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## ❧ Original Contributions ❧

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### ELECTROCARDIOGRAPHY AND ELECTROPHONOGRAPHY AS AIDS IN CLINICAL DIAGNOSIS\*

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New power in clinical diagnosis comes most often through the invention of new methods of investigation. I desire to speak briefly to-night of certain rather recent applications of electrical methods of examination to the clinical diagnosis of conditions of the heart. I shall deal (1) with the method of recording the electrical currents in the form of the so-called electrocardiogram set free in the heart muscle just previous to each heart beat, and (2) to a method of recording the heart sounds in the form of the so-called electrophonogram.

It has long been known that when an irritable structure like muscle undergoes excitation certain electrical changes take place at the point of stimulation, which increase the electrical potential there as contrasted with the remaining portion of the muscle which is at rest. If an electrode be applied to the excited point of the structure and another to some more distant resting point in it, and these be connected with a galvanometer the direction and intensity of the electric current produced in the muscle can be directly measured. From the form of the curve obtained

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\*Read by invitation before the Academy of Medicine, Toronto, Jan 4th, 1910

inferences may be drawn regarding the character of the excitation occurring in the irritable structure. Physiologists a half a century ago demonstrated that "action currents" of the type mentioned arise in the heart muscle. Exposing the heart of animals, they were able to demonstrate the occurrence of such currents in the heart muscle during each cardiac revolution.

A happy idea originated with the English physiologist, A. D. Waller. He saw the desirability of being able to investigate the electrical currents arising in the hearts of human beings and of uninjured animals. It occurred to him that, since the heart is surrounded on all sides by conducting media, in all probability the changes in potential occurring in the heart would also lead to changes in potential in the neighboring tissues of the body, and that by applying an electrode to a portion of the body on the right and another electrode to a portion of the body on the left the action currents due to differences of potential between the base of the heart and the apex of the heart could be led off and measured by introducing a galvanometer into the circuit between the two electrodes. At the time of Waller's experiments the most accurate galvanometer was the mercury-electrometer (the best form of which is Lippmann's), and Waller obtained curves called electrocardiograms from the human heart by the use of this instrument. Owing to the inertia of the mercury, however, the most delicate changes in the electrical potential could not be recorded, and even those changes recorded had to undergo correction by mathematical calculation in order that a true form of curve could be obtained.

An enormous advance in electrocardiography was made in 1903, when the Dutch physiologist, Einthoven, devised his so-called string galvanometer. This is a truly remarkable instrument, and one of the most delicate instruments of precision yet introduced into physiological or clinical work. It is based upon the principle that an electric current passing through a magnetic field undergoes deflection in one or the other direction, according to the direction in which the current flows. Einthoven stretches a most delicate thread (fastened at two ends like the string of a musical instrument) midway between the poles of a powerful magnet and connects the ends of the thread by wires with the electrodes, which lead off the action current from the surface of the body. As the electrical changes take place in the heart

this thread oscillates from side to side. The thread, which is made either of quartz with a silver coating or of platinum, is extremely delicate, being only one-third or one-half the thickness of a red blood corpuscle, and is so light that it cannot be weighed. A magnified image of the thread is thrown by means of a projection microscope upon the slit of a photographic recording apparatus, strongly illuminated by an electric light. A moving photographic film records the oscillations of the string in the form of a curve of which the ordinates correspond to the intensity of the current in one or the other direction, while the abscissa marks the time. I shall not enter at this time into the details of the construction of an electrocardiographic station, as I deal with the subject fully elsewhere, but I may say that, thanks to the researches of Einthoven and to the mechanical ingenuity of Edelmann in Munich, it is now a comparatively easy matter to set up an electrocardiographic station in a hospital or in a physician's office, and once such a station has been organized it is a relatively simple matter to obtain satisfactory electrocardiograms from normal and abnormal hearts. In Fig. 1 the galvanometric part of Edelmann's electrocardiographic station is illustrated.\*

#### THE TYPICAL ELECTROCARDIOGRAM.

The apparatus is so arranged that upward waves are recorded on the photographic curve when the region of the base of the heart is electro-negative as regards the apex, or when the right side of the heart is electro-negative as regards the left; while downward waves on the curve correspond to times when the apex of the heart is electro-negative as regards the base, or when the left side of the heart is electro-negative as regards the right. The term electro-negative here is used in the sense of the negative pole of a galvanic element; that is to say, when the base of the heart is electro-negative as regards the apex, the action currents will pass in the heart muscle itself from the base of the heart toward the apex, while in the outer part of the circuit the action current will pass from the region of the apex of the heart through the galvanometer toward the base of the heart.

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\*Only eight of the twenty illustrations accompanying the article could be published, but it is believed that these will be sufficient to make the nature of the methods discussed, understood.—Editor

Examination of curves obtained from normal hearts are very similar, though not always identical in character; they are so similar that it is possible to speak of a typical electrocardiogram, but it is better to use the word *typical* rather than the word *normal*, since under normal conditions there may be various slight deviations from the type. I am throwing on the screen a so-called typical electrocardiogram (Fig. 2.). You will notice that there are three principal waves in an upward direction and two slight waves in a downward direction. These five waves Einthoven has designated by the letters P, Q, R, S. and T. The first upward wave, P. corresponds to the time of excitation of

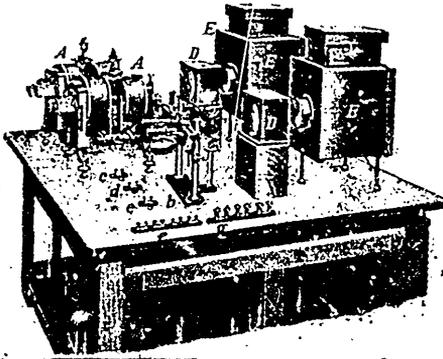


Fig. 1 (after Edelman.)

the two atria (or auricles) of the heart at the base. Accordingly the oscillation of the string yields an image which is recorded as a wave above the line. Q is a very slight elevation below the line, indicating a slight negativity of the apex as regards the base, but this is immediately followed by a very large excursion or wave, R, above the line, indicating an intense difference in potential in favor of the base or of the right half of the heart. It is of short duration, however, and is followed immediately by a second slight negativity of the apex indicated by the shallow depression, S. After this there is a stretch without oscillation of the string. This does not mean that at this time the heart muscle is not excited, but it probably indicates that during this

period the potential changes toward the base of the heart exactly neutralize those occurring toward the apex of the heart. Finally there is a third marked wave upward of less excursion than the wave R, but lasting longer. This wave is designated T, and occurs at the end of the ventricular excitation. Indeed, the whole extent of the curve between the beginning of Q and the end of T belongs to the ventricular excitation of the heart. The stretch between the end of P and the beginning of Q corresponds to the time required for the excitation to spread from the atria of the heart to the ventricles, and therefore represents what is known in cardiac bibliography as the  $\Delta s-V_s$  interval. The long stretch following T and lasting until the occurrence of the next P represents the pause of the heart's activities between two cardiac revolutions. One sees at once how sharply the excitation

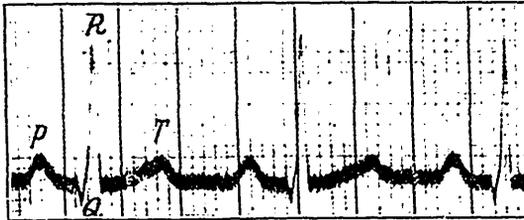


Fig 2 (after Samojloff.)

of the atria (or auricles) is here marked off from that of the ventricles, and one learns also of several different happenings in the cardiac muscle during ventricular excitation. When one recalls that these electrical changes occur simultaneously with excitation and before contraction of the heart muscle it becomes clear that we have by this electrocardiographic method a means of examining the heart from an entirely new standpoint, yielding results wholly different from those obtainable by any of the ordinary clinical methods of examination.

It makes a great difference from what parts of the body the electrical currents originating in the heart are led off. Waller found that certain parts of the body were "favorable" and others were "unfavorable" for leading off the current. In Figure 3 a diagram of his ideas regarding the distribution of potential in the tissues of the body has been reproduced. Ac-

ording to it any portion above and to the right of the oblique plane through the middle of the heart could be used for leading off the potential from the base, while parts below and to the left of that oblique plane could be used for leading off the potential of the apex. It was customary for a time to use the two hands as points of derivation. They were simply immersed in a stone jar containing salt solution and the electrodes. Experience has shown that Waller's scheme is not entirely accurate, and there are marked differences with different methods of leading off the current. Three principal methods of derivation are now in general use, namely:

I. Leading off from the two hands and forearms.

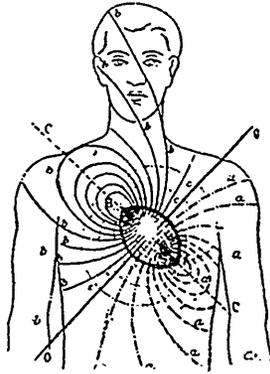


Fig. 3 (after Waller.)

II. Leading off from the right hand and forearm and the left leg.

III. Leading off from the left hand and forearm and the left leg.

In Figure 4 is shown a man in the third position mentioned. For clinical work, if only one electrocardiogram is taken, it is best to use derivation II., but it is highly desirable that three electrocardiograms shall be taken in each case (D-I., D-II., and D-III.) for comparison with one another. In any event, when an electrocardiogram is recorded or published, the mode of derivation should be definitely noted. In animals the best derivation is from the oesophagus and rectum, especially if silver

electrodes coated with chloride of silver, like those used by Max Cremer, be employed.

Normal curves are influenced by various conditions. It is best to conform to certain definite rules in taking an electrocardiogram. The patient should be comfortably seated in a relaxed position. The frequency of the pulse and respiration should be noted, and it is desirable that a pulse tracing be recorded simultaneously with the electrocardiogram for control.



Fig. 4 (after Einthoven.)

(Fig. 5.) This is an easy matter, as one can arrange a lever extending from a tambour, which will oscillate in front of the slit of the photographic recording apparatus to record the pulse. Similarly a time marker connected with a chronometer may be made to register one-fifths of a second at one edge of the film. It should be kept in mind that dislocation of the heart in the thorax from pleural effusion or other cause will alter to a certain extent the form of the electrocardiogram (Hoffmann).

The wave P shows only slight variations in health, but it

becomes higher and broader and sometimes "splintered" when the atria or auricles are hypertrophied, especially in mitral stenosis and sometimes in emphysema. Total absence of the wave P may be noted in cases of atrial paralysis. Hering has demonstrated this in a patient with the pulsus irregularis perpetuus. If P should be absent in D-I. one should demonstrate its absence, also in D-II. and D-III., before concluding definitely that the atrium is paralyzed.

The wave R, the most marked wave of the whole typical electrocardiogram, is made even higher by bodily exercise. It is normally well marked with D-I. and D-II., but may be absent or negative with D-III., in which event S is usually prominent. When the heart is beating forcibly, and especially when the right

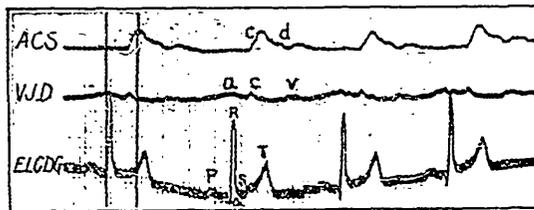


Fig. 5 (after Einthoven.)

ventricle is hypertrophied, R is higher than normal. (Fig. 6.)

The downward wave S, often absent normally with D-I., is usually easily visible in D-II. and D-III. It is especially marked in D-III. when the left ventricle is hypertrophied, as is well shown in cases of aortic insufficiency and chronic nephritis. For a time it was thought that this wave was especially developed in neuropathic or neurasthenic individuals, especially in those who presented signs of infantilism or feminism; indeed Kraus actually speaks of S as the "neurasthenic wave." Later studies, especially those of Nicolai and Simons in Oppenheim's clinic, demonstrated that the S wave may be absent even in outspoken neurasthenic patients. For the present its significance is uncertain, though its exaggeration in D-III. probably always indicates hypertrophy of the left ventricle.

The T wave has attracted a good deal of attention from those who have worked with electrocardiograms. Thus far it seems to have been certainly made out that in healthy hearts

T is always present. After exercise in normal individuals this wave is exaggerated. In old age the wave is smaller than normal or may be absent, and especially in cases of marked cardiac debility and in degeneration of the myocardium it may be absent, doubled, negative or "splintered."

In Figure 7 is shown one of Kraus and Nicolai's tracings with total absence of the T wave. The patient suffered from myocardial disease.

Figure 8 is another of their tracings in which the wave is markedly splintered. Just what the significance of such splintered waves is I do not know. It seems likely that the tremor

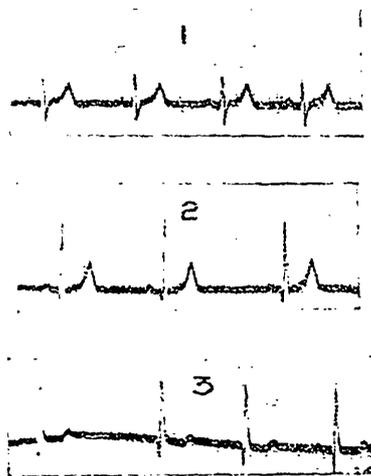


FIG. 6 (after Einthoven.)

of the hands of feeble persons may be sufficient to give such a splintering of the curve. One curious fallacy in the way of "splintering," which must be guarded against, is that which occurs from induction in electrocardiograms taken in a room in which an alternating electric current is present. Some curves have been published as pathological splintering, which on close examination reveal a definite number of oscillations per second corresponding exactly to the alternating current. It is essential that no alternating current machine shall be present near an electrocardiographic station.

While the wave T is present in normal cases and is often absent in myocardial disease, still a number of cases of serious lesions of the heart muscle and of the great vessels have been reported in which a large T wave existed. It is interesting also to notice in published reports that the T wave may be absent in one derivation and present in another. A good example of a large T wave in an enfeebled heart will be seen in Figure 9. This represents an electrocardiogram taken by Hoffmann from a patient suffering from the tachycardia of Basedow's disease. Another feature of interest in this tracing is the shortening of the electrical ventricular systole.

A great deal of interest attaches to the forms of the electrocardiograms which are obtained in the arhythmias of the heart in which extra-systoles occur. As a result of electrocardiographic work, we can for the first time be perfectly sure that

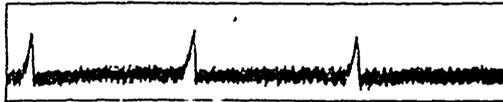


Fig. 7 (after Kraus and Nicolai.)

the nature of excitation, and therefore, in all probability, of contraction, in an extra-systole is wholly different from that of the normal heart beat. These extra-systoles yield the so-called "atypical electrocardiograms." In Figure 10 two of Hoffmann's electrocardiograms of extra-systoles are given. The upper one was obtained by leading off the current from the two hands (D-I.), the lower one by leading off the current from the left arm and the left leg (D-III.). The extra-systole shows an entirely different curve from that of the normal heart excitation. Another of Hoffmann's tracings (Figure 11), which is of unusual interest, was taken at the beginning of an attack of paroxysmal tachycardia. The upper part of the tracing represents D-II., the lower part D-III. It will be observed that the curves are of atypical electrocardiograms and that, therefore, in this particular instance of tachycardia the heart beats consist of contractions of the type of extra-systoles. Note how very different this tachycardia is from the tachycardia of Basedow's disease illustrated above. Whether atypical electrocardiograms are

common in instances of paroxysmal tachycardia remains for further investigation to clear up.

From the studies of Kraus and Nicolai, Einthoven and Kahn a good deal of light has been thrown upon the nature of the atypical electrocardiograms. It turns out that artificial stimuli applied to the walls of the ventricles of experimental animals yield atypical electrocardiograms; that is to say, the contraction resulting from such stimulation corresponds to that of extra-systoles which occur spontaneously, and not to normal heart-beats. Kraus and Nicolai thought that they could distinguish an electrocardiogram of the right ventricle from one of the left, and certain it is that artificial stimulation of the right ventricle yields a wholly different atypical electrocardiogram from that which results from stimulation of the left ventricle. In Figure 12, I have reproduced some of Kahn's curves, taken from experimental animals. Stimulation of the base of the right ventricle

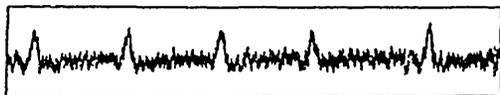


Fig. 8 (after Kraus and Nicolai.)

and of the apex of the right ventricle yield very similar curves, while stimulation of the apex of the left ventricle yields a curve in which the waves are in the opposite direction. It seems justifiable, therefore, to assume that in extra-systoles, yielding atypical electrocardiograms, when the first wave is up and the second down, the extra-systole has its origin in the right ventricle, while when the opposite is the case (first wave down, second wave up) the extra-systole has its origin in the left ventricle. In Figures 13 and 14, I reproduce two curves, taken with the help of Drs. Hirschfelder and Bond in our clinic at the Johns Hopkins Hospital, of extra-systoles occurring in the heart of a boy suffering from mitral disease. It will be noticed that the ordinary beats of the heart show good P, R. and T waves. The P wave is perhaps a little exaggerated owing to the hypertrophy of the atrium. The character of the atypical electrocardiogram accompanying the extra-systole indicates that, in this boy, the extra-systoles originated in the right ventricle.

I now come to a form of cardiac arrhythmia, in which the electrocardiogram is most illuminating; I mean that in which there is complete dissociation between the activities of the atria and the ventricles, due to interruption of the fibres of the His bundle—the so-called heart block which occurs in the Stokes-Adams syndrome. Electrocardiograms of such cases have been taken by Einthoven, by Kraus and Nicolai, and by Pick. For convenience sake I am reproducing Pick's curves. In Figures 15 and 16, two atypical electrocardiograms from a normal person are shown, the one obtained by leading off the current from the two hands (D-I.), the other by leading off the current from the right arm and the left leg (D-II.). Both these curves show characteristic P, R and T waves. In Figure 17, an electrocardiogram of the heart block case is shown (taken by D-I.) and in Figure 18, another electrocardiogram (taken by D-II.) from

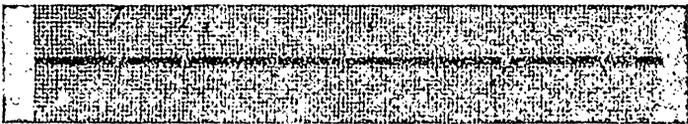


Fig. 20 (after Einthoven.)

the same case. Observe how elegantly the dissociation between the atria and the ventricles is shown here, even better than by the phlebogram, as compared with an arteriogram, our only method hitherto for making satisfactory diagnoses in such cases. The patient from whom this tracing was taken by Pick was a man of 43, whose pulse rate went down after a pericarditis and endocarditis to 30. He kept at work for a time, but one day had suddenly as many as 120 attacks of syncope within twenty-four hours. He recovered from the fainting spells, and has had no attacks of syncope for four years, though his slow pulse continues. It will be seen that the atria are excited three times to one excitation of the ventricle, corresponding to three pulses in the jugular vein to one in the carotid artery. The complete independence of the ventricular excitation from that of the atrial excitation is well illustrated in Figure 18, in which, in one instance, the P wave of the atria fuses with the R wave of the ventricle to form a single wave.

I hope I have given you examples enough to demonstrate beyond doubt that the electrocardiogram will be of definite importance in the recognition of the electrical processes which go on in the heart muscle. That certain practical results in diagnosis and in indications for therapy will come out of these studies I think we can feel sure. It would be a mistake, however, to think that electrocardiography can take the place of sphygmography, fluoroscopy, blood-pressure determinations or the ordinary methods of physical diagnosis. It is only another method for forming a judgment regarding the heart, with especial reference to the condition of the heart muscle. It will, I feel sure, be found to be an important supplement to methods now in use, yielding confirmatory evidence in many ways, and sometimes giving information regarding the heart which can be got in no other way. I should like to warn, however, against the drawing of too hasty clinical inferences from the study of electrocardiograms. A very large amount of work must be done before we shall be in a position to speak very positively regarding the significance of the different waves occurring during the ventricular portion of the electrical systole.

Before closing these remarks, I wish to throw upon the screen a couple of electrocardiophonograms. A suitable method for registering mechanically in some way the sounds heard over the heart has long been desired. Thanks to the combination of a vibration-free microphone with Einthoven's string galvanometer, this is now possible. In Figure 19, I have reproduced an electrophonographic tracing, taken in our clinic in Baltimore with this instrument. The oscillations of the string due to the first and second sounds are well shown. In Figure 20 is reproduced one of Einthoven's electrocardiophonograms, in which in addition to records of the first and second sounds, that of a third protodiastolic sound is evident. This third sound of the heart is so commonly met with in young people, as my colleague, Professor Thayer, has shown, that it may be properly regarded as a normal third sound. It can easily be heard with the stethoscope if one takes the trouble to listen for it, in a very large proportion of young boys and girls, and in many young adults.

It seems probable that the electrocardiogram will be more helpful, in both physiological and clinical work, than the elec-

trophonogram, though the latter will also find its place. It has already been found useful to make simultaneous electrocardiograms and electrophonograms. By the use of a large string galvanometer for the electrocardiogram, and a smaller one for the electrophonogram, both curves may be registered upon the same photographic film simultaneously, and one can then compare the relation of the waves in the electrocardiogram with the times and durations of the heart sounds.

## NURSING PEOPLE OF MODERATE MEANS AND THE POORER CLASSES\*

BY JOHN N. ELLIOTT BROWN.

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### *Miss Dickson and Young Ladies of the Graduating Class,—*

About two years ago, the writer made some inquiries of those members of the medical profession in Toronto, whose practice is largely confined to the middle and poorer classes of people, to what extent their patients were nursed by hospital graduates. The result of this investigation showed in part:

First, that only a small proportion of people of moderate means were provided with trained nurses;

Second, that it was desirable that they should be so provided;

Third, that the work was, in part, done by district nurses, nurses belonging to the Victorian Order, "experienced nurses" and by occasional graduate nurses;

Fourth, that the medical profession were in favor of hospital training schools sending out nurses to such families, such work to constitute part of their training, a fee being charged commensurate with the work done;

Fifth, that among this middle-class folk there is a large field for nurses who are not as fully trained as the graduates of training schools with a three-year course.

Since then I have made some similar inquiries of superintendents and members of the medical staffs of some of the leading hospitals of some of the other cities of Canada and of the United States, the results of which are briefly set down herewith.

One of the New York physicians states that in New York the large hospitals require all their undergraduates and some graduate nurses for their own work, so could not spare them for outside services. After graduation there is such a demand for nurses at some seasons that it is sometimes an impossibility to secure them from the leading hospitals. They make no reductions in charges,

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\*Read at the first graduation exercises of the National Consumptive Sanatorium at Weston, Ont., October, 1909. Also presented in part at a meeting of the Training School Committee of the American Hospital Association, and published in part in the "International Hospital Record."

and find so much work that many specify the types of cases they will attend, and many refuse tenement work, and some refuse mal-patients. The recent graduates are especially in demand. They are unwilling to work at reduced rates. It is the older graduates who accept salaried work and less than \$25 a week. The only remedy would be to shorten the course of training to two years, leaving out some of the theoretical work, and increasing the number of graduates until the over-supply would make them willing to work at lower prices. They are now strongly commercial. They expect physicians to treat them free, or at reduced rates, yet charge physicians \$25 per week for nursing in their families.

Dr. Himmelsback, of Buffalo, says that the needs of the middle and lower classes in that city are supplied in Buffalo by "practical nurses," or undergraduates, at smaller cost. His suggestion is that hospitals having a three or four-year course might have two courses instead of one—the one a short term, say from one to two years, which would include the basic principles of nursing, and also include medical bedside nursing and obstetrics; the long term to include a special training in the present-day surgical nursing.

In Providence, R. I., they have a class of nurses who go under the general name of "experienced nurses"—usually a misnomer—middle-aged or even elderly women who have picked up knowledge during the many years of unskilled nursing; young women who have taken partial courses in training schools and have been forced to give it up for some reason or another, correspondence schools or Chautauqua nurses, whose knowledge is almost wholly theoretical; young women who have gotten their lectures at the Young Women's Christian Association, supplemented by practical work in private families at the same time. This last class are considered the best of the four. Some of them are excellent nurses. Dr. Cooke, of that city, thinks that no hospital training school could wisely attempt to train a grade of nurses theoretically inferior to their regular graduates, as it would provoke resentment on the part of the "regulars" and they would look down upon the "specials." It would tend to lower the standard for the "regulars" as a class, who are already (in the smaller hospitals or at least in the hospitals of many cities) not anywhere near standard even at graduation. He believes that training through suitable instructors—by the Y. W. C. A.—the best solution of the problem.

Dr. Partridge, of Providence, thinks hospitals have sufficient to

do to care for the poor and ought not to supply the middle classes with nurses.

Dr. George E. Blackham, of Dunkirk, N.Y., chairman of a training school committee, who has given special study to this question and has contributed an article on "The Place and Work of the Smaller Hospitals and Training Schools," has the following views:

"I am altogether in favor of allowing pupil nurses to do out-patient work after one year of training, the cases being, of course, properly selected.

I am in favor of this from the standpoint of the pupil nurse, of the hospital, and of the public.

It gives the nurse a training which she cannot possibly obtain in the hospital, and in the line of the work which she will be chiefly called upon to do, unless she is one of the minority who devote themselves to institutional work.

It is, and must be, of advantage to the hospital, in that it helps the revenues, and thus provides for wider usefulness and tends to spread a knowledge of what the hospitals are doing and the excellence of their ways of doing it, and thus allays the prejudice against them which is still unfortunately prevalent among many people.

It is for the benefit of the public, in that it allows the large class of people of moderate means to have nursing attendance which, while not equal to that given by good graduate nurses, especially by those who have had considerable experience in private nursing after graduation, is immeasurably superior to that given by the so-called "practical nurses," who are too often women of little education, and have neither knowledge of nor respect for the principles and practice of antisepsis, which are the most important things for a nurse to know, to believe, and to do. The under-graduate nurse has at least learned the rudiments of these things, and has been taught that she must obey and co-operate with the attending physician, while the "practical nurse" too often, out of the abundance of her ignorance, thinks she knows it all and is quite likely to view elaborate, or simple, antiseptic measures with contempt, to neglect them when the doctor is not present and generally to work against rather than with him.

If the hospitals are permitted to send out pupil nurses to suitable cases, the pupil nurse will get much-needed training in private nursing, which she can get in no other way, the hospital will get

some revenue, and the public, or that part of it which cannot afford to pay the reasonable fees of graduate nurses, can get valuable nursing service at a cost within their means, and learn to appreciate the value of special training in a nurse and be more willing to employ the graduate nurse when circumstances make her more skilled services imperative or their own financial conditions will permit."

One New York doctor suggests that training schools might graduate two classes of nurses—trained, and more or less fully trained.

One of the most prominent physicians in Montreal writes: "I would say with the onset of any serious sickness I appreciate highly a regularly trained nurse, and the majority of my patients secure one. At the same time, I think the charges are too heavy for the head of a family if he is drawing a limited income. I am strongly of the opinion that there should be, if practicable, a second grade of nurse, which might be employed in the less serious cases; nurses, say, of one year's experience, who would be content with a more moderate pay. The difficulty in the case lies with us in the fact that nurses are ambitious—are anxious to obtain the highest rates, and a few are desirous to be doctors as well as nurses.

Miss Aiken says: "The plan I have to offer for your consideration is the establishing in every county of a register or directory, in which every woman who nurses for pay is required to register every year in some class—four classes to be established. First-class certificate nurses (county certificates) to hospital graduates who have had at least two years' training, including experience and training in medical, surgical and obstetrical work.

"Second-class certificates to nurses who have had at least one year of hospital training or less than two, and who pass the second-class certificate examinations or who have had four years of experience in private nursing, pursued a systematic course of study, etc. This class to charge not more than \$15 a week.

"Third-class certificates to nurses who have had two years' experience in private nursing, pursued the county course of study for third-class nurses, etc. This class to be limited to \$10 a week.

"Fourth-class certificates or county permits to those who are of good moral character and reliable women, but without training, and who have pursued no study and passed no examinations. This class to be limited to \$8 a week. Each class to state on business

card the grade or class in which they are registered. A registration fee of one dollar a year from every nurse practising in the county would easily provide for a county registrar to attend to such work. Every class of patient would be provided for. Nobody would be prohibited from nursing who was of good moral character and reliable, but they must, if they make a business of nursing, go into one of the classes. Provision should be made so that those who started in at the bottom could reach the second grade. Thus there would be an incentive to improve, which is now absent. The one who can put up the biggest bluff now is the one who will get most money, whether she knows anything about nursing or not.

"I believe this plan is a feasible thing providing the doctors will take it up and recognize the classes. Personally I think it would be a good thing to have such a directory under the auspices of the county medical society, to which reports and printed lists of nurses would be furnished every year. The doctors know these women, employ them, are disgusted with them thousands of times, while they know they are a necessity. If the doctors of any county demand that nurses be classified for public safety and to increase efficiency, the nurses will meekly fall into line. Without the co-operation of the doctors this can never be accomplished."

Dr. J. A. Scott, of Philadelphia, says that there are in that city two associations who train nurses in the rudiments, such as the taking of temperature, bathing, giving enemas, etc. These nurses are supplied to patients at from \$8 to \$12 per week. He believes that training schools could give this sort of training in a much better way, more thoroughly and more satisfactorily than do the associations mentioned, the latter being dependent on the dispensary and poor patients, while the hospitals have material always within reach.

Complaint is made, however, that the nurses of this school go out and demand full pay, as though they were nurses who had taken a full and regular hospital course.

Another correspondent from Philadelphia reports that there is a school of nurses there which gives a ten weeks' course, and that one hospital is giving a "cadet course" of one year (probably the same one as mentioned by Dr. Scott), the graduates from which should charge from about \$10 to \$12 per week. It is found, however, that they often charge the same prices as graduates of two or three-year schools, which causes ill feeling.

Dr. Alice Seabrook, of the Woman's Hospital, Philadelphia, says: "We send out our pupils to a limited extent in their third year. No one is out more than twelve weeks and the charge for their services is \$12 per week. To very poor and needy people in our district we sometimes send a nurse temporarily without charge. It is difficult to do any of this work, however, because of the instant demand for similar assistance, a demand far beyond our power to supply."

The Germantown Hospital, Philadelphia, employs a graduate nurse for doing district nursing among tubercular patients. The rules of the hospital allow it to furnish undergraduates to the middle classes, but their supply of nurses is not sufficient to permit them to do so. Their correspondent suggests short courses of training and a certificate of "qualified assistant" nurse.

St. Luke's Hospital, New York supplies a district nurse for poor people only.

The Beth Israel Hospital, New York, requires all its nurses for hospital work, but says that in the vicinity of the hospital the poorer classes receive some nursing from the Nurses' Settlements.

The Cook County Hospital, Fairmont, W. Va., sends out undergraduates to people in moderate circumstances at \$15 a week.

From what I can learn the three hospitals which seem to be giving the most effective service along this line are the Newton, Mass., Hospital and the City Hospital, Worcester, Mass. and the Massachusetts Homeopathic Hospital, Boston. I take the liberty of quoting from a letter of Miss Riddle, the superintendent of the Newton Hospital, as follows: "I will say that the pupils of this school do the district nursing in Newton under the supervision of one of our graduates. We keep two pupils out all of the time, who, with the supervisor, make three nurses for a city of about forty thousand people. I enclose a sheet which will tell you something of the work they did in 1907. An association of ladies, called the Newton District Nursing Association, meets *all* expenses. They even pay us the board of the nurses and the little allowance also which we make them. We also send out our pupils in their third year for a limited experience among the people of the middle class. For this we receive \$12 per week for their services. *We have to be very careful in the management of this, because the people who can afford more are always trying to engage their services, because of the less expense.* We have to depend upon our doctors for know-

ledge of the cases, and I may say we rarely supply a nurse to a family direct, but almost always through the doctor, who never deceives us but once. We insist that the nurse returns to the hospital for all classes and lectures when out on such a case, and we never send them out of Newton. Most of the work thus done is obstetrical. I do not believe in this last method of training for nurses, excepting to a very limited extent, but since these people need the care and no other means are at hand we ought to supply it. It can never do much harm to our nurses and our hospital, because we are not a large enough city for them to be swallowed up in. We can keep track of them. I believe great good is being done in this way, because a sympathy is established between the public and the hospital which could not be done in any other way."

The report of the Association says: "Few realize the importance of this work, and the wide field the nurses have to cover. But the benefit received by the patients who are visited and treated in their own homes is inestimable. Many of the cases are patients who could not be admitted to the hospital, and except for the welcome visits of the district nurse, would often suffer from want of proper care. Miss Riddle speaks in most enthusiastic terms of the benefit derived by the nurses from this outside work, so necessary to one who is training herself to meet all kinds of patients, in different surroundings. Ten nurses, in the second year of training, have been instructed in this work and with the superintendent have made 5,536 calls on 316 patients."

Dr. Mann, of the Homeopathic Hospital, Boston, writes: "We send out two physicians and two pupil nurses to answer calls from poor people. Last year the physicians made over 9,000 calls, the nurses about 4,000. This work is in connection with the out-patient department. Patients on what we call the district—that is, anywhere within a radius of a mile of the hospital—send in to the out-patient department calls for physicians. The district is divided into sections and each physician has a section and answers calls coming from that section. Physicians are really students in their senior year at the medical school, which is next door to the hospital, but entirely independent of the hospital. They are appointed for periods varying from three months to a year. Those who agree to serve a year are given free board and lodging. Those who only come for three months are given their room only. The work consists of ordinary medical work, with a good deal of obstetrics. The

physicians, as they see the cases, decide which ones need the services of a nurse, and leave such with the clerk at the O. P. D., where the nurse calls for them every morning."

Dr. Howell, of the City Hospital, Worcester, says: "The only attempt to furnish nursing for the poor and middle classes in Worcester is that made by the Worcester Society of District Nursing. This society cares for both classes. When the patient is poor, no charge is made. If the patient has some means, he is expected to pay something for the nurses' time. For the past two or three years we have been furnishing nurses to the District Society. At first we furnished four for one-half of each day, but at present we only furnish two. This work we regard as part of the nurse's training; she is required to take it. We make no charge to the District Society for the services of our pupil nurses."

The correspondent from the Latter-Day Saints' Hospital, Salt Lake City, Utah, writes; "Connected with the Church of the Latter-Day Saints is a relief society, which takes care of the poor in the community very satisfactorily by sending out undergraduates. Each ward has its own relief society, which keeps in close contact with all the people of the community. In this way the supply for the better class and the poorer class is very satisfactorily met. We do not think there is a city in the United States that has better facilities, or more complete and systematic arrangements for taking care of all classes of people."

In Albany there is established what is called The Albany Guild for the Care of the Sick.

Applicants are those who do not wish to take a hospital training, either because of age limit or for various other reasons.

*Two years*, preceded by *three months' probation* to determine the interest in and adaptability to the work.

The salary begins with \$10 per month, and increases gradually to \$20 towards the end of the training.

Lodging is provided, unless the nurse has her own home in town. When she is on a case, her board and laundry are provided by the family where she is in attendance, otherwise she is responsible for her own board and laundry.

The assistant nurse receives her training and experience in the homes of patients of limited means, under the supervision and instruction of a hospital graduate nurse of the Guild staff who is responsible for the case.

In the intervals between cases she acquires experience in district work in the homes of the poor, where she visits with the graduate nurse; she acquires experience in minor surgery at dispensaries, where she assists the graduate nurse.

This practical instruction and experience is supplemented by a course of lectures from physicians of recognized standing, extending throughout the two years.

The assistant nurse must be ready to follow implicitly all orders of the physician, and all orders and instructions of the graduate nurse in charge.

At the end of two years, if the training and examinations have been passed satisfactorily, the Guild pin is given, and a certificate conferred which limits the charge for services to \$15 per week, and entitles the nurse to register as a certified nurse of the Guild. She also has thereafter the privilege of all lectures and classes held at the Guild House.

The Young Women's Christian Association of New York carries on a work among the sick, the character of which may be gathered from the following:

#### TRAINED ATTENDANCE ON THE SICK.

The purpose of this department is to train women to be attendants capable of caring for convalescents, feeble or elderly persons, and sub-acute and chronic cases.

There are many intelligent women who are unable to give to study the length of time required to become a trained nurse; and there are many persons who, for economic reasons, are obliged to do without trained assistance in times of illness. It is to enable such people to obtain better aid at a moderate compensation, and to offer an honorable means of livelihood to women, that this department is established.

Applicants for admission to the course for attendants must understand that the position of an attendant is not that of a "trained nurse," and they cannot hope to become trained nurses by taking this course alone. The course of study for a "trained nurse" covers at least *two years*, while this course continues only *eleven weeks*. An attendant cannot charge or expect to receive as a "trained nurse," but, on the other hand, she cannot be expected to assume the latter's responsibilities.

From the above it will be seen the medical profession feel that there is need of nurses who are as competently trained as possible to undertake the work of nursing the sick who are found in the homes of the average well-to-do families, as well as the sick in the homes of the poor.

That various philanthropic bodies are working very commendably in the direction of supplying nurses to the poorer classes generally.

That there is an evident desire on the part of many hospitals to assist in doing work among the sick outside of the hospital; as is evidenced by the fact that through their training schools they are sending out pupil nurses under direction and supervision of senior nurses or physicians, by which they are greatly increasing their usefulness, not only to the poor people, but to the people of moderate means as well.

## A TEST FOR THE DIAGNOSIS OF GENERAL PARALYSIS OF THE INSANE

BY GEORGE W. ROSS, JR., M.D., TORONTO.

THE diagnosis of general paralysis of the insane is for two reasons a more important matter than the diagnosis of most forms of insanity. On the one hand, thanks to the clinical observations of Pilez, Kraepelin, and a host of other workers, with the pathological researches of Nissl and Alzheimer, we have a clearer picture and more exact knowledge about the course and nature of the disease than about almost any other psychosis, so that we can foretell what events are liable to occur in it, and take measures to guard against them. On the other hand, the prognosis is more fatal and the lethal termination more rapidly reached than in any other form of insanity, so that it is important to recognize the condition as soon as possible, and to get the patient's affairs arranged on the basis of that knowledge. Although in a pronounced case the clinical picture is one of the sharpest in the whole of medicine, yet in an early or non-typical case the difficulties in diagnosis are often exceedingly great. So much is this the case that it is found in asylum practice that the majority of the patients are admitted either with an erroneous diagnosis, or else comparatively late in the course of the disease. Hence the additions to our knowledge that, of late years, have accrued from a study of the cerebro-spinal fluid in the disease, have been welcome and valuable aids to the practitioner. These newer laboratory methods, of course, can never replace accurate observations of the well-known physical signs of the condition any more than Widal's test has replaced the employment of physical examination in the case of typhoid fever, but a knowledge of them is of the utmost importance when we have to deal with obscure and doubtful cases.

Before detailing some personal researches it would be well to review very briefly our present knowledge concerning the cerebro-spinal fluid in general paralysis, and this is best done, perhaps, by mentioning the various points in the chronological order of their discovery.

The first step in this connection, and still one of the most im-

portant, was the discovery made in 1900 by Ravault, Widal and Sicard, that a lymphocytosis in the cerebro-spinal fluid is one of the most constant accompaniments of both general paralysis and tabes. Many forms of cells are found, the most significant being large mononuclear lymphocytes and plasma cells. When in a non-febrile malady the lymphocytosis is very pronounced, then it may be regarded as practically pathognomonic of general paralysis. The cell increase is greater at the onset of the disease, a fact that obviously enhances its value in diagnosis.

A year later the discovery was made by Achard, Loefer and Lanbry, that considerable quantities of proteid are to be found in the cerebro-spinal fluid in general paralysis, and, to a less extent, in tabes. As the present paper is chiefly concerned with this question, consideration of it may be conveniently postponed for the moment, and it will suffice here to mention the well established facts that in normal cerebro-spinal fluid the quantity of proteid is but minimal, that in the disease in question, the increase is mainly an increase in globulin, and that this increase is not always parallel with the degree of lymphocytosis, tending on the whole to develop later than this phenomenon.

The next discovery was the startling one made by Wassermann in 1906, that the cerebro-spinal fluid in general paralysis contained substances which when combined with the syphilitic virus have the power of inhibiting hemolysis. It will be remembered that in 1900, Bordet demonstrated that in various processes, of which hemolysis may be taken as a type, three bodies are essential components. These are, firstly, the antigen, or substance that has been destroyed, bacterium, blood cell, etc., as the case may be; secondly, a non-specific substance, or complement, found in all blood sera, and, thirdly, a specific substance, or amboceptor, found only in the serum of an individual that has been previously injected with the corresponding antigen; the amboceptor being thus evoked as a response to the foreign body. It follows that if two of these three bodies are present in a fluid and cytolysis does not take place, it must be due to the absence of the third one; thus if the antigen is not dissolved on being added to its corresponding amboceptor the complement must be missing. In this way we can test for the presence or absence of complement. Now Wassermann found that syphilitic virus, obtained from a fetal liver in which spirochetes had been demonstrated, when in the presence of the

cerebro-spinal fluid of a paralytic made a combination with it, and the complement present in any blood-serum. This complement was thus taken up or fixed, and was no longer free to cause hemolysis, when added to red blood cells and hemolysin in the way just mentioned. For this test he first incubates for an hour the syphilitic liver emulsion with the suspected cerebro-spinal fluid and the complement-containing serum of a guinea-pig; he then adds the mixture to an emulsion of washed red blood corpuscles of a sheep and some serum of a rabbit that has been several times injected with sheep's blood. If the blood cells dissolve, *i.e.*, if hemolysis or laking takes place, then the complement must have been free to do it, and could not have been fixed by the preliminary incubation. Wassermann maintains that this is due to the absence of any syphilitic anti-body or amboceptor in the cerebro-spinal fluid. On the other hand, if laking does not take place then the complement must have been previously fixed by the combination of the syphilitic antigen from the liver, and syphilitic anti-body in the cerebro-spinal fluid.

While Wassermann's observations have received the widest confirmation, his interpretation of the phenomenon has met with serious criticism, and is to-day practically discredited. It is quite true that the reaction just described is positive in over 95 per cent. of cases of parasyphilis, and negative in other diseases, so that beyond doubt there is some substance in the cerebro-spinal fluid which when combined with syphilitic virus has the power of fixing complement and thus inhibiting hemolysis. But the nature of this substance is a far more disputable matter. That it is not a specific syphilitic anti-body seems to be certain from the observations made, first, by Weil and Braun, that it shows the same power of inhibiting hemolysis when combined with other substances than syphilitic virus, for instance, lecithin. It is now known that the place of the syphilitic antigen can be taken by a number of substances, including lecithin, bile salts, brain emulsion, normal liver emulsion, etc., and Benecke has recently brought evidence to show that the efficacy of the syphilitic liver in Wassermann's experiments is due to the presence in large quantities of a peculiar soap pellicle that surrounds the fat droplets characteristic of that lesion.

Leaving, however, the theoretic aspect of the question, we have to note that all workers at the subject, notably, Plaut, Morgenroth

and Stertz, Marie, Levaditi, Yamanouchi, Weil, Eichelberg, and Neubauer are unanimous as to the high practical value of Wassermann's discovery. It may be said at once that it is the most certain sign of general paralysis we at present possess. Its only disadvantage is its complexity of application, and before it can be of much value in practice it will have to be considerably simplified.

Two other methods may be briefly mentioned. In 1907, Fornet and Schereschewsky stated that the serum of a luetic patient gives a specific precipitate with the serum of a paralytic. This observation has been received with much scepticism, and Plaut, who is, perhaps, the most reliable authority on the subject, says that this precipitate is just as common with normal serum. In 1908, Porges and Meier showed that the cerebro-spinal fluid of paralytics causes a heavy precipitate when added to the lecithin emulsion. This is of interest when one remembers the important role played by lecithin in the Wassermann reaction.

Let us now return to the question of the globulins. The theoretic interest that the increase in globulin has, resides in the fact that most authorities agree in attributing to it the origin of the substance active in the Wassermann reaction. The trend of opinion is towards regarding this as resembling choline and nucleoproteid in being katabolic products produced in the course of the disease. The relation between globulin and this substance that gives the Wassermann reaction becomes, therefore, a matter of great interest, and the phenomenon of globulin increase receives an accession of both practical and theoretical importance from these considerations. Now the experience of the past eight years has amply confirmed the fact of globulin increase in general paralysis, and its very great value in diagnosis, and the object of the present communication is to consider two new methods for the precise observation of this increase, together with the results of our experience with these methods. The first of them was described some five months ago by Noguchi, of New York; the second has not hitherto been described. There are, of course, several methods in general use for the separation of globulin from albumin, but all of these leave much to be desired in reliability and delicacy. For the cerebro-spinal fluid the following are the ones that have been most employed. Guillain recommends that the fluid be saturated with magnesium sulphate and then heated; a precipitate

indicates the presence of globulin. Nissl, Henkel, Nonne and Apelt, who have all published extensive monographs on this subject, add to the fluid an equal quantity of a saturated ammonium sulphate solution; Cimbal adds a saturated zinc sulphate solution. In our experience, however, these methods sometimes fail even after twelve hours to give a precipitate with fluids that at once give one into the two tests next to be described. We shall consider first the technique of these tests and then the results obtained.

Whichever test be applied it is essential first of all to be sure that no blood or pus has contaminated the fluid to be examined; results are of little value, even in cases in which there was a very high lymphocyte count, on account of the secondarily derived globulin. The test may be carried out at any date after the puncture, provided only that the fluid be clear.

The Noguchi reaction consists in the addition of 0.5 c.c. solution of 10 per cent. butyric acid in normal sodium chloride solution to 0.1 c.c. of the fluid to be examined, the application of heat, subsequent addition of 0.1 c.c. of 4 per cent. sodium hydrate solution with a further application of heat. The test tube should be read within three hours. A distinct opalescence is frequently found to occur even with the normal, but in cases of general paralysis and tabes, a characteristic precipitate of a peculiar flocculent value forms. The flocculi tend gradually to fall, so that after twenty-four hours at the latest the bottom of the tube is occupied with a fairly bulky precipitate, whilst the supernatant fluid is clear. In performing this test care must be taken to ensure the absolute purity of the butyric acid. This was evidenced during the experiments by the following occurrence: We had finished the brand of butyric acid obtained from Dr. Makind, of New York, that had been found to be satisfactory, and on December 7th tried a new brand with six cases. To our surprise all of these gave negative results, a finding that was shown to be due to impure butyric acid by comparison with it some that Dr. Noguchi kindly placed at our disposal.

The second test referred to is as follows: 2 c.c. of a saturated solution of ammonium sulphate are placed in a test tube, and 1 c.c. of the cerebro-spinal fluid is gently run on to the surface in the way done in the Heller nitric test for albumin. The formation of a ring at the junction of the two liquids constitutes a positive reaction. The ring is a clear-cut, thin, greyish-white one, hav-

ing the thickness of a thin piece of paper. It should form within three minutes, and within half an hour it may be observed that the surface of the ring shows a delicate mesh appearance resembling a fine cobweb. Indirect illumination must be used or it may escape detection. For this purpose we have constructed black-lined box into which the test tube can be inserted and viewed at right angle to an electric bulb, which is fixed within the box a few inches away. In applying the test it is essential to see, first, that the ammonium sulphate is pure, so that the solution is neutral and not acid, and, secondly, that the solution is quite saturated, which is best ensured by the use of heat in its manufacture.

We come now to the question of results. Up to the present we have examined only 27 cases, but the paucity of our material is partly compensated for by the uniformity of our findings, which has encouraged us to believe that the tests in question will prove to be of considerable utility.

The Noguchi test was applied in 15 syphilitic cases and 12 non-syphilitic. It was negative in all of the latter, except in one case of tubercular meningitis. Among the negative cases were 5 of dementia precox and 4 of tumor cerebri, conditions which are frequently very difficult to distinguish from general paralysis. Among the 15 syphilitic cases were 12 untreated cases and 3 treated ones. None of the latter gave a positive reaction, while all of the former did so. The 12 positive cases comprised 3 of tabes, 5 of general paralysis, 1 of tertiary syphilis, and 3 of syphilis of the nervous system. The test was thus positive without exception in all cases of syphilis, or parasyphilis, that had not had recent treatment, and negative in all other cases examined. The effects of treatment were shown, not only by the non-reaction of the cases under treatment, but also in the disappearance of the reaction 17 days after initiating treatment in a case that had previously shown marked positive reaction.

It is known that there is an excess of proteid in the cerebrospinal fluid in no chronic diseases of the nervous system apart from syphilis, and that agrees with our findings. In cases of acute infection, on the other hand, there is often an excess of proteid present, whatever be the nature of the infection. This was so, for instance, in the only case of this kind—one of tubercular meningitis—that we have been able to examine.

The ammonium sulphate ring test was applied in all of the

above cases except two of tabes. The results agreed absolutely with these obtained by the Noguchi test, being positive whenever this was positive and negative whenever this was negative, so that the list of cases need not be repeated. The amount of proteid present in normal cerebro-spinal fluid is insufficient to give a ring with ammonium sulphate, though it commonly gives one with pure nitric acid. In general paralysis the amount is increased tenfold, and far exceeds that reached in any other disease, except, of course, acute meningitis. In the differentiation of general paralysis from syphilis with no nervous manifestations we would rely not on the mere excess of proteid in the former, for that occurs in both conditions, but upon the striking extent of the excess. This can be roughly estimated with the ammonium sulphate ring test in three ways, by noting, first, the density of the ring; secondly, the time that elapses before its appearance, and, thirdly, by the dilution with which it appears. The last point has greatly interested us, particularly, however, in connection with the globulins of the blood serum in syphilis, a matter with which we are not here concerned. Our observations on the point are as yet incomplete, but it would seem that we have in the dilution test a means of readily estimating the amount of globulin present, and, therefore, the degree of certainty of the diagnosis. We have several times, for instance, obtained a positive reaction in 15 minutes after diluting the cerebro-spinal fluid eightfold, a phenomenon that certainly never occurs in the normal.

To sum up, we consider that we have in the Noguchi reaction and in the ammonium sulphate ring test two methods of considerable value for readily recognizing an excess in globulin in the cerebro-spinal fluid, and thus for determining the presence of some parasymphilitic affection of the nervous system.

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## A VEGETARIAN DIET USEFUL IN GOUT AND BRIGHT'S DISEASE

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Now that the price of butchers' meat is soaring, one may well consider whether the eating of meat three times a day is necessary for the maintenance of a proper state of health and strength. When looked at from the opposite extreme, it seems to be conceded that a purely vegetarian diet is not an ideal one in Canada, however well it may suit the circumstances of Orientals. A vegetarian diet is weakening on account of its poverty in albumen and fat, as well as the loading of the intestines with fecal masses. Hence a mixed diet, composed of flesh meat, with cereals and vegetables, is most popular with us.

Such a diet is very suitable to healthy people, who assimilate their food well. A gouty patient, however, will do well to drop meat from his bill-of-fare, or to eat it with extreme moderation, and a vegetarian diet or a lacto-vegetarian diet will be salutary to mind and body.

In Bright's disease, especially in the early stages of it, the same observation holds good. Neuralgia appearing in different nerves and hyperchlorhydria often yield to it. Meat, which is chiefly digested in the stomach, leaves but a small, pasty residue of fecal matter for the lower bowel, and the regular meat-eater may require purgatives. On the contrary,

the bowels of the vegetarian become distended with hard fecal masses, which stimulate the intestinal musculature, causing regular motions without the aid of drugs.

Some excessive meat-eaters suffer from a form of neurasthenia, which appears to be due to uricacidemia, as well as from neuralgias and great irritability of temper, which betrays itself to their associates in a variety of ways. Experience proves that, in such cases, abolition of a meat diet and the substitution of a vegetarian one make for the disappearance of the neuralgic pains and greater sweetness of temper. The explanation of this phenomenon is not easy, but of the fact there can be no doubt.

Unlike meat albumen, vegetable albumen, which is poor in nucleins, does not lead up to the splitting off of uric acid from nitrogenous urinary wastes or to the formation of gouty nodules. Hence the suitability of a vegetarian diet for gouty subjects. During an attack of acute gout an exclusively milk diet is indicated, because no uric acid is given off from the para-nucleins of milk. Many patients with Bright's disease who have for years been accustomed to a liberal meat diet, or a diet into which meat enters pretty largely, adopt a vegetarian or lacto-vegetarian diet with repulsion. Clinicians agree, however, that the prognosis in this disease is very grave, so much so, that a patient with marked Bright's disease is fortunate if he may choose between a vegetarian or lacto-vegetarian diet and a funeral. Such a diet should be adhered to for a year or more, until the urine be-

comes normal or nearly so. Some authorities, more lenient to the patient, allow eggs as an addition to the lacto-vegetarian diet. The methodical examination of the patient's urine illuminates the treatment. If the urine is no longer turbid,—if tube-casts are few,—if albumen is absent or slight in amount, the propriety of the vegetarian diet in such a case and its beneficent effect in restraining nephritis are obvious.

J. J. C.

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#### THE PAPER MILK BOTTLE

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THE paper milk bottle, in imperial measurement sizes, which will soon be put on the Canadian market by a Montreal concern, is an excellent device for preventing the spread of contagious disease through the medium of milk, and affords the very best means of securing pure milk to the consumer.

As a solution of the difficulties and dangers arising from uncleaned milk cans and glass bottles, the late Ernest Wende, M.D., Health Commissioner of Buffalo, in a paper read before a conference of the sanitary officers of the State of New York, October, 1907, recommended "The abolition of the existing milk cans and bottles and the adoption of the single service paper container for direct consumption from udder to mouth, from teat to tongue."

The New York Milk Committee in its seven infants' milk depots is using, for the first time in New York City, a single service paper bottle, which its

patrons are instructed to throw away as soon as it is emptied of milk. These bottles, which are in wine measure sizes, are made of paraffined paper. As they are sterilized when distributed, and are not used a second time, they are found helpful in the programme of clean milk production and distribution. The cost of the single service bottle is about a cent each, but this is, if anything, less than the cost of glass bottles, freightage on glass bottles, breakage, washing, etc. It has been estimated by dealers that the life of a glass milk bottle is less than fifteen trips. Some of the advantages of the single service bottle are as follows: By doing away with the subsequent use of the bottle as a receptacle for serving milk, we remove at once the expense of collecting and the expense of cleansing and sterilizing milk bottles, together with the danger of spreading contagious diseases. The two first-mentioned advantages are obvious,—with regard to the third, because of the cleanliness employed in the manufacture, packing and shipping of the paper bottles, they will be sterile up to the time when filled with milk, thus removing any chance of contamination of milk by contact with an imperfectly cleansed bottle. Besides, on account of the thin walls of the paper bottles, they are about two and a half inches shorter than the glass bottles, and hence more convenient for storage and packing. The weight of the paper bottle is about two ounces, and the weight of the glass bottle is from 24 to 26 ounces.

Paper bottles, being of standard sizes, can be

filled with an automatic filler, which can be readily cleansed, sterilized and protected from dust when not in operation.

The paraffine coating of the paper bottle imparts no flavor to the milk, and when the milk is poured from the bottle it does not stick to the paraffine coating, as it does to the glass bottle or tin can. The milk keeps longer in the paper bottle because it is perfectly clean when the milk is put into it. The lid of the paper bottle can be easily removed when a part of the milk is to be removed and can be returned without perforating it or contaminating the milk that remains in the bottle.

The exact measure of milk is an important point in favor of the paper bottle.

The paper bottle is well sealed. The lid is fitted neatly into the bottle, coming in contact with the inside of the bottle for about one-half inch. This prevents the leakage of milk from the bottle in handling and shipping it.

J. J. C.

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#### THE CAUSES OF APPENDICITIS

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ALTHOUGH much is said and written of the diagnosis of appendicitis, medical literature contains little of a satisfying character about the causes of that disease.

The efficient cause is said to be a mechanical one, due to the presence of dried feces, or some foreign body, in the appendix vermiformis. It is difficult to understand why such bodies should occasion per-

forations, but the frequency with which they are found in cases that have been brought to operation, or at autopsies, seems to render probable their agency, and also the fact that in the majority of cases perforation is produced by ulceration, and not by sloughing.

Appendicitis seems to be especially frequent in young males between the fifteenth and thirtieth years. It attacks males more frequently than females,—one authority says the proportions between the sexes are 4 to 1; another that they are 7 to 3. Then it is ascribed to muscular strains, as in lifting weights, to kicks, blows or falls involving the abdomen, and to the jarring of the body produced by jumping. This last group of agencies, viz.: boyhood and young manhood together with traumatism resulting from violent muscular exertion, should, if genuine, be particularly operative among athletes. Canadian surgeons are in a position to tell us, if athletes are more frequently brought to the operating table for appendicitis than are quiet young men, who do not indulge in violent bodily exertions.

Indiscretions in diet are said to be causative of appendicitis, such as eating excessively of roasted peanuts, which may be swallowed without being duly masticated. Overeating of any kind of food may precede a primary attack, and is important in the recurrent form of the malady. Constipation is also mentioned by authors as a cause of appendicitis.

Referring to the agency of uricacidemia in the production of the disease, Dr. French (*Practice of*

*Medicine*, 1905) says: "It rarely, if ever, occurs among the Brahmins, who abstain from eating meat. The Brahmins are not the only East Indians who abstain from eating meat, and who are rarely, if ever, attacked by appendicitis. Dr. Bryant, whose correspondence on medical matters in India is published in the February, 1910, number of *The Western Medical Review*, Omaha, Neb., makes a few remarks on this very subject. Referring to the classes of patients he saw at the J. and J. Hospital, Bombay, which can accommodate 700 indoor patients and has an outdoor or dispensary department where hundreds are treated daily, and also to the Medical College Hospital, Calcutta, which has 400 beds and almost numberless cases in its outdoor clinics, he remarks that the paucity of surgical cases seen in these and other hospitals of India immediately attracts the attention of the American visitor. The English surgeons, in attendance at these hospitals, explained this remarkable dearth of surgical cases by stating that there are very few cases of appendicitis in India. The rarity of cases of appendicitis, they say, is due to the manner of life led by the natives—not very active,—the kind of food they eat, rice, and, last but not least, the fact that they are seldom overfed. This last assertion can be readily understood, when one learns that the average wage paid for a man working in the farming districts of India is only eight cents a day in our money, and the laborer boards himself.

It seems safe to conclude, therefore, that the over-eating of meat is the principal cause of appendicitis,

and, incidentally, is the chief factor in Western surgery. Hence a diet, similar in character to that given at the institution which sheltered the childhood of Oliver Twist, would act as a preventative. As it is unlikely that the youth of Canada, particularly the young athletes, will adopt a diet of gruel or rice, it behooves them to keep their teeth in good order and to chew their meat well if they wish to escape the surgeon's knife.

J. J. C.

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"WE ALL THINK THAT IS NOT AS IT SHOULD BE"

J. A. T.

WE publish on page 334 of this issue a reply from the President of the Ontario Medical Council to our criticisms of April. Read it.

It has been pointed out that we included the stenographers' account in the amount drawn by the members of the Council. We apologize to the Council and to the stenographer. We shall be glad to make any correction which will place the members of the Council in a more favorable light. The bald, uncomfortable fact remains that the Council members have in two years doubled the amount drawn by themselves and have changed a net profit of \$3,508.58 into a loss of \$3,614.24. Did calling a four days' session six and charging travelling days extra have anything to do with it? Does Dr. Hardy endorse this ingenious method of transferring the surplus? The worthy Doctor says the supplying of a detailed statement of the financial dealings of the Council would be a mat-

ter of great expense. We make the President of the College of Physicians and Surgeons this offer. If he will instruct the Treasurer to give us a certified detailed copy of the expenses of the Council for the years 1906-10, we will print it in this journal and mail a copy of it to every member of the College of Physicians and Surgeons at our own expense. It shall not cost the Council nor the College one cent. This detailed account shall give: (1) Time and day at which Council met and adjourned. (2) Number of days Council met. (3) Per diem allowance by by-law. (4) Name of each member present. (5) Total per diem allowance paid him, mileage paid him for such meeting. It shall also give the same information in regard to the Executive Committee, Discipline Committee and each and every other committee for which members have been paid, and state whether the meetings of these committees were held during the Council session or not.

The President answers for himself and the Treasurer that they "are not afraid" of any disclosures that might be made. Such, of course, being the case, let them accept our offer and not try to throw the responsibility upon someone else. This information the members of the College are entitled to and must be given.

Dr. Hardy speaks of two special meetings as accounting for the increase in expenditure. Great Scott! Can it be that there was a meeting for which the boys did not charge? Get busy, fellows, get busy!! We will gladly publish *in detail* the cost of the spe-

cial educational meeting referred to. This meeting, lasting for three days, cost \$2,704.30; 28 members were present at \$20.00 per day. Figure it out and see how things tally. Dr. Hardy knows the cost of the meeting to consider the Roddick Bill. Evidently it was a good sum. The profession will not know the cost of that meeting until the next Announcement appears. In 1906-07 the Council had a surplus of \$66,161.44; in 1907-08 it had the College building and \$48,359.41; in 1908-09 the college building and \$44,745. The President tells us that in 1909-10 it will be the College building, \$25,000 in bonds, and "several thousands at interest." To the profession this looks like bankruptcy. Who got the money and how did they get it?

Notwithstanding Dr. Hardy to the contrary, the excessive expenses of the Council do not come from the long distances travelled by the members, 8 of whom live in Toronto, 5 within 50 miles of Toronto, 2 within 75, 1 within 100, 6 within 125, 3 within 175, 1 within 200, 3 within 250, and 1 within 450. The eight Toronto members cannot draw mileage nor per diem allowance for travelling. It would be interesting to know "the large sums paid for the time spent in travelling" by these other members, of whom but one is a day's journey from Toronto. Surely the President, who is in a position to know "these large sums," will not withhold such essential information. Is it the large sums paid for the time NOT SPENT in travelling and for calling a four days' session six which causes the excessive outlay?

Dr. Hardy says the work of the officials has greatly increased and, therefore, the expense. Did he ever read that simple and concise legend on the door of the Council building, "Dr. Bray—Registrar—Hours 2 to 4 p.m., Saturday 10 to 12 a.m."? Is he really overworked? Why not increase his salary? It has been the same for years—\$2,500.00; Treasurer, \$600.00; Prosecutor, \$1,200.00. There has been no increase except \$200.00 for the Prosecutor. No wonder the expenses have increased!

Dr. Hardy will pardon us for drawing his attention to p. 322 Annual Announcement, 1909. Dr. Temple: "We were told that there were *certain Committees* had a meeting during the time of the session and were paid \$15 for that meeting besides the general allowance. *We all think that is not as it should be.*" Did Dr. Hardy think that this was as it should be? The Announcement says the President, Dr. Hardy, was in the chair when this statement was made. Eleven pages of the Announcement are taken up with the discussion of Dr. Temple's financial report, but there is no record of any member of the Council having sufficient curiosity or interest to ask what these committees were or who the members who had indulged in this grafting. Why this studied indifference? Is this too good a thing to be interfered with? Is grafting in the Council so prevalent that it excites but a passing smile? Is this why the Council voted down a resolution of Dr. Hart, p. 380 Announcement 1909, to have the accounts published in detail?

Ask your representative who these grafters are? Ask him why HE refused to have the accounts published in detail? Ask him if HE endorses the action of the President of the Council in refusing to allow this information to be furnished by the Treasurer?

W. A. Y.

ERRATA.—By mistake, we stated in our April editorial entitled "How Long Will It Be Before the College of Physicians and Surgeons Is Bankrupt?" that both the Treasurer and the President of the College had refused us access to the books, whereas the facts are that the Treasurer simply asked us to submit the matter to the President of the College, the request being "of such an unusual nature."

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#### AN IMPERTINENCE

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The ..... Optical Co.

Optometrists,  
Toronto.

Office Hours, 9 to 5

Phone ....

Please make a thorough examination of the eyes of

M. ....  
and report fully to me.

Dr. ....

A pad of these orders was recently sent by an optical firm to a physician of long standing in Toronto. He forwarded the communication to this office for editorial reference.

Some people have strange business methods indeed. There is such an ugly name for *Str. art Alecs* of

this ilk that they had better be shunned by all practitioners. They should remember that "the eyes are the windows of the soul," and some day when, by their ignorant meddling, they have pulled down the blinds and shut out the light, they may, perchance, have to face the law of the land.

There is no rapid transit to the degree of Doctor, the gateway of long study and acquired knowledge only opens on the "Promised Land," and so far the Jews have never had any dealings with the Samaritans.

W. A. Y.

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#### THE RETIRING MEDICAL HEALTH OFFICER

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IN the resignation of Dr. Charles Sheard from the position of Medical Health Officer Toronto has sustained a loss. Dr. Sheard possessed the attributes of fortitude, courage and decision, a useful trinity indeed when dealing with matters pertaining to the health of a large city and the "jetsam and flotsam" that frequently makes up the City Council of this rapidly growing village. Dr. Sheard was not elected because of any political bias, nor did he seek the office for pecuniary reasons, for with this world's goods he is abundantly supplied. So he stood, unique, forceful and able, when occasion demanded it, like one of Gilbert Parker's characters, to "stand under the blue canopy of heaven and curse the wide, wide world." If all the busybodies whom Charlie Sheard from time to time consigned to summer quarters

were there now—well, there wouldn't be any room for the rest of us.

As physicians, as a city, and even as a City Council, we are sorry to lose so efficient an officer.

If it was not for having to boil so much water, we would drink a long health to him "and golden nature's wealth to him."  
W. A. Y.

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#### THE ACADEMY OF MEDICINE ELECTIONS

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THE Academy of Medicine is facing another new year of its existence, and the time for shuffling and drawing the cards for office has come again.

The past year has been a history-making one, and the interest of the Fellows has been ever stimulated by addresses, papers and discussions of real value scientifically and practically.

Dr. McPhedran, the retiring President, may congratulate himself on the support of the Fellows during his year's occupancy of the Chair and the continued success of and bright prospects for the future.

The Nominating Committee elected at the meeting of the Academy on April 5th were: Drs. A. A. MacDonald, J. F. W. Ross, A. Primrose, S. M. Hay, W. H. B. Aikins, H. B. Anderson, John Ferguson, H. T. Machell, E. E. King, A. McPhedran, W. J. Wilson, W. A. Young and J. J. McKenzie.

The Nominating Committee met, according to by-law, on Thursday, the 14th of April, and elected the following slate: President, Dr. A. A. MacDonald;

Vice-President, Dr. N. A. Powell; Honorary Secretary, Dr. Harley Smith; Honorary Treasurer, Dr. D. J. Gibb Wishart. The following Fellows were nominated for Council, and we name them according to votes received: Drs. J. F. W. Ross, R. A. Reeve, W. A. Young, H. J. Hamilton, W. H. B. Aikins, H. B. Anderson, E. E. King, and J. M. Cotton.

The nomination of the new President, Dr. MacDonald, has met with universal approval. Dr. MacDonald possesses in a very large measure the *savoir faire* of a man of the world, so necessary on occasions when the Academy has for its guests distinguished visitors from over-seas or across the line, as is frequently the case. The Vice-President, Dr. Powell, has done much towards enhancing the interests of the library, and his attainments and keen wit are too well known to require from our feeble pen the touch of a word.

May the Academy add to its years another new one of even greater prosperity and property galore and to its archives much of scientific value.

W. A. Y.

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“TORONTO JAIL A HEALTH RESORT”

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MORE power to the comet and the incense from its tail, for if the pest house over the Don, alias the jail, has become a health resort, something in the heavens above must have done the house-cleaning.

In an evening paper the other day Governor

Chambers is quoted as having said: "Health-resort is a rather strong word, but it is that in reality. At the least, nine-tenths of the inmates leave in far better health than when they arrive."

All this is simply marvellous in our eyes. Can we be dreaming, then waking is pain, for only four short weeks ago this institution was found to be a place for infection rather than recuperation. Years ago better conditions were promised by the city authorities; but we did not know that it had so soon come to pass. In order to keep up the delusion of the sanitarium idea, let us suggest a few quarts of buttermilk applied nightly to the nasal complexion of Governor Chambers' patients.

W. A. Y.

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**DR. HODGETTS DECLINES POSITION OF MEDICAL  
HEALTH OFFICER**

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At the time of writing Dr. Hodgetts has received the nomination of the Board of Control for Medical Health Officer of Toronto. He has respectfully declined the honor. Owing to the annoyances and sometimes unfair criticisms showered by ignorant, meddling aldermen on such officials at the City Hall, we question whether the Board of Control may not have their troubles in securing a scientific man for this important position who will subject himself to the treatment of men, the majority of whom occupy their seats as aldermen solely for the publicity they receive.

W. A. Y.

	<h2>Editorial Notes</h2>	
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### An Amendment to the Ontario Health Act

An important amendment to the Ontario Health Act was passed during the last session of the Legislature. It sets forth, that, where a local board of health is not established or where it has refused or neglected to act with sufficient promptness and efficiency, or to obey any order of the Provincial Board of Health, the Minister having charge of the Provincial Board of Health may direct the chief health officer of the Province to carry out the work at the expense of the municipality.

### Antirabic Virus

A. M. Stimson, Washington, D.C., describes the mode of preparing antirabic virus after the Pasteur method, and of employing it in the prevention of hydrophobia. The spinal cord of a hydrophobic rabbit is dried for a time over caustic potash, at a temperature of 23 C., which causes it gradually to lose its virulence. Persons who have been bitten by rabid animals are first inoculated with a spinal cord which has lost its virulence and on successive days with virus from cords, which have greater and greater potency. The antirabic virus consists, therefore, of the spinal cord of a rabbit plus the micro-organism of rabies and its products, artificially modified as to its pathogenic properties. It is administered subcutaneously in emulsion and the immunity induced is of the active type, the patient producing in his own body the antirabic bodies, which are demonstrable in the blood. The antirabic virus can be preserved in an active condition for at least three weeks, if placed in neutral glycerine, or if mixed with antiseptics, and can thus be despatched from the laboratory where it is prepared to other places where it may be needed. The treatment is preventive and has no influence after rabies has

developed. It fails in cases in which the period of incubation is too short, or in rare cases in which the patient seems unable to develop the antirabies. The treatment usually takes three weeks, daily injections of the virus being given. The virus which is used at the Toronto department for administering the Pasteur treatment is supplied daily from the laboratory of the New York City Board of Health, which is under the direction of Dr. Park.

### **Scientific Treatment of Tramps**

Public opinion holds that idlers and vagrants are simply vicious, lazy persons, who need punishment. That tramps, drunkards and idlers do receive punishment and do endure much misery and privation, as the outcome of their indiscreet conduct or lack of purposive industry, are facts which pass unnoticed, or are thrust aside, when forming this opinion—the underlying idea in the public mind being that these human wrecks are able to work for their living and should be obliged to labor.

An opposite opinion has grown up in Denmark, where an effort—humane and scientific in its range—has been made to solve the tramp question. There the beggar or tramp is arrested and taken to a settlement or a farm colony, where he becomes a patient. He is carefully studied, properly treated and given only such work as he is able to do. A large percentage of these men recover and are released, after positions have been found for them. Some prefer to remain, and their earnings accumulate. The incurables are obliged to remain. The underlying idea at the basis of the action taken in Denmark, in regard to chronic tramps and beggars, is that they are sick men, some of them suffering from chronic starvation and others from neurasthenia. For these reasons they are idlers, and not from choice. The Danish way of looking at the tramp and beggar question deserves imitation in Canada. Why should we not make an effort to restore some of these outcasts to usefulness? The incurables among them can remain on a farm colony.

### The Use of Medicines in Practice

Li quashing the Police Court conviction against Robert B. Henderson, an osteopathist, for practising medicine without being registered, His Honor, Judge Morson, is reported to have said, March 23, 1910, that osteopathic treatment is not a violation of the Ontario Medical Act. He remarked further that "There appears to be no case holding that medicine can be practised without the use of medicines. There was no medicine administered in this case, and, if the Ontario Medical Council desire the meaning of the word 'Medicine' extended to cover the present or like cases, they must apply to the Legislature."

Judge Morson's interpretation of the practice of medicine would reduce the field of medical education to small dimensions. Of what use would it be for students to attend lectures in Physics? Why should they receive instruction in electricity as applied to medicine, if, when launched on their careers, the only logical outcome of their legal field of practice would be the ability to write a prescription or compound a mixture?

If the administration of medicines is the sine qua non of medical practice here, the expenses, public and private, of medical education are excessive, the course of study too varied in its features, the preliminary training of students too severe.

Besides, other factors than drugs enter into the therapeutics of disease. So much so, indeed, that, even in the management of purely medical cases, drugs may be of merely minor importance. In cardio-vascular diseases, the four cardinal factors in successful treatment, other than drugs, are *rest, massage, hydrotherapy and diet*, says Dr. H. A. Hare, in the *Therapeutic Gazette*. Now, applying Judge Morson's ruling to a hypothetical case of heart disease, an osteopathist, who would limit his treatment to the above-mentioned cardinal factors, but would avoid prescribing digitalis to regulate disordered heart action or mercurial purges to relieve gastro-intestinal catarrh, would not be

violating Section 49 of the Ontario Medical Act. Would not cases arise in the practice of an osteopathist in which life would be placed in jeopardy, just because he must protect himself against a prosecution for illegally administering medicines? Should an osteopathist be allowed to practice for his own benefit only, or are the interests of the patient paramount? So much for the educational and humanitarian views as to osteopathy. Now what is osteopathy anyway? *Dorland's Illustrated Medical Dictionary*, Fifth Edition, 1909, defines it to be: "A system of *Medicine* in which diseases are treated by manipulating the bones and by other manual applications, intended to restore the deranged mechanism of the body." Then an osteopathist does practice *medicine* in the sense indicated in Dorland's definition, although he does not use drugs. If not registered he violates the Ontario Medical Act:

"In practising, professing to practice or advertising to give advice on Medicine, Surgery, or Midwifery, provided always that such act is done for pure gain or hope of reward." (Section 49, Ontario Medical Act.) An amendment of this section of the Ontario Medical Act seems superfluous.

### Chlorine Gas to Purify Toronto Water

Pending the filtration of the Toronto water supply, an effort is being made to purify it with chlorinated lime. The daily water supply of Toronto is 35,000,000 imperial gallons, and about 150 pounds of chlorinated lime are introduced each day into the water supply which reaches the pumping station through the water tunnel. This experiment has been in operation here since March 21st, 1910.

It is said by sanitary authorities that a water supply thus treated possesses no disagreeable taste, and that its hardness is not appreciably increased. Moritz Traube (*Zeitschrift für Hygiene und Infektionskrankheiten* XVI., p. 149,) gives a simple method of purification by means of chlorinated lime, which, add-

ed to the extent of less than half a gramme to a hundred litres of water, kills all bacteria within two hours. The excess of the agent is neutralized by the addition of somewhat less than half the amount of sulphite of sodium, which, added somewhat in excess, does not harm, since it is soon oxidized. The efficient agent in Traube's method of water purification is chlorine gas liberated by the interaction of chlorinated lime and sulphite of sodium.

The "Woolf" method consists in adding a 2 or 3 per cent. solution of common salt to the water, which is then decomposed by a current of electricity of sufficient strength. The sodium compound is pronounced to be more efficient than the chlorinated lime, for the whole of its available chlorine is almost immediately diffused through the water and acts at once. After purification the chlorine is neutralized by means of sodium sulphite (140 of sulphite to 40 of chlorine), and the water is then practically unaltered in appearance, taste, smell and hardness, but only when the amounts of the compounds have been carefully determined. Experiments of this nature are doubtless interesting in the laboratory, and they may prove to be of service in preventing disease here, until the water filters are in working order.

J. J. C.

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### PERSONALS

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At the regular meeting of the Section of Medicine of The Academy of Medicine, held on April 12th, Dr. John Ferguson was elected Chairman by acclamation.

Dr. N. A. Powell was confined to bed for ten days last month suffering from what threatened to be mastoid trouble. He, however, recovered nicely and took up his work again two weeks later.

Dr. W. H. B. Aikins intends moving to Bloor Street West this autumn, having purchased No. 134, the house occupied at present by Dr. F. A. Cleland. Dr. Aikins intends selling his property at No. 50 College Street.

The profession will regret to learn that Mrs. Thistle, wife of Dr. W. B. Thistle, 171 College Street, has been confined to the house for several months suffering from gastric ulcer. We are glad to know, however, that she is improving.

In the course of the next twelve months, it seems as if there will be a number of removals on the part of physicians on Carlton Street, on account of the recent sale of property along that street. Among those will be Dr. Price Brown, Dr. Murray McFarlane, Dr. Greene and Dr. Emory, all of whom, we understand, have sold their properties.

Dr. G. Reid Simpson, who for some years has resided at 82 College Street, practicing "Eye, Ear, Nose and Throat," died on April 8th. Dr. Simpson had been ill for several months and his death is very much regretted by the profession. His funeral took place to Mount Pleasant on Monday, April 11th, and was largely attended by his brother practitioners.

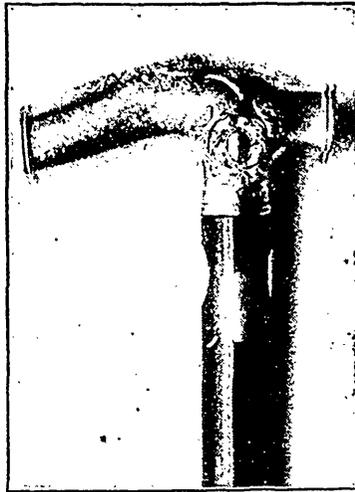
The work in connection with the erection of the New Toronto General Hospital was started on April 9th. A large number of teams were turned in by the contractors who have the contract for the excavation work and there is every prospect of the foundation work in connection with this immense structure being completed before the snow flies. The Hospital By-law passed we are glad to know, with hardly a dissenting voice.

	<b>Selected Articles</b>	
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ROMANCE OF A GOLD-HEADED CANE

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IN a quiet corner of the Royal College of Physicians, London, England, may be found, among other treasures, a gold-headed cane which bears a history worth knowing at any time, but of special interest to Canadians just now because of the recent



TORONTO GENERAL HOSPITAL GOLD-HEADED CANE.

Names of the holder of the cane each year will be engraved on the discs.

foundation in Toronto of a form of scholarship which has taken its rise from the fact of this celebrated cane's existence and its history.

For two centuries, at least, a gold-headed cane was considered an essential appendage of every fashionable physician. It had usually a hollow top in which was carried some aromatic drug, the inhaling of which was supposed to prevent contagion. This particular cane was carried for one hundred and thirty-six

years—from 1689 to 1823—by six famous London physicians in succession. Its first owner was Dr. Radcliffe, founder of the famous Radcliffe Library at Oxford. Before his death he bequeathed it to his friend the great bibliophile, Dr. Mead, from whom it passed to Anthony Askew, then to the Pitcairns, uncle and nephew, and last to Dr. Matthew Baillie, who died in 1823. His widow presented it to the Royal College of Physicians.

Three years later there was published anonymously a most interesting little volume, entitled "The Gold-headed Cane," written in the form of an autobiography, in which the cane discourses entertainingly of its various "masters," giving graphic and amusing sketches of the physicians themselves, their high-born patients, and the social and medical conditions of their times.

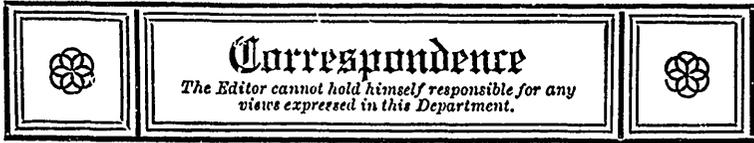
"The Gold-headed Cane" was first published in 1827. A second edition was issued in 1828, and a third edition nearly sixty years afterwards, in 1884. Copies of the latest edition are already difficult to obtain, while the earlier editions are extremely rare. One of the most valuable possessions destroyed in the Hanlan Hotel fire in August last—certainly the one most regretted by its owner—was a shabby little volume with quaint wood cuts of the cane and its masters and faded type, a second edition, and probably the only one in Canada. Although the author of the book was himself a physician, and a contemporary of the last owner of the cane, he permits it to relate its adventures in a gossipy and discursive fashion that is vastly entertaining. Radcliffe, the cane's first master, was physician to William of Orange, whom he treated for dropsy, and to Queen Mary, who died of smallpox. He offended Queen Anne by bluntly telling her she had "the vapors." Altogether he seems to have treated his Royal patients rather brusquely.

The Cane sketches Radcliffe's personal appearance, quotes his caustic speech, and gives glimpses of his private life which form a vivid picture of the times and manners of that day. The wise and generous disposition of his great fortune by establishing several Oxford foundations still makes the blunt old physician of two and a quarter centuries ago a present-day benefactor. Of Drs. Mead and Askew, the scholars and great bibliophiles, the Cane gossips at length; of the Pitcairns and of its last owner, the great Dr. Baillie, physician to George III., and of its final disposi-

tion in the Royal College of Physicians, in the heart of the great city where its successive owners walked and practised.

In the autumn of last year the owner of the burnt volume, a Toronto physician, conceived the idea of procuring a duplicate of the famous cane for winners of Canadian medical honors. Mr. P. C. Larkin, Vice-President of the Board of Trustees of the Toronto General Hospital, at once offered to donate the cane, which, it was decided, should be carried for a year by that member of the ex-house staff association of the hospital who made the most important contribution to medical science during the preceding year. Application was made to the Royal College of Physicians in London for permission to obtain an exact replica of the original cane. That august body, after much deliberation, sent a courteously-worded refusal. It was, however, decided to carry out the idea, and a gold-headed cane, copied from the cut in the book which was afterwards burned, was ordered in London. This reached Toronto during Easter week and was presented to Dr. Thomas Cullen, of Baltimore, at the annual banquet of the ex-house surgeons on Easter Monday. In the absence of Mr. Larkin the presentation was made by Mr. J. W. Flavelle, Chairman of the Board of Trustees.

In artistic workmanship and beauty the cane is without a peer in Canada. A further generosity on the part of the donor is a permanent gift of a duplicate silver-headed cane to the man who carries the T. G. H. gold-headed cane for one year. To have carried the cane will mean, first, that the physician has been one of that large group of medical men who have been in training and residence at the Toronto General Hospital; and, second, that he has in after days contributed something worth while to the scientific advancement of his profession.—*Faith Fenton Brown, Globe, Toronto.*



Toronto, April 12, 1910.

Dr. W. A. Young, *Managing Editor* THE CANADIAN JOURNAL OF  
MEDICINE AND SURGERY:

DEAR SIR,—Will you kindly allow me to add a few details and corrections to your editorial in the April number of the Journal. In your letter of February 15th to me, you made no request "for permission to verify certain statements that had been made regarding the Council's expenditures." You simply asked that I instruct the Treasurer to give you access to the books of the College, and gave no reason whatsoever for your request. However, this is a small matter, as my answer would have been the same for the same reasons.

You ask, "Are they" (and I suppose you mean the President and Treasurer) "afraid of any disclosures that might be made?" and I can answer that by saying *They are not!* The books of the College are in charge of a bonded official and are all audited yearly. The Council appoints a Financial Committee, which has the supervision of all fiscal concerns of the College, and this committee consults with the Treasurer and examines all the details of all his books, vouchers, etc., and then reports to the Council during the Sessions. This is the procedure of all parliaments in the Empire, and our Council meetings would last a month if each of the thirty odd members were forced to verify all details of the financial and other matters that come before the Council.

On page 221, April Journal, you state that members of the Council drew certain sums during the years 1906-09, and in every case your figures are not correct. I will leave it to you to find out where you are wrong, but among other matters I will call your attention to the fact that the stenographer is not a member of the Council. This is, perhaps, only a detail, but it shows the inaccuracy of your article and your figures. What would happen to our books and records if four thousand such

statisticians had access to our books? We would probably have four thousand different statements.

Further, you make no mention of any probable cause for the increase of the expenses of the Council. You do not mention the fact of the two special sessions, one, called in the Fall, '08, to revise and bring up-to-date the curriculum. This had not been systematically done for many years, and after the Special Committee had considered and arranged the details of the matter and spent many days' hard work on the subject, it took the Council three (3) days' hard and constant work to accomplish it. With a few minor changes, the present curriculum will stand for many years. Without the Special Committee's work, and, if the matter had been brought up at the regular meeting, that meeting would have lasted two weeks.

The other special meeting, held in the Fall, '09, was called to consider the Roddick Bill, and the opinion of the majority of the College demanded that the meeting be called. Our Council then approved of the Bill as presented; but, unfortunately, nothing further has been accomplished owing to objections against it on the part of Quebec and British Columbia.

Now, as to the supplying of a detailed statement of the financial dealings of the Council every year to each member of the College. This would be a matter of great expense, printing, postage, etc., and no good would result. How many doctors would try to wade through a mass of figures, covering many pages? As I said in my letter of February 16th, so I now repeat. Any member of the Council may call for any details during the Council session, and these details will be forthcoming. This has always been the policy and custom of the Council.

The expenses of the Council could be greatly reduced if all the members lived near Toronto, but the majority live long distances away, and large sums must be paid for mileage and for the time spent in travelling, and I think the members of the College are quite willing to pay for the privilege of having their representatives live within their own constituencies. The work of the officials increases every year, and the expenses grow with the growth in membership of the College. Our next year's statement will show that we have \$25,000.00 of Ontario Government bonds, and several thousand dollars drawing interest in the bank; besides which our property has greatly increased in value since

it was acquired. All these things show that the Council has always been alive to the best interests of the College, and that it has always been the desire of the Council to keep the expenses as low as possible, consistent with satisfactory service to the students and the profession at large.

I am, Sir,

Yours very truly,

E. A. P. HARDY.

621 Spadina Avenue, Toronto.

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### THE 1910 MEETING OF THE BRITISH MEDICAL ASSOCIATION

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#### Colonial Reception Committee.

SIR,—The Colonial Reception Committee is particularly desirous of bringing the Annual Meeting, to be held in London in July next, to the notice of all medical practitioners residing in the Dominions beyond the seas, as affording them an unusual opportunity of visiting London both for the scientific purposes of the meeting and also for social intercourse with their fellow practitioners throughout the Empire.

The Colonial Reception Committee, in conjunction with the Colonial Committee of the Central Council, desires, through the medium of this journal, to extend a very cordial invitation personally to all medical practitioners in the colonies, and assures them of a hearty welcome to the Annual Meeting and to the capital of the empire.

Great efforts are being made by these two committees to arrange such entertainments as it is hoped will meet with the approval of their colonial brethren and so add to the success of the meeting of 1910. We are, etc.,

EDMUND OWEN, Chairman.

DONALD ARMOUR, Honorary Secretary.

Of the Colonial Reception Committee.

429, Strand, W. C. Jan. 3rd.

WHO HAS TREATED PROGRESSIVE MUSCULAR  
ATROPHY SUCCESSFULLY ?

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*To the Medical Profession:*

A gentleman of means has a member of his family afflicted with Progressive Muscular Atrophy, the diagnosis having been with certainty established after consultation with some of the highest neurological authorities of New York City and various cities of Europe.

These physicians are unanimously of the opinion that the case is incurable, inasmuch as up to the present there has been published no form of treatment or medication which is known to have positively cured or arrested the inroads of this malady.

This gentleman wishes to spare no effort to bring relief. He believes that perhaps, somewhere, some physician may have successfully hit upon some method of curing a case of Progressive Muscular Atrophy, but, who through his inability to corroborate his results, owing to rarity of cases or through modesty, or for fear of being discredited, has failed to publish his case. This gentleman's idea is to try and bring this record to the surface by making an appeal to the profession through this journal.

The case itself presents the characteristic picture and is typical of Progressive Muscular Atrophy in every particular. The patient is fifty years old, married, in excellent general health. About one and one-half years ago the disease made its appearance in the left hand, progressed, and within a few months involved the right hand. Its progress since has been very slow. The family of this patient wishes to announce that any physician who supplies a complete history and detailed description of the method of treatment of any case of Progressive Muscular Atrophy he may have successfully treated, the trial of which leads to the cure or arrest of the disease in their relative, will be rewarded by a liberal cash prize.

Requests for further particulars and replies should be addressed to "Enquirer," care of this journal.



## OPENING OF THE NEW TUBERCULOSIS SANITORIUM AT LONDON, ONTARIO

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On April 5th the Governor-General opened the splendid Sanatorium for the treatment of Pulmonary Tuberculosis, built by the London Health Association and situated at Byron on a high bluff overlooking the River Thames, just outside the city of London. The Hon. Adam Beck, Chairman of the London Health Association and prime mover in the whole scheme for the organized fight against the White Plague in this district, introduced His Excellency, and told the story of the organization and building of the institution. He said in part: "The city of London, your Excellencies, is favored in having institutions that have done much in the past to relieve the suffering of the sick. We have two hospitals that would do credit to cities of much larger population. We have ample provision for the aged, the incurable, homeless children, and for the imbecile. There were two ways for us to establish an institution for tuberculosis, which we have in this western district unfortunately done little to relieve. One was a municipal hospital with government aid, the other a charitable organization with municipal and government aid. We have adopted the latter plan, feeling that in giving our citizens the opportunity of giving to and helping an institution of this kind we were developing the charitable qualities of our people. We have, your Excellencies, an institution here that will take care, not only of the incipient cases, but of acute cases, for we have an infirmary. Then we have that ministering angel, the visiting nurse, who will investigate and aid cases in the city, the workshops and the public schools. We were wondering some time ago where the money was coming from, but now we have no fear. It will come from the hearts of our people. We are very fortunate, your Excellencies, in not having to depend on large contributions. It is not the work of a dozen men and women, but the work of the citizens of London and the women of London."

Earl Grey's address, which showed a warm interest in the

anti-tuberculosis movement in Canada, and an intimate knowledge of what that movement was accomplishing, was in part as follows: "I have listened with great pride and pleasure to Hon. Mr. Beck's speech. The statements he has made are most encouraging. The movement against the white plague, which has found its expression in this hospital, has proceeded from the hearts of the community, and I feel that you are all as one in your efforts to mitigate the sufferings of those who are victims of one of the greatest curses afflicting the people of Canada. Tuberculosis, like the mosquito, finds its existence in dark, damp, unventilated places, and tuberculosis can be abolished just as effectually as the mosquito. I would only remind you that in the communities where the people are organized in their efforts to fight the white plague they have succeeded in reducing the rate of mortality by one-half." Earl Grey also made some very complimentary remarks upon the excellent work done by Mrs Crerar in Hamilton.

The Hon. Mr. Hanna made an excellent address, explaining the position of the government and what they were doing to aid in the fight against tuberculosis.

The whole comprehensive scheme of the London Health Association is briefly this:

(1) Compulsory notification and registration of all cases of tuberculosis.

(2) Inspection and disinfection of all infected premises.

(3) A visiting nurse and municipal aid to the needy.

(4) A sanatorium at Byron for incipient cases, with a farm to employ the convalescents.

(5) A large ward in the Victoria General Hospital for advanced and acute cases.

The sanatorium at Byron consists of an administration building, an infirmary and four open-air cottages, affording accommodation for about forty patients. Besides these there are a laundry, a recreation building and a doctor's cottage. In many ways the institution is a model of its kind. The directors have spared neither money nor time providing a thoroughly modern plant with every comfort and convenience for the patients. The infirmary, with accommodation for eighteen patients, is connected by a covered passageway with the main building and steam heated from a central heating plant. It has wide north

and south verandahs, which may be converted into closed sun parlors by means of glass doors. The beds are on rubber tired wheels and can be moved in and out very easily. The cottages are private and public. They are all provided with wide and well protected verandahs, and each cottage has electric light, bath and shower. Every patient is provided with a reclining chair of the latest model, and a sleeping bag.

E. A. McCulloch, B.A., M.B., formerly of Toronto and late of Trudeau, Saranac Lake, has charge of the sanitarium and city dispensary.

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### CANADIAN MEDICAL ASSOCIATION

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FOR the 43rd annual meeting of the Canadian Medical Association in Toronto, on the 1st, 2nd, 3rd and 4th of June, transportation arrangements are in force on the Standard Certificate Plan, with the exception of British Columbia, where the regular summer tourist rate will prevail. All intending delegates should consult with their ticket agents when purchasing first-class transportation to Toronto, as to rates, dates of sale of tickets, and time limits and routes. For these purposes the Association and the Canadian Dental Association are coupled; and fare will be single for going and returning if three hundred are present at the two conventions holding Standard Convention Certificates, between Halifax and other Eastern points and Laggan and Coleman, B.C. The first general session will be held on the afternoon of the first day, when the President-elect, Dr. Adam H. Wright, Toronto, will be installed in office and the opening ceremonies will take place. Following this there will be the report of the Milk Commission by the Chairman thereof, Dr. Chas. J. Hastings, Toronto, and addresses by Dr. Evans, of Chicago; Dr. North, of New York, and others. On the evening of the first day, Dr. Herringham, London, England, will deliver the address in Medicine, which will be followed by the discussion on Dominion Registration. The sections which have exceptional programmes will meet in the forenoons. On the afternoon of the second day (Thursday) there will be an excursion to Niagara Falls and a dinner at the Clifton House. The address

in surgery will be delivered Friday afternoon by Dr. Murphy, of Chicago, followed by a symposium on exophthalmic goitre, and at 5.30 p.m. the annual meeting of the Canadian Medical Protective Association will take place. Friday evening the address in Obstetrics, by Dr. Henry Coe, of New York, followed by a symposium on the psycho-neuroses. A general session will be held Saturday forenoon, and about eleven an excursion will be taken to Guelph to visit the Ontario Government institution in the Royal City.

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### THE CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

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THE year 1909 will be marked in the calendar as a red letter year in the history of the crusade against consumption. The movement received a great impulse from the congress of distinguished physicians which was held in Washington, U.S. in the autumn of 1908 to consider the further measures to be taken to stamp out this dreadful enemy to the life and happiness of mankind.

Canada in common with the rest of North America, perhaps we should say the whole civilized world, has participated in the renewed and increased activity which resulted from the deliberations of the congress.

Never since the organization of the Canadian Association for the Prevention of Tuberculosis has there been such activity displayed in Canada in this fight for life. Older branch associations have been reinvigorated, new associations have been formed which are showing in many cases a vigorous activity. Several new institutions for the relief and treatment of consumptives have been opened and the demand for our literature has been larger than ever. Take it all in all 1909 was a year of great progress in the work of the Association.

The Tenth Annual Meeting will be held in Montreal on the 7th of June next and preparations are being made to make this one of the best, if not the best meeting in the history of the Association.

**PRESENTATION TO THE ACADEMY OF MEDICINE**

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Mr. John Ross Robertson, with his usual liberality, recently presented to The Academy of Medicine a splendid picture of the late Dr. C. J. Philbrick. The picture bears the following inscription: "Cornelius James Philbrick, born at Colechester, Eng., May, 1816, came to Toronto about 1851, was Professor of Surgery at Trinity College. He was an old resident of Yorkville. Died December 2nd, 1885." The thanks of The Academy are certainly due to Mr. Robertson for this further manifestation of his good will.

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THE Canadian Medical Exchange, Janes Building, this city, conducted by Dr. Hamill, Medical Broker, wishes us to announce that he has from ten to twenty rural villages without a doctor, where the people have asked him to send them one. From the amount of territory without opposition, a practice of from two to three thousand a year could certainly be expected. He will be pleased to pilot any physician who is looking for a location to these places. This is also a good time of the year for physicians who desire to sell their practices to list them with him, as he has a number of bona-fide buyers registered.



## BOOK REVIEWS

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*Diagnostic Therapeutics.* A Guide for Practitioners in Diagnosis by Aid of Drugs and Methods other than Drug-Giving. By ALBERT ABRAMS, A.M., M.D. (Heidelberg). Consulting Physician to the Mount Zion Hospital and the French Hospital, San Francisco; formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College (Medical Department of Leland Stanford Junior University), San Francisco. *Naturam Morborum Curationes Ostendunt.* With one hundred and ninety-eight illustrations. New York: Rebus Company, 1123 Broadway.

This work is perhaps one of the most interesting that has reached us in quite a time. As the author says in his preface, "This is neither a work on Therapeutics nor on Diagnosis, but an attempt has been made to conciliate both subjects with a special object in view." The volume is "A guide for Practitioners in Diagnosis by aid of drugs and methods other than drug-giving." The book covers in all over one thousand pages, and contains 198 illustrations. It is divided into six chapters as follows: "Diagnosis and Treatment," "The Interfering Action of Drugs in Diagnosis," "Diagnostic Pharmacotherapy," "Methods other than Drug-Giving in the Diagnosis of Disease," "Etiologic-Diagnostic-Therapeutics," and "The Diagnosis of Visceral Sufficiency."

The author shows himself to be "neither a therapeutic optimist nor a pessimist, and believes that more accurate clinical observations by means of objective signs would more surely establish a rational system of therapeutics." The author goes on to state that, in the presence of a sick man, there are two questions to be answered, as Sir William Jenner said: What is the matter with him? and What will do him good?

Perhaps one of the most interesting chapters in the entire

volume is that dealing with "The Interfering Action of Drugs in Diagnosis" and "Drugs in Etiology of Disease."

The book can be thoroughly commended to medical practitioners, as it is full of information that must prove of most practical benefit to every day practitioners.

W. A. Y.

*Handbook of Diseases of the Ear.* For the use of Students and Practitioners. By RICHARD LAKE, F.R.C.S. Eng., Surgeon, Diseases of Ear, etc., London School of Clinical Medicine; Surgeon Royal Hospital. With four colored plates and 66 original illustrations. London: Bailliere, Tindall and Cox, 8 Henrietta St., Covent Garden. This book can be procured from the Canada Law Book Company, 32-4 Toronto St., Toronto, at 40 per cent. discount.

This well known book of Lake's has now reached the third edition. It comprises 250 pages of matter dealing exclusively with the ear. There are 66 well chosen illustrations. The book is very easy to read and one that is sure to be appreciated by students and practitioners, for whom it is especially written.

P. G. G.

RECENT MEDICAL BOOKS.—Messrs. Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Garden, London, publish in this issue a most interesting announcement regarding some of their recent medical works. This firm has for many years been publishing medical books, and held a reputation second to none for getting out works whose authors are of the highest reputation. Some of the books recently published by this firm include Jellett's "Manual of Midwifery," Munro Kerr's "Operative Midwifery," Politzer's "Diseases of the Ear," Walsh's "Rontgen Rays in Medical Work," Tredgold's "Mental Deficiency," Axenfeld's "Bacteriology of the Eye," Brand and Keith's "Clinical Memoranda."

The works published by Messrs. Bailliere, Tindall & Cox can be procured through any of the medical book houses in Canada, including Messrs. J. F. Hartz Company, Ingram & Bell, Limited, Vannevar & Co., and others.