to be desired. As a work on Pharmacy, this one by Professor Arny will certainly be found to be a most satisfactory one. The publishers have given us a very attractive volume.

WELLCOME RESEARCH LABORATORIES.

The Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum, by Andrew Balfour, M.D., B.Sc., F.R.C.P., D.P.H., Director. Published for the Department of Education, Sudan Government, Khartoum, by Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden, London, 1903. Depot for Canada, Toga Publishing Company, 101 Coristine Building, St. Nicholas street, Montreal. Price, $5.

This superb volume covers a wide range of subjects. The sleeping disease, mosquitoes, venomous serpents, diseases spread by insects, climatic conditions. The amount of information is very great, and is wholly original and the outcome of research work. The book is well illustrated with 218 plates and figures, many in colors. The entire get-up of the volume shows that no expense has been spared. This work is a most valuable contribution to tropical medicine.

TREATMENT OF DISEASES OF CHILDREN.

Treatment of the Diseases of Children, by Charles Gilmore Kerley, M.D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Second revised edition. Octavo of 629 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; half morocco, $6.50 net. Toronto: Canadian agents, The J. F. Hartz Company, Limited.

For a thoroughly good work on the disease of children we can recommend this one by Professor Kerley. We had the pleasure of reviewing the first edition of this work and we note many changes and improvements. Dr. Kerley has left nothing undone to make his book a good one and well worthy the confidence of the medical profession. In this book every practitioner can confidently expect a true counsellor in almost every difficulty that can arise in actual practice. We think this book should find a place in every library. The paper and press work are of the very best.

DIET IN HEALTH AND DISEASE.

Diet in Health and Disease, by Julius Friedenwald, M.D., Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third revised edition. Octavo of 764 pages. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $4.60; half morocco, $5.50 net. Canadian agents, The J. F. Hartz Company, Limited, Toronto.

We have, on two former occasions, reviewed this work, and what we said then we are prepared to endorse now. The work deals with the

Chemistry and Physiology of Digestion, Classes of Foods, Beverages and Stimulants, Factors in their Bearing on Diet, Infant Feeding, Diet for Special Conditions, Special Methods of Feeding, Diet in Disease, Special Cures, Army and Navy Rations, Dietaries for Institutions, Recipes, Reference Diet Lists, etc. It will thus be seen that the authors have left no portion of the field of the subject uncultivated. We would say that this book is just about as perfect as it is possible for medical science and industry to make it.

THE OPHTHALMIC YEAR BOOK, VOL. VI.

Containing a Digest of the Literature of Ophthalmology with Index of Publications for the year 1908. By Edward Jackson, A.M., M.D., Professor of Ophthalmology in the University of Colorado, George E. DeSchweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania, and Theodore B. Schneideman, A.M., M.D., Professor of Ophthalmology in the Philadelphia Polyclinic. Illustrated. The Herrick Book and Stationery Company, Denver, Colo., 1909.

This is really a text book on diseases of the eye. As practically every affection of the eye, medical and surgical, was discussed in papers and books during the year 1908, the review of these covers the whole field of ophthalmology. Then this review work has been done by masters in ophthalmology, who are well able to throw the light of their own experience on the various topics under consideration. The fullest attention is given to treatment, and we feel that this would be an exceedingly useful work for the general practitioner to study and follow in his practice.

THE AMERICAN POCKET MEDICAL DICTIONARY.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "The American Illustrated Medical Dictionary." Sixth revised edition. 32 mo. of 598 pages. Philadelphia and London: W. B. Saunders Company, 1909. Flexible Morocco, gold edges, $1.00 net; thumb indexed, $1.25 net. Canadian agents, The J. F. Hartz Company, Limited, Toronto.

One would say that this is perfection in the work of book making. The best of paper, clear type, excellent binding, and limp covers of dainty red color. If the book had been prepared for some fastidious Oriental Princess it could not have been made more attractive. The definitions are brief, but clear and to the point. The book is very complete in words and tables. There are to be found here the latest terms that have been introduced into medical science. This dictionary is the proper size for one's pocket, a place where it ought very often to be found. We have much pleasure in recommending this book.

BIER'S HYPEREMIC TREATMENT.

Bier's Hyperemic Treatment in Surgery, Medicine and all the Specialties: A Manual of Its Practical Application, by Willy Meyer, M.D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital; and Professor Dr. Victor Schmieden, Assistant to Professor Bier at Berlin University, Germany. Second revised edition. Octavo of 280 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $3.00 net. Toronto: Canadian agents, The J. F. Hartz Company, Limited.

It would seem as it were only the other day that we had an opportunity of reviewing the first edition of this work. We then expressed the opinion that there was merit in the treatment. It is following out what nature tries to do. The tonsils are infected and there follows an active inflammation. Certain germs invade the lungs and there is a pneumonia. By the Bier method an extra quota of blood is brought into a part of the body. This does two things: Kill out infection and give the part extra nourishment. We believe that Professor Bier is doing work that will last, and this book gives an excellent account of that work.

NATIONAL VITALITY.

Bulletin of the Committee of One Hundred on National Health, being a Report on National Vitality, its Wastes and Conservation, prepared for the National Conservation Commission, by Professor Irving Fisher, of Yale University, Member of the Commission, July, 1909, No. 30. Washington: Government Printing Press.

This pamphlet of 138 pages is full of valuable information from the first page to the last. The amount of labor and investigation which must have expended upon its preparation must have been immense. The results of these investigations are here given in condensed form and the clearest possible language. When one reads such a contribution as this to preventive medicine he becomes seized with the great importance of the subject. The monetary loss to a nation caused by sickness and deaths that ought to be prevented in a marked degree is appalling. Here one gets the facts.

THE CAMPAIGN AGAINST MICROBES.

By Etienne Burnet, M.D., of the Pasteur Institute, Head of the Vaccination Service of the City of Paris. Translated from the French by E. E. Austen, F. Z. G. John Bale, Sons and Danielsson, Oxford House, 83-91 Great Titchfield St., Oxford St., W., London. Price 5s. net.

Here we have in a neat and attractive volume, 248 pages, a vast amount of information on cancer, tuberculosis, tetanus, sleeping sickness,

enteritis, variola and vaccinia. On the subject of cancer the problem is submit: If the embryonic cell is the cause of the disease why are not all animals subject to the disease? After carefully reasoning out the subject the statement is made, "It is therefore the cell that is the parasite. Give us a cell with these aberrations in its energy, with this power of untimely multiplication, and we will produce for you a cancer." Then again, we are told: "The cancer cell owes its properties to the fact that it harbors in its interior . . . . . a microbe." We cannot follow the investigations on all topics but urge the study of the book.

RADIO-ACTIVITY AND CARCINOMA.

The Croonian Lectures on this Subject, An Experimental Enquiry by W. S. Lazarus-Barlow, M.D., F.R.C.P. Reprinted from the *Lancet*.

These lectures were delivered before the Royal College of Physicians in June last. We are glad to have them in pamphlet form. The subject is a very important one, and the writer capable of giving us the latest views. These lectures contain much valuable information and throw out many very important suggestions. The careful perusal of such statements as we have here makes one feel how little we know, and how much there is yet to find out. But such work as is here detailed is along the right lines, and we congratulate Dr. Barlow. We hardly think, however, that the theory that radio-active bodies cause cancer is proven. We rather feel that the weight of evidence lies on the side of irritation or the part being an active factor in causation.

THE MASSACHUSETTS MILK STANDARD.

This pamphlet gives the laws governing the sale of milk. There is much information from experts on the subject of pure milk and how to secure it. The distribution of such literature will do much good. The pamphlet is prefaced and published by Charles W. Wood, of Worcester, Mass. Those interested in the milk question should procure a copy.

THE CANADIAN CLUB OF NEW YORK.

This pamphlet gives the speeches before the New York Canadian Club. Dr. Neil MacPhatter is president of the Club. Canadian Practitioners would do well to read these speeches.

CALENDAR.

University of Toronto, Faculty of Medicine, Session 1909-1910, University Press.

CALENDAR.

McGill University Annual Calendar, Faculty of Medicine and Department of Dentistry, 78th Session, 1909-1910.

MISCELLANEOUS.

MEDICAL FACULTY, McGILL UNIVERSITY.

Following is the list of names of students, 71 in number, who have completed the course for the degree of Doctor of Medicine in the Medical Faculty of McGill University. In addition to the primary subjects they have passed a satisfactory examination, both written and oral, in the following subjects:—Principles and practice of surgery, theory and practice of medicine, obstetrics and diseases of women and children, pharmacology and therapeutics, medical jurisprudence, practical and general pathology, bacteriology and hygiene, mental diseases, and also clinical examinations in medicine, surgery, obstetrics, gynæcology and ophthalmology and otology, conducted at the bedside in the hospitals:—

Archibald, D. W., North Sydney, C.B.; Atkinson, P. McL., Albert, N.B.; Auld, F. M., B.A., Covehead, P.E.I.; Bailey, C.V., New Glasgow, N.S.; Ballon, D. H., B.A., Montreal, Que.; Benoit, H. W., Ottawa, Ont.; Bramley Moore, A., London, Eng.; Bugbee, R. G., Ph.B., North Attleboro, Mass.; Cameron, J. R., Charlottetown, P.E.I.; Carney, M. J., Halifax, N.S.; Carrington, E. A. S., M.D., Barbadoes, B.W.I.; Churchill, L. P., Dartmouth, N.S.; Clarke, J. C., Nelson, B.C.; Cody, H. C. Centreville, N.B.; Conn, L. C., St. Catharines, Ont.; Cotton, T. F., B.A., Cowansville, Que.; Cox, C. G., Hull, Que.; Craig, D. A., Kemptville, Ont.; Craig, H. M., Kenmore, Ont.; Cron., Chas., Harbor Grace, Nfld.; Cross, C. E., B.A., Montreal, Que.; Curry, W. A., B.A., Halifax, N.S.; D'Avignon, F. J., Au Sable Forks, N.Y.; Davis, D. W., Brockville, Ont.; DeWitt, C. E. A., B.A., Wolfville, N.S.; Donahue, H. F., Leominster, Mass.; Dorsey, J. W., Charlottetown, P.E.I.; Drury, W. H., Barrie, Ont.; Dunlop, F. T., St. John, N.B.; Ewing, W. T., Montreal, Que.; Fairie, J. A., Montreal, Que.; Foster, L. S.,

Providence, R.I.; Fraser, M. J., Stratford, Ont.; Funk, E. H., Rossland, B.C.; Gillis, J. J., B.A., Miscouche, P.E.I.; Greenlesse, J. C., Ottawa, Ont.; Hale, G. C., London, Ont.; Hand, W. T., Montreal, Que.; Johnson, A. L., B.A., Halifax, N.S.; Kelly, C. M., B.A., Fredericton, N.B.; Lannin, J. C. J., South Mountain, Ont.; Lawrence, W. A., Lisbon, N.Y.; Lawson, G. C., Charlottetown, P.E.I.; Leys, W. M., Brantford, Ont.; Lindsay, L. M., Montreal, Que.; Maclean, C. G. G., Victoria, B.C.; McBride, W. P., Central Bedeque, P.E.I.; McCallum, J. S., Smith's Falls, Ont.; McEwen, S. C., Vancouver, B.C.; Manning, G. M., Barbadoes, B.W.I.; Miller, R. L., Montreal, Que.; Murray, J. M., Marmora, Ont.; Ower, J. J., B.A., Smith's Falls, Ont.; Palmer, J. E., B.A., Hampton, N.B.; Paterson, J. H., Almonte, Ont.; Patton, W. D., Vancouver, B.C.; Read, E. S., B.A., St. Felix de Valois, Que.; Richardson, R. W., Lisbon, N.H.; Scott, J. B., Hull, Que.; Sharpe, C. E., Jamaia, B.W.I.; Stewart, Alex., Ormond, Ont.; Smith, B. S., Bos- Que.;Taylor, T. H., Cumberland Mills, Que.; Thomson, J. O., Montreal, Que.; Turnbull, F. M., Bear River, N.S.; Underhill, T. B., Weyburn, Sask.; Walsh, J. J., Woburn, Mass.; Walsh, J. P., B.A., Quebec, Que.; Worley, E. G., Haley's Station, Ont.

The following is the prize and honour list of the fourth year:—

Holmes' gold medal for highest aggregate in all subjects forming the medical curriculum:— E. H. Funk, Rossland, B.C.

Final prize, for highest aggregate in the fourth year subjects—L. C. Conn, St. Catharines, Ont.

Wood gold medal, for best examination in all the clinical branches—R. G. Bugbee, Ph.B., North Attleboro, Mass.

Woodruff gold medal, for best special examination in ophthalmology and oto-laryngology—E. H. Funk, Rossland, B.C.

McGill Medical Society, senior prize—L. S. Foster, Providence, R.I.

Honours in aggregate of all subjects—1, L. C. Conn; 2, E. H. Funk; 3, W. A. Curry, B.A.

Following is the prize and honour list of the third year:—

Third year prizeman—Sidney B. Peele, New Westminster, B.C.

Sutherland medallist—J. H. Allingham, B.A., St. John, N.B.

Joseph Hills prize—J. R. Fraser, Lakefield, Ont.

Morley Drake prize—T. A. Robinson, St. Marys, Ont.

Honours in aggregate of all subjects—1, Peele, Sidney B.; 2, Robinson, T.A.; 3, Fraser, J. R.; 4, Park, J. E.; 5, Macaulay, A. E.; 6, Wilson, G. T., B.A.; 7, Clarke, T. L. E.; 8, Hepburn, W. G.; 9, Macmillan, H.

In the third year, 78 in number have passed in all the subjects.

Following is the prize and honour list of the second year:—

Second year prizeman—F. H. MacKay, Mount Stewart, P.E.I.

Senior anatomy prize—F. H. MacKay, Mount Stewart, P.E.I.

Honours in aggregate of all subjects—1, F. H. MacKay; 2, D. S. Lewis, M.Sc.; 3, H. C. Steeves, B.A.; 4, A. B. Walter; 5, Paul Ewert, B.A.

In the second year, 30 in number have passed in all the subjects.

Following is the prize and honour list of the first year:—

First year prizeman—H. W. Wade, Millis, Mass., U.S.A.

Junior anatomy prize—A. L. Jones, Victoria, B.C.

Honours in aggregate of all subjects—1, Wade, H. W.; 2, Robson, C. H.; 3, Nase, Philip; 4, Morris, W. G.; 5, Smith, J. A.; 6, Phillips, J. C.; 7, Wall, J. T.; 8, Crowdy, C. T.; 9, Purdy, W. T.; 10, Gowdey, W. C.; 11, Stewart, R. C.; 12, Meeker, J. E.

ONTARIO MEDICAL COUNCIL EXAMINATIONS.

The results of the Ontario Medical Council examinations were announced recently as follows:—Final—Byron E. Biggs, Herbert McG. Bowen, Henry K. Bates, James G. Bricker, James B. Brown, Duncan Carmichael, Hugh M. Cooke, David Wesley Clarke, Duncan F. Carswell, Samuel V. Carmichael, Alex. Douglas Campbell, Andrew L. Campbell, Oliver S. Craise, W. Elmore Cameron, Harry Lloyd Emmett, William R. Fader, Francis J. Folinsbee, Jordan M. Fowler, William F. Fielding, Joseph C. Gandier, John P. Harrison, Charles Gordon Heyd, Herbert R. Holme, Joseph Ravel Hutubise, Reuben L. Hurst, James Graham Harkness, Laura S. Hamilton, Clarence Edgar Hill, Bertrand B. Horton, William Arthur Harvie, Victor S. Kaufman, Joseph M. Kelly, Weston Krupp, John Elwood Keyes, A. McDonald Murray, Oliver R. Mabee, Archie Macdonald, Giles B. Murphy, Charles R. MacKinnon, Allan James MacKinnon, Fuller S. Macpherson, William Mabee, Adam Hume Millar, Albert M. McCormick, Alex. Dunbar McKelvey, Thos. C. McLaren, William A. McClelland, Andrew R. McMillan, James A. McGibbon, Leo George McCabe, William Geo. McCulloch, Fred L. Neeley, Robert Dick Orok, Charles B. Parker, George H. Patterson, Osman A. Progue, Wallace Pratt, Edgar Rae, Lawrence H. B. Robertson, Geo. W. Rogers, William Alex. Robertson, Allan Ross, Leon Judah Solway, Chas. W. Sawers, Norman S. Shenstone, Charles G. Sutherland, John Masson Smith, William E. Tindale, William H. Tytler, Clarence P. Thompson, William Gordon Wallace, Rene E. A. Weston, Edward C. Wilford, Francis Douglas Wilson, Garnett W. Williams, James Henry Wood, Norman L. Yellowlees.

Intermediate—William Francis Adams, Charles F. Atkinson, Gerald Belfrie, Julian S. Boyd, James G. Bricker, James B. Brown, Duncan

F. Carswell, Duncan Carmichael, James Roy Childs, John R. Christian, Hugh M. Cooke, John Donald Cunningham, Leon Alex. Douglas, George N. L. Earl, Harry G. Emmerson, Arthur W. M. Ellis, Stuart M. Fisher, Joséph C. Gandier, James Lorne Graham, John P. Harrison, Charles A. Harvie, Mathew J. Haffey, Charles Gordon Heyd, Herbert R. Holme, Bruce Holmes Hopkins, Joseph Ravel Hutubise, Reuben L. Hurst, Edwin F. Jeffries, John A. G. Johnston, Arthur Clifford Johnston, Richard Donald Lane, Robert Wesley Lynn, Oliver R. Babee, Archie Macdonald, William J. M. Marcy, John H. MacIntosh, Chester N. Mooney, Edward A. W. Morgan, Heber H. Moshier, Giles B. Murphy, James J. F. McCann, William A. McClelland, Robert J. McEwen, Alex. Dunbar McKelvey, Albert M. McCormick, Thos. C. McLaren, Andrew R. McMillan, Robert McTavish, William D. McIlmoyle, Archibald E. Naylor, Gordon B. New, Fred L. Neeley, Fred J. O'Connor, Robert Dick Orok, Charles B. Parker, Paul Poisson, Osman A. Pogue, James Stafford Quinn, Edgar Rae, Lawrence B. Robertson, George Westlake Rogers, Charles W. Sawers. Norman S. Shenstone, Robert V. B. Shier, Leon Judah Solway, Charles G. Sutherland, Norman L. Terwillegar, Roy Hindley Thomas, William E. Tindale, Thomas L. Towers, William H. Tytler, William Gordon Wallace, Rene E. A. Weston, Edward C. Wilford, Francis D. Wilson, Norman J. L. Yellowlees.

Primary—Charles C. Alexander, Ivan E. Annett, Albert H. Baker, Harold R. Barker, Newton J. Barton, Cecil C. Birchard, Richard Blanchard, William O. Bonser, Frederick Boyd, Franklin C. Bracken, John C. Bradley, Lawrence F. Brogden, Frederick T. Bryans, Fred S. Burke, Harry W. Benson, John A. Campbell, William C. Campbell, William R. Cann, Duncan Carmichael, George W. D. Carleton, John P. S. Cathcart, William E. Caven, Stanley G. Chown, Neil A. Christie, John R. Christian, William A. Claxton, Llewellyn H. Coates, Morley G. Cody, William M. Cody, Hugh M. Cooke, Leo. J. Corrigan, William E. Cruickshank, Stella A. Cunningham, Robert D. Defries, David L. Dick, Roy D. Douglas, Archibald S. Duncan, Charles F. Dumfield, Allan S. Eagles, Harry G. Emmerson, Edgar V. Emery, Donald T. Evans, Ronald M. Ferguson, David J. N. Ferrier, Susie L. Fotheringham, Carlos L. Fuller, Harry G. Furlong, Thomas M. Galbraith, John A. Gardiner, Nelles T. George, William O. Gliddon, Howard Gordon, Raymond Gorssline, Lawrence O. Griffin, Richard E. Guyatt, Louis G. Hagmeter, Walter R. W. Haight, John E. Hagmeier, Gordon M. Hanna, Alfred P. Hart, Horace H. Harvie, Clarence W. Henders, George L. Hodgins, Philip H. Huyck, Gordon Hyland, Cecil G. Imrie, Lloyd A. Jones, Dennis Jordan, James V. Jordan, Ephraim E. Kells, Charles B. Kelly, James K. Langford, Wm. James Leach, Arthur V. Leonard, Maurice Levy, Oliver R. Mabee, Archie Macdonald, Ewen A. Mackenzie, Lloyd P. MacHaffie, William J. Mac-

kenzie, William Mainprize, William George Martin, John LeRoy Mavety, Elmer W. Mitchell, Herbert B. Moffat, James K. Mossman, Giles B. Murphy, Charles J. McCabe, Albert M. McCormick, John F. McCracken, Gordon L. McFarlane, Edward Henry McGavin, Thos. C. McLaren, Archie McMurchy, John Albert McPherson, Robert Dick Orok, Bryson C. Patterson, Henry H. Pirie, Albert Gower Poole, George Wesley Pringle, Byron C. Reynolds, Ernest A. Rchardson, Deardon Rigg, James Frederick Rigg, Harold L. Rountree, Frank Ramsay Scott, Norman S. Shenstone, Ross Lester Shields, Charles W. Sinclair, Wilfred Davy Smith, William Wallace Smith, Robert Scott Smith, Leon Judah Solway, Frank E. Spencer, Elizabeth L. Stewart, Robert Roy Stirrett, James D. Struthers, Dennis Sweeney, Paul Joseph Sweeney, Thos. Snyder, James Thomson, Frank L. Thompson, Sydney E. Thompson, Wilfred Thurtell, William R. Tutt, George Napier Thomas, Thomas L. Towers, Merritt C. Vaughan, Ambert H. Veitch, Carl W. Waldron, Marchant B. Whyte, Warren E. Wilkens, William M. Wilkinson, John P. Wilson, Harold C. Workman, Herbert M. Yelland, Norman J. L. Yellowlees, Clarence R. Young, Ernest W. Zumstein.

THE CANADIAN MEDICAL EXCHANGE.

The Canadian Medical Exchange, 75 Yonge Street, Toronto, conducted by Dr. W. E. Hamill, medical broker, desires us to inform physicians who may wish to sell their practices and homes, that this is an excellent time of the year to list their offers with him. At the present time he has over twenty bona fide registered buyers, who are able to pay for anything that suits them. All prospective buyers are bound legally and morally, to secrecy, and to not offer opposition if they do not buy. Full particulars will be cheerfully furnished any prospective vendor, if he will write to the doctor.

AMERICAN INVESTIGATION IN CAUSES OF TUBERCULOSIS.

Advance copy of the paper of Mr. Nathan Strauss, the New York philanthropist, has reached us. This paper was read at the International Tuberculosis Conference held in Stockholm.

He urges two lines of action: That the association of the well with the sick be safeguarded; and that no milk be used that does not come from tested cows or until it has been pasteurized.

The paper refers to the work of Dr. W. H. Park, of the Health Department of New York; to that of Dr. M. P. Ravenel, of the University

of Wisconsin; to that of Dr. John R. Mohler, and to that of Dr. A. D. Melvin, of American Bureau of Animal Industry, and others. All these high authorities show that a large percentage of cattle are tuberculous, and that milk from diseased animals often contains tubercle bacilli.

The paper refers to the investigations of Dr. John F. Anderson, assistant in the United States Hygienic Laboratory. He collected 272 samples of milk from 104 dairies. He found 6.72 per cent. to contain virulent bacilli, from 11 different dairies. The tuberculin test would weed out the diseased cows, and pasteurization would remedy the milk from the cows that had not been tested.

To bring about the best results we must have the hearty cooperation of the dairymen, the milk dealer, the legislator, the health officer, and the doctor. The indications are that the efforts that are now being made will soon make headway against the plague along the lines of rational and effective prevention.

ONTARIO MEDICAL COUNCIL—ANNUAL MEETING.

The annual meeting of the Ontario Medical Council was held in the Council building in Toronto, the session commencing on Tuesday, 6th July, 1909.

Election of Officers.—The following officers were elected during the first day: Dr. E. A. Patrick Hardy, president; Dr. J. Lane, vice-president; Dr. J. L. Bray, registrar; Dr. Wilberforce Aikens, treasurer; Mr. Charles Rose, prosecutor; Mr. H. S. Osler, solicitor, and Dr. Patton, auditor. Dr. Hardy made a short address, in which he referred to the finances of the College of Physicians and Surgeons, and also to the death of Dr. Glasgow, former president. He said that in 1907 the cash balance on hand was $66,161, in 1908 it was $48,000, and in 1909 it was only $44,745. At this rate the Council would be in debt in ten years. This is due to the constant increase in the expenses. The president hoped that something would be done to further interprovincial reciprocity.

Dr. Britton Resigns.—Dr. William Britton, of Toronto, tendered his resignation as a member of the Council. Dr. J. M. MacCallum was appointed to succeed him.

Drs. Kennedy and Kennedy.—A communication was received from Mr. C. F. Campbell, post office inspector, in connection with the use made of the mails by Drs. Kennedy and Kennedy, of Detroit, but who had a post office box in Windsor. He did not know whether the Medical Council had any power to deal with the matter. The letter was referred to the Rules and Regulations Committee. This committee reported that the matter be referred to the Council's solicitor for an opinion, and on

motion of Sir James Grant this was adopted. The Legislation Committee, along with the solicitor will, therefore, look into the matter to see if the persons are making an improper use of the Canadian mails.

Reciprocity with Manitoba.—The Manitoba Medical Council expressed its willingness to appoint a committee to discuss the question of reciprocity in registration. Notice of motion was given that as soon as the Councils of Manitoba and the other Western Provinces were prepared to discuss the matter the Ontario Council would appoint a committee of two to meet with committees of these councils. At a later session the question of interprovincial registration was again taken up. Dr. King was of the opinion that it was premature to act until the western provinces had laid down some basis of agreement. Dr. Spankie and other members of the Council thought that the invitation fo the Manitoba Council should not be lost. Drs. Spankie and E. Ryan were appointed as delegates to confer with delegates from the Manitoba Council, and report to the meeting of the Council next year. Dr. Spankie stood firmly by the importance of the question of reciprocity between the provinces.

Reciprocity with British Columbia.—A communication was read from the Council of British Columbia declining to enter into the discussion of reciprocity. The communication was placed on file.

Reciprocity with Britain.—The Committee which had been appointed to consider reciprocity with Great Britain was continued.

Unprofessional Conduct.—The question of how best to deal with cases of unprofessional conduct received a good deal of consideration at the hands of the Council. Dr. F. N. G. Starr moved that the executive committee be given power to investigate cases of alleged unprofessional conduct instead of by the entire council. Drs. Ryan, Temple and others thought the matter was too important to be relegated to any committee. The matter was referred to the solicior for an opinion as to whether the Council could delegate such powers to a committee. It was contended that by-law No. 131 gave the Council such powers.

Mr. Osler, in his opinion, which was read by Dr. Bray to-day, stated: "To the question whether the council should act on the authority of this by-law (131) I should unhesitatingly tell them that they should not do so on the ground that the by-law is ultra vires." He added, however, that, in view of the great difficulty of getting any amendment, the council might take the risk of raising a test case.

Dr. Starr then moved that the council ask the Ontario Legislature for such an amendment as would enable the executive committee to investigate cases of unprofessional conduct.

This was strongly opposed by Dr. Spankie. Dr. King pointed out that the solicitor suggested that the council might try a test case through the executive committee.

Drs. Gibson, Moorehouse, Jarvis and others took part in the discussion. The motion was then declared lost by 18 to 6.

Case of Dr. Shier.—The case of Dr. D. W. Shier was very fully discussed. The discipline committee reported that his name should be struck off the register on account of "infamous and disgraceful conduct in a professional respect." This was very fully discussed. Drs. Temple, McArthur, King, Harvy, Moorehouse, Gibson, Henry, MacCallum, Carmack and Johnson took part in the debate. Dr. King moved as an amendment to the report "That the Council should not now erase Dr. Shier's name, but that the matter be taken up again at the next annual meeting." This was seconded by Dr. Hardy. Dr. Shier was heard in his defence. He explained that he had only erred in judgment, and that he thought he was sending the young woman to a place to stay. The amendment was carried, only two voting against it. Dr. Varden, of Galt, objected to the terms of Dr. Shier's letter, and thought that "his reflections upon the members of this council are altogether out of place at this time."

Case of Dr. E. M. Cook.—In the case of Dr. E. M. Cook, also charged with "infamous and disgraceful conduct in a professional respect," the Discipline Committee reported that the prosecutor had been unable to serve notice upon the defendant, he having left the country, and they were directed to continue their efforts to locate him with a view to inquiry into the charges. Dr. Robertson, Stratford, in submitting the report urged that every effort be made to locate Dr. E. M. Cook in order that he might be served with a regular notice so as to enable the council to enquire into his case.

Drs. W. R. Cook and S. B. Pollard.—Dr. J. S. Hart moved that the cases of Dr. W. R. Cook and S. B. Pollard, both of Toronto, be referred to the Discipline Committee for investigation and report. These cases will be reported upon at the next annual meeting.

Discipline Committee.—Dr. Jukes Johnson gave notice of a motion that the Discipline Committee be directed to deal with any cases now before the courts and which might be adjudicated upon before the next meeting of the council. So much time was lost after a case was decided by the courts before it came before the council, that the Discipline Committee should be directed to take it up.

Unqualified Assistants.—Dr. E. A. P. Hardy brought up the question of members of the College of Physicians and Surgeons employing unqualified assistants. He thought the council should draft new regulations which would render this impossible. As the Act now stands it is unlawful for an unqualified person to accept any remuneration for his services. The council, however, did not take any steps against those doctors who engage unqualified assistants.

Prosecution Committee.—Dr. Jukes Johnson presented the report of the Prosecution Committee which showed that several cases had been investigated and action launched where necessary.

A Student's Case.—The case of a certain student was dealt with. He had practised without being qualified and had been fined three times. The application of the student to enter the examinations had been refused by the executive committee. It was decided by the council that he might go up for his examinations when he had fully complied with the regulations.

Osteopaths.—The status of the Osteopaths came up for consideration. The opinion of the solicitor was that osteopathy came within the meaning of the Medical Act as was practising medicine for a reward. The question was left in the hands of the Legislation Committee.

Examination Appeals.—The Committee on Complaints, headed by Dr. Ryan, allowed the appeals in the matter of marks given at examinations of John H. Stead, W. Gordon McCormack, Allan S. Brown, C. W. F. Ross, G. B. Barclay, W. H. Robertson, H. W. Baker, Harold C. Workman, L. A. Richmond, Robert Davis, H. S. Burns, C. A. Langmuir, H. S. Minthorn, W. W. Lalley, Jas. B. Hutton, R. J. Hamilton, W. F. Suton, Albert E. Sutton, Irving R. Bell.

Territorial Districts.—Dr. Robertson, chairman of the special committee on the redistribution of the territorial districts of the council, read his report, recommending that legislation be procured to secure the following disposition of the territorial districts, each of which will send representatives to the council:— 1, Essex, Kent and Lambton; 2, Elgin, Norfolk, and Oxford; 3, London and Middlesex; 4, Huron and Perth; 5, Waterloo and Wellington; 6, Bruce, Grey, Dufferin and Simcoe; 7, Wentworth, Halton and Peel; 8, Lincoln, Haldimand, Welland and Brant; 9, Parry Sound, Nipissing, Algoma, Manitoulin, Thunder Bay and Rainy River; 10, City of Toronto, east of Yonge Street; 11, City of Toronto, west of Yonge Street; 12, Ontario, Victoria, York and Muskoka; 13, Northumberland, Peterborough, Durham and Haliburton; 14, Prince Edward, Hastings and Lennox; 15, Frontenac, Addington and Renfrew; 16, Leeds, Grenville, Dundas and Stormont; 17, Carleton, Russell, Prescott, Glengarry, Stormont and Lanark.

Of the thirty members who compose the Ontario Medical Council, seventeen are from the above-named territories, eight from the universities, and five from the homeopathic sections of the profession.

Reciprocity with Michigan.—A motion to appoint a committee to discuss the question of reciprocity with the State of Michigan was lost.

Executive Committee.—On motion of Dr. Griffin, a by-law was passed appointing Drs. Hardy, Lane, and Temple as the Executive Committee for the ensuing year.

Legislation Committee.—Drs. King, Merritt and Griffin were chosen as the Committee on Legislation.

Finances.—Some discussion took place on the report of the Finance Committee, which recommended that $25,000 of the funds in the bank be invested in trust securities. The recommendation was adopted. The total balance on hand is $44,745.

Luncheon.—The president, Dr. Hardy, entertained the members of the council at luncheon at the Royal Canadian Yacht Club.

SIR FREDERICK TREVES ON ALCOHOL.

Sir Frederick Treves, in a recent address on "The Physical Effects of the use of Alcohol," said in part that alcohol was, of course, distinctly a poison. It had certain uses, like other poisons, but the limitations on its use should be as strict as on arsenic, opium, and strychnine. It was a curiously insidious poison, producing effects which seemed to be only relieved by taking more of it—a remark which applied to another insidious poison, morphia, or opium. It had a certain position as medicine, but in the last twenty-five years its use by the medical profession had steadily and emphatically diminished. People were often heard to say that alcohol was an excellent appetizer when taken before meals. But the appetite did not need artificial stimulation; if the body wanted feeding it demanded food. As for its "aiding digestion," it hindered digestion, even when taken in small amounts, as could be easily demonstrated.

Then there was the idea that alcohol was strengthening. As a fact, it curiously modified the nourishment of the body; it greatly lessened the output of carbonic acid—a very important matter—so that the drunkard was necessarily an ill-nourished man; and to reach the acme of physical condition was impossible if any alcohol was used. Its stimulating effect was only momentary, and after that had passed off the capacity for work fell enormously. Alcohol, as it were, brought up the whole of the reserve forces of the body and threw them into action, and when these were used up there was nothing to fall back on. It dissipated rather than conserved bodily energy. As a work producer it was exceedingly extravagant, and might lead to a physical bankruptcy; and he was not speaking, he would remind them, of excessive drinking.

It was a curious fact that troops could not march on alcohol. In the Ladysmith relief column, which he accompanied, the first men to drop out were simply the men who drank. The fact was as clear as if they had all borne labels on their backs. As for the statement that alcohol was "a great thing for the circulation," it increased the heart-beat and reddened the skin by using up the body's reserve power, but then the

heart's action became emphatically weaker, a temporary effect being got at an enormous cost. The action of alcohol on the central nervous system was very definite, and was that of a functional poison, first stimulating and then depressing the nervous system. The higher nervous centres went first, becoming slightly dulled. The man who worked on even a moderate amount of alcohol was not at his best.

Fine work could not be done under that condition. The use of alcohol was absolutely inconsistent with a surgeon's work or with any work demanding quick and alert judgment. He was much struck by the number of professional men who for this reason had discontinued the use of alcohol in the middle of the day. The last notion he would refer to was that alcohol kept out the cold—that a "little nip" was good when going out into cold air, and so forth. In the words of a great authority, alcohol really lowered the temperature of the body by increased loss of heat and to some extent by increased oxidation, and much reduced the power of the body to resist cold. Finally, he would say that the great and laudable ambition of all, and especially of young men, to be "fit" could not possibly be achieved if they took alcohol. It was simply preposterous to suppose that any young healthy person needed any alcohol whatever; and, indeed, he was much better without even the smallest amount of it. Having spent the greater part of his life operating, he would say, with Sir James Paget, that of all people those he dreaded to operate on were the drinkers. He hoped that what he had said would help his hearers to answer such absolute fallacies as "a glass of port can do you no harm."

UNIVERSITY OF TORONTO AIDS NEW GENERAL HOSPITAL.

At a meeting of the Board of the Toronto General Hospital a short time ago, the agreement lately entered into between the University of Toronto and the hospital trustees for the erection of a laboratory on part of the site of the new General Hospital on College street was formally ratified.

This agreement calls for the erection on the southwestern corner of the General Hospital site on College street of a splendid laboratory to be used by the university. When completed it is expected to be one of the finest and best equipped buildings of its kind on the continent, and for that matter in the world. Under their original agreement the university promised the hospital trustees $300,000 towards the cost of purchasing the land and erecting the building. The Board of Governors of the university have now increased this sum by $400,000, to be paid in a series of installments spread over forty years. This would bring the funds supplied by the university up to the substantial total of $700,000. The

hospital trustees have bought the land and will erect the building for the laboratory, and then turn it over to the university. The hospital is to provide the university with $100,000 with which to build its new institution on this site and in order to provide these funds the university gives the hospital a further $100,000 of its debentures, for which the hospital will find purchasers.

The subscriptions for the new hospital amount to $1,300,000, the university debentures to $300,000, and the value of the present old site $300,000, making its total resources $1,900,000. The cost of the new building will be $2,200,000. This leaves a debit balance of $300,000, which the trustees hope to raise in the near future.

Further, the chief professors or other heads of the several departments of the faculty of medicine in the university are to be ex-officio heads of the services in the hospital. Only on recommendation of a joint committee composed of eight members, four from the university and four from the hospital, are other appointments to be made to the hospital staff. Since the present heads of the departments are now university professors the present appointees are not to be disturbed.

The ground whereon the new hospital is to be erected will be thoroughly disinfected. When the old buildings have been torn down the ground will be ploughed up thoroughly and treated with some disinfecting material such as will seal the fate of the myriad germs that have led a free existence for generations under the old houses that so recently occupied the site.

MEDICAL PREPARATIONS, ETC.

INFLAMMATORY DIARRHOEAS.

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In discussing this subject we will speak of inflammation of the small and large intestines as a single disease. And without taking up the readers' valuable time in discussing etiology or symptomatology we will proceed at once to consider the medical treatment. The first step in this direction is to thoroughly evacuate the intestinal contents, and for this purpose no drug or combination of remedies has in our hands given the satisfaction that calomel has. Usually, for a child of two years, three grains are ordered rubbed up with sugar of milk and made into three powders and one administered every hour until all are taken, after which an old-fashioned dose of castor oil is given, which will produce several copious actions from the bowels. Then I order a high enema composed

of the following: Glyco-thymoline one part, lime water one part, and distilled water two parts; about one pint of this solution is thrown well up into the bowel through a long rectal tube and allowed to remain until evacuated.

Experience has taught me that Glyco-thymoline exerts a beneficial action over the inflamed intestinal mucous membrane. For a child under two years old I order thirty to forty drops in a tablespoonful of water, administered internally every four hours, and have found that it acts as an intestinal antiseptic and astringent, not affecting the normal digestive juices. Glyco-thymoline has a curative action when administered in catarrhal conditions of the bowels. It acts not only by lessening secretions, but also by retarding absorption of toxins and inhibiting septic organisms, restoring the integrity of the intestinal mucous membrane. We know that the principal lesions in this class of intestinal disorder.

THE IMPORTANCE OF NUTRITIVE REPAIR.

The importance of nutritive repair in the treatment of all bodily disorders, associated with loss of weight and general vitality, is too patent to need more than passing emphasis. The question of how best to bring about such a desirable result is, however, one that the physician is daily called upon to answer, and upon his ability to "build up" his more or less devitalized patients will largely depend his success in the treatment of chronic affections. Taking, for example, a patient suffering from pulmonary tuberculosis in the incipient or secondary stage, what are the approved measures to adopt to bring about improvement of nutrition and a consequent gain of weight and strength? All phthisio-therapists now agree that the therapeutic trinity of salvation for the tuberculosis invalid is composed of: 1—Fresh, pure air, in abundance, both night and day; 2—A properly balanced ample supply of nutritious food; 3—Plenty of rest, especially during the febrile period.

While medication is useless, unless the patient is properly fed, "ventilated" and rested, as above referred to, there is no doubt that intelligent medical treatment, designed to promote nutrition, is indicated in a majority of cases. If the tuberculous patient has been neglected, for any length of time, some degree of anemia is almost always present. In such cases, an absolutely bland, non-irritant, readily tolerable and assimilable form of iron, such as exists in Pepto-Mangan (Gude), cannot be but of benefit, by stimulating the formation of erythrocytes and hemoglobin, and thus augmenting the oxygen-bearing potency of the blood. Metabolic interchange is thus quickened, better absorption and assimilation of food follows, and as a consequence, nutritive repair is encouraged and hastened.