The Canadian Journal of Medicine and Surgery

A JOURNAL PUBLISHED MONTHLY IN THE INTERESTS OF MEDICINE AND SURGERY

Vol. XXIV. TORONTO, NOVEMBER, 1908. No. 5

Original Contributions.

THE TREATMENT OF HIP DISEASE

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THE term "hip disease" has assumed a very definite meaning—something more specific than simply disease at the hip joint. Disease at the hip joint may mean that the pathological factor is gonorrhoea, syphilis, rheumatoid arthritis, malignant disease, rheumatism, or tuberculosis. The term "hip disease" is employed to signify the last, and is now almost universally taken to imply a focus of tubercular disease in some of the structures which together constitute the hip joint.

Mr. Bowlby, of London, has recently published an article which presents certainly very striking results. During twenty-one years just passed, nine hundred cases of tuberculous disease of the hip have been treated at the Alexandra Hospital, with a mortality of less than 4 per cent. In the year 1879, the Clinical Society of London instituted an enquiry to ascertain the relative merits of treatment by rest and other associated measures, on the one hand, and by operation, notably by excision, on the other. The report of the committee may be found in the fourteenth volume of the "Transactions of the Clinical Society" (1881). Of three hundred and eighty-four cases treated in the Alexandra Hospital, referred to in the above enquiry (1881), one hundred died, a mortality of 26 per cent. The causes of death assigned are as follows: Tuberculous meningitis, 23; extension of local disease and visceral complications, such as amyloid disease, tuberculous disease of the lung, etc., 66; intercurrent diseases, that is to say, other diseases which were not directly connected with the hip disease, 11; making

a total of 100. In cases treated by excision, the mortality was 40 per cent.

In this country, up till about the year 1890, excision of the hip was very commonly resorted to as a method of treatment. It had received an impetus through the work of Mr. Croft, of St. Thomas Hospital, and it was thought that the entire tuberculous tissues could be removed, and that early and healthy healing could be promptly secured. It is not necessary at this late date to deal very fully with that question. It may be safely stated that typical excision of the hip is now seldom or never performed in this country for hip disease.

The treatment universally adopted may be said to be conservative. The definite understanding of the term "hip disease" narrows greatly the limits of discussion. The principles of treatment established in the care of tuberculous disease elsewhere will apply, modified, it may be, by the consideration of the special tissues affected.

The treatment may be considered as constitutional and local. Drugs, doubtless, have an important place, though much less important than that which has in the past been assigned to them. Iron, cod liver oil, and other tissue builders hold an important place, but it is not necessary to speak of them here at length.

Diet is one of the most important factors to receive consideration. The advocacy of over-feeding, or "forced feeding," seems to have reached the height of folly in many instances. Not the food ingested, but the food digested indicates the amount of nourishment supplied. When forced feeding is adopted there is a great liability to impose a heavy burden upon the emunctory organs in getting rid of the useless surplus, which the digestive organs are not able to handle successfully. In one instance, a patient who had a tubercular knee and a tubercular focus in the lungs consulted the writer, and stated that he had for some time been taking twelve eggs per day, with the result that he was having marked symptoms of indigestion. Very few persons can succeed in making use of such an amount of food, whose habits of life are not exceedingly active. The diet should be nourishing, should be given at regular intervals, should be chosen in accordance with the likes or dislikes of the patient, should be the result of careful observation as to what foods are suited best in the particular case, and should be given within the limit of overfeeding. Perhaps one general statement can be successfully established in this connection, namely, that the use of fats up to the utmost limit possible of successful digestion is indicated. One of the chief advantages of the outdoor life is that the processes of digestion are greatly improved, and more food can therefore be assimilated.

Other hygienic measures that are well understood, such as proper bathing, regular and abundant sleep, etc., should be kept in mind.

Probably the greatest advance made in the treatment of tuberculosis in the last twenty years has reference to the due appreciation of fresh air and sunlight. So much has been said upon this subject in recent years that it may not require further emphasis, except to bring into greater prominence the matter of direct solar therapy. It is not sufficient to have the patient out of doors with the ordinary clothing covering the body, nor even to have the body uncovered where the sun may shine upon the individual indoors. The writer well remembers when he was a boy, a strip of land on his father's farm which was constantly hidden from the mid-day rays of the sun because of a large forest which lay to the south. While the grain or grass on neighboring parts ripened to maturity and excellence, this strip made but a poor showing. Cultivation of the soil could not make up for the warmth and other effects of the direct influence of the mid-day sunlight. Not more important is it, however, for grain, grass or vegetables than for human beings. In recent years much money and ingenuity have been expended in obtaining various colored lights, through the influence of which startling results were claimed. The sun, however, is the father of lights, and all of these are contained in his white rays. Solar therapy, it is true, may not be good for everyone, but certainly it has proved the greatest advance in the treatment of tubercular conditions in recent times.

The writer's association with this work dates from 1888, and at the end of his first ten years he summed up the results of his observation and treatment of cases of hip disease, with the result that there was a mortality rate of about 10 per cent. The success of treatment in the second decade has been much greater, and the most careful scrutiny of methods attributes it chiefly to the greater use of direct sunlight. The patient is kept upon a cot, commonly spoken of as a Bradford frame. This is very readily carried from one place to another without disturbing the patient, and every day, whether in winter or summer, the patient is carried out of doors, so as to be as fully exposed to the sun's rays as is the grass. When the weather is suitable, the affected part is fully exposed without any covering. This can be done during the greater part of the year without discomfort, and even in winter the patients are left out in the sunshine from morning till night on suitable days, wrapped sufficiently to give the needed protection. In the summer-time in this climate there are few days when the temperature is so high as to cause discomfort. The head and eyes should be protected from the glare of the sun, and from the great heat by keeping the head either in the shade of some building while the rest of the

body is exposed, or by the use of a sunshade. If at any time the high temperature causes discomfort, then the patient should be carried into the shade. Also, at the commencement, the length of time during which the patient is exposed should be so graduated as to prevent undue sunburn. The time of exposure from day to day should be so managed as to bring about a condition of the body which will not permit burning. This may sometimes be avoided by keeping a single sheet covering the part, and the length of exposure thus be increased, The patient should at times lie upon the back, and after exposure in this way, should be turned upon the face, so that all parts may be reached by the direct rays of the sun.

The treatment by tuberculin has been employed to a moderate degree, but, within the limit of the writer's observations, it is doubtful whether it has been effectual in producing any improvement.

In the way of local treatment, the securing of rest is the most important indication, and this can be obtained more effectually in recumbency than by the use of any portable apparatus. When the recumbency meant confinement indoors, then the rest and quietness of the joint were secured at too great an expense. If the choice must be made between recumbency in bed and in a house, and an ambulatory treatment out of doors, the choice certainly is in favor of the ambulatory treatment. The best elements, however, of the two methods may be employed. In recumbency, the patient is kept upon a very simple cot, known as the Bradford frame, which consists of an oblong, rectangular frame, probably about a foot longer than the patient's height, and varying in width from 11 inches to 14 or 15 inches, according to the size of the patient. This is covered with a sheet of canvas, which is thrown across the frame and laced tightly down the back or bottom side. This forms a comfortable support upon which the patient reclines. At either end is placed a bracket or rod convenient for attaching straps for extension and counter-extension. It is our custom to keep the patient continuously recumbent on such a frame, not permitting the patient to rise from it, not even to the sitting posture, at any time. This is continued for many months without interruption. When necessary to use considerable covering, it may be wrapped directly around the patient and the frame, and secured by safety-pins. It is easy thus to protect the body, even during the coldest weather. A protecting cage should be thrown over the feet to prevent the weight of the bed clothing from resting upon them, causing a condition of equinus, or producing undue rotation of the limb, thus avoiding needless deformity. Also, a small pad or pillow should be placed under the knee, so as to maintain a few degrees of flexion. This adds greatly to the comfort of the patient and

prevents a degree of hyper-extension which has otherwise not infrequently resulted during the treatment of hip disease, and which has, in after-life, proved a very disabling condition.

It is well known that one of the most common deformities resulting from hip disease is due to adduction and flexion of the affected limb, and tilting upward of the pelvis on the affected side. This constant tendency toward flexion and adduction is almost universal, and even if these have been prevented during the early stages of treatment, they are apt to occur during the period of convalescence, and it is one of the highly objectionable, and yet preventable conditions, seen so frequently in after years, and then demanding operation as a remedy. Fortunately, these conditions are easily prevented without interfering with the comfort or rapid recovery of the patient. The most simple and yet thoroughly effective plan is to lace a comfortable anklet or gaiter upon the ankle of the affected limb, corresponding quite completely with the upper part of an ordinary shoe. At each side of this a buckle is placed, and a strap passes from one to the other around the rod or bracket at the lower end of the cot. This affords a very constant extension, which is agreeable, and which has not the inconvenient conditions attached which are found with a cord and weight passed over a pulley attached to the bed. Here the attachment is entirely to the cot, which is so easily picked up and carried away without disturbing the patient. Counter-extension is made by rolling a bandage around a comfortably-made pad, and placing this pad in the perineum, upon the side of the sound limb, and carrying the bandage up and fastening it to the bracket at the upper end of the cot. This method of procuring extension and counter-extension is never found uncomfortable if it be intelligently employed. The trouble and discomfort of various forms of sticking-plaster applied to the limb may be entirely avoided. Its effectiveness is seen in the fact that the deformity of flexion and adduction in any stage of the disease short of convalescence is readily corrected. Any ill-effect upon the knee from failing to pull directly upon the femur has not been observed. Injurious effects at the knee result, not from pulling at the ankle, and failing to make direct traction upon the femur, but from having the knee unsupported, so that it falls too far backward, and brings about a very disabling condition of hyper-extension.

Sometimes after recovery from the disease it is seen that the limb has rotated unduly, either internally or externally. This may be prevented by employing a protecting cage under the bed-covering to prevent the weight of the sheets from pressing upon the toes, causing needless inversion or eversion. Sand-bags may also be employed at the sides of the leg and foot to aid in greatly overcoming any undue rotation.

The writer finds it exceedingly common, when asked to see cases of hip disease, that deformity has resulted, and has been regarded as something not readily preventable. The method here outlined, however, may be said to be not only easy of application, but uniformly successful in preventing deformity.

In order that a child may be kept in the required position, it is well to place a girdle around the frame at the level of the shoulders, and attach obliquely two straps of webbing, which may be made to encircle the shoulders and be fastened with safety-pins, so as to prevent the child from rising to a sitting posture or from rolling over in sleep. It will be seen that all the connections are simply between the patient and the Bradford frame; consequently there is no disturbance in taking the patient from one position to another, thus avoiding highly objectionable movement at the diseased joint. The matter of nursing is very easily carried out if a thin and carefully-made bed-pan be employed. For the purpose of nursing, bathing, exposure to sunlight, etc., the patient may readily be rolled over, while holding the limb carefully, thus avoiding needless disturbance.

The writer feels confident that the management here outlined is the most successful means of correcting the deformities during the course of the disease, and of maintaining the desirable and essential conditions of relationship between the pelvis and the femur. By such means, also, the diseased head of the femur and the diseased acetabulum are not forced against each other, and the degree of extension employed prevents the muscles from forcing together the diseased structures at the joint. If this latter condition be permitted, the softened bone is often needlessly absorbed, and even when the head has entirely disappeared, as is not infrequently the case, the femur may be kept down in its relation to the pelvis, permitting a desirable ankylosis to occur, so as to result in a limb actually much longer than would otherwise be secured. When mere fixation of the joint is sought for, as, for example, by employing a well-fitting plaster-of-Paris spica, either when confining the patient to bed without extension, or permitting the patient to walk about, bearing his weight upon the affected limb, the absorption of bone and needless shortening of the limb are caused. When moderate traction, together with recumbency, is employed, not only are the ill-effects of pressure of joint surfaces avoided, but also great gain may be effected, even after the integrity of the joint has been destroyed. This may be well illustrated by the following case, now under observation:

Miss H. A., fourteen years of age, seen in April, 1908. The history makes clear the fact that there were well-marked symptoms of hip disease three years previously. In the interval she had been confined to bed for several weeks, and upon some improvement

manifesting itself, she had been allowed to be up and moving about again. In a general way, this vacillating policy had continued till December, 1907, when there was an unusually severe exacerbation, and upon being visited by her attendant it was found that much shortening of the affected extremity had suddenly occurred, or at least had not been previously observed. She had been kept recumbent until the writer saw her in April. There was great tenderness, and it was reported that it had been impossible to make a careful examination. Little difficulty in this way, however, was experienced, and the limb was found to present one and a half inches of actual shortening. There was also a collection of fluid at the level of the great trochanter, lying at the outer side and behind.

The girl was at once removed to the Orthopedic Hospital, and the method of treatment here advocated has since been employed. She has also had two injections of iodoform into the sac containing the fluid collection. At the present writing, all indications of fluid have disappeared. The tilting of the pelvis has been corrected. The femur has been drawn downward in its relation to the pelvis, so that the stump of neck is in apposition with the acetabulum, and it is being retained in that position, as shown by a radiograph. There is apparent lengthening of the limb, amounting to about a half-inch, through tilting of the pelvis. There is also about a half-inch of actual shortening, as seen in making measurement from the anterior superior spines to the malleoli.

It is the opinion of the writer that it is but seldom that the effect is brought about which has been here outlined, namely, to bring down the femur after the neck has once ridden above the level of the acetabulum. In this way the stump of neck remaining is brought to the normal position, where ankylosis is being effected. A general improvement in the girl has been manifest from the first, and her constitutional state is of the best. For the intervening months she has been regularly exposed every day from morning till evening to the solar rays.

The gain sought for and obtainable by the method of extension here advocated is evidenced in two ways: First, the affected limb is drawn downward, and the pelvis of the sound side is drawn upward. This maintains, during the time of treatment, abduction of the affected limb—a most important matter, when it is remembered that a very large proportion of the deformities of after-life following hip disease are due to adduction. In a later part of the paper it will be explained how this abduction is maintained during convalescence by the use of a hip brace. Second—The second element of gain referred to above is illustrated in the report of the case of Miss H. A., showing how the femur has been drawn down so as to bring the remaining portion of the neck into apposition

with the acetabulum, so as to secure ankylosis in a greatly improved position.

Had the plan been adopted, which has been so strongly advocated by some writers, in order to secure ankylosis, of using the plaster spica, so as to maintain the relationship between the femur and the pelvis, this changed relationship between the femur and the acetabulum could not have been effected.

Loss of bone from disease and tilting upward of the pelvis on the affected side are not the only causes why the affected limb is made practically shorter than its fellow. During the course of disease in growing children, likely to be prolonged for several years, there is a marked lack of proportionate growth in the affected limb, so that this becomes another important factor to be reckoned with, and is a cause why the cure should be hastened as much as possible. In some cases where the actual shortening, through the loss of bone and lack of growth, has amounted to as much as two inches, it has been found, upon recovery, that no cork was necessary under the foot of that side, because the pelvis had been tilted downward on the side of the affected limb to an extent varying from one to two inches. In this way the actual shortening may be largely or entirely made up, and either a smaller amount of cork than otherwise required will prove sufficient, or in many cases the patient prefers to avoid it altogether.

If the principles of treatment here laid down, however, be consistently followed out, it will be found in most cases that shortening will be much less in extent than the amount just referred to because the period of treatment will be much shorter, and there need not be deformity through the riding upward of the femur in its relation to the pelvis.

There is one form of treatment which has been employed for many years, but which has been spoken strongly against in certain quarters, and which may be considered both local and constitutional, viz., injection of iodoform. Suspended in glycerine, it has proven a valuable aid. For twenty years this method of treatment has been employed by the writer, who has come to have the greatest confidence in its efficacy as a remedial measure. One may not be able to explain fully the method of action, nor is that essential, if the clinical evidence is clear as to its efficacy. It does not require a large stretch of the imagination, however, to hold that the nascent iodine which is set free from the iodoform should prove effectively a bactericidal agent.

In cases where, through neglect or from other causes, there is a very great amount of infiltration and tenderness at the hip joint, it is seldom found necessary to use any measures other than those just outlined. Under the very satisfactory rest which may be obtained, the tenderness and infiltration soon passes away. Some-

times, however, a carefully applied plaster spica, extending from the toes to the crest of the ilia, and retained for a few weeks, while recumbency also is maintained, will be found a useful help.

The treatment by recumbency and sun exposure should be continued throughout the acute stage of the disease, until there is very positive evidence that cicatrization has well taken place. In nearly all cases the period that should thus elapse will amount to several months, and possibly it may extend into years, though, from the writer's experience, a longer time has never been required. Where doubt exists as to the condition of the tissues that will have to bear the body's weight, it is better to err upon the side of continuing the recumbency for a longer period of time. When deemed proper, however, to make the change, an effective brace should be employed, which will prove both a crutch to carry the body weight and an extending force to maintain traction upon the affected limb. The brace necessary for this purpose is exceedingly simple. It consists of a firm steel band, padded, which passes around the pelvis just above the level of the great trochanter, and a leg bar, secured without a joint to the pelvic band referred to, passes down the outer side of the leg to the bottom of the foot, and has a bolt which passes through a tube firmly inserted in the heel of the boot. Two perineal straps, passing from front to rear of the pelvic band referred to, afford counter-extension. In the application of this brace the pelvic band, passing under the perineum of the sound side, is kept tighter than the other one, in order to afford counter-extension upon the sound side, while the bolt in the heel of the boot makes extension of the affected limb. In this manner, a brace so simple will effectually prevent recurrence of adduction. When in bed at night the brace may be left off, and the Bradford frame, with extension, may be employed as it was used in the treatment of the acute stage of the disease.

The following is a brief statistical statement of cases referred to above as coming under observation since 1898:

The total number traced, 166.

The number of deaths were 8, as follows:

1. G. M. A man of about thirty years of age, who had an inoperable tumor in his neck, of which he died. The condition of the hip was improving.

2. M. M. C. A girl eight years old, died from asthenia, as a direct result of the disease.

3. S. S. A man twenty-five years of age; died of tubercular meningitis; hip at the time of death not improving.

4. R. P. A boy eighteen years of age, double hip disease. Died of asthenia and extensive suppuration.

5. C. S. A child, died of diphtheria.

6. W. L. A man twenty years of age; had had hip disease when a child; died of pulmonary tuberculosis.

7. F. D. H. A man thirty years of age; died of pulmonary phthisis.

8. A. Mac. A man thirty-six years of age; died of pulmonary phthisis.

From the foregoing it will be observed that the death rate due directly to hip disease is exceedingly small.

In two patients amputation was made at the hip joint. These were boys of about ten and twelve years of age. Extensive suppuration had continued for quite a long time, and recovery without amputation was deemed improbable. Both cases responded quickly and have made good recoveries.

What may be called fairly a first-class recovery has occurred in fifty-six of the patients. Such a term may be considered somewhat indefinite. A small proportion of these have good motion at the hip joint, have practically no shortening and do not wear any cork boot. One and all of these are actively engaged in the various concerns of life and find themselves but little hampered. Some others of this number have complete ankylosis at the hip joint in a good position. A favorable position in such instances is one where there is about fifteen degrees of flexion and some amount of abduction. Real shortening is nearly always present in these cases, but the abduction so compensates for the actual shortening as to permit many of them to go about without the use of a cork boot. Some few others find it necessary to wear a patten under the boot. In this way I have tried to define what I mean by first-class recovery.

Only seven would be classed as making a really poor recovery. Some of these have a femur that is movable upon the pelvis, so that a support worn constantly is necessary. Others have continued for a long time to have sinuses, or in some other ways still remain much disabled.

The remainder have made recoveries which enable them to engage to a greater or lesser extent in the varied activities of life, being somewhat hampered, however.

Still under treatment, of the number referred to, are eighteen. On the average, these have a better prospect than those who came under treatment at an earlier date.

In the case of those who have been treated as above the average time of confinement to the cot described has been between six and seven months. The shortest period of time was one month, employed for the purpose of correcting deformity. The average time during which they have worn the extension brace is thirteen months. One patient, after having a brace for nearly a year, had to be placed upon the cot in order to overcome the needless shortening which in his case could not be corrected by the brace. He was kept upon the cot for three months, then returned to his brace,

which he used now with more care and intelligence. His recovery has been an excellent one, with nearly two inches of shortening, but with such an amount of abduction as permits him to walk very well without the use of any cork.

Briefly, the treatment may be summarized as follows:

1. Hip disease, as ordinarily spoken of, implies tuberculosis at the hip joint.

2. Constitutional treatment comprises:

(a) The suitable use of drugs.

(b) A skillfully arranged dietary, in which fats should hold a prominent place.

(c) Direct solar therapy has proved the most important agent. It should be continued throughout the whole day every day and for many months. The affected parts, and as much of the body as possible, should, in the nude state, be exposed directly to the sun's rays.

3. Local treatment comprises recumbency upon the Bradford frame, affording an opportunity to secure:

(a) Efficient rest.

(b) Traction to correct deformity, to prevent adduction and flexion, and to bring down the femur to a correct relationship with the pelvis.

4. A brace which will serve both as a crutch and as a means of preventing the recurrence of adduction and flexion, the brace to be worn until complete convalescence has resulted.

THE VALUE OF THE REFLEXES IN DIAGNOSIS.*

BY J. S. RISIEN RUSSELL, M.D., LONDON, ENG.

Mr. President, Ladies and Gentlemen:—It has been my good fortune to receive many kindnesses from our profession, and it has been my privilege to address distinguished audiences. Fully as I appreciate the honors I have enjoyed, and grateful as I am of the consideration that has been extended to me in the past, I feel that the honor your Council has done me far exceeds anything that I have hitherto experienced.

I can imagine no greater compliment than to be entrusted with the delivery of the Address in Medicine at so important a meeting as the Canadian Medical Association is holding in Ottawa to-day, and I am confident that those who have been good enough to honor me in the past would be the first to admit that the position in which your Council has now placed me is the most honored I have ever filled.

There are, Sir, some moments that cannot find adequate expression in words. My gratitude is very sincere, but I am too conscious of my inability to find a portal sufficiently wide to convey the full depth of my feelings, to make me risk the attempt that would be sure to end in failure.

No words of mine can ever thank you enough for the great honor which you have done me.

When attempting to decide upon what subject to address you it naturally occurred to me that it must be on something of neurological interest, as it was improbable that any general survey of medicine would be expected from one who had devoted so much time to a special department.

On reviewing the neurological subjects that seemed most suitable, the usual difficulty was experienced in deciding which to select. It was not without many misgivings that the value of the reflexes in diagnosis was finally chosen as likely to be the most profitable, for I am very conscious of the large amount of work of the greatest possible excellence that has been done on this side of the Atlantic. Three considerations mainly encouraged me to adhere to my decision. One was that the same objection could be urged in regard to any subject I might choose. Another was that so much work has been done on the reflexes during recent years, and so much that is contradictory has been written about them, that there is a danger that the profession may become skeptical as to their value. The third consideration that influenced me was that

*Address in Medicine at the meeting of the Canadian Medical Association, Ottawa June, 1908.

so many new methods of diagnosis are now in vogue that there may be too great a tendency to rely on these to the exclusion of the reflexes, which they should only be allowed to supplement, not supplant.

We cannot too carefully safeguard the reflexes, for we can ill afford to do without them, and what is especially satisfactory to the practitioner is that no laboratory or special apparatus is needed when applying the tests necessary to derive information from them.

When selecting the subject I did not lose sight of the fact that there would be many present at this meeting to whom I could not presume to offer any remarks that would either prove of interest or profit, but it seemed certain that the bulk of those attending the congress would be men busily engaged in the toils of general practice, with but little leisure for reading. Much as you may be interested in the scientific investigations of the age, and the great discoveries that are constantly being made, you naturally wish to know how far the results obtained by these researches may be utilized by you in your endeavors to minimize the sum total of human suffering and to promote the general well-being of the community.

I cannot help feeling that those of you who have perused the literature that has grown up around the subject of the reflexes must be inclined to doubt the value which attaches both to the tendon-jerks and the superficial reflexes in diagnosis, for fresh from reading a paper in which the author insists on this or that phenomenon as a sure sign of organic disease, you take up another in which the writer as confidently asserts that certain alterations of the reflexes have not the value that has been ascribed to them, as he has met with the abnormal sign in functional as well as in organic conditions of the nervous system. You accordingly find it difficult to decide which of the conflicting statements to believe, for the opportunities of putting these matters to the test do not occur sufficently often in your practice to permit of you coming to any satisfactory conclusion from your own observations.

It is, therefore, natural that you should look to those whose work brings them into daily contact with these problems, and who have endless opportunities of testing the conflicting views expressed by different authors, to assist you to decide what is true, and what is not; on what evidence you may place confidence, and what you should mistrust and discard.

It thus seems probable that no better use can be made of an opportunity like the present than to attempt to show that, in spite of much that you may see written to the contrary, the reflexes are of the utmost value in the diagnosis of affections of the nervous system.

Time will not permit me to quote cases in support of what I have to say, but I can assure you that all the facts to which I

propose to call your attention are based on practical experience of these matters, and that actual cases which substantiate the statements occur to me as I recount the facts which I deem worthy of your acceptance as likely to prove helpful to you in the problems that confront you from time to time in the routine of your practice.

An attempt will be made to show that the reflexes are of value:

1. In the diagnosis of organic from functionary affections of the nervous system.

2. In the diagnosis of one organic disease from another.

3. In localizing the seat of the morbid process.

4 In determining the extent and severity of the mischief.

5. That there are limitations to the value of the reflexes.

6. What part they play in the diagnosis of maladies outside the realms of neurology.

It will, of course, be impossible to deal with all of the reflexes in the time at our disposal, and it will be equally impossible to discuss more than some of the more important aspects of the subjects I have outlined, without pretending that any exhaustive consideration of them in their many bearings is at all possible.

1. Diagnosis of Organic from Functional Affections.

One is inclined to question either the observation or the judgment of the author who, having elicited the extensor type of plantar reflex after an attack of convulsions, nevertheless concludes that the attack has been hysterical and not epileptic.

That true epilepsy may occur in a person otherwise hysterical, and that an epileptic attack may be followed by an hysterical state, are facts too well recognized to call for more than passing notice; but it is difficult to refrain from a desire to have the opportunity of observing the attack from its inception to its conclusion, before accepting the statement that hysteria was alone responsible for the convulsions which permitted the extensor type of plantar reflex to be elicited in the subject of the fit.

Abolition of the knee-jerks, followed by their exaggeration, coupled with ankle clonus, and supported by the extensor type of plantar reflex, form a combination which we have good reason to agree must be aids to the diagnosis of genuine epilepsy, as contrasted with either hysteria or malingering.

It is equally difficult to accept the opinion of the observer who asserts that the paralysis from which the patient suffered was hysterical, and yet the plantar reflex was of the extensor type, especially when he has no better proof to offer than that the patient got quite well, and that this phenomenon, like all the other abnormal signs, disappeared.

The names of such distinguished authorities are associated with statements of this kind that the only way which seems possible to reconcile their views with one's own experience is to suppose that

certain types of disseminate sclerosis, so common with us in England, must be rare in other countries, so that the vagaries of these varieties of the malady so much insisted on by Dr. Thomas Buzzard in his writings on the subject, have not as yet been recognized by observers who are mistaking for hysteria cases that are in reality examples of disseminate sclerosis. That this is so in some instances is evident even from the information given of the clinical history of the patient's illness. The remarkable way in which the clinical picture may clear up in a case of this disease after the most pronounced signs of organic change have been determined, makes it difficult to believe otherwise than that there is a time in the course of the malady when the lesion is of a kind that permits not only of *restitution of function* but also of *repair of structure*, so that the nervous system is not only able to perform its work again in a normal manner, but is also free from any evidence of persisting structural damage.

These considerations open up a most interesting question that I dare not do more than touch on in connection with the diagnosis of neurasthenia. May not a functional condition of the kind occasion nutritional changes in the nervous system sufficiently profound to lead to alterations in the reflexes that are indistinguishable from those produced by organic disease?

Time will not permit me to discuss this matter in the way that its importance demands. Let me but say that from the practical standpoint it matters but little, for the majority of cases of neurasthenia present no such difficulty in diagnosis, and if such a condition of things as has been suggested be possible, there would be every reason to regard with as much concern the nervous system of such a patient as that of one suffering from some known organic disease, for such a condition cannot but be attended by grave consequences if unchecked by treatment.

2. The Diagnosis of One Organic Disease from Another.

Let us take a common example. A patient experiences difficulty in walking, owing to the inco-ordinate condition of his lower limbs. Two of the most common diseases likely to be responsible for this are tabes dorsalis and disseminate sclerosis.

How quickly it can be determined which of these diseases exists! No knee-jerk, no ankle-jerk, and the plantar reflex not altered to the extensor type in tabes make striking contrasts to the exaggeration of the knee-jerk; exaggeration of the ankle-jerk, amounting, it may be, to clonus, and the plantar reflex of the extensor type in disseminate sclerosis.

Even if, in the latter disease, the knee and ankle-jerks fail us by being absent instead of being exaggerated, the plantar reflex is not likely to play us false. And if it does, is there not still the pupil reflex on which we can fall back for assistance? The pupil

which fails to re-act to light while it preserves the possibility of re-acting on accommodation, is a phenomenon sufficiently rare in disseminate sclerosis, and common in tabes, to make it a further point of contrast between these two diseases.

Take another example. The patient has atrophy of the small muscles of the hand. One of the first things we are anxious to know is whether or not the reflexes are altered, for much depends on whether they are, both in regard to diagnosis and prognosis. Exaggerated knee-jerks, ankle-clonus, and the extensor plantar reflex tell their tale, for it is clear from them that the spinal cord is involved by the morbid process that is responsible for the muscular atrophy. Thus, by testing these reflexes, we at once glean information that is of the greatest import. By testing the arm-jerks and the jaw-jerk, the diagnosis may be carried a stage further, for in the presence of an exaggerated jaw-jerk or clonus there is little likelihood that any condition other than amyotrophic lateral sclerosis is to be held accountable for the muscular atrophy. Although the Rontgen rays have done much to facilitate diagnosis under these conditions, it cannot be said that they have in any way robbed the reflexes of the value that attached to them before the rays were put to such use. It may be safely said that the rays have supplemented, not supplanted, the reflexes in this sphere of their usefulness, for while they may reveal an accessory rib, caries or other disease of the cervical vertebræ to account for the muscular atrophy, in the absence of these conditions they cannot tell us whether the atrophy is of central or of peripheral origin, nor can they further give us the good idea the reflexes can as to which of the several affections of the spinal cord is likely to be responsible for the condition.

Two affections that may easily be confounded, and that present considerable difficulty of diagnosis at times, although at other times the clinical pictures are so widely different that there is no possibility of confounding them, are cerebellar tumor and disseminate sclerosis. A proper appreciation of the different behavior of the reflexes in the two conditions will go far towards clearing up the question that is in doubt; indeed, the diagnosis may largely, if not entirely, depend on what, if any, alterations are determined in the reflexes. While various alterations of the tendon-jerks obtain in tumor of the cerebellum which may accord with what is found in disseminate sclerosis, the superficial reflexes prove of distinct service in differential diagnosis, for the plantar reflex commonly assumes the extensor type at an early stage of disseminate sclerosis, while it only does so as a late event in a case of tumor of the cerebellum, and is then to be ascribed to some complication rather than to the morbid condition of the cerebellum itself.

The reservation that has had to be made in regard to the plantar reflex does not apply to the other superficial reflexes on which

a diagnosis may be based, for, assuming that the local conditions of the abdominal walls be such as to permit the abdominal reflexes to be obtained, their absence may be regarded of considerable importance in diagnosis, for, while they are unaffected in cases of tumor of the cerebellum, they are absent in a large proportion of cases of disseminate sclerosis. The reflexes may thus serve to determine whether we are in the presence of an affection in which operative intervention may be expected to bring relief, or whether the morbid condition is one in which operation would not only be useless, but actually harmful.

It is impossible to leave this part of our subject without referring to the value that attaches to the extensor plantar reflex in the diagnosis between multiple peripheral neuritis, in which it is absent, and that fatal disease, subacute combined degeneration of the spinal cord, in which it is present, for, while the former condition may be expected to result in recovery under appropriate treatment, the latter runs its course to a fatal termination with unerring certainty in most, if not in all, cases.

3. Localizing the Seat of the Morbid Process.

The abolition of the reflexes in affections of the peripheral nerves, the variety of ways in which they may be affected in diseases of the spinal cord, and their unilateral exaggeration, diminution or special modification in affections of the brain, need no more than passing notice. It is impossible, however, to leave this part of our subject without a word of comment in regard to the part the reflexes play in the early diagnosis of morbid conditions of the brain and spinal cord, for it repeatedly happens that some departure of the reflexes from the normal standard is the first indication that we have, not only that organic disease exists, but as to what part of the nervous system is affected. Special note must also be taken of the important *rôle* they play in the localization of focal lesions of the spinal cord, in which connection nothing is more important than the aid to be derived from them in the diagnosis and localization of tumors of the cord.

The abolition of the reflexes which correspond to certain segments of the cord, the escape of all the reflexes above this level, and other exaggeration or other modification below it, must be regarded as the most valuable indication we have in determining the position of a focal lesion.

Similarly, unilateral alteration of the reflexes may be the first indication of which hemisphere of the brain is affected, and, while it may happen that hemiplagia or some other condition makes it superfluous for us to seek assistance from the reflexes, there are cases in which there is so much uncertainty that every source from which information can be gleaned must be welcomed, and then it is that the reflexes may prove invaluable. No better example of this

can be found than what obtains in tumors of the frontal lobes of the brain. The difficulties of localization in such cases may prove well-nigh insurmountable, so that unilateral exaggeration of the knee-jerk or the appearance of ankle clonus on one side is welcomed. Of similar significance is the appearance of the extensor of the plantar reflex, or, as my colleague, Dr. Grainger Stewart, has shown, diminution or abolition of the superficial abdominal reflexes on the side opposite to that on which the tumor is situated.

Another class of case in which the reflexes may prove helpful is that in which the question to be decided is whether the disease is in the cerebellum or pons. The determination of this point becomes particularly important when a tumor is responsible for the symptoms, for, while those which occupy the pons are inoperable, no more successful class of intracranial tumor is met with from this standpoint than many of those which involve the cerebellum. They supply us with some of the most brilliant results of modern surgery. While there are many points on which the diagnosis must rest, it is not too much to claim for the reflexes that they play an important part in deciding the question at issue, for the earlier they become affected in the clinical history of the case, the more likely is the tumor to be situated in the pons, while the longer they remain unaltered the greater is the likelihood that the seat is the cerebellum. The knee-jerks cannot be said to be of material assistance in this connection, for, as already noted, they may become altered in uncomplicated cases of tumor of the cerebellum. It is, however, otherwise as regards ankle-clonus, and alterations of the superficial reflexes, for unilateral diminution or abolition of the abdominal reflexes, or alteration of the plantar reflexes to the extensor type, cannot be regarded otherwise than of importance in diagnosis, if they are determined sufficiently early in the clinical course of the patient's illness to make it improbable that they are the outcome of some complication rather than due to the original malady.

4. The Extent and Severity of the Mischief.

It would appear to be self-evident that, inasmuch as the various reflexes have different segments of the spinal cord on whose integrity they depend, the fewer that are lost the less extensive the lesions, and the wider the extent of their affection, but more widespread the distribution of the morbid process. It must be clearly recognized, however, that this is by no means necessarily the case, for, in reality, this only applies in some instances, for a very limited lesion may give rise to widespread alterations of the reflexes. Take, for example, a case in which the lesion is limited to the cervical region of the cord, and abolishes the scapulo-humeral and other arm reflexes. Many other reflexes will also be altered, though not necessarily abolished, so that among the abnormal phe-

nomena to be looked for are exaggeration of the knee-jerks, ankle clonus, and the extensor type of plantar reflex.

No better example of the value of the reflexes in determining the severity of a lesion can be suggested than is supplied by the knee-jerks in cases of transverse lesions of the spinal cord above the lumbar enlargement, for when, instead of being exaggerated, they are abolished and remain absent, the gravest fears are justified. When the knee-jerks do not return there is every reason to fear a severence of the cord so complete as to preclude the possibility of re-establishment of the paths through the damaged segments of the cord. Ankle clonus, a phenomenon that we view with concern under other conditions, would now be welcomed, as this would indicate possibilities of recovery which would not have been justified had the knee and ankle-jerks remained absent.

5. Limitations to the Value of the Reflexes.

There are instances in which the reflexes only partly clear up the diagnostic problem. Take, for example, a case of myelitis with paraplegia as the result. From the reflexes alone the diagnosis may be made as to whether ordinary myelitis or polio-myelitis exists, but further than this they cannot take us. The X-rays may reveal tuberculous disease of the bone, which has not as yet produced spinal deformity, or the opsonic index may raise the suspicion of a tuberculous origin of the paraplegia in a way that is impossible to the reflexes.

Similarly, syphilitic pachymeningitis may not as yet have occasioned any alteration in the reflexes by which an organic condition can be diagnosed, and yet lumbar puncture may permit the determination of leucocytosis that allows a positive diagnosis to be made. Or the behavior of the superficial reflexes may justify the diagnosis of an organic hemiplegia, while it requires the ophthalmoscope to say that a tumor is responsible for it, or lumbar puncture to indicate that the thrombosis which underlies it is of syphilitic origin.

Furthermore, it must be remembered that there are some affections of the nervous system in which a diagnosis is to be made without any necessary assistance from the reflexes. Chorea supplies an example, for, although in this affection the special alteration of the knee-jerks, to which Gordon, of Exeter, called attention, may be present, in which the limb remains suspended in mid-air too long in response to a blow on the patella tendon, the diagnosis has to be made without any such assistance from the reflexes in the majority of cases. The extensor of the response, and special alteration of the superficial reflexes to which Babinski called attention, are too infrequent to justify any reliance being placed on them.

The fact must not be lost sight of in this connection that the negative may be of little less value than the positive in some cases,

and that, accordingly, there are instances when the fact that the reflexes are not affected in a case proves almost as helpful as if they were, for this serves to distinguish the malady from one in which alterations of the reflexes were to be expected.

6. The Part They Play in the Diagnosis of General Diseases.

The question that next arises is as to whether the reflexes give any assistance in diagnosis in realms outside those of neurology. There can be no doubt that there are many cases in which, in the absence of any known disease of the nervous system, the reflexes are altered in the course of some general disease or special affection of some other organ of the body.

It will be remembered that in an affection like diphtheria absent knee-jerks may give the first clue to the nature of a sore throat that ought to have been long since determined by bacteriological examination of secretion from the fauces. Similarly, absence of the knee-jerks may call attention to the possibility of glycosuria, which routine examination of the urine should have forestalled.

Some attempt has been made to derive direct advantage from alterations of the reflexes as in favor of one as opposed to another disease in which the nervous system plays no part, except that the toxins of the one malady have a more profound effect on the nerve centres, and occasions alterations of the reflexes in consequence, in a manner that does not obtain in the other disease. Thus, the knee-jerks have been found absent in a large proportion of cases of pneumonia due to the diplococcus or the diphtheria organism, while they are not affected in septic pneumonia and found exaggerated in tuberculous cases (Stanley Barnes.)

The chief value, however, that attaches to these observations in the present state of our knowledge is that they prevent us from concluding that some organic condition, as, for instance, myelitis or meningitis, has of necessity developed because these alterations in the reflexes are determined. Those interested in the welfare of the patient are thus spared the anxiety that would be caused by the opinion that might have been expressed in ignorance of the fact that the alterations noted are compatible with transitory effects due to toxic conditions without any permanent organic change.

In conclusion, Mr. President, ladies and gentlemen, let me thank you most sincerely for the patient hearing you have given me. No one is more conscious of the shortcomings of this address than I am. I wish it had been possible for me to prove more worthy of the trust that has been placed in me, and the honor which that trust implies. I can only take comfort in the fact that I have spared no pains to make the address a success, so that any failure to do so cannot be ascribed to a lack of appreciation of the great responsibility which I have accepted, and of which I have been only too

painfully conscious. One other consideration brings me comfort in my ordeal; that is, that I am in the midst of friends who will deal leniently with my shortcomings. In his letter of invitation your worthy Secretary, Dr. Hacking, told me that I would meet many friends who would be ready to welcome me to Canada. I have, indeed, met with friends, and have been overwhelmed with kindness. Let me take this opportunity of thanking you all most cordially for the welcome you have so generously extended to me.

Selected Articles.

THE FUTURE SCIENCE OF MEDICINE.

BY J. MADISON TAYLOR, A.B., M.D., PHILADELPHIA.

UNDER the above heading the St. Louis *Medical Review* of June 8, 1907, published the following lines: "Dr. C. E. de M. Sajous announced on June 3rd, at the American Medical Editors' Association, the crowning point of his patient labors on the ductless glands, in the discovery in the pituitary body of a membrane functionally resembling the Schneiderian (its olfactory area), in that it tested the condition of the body fluids and automatically regulated the correction of depraved conditions by producing antitoxins. Complete details by the author will appear shortly. It seems probable that an *absolutely scientific therapy* is now within sight." The announcement referred to was made at the dinner of the Association, which took place on the day mentioned. The complete details are to be found in the second volume of Sajous's "Internal Secretions," which has since appeared. The great interest awakened by his address, and the recent announcement that "Internal Secretions" was regarded on the Continent of Europe as so marked an advance in our knowledge of the functions of the ductless glands that it is to be translated into French by one of the greatest authorities on the anatomy and histology of these organs, Professor Launois, of Paris, who has suggested the advisability of giving our readers an outline of the function referred to above, which will unquestionably revolutionize medicine in the sense specified by the St. Louis *Medical Review*.

As is now generally known, Sajous's study of the functions of the ductless glands was only an incidental feature of his purpose to give medicine a more solid foundation than that upon which it rests at the present time. Nearly twenty years ago, when, as editor of the *Annual of the Universal Medical Sciences*, it became his duty to collate yearly the progress in all branches of medicine, he was surprised to note the amount of theorizing being indulged in by investigators in every branch of medical science: physiologists, physiologic chemists, histologists, therapeutists, clinicians, etc. After reciting a few experiments on

clinical observations, and giving a perfunctory and often very imperfect review of the literature of the subject, authors of unquestionable merit would not hesitate to launch forth tentative deductions on every conceivable subject, until our knowledge of any question became literally congested with discordant figments of imagination. Whether these new theories might not become flagrant misfits when everything became ultimately known of the questions to which they were appended was not taken into account of the authors; they had launched "*something original,*" and on the strength of the frogs and guinea-pigs used in the experiment, or the few clinical observations quoted, and that something was assured by them to be immensely "scientific." It is to this fundamental defect that Sajous ascribes the present deplorable condition of medicine, which he compares to that of art during the Dark Ages. What has been justly termed by an editorial writer in the *New York Medical Record,* "Osler's black, hopeless, helpless, therapeutic pessimism," has, in his opinion, no other cause. He holds that if we are forced to admit to-day that Skoda's well-known dictum that "we can diagnose disease, describe it, and get a grasp of it, but we dare not expect by any means to cure it," still holds good, it is because much that is valuable in the work of modern investigators is hidden under the maze of false and misleading conclusions with which they have encumbered medical lore.

How can confidence in medicine as the "healing art" be restored? Can it be achieved through the sacrifice of yet more frogs, more guinea-pigs, by more laboratory guesses—the addition of a few more theories to the thousands that have driven medicine to practical bankruptcy? Sajous concluded that but one course afforded any chance of success in this direction, viz., to cast aside all theories, and with the aid of the huge aggregation of positive facts, experimental and clinical, actual results, etc., recorded by reliable investigators in all branches of medical science, *seek the solution of all admittedly undiscovered functions* even as a mathematician deals with a series of problems which he may wish to solve. By this plan, he avoided entirely the pit into which investigators had hitherto fallen, *i.e.,* that of being inspired by any preconceived theory, while giving all experimental and clinical facts their legitimate place in the process—*e.g.,* the place filled by the bricks, stones, wood, mortar, metals, etc., used in the erection of a building. This involved the use of logic, *i.e.,* of analytic and synthetic reasoning, which, according to Sajous, are utilized too sparingly by modern investigators. The great French biologist, Milne-Edwards, wrote many years ago: "The history of science teaches us to do justice to the modest investigators whose patient labors have furnished us the materials

thanks to which *generalizing minds* have been able to construct the scientific edifice. But, above all, it teaches us to appreciate those men who, avoiding vain speculations, and reasoning only from well established facts, have been able to encompass the aggregate of these phenomena within their field of vision and point to the general and constant relations which unite them one to the other." That synthetic philosophy is a *sine qua non* of this, the highest and most difficult mission which any scientific man can undertake, is abundantly obvious.

It is to his *analytic* work that Sajous owed the discovery that the underlying cause of the existing confusion in medicine was due to the prevailing lack of knowledge concerning the functions of the ductless glands; it was his *synthetic* work which led him to the discovery of the true rôle of these organs in the body. As soon as these functions had been established by him, *hundreds* of problems, ninety-six of which he enumerates in the introduction to his second volume (and any one of which would qualify him to earn the gratitude of posterity), found a ready solution, the experimental results of a multitude of investigators thus falling into line, as it were, of their own accord. Pulmonary and tissue respiration, absorption and nutrition, the circulation of the nervous system (Harvey having discovered that of the larger vessels and Malpighi that of the capillaries), the nature of organic function and the manner in which it is awakened by vasodilator nerves, the composition of ferments, the physiologic and morbid production of sleep, etc., are but a few of the many problems which physiologists had admittedly failed to solve, as is well illustrated by Osler's remark, that while we know little concerning the action of drugs, "we put them into bodies the action of which we know less."

When once all these problems were solved, and the solutions proven correct by the precision with which they all harmonized, a superb mechanism revealed itself to Sajous: that of the human organism *complete,* the functions of the ductless glands and the presence of their products in all organs having filled many deplorable gaps—those identical functions which physiologists and histologists, notwithstanding their painstaking labors, had failed to explain. The tendency of modern investigators to introduce hypotheses, tentative guesses, etc., on all topics was also explained: they had observed phenomena on all sides which, without a knowledge of the functions of the ductless glands, were unintelligible, and for which they supplied what appeared to them as plausible explanations.

A brief review of the main steps of Sajous's labors will not only serve to illustrate all these facts, but it will lead up to the crowning feature of his work, viz.: the discovery of the process

through which the body antagonizes disease by providing the blood with what he has termed its "auto-antitoxin:"—

Adrenals.—Sajous found that these organs supplied a secretion which passed to the lungs and took up therein the oxygen of the air. This solved the cardinal problem of human functions: that of pulmonary respiration. Physiologists had also failed to discover the identity of 94 per cent. of the hemoglobin molecule. This likewise proved to be the oxygenized adrenal secretion. The nature and the source of an oxidizing substance found in the blood, oxidase, had also remained undetermined. Sajous found that this substance, the (albuminous) 94 per cent. of hemoglobin, and the oxygenized adrenal secretion were one and the same; that all tissues contained it; and that it was this substance which supplied the tissues with oxygen. He discovered another important fact in this connection, viz., that it was the adrenal active principle, thus distributed to all cells, which sustained their life —the principle which Herbert Spencer deemed necessary to account for the vital process (his "dynamic element of life"), but the presence, source, and identity of which were to him unknown. Dr. Sajous has thus solved simultaneously the problems of tissue respiration and cellular life. The importance of these discoveries from the standpoint of practice cannot be overestimated, for, as we will now see, we are able *with our remedies* to *govern* the adrenals, and therefore *oxygenation* of all cells and the *life process* itself where its activity is subnormal.

Thyroid Gland.—As is now well known to all physicians, thyroid extract given to a cretin or an idiotic child in whom the functions of the thyroid gland are deficient, brings about a wonderful change. The body soon begins to grow, all the functions are remarkably stimulated, and the brain, practically inactive before, assumes its physiologic rôle as the organ of thought. What amounts to a mere "human plant" is finally transformed into a normal child, and remains such, but only so long as thyroid extract is administered to it. Now, thyroid extract has long been known to enhance actively the body's oxygenation. But how does it bring about this result? How does it produce the wonderful transformation in the cretin? Sajous also solved this problem. He found that *the purpose of the thyroid secretion was to excite a center in the brain* (to which reference will be made presently) connected with the adrenals by nerves, and that it was therefore by stimulating indirectly the adrenals that the thyroid extract produced its wonderful effects.

It is here that the great practical importance of Sajous's discoveries is demonstrated. Not only did he find that thyroid extract excited the adrenal center, but that several of our remedies, iodine, the iodides, mercury, coca, and others, did likewise.

The unexplained physiologic action of these remedies in combating some of the most destructive diseases of mankind thus became clear; they increased the oxygenizing power of the blood and the activity of the vital process, and thereby the power of the body to fight disease and destroy pathogenic bacteria, the poisons they secrete, toxic wastes, etc.

The thyroid gland was also found by Sajous to be the source of a substance which has been receiving considerable attention of late—Wright's "opsonin," known to sensitize bacteria and render them vulnerable to the attacks of phagocytes—those white cells or leucocytes of the blood and lymph which act as the body's scavengers and do so much to protect it against infectious disease, as shown by Metchnikoff. This introduces another practical point of the highest importance connected with Sajous's discoveries, viz., the functions of the leucocytes.

The Leucocytes.—The white cells of the blood have been given several different rôles by physiologists, but Sajous was the first to show their true function: the identity of that which causes them to act as scavengers; to appear in great numbers in the blood under certain conditions, normal and morbid; to contain numerous digestive ferments, etc. He showed that their rôle in the body was to take up or "engulf" food-products of any kind, both in the intestinal canal (after the foods had been partially digested in the stomach and intestine) and in the blood and other body fluids; to convert these food-products into *living* granulations (through the adrenal principle which their ferments contain), and to transport them to the tissue-cells. Sajous thus contributed another great advance in our knowledge of cell-life: not only did he show the identity and source of the dynamic principle which sustains life, as previously stated, but also the process through which *our foods become endowed with life*, and, moreover, *the manner in which our tissues are built.*

The practical bearing of these discoveries is now made to appear: certain leucocytes (70 per cent. of the aggregate of white cells) are scavengers merely because they convert food-products, disease-germs, broken-down cells, etc., into tissue-cells. Now, when the vital process is below par, the body is vulnerable to disease: the scavenger cells are themselves unable to digest bacteria, and it is not the nutrient, tissue-forming granulations which they carry to all parts of the body, but living disease-germs. In the light of Sajous's discoveries, when a patient is treated judiciously this cannot happen, since, as previously stated, several of our well-tested remedies are able to raise the vital process to its fullest power; as the scavenger leucocytes form part of the body as a whole, they likewise acquire their full power when proper remedies are administered and are thus able

to kill all bacteria they might ingest, convert them into tissue-granulations, and arrest disease.

Comparison with the prevailing doctrines shows a marked contrast. Pneumonia, for instance, is regarded by Osler as a "self-limited disease," which means that medicinal treatment is useless. In the light of Sajous's findings this is tantamount to a death-certificate, since the pneumonia germs are thus allowed to multiply freely and kill the patient. He submits ample evidence attesting to the fact that pneumonia, as well as all other scourges of humanity, *can be checked by remedies which enhance the body's auto-protective functions.*

The germ-destroying leucocytes do not represent the only recourse available by the body when it is exposed to disease. These cells constitute only the first line of defence, as it were. The blood-plasma itself, as shown by many investigators, is also a powerful bactericidal and antitoxic agent. But what is the origin of the substances which endow the fluid portion of the blood with these defensive properties? This constitutes another of Sajous's discoveries.

Auto-antitoxin.—As everyone knows, the mortality of diphtheria has been decreased to a remarkable extent since antitoxin has been used in its treatment. But the source of antitoxin in the body of the animal from whose blood it is obtained, as well as its chemical composition, has remained obscure. Sajous solved both of these problems. He showed that antitoxin contained (1) the oxygenized adrenal secretion (adrenoxidase) previously referred to, which, as the oxidizing (albuminous) constituent of the blood, is constantly present therein; (2) a ferment derived from the pancreas, trypsin; (3) a body rich in phosphorus, nucleo-proteid, derived from certain leucocytes; and (4) the thyroid secretion, which he termed thyroidase (opsonin). The adrenals, pancreas, leucocytes, and thyroid thus proved to be the source of diphtheria antitoxin—and, in fact, of all other antitoxins.

This suggested a line of research which brought out a discovery of even greater practical importance: If by inoculating an animal, the organs referred to could be caused to produce antitoxin by increasing the functional activity of these organs, could we not by means of our remedies also stimulate these organs, flood the blood with auto-antitoxin, and thus check a disease? A prolonged study of all the phases of the question enabled Sajous to answer this question affirmatively and to formulate the general principle that "immunizing medication is the foundation of rational therapeutics;" in other words, that we should regard as the fundamental purpose of our efforts to cure disease, the use of remedies which, by increasing the functional activity of the

organs that produce antitoxin, enhance correspondingly the bactericidal and antitoxic efficiency of the blood. This, he showed also, was the effect produced by those germs, toxins, poisons, etc., which are capable of evoking a defensive reaction in the body, as manifested by fever.

Sajous describes in detail all the diseases that are most fatal to mankind and shows conclusively that wherever cure had been effected by remedies, it was through agents which, by stimulating the organs referred to, increased the blood's asset in *auto-antitoxin*—the name given by him to the antitoxin which our body produces to antagonize disease.

But how does auto-antitoxin destroy pathogenic organisms, the toxins they secrete, poisons, toxic products of metabolism, etc.? Sajous shows that this differs in no way from the process of digestion, and that if auto-antitoxin is present in excess in the blood, the red corpuscles themselves may be digested (hemolysis). As to the process itself, the explanation he submits is based on the well-known fact that ferments are active, up to a certain limit, in proportion with the temperature to which they are exposed. When the temperature is normal, the ferments are active just sufficiently to carry on normal functions; when it is raised, their digestive activity is increased accordingly. Now, in the blood, the temperature is raised whenever its supply of adrenoxidase (the oxygenized adrenal secretion) and the nucleo-proteid granulations (supplied by leucocytes) is increased, owing to a reaction between the oxygen of the former and the phosphorus of the latter. Heat-energy being liberated in excess, the digestive activity of the ferments in the blood (which gives it its bacteriolytic and antitoxic properties) is correspondingly increased.

Yet, how are these germ-killing and poison-destroying substances caused to appear in the blood? How do poisons awaken the defensive reaction of the body?

The Pituitary Body.—Located on the very top of the spinal column in the sella turcica, immediately below the brain, protected on all sides with the utmost care, lies this organ. To its rôle in the economy a recently published text-book of physiology devotes seven lines! Indeed, beyond the fact that it is supposed to provide some sort of a secretion (the purpose of which has never been found), nothing is known as to the actual rôle of its anterior lobe; while its posterior lobe has been relegated to the rank of a vestigal remnant. Sajous demonstrates not only that this conception is false, but that the pituitary body in its relations to the functions of the body at large is even more important than the brain itself. None of these functions are impaired when the cerebral hemispheres of an animal are removed; all cease, however, when the whole pituitary body is submitted to the same

ablation. The brain, as the organ of mind, can utilize the spinal system, with which it is connected, to execute its mandates; but the spinal system is also supplied with its own brain, the pituitary body, which Sajous terms the "*somatic brain,*" viz., the governing organ of all vegetative functions. He shows, moreover, that this "somatic brain" contains *a delicate organ whose mission is to protect the body against disease.*

In his first volume, Sajous had advanced the view that the anterior pituitary body was a sensitive organ which perceived, as it were, the presence of any adventitious substance in the blood. The existence of such a structure has since been confirmed independently in Europe, Gentès having found histologically therein a sensory structure resembling the olfactory area of the nasal cavity. Dr. Sajous's conception is readily explained: When the blood circulating in the anterior pituitary body contains any abnormal substance—a drug, a poison, a toxin, etc.—it affects this sensitive organ just as odoriferous particles do the olfactory area. Sajous studied this organ in the animal scale, through comparative morphology, and found it in all animals down to such low forms as molluscs, where it bears a suggestive name given to it by zoologists, viz., the *test-organ,* or *osphradium,* and is known by them to test the water ingested by these lowly beings.

But how, in the higher vertebrates, including man, does this test-organ protect against disease?

Sajous found, as previously stated, that the adrenals were provided with a center situated at the base of the brain. This, he subsequently ascertained, was a nucleus of cells in the posterior lobe of the pituitary body, which nucleus received nerve-fibres from the sensitive test-organ referred to. Now, the manner in which any poison or toxin can increase general oxygenation becomes apparent: it excites the test-organ, and this structure, in turn, through nerve-paths (passing by way of the base of the brain, the bulb, the cord, the sympathetic and splanchnic nerves) increases the functional activity of the adrenals. Thus the blood is provided with an excess of *adrenoxides.* True, this is but one of the constituents of the body's protective substance, auto-antitoxin, but the manner in which the other components of the latter are formed is readily apprehended: the metabolism of all organs being rendered unusually active by the excess of adrenoxidase in the circulating blood, the formation of leucocytes is activated (leucocytosis) and the proportion of *nucleo-proteid,* their product, in the blood is correspondingly increased. The secretory activity of the pancreas being also stimulated by the excess of adrenoxidase, more *trypsin* is produced; and we thus have the three components of auto-antitoxin: the oxygen-laden adrenoxidase and the phosphorus-laden nucleo-proteid to supply the in-

creased heat-energy required to enable the trypsin both in the phagocytes and in the blood to destroy bacteria, their toxins, or any other poisonous agent which the blood may contain.

This is not all, however; as shown by Sir A. E. Wright, the bacteria must be prepared for the phagocytic feast. Sajous, as previously stated, has discovered that the thyroid and parathyroids were the source of Wright's "opsonins," *i.e.*, thyroidase. Now, the nucleus through which the adrenals receive their stimulating impulses from the test-organ is also shown by Sajous to transmit stimulating impulses to the thyroid apparatus. When disease-germs invade the blood, therefore, their toxins, by exciting the test-organ, cause the blood to be provided with *thyroidase* (opsonin) to sensitize the germs, and with *auto-antitoxin* to destroy them.

The grave mortality from all diseases in the young as well as in the old shows, unfortunately, that although our body is endowed with protective functions, these are often inadequate to prevent, or even arrest, disease. This is where Sajous's labors are to prove most prolific in results, since they have demonstrated conclusively that *by means of the remedies in constant use among physicians*, the protective mechanism can be activated sufficiently to protect the patient. Pasteur's prophylactic treatment against rabies, Wright's inoculations, bacterial vaccines, etc., are but examples of the protection afforded through agents which stimulate the test-organ, this action differing in no way from that of the drugs referred to, the action of which can, besides, be more readily controlled. All these measures cause the blood to be flooded with thyroidase (opsonin) and auto-antitoxin. Hence the fundamental principle Sajous establishes—that "*immunizing medication is the foundation of rational therapeutics*," which, as he shows by a comprehensive study of cancer, tuberculosis, syphilis, Asiatic cholera, cholera infantum, bubonic plague, epilepsy, puerperal eclampsia, and many other foes of mankind, is as applicable to the most virulent diseases as to the more benign. He not only points out the meaning of the *vis medicatrix naturæ*, but shows us how we can increase its efficiency and thus master disease.

Those who, like the writer, have availed themselves of Sajous's teachings in their daily work, have been able daily to appreciate the strength of his position, the power of the weapon or key he has placed in their hands, and the renewed confidence he thus inspires in practical medicine.—*Monthly Cyclopedia of Practical Medicine.*

TREATMENT OF UTERINE FIBROMYOMATA WITH THIOSINAMINE INJECTIONS.

BY DR. SIDNEY H. GARDINER.

THE satisfactory results obtained by Dr. Sidney H. Gardiner from the treatment of uterine fibromyomata with intramuscular injections of Fibrolysin into the gluteal region were such as to encourage him to believe that the use of this remedy would do much to save such cases from radical operation. One of the important effects also noticed during the course of this form of treatment was that even before the tumor had completely disappeared the patient's general health greatly improved, not only physically but also mentally.

A *résumé* of the cases successfully treated by the author on the above lines will best illustrate the results.

CASE 1.—A woman of 38, married; one child. Suffering from acute menstruation occurring every three weeks for the past three or four years, accompanied by leucorrhoeal discharges of mucoid character. The examination revealed the presence of a nodulated mass on the left side of the cervix, softer posteriorly and extending into the cul-de-sac. It was evidently a case of prolapsed and cystic left ovary, with either an inflammatory mass of fibroid growth on the side of the cervix immediately in front of, and adherent to the ovary. Local treatment had no influence upon the tumor, and the treatment for fibromyomata with ergot, etc., also showed no noticeable results. After eleven months the first injection of Thiosinamine was made. Upon the fourth injection the tumor was found to be much reduced in size, almost painless when touched, and the patient also bore the examination with less distress. (For the subsequent injections, the author made use of Merck's Fibrolysin, a Thiosinamine preparation put up ready for immediate use.)

After the fourteenth injection no trace of the tumor could be found. Bimanual examination deep into the pelvis behind the uterus, and rectal examination showed nothing left but the ovary, still in the cul-de-sac, but not so painful. With the disappearance of that tumor came a marked improvement in the general condition, and after a period of nine months had elapsed there had been no return of the tumor and the patient had maintained her health.

CASE 2.—This patient was suffering from vomiting during pregnancy, and was unable to retain any food. When Dr. Gardiner was called in he found a basin containing a pint and a half of mucous saliva beside her. An examination revealed the presence of a tumor

on the right lower uterine segment and a larger one higher up. Four years before, this tumor had been mistaken for pregnancy by her attending physician. Fibrolysin injections were made every two or three days until the end of the second week of treatment, when the patient had recovered sufficiently to come to the author's surgery for treatment. Twenty-one injections of Fibrolysin were given in all, and in due time she was delivered of a healthy baby.

In this case it was interesting to observe the effect of the medicine in allaying the irritation in the uterus that had caused the reflex symptoms, viz., vomiting and salivation.

CASE 3.—This was one of fibromyomata imbedded into the right side of the uterus, and being subperitoneal there were no haemorrhages. The patient had been under the author's observation for nearly eighteen months and his diagnosis had been confirmed by three other physicians, including a gynecologist of ripe experience.

With the exception of the disappearance of a pain in the right iliac and hypogastric region, there was little effect noticeable at first from the treatment with Fibrolysin. However, after the fifty-fifth injection the tumor had almost completely disappeared, and a recent examination showed no return.

The patient at the close of the treatment had improved immensely, and felt better than for years past.

CASE 4.—This patient was delivered nine years previously of her last child, and had since had an abortion without any apparent cause. During the past few years she developed palpitating disturbances of the heart, with an impaired digestion and, in her own words, a "general good-for-nothingness." Her mental state became clouded, she failed to think and act in an orderly manner. Upon examination a uterine tumor was found reaching up to the umbilicus, and measuring from side to side over 6½ inches, either involving the whole uterus or surmounting the fundus and spreading laterally. Six to eight Fibrolysin injections were administered monthly, and at the time of writing the patient had been given forty-eight in all.

Although still under treatment, the following improvements had taken place: Menstruation, which was formerly profuse and lasted from seven to eight days, is now regular, lasting three to four days and never profuse. The tumor was reduced in size laterally from 6½ to 4 or 4½ inches, while its length from cervix to fundus was also proportionately reduced, the uterus being freely movable. The waist line had decreased by four inches, and the bust measurement had slightly increased.

Her general health she considered fully restored, she worked better, tired less easily, and her mental fears and emotions had disappeared.

The other four cases in hand were at the time of writing not

far enough advanced to entitle the author to report upon them, but in his own words: "While the paucity in numbers might prevent conclusions, the richness in results would warrant consideration." —*Merck's Archives.*

ABSTRACTS.

Fibrolysin in Veterinary Medicine.—Train almost completely cured a sclerosis in a horse, secondary to multiple abscesses, with two subcutaneous injections of 11.5 Cc. of fibrolysin. The owner had intended to kill the animal, but two weeks later was able to sell it for the original price. A fibroid tumor, secondary to trauma, in an ox, disappeared after two injections of 11.5 Cc. Excellent results were also seen in other conditions likely to cause scar formation, so that fibrolysin must be looked upon as a valuable veterinary drug.—*Berl. Tierarzt. Woch.*, 1908, No. 14.

Treatment of Bronchopneumonic Catarrh.—A. Ferrata and A. Golonelli, of the Medical Clinic of the University, Parma, report upon the results of styracol therapy in bronchopneumonic affections, which were observed in the clinic of the University of Parma during three years. It can be stated with certainty that styracol, which is a guaiacol preparation, shows a decided influence upon the mucous membranes of the bronchi. After the use of styracol the night-sweats will be less annoying and the fever will drop. An influence upon the bronchi is also manifest in that the expectoration will lessen in amount and will become thinner. Many patients experience considerable relief from cough, and the general condition will improve remarkably. Styracol was also used with good results in various intestinal affections. The authors recommended styracol particularly, owing to its effect upon the severity of the bronchial catarrh and its antipyretic action.—*Gazz. Internaz. di Medizina*, 1908, No. 14.

A Clinical Investigation of an Epidemic of Grippe, followed by a Large Number of Cases of Pneumonia; with Special Reference to the Infectious Nature and Period of Incubation of these Two Diseases.—Albert Woldert has had the opportunity of carefully studying cases of croupous pneumonia and grippe in a small rural district. From his observations he has drawn various conclusions, among which are the following: While grippe appears to be an infectious disease, not all of those who come in direct contact (such as sleeping in the same bed) contract the disease. The possible average period of incubation by air transmission is about seven days. One suffering with grippe should be warned against the tendency to develop

pneumonia. Proper care should be exercised to destroy all sputa and fomites which may aid in the spread of grippe. Infection of the human system by the bacillus of grippe so lessens the natural immunity, or prepares the soil of man, that subsequent infection by the virulent diplococcus of pneumonia and consequent production of croupous pneumonia may more readily occur. The possible average period of incubation of croupous pneumonia by air transmission is about ten days.—*Medical Record, January* 5, 1907.

The Intestinal Bacteria; How They Acquire Toxicity, and How to Determine This Experimentally for Clinical Purposes —E. Palier declares that we have to deal with only two microorganisms, which are constantly found in the feces and which may become pathogenic. These are the coli bacilli and the cocci. From his experiments he concludes that a fresh medium enhances the virulence of the coli bacilli, and that in agar older cultures are on the whole more virulent than fresh ones. It appears that under a meat diet the coli bacilli of the intestines are most likely to become virulent. This is most likely to occur when some of the meat happens to pass in an undigested state through the stomach and duodenum. As to the cocci, the writer has found them usually in the form of diplococci or in short chains. It is generally admitted that the coli bacilli are in most cases responsible for appendicitis, yet in some cases cocci alone are found in this affection. The presence in the feces of virulent cocci denotes a localized point of suppuration somewhere in connection with the intestinal canal. It is the virulence of bacteria that is of importance.—*Medical Record, January* 5, 1907.

Throat Diseases Caused by the Misuse of the Voice.—N. J. Boock van Baggen points out the symptoms common to clergymen's sore throat. Patients suffering from this disorder do not use their breathing, articulation or vocal muscles normally. Harmonious co-operation among these three sets of muscles is lacking. Breathing is usually clavicular in these cases. The breath is the chief element in the production of voice and speech; thus the patient should learn in the first place the correct way to breathe, and the best method of using the breath in phonation. The combined diaphragmatic and thoracic breathing is recognized as the best way of breathing. No speaker who misuses his voice should take singing lessons to improve his speaking. The patient, before undertaking any exercises, must first go through a judicious medical treatment united with rest of the vocal organs.—*Medical Record, January* 5, 1907.

Proceedings of Societies.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

In 1905 a few members of the National Association for Study and Prevention of Tuberculosis attended the Paris meeting of the International Congress on Tuberculosis, bearing an invitation for the Congress to come to Washington in 1908. Through President Roosevelt, the invitation was extended also on behalf of the nation. During the three years which have elapsed since the last meeting, the United States Committee have been at work to make the first Congress to assemble in America a great success. The result of their efforts was apparent to all who were privileged to attend the Washington meeting, for the registration was more than double that of any previous Congress.

Over 300 papers were presented, and for their reception and discussion the Congress was divided into seven sections.

Section 1.—Pathology and Bacteriology.

Section 2.—Clinical Study and Therapy of Tuberculosis, Sanatoria, Hospitals and Dispensaries.

Section 3.—Surgery and Orthopedics.

Section 4.—Tuberculosis in Children—Etiology, Prevention and Treatment.

Section 5.—Hygienic, Social, Industrial and Economic Aspects of Tuberculosis.

Section 6.—State and Municipal Control of Tuberculosis.

Section 7.—Tuberculosis in Animals and its Relation to Man.

The whole of the week of September 28 was taken up with the work of the Congress, the sections meeting daily, with a general session Monday and Saturday. On Monday Mr. Cortelyou presided, and an official welcome was given to the foreign delegates, one from each country represented presenting his credentials and replying to the address of welcome. On Saturday President Roosevelt appeared before the Congress, and after the storm of applause had subsided made a very happy address.

The closing feature of the Congress was the delivery by the foreign delegates of their messages of farewell, all of which breathed the spirit of gratitude for the pleasure of their stay in America. The felicitations were delivered as follows: For Argentina, Dr. Fermin Roderiguez; Austria, Dr. Hermann von Schrotter; Belgium, Dr. Denys; Canada, Dr. Frederick Montizambert; China, Dr.

Jee; Costa Rica, Dr. Juan J. Ulloa; Cuba, Dr. Diego Tamayo; Denmark, Dr. Bang; Egypt, Dr. J. B. Piot Bey; England, Dr. Thos. J. Stafford; France, Prof. Landouzy; Germany, Dr. Von Leube; Guatemala, Mr. R. Bengoechea; Japan, Dr. G. Suto; Hungary, Dr. Detre; Italy, Dr. Stella; Mexico, Dr. E. Liceage; Holland, Dr. N. Th. Tendeloo; Norway, Dr. F. C. Harbitz; Panama, Dr. Martin J. Echeverria; Roumania, Dr. S. Trimescu; Russia, Dr. A. A. Wladimiroff; Siam, Paul G. Wooley; Spain, Dr. Camile Calleja; Sweden, the Hon. Conrad Cedererantz; Switzerland, Dr. O. Amrein; Uruguay, Dr. Luis Melian Lafinur.

The social entertainments gave the visitors the opportunity of seeing a number of beautiful homes in Washington and of meeting many delightful people. Lions in the world of science, who fought their conflicts of theory and conclusion in the sections, were led with lamb-like submission to tea tables and garden parties later in the day, while dinner parties were universally the order of the evening.

On Monday evening the delegates were invited to a private view of the Corcoran Gallery of Art.

On Wednesday Mrs. Gardiner Hubbard's home was opened to the foreign delegates. One will not soon forget the vine-hung mansion, with its broad piazzas, the sloping lawn with its fringe of woods, and the happy company there assembled, with Dr. Alexander Graham Bell assisting in the hospitalities of the afternoon.

The evening reception at the residence of Dr. and Mrs. Charles W. Richardson was a brilliant affair. The hosts were assisted by Mrs. William H. Taft, and there were present a number of the officials of the Department of State and all the ambassadors and ministers then in Washington.

On Thursday a banquet was tendered to 300 foreign delegates by the Department of State, at which Secretary Root presided. In beauty of appointments this dinner has rarely been exceeded in Washington.

On Friday afternoon 4,000 availed themselves of the opportunity to greet the President and Mrs. Roosevelt in the blue room at the White House. At night a smoker was tendered by the local committee in the ball room at the New Willard.

Each evening lectures were delivered to large audiences in the new National Museum by distinguished foreigners.

The scientific session of greatest interest was perhaps that of Wednesday afternoon—a joint session of Sections 1 and 7 on the relation of human and bovine tuberculosis. The speakers were: Koch, Theobald Smith, Sims Woodhead, Arloing, Fibiger, Ravenel, Raw and others.

Prof. Koch insists that the human and bovine bacilli are distinct types, with different cultural characteristics and of different virul-

ence; that pulmonary tuberculosis in man is never due to bovine infection; that infection in man from bovine bacilli *may* occur (*e. g.*, glandular, intestinal tuberculosis), yet serious disease from this cause occurs very rarely; that fatal tuberculosis in man being in almost every instance a human infection, measures against the spread of the disease must be directed primarily against the propagation of human bacilli. These were his conclusions communicated to the London Congress six years ago, and the work done by a host of investigators since has not caused him to alter his opinion. He will not accept the conclusions of the British Royal Commission, questioning the conditions of their experiments. He summarized briefly as follows:

"All competent investigators agree that the tubercle bacilli of human origin differ from the tubercle bacilli of cattle, and that consequently we must differentiate between a typus humanus and a typus bovinus. The British Commission also admits the existence of differences, but as some of their cultures showed definite changes in their characteristics after passage through animals and various cultivations, they have differentiated a third group, which they call 'unstable.'

"As I have repeatedly emphasized, it is not of the slightest importance to us whether, after animal inoculation or breeding experiments, the tubercle bacillus is stable or unstable. What concerns us is behavior in the fresh condition. I am, therefore, unable to accept this third group of the British Commission, and I am satisfied with their admission that the fresh tubercle bacilli of the human type differ distinctly from those of the bovine type.

"The tubercle bacilli of the human type are characterized by the fact that they grow rapidly and abundantly in a thick layer on glycerin serum. They are virulent to guinea pigs, slightly virulent to rabbits, and almost non-virulent to cattle. The tubercle bacilli of the bovine type grow very slowly and in a thin layer on glycerin serum; they are of equally high virulence to guinea pigs, rabbits and cattle. To my knowledge, the bacilli of the human type have never been demonstrated in cattle.

"The bacilli of the bovine type, on the other hand, can occur in man. They have been found in the cervical lymph glands and in the intestinal tract. With few exceptions, however, these bacilli are but slightly virulent for man, and remain localized. The few known cases in which the bovine tuberculosis is said to have produced a general and fatally progressive tuberculosis in man appear to me not to be above suspicion.

"In closing, I have still one point to discuss which seems to me of high importance. Of all human beings who succumb to tuberculosis, eleven-twelfths die of consumption, or pulmonary tuberculosis, and only one-twelfth of other forms of the disease. One

would have expected, therefore, that those investigators who are interested in establishing the relations between human and bovine tuberculosis would have searched for bacilli of the bovine type preferably in cases of pulmonary tuberculosis.

"This, however, has not been the case. Evidently animated by the desire to bring together as many cases as possible of bovine tuberculosis in man, they have investigated particularly cases of gland and intestinal tuberculosis, and have neglected the much more important pulmonary tuberculosis. In spite of the bias under which the researches hitherto have suffered, there yet remains at our disposal a sufficient number of investigations of pulmonary tuberculosis to warrant a provisional expression of opinion.

"The gist of it is is—and I beg you to take note of it—that *up to date in no case of pulmonary tuberculosis has the tubercle bacillus of the bovine type been definitely demonstrated.* If on further investigation it should be established that pulmonary tuberculosis is produced by the tubercle bacillus of the human type exclusively, then the question will be decided in favor of the view which I have upheld, and we must direct our regulations for combating tuberculosis by all means primarily against the tubercle bacilli of the human type.

"On account of the great importance of this question, I intend to undertake, as soon as feasible, experiments along this line on a broad scale. At the same time I wish to make my plea to other tuberculosis workers that as many cases as possible may be examined to join with me vigorously in this task. But I wish to lay stress on the fact that the conditions laid down by me for the carrying out of these investigations must be followed. I consider it quite possible that in this manner the essential facts for deciding this important question may be collected in about two years and be presented to the next International Congress."

While Dr. Koch's views were greeted with profound respect, it was apparent before the next speaker, Prof. Theobald Smith, of Harvard University, had finished that the great German scientist stood almost alone in his position. Prof. Smith avoiding scientific and academic discussion, declared it had been demonstrated that half of certain kinds of tuberculosis in children, such as those of the glands of the neck and the abdomen, are due to infection from milk.

In the case of adults, Prof. Smith agreed with Dr. Koch that any regular or wholesale conversion of bovine into human bacilli in the human body is contradicted by most of the evidence presented.

Prof. Arloing, who followed, took sharp issue with Dr. Koch, declaring that, from the standpoint of hygiene, his experiments emphasized the unity and fusion of the classic types, and demon-

strated the necessity of taking precautions against tuberculosis, whatever may be its origin, human or bovine.

Dr. Johannes Fibiger, Professor of Pathology and Anatomy, University of Copenhagen, Denmark, in presenting a paper, the joint work of himself and Dr. C. O. Jensen, Professor of Pathology, Royal Veterinary Hospital, Copenhagen, voiced the most pronounced views heard in opposition to Dr. Koch.

"It is common knowledge that the first important communications on the differences between bovine and human tubercle bacilli are due to American investigators, and in the front rank, to Theobald Smith," said Dr. Fibiger.

"As early as 1896 and 1898 Theobald Smith called attention to differences in morphology, biology and pathogenic power existing between tubercle bacilli isolated from man and from cattle. These remarkable investigations only attracted merited attention after the Congress in London, 1901, where Koch mainly based his opinions, that man very rarely is infected from cattle, on experiments really agreeing with those of American investigators, Dinwiddie, Frothingham, and especially Theobald Smith.

"Now, however, the wrong of Koch's opinion being generally recognized, one does not forget that the transmissibility of bovine tuberculosis to man is pointed out by extensive investigations from the last years, establishing the fact that tubercle bacilli from cattle often possess a high degree of virulence upon cattle, the pathogenic power of bacilli from man frequently being much smaller."

Dr. M. P. Ravenel, of Madison, Wis., presented the question from the American point of view. He also opposed the ideas presented by Dr. Koch.

"On the correct solution of this question depends, no doubt," said Dr. Ravenel, "the health of many children, and even their lives, and I would consider it an extreme misfortune not only for this country, but for every country on the face of the earth, if any impression should go from this meeting that even the small proportion of deaths due to the bovine bacillus was a negligible quantity.

"I have inoculated repeatedly," added Dr. Ravenel, "the bacilli of the bovine type, absolutely characteristic in every respect to the human, and if not recovered in culture, if examined in the tissue you will find them beaded and stained exactly like the human bacilli. I have also demonstrated that cows cough up sputum and distribute it exactly as human beings do, and in the sputum of such cows I have demonstrated the tubercle bacilli exactly corresponding to the human type.

"One other thing has been proved through the work all over the world, namely, that the tubercle bacilli can pass through the intestinal wall and move through the mucous membrane of different parts of the body very rapidly without leaving any mark of its

passage. Demonstrations have shown that inside of four hours, in fact, inside of three and a half hours, tubercle bacilli have passed from the milk of animals through the thoracic duct and have reached the lungs in sufficient quantities to kill other animals inoculated.

"Having demonstrated that there are a certain number of cases due to bovine tubercular bacillus; that a certain number of deaths occur from this bacillus, and having demonstrated that the tubercular bacillus passes into the stomach or gets there from some outside source, it behooves us from every point of view to take every precaution possible against contamination of our milk. I do not think it is possible with our present knowledge, and it will be many years before we have sufficient knowledge to determine the number of cases due to bovine bacillus as compared to those due to the human bacillus. There can be no doubt, I think, that at the present time the human phthisis is the phthisis that we must look at for the most victims. *I cannot agree that the proportion of cases due to bovine bacillus is insignificant.* It is an extremely important factor. I may call attention to the fact that to stamp out this disease both sides must be looked after. It is important to guard against tuberculosis in cattle, not only from the public health standpoint, but because it is a most serious economic question in every civilized country in the world, with one or two exceptions."

In opposition also to Dr. Koch was Dr. Nathan Raw, of Liverpool, who presented the views of the English delegates to the Congress. He contested vigorously the view that tuberculosis from cattle could not be conveyed to human beings.

"As a result of observations in hospitals of more than 5,000 cases," said Dr. Raw, "I am convinced that there are two distinct forms of the disease occurring in the human body. The first, or largest group, commonly called consumption, is caused by infection from person to person. The second group occurs chiefly in children, and is conveyed by tuberculous milk. I am convinced that when tuberculous cattle are eradicated this later type of disease will entirely disappear, but I am also convinced that consumption will only be stamped out by education, improved sanitation and scientific treatment."

At a private session held at the New Willard an endeavor was made to reach certain conclusions which would meet the views of all investigators, but this end was not accomplished. The view most generally held was that expressed in the final resolutions of the Congress, which appear at the end of this report.

Many papers were read on the tuberculins in diagnosis and treatment. Von Pirquet's paper, recording post-mortem examinations upon 200 children, substantiated his claim that a positive

cutaneous reaction in children was evidence of the presence of tuberculosis.

Baldwin's conclusions regarding the conjunctival tuberculin test were in part: (1) A single instillation of a weak solution has some value in confirming the presence of tuberculosis in its early stages. (2) It has little value when the symptoms of tuberculosis lead only to a suspicion. (3) It is unreliable for diagnosis. (4) It should be restricted to adults, as the cutaneous test has been found equally valuable for children, and is harmless.

The therapeutic use of tuberculin received the general approbation of those in attendance in Sections 1 and 2. It is yet impossible to decide which of the various tuberculins gives the best results in practice. Many modifications are in use, with insufficient evidence to judge their comparative merits. Tuberculin therapy has its limitations—it is not a specific for tuberculosis, yet results seem to show that many of the more chronic types of pulmonary infections, surgical tuberculosis (glandular, bone and joint affections), and especially genito-urinary tuberculosis, show marked improvement under its use. It must be used with extreme caution, as much harm may result in careless hands, and the man who does not recognize its potency should not attempt to use it. It is not necessary to observe the opsonic index when administering tuberculin; its technique makes it impossible in general practice, while the instructions of Trudeau, Denys and others for the dosage of tuberculin make its exhibition comparatively simple to the observing practitioner.

The value of out-of-door living in the treatment of surgical cases was emphasized, and a number of papers dwelt upon the provision of special wards and balconies in hospitals where these cases are treated.

In Sections 5 and 6 many valuable contributions were made. It was recognized that the introduction of notification of all cases, with the resultant supervision, will go far to lessen future infections and mortality from the disease. Municipal and governmental control of the disease, the value of playgrounds, elementary instruction in schools, training of teachers, visiting nurses, popular lectures, housing, building associations, farm colonies, racial susceptibility, prostitution, dispensaries, industrial conditions, Federal Bureau of Health, railway sanitation, factory inspection, statistics, the army, were a few of the many subjects discussed in these sections.

In Section 7, Dr. J. G. Rutherford, Veterinary Director-General for Canada, presented an interesting paper on the control of bovine tuberculosis in Canada. The department will supply tuberculin free of charge to the veterinary officer of any municipality to test the herds supplying milk to such municipality. The cities of Moncton, N.B.; Quebec, Que.; Portage la Prairie, Man., have al-

ready instituted this inspection—all herds supplying milk are subject to inspection, the Provincial Health Act in these Provinces giving municipalities this power.

The department for three years has been in possession of a tuberculous herd, which are kept on a farm specially procured for the purpose, near Ottawa. They are kept out-of-doors constantly, summer and winter, having access to open sheds in the winter, but are fed in the open. Healthy cattle have been added from time to time, with no infections occurring. None of the calves have developed tuberculosis, with the exception of two, which were probably congenital infections. This is a practical demonstration of the value of out-of-door living in treatment of tuberculosis, and when the report is published there will be many valuable suggestions arising of interest to our agriculturists. There is no doubt that much of the tuberculosis in cattle is due to unnatural housing conditions, as well as to increased susceptibility from inbreeding.

The report of the Congress will be published in four or more large volumes, and will be a mine of practical information to those dealing with tuberculosis.

Much enthusiasm was aroused in those attending the Congress, and practical results will surely follow. The Texas delegation came on a special train, and en route formed a State Association.

The society editor of the *Washington Post* soliloquizes thus: "What effect will the Congress have upon Washington and other social centres? Shall we have a series of piazza parties instead of the 5 o'clock teas to which we have become accustomed through December and January? Will debutantes of future seasons be more engrossed in the becomingness of furs than of chiffons? Will the benighted beings who still cling to cream in their tea insist upon having it pasteurized? The open-air propaganda is well started at Washington. The practice of sleeping out-of-doors, which has for some time been practised here and there, will now, doubtless, become more general. One handsome residence in the north-west section of the city, because of its tier of balconies in the rear, was frequently mistaken for a housekeeping apartment building until it became known that the balconies were outdoor bedrooms, the entire family being converts to the practice of sleeping in the open air. Whenever you see a man or woman with particularly bright eyes you may suspect them of belonging in this class."

The Canadian Committee on the Congress made a report on anti-tuberculosis work in Canada, and it is to be hoped that the reports made to the Federal and Provincial Governments by their official delegates will result in more active measures being adopted in Canada. A start has been made, but it is only a start. Thirteen thousand five hundred are dying of tuberculosis in Canada each year. We need rousing. The resolutions of the Congress will be

forwarded through the Canadian Association for Prevention of Tuberculosis to the Provincial Governments, to the municipalities, and to interested associations throughout the Dominion.

The resolutions are appended:

Resolved, That the attention of the States and central governments be called to the importance of proper laws for the obligatory notification by medical attendants, to proper health authorities, of all cases of tuberculosis coming to their notice, and for the registration of such cases, in order to enable the authorities to put in operation measures for prevention.

That the utmost efforts should be continued in the struggle against tuberculosis to prevent the conveyance from man to man, as the most important source of the disease.

That preventive measures be continued against bovine tuberculosis, and that the possibility of the propagation of this to man be recognized.

That we urge upon the public and upon all governments the establishment (1) of hospitals for the treatment of advanced cases of tuberculosis; (2) the establishment of sanatoria for curable cases of tuberculosis; (3) the establishment of dispensaries and night and day camps for ambulant cases of tuberculosis, which cannot enter hospitals and sanatoria.

That this Congress endorse such well-considered legislation for the regulation of factories and workshops, the abolition of premature and injurious labor of women and children, and the securing of sanitary dwellings, as will increase the resisting power of the community to tuberculosis and other diseases.

That instruction in personal and school hygiene should be given by properly qualified medical instructors.

That colleges and universities should be urged to establish courses in hygiene and sanitation, and also to include these subjects among their entrance requirements, in order to stimulate useful elementary instruction in the lower schools.

That the Congress endorses and recommends the establishment of playgrounds as an important means of preventing tuberculosis, through their influence upon health and resistance to disease.

611 Spadina Avenue, Toronto. J. H. E.

THE AMERICAN HOSPITAL ASSOCIATION MEETING

THE tenth annual conference of the American Hospital Association was held in the King Edward Hotel, Toronto, September 29th and 30th and October 1st and 2nd. There was an attendance of about 200 delegates, most of whom were hospital superintendents.

Acting Mayor Harrison welcomed the convention to the city. He said in part:

"The name 'Toronto' is an Indian one, and signifies 'place of meeting.' Legend tells us that it was in the cool shadow of the stately trees which in the distant past adorned the banks of our beautiful bay that various tribes of redmen held friendly intercourse; and that it was here also the hardy pale-face, who sought adventure or gain on the great Indian trails, bivouacked with the Hurons. You will, therefore, see that Toronto's claim to the title 'Convention City' is not without justification.

"It is, however, seldom that it falls to the lot of an individual—no matter how exalted his position—to address a more important assemblage than that which I find present here this morning. It is to your charge that the well-being of thousands of suffering humanity is unreservedly entrusted.

"This, I understand, is the first occasion in the history of your Association that Canada has been honored with your presence. I trust that it shall not be the last, for I learn with no little pride that, though the American Hospital Association comprises some 470 superintendents and hospital trustees, 50 of these are Canadian.

VISIT THE HOSPITALS.

"You will, within the next few days, be afforded ample opportunity of visiting the various hospitals, including the Toronto General, Grace, the Western, the Hospital for Incurables, the Orthopedic, the Hospital for Consumptives at Weston, also the Lakeside Home for Little Children, the Hospital for Sick Children, and the Nurses' Home, the three last-named institutions constituting the life-work of one of our leading citizens, whose earnestness and enthusiasm know no bounds, and whose munificence knows no limit other than his means. The gentleman to whom I allude is, I am pleased to observe, an honored officer of this Association, Mr. J. Ross Robertson. (Applause.)

"It may not be amiss to inform you that Ontario boasts of some 67 hospitals, and that probably as many more are contained in the other Provinces of Canada.

"If I may be permitted to throw out a suggestion, it is that every State in the Union should be prevailed upon to form an association; that each of such associations should send delegates to the A. H. A., and that the latter should form an alliance with the Canadian Association. You would then have an international association, in which every State of the Union and every Province of Canada would be represented.

"It may be of interest to you to learn that in Toronto the city contributes to the hospitals seventy cents per diem per public ward patient, and that the Provincial Government is also a contributor to the extent of twenty cents.

"When you again visit us we hope to be able to show you through a general hospital that will be worthy of our city, our Province, and of Canada."

President's Address.

Dr. S. S. Goldwater, of Mount Sinai Hospital, New York, President of the Association, in his address showed a deep study of hospitals and the various spheres in which the Association must work and expand. He drew attention to the fact that, although nine years old, the Association had nearly doubled in membership the present year, and he deemed the time opportune for the discussion of organization work to enlarge the life and scope of the Hospital Association.

What Association Means.

"What are the factors which will in the long run determine the usefulness of this Association?" asked Dr. Goldwater. "They appear to me to be the number and character of the Association's members; the extent, thoroughness, comprehensiveness and coordination of its investigations and studies: the effectiveness of its public activities, including in this latter means for the dissemination of its observation and recommendations for the enlightening of the public on hospital affairs and the use of public opinion to influence and guide philanthropists and legislators."

Effective Work.

He joined hands with those who wished an effective institution rather than a large one, but saw no reason why a large one should not be more influential and perfect than a small one. The Association was the result of that which is inherent in every medical man and nurse—the desire to associate with and seek the friendship and advice of those interested in similar occupations.

But Few Devoted Minds.

"For ten years," continued the President, "this institution has cautiously felt its way, slowly and steadily gathering strength and

purpose. Its contributions to hospital literature have depended upon the activities of a few devoted minds, each working more or less independently of the other. With its larger membership of to-day, with its still larger membership and its inevitably greater resources of the immediate future, its progress need no longer be left to the chance interests of temporary executive officers, or to the contributions of a few active and willing members. The progress of this Association should proceed in the future according to the plan calculated to turn the light of public investigation and discussion upon every condition which, for good or ill, affects, or is capable of affecting, the welfare of the institutions with whose management we have charge. But we cannot hope to bring about the sustained, searching, many-sided criticism of hospital methods which is desired unless our plan is one which will turn to use the great latent powers of our Association.

Many Hard Problems.

"The problems involving the hospital management are multitudinous. Many of these reach far beyond the sphere of the average hospital superintendent's daily thought. We must learn how best to apply to our work the principles of medicine, of sanitation, of public and personal hygiene, of hospital and district nursing and nursing education, of social economics, ethics, law and finance, of business and domestic administration, of engineering and architecture. All this lies within our reach through the medium of this Association."

Dr. Goldwater expressed the opinion that all interested in hospital work, including trustees, should be members of the Association. He concluded by suggesting that the organization should be modified so as to take in the different sections under regularly constituted departments.

In her paper on the "Relationship of the Training School to Hospital Efficiency," Miss C. A. Aikens hit out from the shoulder, and made statements sufficiently important to rouse the whole Association to a deeper sense of its responsibilities. She deemed the training school essential to efficiency in nursing. Poor conditions might be overcome by good nurses, but poor nurses could never be perfected by the best of hospital conditions. "The real essence of nursing," said Miss Aikens, "must always be personal service to the sick or helpless." No matter into what field of knowledge a nurse might venture, she would soon become aware that she trespassed upon the field of others, and that the crowning glory of her achievements must be nursing.

Too Much Training.

Miss Aikens showed that the tendency of the times was to plan and insist on a great deal of instruction that in no way benefited

hospitals or nursing. It seems strange to her that the modern nurse must pass through the hands of from twenty to thirty lecturers, dealing with a hundred subjects, before being qualified for humanitarian work. She believed it nonsense to think that the nearer a nurse approached the medical profession in training so much the better would be her standard. There was a vast difference between medicine and the duties of a nurse. Nurses were frequently taken away from care of patients at critical times to listen to lectures that were, from a nurse's standpoint, pure twaddle.

Too Much Classroom.

The essence of the whole problem was: "What are the essentials of a nursing education, theoretical and practical?" "I am firmly of the opinion," she said, "that the efficiency of the nursing service will be increased by having more teaching done at the bedside and less in the classroom." The laws bearing upon training schools, upon which the efficiency of hospitals depend, went a long way to imperil the efficiency of the nursing service. While it was desirable that nurses should be educated, she could never believe that a high school training was a necessary qualification for a nurse, the fitness of whom would never be determined by any gauge of education. A moral, sympathetic, Christian woman with little education might make a ten times better nurse than the graduate of the best college in the world."

So far as the choice of candidates is concerned, the superintendent of every school had the right to exercise her own judgment, and should not be forced into a certain line of choice by statute.

Craze for Laws.

Men in this age seem to have a craze for making laws that are more of a reproach than a benefit to society. They exacted unjust conditions, to the detriment of the well-being of many an institution, particularly hospitals and training schools. To make haste slowly in many matters of this character was a splendid motto. The nurse is best fitted for her work who has had some training along the line of household responsibilities. Too often was important work left to pupils instead of being performed by the heads of hospitals. It should be the duty of the American Hospital Association to plan and work out all matters peculiar to hospitals and nurses on a common-sense basis.

Rev. A. S. Kavanagh, D.D., Superintendent of the Methodist Episcopal Hospital, Brooklyn, submitted the report of the subcommittee on the training of nurses, discussing at length the curriculum of studies, and reviewing the history of the movement which culminated in the re-adoption of the two-year course in some of the leading New York hospitals. Dr. Kavanagh did not advocate either the two-year or the three-year course, but moved a resolution

(which was adopted) providing for the appointment of a committee of the Association to study the whole question, information to be secured from all possible sources, so that a decision might be arived at as to what nurses should and should not be taught, and what length of course should be adopted. This report will be presented at the next annual meeting.

A portion of one morning session was devoted to the consideration and discussion of papers by Dr. Robert J. Wilson, Superintendent of Hospitals of the Health Department of New York; Dr. D. L. Edsa, Professor of Therapeutics in the University of Pennsylvania, and Dr. Joseph B. Howland, of the Massachusetts General Hospital, Boston, on medical organization and medical education and the treatment and control of infectious diseases in the public hospital. Dr. Wilson believed that isolation should always precede diagnosis in the hospital. Pneumonia and throat troubles he had found to be easily communicated to patients in wards by the indiscriminate placing of patients affected with these troubles in beds between patients suffering from other troubles.

Milk as Typhoid Medium.

There was a fallacy that typhoid was spread chiefly through contamination by excreta. "I know of no more dangerous medium for the communication and spread of typhoid than milk and utensils."

Milk was declared to provide all the conditions for the rapid development of typhoid bacilli, and a case was cited where an epidemic had ensued from a milk bottle being taken out of a typhoid patient's room and passed on into use without being sterilized. Dr. Wilson commended cleanliness as the best disinfectant, and advocated the segregation and isolation of all contagious and infectious diseases.

Imported Infection.

The discussion of the papers brought to the front the question of preventing infection. It was admitted that infection was possible in hospitals, but it was most improbable. Wherever infection had been carried from one ward to the other investigation had always revealed carelessness. Dr. Wilson declared that his investigations had been rigid. Cases of carelessness were few.

Dr. Ross, Buffalo, stated that there was more infection imported into the hospital by visitors than it was sometimes possible to cope with.

Mr. J. Ross Robertson stated that since 1892 infection brought into the Hospital for Sick Children by visitors had cost the hospital about $20,000.

Hospital Construction.

The construction of hospitals, and the report of the sub-committee on this important subject by Dr. J. N. E. Brown, Superin-

tendent of the Toronto General Hospital, were subjects that caused considerable discussion.

Mr. Meyer J. Sturm, architect, of Chicago, in his address on the planning of these institutions, suggested that when hospitals were to be erected architects should be called and made acquainted with the requirements of the institution. Hospitals, especially from a point of location, were frequently placed in ill-advised spots. This was the result of the site being purchased through the municipal process of satisfying friends, or the site being given by a philanthropic person. No man in the world knew less about the requirements of a hospital than an architect, unless the question were made a study, and no man was more in need of information when called in to make plans.

Reception to Delegates.

One of the pleasing features of the convention was the reception tendered the delegates at the Nurses' Residence by the Board and management of the Hospital for Sick Children. The spacious building presented a most cheerful appearance, and the 200 guests who visited the residence, which was recently erected by J. Ross Robertson and presented to the Hospital for Sick Children, were much impressed with the perfect character of the institution.

Dr. D. C. Potter, Chief of the Charitable Institution Division, Department of Finance, of New York City, gave an address on "The Private Hospital as a Municipal Agent." The place was crowded. The two hundred odd medical men and superintendents of hospitals from all over America applauded Dr. Potter's statements. They were of a practical nature, and couched in terms that could not be misunderstood.

"Grafters!"

Dr. Potter's experience in New York City has been such that he has little faith in the average reformer. This class of individual is always on hand to "turn the grafter out" and take over the job for himself and his friends. Woe unto the hospital where the reformer installs himself with the avowed purpose of economically administering affairs. Under him there is sure to be changes which will involve dear fresh air, while fresh bandages will be an impossibility.

"There is no hippodrome of mirth so funny or so senseless as the general run of city governments, and sometimes they are tragic," said the doctor.

Canadian Girls.

"Canada for years," he continued, "has sent us a very large proportion of all the trained nurses educated in our city training

schools. They are splendid types of young womanhood and become the best of good nurses. I modestly suggest that Canada might send us a few reformers. The city latch-string is always out. Reformers come to us from the hamlets of far western States. Having been brought up in obscurity and the empty places, and having had no experience of life, they know best of all what is suited to congested districts in the metropolis," sarcastically remarked Dr. Potter.

Professional Reformers.

"Our Canadian friends should not neglect the virgin field of municipal reform in the cities of the States. Nothing pays like professional philanthropy, and the only capital required is carried under your hat.

The professional philanthropists, as a rule, hold that a civic community should do all its work of charity in institutions of its own creation and under its control. This is alleged to be necessary to augment civic property, develop the civic system and cultivate civic pride, but rarely necessary to furnish jobs to the pupils of the professional philanthropists."

Cost Compared.

Dr. Potter gave some striking comparisons, showing the cost of maintaining patients in institutions under municipal control as against the charges of the private institutions. In private institutions the cost was from 80 cents to $1.10 per day for each patient, while in the municipally controlled concerns it ranged all the way from a minimum of $1.92 to $10.20 per day.

Washington was selected as the next place of meeting at the closing session of the convention, when the following officers were elected:

President—Dr. John M. Peters, Rhode Island Hospital, Providence, R.I.

1st Vice-President—Dr. Arthur B. Aucker, City and County Hospital, St. Paul, Minn.

2nd Vice-President—Dr. J. N. E. Brown, Superintendent General Hospital, Toronto.

3rd Vice-President—Miss Emma A. Anderson, New England Baptist Hospital, Boston, Mass.

Secretary—Dr. W. L. Babcock, Grace Hospital, Detroit, Mich

Treasurer—Dr. Asa Bacon, Presbyterian Hospital, Chicago.

Votes of thanks were passed to the local Committee on Arrangements, comprising J. Ross Robertson, Dr. R. W. Bruce-Smith and Dr. J. N. E. Brown, and the retiring officers.

Many of the delegates visited the Lakeside Home, the Hospital for Sick Children and the Toronto General Hospital during their stay.

The Canadian Journal of Medicine and Surgery

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Orthopedic Surgery—B. E. MCKENZIE, B.A., M.D., Toronto, Surgeon to the Toronto Orthopedic Hospital; ex-President of the American Orthopedic Association; and H. P. H. GALLOWAY, M.D., Winnipeg, Man., Member of the American Orthopedic Association.

Gynecology and Obstetrics—GEO. T. MCKEOUGH, M.D., M.R.C.S. Eng., Chatham, Ont.; and J. H. LOVE, M.D., Toronto.

Medical Jurisprudence and Toxicology—ARTHUR JUKES JOHNSON, M.B., M.R.C.S. Eng., Coroner for the City of Toronto; Surgeon Toronto Railway Co., Toronto; W. A. YOUNG, M.D., L.R.C.P. Lond., Associate Coroner, City of Toronto.

Physiotherapy—CHAS. R. DICKSON, M.D., C.M., Queen's University; M.D., University of the City of New York; Electrologist Toronto General Hospital, Hospital for Sick Children, and St. Michael's Hospital.

Pharmacology and Therapeutics—A. J. HARRINGTON M.D., M.R.C.S.Eng., Toronto.

Pediatrics—ALLEN BAINES, M.D., Toronto; A. R. GORDON, M.D, Toronto, HELEN MACMURCHY, M.D., Toronto.

Oral Surgery—E. H. ADAMS, M.D., D.D.S., Toronto.

Dermatology—D. KING SMITH, M.B. Tor., Toronto.

Medicine—J. J. CASSIDY, M.D., Toronto, ex-Member Ontario Provincial Board of Health; Consulting Surgeon, Toronto General Hospital; W. J. WILSON, M.D., Toronto, Physician Toronto Western Hospital; and Dr. J. H. ELLIOTT, ex-Medical Superintendent, Gravenhurst Sanatorium, Ont., 611 Spadina Ave., Toronto.

Clinical Medicine—ALEXANDER MCPHEDRAN, M.D., Professor of Medicine and Clinical Medicine Toronto University; Physician Toronto General Hospital, St. Michael's Hospital, and Victoria Hospital for Sick Children.

Mental and Nervous Diseases—N. H. BEEMER, M.D., Mimico Insane Asylum; CAMPBELL MEYERS, M.D., M.R.C.S., L.R.C.P. (London, Eng.), Private Hospital, Deer Park, Toronto

Public Health and Hygiene—J. J. CASSIDY, M.D., Toronto, ex-Member Ontario Provincial Board of Health; Consulting Surgeon Toronto General Hospital; and E. H. ADAMS, M.D., Toronto.

Physiology—A. B. EADIE, M.D., Toronto, Professor of Physiology Woman's Medical College, Toronto.

Pathology—W. H. PEPLER, M.D., C.M., Trinity University, Pathologist Hospital for Sick Children, Toronto, Associate Demonstrator of Pathology Toronto University; Surgeon Canadian Pacific R.R., Toronto, and J. J. MACKENZIE, B.A., M.B., Professor of Pathology and Bacteriology, Toronto University Medical Faculty.

Ophthalmology—J. M. MACCALLUM, M.D., Toronto, Professor of Materia Medica Toronto University; Senior Assistant Eye Department Toronto General Hospital; Oculist and Aurist Victoria Hospital for Sick Children, Toronto.

Nose, Throat and Ear—PERRY G. GOLDSMITH, M.D., 84 Carlton St., Toronto, Laryngologist and Aurist, Provincial Institution for the Deaf and Dumb, Senior Assistant Ear, Nose and Throat Department Toronto General Hospital.

Address all Communications, Correspondence, Books, Matter Regarding Advertising, and make all Cheques, Drafts and Post-office Orders payable to "The Canadian Journal of Medicine and Surgery," 145 College St., Toronto, Canada.

Doctors will confer a favor by sending news, reports and papers of interest from any section of the country. Individual experience and theories are also solicited. Contributors must kindly remember that all papers, reports, correspondence, etc., *must be* in our hands by the first of the month previous to publication.

Advertisements, to insure insertion in the issue of any month, should be sent not later than the fifth of the preceding month. London, Eng. Representative, W. Hamilton Mills, Thanet House, 231 Strand, W.C. Agents for Germany, Saarbach's News Exchange, Mainz, Germany.

Reprints supplied Authors at Cost.

Vol. XXIV. TORONTO, NOVEMBER, 1908. No. 5.

Editorials.

PROFESSOR WOODHEAD, OF CAMBRIDGE UNIVERSITY, GIVES THE OPENING LECTURE OF THE COLLEGIATE COURSE OF THE FACULTY OF MEDICINE OF THE UNIVERSITY OF TORONTO FOR THE SESSION OF 1908—1909

ON the occasion of the opening lecture of the session of the Faculty of Medicine of the University of Toronto, October 5th, 1908, the honorary degree of LL.D. was conferred upon German Sims Woodhead, Professor of Pathology, of Cambridge University, England.

Professor Woodhead had been invited by Dean Reeve to give the opening address to the students in medicine of the University of Toronto. He came to Toronto from Washington, where he had been attending the great tuberculosis conference.

After expressing his grateful appreciation of the honor done him by the University of Toronto, in conferring the degree of LL.D., Professor Woodhead read a paper on medical education, of which, writing from memory, we shall endeavor to give a brief summary. Without going so far as to recommend a B.A. course as the gateway of medical study, he advocated a good preliminary course in science, signalizing chemistry as being of special value. He cordially endorsed the five years' course in medicine, which has been recently adopted by the University of Toronto.

He thought that pathology should be included among the final subjects in medical study, as he had observed that students, who learned pathology during a primary course, neglected it after beginning clinical work.

A post-graduate course in medicine met with his warm approval, and he mentioned that Cambridge University encouraged her medical graduates to re-occupy the class rooms and laboratories, which had been the scenes of their youthful essays, in order that they might be enabled to take independent flights into the as yet unappropriated domains of medical science.

To one thing in particular he drew the attention of the student of medicine—the importance of originality—the avoidance of being a mere repeater of other men's words or thoughts. The student should strive to know the subject of his study with his own intelligence. Referring to the custom of teaching medicine through formal lectures, he admitted that it suited a past day, but said that it was unsuitable at the present time, when the medical student could acquire the opinions of the lecturer from his text-book without "his verbosity or muddiness."

In reference to the independent examination test for the license to practise in Ontario, he thought that the Ontario College of Physicians and Surgeons was interested in testing the capacity of candidates in the practical, rather than in the primary subjects of medical study.

Replying to a vote of thanks, moved by Professor Primrose, of the University of Toronto Medical Faculty, Professor Woodhead

addressed his remarks to the medical students, giving them sound advice, as to the earnestness with which they should work in laying the groundwork of their profession. Medicine being an exacting study, he advised them to be attentive to the condition of the body, it being impossible to accomplish good mental work, unless the body is kept in a sound condition. To some students physical exercise is a necessity; to others rest is more important than effort.

Professor Woodhead commends himself to us as a wise teacher and trainer of medical men; one who would get the best possible output out of his students, and yet not allow them to injure their health. Not a mere lecturer, he suggests ideas, allowing his hearers to do a little independent cerebration, so as to reach the solution of the question by themselves.

A scientist of renown, tactful, of fine presence and polished manners, the master of a cultivated style, there is no position in a medical faculty too high for him. J. J. C.

THE CANADIAN FORMULARY OF UNOFFICIAL PREPARATIONS, 1908

In the August, 1908, number of this journal, at page 109, the publication of a second edition of the Canadian Formulary of Unofficial Preparations, issued by the authority of the Ontario College of Pharmacy, was editorially noticed. The object of this work, as stated in the preface, is the establishment of uniform and authoritative standards for pharmaceutical preparations in active demand by the medical and pharmaceutical professions. They are unofficial preparations. Commenting on the work, we said: "Many of the published formulæ are probably intended to be used as guides in preparing substitutes for patent or proprietary medicines. Hence, their publication in the C. F. would go to show that there is a popular demand for the latter preparations. Then, why should not the laity get what they ask for?"

In a letter published at page 315 of this issue, Mr. Hargreaves, Vice-President of the Ontario College of Pharmacy, writes: "I emphatically repudiate the imputed charge of substitution on the part of Canadian pharmacists." He does not offer any explanation of the meaning which he attaches to substitution. We shall, there-

fore, place before our readers some statements confirmatory of what we meant to convey by that term. For instance, Formula No. 79. (C.F.) Liquor Ferri et Mangani Peptonatis, is said by pharmacists to be an imitation of the formula of Gude's Pepto-Mangan, and is probably intended for use in cases such as those in which that proprietary medicine is indicated.

Were a physician to prescribe Gude's Pepto-Mangan for a patient, and were a pharmacist to whom the prescription was brought to substitute a bottle of Liquor Ferri et Mangani Peptonatis (C. F.), what would be the moral, professional and financial aspects of the pharmacist's procedure? Even if the C. F. preparation were similar in all respects to the proprietary one, the manufacturer of Pepto-Mangan would be cheated out of a sale, the pharmacist would be guilty of unprofessional conduct; by selling for a dollar a bottle of Liquor Ferri et Mangani Peptonatis, which he buys at $6 a dozen, the pharmacist would make a larger profit than if he were to sell, for a dollar, a bottle of Gude's Pepto-Mangan, which costs him $10 a dozen.

If Mr. Hargreaves wishes to repudiate substitution of this kind, he does well to speak emphatically. So far as we know, he represents in his declaration the opinions and conduct of the vast majority of Canadian pharmacists.

There is another form of substitution: Pharmacists may try to persuade physicians living in their neighborhood to prescribe Liquor Ferri et Mangani Peptonatis, instead of Pepto-Mangan. If successful in their efforts, Formula No. 79 (C. F.) will, probably, be used as a guide in preparing a substitute for a proprietary medicine. Other proprietary medicines may be treated in the same fashion. Thus, Formula No. 71 (C. F.), Liquor Antisepticus, copied from the 1905 edition of the United States Pharmacopeia, is a substitute for Listerine. It is also true that Formula No. 72 (C. F.), Liquor Antisepticus Alkalinus (copied from the N. F., 1905), is an imitation of Glyco-Thymoline. We have authority for the statement that, in the United States, a number of retail druggists have taken it upon themselves to inform physicians that Formula No. 72 is identical with Glyco-Thymoline.

Pharmacists know of other formulas published in the Canadian Formulary which are intended to be used as guides in preparing substitutes for proprietary medicines in active demand by the

medical and pharmaceutical professions. It would be idle, therefore, to endeavor to repudiate this latter form of substitution and its application in actual business.

If Canadian pharmacists feel disposed to utilize the formulæ of the Canadian Formulary in their business, there are good reasons for doing so. It goes without saying, and it is no harm to say it here, that these formulæ would not appear in their present dress in the Canadian Formulary, if the usefulness and acceptability of the proprietary medicines of which they are copies had not been proved to the laity, the pharmacists and medical profession of Canada.

What then? As the C. F. is unofficial, physicians are not bound to recognize it. If Canadian pharmacists, instead of selling the original proprietary medicines, prefer to prepare and sell imitations of them, that is their affair. Probably, no objections will be made by anyone, so long as they do not supply preparations made from the C. F. when patent or proprietary medicines are called for, on prescription, or otherwise. J. J. C.

EDITORIAL NOTES.

Oral Sepsis and the Opsonic Index.—That Oral Sepsis can lower bodily resistance and expose an otherwise healthy individual to infectious disease is a reasonable proposition. Koch was able to determine the infection of animals fed with cholera vibrios, after neutralization of the contents of their stomachs. Similarly, the swallowing of pus from suppurating gums would have a neutralizing effect on the contents of the stomach, and would predispose to such diseases as typhoid fever, dysentery and cholera. In the treatment of pyorrhea alveolaris, or alveolar periostitis, as it is termed by Mr. Kenneth Goadby, a dentist of London, England, the following method is recommended: (*a*) the removal of all teeth where the sockets and over 50 per cent. of the attachment of the bone is destroyed, (*b*) the eradication of the pockets around the teeth by surgical methods—cleaning, scraping, escharotics. To these commonly practised methods Mr. Goadby adds the use of vaccines. He has reported two cases of acute alveolar periostitis, which were cured by the use of vaccines (*vide British Medical Journal*. Aug. 22,

1908, p. 477). Mr. Goadby thinks that many of the so-called cases of scurvy in the Indian jails, and elsewhere, are really instances of pyorrhea alveolaris. In reference to the treatment of this disease with vaccines, he says: "As in many instances staphylococci were the invading organisms, a dose of 100 mm. of mixed staphylococcic vaccine might well be given in any acute case, the local treatment of the gums to be performed after the negative phase had passed; two subsequent inoculations of similar doses of vaccine could also be given at intervals of a week. Wherever possible, each case should be treated individually." In reference to the advantages resulting from adequate local treatment in chronic pyorrhea alveolaris—improved general health of the patient and a sounder condition of the gums—there is a consensus of opinion among dentists. When teeth have not become too loose, they can be retained, the loose receding gum tightens and grasps the teeth, preventing further displacement. Whether vaccinal treatment would cure chronic cases of pyorrhea alveolaris is a question to be solved by experiment. The success won by Mr. Goadby in his two acute cases would seem to show that similar treatment might be tried in chronic cases, which had proved rebellious to careful local treatment. This view, however, is purely hypothetical. Speaking generally, one might say that, when all sources of local inflammation in diseased gums are removed, the leucocytic outflow towards them ceases, and it would seem uncalled-for to provide an opsonic banquet for leucocytes, which are not campaigning on the field of battle, but are simply leading a humdrum garrison life. Some cases of acute pyorrhea alveolaris respond very promptly to local treatment. In these cases the opsonic index to staphylococci is high, and, after the gum pockets have been cleaned and cauterized, suppuration in them ceases and the gums tighten. In other acute cases, even though local treatment has been practised betimes, suppuration in the gum pockets continues and the gums remain loose. In those cases the opsonic index to staphylococci is low, and vaccinal treatment is indicated. Between these extremes there are acute cases in which the opsonic index may be neither high nor low—just as in cases of acne vulgaris;—vaccinal treatment will be necessary in some cases of pyorrhea alveolaris; but it will not be called for in the majority of them.

Defective Teeth in School Children. — Frank Harrison, M.R.C.S. (Eng.), L.D.S. (Edin.), President of the Dental Section of the British Medical Association, in his address at the Sheffield meeting, spoke of the benefits likely to result from the investigation of the physical condition of school children, by virtue of the English Medical Inspection Act. This examination is to be made by medical men, who, together with other defects and diseases, will have to observe the condition of the teeth and report thereon. He stated that dental disease is the commonest of all diseases in Britain, in the greater part of the rest of Europe, and in other parts of the world as well. Unfortunately, the real causes of this commonest of all diseases are as yet unknown. The locked-up secret of its prevalence is, therefore, one which appeals to physiologists and pathologists, who have the advantages of research work at their disposal. At present, dentists are engaged in treating effects with some measure of success; preventive treatment and the care of children's teeth are very beneficial. Something more is requisite, the cause, or causes, of this widespread dental disease should be ascertained, and, if possible, treated. The following quotation from the Bulletin of the Chicago School of Sanitary Instruction, September 26, 1908, corroborates Mr. Harrison's assertions: "Physical examinations were made by medical school inspectors of 4,195 school children. Of this number, 3,388 were found defective and 1,919 advised to seek treatment. Defects found were distributed as follows: Teeth, 1,215; hypertrophied tonsils, 750; vision, 649; nasal breathing, 134; adenoids, 129; hearing, 100; nutrition, 97; anemia, 95; enlarged glands, 43; cardiac diseases, 35; mentality, 35; skin diseases, 27; orthopedic, 27; palate, 24; pulmonary diseases, 21; nervous diseases, 7. If the physiologists and pathologists of England, America and Canada were to interest themselves in searching for the causes which underlie the widespread dental disease observed in the school children of those countries, valuable discoveries in dental hygiene might be made, and the public would be more thoroughly instructed in the prevention of dental diseases.

Overtaxing of Locomotive Engineers of Fast Trains.—As the exigencies of modern travel have introduced "flyers" in Canadian railroads, the duties of locomotive engineers have become more severe. As far as is known, duty on slow trains does not cause the same severe strain. On very fast trains, it is said that engine

duty cannot be endured for more than a few years. Some of the engineers on the "flyers" are said to develop neurasthenia, after working four years, or even less. Nervous breakdown is said to appear in them suddenly, not only from exhaustion, but from the cumulative effect of the millions of little traumatisms produced in their tissues by the jarring, shaking, jolting engine, driven for many hours at terrific speed. A locomotive engineer, affected with neurasthenia, would be unfit for duty, especially as nervous breakdown in neurasthenic persons may appear quite suddenly. The results following from a slight error of judgment in such a case may be awful. As the wear and tear of the tissues of the locomotive engineers are increased by the speed of these "flyers," frequent examinations of the engineers as to the accuracy of their senses and the soundness of the nervous and muscular systems are necessary. Railroad surgeons are aware of these truths, and, doubtless, give them the consideration which their importance demands.

When Sodium Bicarbonate is Best Administered.—The bicarbonate of sodium, when given before meals, serves to increase the flow of gastric juice, and is found to relieve the pain of tardy digestion in an effective manner, in cases of deficiency of acid. It then acts as a sedative to the irritated stomach, and relieves the painful conditions arising from a deficient secretion of gastric juice. When taken after meals, it is useful in counteracting excessive acidity of the stomach. Butler says that the acidity due to the formation of fatty acids, the result of defective digestion, is not relieved by the administration of this salt after meals, but, if taken before meals, it corrects the deficiency of gastric secretion, to which the disordered digestion is due. In atonic dyspepsia, when administered with vegetable bitters, this salt serves a useful purpose. Writers on therapeutics agree that some time should be allowed to elapse between the administration of the dose and the ingestion of food. This period varies with the different quantities of bicarbonate. The maximum of acidity is generally attained in two hours after a dose of eight grains—in three hours after one of sixteen grains. Small doses may, therefore, be given at meal times, but larger quantities about an hour before meals. The dose itself must be varied according to the case; in some instances as much as eighty grains will be required, given an hour before meals to attain the maximum of acidity; but this quantity is much too great for

patients with marked hyperacidity; for these eight grains may prove sufficient. In a case of dyspepsia characterized by uneasiness felt at the cardiac end of the stomach after eating, belching, somnolence, low spirits and irritability of temper, a mixture made after the following formula served a useful purpose:

℞ Sodii bicarbonatis .... ℥iss
Infusi gentianæ co..... .... ℥vi M.
Sig. ℥ss an hour before meals

Tuberculosis of the Bones and Joints.—Dr. Cadbury (Fourth Annual Report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis) says that in the four years from February 1, 1903, to February 1, 1907, 4,840 patients were examined at the Institute, and of these, 3,733 showed some tuberculous lesion, for the most part pulmonary. Of the 3,733 patients, only 55, or 1.47 per cent., gave a history of tuberculosis of the bones or joints. Forty-one of the cases were males and fourteen females, which might be explained by the fact that males are more exposed to injury than females. The source of the contagion in the fifty-five cases is difficult to trace. In twenty-three there was a possibility of contagion from parents, brothers and sisters or other associates, who had suffered or died from some form of tuberculosis, during or preceding the development of the bone complications. In thirty of the cases no definite history of contagion could be discovered, so far as the bone complications were concerned. In four of the fifty-five cases no pulmonary tuberculosis was demonstrated. In the remaining fifty-one (92.72 per cent.) pulmonary lesions were demonstrated. In the fifty-one cases of combined osseous and pulmonary disease the bone process was quiescent in 56.86 per cent., active in 37.25 per cent., and not recorded in 5.88 per cent. In four the pulmonary process was the primary one, and in each instance the bone disease was in an active state at the time of the examination. In thirty the bone disease was apparently the predecessor of the pulmonary lesion, but of these thirty only six showed active bone tuberculosis, while twenty-four gave evidence of an arrested or latent process, so that the preliminary complication may have been due to a new infection. In seventeen of the cases it was impossible to ascertain from the history whether the pulmonary or bone infection was primary. In 60 per cent. of the 55 cases the bone disease was active, during

the first twenty years of life. This approximates Billroth's estimate that one-half of all cases of bone tuberculosis occur during the first two decades of life. Statistics generally agree in showing, that the vertebræ are far more susceptible to the invasion of tubercle than the other bones of the body. The bones affected in the fifty-five cases treated at the Henry Phipps Institute were the following:

Spine	22	= 40	per cent.
Hip-joint	12	= 21.81	"
Knee-joint	6	= 10.90	"
Femur	2	= 3.63	"
Elbow-joint	2	= 3.63	"
Jaw	2	= 3.63	"
Bones of forearm	2	= 3.63	"
Ribs and sternum	2	= 3.63	"
Shoulder	1	= 1.81	"
Entire arm	1	= 1.81	"
Hip and femur	1	= 1.81	"
Hip and knee	1	= 1.81	"
Tibia and femur	1	= 1.81	"

J. J. C.

PERSONALS.

DR. T. ALEXANDER DAVIES, 56 Wellesley Street, desires to announce to the members of the profession that he is confining his practice exclusively to the eye, ear, nose and throat.

DR. CHARLES M. STEWART, who has been doing post-graduate work in London this last six years, has returned to Toronto and opened an office at 142 Carlton Street. He will confine his practice to diseases of the ear, nose and throat.

Correspondence.

The Editor cannot hold himself responsible for any views expressed in this Department.

EDITOR OF CANADIAN JOURNAL OF MEDICINE AND SURGERY:

Dear Sir,—In your August issue appears a comment on "The Canadian Formulary of Unofficial Preparations." After stating the object for which the work is published, follows an invidious insinuation that "Many of the published formulas are probably intended to be used as guides in preparing substitutes for patent or proprietary medicines."

Will you please read in the second paragraph of the preface to the work that "Recognition of certain formulas bearing semi-official titles prepared according to the formulas prevailing in localities has demonstrated the necessity for the adoption of some uniform system of authoritative formulas, whereby the physician can intelligently prescribe and the pharmacist dispense, and the result expected and obtained be uniform and identical throughout the whole of the Dominion of Canada."

The formulas reveal their constituents and medicinal properties, and doses, and should require no brass band claims for their virtue or usefulness, which is clearly indicated to those with a knowledge of materia medica. The formulas are for the express purpose of establishing standards for tested and tried preparations, to be used by Canadian physicians, of which the physician has full knowledge and confidence as to purity and constituents, and from which he may expect the result indicated by the medicinal properties of the ingredients.

I emphatically repudiate the imputed charge of "substitution" on the part of Canadian pharmacists. Its use in a medical journal is a surprise and revelation to me, as I had concluded that manufacturers and advertisers of patent and proprietary medicines had a monopoly of the word, and that its chief merit lies in its capacity for protecting secrecy, restricting competition and retarding progress or advancement in truly professional or scientific lines of thought or action.

Furthermore, the intention of the publication of the Canadian Formulary is directed entirely against the use in any form by the physician of patent or proprietary medicines for the laity, as is plainly evidenced by the technical titles attached to each formula. Ethical pharmacy for ethical physicians is the true object and desire of the pharmaceutical bodies responsible for the publication of the C. F., and the physicians of Canada are requested to test the formulas and submit them to an honest, intelligent criticism.

Yours very truly,

JOHN HARGREAVES,

Chairman of Research Committee of the Ontario College of Pharmacy.

Toronto, 18th August, 1908.

Obituary

DEATH OF DR. ALEXANDER K. FERGUSON.

Dr. Alexander K. Ferguson, whose recent tragic death by being run over by a street car, while he was crossing the track, too near the coming car, was a highly respected graduate of Trinity University, and also a Fellow (by examination) of Trinity Medical College, of 1894. He was an excellent student and became a very successful practitioner, devoted to his profession, and having the confidence of all who knew him best and longest.

His funeral was largely attended by his former patients and friends and by many of the office-bearers and members of Knox Church, Toronto, of which he was an elder. The terrible and sudden death of her husband was a heavy blow to his esteemed widow, who, with two young children, a son and daughter, mourn *their irreparable loss.*

Dr. Walter B. Geikie, the founder and Dean of Trinity Medical College for the last twenty-five years of its existence, and Dr. R. A. Thomas, M.R.C.S. (Eng.), a fellow-student of Dr. Ferguson at Trinity Medical College, were amongst the pall-bearers. The Rev. Mr. Winchester, of Knox Church, conducted the service and delivered an admirable address, full of warm sympathy for the bereaved family, assisted by the Rev. Dr. Turnbull and the Rev. Mr. Lindsay.

A. J. G.

News of the Month.

BRODIE COMES TO 'VARSITY.

T. G. BRODIE, M.D., London, F.R.S., has cabled his acceptance of his appointment by 'Varsity Board of Governors as Professor of Physiology in the Faculties of Arts and Medicine at 'Varsity, and to have charge of the teaching of physiology to the students of the Ontario Veterinary College.

Dr. Brodie was educated at King's College School, London; St. John's, Cambridge, and King's College, London, and has held the following important appointments in London: Director of the research laboratories of the Royal College of Physicians and Surgeons; Professor Superintendent Brown Animal Sanitary Institution, University of London; Professor of Physiology, Royal Veterinary College; Lecturer on Physiology, London School of Medicine for Women, and Lecturer in Physiology at St. Thomas' Hospital Medical School.

Mulford's Salesmen's Post-Graduate Course.—Mr. A. W. Parsons, city representative of the H. K. Mulford Co., and Mr. W. S. M. Enouy, retail manager for W. Lloyd Wood, spent a pleasant and profitable ten days in Philadelphia, attending the Mulford Salesmen's Post-Graduate Course. This departure instituted by the Mulford Co. brings periodically all sales and detail men in close touch with the heads of each department. The pharmaceutical and biological buildings are gone over in detail, and all that is new pertaining to the standardization, assay and physiological testing of drugs, as well as all processes of manufacture, are clearly demonstrated. Likewise, the production of antitoxins, vaccines, tuberculins and Wright's bacterial vaccines is shown. Lecture courses, descriptive of each, are given by the Mulford scientific staff, aided by stereopticon views, illustrating therapeutic actions as well as interesting details of manufacture. Physicians when in Philadelphia are at all times cordially invited to visit the Mulford plant.

The Physician's Library.

Consumption: How to Prevent It and How to Live With It. Its nature, causes, prevention, and the mode of life, climate, exercise, food, and clothing necessary for its cure. By N. S. Davis, A.M., M.D., Professor of Principles and Practice of Medicine, Northwestern University Medical School, Chicago; Physician to Mercy and Wesley Hospitals. Second Edition, thoroughly revised. 12mo. 172 pages. Cloth. Price, $1.00 net. Philadelphia, Pa.: F. A. Davis Company, publishers.

This little book has been reprinted a number of times since it first appeared, seventeen years ago. It would be much improved if the directions for daily life of the patient, with quiescent disease, were quite apart from those to be followed by the patient who has daily temperature. It is a good guide for the person predisposed to tuberculosis, and is splendid in its chapter to those associated with the consumptive, but it would not be wise to have a patient with active tuberculosis follow it without further and more explicit direction. We hope that, in another edition, the limits of rest and exercise will be more definite. Hurried proof-reading probably accounts for errors such as woolenware, Los Vagus, Goboursdorf. Modern usage would suggest "sanatoriums" instead of "sanitaria," the word which is constantly used. J. H. E.

Medical Gynaecology. By Howard A. Kelly, A.B., M.D., LL.D., F.R.C.S. (Hon. Edin.), Professor of Gynaecological Surgery in the Johns Hopkins University, and Gynaecologist to the Johns Hopkins Hospital; etc. Pp. 662; 163 illustrations, for the most part by Max Broedel and A. Horn. New York and London: D. Appleton & Company. 1908.

This recent production of Dr. Kelly's should do much to satisfy a need that is pressing. It is especially adapted for the use of the general practitioner, into whose hands practically all gynaecological patients first come. Dealing, as it does, with the various diseased conditions and their management up to the point where the gynaecological surgeon, as such, becomes essential, it is not burdensome. For the student at college it is excellent though insufficient as a work on gynaecology, because it does not treat of the surgeon's work in respect to gynaecological conditions—the students of today being expected by slave-driving medical educationists to attain a specialist's knowledge in all and sundry departments of medicine

and surgery before graduation. A careful and complete perusal of its pages from cover to cover convinces one of the high capabilities of the writer, both as a surgeon and as an instructor in the science of gynaecology. The information contained in the book is vast, valuable and of a practical kind. Reading it has been a profitable pleasure. It is true that a certain amount of plodding was necessary to get through with "Affections of the Sacro-iliac Joint," and the descriptions of the syphilides, but no doubt their importance deserves the space given to them.

The illustrations are of high order, though, perhaps somewhat more profuse than is necessary to clear understanding. Nothing would be lost by the omission of such a one as appears on page 48, "Toilet Accommodation for Twenty-one Families," or of the one on page 462 in which the care-worn, despondent attitude is anything but soul-inspiring.

In all places and at all times references to "gynaecological tinkering" abounds. Dr. Kelly's valuable book should hasten the demise of such detrimental practice. F. W. M.

Physical Signs of Diseases of the Thorax and Abdomen. By JAMES E. H. SAWYER, M.A., M.D. (Oxon.), M.R.C.P. (Lond.), Casualty Assistant Physician and Medical Registrar, the General Hospital, and Physician to Out-Patients, the Children's Hospital, Birmingham. 188 pages, 23 illustrations. $1.50. London: Balliere, Tindall & Cox. Canadian agents: J. A. Carveth & Co., Ltd. 1908.

A well-written guide for students, and one by which the busy practitioner may review his knowledge hurriedly. It covers thoroughly the ground indicated by its title, though we regret that, in common with many modern text-books, there is less attention paid to examinations by inspection than the importance of the method demands. J. H. E.

The Baby: Its Care and Development. For the use of mothers. By LE GRAND KERR, M.D., author of "Diagnostics of the Diseases of Children"; Professor of the Diseases of Children in the Brooklyn Post-Graduate Medical School; Attending Physician to the Children's Department of the Methodist Episcopal (Seney) Hospital; Visiting Physician to the Children's Wards of the Williamsburgh Hospital and of the Swedish Hospital in Brooklyn, N.Y., etc. Brooklyn, New York: Albert T. Huntington. 1908.

This little book serves as a guide to mothers in the rearing of their children. It is essentially practical; the language and directions are plain; the chronological arrangement of the chapters enables the mother to follow the development of the child and to

discover any faults that may arise. The book is well designed to secure thorough co-operation between mother and physician, not calculated to do harm by suggesting diagnosis and treatment, as most of the "Family Doctor" books do. "A little learning," etc. Physicians can safely bring this small volume to the notice of mothers. W. H. P.

A Woman's Way Through Unknown Labrador. An account of the exploration of the Nascaupee and George Rivers. By Mrs. Leonidas Hubbard, Junior. With portraits and illustrations. Toronto: William Briggs. 1908.

The graphic description by Dillon Wallace of the unfortunate ending of the expedition fitted out by Leonidas Hubbard, Junior, is still fresh in the memory of those who perused "The Lure of the Labrador Wild." The authoress of this work, the wife of Leonidas Hubbard, undertook, and successfully carried out, her husband's undertaking. Mrs. Hubbard is a Canadian woman, young and full of determination and Canadian vigor, and the task undertaken by her would have been appalling to many of the sterner sex; but, profiting by her husband's failures, and by the assistance of George Elson, her husband's trusted and proven friend, she succeeded in overcoming every obstacle, and, traveling up the Nascaupee and down the George rivers by canoe and long and tiresome portages through the roughest and most desolate country on earth, she carried out her husband's original plan, and now gives her account of her expedition, which is as interesting as it is remarkable.

A. J. H.

Borderland Studies. Miscellaneous Addresses and Essays pertaining to Medicine and the Medical Profession, and their relations to general science and thought. Volume II. By George M. Gould, M.D., formerly editor of the *Medical News,* the *Philadelphia Medical Journal, American Medicine;* author of a series of medical dictionaries, "Biographic Clinics," "Concerning Lafcadio Hearn," "Right-handedness," etc. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1908.

This is a series of addresses and essays arranged in book form. The book contains fourteen chapters and two hundred and twenty-eight pages. It is needless to say, coming from the pen of so talented an author as Dr. Gould, the work is beautifully written, intensely interesting and instructive.

Chapter I.—the history of the house—is profusely illustrated, and shows the progress of civilization by the house from the earliest times and most primitive peoples to the palaces of the present day.

It is impossible in a short notice to do justice to this work, or even to mention essential features of each chapter. All the chapters

are good. Chapter III., on the seven deadly sins of civilization, deals with Tobacco, Coffee and Tea, Alcohol, Sugar, Venereal Diseases, the Modern House, and Eye Strain; and Chapter V., on Disease and Sin, should be widely read, not only by the medical profession, but by the general public.

In Chapters VII. and VIII., "Some Intellectual Needs of American Growth" and "Concerning Crank Meglomaniac Morphomaniac, Dotard, Criminal and Insane Physicians," the author deals with present-day healers, quacks, new thought, Eddyites, cranks with medical degrees, and fake journals. These people are handled without gloves, and their methods exposed in such a way that one wonders so many fools are found who believe such nonsense. The chapters on "The History and Psychology in Words" and "Style" are excellent, and will well repay a careful reading. Price of book $1.50. W. J. W.

Pulmonary Tuberculosis and All Complications. By SHERMAN G. BONNEY, M.D., Professor of Medicine, Denver and Gross College of Medicine, Denver. Cloth, $7.00 net; half morocco, $8.50 net. Philadelphia and London: W. B. Saunders Company. 1908. Canadian agents: J. A. Carveth & Co., Limited, Toronto.

This is a very exhaustive treatise on the subject of pulmonary tuberculosis, written from the author's personal experience, and not a compilation from the writings of others. Pathology, symptomatology and diagnosis are fully treated. Tuberculosis of other organs as a complication in pulmonary tuberculosis receives much attention, and this makes the book a valuable one for the general practitioner, as this is rarely fully dealt with in text-books on the subject. Non-tuberculous complications considered include mixed infection, pregnancy, syphilis—we regret there is not a chapter on diabetes mellitus. Prophylaxis is given fifty pages, covering notification, supervision, education of public, and administrative control.

Special attention is given to the regulation of out-of-door life—tents, sleeping porches, summer cottages all being well illustrated. The sanatorium and climate in relation to the disease are discussed at length. Treatment is very exhaustive, particularly non-medicinal measures. Drug therapy is noticeable by the short space given to it. One misses the familiar pages of prescriptions so often filling pages of works on treatment. We must compliment the author on the importance given to drugless therapeutic measures.

With the tuberculins so much in use at present the book would have been a more complete guide had there been more specific directions for the administration of the vaccines as practised to-day.

The results of treatment in Colorado are strongly emphasized, to the exclusion of a fair recognition of, perhaps, equally good results under careful supervision elsewhere.

A few errors have crept in, in the use of names of men well known; fumigation does not seem to be quite up to date, and under laryngeal tuberculosis we miss any reference to the value of resting the voice in treatment.

The volume comprises 778 pages, has 189 original illustrations, of which 20 are in colors; also 60 X-ray photographs, all original.

It is a treat to read the book and to feel it is the contribution principally of a busy physician's personal observations.

J. H. E.

A Manual of Diseases of Infants and Children. By JOHN RUHRAH, M.D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. Second Revised Edition. 12mo volume of 423 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1908. Flexible leather, $2.00 net. Canadian agents: J. A. Carveth & Co., Limited, Toronto.

When the author gave us the first edition of this work he modestly announced that it had been prepared for the medical student to enable him to grasp quickly the more important parts of the subject, not to supplant the larger text-books. The idea was a good one and filled the want most satisfactorily. It has also been of service to the busy physician.

The chapter on Infant Feeding is more comprehensive than might be expected in a work of this scope.

This edition has several sections added, viz., Medical Inspection of School Children, The Duration of Danger of Contagion after Infectious Diseases, and The Return to School of Children after Exposure to Contagious Disease.

A short bibliography of the current pediatric literature has been also added; the list covers only journals of 1905 and 1906. This will teach the student how to use the journals for extending his knowledge.

The medical student will do well to furnish his library with this rapid reference book for clinical use. W. H. P.

Points of Practice in Maladies of the Heart. Lumberan lectures at the Royal College of Physicians of London. By JAMES SAWYER, Knt., M.D. (Lond.), F.R.C.P., F.R.C.S. (Ed.), F.S.A.; Consulting Physician to the Queen's Hospital; lately a Professor of Medicine in the Queen's College. Birmingham: Cornish Bros., Limited. 1908.

This book consists of a series of three lectures given at the Royal College of Physicians, and dealing with points of practical interest in diseases of the heart. In the matter of diagnosis the author rightly insists on as full a knowledge as possible of the various functions of the body, and takes cognisance of the various

outside influences that may directly or indirectly affect the heart. He reviews the methods of diagnosis up to the present, and describes carefully "Inspection and Palpation" of the Precordeal Area. These descriptions are very fine, and stimulate one to improve his own methods. We were especially pleased with the method of inspecting the chest in cases of pericardial adhesions. He favors a solid cedar stethoscope and describes the one he uses.

In the third lecture we were most struck with his remarks on "Pulmonary Accentuation," the causes and dangers of the condition.

The work closes with some very practical remarks on treatment, mentioning exercises and giving the indications and contraindication for digitalis, of which drug he prefers the powdered leaf and the infusion. W. J. W.

State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Octavo volume of 684 pages. Cloth, $4.00 net; half morocco, $5.50 net. Philadelphia and London: W. B. Saunders Company. 1908. Canadian agents: J. A. Carveth & Co., Limited, Toronto.

This volume may prove useful to the student preparing for examination. The questions and the answers seem to us very elementary—especially some of the answers. If, however, a student knows his work, he will not require *it*. If he doesn't and wants to *cram* for an examination, the book may be a help. S.

Surgery. By John Allen Wyeth, M.D., LL.D. (University of Alabama); President of the New York Academy of Medicine; President of the Medical Faculty of, and Surgeon-in-Chief to, the New York Polyclinic Medical School and Hospital; ex-President of the American Medical Association, of the New York State Medical Association, and of the New York Pathological Society; formerly Attending Surgeon to Mount Sinai and to St. Elizabeth's Hospitals; Honorary Member of the Texas State Medical Association and of the Medical Society of New Jersey; author of "Essays in Surgical Anatomy and Surgery"; awarded the first and second prizes of the American Medical Association in 1878 and "The Bellevue Alumni Association Prize" in 1876, etc. With 864 illustrations. Marion, Sims, Wyeth & Co., publishers, 244 Lexington Avenue, New York City. 1908. Canadian agents: D. T. McAinsh & Co., 123 Bay Street, Toronto, Ont.

The name John Wyeth stands on the top rung of the ladder to all that is best in American surgery, and any work bearing his imprint as author must have a reputation all its own. The author made a name for himself twenty years ago when he published his "Text-Book on Surgery," which was later re-edited in two revised

editions. Wyeth's Text-Book met, and justly so, with an extensive sale.

His latest book, "Wyeth's Surgery," is a large volume, consisting of 800 pages, and contains nearly 850 illustrations, 57 of which are in colors. It comprises quite an exhaustive study of surgery in almost all of its branches. "Wyeth's Surgery" should stand as one of the most modern works for many years to come. Dr. Wyeth has been particularly happy in the arrangement of his subjects. The volume is devoted, not alone to major operations, but to minor surgery as well, being thus a book for both reference and study.

Essentials of Dietetics in Health and Disease. A Text-book for Nurses and a Practical Dietary Guide for the Household. By AMY ELIZABETH POPE, author, with ANNA CAROLINE MAXWILL, of "Practical Nursing," and Instructor in Practical Nursing and Dietetics in the Presbyterian Hospital School of Nursing, Instructor in Dietetics in the School of Nursing of the New York Hospital, Mt. Sinai Hospital, and Smith's Infirmary, Staten Island, and MARY L. CARPENTER, Director of Domestic Science for the Public Schools, Saratoga Springs, N.Y. New York and London: G. P. Putnam's Sons, The Knickerbocker Press. 1908. Price, $1.75.

The "Essentials of Dietetics" is a work well suited to the nurse or for use in the home. It is not too technical, gives some knowledge of the chemistry of foods, directions for buying, cooking and serving foods, and is written in a style suited for class work in hospital training schools. After a short chapter on the digestion and absorption of foods follows a description of the different kinds of foods, and also a chapter on food values and tables of the approximate composition of the common food products.

There is a chapter on infant feeding, with directions for the modification of milk.

Part II. contains about 70 pages of recipes for invalids.

W. J. W.

Hygiene for Nurses. By ISABEL MCISAAC, author of "Primary Nursing Technique," graduate Illinois Training School for Nurses; formerly Superintendent of the Illinois Training School for Nurses; Honorary Member of the British Matrons' Council; Charter Member of the Nurses' Associated Alumnae of the United States; etc., etc. New York: The MacMillan Co. 1908.

This is a capital little book. It is essentially practical, its object being to inculcate into nurses under training all that is best and most important regarding hygiene, and should be found distinctly useful.