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Original Communications

THE USE OF RADIUM IN THE TREATMENT OF CANCER AND OTHER DISEASES*

SELECTIVE ACTION OF RADIUM

DR. LOUIS WICKHAM, PARIS.

Médecin de Saint-Lazare; ancien chef de Clinique de la Faculté; Directeur des recherches en Pathologie externe au Laboratoire Biologique du Radium.

As a rule, when speaking to a general practitioner about radium as a means of curing diseases, I find that in his mind arise three ideas:

1. The idea of a burn.
2. The idea of an action only on the skin.
3. The idea of an action localized on a small area.

These opinions are right, but only to a very limited extent. Certainly radium can act on the surface as a caustic and on a small area, and in so doing radium is interesting, because the burning is produced without pain, the degree of destruction can be controlled, and the newly formed tissues are often, after a burn, smooth, supple, and with the exception of telangiectasis, sometimes very satisfactory.

I will explain further on how radium acts as a caustic, but this is not the only aim, the chief aim, of my lecture to-day. If the influence of radium ended there, it would not be worthy of the special consideration which must be given to it, because we possess a good number of other destructive agents.

I will endeavor to demonstrate, taking great care not to fall into exaggeration,

* Abstracted from a lecture-demonstration given before the Academy of Medicine, Toronto, Sept. 30, 1910.

1st. That radium can, by a special action which is called "Selective Action," influence favorably certain pathological tissues without burning them.

2nd. That radium can be used to act deeply on subcutaneous diseases and also on certain distant tumors, some of these even thought at first inaccessible.

3rd. That radium can be used for treating somewhat larger surfaces, and even can claim some action on the general system.

In conclusion, that radium in so doing shows itself as a useful weapon against several diseases, especially against cancer, and often helps surgery and X-rays by completing and prolonging their effects.

I wish first to dwell on: the *Selective Action of Radium*, as this action is most important and often overlooked. In fact, what raises radium to a higher level than the ordinary caustic is that even when a burn is produced, it can act in a selective manner far beyond the portion burnt, as a very subtle modifying agent, leading certain pathological cells to degeneration without injuring the surrounding ones. Furthermore, thanks to certain conditions of technic, the burning can be avoided, and the selective curative action alone employed.

This once said, we must bear in mind that this selective action cannot be produced in all kinds of pathological tissues, but especially on malignant tumors, such as epithelioma, sarcoma, lymphadenoma, mycosis fungoides, on enlarged tuberculous glands, on angiomatous and keloid tissues, on eczemas, and on the nerves to produce analgesia.

There follows an histological study made with Doctors Degrais and Gaud which will not only show the selective power of radium on cancer cells, but also at what depth in certain cases of cancer this selective quality may act upon the cells.

You see on this slide the breast of a patient. On the right there is an enormous cancerous infiltration. On palpation this breast presented a hard and somewhat homogeneous mass, which measured $6\frac{1}{4}$ inches transversely. In a single part which I here show you I gathered and placed 19 centigrammes of pure sulphate of radium, that is to say, 190 milligrammes, contained in four flat varnished apparatus superposed, the first one applied naked without any screen on the skin. These 19 centigrammes were left in place for 48 consecutive hours.

A charged electroscope which was presented on the opposite side of the breast was discharged in 8 to 9 seconds, and in like manner a screen of platino-cyanide of barium was illuminated.

These experiments clearly showed that the very penetrating rays had traversed the $6\frac{1}{2}$ inches of tissues.

However, it does not follow that because the rays traverse an organic tissue of such thickness they must necessarily act therapeutically on all their way through these tissues; in fact, we will see that a therapeutical action is only in proportion to the amount of rays which reaches a special spot; and it must be understood also that each layer of cells cuts off a certain number of rays, so that the deepest layers receive but a very small amount of rays.

As the patient underwent an operation for the removal of the breast on the sixteenth day after the 48 hours application was completed, we were enabled to make a histological examination of the tumor, in order, to ascertain what changes had taken place in the cells, and at what depth these changes were observed.

This photograph was taken just before the operation. Observe the difference in the size of the breast, which has diminished in size during the sixteen days so that it now measures only $5\frac{1}{2}$ inches in diameter. Instead of one hard, homogeneous mass, distinct hard nodules could be felt.

After the breast was removed we cut it through the middle in the same direction as the rays traversed it. Here is the photograph of this section.

The arrow shows you the direction of the rays. The apparatus had been placed at A and directed from A to B. You can see a large burn on the surface, and farther, you at once observe a very decided difference in appearance of the cancerous tissues which lay directly in the path of the rays and those which were beyond them.

The former are hard and smooth, somewhat sclerotic tissue; the latter are greyer and softer and have an encephaloidic character.

For the histological examination, sections were taken from a cancerous gland of the axilla, which had not been irradiated and from the breast tumor at different levels, namely $\frac{1}{2}$, $3\frac{1}{2}$ and $5\frac{1}{2}$ inches.

Here is a slide which shows with slight magnification both non-irradiated and irradiated tissues at the depth of half an inch. The nature of the cancer is an atypical lobulated epithelioma. You can see at the first glance, by comparison, that the amount of the connective tissue stroma has increased. This connective tissue penetrates into the epithelial lobes and separates them. It contains newly formed nuclei, which you will see more clearly in the more highly magnified section which I will now show you. The

connective tissue contains, as you see, young fibroblast and lymphocyte cells.

These changes are not the sign of an inflammatory condition, because the multinuclear leucocytes are wanting and because there are no nuclei of pus. Therefore, this tissue is a young embryonic, infiltrated tissue.

Besides these connective tissue changes, there can be seen changes in the cancer cells. These changes consist of a degeneration which bears at the same time both on the nucleus and on the protoplasm of the cell.

The nuclei are generally changed; in some cells they are enlarged; in others they are either multi-lobulated and proliferated or contracted; the chromatic filaments are changed, and many other changes can be observed, such as some pseudo-parasitic bodies and some corpuscles—acidophiles. At the end of this process of degeneration we find cells in cytolysis, with a nucleus in karyolysis, and this is the last expression of the liquefaction of the cell and its nucleus. In short, the radium rays bring about at the same time a cellular degeneration and an embryonic modification, and the modifications end in a stage where the cancerous tissues have been absorbed and have disappeared and are replaced by a fibrous tissue.

This transformation explains why, from a clinical point of view, the big malignant tumors, while disappearing under the influence of radium, leave in their place different little hard fibrous masses.

When possible these fibrous masses must be surgically extirpated, because very often they still contain cancer cells ready for recurrence. For the same reason, when these hard masses are obtained, it is wiser and more prudent to still treat them, for a long time keeping them under the influence of radium and watching them carefully. I will show you a practical case to illustrate this conclusion.

This is a model, made in September, 1908, which represents a case of lobulated epithelioma with proliferating nuclei, developed in the form of an enormous tumor on the left cheek. The tumor projected two inches above the normal level of the cheek and extended on a surface of 3 inches vertically and 4 inches transversely.

After treatment by radium, without any surgical operation, the tumor after five months was reduced to the level of the normal surrounding tissue. The base of the tumor, which at first was firmly and solidly fixed to the face, quite inoperable surgically, gradually became loosened. Through the apex of the tumor, where you see an ulceration, a large quantity of thickish white secretion resembling milk was gradually discharged, being

the result of the special radium reaction. A radium tube had been introduced inside the tumor through the ulcerated apex, and the exterior had been treated by the crossfire method, *i.e.*, by means of placing flat varnish apparatus opposite each other and circumventing the base. Thus an enormous quantity of radio-active energy was introduced, literally saturating the tumor.

The technique was conducted in such a manner as not to produce any irritation or burning of the surface. After the tumor was entirely reduced, there were left under the skin some hard, fibrous nodules. These nodules ought to have been surgically extirpated, for a year after they were the site of a recurrence that we are now fighting.

If we return to our breast case we see that in the last cancerous lobe, the one situated at the extremity, opposite to the apparatus, and six and a half inches distant from them, the histological modifications still exist, though very much less pronounced.

The demonstration given by this case, that radium in a given "radioactive strength" can act strongly at a depth of $3\frac{1}{2}$ inches and even farther, is most interesting and of practical importance, especially as some observers in Paris have limited the penetrative action of radium to about one inch.

Now I will show you a more precise and definite demonstration of the selective action of radium on cancer cells.

This is, on the same section, a glandular acinus and a little deeper a cancer nodule. The latter received fewer rays than the acini glands, as it was farther from the skin. Nevertheless the first have remained unchanged, whilst the second are undergoing degeneration.

The selective action of radium is thus clearly shown and explains why it is possible to transform deep subcutaneous as well as superficial cancers without causing any irritation of the skin.

How must we understand the transformation? Is it the expression of a real specific action of radium having a special character, special laws? It may be, and I think it is so. But we cannot up to the present say precisely whether this transformation is anything else but a degree of destruction, a more or less resistance of the tissues. In fact, if we increase the doses of rays we find that the changes involve not only the cancer cells but some of the surrounding normal cells; and if we continue to increase the doses we bring about an equal destruction of all the elements irradiated, so producing complete necrosis.

Nevertheless, it must be known that the different tissues which respond to selective action are more or less susceptible to

the rays. If we consider the different kinds of cancer we see that a small dose can transform a lymphosarcoma, where a larger dose is necessary for ordinary sarcomas, and doses still larger for the different kinds of epitheliomata. But experience shows many exceptions to what I am now stating; and I have met with epitheliomata easily transformed and ordinary sarcomas difficult to transform.

If we consider eczema we find that rebellious eczema to be transformed by radium by selective manner needs absorption in its elements of very small quantity of rays; keloids need a larger quantity of rays than eczema. In a case of flat angioma of the scalp a cure has been obtained without the slightest inflammation or burning of the surface; the epidermis was still there and undamaged. Nevertheless, the tissues under the epidermis were entirely changed; the big enlarged vessels had disappeared; so also the sebaceous glands. Evidently, it was a fibrous change which has taken place. All these transformations were due to selective action of radium.

We are now ready to look over the clinical part of the subject, and I will, before dwelling with the cases themselves, show in what consists the radioactive energy of radium, and how the instruments are constructed for therapeutical use, and how the rays can be dosed and utilized.

Radium is an element discovered in Paris by Professor and Me. Curie ten years ago, out of pitchblend (oxide of uranium), an element which has the property of emitting a gas named emanation and rays named Alpha, Beta, and Gamma. The gas emanation has no penetrating power; it does not go through substances, and any cover retains it; so it can only be utilized when radium's salts are free, for example, when in solutions. In that way radium may be therapeutically useful, and I have given the name of emaniferous methods to those which utilize the emanation; but I will leave this question to the end of my lecture.

The methods which are usually and commonly employed are the *radiferous methods*. The radium rays are of three different kinds—alpha, beta and gamma rays.

By interposing a screen, we change the quantity of the rays and produce at the same time a radiation composed of rays of weak number it is true, *but having a strong power of penetration*. This is the principle of the so-called filtration that I began using in March, 1905.

The filtration represents a distinct progress in radiumtherapy. Its chief advantages are the following:

1. By cutting out the weak penetrative rays it permits the

accumulation in the deep subcutaneous tissues of a certain quantity of rays without causing any irritation to the surface, provided that the duration of the application is not too long.

2. The filtration produces a gentle passage of the rays and their slow and progressive arrival in the tissues, which is important, in treating, for example, some irritable cancers.

3. The small quantity of rays emitted in the same time permits the night application, an apparatus being applied in the evening, taken off in the morning, without the slightest inconvenience for the skin, if the doses are well regulated, and without the slightest discomfort for the patient, and that is a very convenient and practical mode of treatment.

Of course it is understood that these advantages vary in proportion to the thickness of the filters used. You will perceive more clearly these different considerations, when I explain the different reactions which it is possible to obtain and the cases themselves.

* * * * *

Thanks to special technics which are very delicate and complex, the following reactions can be obtained:

1. A superficial necrosis of the tissues.
2. A deeper necrosis with selective action still deeper.
3. A superficial action by selective action without any burning.
4. A deeply produced selective action without any superficial burning.

These different kinds of reactions, it must be clearly understood, are not sharply defined but schematic, merging more or less one into the other.

Now arises a very interesting and important question: how can we manage to produce at our will such different reactions? The answer is: by the difference of the quantity and the quality of the rays absorbed by the tissues, these two factors being combined in different proportions.

That which regulates the *degree of intensity of destruction* of tissue, from selective action to complete necrosis, is the *quantity* of rays absorbed by the tissues *in a given time*.

That which regulates the *depth* at which the chief reaction is produced is the *quality* and nature of the rays, which, penetrating to a given depth, are there absorbed.

The absorption by the tissues of a large quantity of a predominate number of weakly penetrating rays would produce a necrosis at the surface.

The absorption by the tissues of a large quantity of hard

Beta and Gamma rays, "rayonnements surpenetrants," strong, penetrating rays, would produce a deeper necrosis.

The absorption of a smaller number of weak, penetrating rays would produce a superficial selective reaction without any burning.

Finally, the absorption of a small number of strong, penetrative rays, combined with the cutting off by filtration of the other rays, would produce a deep-seated selective reaction without any burning of the surface.

Let us now see how we must use the apparatus at our disposal in order to obtain these modifications, in order to obtain the combinations of quantity and quality, in order to obtain such and such quantity or such and such quality of rays.

The quantity of rays used is under the control of three different means:

1. The choice of the radio-active source, which can be more or less intense; the choice of a strong or weak apparatus; the choice of several apparatus applied in the same time, that is to say, the quantity of pure radium used, for treating a simple case.

2. The different duration of the application. A comparatively weak apparatus or a comparatively weak radiation, if left in place for a long time, say 100 hours, will cause the tissues to absorb an enormous quantity of rays. A comparatively powerful apparatus left a very short time in place, say one minute, will cause the tissue to absorb a rather comparatively feeble quantity of rays.

3. The filtration which cuts off a given quantity of rays. These factors all affect the quantity of rays absorbed.

Now, in regard to the quality of the rays absorbed, it can be modified only by filtration. Do you want the majority of the rays to be of very weak penetrative power? Then you choose apparatus made so that their case or their varnish is as thin as possible and apply them without screen. The linen apparatus having a very thin varnish gives passage to a great quantity of the rays.

Do you want the majority of the rays to be of greater penetrative power? Then you interpose light screens 1-100, 2-100, 5-100, etc., of aluminum.

Do you want the majority of the rays to be of super-penetrative power? Then you interpose screens which will allow none but these to pass; screens of 1mm. and 3mm. thickness of lead.

If we recapitulate all we have said, we see that, in short,

radiumtherapy has four factors to deal with, each of which can be varied *ad infinitum* and combined one with the other.

They are:

1. The radio-active source capable of infinite varieties of form and power.
2. The screens, which can be of any desired thickness and density.
3. The duration and method of the applications, also capable of infinite variations.
4. Lastly, the factor resulting from the nature and sensitiveness of the tissues treated and individual idiosyncrasies.

And you can easily understand how complex are these new methods of treatment, and how necessary it is to have a thorough knowledge as well as a wide experience, in order to obtain the maximum value and utility from the employment of a radium apparatus.

Now I come to the practical part of my lecture, in showing the cases themselves and explaining the methods and doses employed.

(Here a splendid series of photographs were shown and explained, indicating the results obtained in the treatment of angiomata, keloids and eezemas.—Ed.)

* * * * *

I have now arrived at the subject of cancer, and while developing further the question of selective action, will show in what different clinical ways the cancer tissue reacts under the influence of radium.

I will place them in different groups, speaking of superficial cancers but rapidly. I think that the more important work of radium is in the treatment of deep and grave cancers.

There is a first group for which some burning may be made.

The first slide represents a budding epithelioma at its four stages of regression. The treatment was made with an apparatus containing a 1-4 of pure bromide of radium and left in place 6 hours.

On this other case the budding epithelioma being much larger it was necessary to apply three hours more.

I am going to show you some small rodent ulcers, which can be very well treated by the varnish apparatus containing a 1-4 of pure radium applied without any screen from 1 to 3 hours.

These epitheliomata are, generally speaking, easy to treat and cure, and such as well by many other means; nevertheless in this group we meet with very resistant cases.

1. Those which present lymphangitic irritation on their periphery.

2. Those which are situated on bone, on cartilage, as the temples, forehead, nose, ear, and in general in all the regions which are not fleshy, and especially in thin persons.

3. Those which recur in cicatrices.

For all those cases a burn must be avoided; sometimes a light inflammatory reaction may be allowed. The treatment must be conducted with the view of obtaining the selective action of radium.

For the eyelids, radium is most specially useful, because not only are they difficult to treat, but radium can be of much service to them in those cases where X-rays can only be applied with difficulty.

We now come to the grave cases of cancers, and here we enter into the field of major surgery. I wish to lay stress upon this because I consider it the culminating point in the study of radium.

Here I should like at once to make some precise statements, which I should, in the natural order, give later on as my conclusions.

Firstly, the radium therapist in presence of one of these cases must never neglect to ask the advice of a surgeon: that is a question of the patient's security, because it is the best way of bringing back into a wise direction the present radium therapeutic movement and prevent it from going into exaggeration and into improper hands. Therefore, if the surgeon says he is sure of a cure in cases where the cancer is only beginning, he must operate at once. Very often it will be better to use radium first to diminish the virulence of the cancer, and then, after a lapse of a fortnight, the operation may be performed.

Radium can be employed on the scar after the surgical extirpation to make the result more secure.

Secondly, if the surgeon finds the case difficult to operate, or furthermore, if the case is inoperable, or finally, if the surgeon is obliged to produce a large deformity, then recourse to radium must be considered. Amongst the different aids to surgery radium in most cases must be recognized as its most useful auxiliary. There is then an association between surgery and radium, and by this association, as we will see, surgery extends its own activity. In short, radium opens the way to new and wider surgical fields.

Thirdly, if the knife cannot even reach the place where cancer lies, radium must also be considered.

I will extract from the number of cases I have treated those in which radium has been successful, and those which permit me to give some useful consideration.

I have said that if surgery considers a case inoperable or difficult to operate, it can then call in radium; and in so doing it in no way abandons its own position, but, on the contrary, strengthens it. The reason for this is very apparent.

To obtain the best results it is necessary to inundate the tumors entirely and at every stage with the greatest possible amount of rays. Surgery, then, can step in to offer to the rays less thickness of tissue to be traversed, in different ways, such as making perforation with a trocar in the tumor so as to introduce (as Dr. Abbe was the first to do) one, or better, several tubes of radium in the most useful places, enabling one or more tubes deeply embedded in the tissue to send their rays in a cross-firing manner.

These tubes must be of the greatest radio-active power possible; they should contain at least from 5 to 10 centigrammes of pure radium and their walls, forming the filter, must be as thin as possible, not more than 3-10 mm. of silver, so that a considerable quantity of rays may be put in action.

These tubes are left in place 24 or even 48 hours. During this time other apparatus may be applied on the cutaneous surface of the tumor, but now with thick filters to prevent any necrosis of the surface, and thus the cross-fire is made in every direction.

But there are other methods in which surgery and radium can work together. Surgery can perform a large incision to enable the placing of apparatus inside the wound, and it can also excise the maximum of the growth.

One patient, after the extirpation of a small cancer of the labio-gingival region, had a sub-maxillary metastasis, spreading rapidly in an acute manner in the neck to such an extent that it was judged inoperable and absolutely hopeless.

The histological type of the tumor was "Epitheliome-tubulo-lobulo-méta-atypique."

It developed rapidly and looked extremely malignant. My friend, Dr. Banzet, a noted surgeon in Paris, was asked to take away the maximum possible of the tumor in September, 1909. He cut it slice by slice and only stopped when near the large vessels and muscles of the neck. At that moment the entire base and circumference of the wound was still a mass of cancerous tissue. It seemed quite certain to Dr. Banzet that his surgical intervention was perfectly useless, perhaps even harmful, and that in a month, as he had said, the cancer would bud again.

During 48 hours I placed very large doses of radium inside

the wound without filter, and outside with thick filters. After three months the wound was almost cicatrised.

Other series of treatment were again given outside the wound, followed by periods of rest. What is the actual state of the patient now? In the place of his cancer is a hard, fibrous mass, which impedes the movements of the neck.

In such a case is it possible to speak of a cure? Unhappily, I do not think so, because in the middle of the fibrous tissue there must certainly be some epithelial lobes, seeds of a future recurrence, and for this reason I recommence treatment about every two months.

But, even if I cannot yet claim a cure, you will, however, certainly grant that radium in this case has played a very interesting and useful part; inasmuch as a *full year* after the beginning of radium treatment the man is still alive and in good condition.

It is not only in diminishing the thickness of the neoplastic tissues that surgery can render radium more useful, but also in creating artificial orifices so as to conduct radium on the growth or in profiting by the natural orifices; and, in both cases, surgical skill is necessary for conducting the radium apparatus to a good position, right on the cancers when they are otherwise out of our reach.

With Drs. Gaultier and Labey I decided the following technic for the treatment of a cancer of the pylorus in a patient who was in a very low state:

Dr. Labey performed an ordinary gastro-enterostomy, but instead of closing the artificial stomachic orifice, he arranged on the anterior wall of the stomach an orifice which permitted the passage of a probe containing a tube of radium. This probe was so curved as to allow the surgeon to place the tube of radium on the cancer of the pylorus.

At the same time I placed powerful apparatus with thick filter on the skin of the gastric region where the tumor could be felt, and thus produced the "cross-fire." The applications were repeated with special technic which I have no time to detail.

At the fifth month the stomachic orifice was permitted to close.

The operation took place in June, 1909, and to-day, 15 months after, the patient is apparently in good health. Of course I cannot in this case draw any conclusion in favor of radium, since gastro-enterostomy is known to sometimes greatly prolong the existence of the patient.

I have simply mentioned it to draw your attention to different

new operations that surgery may perform for utilizing the therapeutic force offered by radium.

I have treated cancer of the larynx by performing tracheotomy, and cancer of the intestines after colotomy.

Even for the introduction of the tubes by natural orifices the skill of the surgeon is needed.

Cancers of the œsophagus, of the rectum, benefit greatly by radium treatment, but on the express condition that the seat of the cancer be exactly located by œsophagoscopy or rectoscopy, so that, by these means, the radium tubes may be placed on the exact point.

I can speak of a case of cancer of the rectum which, treated in April, 1909, has regressed in such a manner that the patient, a year and a half after, is still in an apparently good state.

But I wish to lay stress on a particularly successful case: it concerns an English colleague. He had been attacked by cancer of the neck of the bladder; the diagnosis had been clearly made in England first, and was confirmed in France, each time with the cystoscope. The patient suffered considerably, had frequent mictions, lost blood, and a nodule was felt in the prostate.

I asked Dr. Pasteau, a distinguished urologist surgeon, to make the application. With great skill the place was marked by the urethroscope, and the apparatus placed every time in the right place without any breaking or irritation of the mucous membrane, and with a gentleness of hand indispensable in such a case. The treatment began in November last; little by little the pain diminished, then ceased; the other symptoms also weakened to their disappearance, and now our colleague is in excellent condition.

Is he definitively cured? It is very difficult to say or to foresee the future, but let us at least consider the present.

At the present moment our English colleague is a happy man, full of hope, once more enjoying life, and when he compares his present state, eleven months after, with what, without radium, he knows would be his state, it is impossible for him not to have for this therapeutical agent a great deal of gratitude.

There remains yet another most interesting use for radium in combination with surgery. This resides in the property of radium to cause decongestion of the tissues and modify the virulence of cancerous cells. And so in a difficult case, if radium be first applied, when the knife intervenes, it will encounter ground where the virulence will be greatly less.

But cancer is not the only ground on which we find such services rendered by radium to surgery in preparing the way for the bistoury by previous action.

Here is a case of an enormous angioma on which it was impossible to operate. All the tumors were full of blood and very fluctuating. By a long preliminary treatment we obtained the regression that you see here. It is considerable, but the important point is that the tissues still projecting are no longer so soft, full of blood, and dangerous to operate, but rather sclerotic.

Here is a case of keloid which was operated on three times, each time with recurrence of a larger tumor, and we therefore proposed the following technic: Radium action first on and around the tumor. Surgical extirpation, and then treatment of the cicatrix by radium. This technic seems to have succeeded, no further recurrence having appeared, although the operation was performed 18 months ago.

I will now go rapidly through desperate cases of cancer in which surgery felt more or less powerless, and where radium by itself without the help of surgery has been able to bring relief of some interest:

1. A cancerous mass of the sub-maxillary region, which has been reduced by radium, but the original cancer which existed in the tonsils and descended to the pharynx could not be destroyed, and so carried off the patient.

2. A case of a complete and durable regression of a lymphosarcoma of the cervical region; the tumor was very projecting, but although the result is really striking the term cure is quite incorrect, since, later on, metastasis developed in the mediastinum, to which the patient finally succumbed.

3. An adenopathy, which was sent to us as a case of Hodgkin's disease. The treatment rapidly caused the entire disappearance of the morbid mass. Unhappily, the patient is at this moment very ill in his general health and in danger of death.

Radium seems to have played in some of these cases a useful part, since it decidedly prolonged the life of the patient.

4. A case which profited very well from radium: It is a myxo-sarcoma of the shoulder, which was largely operated upon several times. After each operation there was a rapid and more extensive recurrence, which finally became so considerable that an operation was scarcely possible. The surgeon asked us to treat it with radium. The place has been well cleared of the malignant tumor, and it has remained in a healthy state during a year. Lately a recurrence has appeared in the anterior wall of the armpit, but it has equally and entirely regressed under the influence of radium.

5. A case of recurrence of cancer of the breast which disappeared under radium and the patient keeps in a good state. Indeed on the breast radium has clearly a favorable action, as it is easy to treat and to inundate with rays; and in those cases

which are quite operable and not too advanced, but where the patients have refused surgical extirpation we have obtained very fine and lasting results.

It is only in case of a formal refusal of surgical help that we have used radium.

One of our cases which was inoperable, the patient being 78 years of age, was treated for the first time in November, 1907, nearly three years ago; it regressed and still maintains its good appearance, thanks to the series of applications given at long intervals.

In one case where the patient has peremptorily refused the extirpation of her breast, I proposed the following combination: surgical extirpation of the entire lymphatic mass and the sub-pectoral and axillary glands, treatment by very intense radio-activity at the point of the section by knife of the lymphatic vessels close to the breast, treatment of the breast itself by cross-fire by applying to the surface several powerful apparatus with filters, and, if possible, the introduction by perforation of a tube into the heart of the tumor. Finally, action of X-rays on the larger operated surface. This again exemplifies how surgery can establish new technics.

In uterine disease radium is of great use. I must say that no other auxiliary to surgery may be offered better than radium. These small, powerful tubes can easily enter into uterine tumors, and in many cases we have had relief, stoppage of blood, of secretions, and, in fact, produced great help. In combining in cross-fire the inside treatment with the outside application of apparatus of the abdomen we have obtained in some cases excellent results.

It must be known that if some cases, like cases of giant-celled sarcoma, respond admirably to the curative influence of radium, there are some others which up to now do not respond so well to radium; the mouth, for example, is a difficult region to treat, either because our technics are yet insufficient or because the region prevents application of sufficient length, the reverses are numerous. Thus for the mouth, more than for any other part, surgery must intervene first.

It is true that there are cases of cancer of the mouth where radium has succeeded; one on the hard palate, regressed more than a year ago, and still retains its good condition.

I come now to another side of the question—the emaniferous methods of which I have already given some hints.

As a certain amount of radium is consumed in utilizing the gas emanation, of course only a small quantity can be practically

employed. But this drawback is counterbalanced by two conditions, firstly, the radio-activity produced by induction and inference. The radio-active inference is due to a quality of the gas emanation which renders radio-active all the tissues that are affected by it, and make them act as radio-active substances themselves.

Secondly, the fact that the emanation can cover and affect very large grounds and surfaces.

The radium salts can be put in solution either by employing the soluble salts, bromide of radium, for example, or by employing the insoluble salts, sulphate of radium.

These solutions have been perfectly closed by Mr. Jaboin, chemist, of the Radium Laboratory of Paris, since 1905—they can be injected in the tissues—they can be incorporated into pharmaceutical substances, as quinine, etc., and be ingested by the mouth. They can be included in muds called radiferous muds, or spread on large towels. These muds and towels can wrap and cover the whole of a member, the abdomen, or the entire body. They can also be prepared as artificial mineral radiferous waters, and baths can be given.

If these therapeutic processes had remained in the realms of pure speculation, I should certainly not have spoken of them; but they have been put into practice.

It has been demonstrated that an insoluble injection introduced into a tumor produces a permanent radio-activity in the tumor. I have used with success a paraffine vaseline substance containing radium to spread it under a rebellious cancer nodule of the breast, and in applying at the same time an apparatus outside I performed a cross-fire, which reduced the nodule. In many cases I have supplemented the external treatment of cancer by injections of radium inside the tumor.

For treating gonorrhœic arthritis, injections of insoluble radium have shown themselves very efficacious. Injected in the general system in cases of leukæmia, the red corpuscles of the blood have been found increased in number.

I will not insist upon this side of the question as it is a new one, but without any doubt it shows a great future.

In conclusion, I shall feel happy if I have succeeded in demonstrating, without undue exaggeration, that radium must be considered as an important weapon, worthy of full consideration; that it does not interfere with surgery or X-rays, but, on the contrary, that it can be most usefully associated with surgical and X-rays treatment, and can even act beneficially when these methods of treatment cannot be employed.

THE COMPLETE PHYSICIAN*

BY J. GEORGE ADAMI, M.D., F.R.S., McGill University, Montreal.

“To each Athene and Apollo give some gift and each is worthy
in his place, but to this child they have given an honour
beyond all honours, to cure while others kill.”

It is right and fitting that some formality be associated with the entrance of the man into the direct preparation for his life's work—that the novice in medicine should not simply signalize his entrance into medical life by a humdrum and utterly commonplace visit to the University Registrar and a commercial transaction over the counter, but that he should participate in a ceremony which, however simple in its form, is, nevertheless, in its essence an initiation. This evening your Professors and the Faculty of Medicine formally but none the less sincerely welcome you. This evening formally you enter upon your novitiate in medicine—to-day marks the beginning of your life-work as members, even if junior members, of that well wishing band of those who devote their lives to the care of the sick and the maimed, to the prevention of disease and the raising of the standard of health, efficiency and happiness in the community.

* * * *

Happily there is at hand a text—or rather a whole bible—whereon to base my remarks. Indeed I do not doubt but that from one end to the other of this continent the inaugural lectures of the medical schools are this year being based upon this one document. I refer, of course, to the recently published report of the Carnegie Foundation for the Advancement of Teaching upon “Medical Education in the United States and Canada.” It is a work that is extraordinarily full of meat and so frank and fearless in its criticism of the various schools of medicine and their methods, or want of method, that action for libel has already been taken against its authors in more than one quarter and others promise to follow. It has stirred up the profession on this continent in diverse ways, but more particularly to realization of the ideals of medical training, of the possibilities and of present defects, to an extent that no individual man or association or plan of campaign has ever accomplished.

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What ideals, in the first place, should you have before you? What should be your estimate of the complete physician? What,

*Abstracted from the opening address at the Scho
Toronto, September 27, 1910.

Medicine, University of

therefore, should be the ideal course of training that you should place before yourselves? Let us think this out and then consider the means afforded to you for accomplishing these objects.

First and foremost as to the complete physician. He must be thoroughly trained in the practice of his profession. What does this mean? Not that when he graduates he is to be fully supplied with all the data concerning disease. That were impossible. The medical man is or should be learning new facts, new methods his whole life long: not five years, not ten years suffice to give him full knowledge. It does mean, however, that he shall be thoroughly equipped to know how to proceed in the making of a diagnosis and in affording rational treatment; that he shall, as I have said, be a thoroughly trained man. He must already have such close personal experience of the commoner ailments that he can recognize and treat them with sureness: he must be so equipped that approaching any case that presents itself he is able to utilize the appropriate modern methods of diagnosis, and, applying them, to come to a sound conclusion as to the nature of the disease, and from this be prepared to treat that disease rationally to the utmost possible degree. To do full justice to his patient, to possess for himself a quiet conscience, the practitioner must feel that he has accomplished all that is possible. I do not mean that he personally must be able to do everything for the patient, that he must combine all the specialties. But he must have that amount of knowledge which tells him either what he himself can do, or what may appropriately be done for the case by others rather than by himself.

What does this imply? It means that as regards ordinary ailments he shall already be thoroughly familiar with them. Lectures and books cannot afford that familiarity. He must have come into personal contact with them. This necessitates a long training in the hospital and the dispensary; in the dispensary that he may encounter abundant examples of minor ailments and more chronic ambulatory cases and learn thus to recognize their salient features; in the hospital, that studying at the bedside individual examples of more acute disease day by day he may gain a knowledge of the evolution and course of disease processes.

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But hospital and dispensary attendance of to-day is a very different matter from "walking the hospital" as known to previous generations. Our forbears depended for their knowledge and diagnosis of disease upon their unaided senses, and

undoubtedly, doing this, they trained certain of those senses, notably sight and touch, to a degree of acuteness that few in these degenerate days nearly approach. But, granting this, it must be acknowledged that their knowledge of disease was much more limited than what it is in your power to possess now-a-days, and that their treatment was in the strictest sense empirical. The advances have been rapid and remarkable: in the field of surgery they approach the marvellous. In little more than a generation medicine has been elevated from an art to a science, and to practice it the individual has to have a training in science and acquire the scientific spirit. To use rationally the instruments of precision now afforded to him he must have a sound training in physics: to utilize the information that the body fluids and discharges of the patient can yield him, to understand the action of the drugs he uses, and comprehend the normal and abnormal processes within the tissues, he must be so much of a chemist that he is familiar not merely with the principles of chemical action, but with the data of organic chemistry. Since the processes of disease are but the outcome of factors operative in health, either working in an excessive or a defective manner, to have any sane understanding of morbid states he must be well grounded in physiology—the study of the functions of the body in health—while to give him a broad and sane grasp of the principles that govern living matter, a course in biology is equally essential. It goes without saying that he must know human anatomy if he is to perform any operation, or have an adequate mental picture of the disturbances of the mechanisms of the body or of the individual viscera. Nor can he do his duty toward a patient suffering from one or other of the acute infectious diseases unless he has undergone a course in bacteriology and thereby gained a knowledge of the technique of bacterial diagnosis and of the nature of bacterial vaccines and antitoxic sera. And lastly, as the coping stone of this edifice upon which is based the scientific study of disease, he must in the post-mortem room and in the laboratory study the actual effects of disease upon the body, so that he may be familiar with the disturbances that may be set up in the individual tissues, and may, when he encounters his patient, have so vivid a mental picture of the association of disturbances likely to be present in any given form of disease, and indicated by the various symptoms and physical signs, that, as though provided with a mental fluoroscope, he sees that patient through and through and is able to picture to himself the effect that disturbance of the one viscus must have upon another and upon the system at large. For upon sound pathology depends pre-emi-

nently sound diagnosis, intelligent prognosis and rational treatment.

Think what all this means! For the prospective doctor in the first place. If he is to embrace the opportunities afforded to him in the hospital it means that before entering upon the study of medicine proper, he must spend years of preparation, years studying various branches of natural science. There is at present great debate as to where these years should in the main be spent. I see that the Carnegie report only places in the first class of medical schools those, sixteen in number, which demand that before entering the four years' course in the medical school, the student shall have attended a college or university for two full years. Not making this demand, Toronto and McGill, while referred to with approval, are considered as of a lower class. Here two questions may be asked, namely, "Is a college course and Arts degree essential for the complete physician?" and secondly, "Is the Carnegie Report justified in making the entrance requirements of a school the standard whereby to classify the medical schools of this continent?"

Now, gentlemen, let me confess that I find some difficulty in answering the first of these questions. As I shall point out later, knowledge of medical science is very far from being all that is required of the medical man, and, for his development, it is of the highest degree important, not so much that he have culture and an acquaintance with "the humanities" in the narrower sense, but that at the formative and most susceptible period of his career he shall have mingled and become intimate with those having various interests in life. Than this there is nothing more broadening. It is the generous intercourse of man with man, the learning to know and look up to and copy one's fellows for their innate worth apart from all sordid considerations, the mingling with and weighing all sorts and conditions of one's fellows—the education in humanity, rather than in the humanities—that constitutes the supreme value of an Arts course. He is a better man who has experienced this.

But, on the other hand, I cannot conscientiously urge that we demand of all our graduates eight years at the University, three in the Arts course, five in the medical school, or even seven years with but two in the Arts course. For one thing so prolonged a training leads a man to become stale—as we termed it at Cambridge. Intensive learning cannot be continued year after year without sapping the capacity to receive and perceive facts. Time and again I noted at Cambridge that men who had already won high distinction at Scotch universities in mathematics or classics

and who had come to the English university to gain further academic distinction along the same lines and sweep the board of prizes—academic hogs if I may so term them—were beaten easily by younger men fresh from the English public schools. They had grown stale. And at McGill we have noted as a common occurrence that the frequent B.A.'s among our students—of course there are brilliant exceptions—do but poorly in their first two or three years under us. In part this must be attributed to staleness; in part, I am convinced, to the fact that the more bookish academic training, if too long continued, actually unfits a man for the dissecting room and the laboratory and the frame of mind necessary for scientific research. As a rule in the final years these men get into their pace again and do excellently. Their brains are better trained organs and this eventually tells. But all the same I believe that they have wasted roughly a year of their student life; that they would have been equally capable and equally equipped with two years only in Arts. In short, I believe that the combined course such as is afforded in Toronto is educationally superior to what the Carnegie Report accepts as its ideal. Best of all is it that the student shall have had academic training of the broadest type, an education in literature and classics, and that he comes to the medical school fresh—not stale—to take up his scientific and medical work. But this the Carnegie Report does not contemplate.

Now, of course, the Carnegie Report presupposes not an eight but a seven years' course with but four, not five, years in medicine. In other words, it holds that biological subjects, physics, the principles of inorganic and organic chemistry are best given to the student before he enters the medical school. Here again I am prepared to join issue. There comes in here the matter of economy of effort. Take, for instance, the subject of chemistry. and let us admit, as will be admitted, that the student has already obtained his first ground-work in this subject at the high school. Which is the more economical, which will afford the better education, that the student attend the academic courses in this subject, courses devised for those intending to be metallurgists, commercial chemists, scientists of various orders, courses in which, from the natural delicacy of the Arts professor, the illustrations are drawn, as a rule, from every branch of chemical industry save the medical; or a course or courses forming an integral and graded portion of the medical curriculum, in which illustrations, equally valuable from the educational point of view, are afforded which have a direct bearing upon medical science,

illustrations which the student can apply in his later years, which must come into and be known by him in his later life work?

I speak feelingly, for I cannot but acknowledge that I have suffered permanently from the harmful effects of such an academic course. It was a course given by one who in his day was accounted the foremost teacher of chemistry in England. Without doubt I learnt something from it. I must have. But also I learnt to dislike the subject. All that I remember to-day regarding it is the waste of hours over details and diagrams regarding the vinegar method of making white lead or the white lead method of making vinegar—I really forget which, it does not matter—the various methods of making sulphuric acid, the properties of vanadium and other of the rarer metals. All these details which had to be learnt repelled me. I needed and longed for matter such as I obtained in the zoology course, run as it was by a man with a biological mind and not a systematist—matter which I could not but feel was golden grain that must germinate and bear fruit for my later studies.

The student has so much to do, so much to accomplish in the few years of his undergraduate course, that it is our duty not to burden him with unnecessary matter. I who say this do it with full meaning that I worked steadily for ten years between registering as a medical student and obtaining my diploma to practice. You must not think that this lengthening of the course is an American movement; America is the last part of the civilized world to fall into line. This ten year course was mapped out for me in its essentials in 1877. Wherefore I am convinced it is better that special courses be afforded for the medical student in the preliminary scientific subjects rather than he should attend the routine academic courses in the same: in other words that he should take up those subjects as a medical and not as an Arts undergraduate, and that the medical faculty should at least have the supervision over the courses in these sciences, even if they be given by the Arts professors and their staffs, and not in the medical college itself. Hence, I am convinced that our five years' curriculum at Toronto and McGill—a curriculum which allows us to guide and control the teaching of the preliminary sciences, which allows us to afford this with the greatest benefit to the student and the greatest economy of his time and labor—I am convinced, I say, that, educationally speaking, this is superior to the Statesian ideal of academic teaching of most of these subjects during a two or three years Arts course, with only four years spent in the medical school. So great, in short, is the economy, that though, as I have said, I prefer that the student

should have two years in Arts, I nevertheless believe that we can turn out a thoroughly sound medical man even if he comes to us merely with a good high school education.

Here parenthetically may I interject a word and a warning to the student before me. It bears upon what I have just been saying. I refer to the common failing of students as a body, that of regarding each separate subject and course as a water-tight compartment, something that has to be got up by itself, that has to be crammed up for examination purposes, and when the examination has been passed "Thank God, that's over and done with: now for the next." This is largely human, largely a survival of the attitude of mind fostered by a cast iron curriculum in the Arts course, in which perhaps the student may be pardoned for not recognizing fully the bearing of certain political economy, rhetoric or other courses that he is required to take. To some extent, but not entirely, it is the fault of us as teachers, that we do not sufficiently emphasize the constant interdependence of the various branches of medical science. I know that it is not entirely our fault. Thus as one means of breaking down this feeling, I give a course in elementary bacteriology at the end of the first year, as a direct continuation of the course in biology. Nay more, to make the relationship felt I give that course in association with the Professor of Botany. But notwithstanding, if in the examination I so frame a question that its answer demands reference to data and principles which have been treated by my colleagues in the biology lectures I doubt if ten per cent. of the examinees apply their biological knowledge and answer the question. Indeed I hear rumors of grumbling that my conduct is not exactly sportsmanlike. Of course they are only freshmen, but we want even freshmen to be something more than mere parrots. What on earth, or in the heavens, is the use of a man cramming his head with knowledge which is not to be applied?

All the same I think we teachers could do more to grade and dovetail our courses. It is impossible to do this by solemn inquisition of the whole Faculty. At McGill I have urged that in connection with each chair there be a consultative Committee of four or five, composed of professors of related subjects—in connection with my own subject of Pathology, for example: The Professors of Physiology, Histology, Medicine and Clinical Medicine, Surgery and Clinical Surgery—which committee should be called together by the holder of the chair once a year, that he may receive suggestions how more effectually to make his teaching supplement and help the teaching in the allied subjects.

And now I come to the question asked several minutes ago and still unanswered, namely, are the authors of the Carnegie Report justified in classifying the medical schools of the continent primarily according to the entrance requirements? I have no hesitation in answering, certainly not. It is not the *entrance* but the *outcome* that should determine the status of the school. Thus a school may demand an Arts degree for entrance, but if it has not proper control of a hospital or hospitals, if its students have not free entrance to the wards, or if, having that entrance, the hospital is so full of pay patients that the number of patients available for ward-work and bedside instruction is lamentably inadequate; if, therefore, the students have to be taught by the "case method," by written reports and details of real or supposititious cases rather than by the study of the actual palpitating patient; if, I would add, a school permits its students to begin to specialize before the too, too brief four years' course is complete; then I say in all confidence, it may turn out learned men, but as practical, capable practitioners, ready to do their work in the world, its graduates are not to be put on the same plane with the graduates of a school which, while affording a thoroughly sound education in the preliminary scientific subjects, and controlling that education, affords in addition the fullest clinical opportunities: a school which has trained its students to study intimately and abundantly the living patient.

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I have spoken more than once of the complete physician. Strangely enough the Carnegie Report passes over, so far as I can see, in absolute silence, a most important phase of his equipment. It has been said, and I think truly said, that the ideal physician is the man who knows and makes it his duty to treat the patient, not to treat the disease. The Carnegie Report deals only with the education that trains the man how to treat the disease. One rises from reading the Report with the impression that he is the most fully qualified practitioner who has the fullest knowledge of the data of disease, the best training to treat each case as a subject of scientific research. The ideal hospital, we are told, for teaching purposes is that in which the medical and surgical departments are directed and controlled by university professors without private practice who devote their whole time to teaching and research. Such a hospital, I freely grant, will turn out the greatest mass of valuable papers and monographs upon disease. Will it turn out the best medical men? I know that this may sound heretical to sundry of my hearers. I know that as a professor of the science of medicine you will expect me

to take the view expressed in the report. But while I am a Professor of Pathology and while my home was not that of a medical man, I have in my veins the blood of five successive generations of country doctors, and I feel it in my bones that the view is mistaken, or at least must be received in a modified form. It is inevitable in a hospital so conducted that the staff from the heads of the departments downward regard the patients not as human beings to be cured but as cases to be investigated. The inevitable tendency must be that the students trained in such a hospital go out into the world with the conception that their duty is to treat the disease. Now I say straight out that this training does not make the complete physician. It makes the relative failure.

Let me read you a parable from my own experience. When I passed from Cambridge to the hospital I became acquainted with two men. The one had already for two years been house physician. He had passed through a distinguished course in Arts, had carried everything before him in the medical school, had obtained, if my memory does not fail me, the gold medal in medicine at the London University—which in many respects may be regarded as the blue ribbon of the English medical student. But he was poor and had to make his own way, could not afford to hold on longer connection with the hospital or to announce himself as a consultant and wait for others to send him patients. At the end of this year, therefore, he mounted his brass plate in one of the artisan suburbs of the great city, in the hopes that even if individual cases did not afford high fees, the teeming population would afford abundant work and opportunities for practice. I may add that his morals were irreproachable: he was of the “unco’ guid,” a leader in the prayer meeting movement. Now there was in the final year another man, a very different character. He had entered the school at the same time as the former. That he had ability there was no question. The way in which he kept the students’ common room lively was in itself evidence of that. He was not, however, what might be termed a model student. The fact that he had taken three more years to get his license rather enforced this conclusion. In fact, although somehow one could not help liking him, he was more than a little bit disreputable. We may put it that he enjoyed the society of his fellows more than that of his books. One heard of him attending race meetings, one heard of his exploits in sundry bar-rooms, one saw him very cheerful and distinctly prominent at the annual dinner. If you paid one of your rare visits to the theatre you came across him there so much at his ease, hail fellow well met with everyone, that it looked as though he had perpetual

entry. And when, supplies failing, he at last found it necessary to scrape through, his record did not recommend him for a hospital appointment; it did not recommend him for a partnership or establishment in any first-class neighborhood, and as a coincidence he lighted upon the same second-class suburb as the first and set up his plate at the opposite side of the road. Here is the point: by the end of the year the first of the two was still going on foot. I was informed that scarce a baker's dozen of patients had called him in. The second was already doing so well that he could hire a trap. By the end of the second year he had invested in a dog-cart of his own: at the same period scarce one of the baker's dozen of patients had called our first friend in again: they had not even recommended him to their acquaintances: the prospect was so hopeless that he had taken down his plate and was leaving the neighborhood. I hear of him now after years of struggle as a consultant of moderate reputation, the only position he is qualified to fill. Even here his lack of humor prevents him from being a full success; he treats the patients he sees for a brief quarter of an hour as cases, not as living and frail human beings: he does not create a bond of human sympathy between himself and the practitioner who calls in his aid. The practitioner selects him in the hope that his extensive knowledge, his familiarity with recent literature, may be of use in suggesting some other method of treatment. The ideal consultant, you will find, is on good terms with his patient in two minutes, in five he has become such an old friend that the patient is exposing freely all his or her foibles and anxieties, in fifteen he has so thorough a grasp of the character and disposition of the patient that he can proceed to treat him or her over and above his or her disease. That, gentlemen, is what you have to strive after. I do not suggest to you for a moment that you take my second friend as your example, but in citing his case I assuredly want to impress upon you that the sympathetic study of your fellow-men and fellow-women, the capacity to enter into their lives, to see the world from their standpoint, this is the primary desideratum. He had acquired this, and to it was due his limited but nevertheless very real success as a practitioner. You can do the same without frequenting race tracks and bar-rooms, without cutting lectures and hospital work. There is abundant humanity to profit from, even in the Y. M. C. A. The ancient philosopher laid down as the maxim for self-rule and self-content, "Know thyself." The rule, I maintain, for the complete physician is "Forget thyself, know thy fellow." After all it is the old, old lesson that I have to preach to you. Though you know all the ologies and practice all the modern methods of diagnosis and treatment, though you

know Latin, German, French, Italian and "speak with the tongues of men and of angels and have not charity—do not let your hearts go out to your fellows—you are become as sounding brass and as a tinkling cymbal."

It has been the main glory, the main strength of British medical education, that it has recognized this, the main weakness of German medicine that it has too largely neglected it. Do not think from this that I depreciate the university hospital as a centre for medical research. I doubt if anyone here more fully appreciates its importance in this relationship than I do. By all means I would say appoint a paid Professor of Medicine and a paid Professor of Surgery to devote their days to teaching and research, but let them be each "*primus inter pares*," giving them the deciding voice in matters of teaching within the hospital, but by no means give them the control of all the wards. On the contrary, give them direction purely of a ward or wards that may be devoted to the study of particular diseases and conditions, on the study of which they for the time being are concentrating their energies: give them the right to all cases of one or other order that present themselves at the hospital. Patients are only too glad to think that they are being made the object of intensive study. My old Cambridge friend, Dr. Strangeways, has proved this to the hilt. At present he and his colleagues in the hospitals he has established are studying rheumatic arthritis and, knowing this, patients present themselves for admission from all over England. As regards the main mass of the beds, place these in the hands of certain leading physicians and surgeons of the city, who at the same time through their work and power of teaching are recognized members of the medical faculty. The very fact that these men have gained leading positions is proof positive that they possess the supreme gift of sympathy with and understanding of the patient. It is from these men as they pass from case to case and from bed to bed that the student will learn the invaluable lesson of the approach and study of the individual. I would even go so far as to say, make a point of appointing to the staff the leading family physician of the city as distinct from the consultant or specialist. He may not be able to lecture "worth anything." Do not expect him to. But the students who accompany him round the wards are likely to obtain lessons of greater value from him than from any other single member of the staff.

As already stated, it is for its value in this study of humanity that I particularly esteem the years spent in the Arts Faculty. Similarly for its formative value I entreat you, gentlemen of the freshmen year, to enter heartily into the life of your year of the Faculty. Work heartily, work thoroughly, but do not be book-

worms and smugs. Mingle freely with your fellows, study them and get to know them—yea, regard it as a treasure of price if you have the fortune to gain the entree into the homes and family life of the citizens of this good city.

Lastly, although I believe that the new fifth year, spent as it will be largely in the hospital, will be magnificent training, I would urge every one of you to strive by every means to spend one or two years as a resident in some hospital before embarking in general practice. You may ill be able to afford the expense, and it may seem as though you are casting your bread upon the waters. I could only assure you that the loaves will be returned to you a hundred fold in the years that are to come.

An education such as you receive here in Toronto, the rational and necessary training of a capable physician, already let me impress upon you, costs double as much as either you or your parents pay for it. It is to the interest of the State that you should have the best possible education. But the result of the enormous increase in the cost of a modern medical education is that the proprietary medical school which in the past flourished in Canada, as it has done in the States to an even greater extent, is doomed. In competition with the schools connected with reputable universities it cannot afford the necessary expenditure without a heavy deficit. Within the last year no less than twelve of these have disappeared. The ungloried revelations of the Carnegie Report must result in the disappearance of all of them, and with them will go that manufacture of the crude unfinished article that has been the discredit of American medicine, the article poured out in such quantities that, compared with European, and it may be added, with living standards, this continent possesses at least four times as many medical men as are necessary. There is no need to-day, there is no place for the poor *untrained* student. The poor trained student is a very different matter. With the reduction of the output the well-trained man need not fear as to his future. Looked at purely from the commercial aspect, gentlemen, you can well afford the extra time necessary to make you sound practitioners.

It is to the interest of our universities, and for their reputations, that a thoroughly trained product be turned out, that quality not quantity be the goal. But unaided they cannot bring about the elevation of the medical profession. They need the support of public opinion and of the State. They must have, I would particularly add, the support of the provincial licensing bodies. What is the use of the University doing its best if the examination afforded by the provincial college of physicians and surgeons is of such a nature that it permits improperly quali-

fied men to creep and intrude and climb into the fold? From what I have seen I am wholly at one with the contention of the Carnegie Report, that the method of examination followed by the state and provincial licensing bodies is imperfect. It must be so when we find that some of the notoriously inefficient schools of this continent—schools without proper laboratory equipment, without clinical facilities—pass as large a proportion of their graduates as do the reputable schools. The examination being purely written and oral upon set subjects, the student has only to obtain the questions set for the last three or four years to find out what is expected of him and floor his examiners. It is merely a matter of pernicious cram. Your trained teacher can distinguish between genuine knowledge and parrot-like statements of undigested facts. And so long as the professional teacher is regarded as anathema by the provincial board for so long must the examinations lay themselves open to criticism. I do not ask that the University be given control: far from it; but when it is the object of both University and Provincial Board or college to give their "exeat" only to fully qualified men let the general profession of the province and the universities be united in this matter of examination. And, I would add, let competent practitioners make the examination a genuine test. Make the examination practical. Let competent practitioners test the candidate at the bedside. I know the difficulty in carrying out this recommendation. It means a great increase in the length and in the expense of the examination, and this extra expense ought to be borne by the candidate, who nevertheless at this particular period of his career is least able to bear it. I do not see, however, why it is not possible to place the candidate under bond, and require of him payment in instalments over, say, five years.

I could worry my text to much greater length, but must by now have stretched your patience to breaking point. If I have criticized the Carnegie Report I ask you not to go away thinking that I depreciate it. On the contrary. No one interested in the future of medical education on the continent but must welcome it and its fearless review of defects, even if it itself is not without defects. A strong, progressive school has nothing to fear, everything to gain from it. The loud squealing of the institutions whose nakedness, poverty and false pretences are exposed to the light is only natural. All I have to point out is that the Report does not cover the whole field: that we can go farther than the Report. Sound training in medical science is an essential, but you, gentlemen, if you want to develop into the complete physician, must add to this knowledge of, the sympathy for, the love of your fellow-men.

CASES ILLUSTRATING THE USE OF THE ELECTRO MAGNET IN OPHTHALMIC PRACTICE

BY G. STERLING RYERSON, M.D.C.M., L.R.C.S.E.,
Professor of Ophthalmology and Otology in the University of Toronto.

Last summer I had the pleasure of spending three days at Zurich and of following the interesting clinic of Professor Haab. The Professor is one of those quiet, thoughtful, painstaking persons who are to be found so frequently in the profession, and one who is ever ready to welcome a foreign colleague. Haab has done much good work in various departments of ophthalmology, but the work which has made his name a household word among ophthalmologists the world over is the introduction of the magnet in the removal of foreign bodies from the eye. He devised a giant magnet, which is applicable to many cases but not to all. Smaller hand electro magnets have been devised by Hirschberg, Lippincott, Johnson and Sweet; all or any of them will be found most useful and very much less expensive than the giant magnet of Haab and more easy of application.

It may be of interest to quote the statistics of Haab, published in 1908, in order to show what has been accomplished by the use of the magnet in saving eyes.

Haab's Statistics—

Total number of eyes.....	165
Number of failures	23
Number of eyes from which splinters were extracted.....	141
Number of eyes requiring enucleation.....	39
Number of sightless eyes preserved.....	19
Number eyes requiring cataract operation (51 recovered useful vision)	71

Writing of his experience with the giant magnet, Haab says: "Of the whole number of 165 cases in my experience, the operation failed 23 times. It was successful in 141 cases, or in 86 per cent. If we consider the 134 difficult cases in which the splinter penetrated behind the iris and the lens, we find that in these 134 cases the large magnet failed only 23 times to extract the splinter from the eye and was successful in 111 cases, or 83 per cent."

These failures were due to the following circumstances :

"1. The foreign body was seated too firmly in the back wall of the globe or had pierced it completely.

"2. The splinter was seated in the ciliary body at first or was drawn there by mistake.

"3. The splinter had produced fibrino-purulent exudation, which, according to my experience, greatly hinders its movability."

It seems hardly necessary to state that the magnet has no influence on any substances but iron and steel.

I have been using a Johnson electro hand magnet for some time, and with one exception the results have been good. I might add that I successfully extracted a needle imbedded in the base of the tongue, but as Kipling says, "that is another story."

A young German working in a machine shop was struck in the eye by a foreign body. Various attempts to extract it were made without success, so he decided to leave it alone. Six months later it began to give him trouble and he came to me. I found a dark spot under the conjunctiva near the upper and inner quadrant of the iris. Under cocaine and after several ineffectual attempts, having made an incision through the conjunctiva, I succeeded in extracting a lamella of steel with jagged edges 2 inches in length. It would appear to have been imbedded in the sclera, hence the difficulty in dislodging it.

A young machinist was sharpening a penknife when a piece broke off and struck him in the cornea. His family doctor endeavored to remove it, but without success, and referred him to me. I found a round opaque spot in the cornea at its inner and upper part, having the appearance of an abscess. There was no sign of a foreign body, but a probe revealed a gritty substance. I used the magnet and withdrew a spicule of iron. There was some infection in this case. The patient had iritis, but made a good recovery.

The third case is that of an engineer who had occasion to strike an iron bolt with a hammer, when a piece flew off and penetrated the cornea. It could be seen quite plainly lying on the anterior surface of the iris. I made an opening in the cornea as for iridectomy and introduced a flat spatulate shaped magnet tip and withdrew the foreign body. The case made a rapid and uneventful recovery.

My last case is that of a steamfitter who in the course of his work was struck in the eye by a minute particle of iron. The eye

was filled with blood and nothing could be seen. A skiagraph having been made by Dr. E. E. King, a small foreign body could be seen on the plate.

Under cocaine I made an opening in the sclera and introduced the magnet tip in the place where the skiagraph showed where the foreign body should be. In spite of several attempts, I was unable to find or withdraw the spicule. This case is still under observation.

I would suggest that every machine shop should be provided with a small electro magnet. In my experience a large proportion of the small foreign bodies could easily and painlessly be removed by it.

Selected Articles

A PRELIMINARY REPORT ON EHRlich-HATA PREPARATION FOR THE CURE OF SYPHILIS

BY M. S. KAKELS, M.D., NEW YORK,
Adjunct Surgeon to the Lebanon Hospital.

In the latter part of August I received from abroad a number of tubes of Ehrlich-Hata preparation, No. 606, for trial on luetic patients. From the brilliant reports and successes published in the German literature one cannot dispute the specific virtues of this new remedy. In order to give this preparation a fair test I determined to use it only on such tertiary or malignant cases that had not yielded to any previous treatment. My first patient I injected on September 4, 1910; my second on September 7, 1910. Up to to-day (September 15) the results thus far obtained have been beyond expectation. The time elapsed from the injection to the publication of this report is too short to offer it as a complete observation of the results and final effect of the remedy, but the rapid and astonishing changes that have already taken place fully warrant me in offering these brief histories for publication as a preliminary report, and at the same time to confirm the brilliant reports which the German clinicians have recorded. The further details and results of these cases and others will be fully published in a later article after sufficient time has elapsed to warrant us in expressing an unbiased opinion of the efficacy of this epoch-making discovery. The remedy is being used according to the strict instructions of Professor Ehrlich. It is only injected in syphilitic patients, free from other organic lesions, either of the liver, kidney, heart or circulatory system. The eyes are examined in every instance for optic nerve lesions. It is also only injected in patients who are under hospital surveillance where accurate records can be taken.

Case I.—H. S., 24 years of age, single, occupation painter, was admitted to the Lebanon Hospital in the service of Dr. Roth on August 11, 1910. Since August 8th he had acute pain in the region of the gall-bladder. The onset was sudden and accompanied by chilly sensations. No jaundice. Physical examination was negative except for a large mass in the gall-bladder region which seemed to communicate with an enlarged liver. The right border of the mass extended to a vertical line situated through a point four inches from the umbilicus. The left border of the mass ran into the lower edge of the liver, which was found to be two inches below the xyphoid cartilage. From the costal margin

to the lower edge of the tumor the growth measured 4 inches; its width was $2\frac{1}{2}$ inches. The spleen was enlarged and readily palpable.

The patient acquired an initial sore in March, 1907, and was treated by different physicians until June, 1907. From June, 1907, for three years he was given hypodermic injections of mercury.

After his acute symptoms had subsided Dr. Roth made an exploratory laparotomy and found that the tumor mass was a gumma and was inoperable. The large liver was infiltrated with gummatous masses. The pathological report of a section of the tumor confirmed the operative diagnosis. The wound had almost entirely healed when Dr. Roth kindly turned the patient over to me for the injection of the Ehrlich preparation. A Wassermann reaction a day before the injection was strongly positive. On September 4, 0.3 grm. of Ehrlich-Hata 606 was injected subcutaneously under the scapula according to Michaelis' method. Twenty-four hours after the injection there was already a marked diminution in the intensity of Wassermann's reaction. There were no local symptoms at the site of injection, although a very slight pain was experienced, which disappeared at the end of a few days.

There was a slight rise of temperature (100.8°) on the ninth day. On September 5 there was a leucocytosis of 10200. There was no change in his general condition following the injection. His appetite improved. The small ulcer at the site of the incision which had not entirely healed when he received his injection was entirely healed on the second day thereafter. On the 9th of September, five days after the injection, there already was perceptible by palpation and percussion a marked diminution in the size of the tumor. The liver also was as markedly diminished in size and the spleen also. There are no changes in his eye and he is gaining in weight. The third day after the injection there was well-marked evidence of still further diminution in the intensity of Wassermann reaction.

On the 14th of September the tumor had diminished fully an inch in circumference and the liver very markedly retracted from the abdominal wall and markedly decreased in size. The spleen was also smaller. There was a leucocytosis of 9200, his urine is negative and his weight has increased five pounds in nine days. He has been examined by several of the visiting staff, as well as by other physicians who were invited to examine him, and all agreed to the remarkable rapidity with which the growth is decreasing. I have never seen a pathological mass melt away so rapidly.

The second case is still more remarkable, and I can only state, in short, that Ehrlich's remedy in this instance was life-saving. Not only was the patient's life saved, but he is being rapidly restored to health.

Case II.—Henry P., age 36, bartender by occupation, acquired an initial sore in June, 1907, followed by a papular eruption. In September, 1907, there appeared deep sores on the neck and flexor surface of his extremities, which healed after three months, leaving scars which are still visible. In December, 1907, he was deeply jaundiced, had an enlarged liver and was rapidly losing weight. He had pain in swallowing. There were plaques on his tongue. The epiglottis infiltrated and swollen. In rapid succession ulcerations appeared on the soft palate, tonsil, epiglottis and glottis so that the patient could swallow liquids only after the application of an anæsthetic had been made. He had sleepless nights on account of the pain and accumulation of mucus. Although slight improvement set in there still persisted lesions on the skin and mucous membrane of a destructive nature. In June and July of 1909 there were relapses of the ulcers of the larynx and marked destructive changes in the epiglottis. There was a gumma in the naso-pharynx, the left wing of the nose being gradually destroyed by an ulcerative process. There were ulcerative sores on the lips, with marked destruction of the tissues.

About the middle of August, 1909, the patient was admitted to the German Hospital. He left the hospital in October, 1909, very little improved. During all this time he received the most active antisymphilitic treatment. On September 5 I admitted him to the Lebanon-Hospital from the German Hospital, which he had re-entered in November, 1909, and where he had remained until he came under my care for the injection of Ehrlich-Hata preparation.

His condition at this time was pitiable. For weeks he had been bed-ridden on account of a large and deep ulcer over the left external malleolus, which measured 2 x 3 inches, the result of a gumma which had existed for over eight weeks and then had broken down. There was another soft gumma on the instep with the overlying skin reddened and ready to break down. On the upper third of the left tibia there was a hard and painful gummatous infiltration. On the lower portion of his face there existed a large number of old and recent cicatrices. The lips and nose were distorted by excavations. A number of small and deep ulcers of a punched-out appearance were visible on the cheeks, nose and lips, all covered with a nasty and yellowish discharge. A large defect about the size of a five-cent piece on

the right side of the nose near the tip, the result of a broken-down gumma, was still covered with broken-down tissue. None of these sores showed the least tendency to granulation. Especially the large ulcer on his malleolus was absolutely pale and indolent looking and still in a breaking-down state.

Dr. Bullinger, who had treated the patient before he entered the German Hospital, and who kindly referred him to me with the kind permission of Dr. Klotz, the visiting dermatologist to the German Hospital, had used the inunction treatment several times. He also gave hypodermics of mercury, enesol, and atoxyl in larger doses than are generally prescribed. He also received injections of arsacetin. From time to time during these various methods of treatment periods of slight but evanescent improvement were apparent. The patient quickly relapsed into his deplorable condition. Iodide of potassium was also given. Sulphur baths were taken in Mt. Clemens, but with no other result than that he was advised to return home by the physician in charge, who expected him to die in a few weeks.

In the above-described condition the patient entered the Lebanon Hospital. Besides these ulcerative and rapidly destructive lesions the patient had mucous patches in his mouth and ulcers on his tonsils which prevented him from eating or swallowing. He was despondent and depressed and in such a desperate condition that he had to be watched the first night he was in the hospital for fear he would commit suicide. His temperature on admittance was 99°, his leucocytosis 8200, the urine had a very faint trace of albumin, his weight was 101 pounds. He was unable to walk on account of the pain and large ulcer on the foot. His other organs were normal. Dr. Denig, the ophthalmologist to the German Hospital, and Dr. Heller, adjunct-ophthalmologist to the Lebanon Hospital, kindly examined the eyes, and found a cloudiness, evidence of syphilitic neuritis. The Wassermann reaction before injection was strongly positive. I injected him with the kind assistance of Dr. Bullinger, on September 7th, with 0.3 gm. of Ehrlich's preparation subcutaneously in the subscapular region. The large infiltrated area was massaged and cold applications were ordered to be made.

The patient experienced but little pain, although a very large swelling developed and persisted for some time. Temperature on the second day, 100.6°. The intensity of Wassermann reaction twenty-four hours after the injection was markedly diminished. Leucocytosis twenty-four hours after injection, 18,400. Already on the second day a marked improvement in the many ulcerative processes was apparent. The nasty discharge had subsided, a drying up of the ulcers was taking place. There

was no more breaking down of tissues. Granulations were commencing to appear. The patches in his mouth and on his tonsil were disappearing. The patient could swallow, was more cheerful and his appetite was better. In fact, a remarkable change had taken place, which was observed by all who examined him.

All these improvements rapidly continued so that on the 14th day of September, one week after the injection, an astonishing difference in the condition of the patient is apparent. The ulcerations and pustules have disappeared and are nearly all healed and covered by scabs. The broken-down gumma on his nose is filled up with healthy granulations and healthy epidermis is already growing over the defect. The large and deep and undermined ulcer over the malleolus is filled to the surface with active and healthy granulations and commencing to epidermize. His face is clean, he is able to walk, the pains have left him, the gumma on his tibia has almost entirely disappeared, the soft one on his instep almost entirely absorbed. He is not ashamed to walk about the wards. He is more cheerful and happy and has a new lease of life. He has been examined by many physicians who have seen him before and after the injection, and all expressed astonishment at the rapid improvement, and this after only one week's time and but one injection of 0.3 grm. Surely a marvelous result.

Ehrlich-Hata 603 has not only saved this patient's life, for he was gradually failing, but in a week's time has stayed the active destructive processes caused by the *Treponema pallidum*, and is rapidly restoring him to health. What remedy in the whole domain of the pharmacopœia can accomplish this?

Mankind truly is indebted to Prof. Paul Ehrlich, and owes him a great measure of gratitude.—*Medical Record*.

A PERILOUS REMEDY

Professor Bouchard, in a communication to the Paris Academy of Science, warns the public that the efficacy of Professor Ehrlich's "Preparation 606," of which so much has been heard recently, has by no means been demonstrated. Professor Bouchard declares that the preparation has already caused numerous deaths of patients, and that only recently a man died in a Paris hospital after five injections had been made. The French savants are experimenting with the preparation, but the serum is stated to be extremely dangerous, and must be used with the utmost caution.—*The Medical Press*.

Progress of Medical Science.

MEDICINE.

IN CHARGE OF W. H. B. AIKINS, F. A. CLARKSON,
BREFNEY O'REILLY AND F. C. HARRISON.

Bronchial Asthma as a Phenomenon of Anaphylaxis

Meltzer (*J. A. M. A.*) observes that it is generally agreed that the so-called nervous asthma is due to a stenosis of the bronchioli. It was discovered that the so-called anaphylactic shock is due also to a stenosis of the fine bronchi. The theory is offered that asthma is an anaphylactic phenomenon; that is, that asthmatics are individuals who are "sensitized" to a specific substance and the attack of asthma sets in whenever they are "intoxicated" by that substance. It has been proved that the anaphylactic attack is of peripheral and not of central origin. It is therefore suggested that the so-called nervous asthma is also due to a peripheral and not a central cause; in other words, "nervous" asthma is not a neurosis. On account of the capriciousness of the onset and courses of asthmatic attacks, as well as on account of the absence of pathological anatomical changes in this affection, asthma was considered a functional disease and hence a neurosis. He thinks that asthma is still a functional disease but not a neurosis.—*New York Medical Journal.*

The Treatment of Migraine

The following prescriptions are recommended by Rankin (*Clinical Journal*): (a) chloride of ammonium, 15 gr.; phenacetin, 10 gr.; codeine, 1-3 gr. (to be dispensed either in the form of a powder or of two cachets); (b) antipyrine, 10 gr.; salicylate of soda, 10 gr.; tincture of gelsemium, mxx.; spirits of chloroform, mxx.; water to one ounce; (c) heroin, 1-12 gr.; dilute hydrobromic acid mxxx; citrate of caffeine, 5 gr.; compound tincture of cardamom, mxx; chloroform water to one ounce. In the case of all of them directions should be given for a dose to be taken every two hours for three doses; and every four hours thereafter until the pain is relieved. In women when the migrainous attacks recur only at the menstrual times, the use, for a week before each period, of a mixture of chloral hydrate,

10 gr., and bromide of sodium, 20 gr., given 3 times a day, is often successful, he states, in suppressing the attack or in diminishing its severity. When the temporal artery on the affected temple is prominent and throbbing, steady pressure over it may succeed in affording temporary relief.—*American Medicine*.

Megacolon and Infantile Paralysis

Baumel (*Journ. des prat.*) relates the case of an infant suffering from poliomyelitis anterior, which was accompanied by a condition to which he gives the name of "megacolon." The child had been in perfect health, and as is so frequently the case was suddenly attacked by a severe form of infantile paralysis, which followed a normal course up to a point. During the progress of the illness a large soft swelling was observed occupying the right side of the abdomen, which increased in size whenever the infant cried. This was found on careful examination to consist of the ascending colon. The author, while not altogether rejecting the view of Hirschsprung that the condition is due to some congenital fault, states that this is insufficient in itself to explain the large increase in size of the colon. He points out that, by analogy, dilatation of the heart and other hollow viscera does not occur unless in the presence of some obstacle to their ordinary physiological functions. In place of Hirschsprung's hypothesis, therefore, the author suggests the presence of a stricture, or compression of some part of the large intestine. On further examination, such an obstacle was found in this case, impeding the course of the contents of the large intestine, and materially assisting in the dilatation of the colon referred to. He then points out that beyond this circumstance in the particular case under notice, there is a definite relationship between the condition of megacolon and infantile paralysis. He advances the hypothesis that the stasis of fecal matter in a largely dilated colon may quite well bring about the absorption of toxins having a specific action upon the nervous system. On the other hand, he sees no reason to doubt that if paralysis of the abdominal muscles occurs in infantile paralysis, a similar condition may take place in the case of the intestinal muscles, the extreme dilatation of the colon which he calls megacolon being the result. As to treatment, electricity must be used for the paralysed muscles, supplemented by an elastic belt. Massage of the abdominal wall in the course of the colon, and antiseptic lavements of the large intestine are further aids to the treatment.—*British Medical Journal*.

Present Status of Treatment of Exophthalmic Goiter

Jackson and Eastman (*The Boston Medical and Surgical Journal*) are of the firm belief that in practically every case it is our duty to treat the patient medically for three months. If at the end of that time no improvement has taken place, preferably ligate the vessels. This may effect a cure. If it does not, and the patient later comes to the operation of partial thyroidectomy—which is as yet the most satisfactory of the radical operations—the ligation will make the operation easier and less dangerous. If the goiter is very large, it is well to remove only the larger lobe and then treat the remaining lobe with the X-ray and medical procedures. Patients who show beginning cardiac failure should be operated on as soon as possible after being put in fair condition by medical treatment. Many cases, however, come to the doctor only after the myocardial changes have begun. Patients in this condition must be treated as cases of advanced myocarditis, for all treatment beneficial to this condition is also beneficial to the exophthalmic goiter. The strictest rest, with ice bags over the heart and thyroid, a carefully regulated diet, the hydrobromide of quinine, and, if necessary, the cautious use of strychnine and bromides is the treatment to be carried out. We must not expect an absolute cure in the cases in which the myocarditis is advanced, though symptomatic recovery does sometimes occur, and we can hope only to lessen the symptoms and make life better worth living for the patient and the patient's family. In the earlier cases we may be able to effect a cure, and if not we may, by careful medical treatment, improve the condition to such an extent that the patient can be operated on with much less danger than before treatment.—*J. A. M. A.*

Myasthenia Gravis (*Journal of Nervous and Mental Diseases.*)

In this case, which was studied rather carefully and had at the beginning some appearances that might lead one to think of hysteria, a story of fright was obtained, following immediately by the gradual development of all the symptoms of myasthenia gravis. The patient was a young woman of 24, a cashier. She was very sensible, with no caprices, no nervous symptoms, and none of the faults of disposition usually set down as due to a tendency to hysteria. She had been in perfect health, missing no time, undisturbed by the menstrual periods, with regular bowels and a good appetite. She was a favorite in her own family.

One evening in 1906 a brother was brought home dead. She was at home when he was brought in and she suffered severely from the shock, swooning away and then afterward vomiting. She was better after half an hour, but she did not sleep that night and felt nauseated during most of the next day. She was unable to eat much for several days and headaches developed. These headaches were very severe and continued even after her appetite returned to a great degree and when she thought that she was quite well otherwise. When she returned to work after the funeral she found that she was very easily tired and that her eyelids began to twitch. The left one was the first to be affected, but both bothered her after a short time. After the twitching had continued for some time she would find it easy to open her eyes, but rather hard to keep them open and the lids would droop. Speech became very tiresome to her too, and then after an interval she would be worse, and at the end of six weeks she found it very difficult to hold her eyelids up or to talk much, and some difficulty of swallowing developed. These symptoms of gradual loss of use of the muscles continued to develop for six months with certain variations. She died December 23 from sheer weakness of the respiratory muscles, together with the malnutrition consequent on difficulty of swallowing.

The course of the case was typical of myasthenia gravis, except that the intermissions were perhaps more marked than are usually seen. The authors suggest that the secretion of the thymus gland represents some material that maintains the tone and the vitality of the dark red muscle substance. When this diminishes the white substance overgrows somewhat according to that law which seems to hold in all the tissues, that the disappearance of one form of tissue leads to hypertrophy of neighboring tissues of other kinds in the same order. It is possible that the thymus may have the double function of maintaining the vitality of the dark red muscle substance and inhibiting the light red muscle substance. Such double functions are rather common and are to be expected in nature. The shock or fright that represents the beginning of this case of myasthenia gravis may have disturbed certain trophic nervous influences that enabled the thymus gland to do its work.—*J. A. M. A.*

Atropine in Gastric Ulcer and in Internal Medicine in General

Schick (*Wien. klin. Woch.*) reports the prompt healing in some very serious, obstinate cases of gastric ulcer under a systematic course of atropine, and he expatiates on the importance of

this too much neglected remedy in internal medicine. His experiences parallel those of von Tabora; the atropine evidently soothed and relaxed the musculature of the stomach and pylorus while checking the gastric secretion. When all other measures have failed and operative treatment seems indispensable, he injects subcutaneously, twice a day, from 0.001 to 0.0015 gm. atropine sulphate, morning and evening, keeping this up from 4 to 10 weeks with the patient on a milk-cream diet. The healing of the ulcer in his cases was counteracted by motor insufficiency of the second degree and hypersecretion. The atropine paralyzes the vagus innervation of the stomach, which is evidently functioning abnormally in these cases. The subjective symptoms subside generally at once, and perseverance with the atropine reduces the tendency to excessive secretory functioning. The frequent discovery of vagus irritability with gastric ulcer is more than a casual coincidence; each aids in producing a vicious circle, fostered still further by reflex action. He has found atropine useful also in treatment of spastic constipation, spasmodic asthma, pylorospasm, lead colic, cardiospasm and gall-stone colic. By the relaxation induced by subcutaneous injection of atropine, the walls of the ducts allow the stone to pass along or to fall back into the gall-bladder. This treatment, he believes, might prove useful also in kidney-stone colic; Loewi has reported brilliant results from atropine in reflex vasomotor angina pectoris. Surgeons might find atropine useful also, Jianu says, in preparing patients with the status lymphaticus for operation. It is also useful to differentiate spastic contraction of the stomach from organic retraction of the stomach walls; in several cases of hour-glass stomach Schick noticed various signs indicating extreme excitability on the part of the vagus. Before giving atropine, the condition of the nervous system must be carefully investigated. If the vagus is abnormally irritable the drug can be given with confidence, he states, up to 0.001 or 0.002 gm. a day. In the absence of signs of abnormal excitability of this part of the nervous system the greatest caution is necessary; active delirium and other serious by-effects may be observed when the exact indications for it are not heeded.—*J. A. M. A.*

Central Origin of Some Cases of So-called Heart Block

Commenting on the report of temporary improvement in some cases of Stokes-Adams heart-block, J. F. Goodheart (*Lancet*) says that he is unable to understand how temporary recovery can take place when the lesion is due to some change in

the heart muscle, gummy, fibrotic, fatty or calcareous as the case may be, and consequently he cannot accept the current theory of the cause of all Stokes-Adams disease in every instance. In many instances of patients with cerebral symptoms commonly ascribed to this form of heart lesion the fact is that these people with heart disease never faint. In many of these cases it is difficult to say whether the brain or heart is primarily at fault. He has seen several people in the declining decades of life who have first shown illness by way of the brain, such as vertigo, temporary weakness of one side, loss of conscious or mumbling speech, who only after such attacks have their hearts shown vagaries of action. Many of the so-called Stokes-Adams cases which recover are really epileptic seizures.—*Medical Record*.

Rheumatoid Arthritis

P. W. Catham in *The Lancet* brings forward again his theory that the joint and muscle changes occurring in this disease are due to irritative and destructive lesions in the cervical and lumbar enlargements of the spinal cord. He quotes various authorities and reports cases tending to show a relationship between external irritations, particularly from the pelvis, and muscular and arthritic affections, and gives in detail the microscopic examination of the cord from a case of chronic rheumatoid arthritis with muscular atrophy, as reported by Mott and Tredgold in "Brain." This report confirms him in the opinion that the condition is "due to a spinal irritation or congestion, or chronic myelitis chiefly affecting the ganglion cells of the anterior horns, but extending also, when the disease is associated with glossy skin, to the ganglion cells in the posterior horns."

Hence he concludes that treatment in the early stages should be directed to the abatement of the spinal irritation by cupping or blistering the spine. This, of course, is nothing new. Dr. Latham uses two cantharides plasters, four or five inches long by two and a half wide. These are applied at bedtime, one on each side of the seventh cervical or twelfth dorsal vertebrae, according as the joints of the upper or lower extremity are affected. These are left on for twenty-four hours. The surface is subsequently dressed with savin's ointment for 8 or 10 days, after which healing is promoted. Medical treatment consists in the administration of liquor hydrargyri perchloridi with suitable dietary and stimulants as required. He reports good results from this treatment, in the hands of others as well as himself.

OPHTHALMOLOGY AND OTOTOLOGY

IN CHARGE OF J. T. DUNCAN.

In the *Medical Press* is a suggestive article on "Phlyctenular Affections of the Eye," by Sydney Stephenson. As Mr. Stephenson is Ophthalmic Surgeon to the Queen's Hospital for Children in London, England, his experience is very wide. He speaks particularly as to the cause of these affections.

In the first place, they are very common; although known by different names. They are spoken of as "phlyctenular," "strumous," "serofulous," or "eczematous" conjunctivitis or keratitis, as the case may be.

A prominent authority says: "Of ten cases of inflammation of the eyes in young persons, nine will be of this kind." It is by far the commonest cause of defective sight in childhood. In fact, almost all ulcers of the cornea in children over one year of age result from this disease, and consequently most corneal opacities are caused by it.

The outstanding clinical characteristic of phlyctenular mischief is that it affects almost exclusively the children of the poor.

Phlyctenular disease occurs in many different clinical forms, but the principal ones are three:

1st. There are several elevations just between the cornea and the conjunctiva, and to these nodules runs a leash of tiny blood vessels.

2nd. In a second variety the ocular conjunctiva at some distance from the cornea is occupied by one or more large phlyctenules, the form once known as "pustular ophthalmia."

3rd. In the third variety there are no nodules, but the conjunctiva, in whole or in part, is slightly elevated, and the eyeball is more or less reddened.

So far as causes are concerned, authorities are divided, some holding phlyctenular disease to be tubercular, others that it is eczematous. After exhaustive investigation, Stephenson sums up as follows:

"To sum up the substance of my remarks, I may say that, generally speaking, I regard phlyctenular disease as due remotely to the tuberculous diathesis, and immediately to an eruption of eczema upon the surface of the eyeball. Anything which tends to lower general resistance, as measles, bad hygienic surroundings, or violent wind, or local resistance, as slight inflammations of or injuries to the eyeball, may induce the disease in a predisposed subject."

Dr. Gould, in *American Medicine*, says in part :

“When pathology seriously undertakes the investigation of pathogenesis, when it leaves the end-products and the post-mortem table in order to study aberrant living functions and morbidizing habits, then will spring to view the startling fact that the mortality table is of little direct use, is only suggestive, is good chiefly for starting working hypotheses. It will at last be recognized that pathology has too long been deaf and blind to the most important of all pathogenic facts, facts repeatedly called to its attention, facts unseen yet glaringly before the eyes of every physician.

“The final object of this writing is to re-emphasize two such facts—briefly, to be sure, because, for the present times, uselessly: 1. Unphysiological function of the visual organs produces morbidity of all the functions dependant upon seeing—in varying degrees, and as a rule—and there is hardly a function of the human body or mind that is not, directly or indirectly, more or less governed by vision. Either continuously, or at some period of life, every one has pathologic vision. 2. At least 83.5 per cent. of all school-bred youth and adults have permanent and continuous pathologic function of the single support of the erect body-trunk, the spinal column—*i. e.*, they have either functional or grossly organic lateral curvature of the vertebral column. But functional diseases do not interest the pathologist, and this, the most gross of glaring organic deformities is not seen because the living nude human body is never examined.

“The causes of a hundred kinds of ‘migraine,’ the causes of epilepsy, of the ‘despondency’ and ‘ill-health’ of suicides, of insanity, of much homicide and other crimes, of senility, of a myriad of unnamed diseases—these and more, are confessedly and frankly unknown and unsought by professional ‘leaders,’ and by official and laboratory pathology. For much or for the most part these diseases will finally be recognized as due directly or indirectly to eyestrain and backstrain. These two diseases are the only ones in modern life (and they are created by civilization itself), which demand the continuous innervation and contraction and strain of muscles and exhaustion of nerve-centres. Such an uninterrupted innervation is impossible by any device or power of the physiological mechanism; if too malignantly demanded there is certain rebellion, exhaustion and disease. To avoid these pernicious results has arisen much of the appalling vogue of militarism, ‘sport,’ the drunkenness of ‘athleticism,’ the frivolity of fashionable life, of clubdom, the

criminal wastes by luxury, and the ill-omened rest-cures, hysterias, etc., habitualized and forgotten in institutionalism, even the ludicrous scape-valves and riot of faith-cures, eddyisms, and crass faddisms beyond nausea and counting. And the end is not yet, for there is a mania of surgery. Innocent nerves are wrenched and torn out, kidneys peeled, 'decompression operations,' gastrotomies, nasal operations, etc., etc., ignorantly done, for diseases directly caused by eyestrain. Dr. Robert Morris finds abdominal surgery often unnecessary because the abdominal diseases may be cured by the capable oculist. A great medical journal advises gastrotomy in every case of obscure functional gastric disease, yet at the same time two powerful general physicians, professors of medicine too, aver that even decided gastric diseases are caused by eyestrain."

* * * * *

"But the greatest disease, the greatest begetter of diseases, *Disease Anno Domini*—Senility—during which the vast majority of the deferred years of illness gather, is, by all odds, due to eyestrain, plus its result or concomitant backstrain. When recognized, this fact will bring a revolution in the mortality tables, in human life, and in ophthalmology. For, as a rule, what is called senility is premature and unnecessary senility—an ophthalmological blunder, worked out in terms of actual illness and death."

From an excellent article by J. M. Ray (*Louisville Monthly Journal*) the following points may be noted. The article is on the "Value of Spontaneous and Induced Labyrinthine Irritation in Diagnosis."

The internal ear is made of three parts, the cochlea, the vestibule and the three semi-circular canals—taken together, they are spoken of as the labyrinth. The function of the cochlea is the perception of sound, the vestibule and the canals are concerned wholly in maintaining the body in equilibrium. The three parts of the bony labyrinth above spoken of contain the membranous labyrinth, the fluid contained in this is spoken of as the endolymph, the fluid filling up the spaces between the membranous labyrinth and the walls of the bony labyrinth is the perilymph.

The reflex influence of the organs of hearing on the motor apparatus of the eye is not a new observation. However, researches during the past few years have thrown much light on the subject and now it bids fair to become a clinical test of much importance.

The two prominent symptoms originating from this influence are vertigo and nystagmus.

Nystagmus is the term applied to any involuntary oscillatory movement of the eyeballs. We find it in two forms: First, eye nystagmus in which the velocity of movement in one direction is equal to that in the opposite direction, in other words, it consists of a series of to and fro movements equal in extent. These movements may be horizontal, vertical or rotatory. This form is found, in those with poor vision due to eye diseases, *e.g.* albinismus, etc.

Aural nystagmus differs from that due to eye defects in that the oscillations are unequal, one movement being slow, the other rapid. It has been described as consisting of two phases. A slow deviation of the eye-ball from its position followed by a rapid twitch back to the original position. The nystagmus is said to be directed toward the direction of the short, quick movement. For example, when the eye deviation is toward the left and is caught back quickly to the right, we say the nystagmus is directed toward the right.

In vertigo due to ear disease there is always associated with it the typical labyrinth nystagmus and the tendency is to fall in the direction opposite to the quick nystagmus movement. Vertigo without nystagmus is not due to irritation starting in the vestibular apparatus of the ear. Barany asserts that this observation is always true. Therefore, we are able to distinguish aural vertigo from that due to errors of refraction in the eye or any acute or chronic general disease.

Vestibular nystagmus (aural nystagmus) may be induced in three ways, *viz.*, by rotating the patient, by syringing the ear with hot or cold water, and by galvanism. (We omit the first and third methods, and, for the sake of clearness, confine our attention to the second method, which is the most important one.) This is called caloric nystagmus. The caloric test consists in injecting hot or cold water gently into the external auditory canal from a reservoir. Politzer asserts that water of the same temperature as the body causes no vertigo and therefore no nystagmus. Barany observed if water of a temperature below that of the body was used, say about 70 degrees F., vertigo and nystagmus were produced, the nystagmus being to the opposite side. If water above the temperature of the body, say about 110 degrees F. was used, nystagmus to the same side was induced. The same laws govern the spontaneous nystagmus of labyrinthine disease. To condense we can say that hot water irrigation

and irritative lesions give nystagmus to the stimulated or diseased side, while cold water irrigations and destructive lesions in the labyrinth give nystagmus to the opposite or sound side.

We find when the labyrinth becomes involved that the nystagmus varies as follows: In cases where the canals are not destroyed but the nerve endings are irritated there is produced an intermittent spontaneous nystagmus to the diseased side, which is known as the "Fistula" symptom. In cases where the labyrinthine reaction is totally destroyed in the early stages, there will be strong nystagmus to the sound side. The patient is unable to stand up and lies in bed turned on the sound side because in this way the vertigo and nystagmus are lessened. Cases where the labyrinth has been slowly destroyed producing no irritating symptoms, none of the methods of exciting the labyrinth will produce a reaction.

SURGERY

IN CHARGE OF E. E. KING, G. A. BINGHAM AND
C. B. SHUTTLEWORTH.

Oehler's Symptom in Intermittent Limp

Goldflam (*Münchener medizinische Wochenschrift*) refers to a recent article by Erb on this subject, which gives credit to Oehler for the isolation of a new symptom. Many articles on intermittent claudication refer solely to the lower extremity, which is natural if not inevitable as long as the word limp or any of its synonyms is used. In quite recent years a general term dyskinesia intermittens has been made to comprehend both extremities, upper as well as lower. Oehler was apparently the first to describe this condition in the arm (1907), and should have set about to find some diagnostic symptom which would prove the identity of the disease in the two extremities. However, he did no more than mention a sudden pallor and coldness of the hands, which set in when a pavement rammer was lifted and dropped. Hence, the author thinks that Oehler's name should hardly be coupled with the symptom, because he did not extend his research. The article attracted no attention outside of Germany. Oehler even neglected to test sound objects for the presence or absence of this symptom. Parkes Weber of England (1908) noted the coldness and pallor of the feet in intermittent limp after flexion and extension at the ankle. The author, in a paper published this year, following prolonged research, was able to find the phenomenon in incipient and latent limp, but later he discovered it in healthy subjects and decided that it has an essential physiological basis. A paper by Janowski, as yet unpublished, which is made up of sphygmographic and tonometric studies, will, it is stated, demonstrate the physiological nature of this sudden pallor of the extremities during certain muscular activities.—*Medical Record*.

Menigitis and its Anticipation (*The London Practitioner*).

In the slighter cases of fracture of the base of the skull, and some irritation from the laceration of the meninges, it is well always to bear in mind that these patients are apt to develop meningitis within 48 hours after the injury, and it ought to be anticipated. The way to do it is to clear the bowels out, and, in the second place, to put an ice-bag on the head to ensure quiet,

and, further, to insist upon absolute starvation diet. Mistakes are often made in these cases by not looking carefully after the attendants. Nurses, with the best intentions, sometimes force nourishment on such patients, but judicious starvation of a brain case is really one of the most important elements in the treatment. By starvation diet is meant milk and water, and nothing else, for the first 48 hours or so, and then, perhaps, a little bread and butter, and subsequently, very gradually and very slowly, an increase in the diet. The medical man must be guided by the temperature and the general symptoms before he lets the patient take anything really solid in the way of nutriment.—*American Medicine*.

Operation for Cerebellar Tumor

At a recent meeting of the Freie Vereinigung der Chirurgen held in Berlin, Schmieden (*Zentralbl. für Chir.*) presented a young woman, aged 24, from whom twelve months before he had removed with very good results a cerebellar cyst of the size of a hen's egg. For some few months before this operation the patient had complained of headache, visual disturbance, and paralysis. The diagnosis and localization of a tumor in the cerebellum were based on nystagmus, ocular paresis, choked disc, lowered patellar reflexes, and especially of absence of signs of cerebellar co-ordination. The collection of symptoms indicated the presence of a tumor imbedded in the substance of the left hemisphere and pressing on the middle portion of the cerebellum. By an osteoplastic operation both hemispheres were exposed, and on exploratory puncture of the swollen and much distended cerebellum a large cyst was found on the left side. After the discharge of the fluid a portion of the wall of the cyst was cut away, and the cavity was drained. The patient, who was at once completely relieved of her troublesome symptoms, made a speedy recovery from the operation. She has, it is reported, since remained in good health, and when last seen was able to do light work. In this case, the author holds, the active progress of a very grave condition had evidently been effectually arrested by prompt intervention.—*British Medical Journal*.

Haemorrhagic Appendicitis

M. L. Bassal (*Prov. Méd.*) describes a case of appendicitis with hæmorrhages. Letulle in 1898 described a hæmorrhagic form of appendicitis characterized by intense hyperemia and a

deposit of blood in the neighbourhood of the lymphoid tissue. Later the same author stated that these appendicular hæmorrhages were only observed in cases treated surgically, and considered them to be of purely mechanical origin. In Bassal's case examination of the appendix after removal showed that hæmorrhages of two different types had occurred. In one type a diffuse infiltration of red corpuscles appeared to have invaded the follicular tissue without destroying its cohesion or general aspect; the corpuscles were distinct and stained well with eosin, and it is more than probable that these hæmorrhages were contemporaneous with the operation, and were of mechanical origin, as explained by Letulle. In the other type of hæmorrhage present the blood patches had dissociated and dislocated the follicles, and were found in the midst of the lymphoid tissue, and sometimes were placed deeply near to the muscular layer. Moreover, the red corpuscles in this type stained badly, had lost their distinctness of outline, were agglutinated in an almost homogeneous mass, and were invaded by bacteria; in fact, they presented all the signs of being of an origin anterior to the operation. The case, therefore, falls into the category of cases of true hæmorrhagic appendicitis.—*British Medical Journal*.

Early Symptoms of Tetanus

Evler (*Berliner klinische Wochenschrift*), in a serial article on tetanus, discusses first its early symptoms. He cites authorities like Rose and von Leyden. The consensus of view is that trismus must necessarily be present to insure a diagnosis of tetanus. Yet cases are on record in which trismus was absent, although tetanus of the arms, face and trunk was present. The author finds that the early symptoms of tetanus are transitory, vacillating, alternating. They comprise restlessness, timidity, night terrors, bad dreams, dysuria, dyspnoea, etc. The facial expression changes; there may be nosebleed, night sweats, prostration, yawning, vertigo—all symptoms of nervous irritability or prostration. Of more value are certain surgical symptoms. Thus swelling of an extremity, despite high elevation, is suspicious. The member in question may also be hot and painful. Lymphangitis commonly coexists. The blood-pressure is higher on the affected side. The injured limb shows such phenomena as contracture and tremor. Certain muscle groups are in a state of tonic spasm, often latent; that is, spasm appears only upon exertion.—*Medical Record*.

Editorials

DR. LOUIS WICKHAM AND RADIUM

The profession on this continent are at present enjoying the privilege of hearing Dr. Louis Wickham, Director of the Biological Laboratories for Radium in Paris. At the recent meeting of the British Medical Association, Dr. Wickham made a great impression on those who had the opportunity of hearing him, by the very modest way in which he presented the results obtained by him during his work with radium for the past five years. It has been established without a doubt that on superficial epitheliomata, cheloids and angiomas radium has a selective action, but from his recent work Dr. Wickham thinks that radium therapy is only on the threshold of immense possibilities. By a proper and judicious combination of surgery and radium treatment an enormous field is opened up in the treatment of malignant diseases of the uterus, stomach, bladder, rectum, etc. He has, as a matter of fact, obtained results which, by many others, would be pronounced as cures, but which he, with his characteristic scientific conservatism, is in no hurry to have established as certainties. He presents his results, claiming nothing for them, and is not to be classed with others who have acclaimed radium as a "cure-all."

Dr. Wickham presented a paper before the Medico-Chirurgical Society, of Montreal, on September 27th and before the Academy of Medicine, Toronto, on September 30th. He will have reason to be gratified with the reception he received at both places.

Elsewhere in this number will be found an abstract of his address as delivered in Toronto. It will well repay a very careful perusal and study.

RESIGNATION OF DR. SHEARD

Dr. Sheard's eminent fitness for the position of Medical Health Officer was generally, if not universally, acknowledged.

It was a surprise to many that a man of his ability, with independent means, should have worked so faithfully for many long years in the interests of public health in Toronto with such an absurdly inadequate remuneration. He has given the strenuous work of the best years of his life to the city of Toronto. We do not quite understand why he sent in his second resignation, but rumor says that he was annoyed at the gross ingratitude of the people whose welfare he had at heart.

We must acknowledge, of course, without any undue scrutiny of Dr. Sheard's private reasons for sending in his resignation, that his work was not properly appreciated by certain individuals. It happens, however, that since the creation of this world no individual has ever existed who pleased everybody. Apart from this truism, we desire to say a word or two with reference to Dr. Sheard's work in this city.

We believe we are representing the views of a large majority of the laity and profession in the city of Toronto, and the Province of Ontario, when we say that Dr. Sheard for many long years was the most capable Health Officer in North America. The city of Toronto owes Dr. Sheard a debt which it can never pay, and a debt which is much bigger than the ordinary man on the street, who knows not the great difficulties he had to contend with, can ever by any possible chance fully appreciate.

THE NEW MEDICAL HEALTH OFFICER OF TORONTO

Dr. Chas. O. Hastings was appointed Medical Health Officer of Toronto at a meeting of the City Council held October 9th.

The final vote was as follows: Yeas—Controllers Ward, Church, Foster; Aldermen Graham, McBride, Weston, McCarthy, Rowland, May, Spence, Heyd, Hambly, Phelan, McCausland, Maguire, O'Neill—16. Nays—The Mayor, Controller Spence; Aldermen Dunn, Hilton, Baird, Chisholm—7.

The majority was, of course, large, but the most satisfactory feature connected with the vote was the fact that all or nearly all of the seven who voted nay will cordially support the new officer

in his difficult work of looking after the health of the city of Toronto.

Three names were prominently mentioned for the position. Dr. Hill, a graduate of the Toronto University, who has done excellent work in different cities of the United States in connection with health matters during the last sixteen years, was highly recommended by Dr. Amyot and several other prominent physicians of the city. He also received the support of Controller Spence and several aldermen. He is known by a large number of the physicians in Toronto, and is generally recognized as a man of high character and great ability.

Dr. Goodechild, after graduating from Queen's University in 1899, took a special course in sanitary science in Edinburgh, and became B.Sc. Public Health, Edin., in 1902. After leaving Edinburgh he went to London, and after a long course of study passed the examination for the "double qualification" in 1904. He has practised for nearly six years in Toronto, and is very highly respected by all who know him.

Dr. Hastings graduated from Victoria University in 1885, and thereafter did post-graduate work in London and Dublin. He became a licentiate of Queen's and the Royal College of Physicians of Ireland in 1887. During his residence of 23 years in Toronto he has established a high reputation as a physician, and has obtained to a wonderful extent the respect and goodwill of his confreres. He has also paid much attention to questions pertaining to public health, such as the inspection of school children and the conditions in the slums of large cities. His best work was done as Chairman of the Milk Commission of the Canadian Medical Association, a work which was greatly admired by physicians in all parts of Canada and many parts of the United States. The majority of the physicians of Toronto believe that, all things considered, he was the best man in sight for this important position and expressed a very positive opinion to that effect to the Council. He also received a very kindly and strong endorsement from nearly all the newspapers of Toronto.

We offer our warmest congratulations to Dr. Hastings and our best wishes for his success.

THE NEW GENERAL HOSPITAL

In the report of the Fourth Annual Meeting of the Canadian Hospital Association, held in Montreal Sept. 28th and 29th, we find a description by Dr. J. N. E. Brown of the plans of the new General Hospital to be built in Toronto. The area of the block of land to be built on is about 9 acres. The following buildings will face College Street: the Administration Building being in the centre, the Surgical Building east and the Medical Building west of the Administration Building. Facing University Avenue we have from north to south the Emergency Hospital, the Out-Patients' Department and the Pathological Building, and to the south the building for private patients, nurses' home, power house, laundry and Ambulance Building; and facing the east we have the building for obstetrics and the servants' building.

The front of the ground floor of the Administration Building is taken up with the executive offices. Two short wings to its rear are occupied by what are called semi-public patients (36 in number). These are patients who receive ordinary public ward attention, but who may be cared for by their own family physician, a special provision being made for the supervision of cases requiring operation. The next flat above is devoted to the eye, ear, nose and throat patients (36 beds). The next flat above to gynæcological patients (39 beds), and the flat above this to internes' quarters.

The Surgical L, the "Timothy Eaton Pavilion," is three storeys high—to be built on the unit system. By this method of construction a surgeon may have complete autonomy on the flat to which he is assigned. It is intended that the male patients shall be received in the long arm of the L, the one running southward; and the female patients will be received in the short arm of the L, the one running eastward. The three flats will accommodate 145 surgical patients.

Each L-shaped flat of the Medical Building is given to a physician in charge, who, with his staff of assistants, his interne and his head nurse, will look after the patients, male and female, assigned to this particular flat. Fifty patients may be accommodated on each flat.

The Outdoor Department, the Cawthra Mulock Building, provides for the accommodation of from three to four hundred out-patients a day, the surgical and gynæcological patients being received on the ground floor, the medical, the eye, the ear, nose and throat patients being received in the upper storey.

The Emergency Hospital provides for the accommodation (bed) of nine patients.

The Private Pavilion will accommodate 98 patients and have a separate kitchen and operating rooms. This will receive cases in gynæcology, medicine, surgery, eye, ear, nose and throat, obstetrics, etc. This will be run as a separate business proposition from the public ward building, any surplus on running expenses being applied to the maintenance of the public ward hospital.

The Nurses' Home will accommodate 174 nurses. The Lying-In Building, called the Burnside, will accommodate 36 public ward patients.

The complete cost of land, buildings and equipment is estimated at two and a half million dollars.

RECENT ASYLUM APPOINTMENTS

In our last issue we referred to the appointment of Mr. Downey as Superintendent of the Hospital for the Feeble Minded in Orillia and the promise of the Provincial Secretary, Mr. Hanna, to appoint a medical director and suitable assistant, who should devote themselves exclusively to the medical side of the work.

We were at that time much interested and somewhat curious as to the sort of men who would be selected. We had in our minds the wretched time-honored custom of appointing men to positions in asylums for services rendered in elections. While it will be generally acknowledged that most of such appointments were good, even from a medical standpoint, it was generally felt that an injustice was being done to those men in the

service who had done admirable work in the various asylums for many years.

We notice, however, that in recent appointments "politics played no part," as a certain Toronto newspaper expressed it. Dr. Herriman, who has been one of Dr. Clarke's assistants in the Toronto Asylum for some time, has been made Medical Director of the Orillia institution. Dr. G. A. McCallum, the Superintendent of the Penetanguishene institution, has resigned, and Dr. Wilson, the Superintendent of the Cobourg institution, takes his place. Dr. Moher, of the Brockville institution, has been transferred to Cobourg. Dr. Forster, who has been for many years in the service, and is the oldest of the assistant superintendents, has been promoted to the position of Medical Superintendent at Brockville. Dr. Clair has been transferred from the Mimico institution to take Dr. Herriman's position in Toronto. Dr. Rollins will be the new Assistant Superintendent at Mimico.

These appointments will be generally approved by the profession, and the promotions of Drs. Forster and Herriman are highly satisfactory to those who know well how faithfully these men have worked in the asylum service.

THE CITY COUNCIL AND THE MEDICAL PROFESSION

The Board of Control and the City Council, in their recent discussions over the appointment of a Medical Health Officer, showed an amount of consideration and respect for the opinions of the members of our profession which should be satisfactory to the physicians of Toronto. We have only one regret in that regard. The majority of the physicians in Toronto indicated clearly after the second resignation of Dr. Sheard that Dr. John Amyot was the man best qualified to succeed him. The reasons for not appointing him were unsatisfactory. Apart from that their attitude when discussing the qualifications of the other three excellent men available was all that could be desired.

The Council treated the profession of Canada very kindly

when they gave the sum of \$500 to assist in entertaining outsiders at the meeting of the Canadian Medical Association last June. Controller Ward, the acting Mayor at the time, attended the opening meeting and delivered a very pleasing address of welcome. Alderman Maguire, the Chairman of the Reception Committee, said to a number of physicians at that time, "Why don't you doctors come to us frequently and tell us what you want. We respect you for the great work you are doing, and we want your advice and help on many matters that come before us." This same alderman supported the candidature of Dr. Goodchild for a time, but when he heard that Dr. Hastings was the choice of the majority of the profession of Toronto he took pains to investigate and consulted a large number of physicians. When he learned the facts he changed his attitude and explained his reasons therefor very frankly and in a manly way at the open meeting of the Council. Mayor Geary made certain observations about medical men signing requisitions without proper consideration, which were unjust, but he was conscientiously supporting a good man, Dr. Goodchild. After the final decision was reached he did a very graceful act in writing the kindest sort of a letter to Dr. Hastings, assuring him that he would support him in all his efforts for the Department of Health conditions in Toronto.

MEDICAL EDUCATION IN VIENNA

It falls to the lot of a medical man only a few times in his life to visit the great centres of post-graduate study, and when these opportunities come he wants to know where it is best for him to go, so that he may spend the few weeks or, happily, months to the most advantage. For many generations there has been a large exodus to Vienna, and from some recent figures at hand it would seem that the capital of the Austrian Empire is still as popular as ever among American physicians.

The hospital facilities of Vienna are surpassed nowhere in the world. Not only do patients come from the city itself (with its population of nearly two millions) and the immediate neighborhood, but it is no uncommon sight to see a child, perhaps,

brought from as far as Russia, so great is the fame of the hospital in Eastern Europe. In fact, the number of patients applying for admission is so great that each bed contains for the most part only a case that is either acutely ill or is of great interest. When the new hospital is completed the building will be one of the finest in the world.

Perhaps in no other centre does one find such a galaxy of famous men, who are nearly all willing to do post-graduate teaching. The courses in all branches are usually so varied and so abundant that one has no trouble in filling up a time-table which will keep one busy from 7.30 a.m., when the lectures begin, till 10 at night. But the fees are high. The average for a general course would be perhaps \$100 a month; in a special course, with operations, a good deal more. The classes, however, are small, and there is usually the feeling that you have got your money's worth.

A doctor whose knowledge of German is very rudimentary would be pleased to hear that the language problem is not insurmountable. There are many men who go there and get good courses who do not understand a word of German. Most of the instructors can lecture in English, some of it so good that it would make even a Canadian proud if he could speak as well. Those who know German, however, have an advantage, for they can attend whatever lectures they desire. But a very few words and phrases will carry one a long way.

Vienna is a very beautiful city in many ways and has some fine art galleries. Then the outlying villages are all intensely interesting and easily reached by short excursions. Although the cost of living is rather high (\$10 to \$15 a week in a pension), the food is good, and the Viennese make a specialty of catering to the American physician. If, however, one desires to live as the Austrians do, he can get along very cheaply, although the landlords are proverbial for their sharpness in driving a bargain and in "doing the American."

The consensus of opinion among medical men who have worshipped at the shrine of Æsculapius in many places is that Vienna cannot be surpassed as a place to give both quality and quantity of work to a physician who has only a short time at his disposal.

Personals

Dr. Fred Grasett returned from England early in October.

Dr. W. B. Sproule has passed in Medicine for the conjoined qualification.

Dr. Oswald Dinnick passed his primary for the Fellowship of the Royal College of Surgeons, England, October 20th.

Dr. J. Price-Brown, of Toronto, removed to his new offices, College Street, October 1st. His telephone number is North 4040.

Dr. E. A. McCulloch, formerly of College Street, Toronto, wishes to announce to the profession and his friends that he has returned from a year's residence at the Adirondack Sanitarium and Saranac Lake and resumed practice at 141 Farnham Ave., paying special attention to the diagnosis and treatment of laryngeal and pulmonary tuberculosis.

Dr. George G. Nasmith has been appointed director of the laboratory of the Health Office in Toronto. He graduated B.A. from the University in 1900, and became Doctor of Philosophy in 1903. He has an intimate knowledge of chemistry and bacteriology. He has been the chief assistant of Dr. John Amyot in the laboratory of the Provincial Board of Health for about eight years. His appointment in the Toronto Health Department is considered eminently satisfactory.

Obituary.

1150 1910

WM. CANNIFF, M.D., M.R.C.S. (ENG.)

Dr. Canniff was one of the best known surgeons in Canada during what may be considered the last generation. He was born near Belleville a little over eighty years ago. He received a part of his medical education in New York. He was graduated M.D. from the University of New York in 1854. He also graduated M.D. from Victoria University in 1859. He was one of the founders of the Canadian Medical Association, and was President of that body at the Halifax meeting twenty-five years ago. He took a great interest in medical education, and was for some years Professor of Surgery in the Medical Faculty of Victoria College. For more than twenty years he suffered from ill health, and lived quietly near Gravenhurst, Muskoka. About two years ago he went to Belleville and remained there until the time of his death, which occurred October 18th.

Mr. G. Walley Clarke completed his third year in medicine in Toronto University last spring. After the close of the session he went to Nelson, B.C., where he had many friends. He was to have returned to Toronto about October 1st, but a few days after that his friends learned with sorrow that he died of typhoid fever after a short illness.

DANIEL ARCHIBALD SINCLAIR, M.A., M.B.

We have to report with very deep regret the death of Dr. D. A. Sinclair, one of the brightest of our young Canadian physicians. Dr. Sinclair received his general and medical education in the University of Toronto and graduated M.A. in 1900, and M.B. in 1903. He was a son of Dr. D. A. Sinclair, 315 Spadina Avenue, Toronto. When the father removed from Melbourne, Ont., his son succeeded him in practice in that town. His success was marked, and he soon gained the respect and esteem of both his patients and the general public in that vicinity. On account of ill health he was forced to give up his practice and endeavor to recover his health in another climate. As a consequence he went to California last November. His health appeared to improve for a time, and his friends hoped for his recovery. Unfortunately such hopes were vain, and his many friends were sorely distressed by hearing that he had died at Pasadena, Cal., October 1st, 1910.

Book Reviews.

Anatomy, Descriptive and Applied. By HENRY GRAY, F.R.S., Fellow of the Royal College of Surgeons; Lecturer on Anatomy at St. George's Hospital Medical School, London. Eighteenth edition, thoroughly revised and re-edited, with additions by Edward Anthony Spitzka, M.D., Professor of General Anatomy in the Jefferson Medical College, Philadelphia. Illustrated with 1,208 engravings. Philadelphia and New York: Lea & Febiger. 1910.

Medical literature, from its nature, numbers very few books which can be regarded as classics. Of those we have, Gray's Anatomy stands first. Since its first appearance it has been the authority on the subject of anatomy and has been the means of introducing thousands of medical students to the mysteries of this art.

The present eighteenth edition has been thoroughly revised. The former sections on "Surgical Anatomy" are now called by the more comprehensive term "Applied Anatomy." A happy medium has been maintained between the old and new terminology. The illustrations are splendid and could not be surpassed. Both the editor and the publishers are to be congratulated on this new edition of an old friend which they have given to the profession.

A Practical Guide to the Newer Remedies. By J. M. FORESCUE-BRICKDALE, M.A., M.D., Oxon.; Physician to Clifton College; Assistant Physician to the Bristol Royal Infirmary; Lecturer on Pharmacology in the University of Oxford, and Clinical Lecturer in the University of Bristol; Joint Author of "The Chemical Basis of Pharmacology." Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1910.

Every day the medical journal or the manufacturing chemist brings to our notice some new drug-stuffs. As a rule these are the products of synthetic chemistry, and it is a confession we must make that many of them are used with very little knowledge on our part of their real composition or physiological action. Many of them are very useful, and their value has been proved by clinical experience. In this small book the composition of many of these compounds is made clear to us and their therapeutic value discussed. Thus we can pick the good from the bad. When so many of these instances are being encountered every day this is a book which all can be recommended to read.

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). *Naturam morborum curationes ostendunt.* With 198 illustrations. New York: Rebman Company, 1123 Broadway.

A vast amount of knowledge has been incorporated into this book, and it indicates a wide acquaintance with medical literature, past and present, on the part of the author. The only criticism we would like to make is that the title to us appears misleading. The book might well be divided into two volumes, one on therapeutics, the other on methods of diagnosis. In describing the action of drugs, various phenomena following their use are in many cases shown to be of diagnostic importance, and this part of the work apparently gives the title to the whole. The rest is taken up with very careful and complete descriptions of other therapeutic procedures, while more than half of the book deals in a very clear and well-written manner with diagnostic methods. Good explanations are given of the various phenomena encountered, and in point of style and lucidity this section is excellent. All who read it can be sure of finding something new, as it departs in many ways from the stereotyped text-book.

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Selections.

Pathogenesis of the Diarrhoea of Basedow's Disease

Balint and Molnar (*Berliner klinische Wochenschrift*) state that this subject has received little attention until in recent years. Our increasing knowledge of internal secretions is responsible for the newly awakened interest. It has been assumed that the diarrhoea may be in some way associated with pancreatic insufficiency. The research instituted by the authors is best shown in the relation of a single case, as follows: Woman, 27; for past three years exophthalmic goiter. Patient pregnant when disease supervened. Desire for food and drink had been one of the principal symptoms, accompanied by diarrhoea. Despite intake of water and food, patient became emaciated. Excess of perspiration was also present. When first examined the patient presented the same syndrome as was shown in the history. The symptoms in any case of Basedow's disease are sufficiently numerous; so that the relation of the case must consist chiefly of the gastroenteric symptoms. The patient, who ate and drank freely, had from four to eight movements daily, either semisolid or fluid. There was considerable fat present, but it was intimately mixed with other stool content. In other words, so-called butter stools were absent. The function of the pancreas was now tested by giving a Boldyreff-Volhard oil breakfast and analyzing ordinary faeces as to the presence of trypsin and diastase. The results appeared to show that there was no inactivity in the external secretion of the pancreas. There remains for consideration the recently made claim of Falta that the diarrhoea of Basedow's disease is due to insufficiency of the pancreatic internal secretion. The authors know too little as to Falta's data to criticize this opinion; but in their own case there was neither diabetes nor experimental alimentary glycosuria.—*Medical Record*.

Bacterium Coli Commune as Pathogenic Germ and Saprophyte

Fejes, of Prof. Jendrassik's clinic in Budapesth (*Deutsche Med. Woch.*), comes to the conclusion, after a study of several cases, that the *B. coli commune* may behave purely as a saprophyte in causing an absorption fever without further pathogenic changes. Naturally so radical a conception requires continuous clinical corroboration. Each typhoid convalescent must be tested as to faecal and urinary constituents. The views of the author are best illustrated by his cases, one of which was as follows: Healthy girl, aged 18, was taken with a severe cold and

sore throat, two or three weeks before consultation. From this condition she made a complete recovery. Three days before consultation she was seized suddenly with abdominal pain, chills, fever, constipation, vomiting and hiccough. Diagnosis: Cholangitis, enlarged liver, right-sided pleurisy. The patient made a good recovery. In order to understand the nature of the condition a bacterioscopic examination was absolutely necessary. The bacillus coli commune was readily cultivated from the blood and found to be highly virulent. The same micro-organism was also present in the pleuritic exudate. The author assumes that the *B. coli* first caused the angina. It was not only swallowed, but also reached the blood. The swallowed germs caused the cholangitis, while those which reached the blood were responsible for the febrile attack. The pleurisy, doubtless, resulted from infection of the germs through the diaphragm. Other cases show a similar mechanism. Such cases of colisepsis bear little analogy with typhoid, but the author believes that such sepsis is often grafted upon typhoid fever, the germs reaching the blood through the intestinal ulcers. Despite the presence of the bacilli in the blood, close observation leaves doubts as to its pathogenicity, *i. e.*, as far as its power to cause metastases is concerned. Instead of colisepsis, colitoxemia might be a more acceptable term. In other words, the lesions of the tonsil, gall ducts and pleura were due to local attack, while the blood state was merely a toxemia.—*Medical Record.*

Ileocolitis and Acidosis

T. D. Parke (*J. A. M. A.*) calls attention to this distinctly marked symptom-complex. The symptoms are described as follows: After from one to four days of looseness of the bowels caused by mild ileocolitis, labored breathing develops, often suddenly, followed by prostration, restlessness, obstipation and enlargement of the liver. The temperature is sometimes subnormal. In other cases it stands about 100° F., and in a few patients runs higher. Vomiting with an acetone odor of breath occurs in a good proportion of cases. The urine is limpid and free. Albumin is sometimes found. Urine from three patients was submitted to chemical examination, and in each the report was that ammonia nitrogen was high. Jaundice has always been absent. During the labored breathing the breath feels cold to the hand held in front of the nostrils. This has been interpreted, rightly or wrongly, to mean volatile substances thrown out in the expired air. In fatal cases death seems to come from exhaustion, from forty-eight to seventy hours after the onset of the labored

breathing. In cases of recovery the duration of labored breathing was about the same. Convulsions were not observed and coma not until a few hours before death. The mortality, in a series of thirty-two cases observed, was 71 per cent. In nine cases autopsies were made and the findings were negative as regards gross appearances, except injection of the mucosa of the intestine in some cases and acute yellowish areas on the surface of the liver, extending downwards to various depths in the substance. The gall-bladder has in all cases been distended with dark, green, ropy bile. Microscopic examination has only shown fatty degeneration of the liver. Treatment has varied from eliminative to symptomatic, with the employment of strychnine in good doses, epinephrin, and hypodermoclysis of normal salt solution. Treatment is of little avail when sufficient injury has been done to the system, but when this is not the case hypodermoclysis is of value.—*Medical Record*.

Acute Coryza

When it is desired to arrest a cold in the head in its evolution, it may be treated three or four times a day with inhalations of the vapour of boiling oxygen water. Where there is much running of the nose, it can be checked by the administration of a quarter of a milligramme (1-250) of atropine, morning and evening.

As abortive treatment, it has been advised to sniff the juice of a lemon, or to inhale a few drops of chloroform and menthol (1-20).

Prof. Hayen recommends the following mixture:

Phenic acid, 1 dr.
 Liq. ammonia, 1 dr.
 Proof spirit, 2 dr.
 Water, 3 dr.

A few drops on blotting paper and inhaled.

The following powder may be snuffed:

Cocain, 6 grs.
 Menthol, 10 grs.
 Ground coffee, 20 grs.
 Boric acid, 3 drs.

Or this:

Menthol, 10 grs.
 Salol, 40 grs.
 Boric acid, 2 drs.

Adrenaline is now much employed; two drops of a solution

of 1 in 2,000, applied with a brush, gives immediate relief.

Or:

Sol. of adrenaline (1 to 1,000), 10 drops.

Sol. of cocaine (1 to 100), 5 drs.

Cherry laurel water, 5 drs.

Sniff up a few drops three or four times a day.

A spray of a mixture of menthol (15 grs.) and vaseline oil (1 oz.) is agreeable and useful.

Where inflammation of the lip and the edges of the nose is present:

Cocaine, 10 grs.

Tannin, 1 dr.

Cold cream, 5 drs.

—*The Medical Press.*

Surgical Treatment of Exophthalmic Goiter

Porter (*ibid.*) agrees with other surgeons that surgery, in properly selected cases, offers more and quicker improvements than medical treatment. To be successful, earlier operation must become the rule before incurable degenerations have developed. When reasonable medical treatment has been carried out the surgeon should be consulted. While from the very nature of the disease permanent cures may not be common, permanent improvements follow timely and appropriate operation in the large majority of cases after medical treatment has proved unavailing.—*J. A. M. A.*

Miscellaneous.

The Illy-Nurtured Baby

In the course of daily practice the physician is frequently called upon for advice as to the management and treatment of the child that fails to thrive. Many such babies, while not marantic, and while apparently happy and healthy in other respects, seem to remain "in statu quo," without evidencing the normal growth and gain in size and weight. Very naturally, the first thing to be investigated is the character of the child's food, the frequency of feeding, etc., and attention to the food factor is imperative, if improvement is to be expected. In addition to this, however, the little patient often requires some "fillip" to vitality, in the form of a mild general tonic and reconstructive. For this purpose nothing is more generally beneficial than Pepto-Mangan (Gude), in doses proportionate to age. Being palatable, even young children take it readily. As it is free from irritant properties, it is readily tolerable and absorbable, without disturbing the digestion or producing constipation.

High-Frequency and Thermo-Penetration in the Four-Cell Bath. Dr. Schnee's System

The lecturer gives a summary, based on the latest scientific experience and research, with regard to the production and therapeutical employment of high-frequency and thermo-penetration. His researches have proved that both kinds of current are suitable for general as well as local application in the four-cell bath, whereby their action has been found to be much more evident and successful.

Further publications on this subject are to appear. At the conclusion the lecturer requested those present to also undertake trials in the described manner.

A New Massage Method

The lecturer at first referred to the recent articles on the subject in Nos. 30 and 31 of the *Medizinischen Klinik*, and again cursorily described his new massage apparatus, which, for the greater part, is capable of replacing the manual massage practiced up to the present, and which, with only a third part of the