

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- | | | | |
|-------------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> | Coloured covers /
Couverture de couleur | <input type="checkbox"/> | Coloured pages / Pages de couleur |
| <input type="checkbox"/> | Covers damaged /
Couverture endommagée | <input type="checkbox"/> | Pages damaged / Pages endommagées |
| <input type="checkbox"/> | Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée | <input type="checkbox"/> | Pages restored and/or laminated /
Pages restaurées et/ou pelliculées |
| <input type="checkbox"/> | Cover title missing /
Le titre de couverture manque | <input checked="" type="checkbox"/> | Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées |
| <input type="checkbox"/> | Coloured maps /
Cartes géographiques en couleur | <input type="checkbox"/> | Pages detached / Pages détachées |
| <input type="checkbox"/> | Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire) | <input checked="" type="checkbox"/> | Showthrough / Transparence |
| <input type="checkbox"/> | Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur | <input checked="" type="checkbox"/> | Quality of print varies /
Qualité inégale de l'impression |
| <input type="checkbox"/> | Bound with other material /
Relié avec d'autres documents | <input type="checkbox"/> | Includes supplementary materials /
Comprend du matériel supplémentaire |
| <input type="checkbox"/> | Only edition available /
Seule édition disponible | <input type="checkbox"/> | Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées. |
| <input type="checkbox"/> | Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure. | | |
| <input checked="" type="checkbox"/> | Additional comments /
Commentaires supplémentaires: | | Continuous pagination. |

THE
CANADIAN PRACTITIONER

EDITOR:

ADAM H. WRIGHT, B.A., M.D. Tor.

ASSOCIATE EDITORS:

JAMES F. W. ROSS, M.D. Tor. JOHN CAVEN, B.A., M.D. Tor.

EDMUND E. KING, M.D. Tor.

PUBLISHERS:

THE BRYANT PRESS, 20 BAY STREET.

VOL. XX.

OCTOBER, 1895.

[No. 10

Original Communications.

EXPERIMENTAL CACHEXIA STRUMIPRIVA (THYROIDEC-
TOMICA).*

By WESLEY MILLS, M.A., M.D.,
Professor of Physiology in McGill University,
MONTREAL, QUE.

AS a result of new methods, new facts, and an altered point of view, the face of modern medicine is being so changed as to be scarcely recognizable. Within a few years we have passed through two phases of the microbic theories of disease: one in which the microbe was thought to be directly the cause of morbid conditions; the other, and later one, in which the direct effect of the microbe is subordinated to the results consequent on the action of such products as it may originate within the organism, usually denominated toxins. But concurrently with the reign of the microbe there developed clearer views of biological, physiological, and chemical processes both in health and in disease. The metabolism of cells as such,

* Presented, with demonstrations, before the Canadian Medical Association at Kingston, August, 1895.

or as they compose tissues and organs, may not yet be as clearly grasped as could be desired ; but such new and unexpected light has been shed on the working of the body, its metabolism, by the removal of certain organs, in whole or in part, that changes have been, in consequence, made in theory and practice scarcely less remarkable than such as have grown out of the investigation of microbes in all the varied parts they play in disease. As a result, the understanding of the processes of life as a whole has been, or may be made, clearer ; in other words, there has been a remarkable advance in physiology. Several organs, the function of which was believed to be known, have been lifted into greater prominence by having new functions attributed to them, or at least it has become clear that we must no longer believe that their use in the economy is fully explained by the functions till lately assigned to them.

Our difficulties regarding ductless glands are at all events disappearing, if they have not been wholly removed ; and, as often happens, the indirect benefit is perhaps greater than the direct, for by these recent advances we are led to see how crude have been many of the explanations offered to the student of physiology up to the present time.

I have chosen the above subject on which to engage your attention for a short time because, in the first place and chiefly, I regard these changes of view of so much importance as likely to give rise to many practical results, sooner or later, of a character quite beyond our powers to define just now ; and, in the next place, because the thyroid gland is attracting deservedly so much attention at present in practical therapeutics ; and its study is likely to give rise to similar investigations of other organs whose function has been obscure, and, as hinted before, may lead to still greater widening of our views of the scope of action of organs to which we have long attributed only certain functions ; and, finally, because I have felt that I would be best entitled to claim your attention to what I had myself made the subject of some investigation, selecting it for the present occasion rather than some scientific subject whose practical bearings were less evident ; while I hoped that the practical demonstrations I might be able to give may be more impressive and illustrate more clearly the importance of this gland in the animal economy than any mere descriptions possibly can.

So many workers in different lands have now reported their results, and so many theories have been held as to the function of the thyroid gland, that the time would fail me to refer to them all, or to any of them, at great length.

From the notion that the thyroid gland had no function whatever, or that it was a mere mechanical diverticulum or reservoir for blood, down to the more definite and narrow view that it is concerned with producing and

imparting to the blood some substance essential for the tissues, there is a great gulf fixed surely.

An admirable résumé of the different views held from time to time, with a statement of the results of his own and others' experiments on animals, from the pen of Prof. Victor Horsley, will be found in the *British Medical Journal*, 1894 ; indeed, I have but few new facts to contribute, though I shall present the subject very much as it has impressed me as a result of my own experiments and reflections.

We are beginning to recognize that a physiology for any organ is not universal, *i.e.*, we cannot after investigations on one group of animals apply the conclusions, legitimate in such a case, to another until that other has been investigated. I note this change with the more pleasure, as I believe I was one of the first to insist on this sort of caution.

Now, nothing is clearer from comparative experiments than that removal of the gland leads to very different results in different species of animals. Some, as birds and rodents, show no symptoms, while others, as the carnivora, soon manifest a group of grave symptoms that usually speedily end in death ; while between these there are species of animals which do not manifest for months the cachexia that may finally prove fatal.

The conclusion has been drawn that the gland is of very varying importance in these different groups of animals. While this may be true, I do not see that it must necessarily follow, for it may be that its function is quite as important normally, but that the power of compensation by other organs may be greater, as it certainly is in certain individuals, for all of the same group may not show the cachexia equally soon or succumb so speedily ; nevertheless, it is likely that the gland is of very much more importance in the dog or the cat, for example, than in the ox or the horse.

One point is beyond doubt, *viz.*, that the gland is of vastly more importance to the immature animal than to the adult, while the old seem but little dependent on it. The organ is believed to be functionally active before birth even in man, and it atrophies in the old. Certainly the results of removal in the young and in the old are very different. A young dog will die soon after the operation, while an old one may long survive.

"Fœtal rickets" is probably the cachexia strumipriva.

I have had no experience with monkeys ; but so far as I have observed other animals, the symptoms and the order of their development may be classified, as Prof. Horsley has done, into those of, first, increase, and, second, diminution, or want of function—a classification based on that of Hughlings Jackson as applied to diseases of the nervous system.

The most prominent symptoms are referable to the nervous system. In the carnivora this is always well seen when the cachexia follows at all. First of all, at a variable time after operation, in animals not old, usually

in a few days one notices the symptoms of overaction, *i.e.*, tremors which may grow into more or less tetanoid spasms, reminding the physician of a case of tetany.

These are followed by, and, to some extent, replaced by, diminished voluntary motor power or paralysis.

Very early in the history of the case the animal walks stiffly, and later he may, from pure paralysis, as well as general weakness owing to lowered vitality, walk very feebly, or not at all.

Generally progressive and rapid emaciation is well marked in the carnivora; though after complete extirpation in man this is not always pronounced. In my experience, it is always marked in the carnivora, no matter how well they may be fed before or after the operation, though, of course, an animal in good condition will last longer than one already thin, or out of condition in any respect. It reminds me of the rapid loss of flesh often seen in dogs with distemper. Another symptom that impresses one greatly in most cases is the dyspnoea. To look at a dog in the later stages of the cachexia, witness the emaciation, the dyspnoea, the tremors or spasms, the weakness, paralysis, and stupor (cretinism), is to behold a picture never to be forgotten; and all this caused by the removal of a gland weighing, in even a large dog, only a few grammes—so delicately adjusted is the vital mechanism in any mammal. Some stress must be laid on the dullness. A cat that would show every sign of excitement at the sight of a dog is, in an advanced condition of the cachexia, indifferent even when placed in the same cage with this animal.

And while the carnivora from showing the symptoms of the cachexia strumipriva in the most pronounced form are the best suited for demonstration, the same set of symptoms, in greater or less degree, seems to appear in all animals affected, though in the case of man some of them are so indifferently marked that they may escape observation.

It is interesting to note, in this connection, that Dr. James Stewart, of Montreal, has reported a case of myxoedema, preceded by tetany, in which there was complete absence of the thyroid gland.

The change in temperature, decided elevation in the stage of overaction and fall in the stage of depression, witnesses to the great derangement of the vital processes.

A myxoedematous condition occurs in animals from which the thyroid gland has been removed, but this has not been present in any appreciable degree in those on which I have operated, owing probably to the rapid progress towards a fatal issue.

In one of the dogs from which I removed the gland, there were no symptoms after several weeks. I then used the animal for another experiment, and two weeks later it was destroyed.

It is usual to explain these exceptions to the ordinary course of events in one of two ways : (1) Delay in the appearance of the cachexia, which would ultimately develop if the animal were allowed to live long enough. (2) The presence of supplementary thyroids to be found in the neck (thyroid region), or in proximity to the arch of the aorta. However, I do not see that, if in some cases the cachexia never appeared in a form appreciable by us, it would wholly invalidate the theory, or that the result would be entirely without parallel.

The removal of the testes is followed by different effects, not only in different classes of animals, but in the same species ; *e.g.*, it is absolutely impossible to predict what the physical, or even psychical, effects of castration will be in the dog, beyond perhaps the annihilation of sexual power. In some cases, for example, the animal becomes grossly fat, loses all spirit, and leads a sort of vegetative existence ; while in others he appears to be but little changed in any way—at least to ordinary observation.

But we must now inquire into the cause of these remarkable results. It is known that some product or products elaborated by the secretive power of the gland passes from its acini into the lymphatics, and thence to the blood. The so-called colloid material is really of an albuminous nature.

The old view that the gland is hæmopoietic is not wholly erroneous, though that it has any direct function in the formation of blood cells is not supported by good evidence ; but that it does influence this process indirectly is beyond doubt, unless we attribute the decided diminution of red cells to a destruction of the cells already formed rather than to an inhibitive influence over the processes of their formation, for one of the most marked effects of thyroidectomy is the diminution in the number of the red corpuscles, accompanied by an increase in the leucocytes, afterwards followed by a fall to normal or below it.

Turning from this aspect of the subject, for the present, to the nervous symptoms and the dyspnoea, how are we to explain derangements so pronounced and so rapid as these generally are in the carnivora at least ?

The tendency now seems to be to abandon the earlier theory that the cachexia was produced by failure to abstract some injurious product from the blood when the gland is diseased, or has been removed by operation. Attention is now rather called to the probability that those products which the gland supplies to the blood are essential to its complete constitution, and without which defect in the metabolism must result.

It is being slowly realized that the corpuscles do not constitute the blood, and that the blood is not, as by far the larger proportion of students are apt to think, a mass of cells floating in a fluid which exists principally

to convey these corpuscles hither and thither ; but rather that the blood is a fluid of infinite complexity, and of whose composition, except as regards a few of the coarser details, we know but little, except in the vaguest way.

The dyspnœa that is one of the most striking evidences of the cachexia is evidenced by some as proof that the gland plays a special part in connection with the oxidation of the blood and the tissues, though exactly how has not been made clear.

Horsley and others would explain the dyspnœa in great part through the effect of the disordered blood on the respiratory centre, and suggests that the cardiac symptoms, etc., point to a special derangement of bulbar centres. In some of my cases, the dogs passed from violent dyspnœa to calm breathing, suddenly, and, after remaining quiet for many hours, again became dyspnœic as before. This could scarcely be owing to any temporary improvement in the blood, but might be explained by exhaustion and diminished excitability of the respiratory centre perhaps. At all events, the venous condition of the blood does not seem to furnish a complete explanation of the dyspnœa, and the sensitiveness of the respiratory centre is known to us all.

It would appear that the cells that are directly concerned with movements, whether in the cortex of the brain, in lower encephalic centres, or in the spinal cord, are all affected. Direct experiment has proved that in the first instance there is heightening of the cortical excitability to electrical stimulation, and, later, the reverse ; but that the tremors and spasms are not dependent solely on the cortex was well shown in a case of my own. A young dog from which I had removed both cortical motor areas some weeks before developed the nervous symptoms of the cachexia in the usual way, and died on the sixth day. To my mind, the development of the nervous symptoms, and the light thrown on them by experiments both of stimulation and ablation, should enlarge our views of the mechanism of movements.

If it be true that a meat diet, and especially meat extracts, hasten death after the removal of the gland in the carnivora, then it would seem that possibly the thyroid gland may have an effect on the elaboration of products from the food which enter the blood, and so affect the metabolism in that way. In my cases meat has been withheld after the operations, so that there would be no fallacy from this source.

In order to understand the complexity of the workings of an organism like that of a mammal, one must study life in simpler forms, even in unicellular plants and animals, and then consider how involved the whole must become when there are a large number of colonies of cells of related form and function constituting tissues and organs, and that all these

structures are bathed in a lymph derived from and destined to return to the blood.

Since every cell not only takes from, but of necessity must give up to, the lymph, and so to the blood, some products which modify its composition, it follows that the blood expresses or represents in a way the results of the metabolism or cell-work of the entire organism, and possesses a complexity of composition beyond our power to fully conceive. Such a fluid it is impossible to analyze by any chemistry known to us at present. Such a fluid is never for a moment of identically the same qualitative and quantitative composition. I find no conception more helpful to myself in understanding life than that of ceaseless and infinitely rapid change.

We must remember, too, that the actions and reactions of cell upon cell, and organ on organ, are innumerable and never ceasing. It follows, therefore, that not a single cell, much less a single organ, can be removed or modified in its action without affecting the whole organism, and chiefly through the blood and lymph in the first instance, afterwards in no small degree through the nervous system in most cases.

And overlooking or insufficiently remembering these considerations has led to the adoption of very narrow views as satisfactory. It is the purpose of science to supply accurate information, but it should be equally the aim of science to avoid accepting views that must, in the nature of the case, be inadequate. Sufficient caution has not generally been exercised, or perhaps I should rather say that the conception of the complexity that actually exists is too often forgotten ; hence we do accept explanations that must, in the nature of the case, cover only a small portion of the facts.

Accordingly, I am myself unable to comprehend how we can understand the effects of removal of an organ by simply bearing in mind the part it plays of itself, so to speak, without also remembering what influence it may have as part of a complex whole. In a complicated mechanism, some wheel may of itself have little use, but by its removal the general balance is destroyed ; so in the animal body, by the removal of one part, countless other parts are thrown out of adjustment. Hence, to say that the thyroid gland, when extirpated, fails to remove from or to impart to the blood certain compounds may be true—no doubt is true—though we may be, and probably are, inadequately informed as to what is taken from and added to the blood ; but it is only a small part of the truth, for how can we possibly estimate how far-reaching such disturbance may be, apart altogether from the direct effect of the gland itself in the way usually indicated ?

I have been much interested in a report by Grigorieu (*Zeitschr. f. Heilk.* 1894, Bd. xv.) on the changes produced in the spinal cord of man after the removal of the extremities (amputations). But shall we conclude that the changes are confined to the spinal cord ? Nor must we, in any

case, ignore changes which may not be obvious. No doubt, many functional variations may be too slight for appreciation by us, either subjectively or objectively, at the time, yet they may lead to others of an obviously serious kind.

The fact that removal of part of the thyroid gland leads to hypertrophy of the remaining portion is of itself proof that the gland is of much functional importance, and at the same time illustrates, as do all such cases, that action and reaction, complex beyond all conception, which is ever going on, and to which I have been alluding. No cell is so small, so distant from others, but that in some way it makes itself felt, and this is to me the most important lesson of all of this recent development in physiology and medicine, growing out of the study of the total or partial extirpation of organs, of transplantation, of feeding of glands, etc.

But the subject is only opening up. It has been suggested that the pituitary body has a function allied to that of the thyroid gland, judging from its similarity of structure; but, according to the teaching of recent experiments by Prof. Schäfer, this is not the case.

If principles that seem to me to follow from the general laws of biology are well founded, then all organs probably impart to and remove from the blood certain special substances, and the recent additional knowledge of the thyroid, the pancreas, the pituitary body, the suprarenals, etc., are special cases under a very wide general law.

I venture to suggest that the testicles, for example, have a function of no small importance in the economy altogether apart from reproduction. The evidence for this is derived from the effects of removal, as well as from subjective experience and from observation, for, although not followed by such a cachexia as proves rapidly fatal, castration is, in many cases, in certain groups of animals, the sole cause of a series of degenerations, physical and psychical, not less pronounced than that which occurs after thyroidectomy in some animals. I conclude, therefore, that these organs are, if not essential, of no small importance in maintaining a well-balanced and vigorous metabolism. If the thyroid elaborates from and returns to the blood bodies that are tonic or stimulant to the organism, so in all probability do the testicles. But I wish to again point out that these are only marked examples—special illustrations of the old fable of the belly and the members.

With the advance of science our knowledge of exactly what the chemical products, etc., are will increase; but the time can never come when the whole matter will be completely understood—there will always remain some relations to be discovered and some mental connections to be made. A science of physiology exact and complete is to be aimed at, but cannot be realized. In the meantime, the physician will think the better and estab

lish his therapeutics on a more rational basis, I firmly believe, by a good grasp of the general relations of each part of the organism to the other, aiming ever at greater and greater definiteness in his conceptions. We see as through a mist, but we may hope to get more and more light through the mist.

ADDENDUM.

It may be instructive to give, in the briefest manner, an account of the development and course of the symptoms in those animals operated on specially for this meeting.

1. *Dogs.* (1) Puppy, five weeks old. Thyroidectomy on August 23 at 4 p.m. August 24: Does not eat well. At 10 p.m. violent dyspnoea, delirium; limbs, especially hind limbs, spastic. This condition continued, with intermissions lasting some hours, till death on fifth day. This case illustrates the rapidity of the onset, severity, and progress of the cachexia to a fatal issue in a very young specimen.

(2) Small bitch of about 20 lbs. Thyroidectomy, August 24. August 26: Looks fairly bright, but snuffles and shivers; twitchings, especially in the muscles of the shoulders. Begins to emaciate. Temperature somewhat elevated. Gradual progress in the cachexia, resulting in death on the way to Kingston, August 27, probably in convulsions. Lived less than four days. This bitch looked as though she might have been nursing puppies recently, which might hasten the issue.

(3) Small dog of about 18 lbs., in good condition. One-half the gland removed on August 22. August 23, a little dull. August 24, same symptoms as in the preceding case, including slight rise of temperature.

These symptoms did not progress in severity, but, on the contrary, disappeared gradually, and the dog throughout got brighter, fed better, and became more natural generally.

This case illustrates the fact that a part of the gland will suffice for the needs of the economy.

2. *Cats.* Two cats were operated on at the same time, August 26. August 27: One eating badly; shows muscular tremors. One of the cats very dull and will not eat. Both are dyspnoeic, especially the duller one. August 28: This cat has violent muscular twitchings, is very dull, and declines food. August 29: Both cry and move about in a way suggestive of delirium, especially the smaller cat, that up to now has been least affected. When the limbs are raised, there are irregular violent movements, showing inability to co-ordinate.

August 30: The one first affected has a convulsion. This cat continues to get worse, becomes comatose, and dies on September 1.

The other lives till September 3.

The glands removed, preserved in glycerine with a little water added, were exhibited.

The operation on dogs, cats, rabbits, etc., is of the simplest character. I have used antiseptic precautions, and found that the wound healed rapidly in all cases. No meat was given after operation, as it is thought to hasten the fatal issue.

My thanks are due to Dr. W. S. Morrow, Lecturer in Physiology, of McGill University, for kind assistance with the anæsthesia, etc., in these and other cases of thyroidectomy.

THYROID FEEDING IN STUPOR.*

BY C. K. CLARKE, M.D.,
Medical Superintendent, Rockwood Hospital,
KINGSTON, ONT.

SINCE recent unfair and uncalled-for criticism of asylum methods, medical men in hospitals for the insane have long been looked at askance, although undeserving of such wholesale condemnation. Even journals in Ontario have joined in the persecution without an effort to find out what is being done in our institutions, and, as I feel that we are at least entitled to fair play, I would beg of you all to enquire before you condemn. It is quite true that the asylum physician is too far apart from the general practitioner, and I hope the day is not far distant when we can have the benefit of consultation with general practitioners on certain cases that present difficulties to the specialist. These might have a flood of light thrown on them by the physician accustomed to look on things from a standpoint quite different from that selected by the alienist. There are those who think that in another class of cases in which the general practitioner finds difficulties the alienist might be helpful, but of that it is not my purpose to speak.

Without giving our critics credit for a discovery that most of us in hospitals made long ago, I may say that one of the dangers in an institution is that of falling into ruts and adopting methods of classification quite unjustified by some of the results that take place. We are apt to treat those under our care as a whole rather than individuals, and fall into the error of calling a case chronic when there is really a hope of benefit, if not cure. Of course, there is likely to be a good deal of difference of opinion as to what constitutes a recovery from mental disease, and those who pose for the applause of an indiscriminating public can show averages of recoveries that are not understood by the uninitiated; but this does not concern us here. In the course of long hospital experience, I have frequently been struck by the fact that some unexpected occurrence has resulted in the cure of patients who had been relegated to the list of chronics, and for whom we absolutely had no hope. As a matter of fact,

*Read before the Canadian Medical Association, at Kingston, August, 1895.

the conditions were not understood. I have been particularly struck by the fact that in certain forms of stupor and melancholia the circulatory system has suffered to a marked extent, but it has not been possible to determine whether this was owing to positive physical disease or the presence of toxins. I have been equally impressed by the fact that certain occurrences, causing a distinct alteration in the circulation, resulted in striking mental changes not looked for and theoretically illogical.

From our limited point of view, it is difficult to see through this ; from your broader field of general practice, you may be able to look at the problem with greater clearness.

Let me illustrate the point I wish to emphasize.

Under certain conditions, the water supply at Rockwood Hospital for the Insane became contaminated by sewage, and typhoid appeared regularly. Although these outbreaks were an unpleasant experience, still they furnished valuable material for the clinical study of the effect of acute disease on mental trouble. We soon learned to look with interest for developments, and although, theoretically, one would be led to believe that the occurrence of an exhausting disease like typhoid would act most unfavorably on the mental condition, such has not been the experience ; in fact, it has just been the reverse, and recovery after recovery has taken place in a way that must justify one in the belief that the occurrence of acute disease was a benefit rather than otherwise. The happy result was particularly striking in many cases regarded as chronic. In others, improvement of evanescent type took place, and so great was the change that, for a time, it looked as if recovery were about to occur. The fact that we had so many cases of typhoid made it a simple matter to arrive at crystallized opinions on this subject ; but it is by no means a new discovery that acute diseases, in some instances, modify mental symptoms, or that striking results are obtained in cases of stupor by some sudden shock or injury.

These cases of stupor are always of great interest, and most difficult to manage. Many of them make excellent recoveries ; others improve for a time, then stand still, and finally slip back into hopeless dementia. We feel that, theoretically, they should recover, and yet there is something we cannot find necessary to give the start toward mental restoration.

It was with peculiar interest we read the first vague experiments with thyroid extract in cases of mental disease ; and, when our studies were under way, the results obtained by Drs. McPhail and Bruce made us follow up the subject with deepened interest. Having in mind the classes of patients most benefited by typhoid, we selected, for early experiments, well-marked cases of stupor where the outlook had become unfavorable, if not hopeless. The cases cited here are merely a few among many

experimented upon, but are characteristic. A decided reaction was sought for, and the dose of thyroid regulated by the tolerance of each patient. As this paper is written merely with the hope of exciting discussion on a subject of intense interest, I cannot do more than deal in general statements in the time at disposal, but perhaps enough will have been said to engage the attention of those specially qualified in physiology and pathology to make some satisfactory explanation of the rationale of the action of thyroid extract, or of acute disease, in cases of stupor. It is certain that thyroid extract is a therapeutic resource of value in such cases, although more extended clinical research will enable us to select the patients most likely to be benefited by the treatment, and it would be a great help if the use of the extract could be made less empirical than at present. Cell nutrition is undoubtedly affected in a striking manner; increased metabolism occurs as the result of quickened circulation, and the autotoxic process so frequently present in cases of mental disease is interfered with in a way that may be beneficial. In other words, some patients are given a new start.

J.S., male, æt. 20, single. Of active, temperate habits. Twice insane before present attack. Hereditary; exciting cause la grippe. Insane two weeks before admitted. In certificates it is stated, "He is dull, impassive, tendency to look vacantly, and shows no sign of intelligence. He hesitates, and does not wish to answer questions. General appearance melancholy. His whole conduct is quiet; takes no interest in anything; chews chips (going to swallow these); put his hands on the hot stove. Every appearance and action of dementia. He held a book in his hand for half an hour without moving," etc.

Admitted January 12, 1893. Was in a state of complete stupor, without intelligence; dirty in habits, and required as much attention as an infant.

In January, 1894, the patient unchanged; getting thinner in spite of every attention in the way of extra diet and tonics.

January, 1895. Unchanged mentally, although much improved in physical health. Sits in one place all day; has to be led out to meals, and is in a condition of complete stupor.

January 8, 1895. During his previous residence in this hospital, when his mental condition was the same as at present, he recovered during an attack of typhoid. It is thought that, under the circumstances, thyroid feeding might give interesting results.

January 8. Treatment commenced with $3\frac{1}{2}$ grains of raw thyroids. Before giving, temperature, 97° ; pulse, 78; respiration, 13. Difficult to get specimen of urine for analysis.

January 10. Thyroids omitted on account of slowing of pulse, 51.

January 12. Five grains of desiccated thyroids noon and night.

January 13. Five grains three times a day; perspiring freely; habits more cleanly; puffiness below the eyes; much brighter mentally, and will laugh and talk.

January 14. Slight epiphora and oedema. Urine obtained and analyzed. Color, light amber; reaction, acid; specific gravity 1016. No albumen, no sugar. Dose of thyroids increased to ten grains three times a day.

January 16. Perspiring freely; muscular twitching in hands. Brighter than at any time since admission; laughs and talks freely.

January 18. Dose increased to fifteen grains three times a day. No perspiration.

January 19. Skin dry, and only a little moisture in axilla. Obeys instructions with alacrity. Dose increased to twenty grains three times a day. No change.

January 22. Perspiring. Has herpes labialis. Twitching of muscles of thumb.

January 23. Same doses, viz., twenty grains three times a day. Reaction marked. No further mental change.

January 24. Nasal mucous membrane much congested. Twitching of muscles of hand and left side of upper lip. Is very bright mentally.

January 30. Talks a great deal; answers all questions. Pulse rapid, irregular, and weak. Hands tremble; muscles of face twitching.

January 31. Thyroids discontinued. Complexion much clearer; scales on face. Complains of thirst, and of feeling sick. Talks a great deal. Has lost flesh, and is weak. Fibrillar twitchings of upper extremity and face. Arterial tension diminished. Complains of headache and gastric distress. Urinary analysis: Color, light amber; specific gravity 1022; acid; a trace of albumen; no sugar.

February 1. Quite well mentally, as far as can be ascertained. Still complaining of nausea and thirst.

February 2. Desquamating freely. Quite well mentally. Albumen disappeared from urine.

February 3. Feeling better physically; very hungry; put on Easton's syrup.

February 4. Improved. Is bright and happy, and cannot get enough to eat.

February 5. Putting on flesh rapidly.

February 6. Not quite so bright mentally.

February 7. Has suddenly relapsed to condition of complete stupor. Has returned to old dirty habits.

March 1. No improvement; is worse physically, and no better mentally, for treatment.

The result in this case was disappointing, although we felt satisfied the relapse was likely to occur. The sudden way in which this happened was remarkable, but I have seen the same thing take place several times after typhoid.

H.S., æt. 35, married. Habits of life good. Exciting cause, financial troubles. Became insane in January, 1894. Was admitted to Rockwood Hospital in February of the same year.

The information given in certificates was not very satisfactory, but it was said that the patient "mutters and crouches; tears his bedding; throws the contents of his pail around the walls of his cells, and is occasionally uncontrollable; is the subject of various delusions; is incoherent in conversation, wild and dangerous." Wife states that on January 23, 1894, he came home yelling and saying that he had gone crazy; that something was wrong with his head. He then made several attempts at suicide.

When admitted to Rockwood he was in a condition of stupor, and in wretched physical health; circulation sluggish.

March 19. Sleeps well; takes his food fairly well; never speaks; sits in one place in a stupid state all day long; takes no interest in his surroundings; cleanly in habits, but careless as to appearance. Has been placed on extra diet; given tonics, etc.

May, 1894. Unimproved in spite of treatment; very destructive to clothing; does not talk; untidy; sits in one spot all day; cannot be induced to work; has gained a little in weight, but physical health still very poor; very constipated.

July, 1894. Dirty in habits day and night; destructive to clothing; quiet, and never violent; never speaks; improving in physical health.

August, 1894. Condition unchanged.

January, 1895. In much better bodily health; not changed mentally; dirty in habits. Case not improving, but may be benefited by thyroid treatment.

January 14. Treatment commenced. Before first dose was given, temperature, $97\frac{2}{3}^{\circ}$; pulse, 79; respiration, 19. Urine examined prior to commencement of treatment; amber-colored; specific gravity, 1026; froth somewhat persistent; acid; phosphates present; no albumen, no sugar; slight trace of Indican. Five grains of thyroids given at noon and night.

January 15. Morning, temperature, 99.1° ; respiration, 20; pulse, 82. Evening, temperature, 98.3° ; respiration, 23; pulse, 75. Five grains thyroids given three times a day. Perspiring freely.

January 16. Same doses; perspiring freely. Morning, temperature, 99.3° ; pulse, 82; respiration, 19. Evening, temperature, 99.2° ; pulse,

81 ; respiration, 22. Still dirty in habits. Only one dose of thyroids given. Temperature, 98°; pulse, 87 ; respiration, 19.

January 18. Dirty in habits. Dose of thyroids increased to ten grains three times a day, as no mental change has taken place. Morning, temperature, 99.3°; pulse, 95 ; respiration, 24. Evening, temperature, 99.2°; pulse, 90 ; respiration, 16.

January 19. Much brighter mentally, and talks ; says he feels a great deal better. Perspiring freely. Temperature, 98.1°; pulse, 92 ; respiration, 24.

January 21. Supply of thyroids exhausted. Not any marked change in pulse, temperature, or respiration.

January 22. Dose of thyroids increased to fifteen grains three times a day.

January 23. Decided reaction denoted by pulse and temperature. Morning, temperature, 100°; pulse, 97 ; respiration, 20. Evening, temperature, 99.4°; pulse, 113 ; respiration, 28. Answers questions quite readily ; is very nervous at all times, and his judgment is far astray.

January 24. Epistaxis ; perspiring freely. Morning, temperature, 99°; pulse, 93 ; respiration, 23. Evening, temperature, 99.3°; pulse, 103 ; respiration, 28. No change mentally.

January 25. More talkative than ever before. Pulse, temperature, etc., about same.

January 26. Dose increased to twenty grains three times a day.

January 29. Since the dose was increased little change in pulse, temperature, or respiration. Average about : Temperature, 99°; pulse, 90 ; respiration, 25. Is steadily improving mentally ; answers all questions promptly ; says he feels better than ever. Face often becomes flushed ; tongue coated ; costiveness marked.

January 31. Saliva running from side of mouth, causing seborrhœa. Says he feels sick at stomach ; vomited after dinner ; complains of headache.

February 1. Thyroid discontinued to-day ; sick at stomach ; slight desquamation on forehead and arms.

February 2. Desquamation and nausea.

February 3. Headache ; nausea ; urine, acid ; specific gravity, 1034 ; no sugar, no albumen ; has lost much flesh ; is much better mentally, although not well. Has been put on Easton's syrup.

February 10. Sitting up, but very weak ; eats well, and is cheerful ; steadily improving mentally.

February 20. Still improving, and gaining in every way.

March 1. Getting fat, eats and sleeps well ; is quite happy, and wonderfully better mentally.

March 15. Continues to improve; working steadily; quite recovered mentally.

March 26. Discharged recovered.

J.M., female, single; æt. 21; native of Scotland. Hereditary tendency marked; exciting cause not stated. Was admitted in November, 1894, and at that time had been insane two months or more.

The history and medical certificates contained meagre details of the patient's condition. She was said to refuse food and medicine; to destroy clothing; to expose her person on every opportunity; to be filthy in her habits, etc.

When admitted was found to be in poor physical health, pupils dilated, and face a good deal congested, although this appearance was probably intensified by a large amount of acne. She had a staring look; refused to converse, and was in a half-dazed and stupid condition. Was placed upon tonic treatment, and every possible effort made to build her up, without avail. At times she was excited and erratic, and inclined to be violent, although it was impossible to get her to converse. At all times the element of stupor was prominent. The skin had a greasy appearance; and the patient ceased to menstruate immediately after her admission. About the middle of January the case began to appear hopeless, as there was not the slightest response to the different methods of treatment employed, and the patient seemed to be degenerating. The weight was about 120 pounds; pulse, 85; temperature, $96\frac{4}{5}^{\circ}$; respiration, 16, when thyroid treatment was commenced.

January 26. Ten grains thyroids given three times a day. No effect.

January 27. Dose increased to fifteen grains three times a day. Evening, temperature, $98\frac{2}{5}^{\circ}$; pulse, 80; respiration, 19, and pulse irregular.

January 28. Same dose of thyroids. Temperature, 98.4° ; pulse, 96, irregular; respiration, 17. Face flushed, and patient quite talkative.

January 30. Thyroids increased to twenty grains three times a day. Temperature, 100° ; pulse, 120, intermittent. Mental condition much the same as previous day.

January 31. Temperature, 100° ; pulse, 108. Eyes watery. Respiration, 19; pulse, intermittent. Patient brighter mentally.

February 1. Temperature, 100° ; pulse, 107. Decidedly better mentally. Same dose of thyroids.

February 2. Much the same.

February 3. Temperature, 98.4° ; pulse, 100; respiration, 18. Talks quite rationally; is interested in her surroundings. The reaction from thyroids very marked; evidently on the way to recovery.

February 4. Thyroids discontinued, as patient began vomiting.

Temperature ran up to 100° , and pulse 120. The pulse was most irregular, and of wretched character.

February 5. Temperature remains 100° , but pulse has dropped to 80. Mental condition satisfactory. Has been placed upon an iron tonic.

February 9. Has remained very well mentally until now, but to-day shows a tendency to relapse. Is somewhat stupid, and inclined to be impulsive. Was immediately put to bed again and given a cathartic. Brightened up at once, and went on steadily to recovery.

On February 28, weighed 119 pounds; on March 8, $126\frac{3}{4}$; March 14, 133 pounds; March 18, 136 pounds. On March 12, menstruated. On March 25, was discharged recovered.

J.C., female, $\text{aet. } 34$; married. A case of puerperal melancholia with stupor. Was insane five weeks before admission. Admitted September, 1894. Her delusions were those characteristic of her form of mental disease, and there was a marked degree of stupor, as well as a certain amount of excitement, at the time of admission.

In December, 1894, in spite of every endeavor in the way of feeding and building up, the patient began to fall back, and the stupor became pronounced. The patient's habits were dirty; memory deficient, and at times she was markedly resistive.

January 24, 1895. She was put to bed preparatory to commencing thyroid feeding. Her weight was 102 pounds. The dose of thyroids prescribed was fifteen grains three times a day.

January 27. Face flushed; much better mentally; less resistive, although inclined to be excited.

January 29. Temperature, $98\frac{2}{3}^{\circ}$; pulse, 75; respiration, 15. Face flushed; brighter expression. Same dose of thyroids.

January 30. Temperature, $99\frac{1}{3}^{\circ}$; pulse, 100; respiration, 18. Marked improvement in habits.

February 3. Temperature, 99; pulse, 80; respiration 17. Says she feels better. Exfoliation of skin of face and lips.

February 4. Very restless. Treatment discontinued. Put on iron, quinine, and nux vomica.

February 9. Sitting up to-day; talks rationally, and has written to her home.

February 17. Has been quite well until to-day; has become resistive again.

February 19. Still dull. Ordered calomel and a saline.

March 3. Improving. Has developed a large appetite and is gaining in weight.

March 10. Decidedly better.

March 25. Has gained seven and a half pounds in two weeks.

April 10. Very much better than formerly ; went home on probation.

May 29. Reported better, and getting along nicely at home ; doing some housework, etc., although not completely restored mentally.

August, 1895. At home, and keeps well.

These investigations on thyroid feeding in mental disease are, I believe, the first recorded in America, and open up a field for clinical research that must prove of interest to the thoughtful student

URETHRAL CARUNCLE.

BY L. M. SWEETNAM, M.D.,

Lecturer on Therapeutics in the Woman's Medical College; Surgeon to the Outdoor Clinic, Toronto General Hospital; Surgeon to St. Michael's Hospital.

FEW diseases entail anything like the amount of suffering, in proportion to the area of surface involved, as does urethral caruncle. My attention has been lately drawn to this subject by seeing two patients treated by me, upwards of three years ago, for a persistent form of this trouble, and in whom there has been no recurrence. As the treatment adopted was one I have not seen recommended, I wish briefly to call attention to it.

First, a word as to the condition itself. The cases we have seen are naturally classified under two heads. First, those developing in persons of middle life, in whom the growth is about the size of a pea, or somewhat greater, are single with a more or less distinct pedicle; or multiple of smaller size, raised, but sessile. In either case, the base is usually circular and well defined. Second, the other class of cases is very commonly seen in delicate girls between sixteen and twenty-two; sometimes, however, later in life. Here the condition is different. The caruncle (for such we would call it, although it differs much in appearance from those already referred to) is not clearly circumscribed. We have near the meatus, and, if the condition is one of long standing, probably surrounding it, and extending into the urethra, as well as out upon the vaginal mucous membrane, an exquisitely sensitive and somewhat elevated patch, made up largely of dilated capillaries. From its edges enlarged vessels frequently run for some distance into the surrounding tissues.

The first class of cases are the more easily dealt with. If the caruncle be single, and just within, or without, the meatus, Sim's treatment, of excision, and with a stitch drawing the mucous membrane over the stump, is satisfactory. If the caruncle be multiple or situated well within the urethra, the usual treatment has been, after snipping off the growth, to cauterize the stump with nitrate of silver or carbolic acid. The text-books acknowledge that, after this form of treatment, recurrence is the rule. The explanation is not difficult to see. The vessels have been destroyed on a level with the mucous membrane, the destruction has not been carried deep

enough to remove all the diseased portion of the vessels, and, as the disease spreads by extension, the recurrence is but a matter of time. The treatment which I urge for the second class of cases, especially, and which I have found to be best suited to the cases of multiple caruncle within the urethra, is electrolysis. The condition found in the second division is one in which excision and ordinary caustics cannot be used to advantage, for, if all the diseased vessels be excised, or destroyed by caustics, not only will the glandular stricture of the urethra, where this is the site of the growth, be sacrificed, but we will have a secondary cicatricial contraction, which will leave the patient in a condition almost as distressing, and much more difficult to relieve, than that for which she sought treatment; whereas electrolysis, carefully employed, will destroy the enlarged vessels without producing any material destruction of healthy tissue, and, therefore, producing no serious cicatricial contraction. A gold or platinum needle, in a suitable holder, is employed. The needle is connected with the positive pole of the battery. The sponge, connected with the negative pole, is applied within three or four inches of the meatus. A constant current of about 5 m. strength will be sufficient. This will be generated by five or six Leclanche cells in good condition. The needle is passed into the diseased area (anæsthetized by application of a four per cent. solution of cocaine) to a depth of one-sixth or one-quarter of an inch. The puncture should be made into, or as near as possible, one of the enlarged vessels, and left in position two or three minutes. The smallest amount of cauterizing which will prevent bleeding, on withdrawing the needle, should be employed. Four or six punctures, depending on the extent of the disease, may be made at a sitting, and sufficient time should elapse between sittings to prevent any great irritation. In this way the diseased vessels may be destroyed for some distance beneath the mucous membrane without injuring, to any serious extent, the normal tissue. The application should be continued until all unhealthy vessels have been obliterated, and the case seen, say, once a week, until the parts have regained their normal appearance. Tonics should be administered until a satisfactory state of health is not only secured, but established.

As in young persons the condition frequently develops while the patient is in a debilitated, anæmic condition, such as is often responsible for extensive varices elsewhere, and in those of more advanced years in connection with chronic constipation or diarrhœa, or continued standing, it would appear that the difficulty is venous rather than arterial in origin. The arterial appearance of the blood would be accounted for by the fact that the dilated condition of the capillaries allows the blood to pass so readily from the arteries into the veins that it retains its arterial characteristics. We may even have a distinct pulsation in the involved area.

Selected Articles.

THIRD REPORT ON ELIMINATIVE AND ANTISEPTIC TREATMENT OF TYPHOID FEVER.

BY W. B. THISTLE, M.D., L.R.C.P. LOND.,

Assistant Demonstrator of Anatomy, University of Toronto; Lecturer on Diseases of Children, Woman's Medical College; Physician to Victoria Hospital for Sick Children.

REGARDING the immense amount of energy and effort expended in the study of disease-producing fungi or bacteria, it would be but mere commonplace to say that all the accumulated knowledge, the result of such expenditure, can be of little worth, apart from gratification of scientific curiosity, until it can be brought to bear directly upon the treatment of disease due to these organisms. Assuredly, too, the more accurate and comprehensive a knowledge of bacteria is gained, the more clearly outlined become the indications for treatment. In order to have this harmony between pathology and treatment, it is necessary, in the first instance, to be as fully informed as possible concerning the invading micro-organism, and how and why it is able to bring about the tissue changes and clinical symptoms peculiar to it; and, in the second, to remember and constantly to strive to apply that knowledge when the diseased condition appears.

With special reference to typhoid infection, it occurred to me, some three years ago, that the treatment advised in current text-books, and that almost universally taught, did not follow at all closely as a logical sequence on what had been ascertained concerning the nature and pathology of the disease; that there was, in fact, a lack of harmony between pathology and treatment. Accordingly, I attempted a plan of treatment which seemed to me to embody the application of valuable facts relating to the infective germ, and the way in which it brought about disturbance and destruction in the human body. Two years ago I published this plan of treatment in *THE CANADIAN PRACTITIONER* (April, 1893) under the title of "Eliminative and Antiseptic Treatment of Typhoid," and with it all the cases so treated. In 1894, a second paper under the same heading

appeared in the *Medical Record* of March 10th. To this second paper I appended an analysis of forty consecutive cases without fatality, and running a course unusually short and unusually free from distressing symptoms, and from what have been spoken of as the accidents of the disease.

I now beg to make a third report, and in doing so I shall in no way alter the original title, for nothing, to my mind, would so clearly indicate the principles of treatment as the two words "Eliminative" and "Antiseptic." I shall also still adhere to what seemed to me on the former occasions the correct way to approach a discussion of this kind, and first gather together, as completely and as concisely as I may, what has up to date been determined by bacteriologists and pathologists concerning the germ itself, and also the relation which it bears to the lesions and symptoms of the disease. By so doing it becomes easier to appreciate consistency or want of consistency in the principles of treatment which I shall have to bring forward, as well as in those which are generally accepted and taught.

It is, of course, past question that enteric fever is the result of bacterial infection. So far, all are agreed; but when it comes to giving credit to one particular variety, there is by no means a like unanimity. There are those who attribute everything to Eberth's bacillus, while there are many observers who are of the opinion that other bacilli, as well, are responsible for part at least of the disturbance. The bacillus coli communis, particularly, is by many considered to produce much of the toxæmia. Others, again, urge that Eberth's bacillus is simply a modified form of common colon bacillus. The great difficulty in distinguishing Eberth's bacillus from the bacillus coli communis perhaps accounts for these varied views. There are, however, many apparently sufficient reasons for believing that common bacillus of the intestine is responsible for a portion of the disorder, even though Eberth's bacillus be recognized as the primary and chief aggressor in the disease. There is the primary fact, with reference to the bacillus coli communis, that it is capable of producing toxæmia even to a fatal degree. Treves,* in his paper on peritonitis, describes the condition, when associated with intestinal disease and injury, as one of poisoning from escape of these bacteria from the injured or opened intestine, followed by rapid spread over peritoneal surface, with correspondingly rapid absorption of the toxic substance to which they give rise. It may, then, be taken as proven that the bacillus coli communis is poisonous. Under ordinary circumstances, the quantity absorbed is not sufficiently great to give rise to symptoms. It is more likely, though, that immunity from this constant poison is due to the functional activity of the liver in

* British Medical Journal, January, 1894.

intercepting and destroying these harmful substances.* Treves,† also, expresses the opinion that, under certain circumstances, the common bacillus of the intestine becomes more virulent, which is quite in keeping with what has been determined in experimental growths of other forms of bacteria. It is maintained by others that this increase in virulence occurs when it is associated with Eberth's bacillus. However, looking at the condition which prevails, say, in the first week of typhoid, it becomes evident that many forms of bacillus are to be found throughout the intestinal canal. Owing to a lack of secretion, food materials are not digested and absorbed, but the mass remains to be broken up by the ordinary germs of putrefaction, absorption of toxic products of course taking place. It is only necessary to imagine this process repeated and continued to be convinced that many forms of bacteria are present in addition to Eberth's bacillus and the bacillus coli communis, and that some portion of toxæmia must be attributed to these putrefactive or unclassified germs. Given Eberth's bacillus as the primary cause, it requires no argument to prove that other forms must play a part in the production of symptoms.

We have only to recall the manner in which bacteria bring about disturbance, by virtue of the toxic substance which they produce, to perceive clearly that the condition in typhoid is one of continuous intoxication. The primary and chief source of the poison is the alimentary canal, although it should not be forgotten that some portion of toxæmia must be attributed to poison elaborated by bacteria which have been carried from the intestine and deposited in the various tissues of the body, notably in tissues most directly connected with the alimentary canal, *e.g.*, lymphatic nodes of intestine and mesentery.

I am fond of comparing the prolonged poisoning of typhoid to the commonest intoxication we are familiar with, *e.g.*, alcoholic. Typho-toxin and alcohol are each the result of bacterial action, under certain conditions. One process takes place within the body, the other without. Each poison has, in the main, its characteristic train of symptoms. These symptoms are the physiological effects, and from a survey of these signs we can estimate approximately the degree of poisoning, always remembering that, as with alcoholic poisoning so with the toxæmia of typhoid, individual peculiarity may play a part; that certain conditions may increase susceptibility, while certain other conditions may have a directly contrary effect. It must be remembered, too, that in neither case are we always dealing with the pure drug. With alcoholic poisoning must be included frequently poisonous effects arising from introduction of those substances usually separated and removed. Making allowance, then, for these conditions and peculiarities, it remains true that, just as we judge of the degree of

* Lauder Brunton : Disorders of Digestion.

† Treves : British Medical Journal, January, 1894.

intoxication from the appearance and actions of the drunken man, so in the case of typhoid we can read in the symptoms the amount of toxin in the system.

With reference to the local effects of typhoid poison we are not able to estimate so accurately their degree. We have, however, a few valuable facts concerning the effects of typhoid toxin : (1) That it will irritate tissue cells and produce swelling, congestion, and infiltration, of the part. (2) That, if it becomes concentrated to a sufficient degree, the irritation is replaced by complete destruction or necrosis. (3) That necrosis may be brought about, not so much as a result of concentration of poison, but owing to long continuance of contact* (Sims Woodhead). It is only in the case of the grosser destruction of tissues, *e.g.*, in the intestinal lymphatics, that this local or "caustic" effect can be considered quite apart from those derangements of function which depend largely upon the local effect widely distributed, *e.g.*, rapid tissue waste or increased rate of molecular death from widespread irritation. It is, then, safe to assume the local effect whenever the general symptoms are present. To state it concisely, there is in typhoid fever infection of the body by bacterial growth, which brings about a condition analogous to fermentation, with the production of a chemical substance, "typho-toxin," which, when diffused through the body, gives rise to general symptoms, and, where concentrated, to irritation or complete destruction of tissue.

Facts to be carefully noted are : (1) That general symptoms are increased or diminished according to the amount of poison in the body, or dosage. (2) That the extent or degree of local lesion is determined by the degree of concentration of the poison and the duration of contact.† Fenwick and Bokenham have succeeded in isolating an albumose from the spleens of those who had died in the third week of typhoid fever. Experimenting with this substance on animals, they found that if it be injected in quantities exceeding 0.02 gramme per kilo of body-weight, there is invariably elevation of temperature and anorexia. The more the dose is increased above 0.02 gramme per kilo, within certain limits, the higher the temperature. If injections above this quantity are given on alternate days, there is persistent elevation of temperature with anorexia and rapid diminution of body-weight.

Leaving the consideration of what has been determined concerning the poison of typhoid and its action on the organism, let us turn to consideration of the way in which infection takes place, and how the fungi become established in the human body. Whether we say infection is due to Eberth's bacteria or to a modified colon bacillus, it most assuredly comes from without. For the purpose of this paper, it is taken in with contami-

* Woodhead: Bacteria and Their Products.

† British Medical Journal, April 13, 1895, p. 801.

nated water, is not destroyed in the stomach, and takes on active growth in the small intestine. Very shortly large numbers of intestinal lymphatic nodes become swollen and congested as the result of the invasion of bacilli which have come from the intestinal contents. Shortly, the mesenteric glands become affected in the same way, and after a time bacilli may be found in clusters in many parts of the body. In a former paper I ascribed the apparently selective tendency of these organisms for the solitary glands as due simply to the anatomical arrangement by which each lymph-node became, as it were, a small reservoir, into which bacteria and poison were conveyed by the numerous lymph-ducts which drain the surrounding area of intestinal surface.

This "hiving" or concentration makes it clear why the intestinal lymph-nodes almost invariably present a marked degree of local change. There are those who maintain that now, although there may be and usually is infection of lymphatic glands for several feet, as well as of other tissues, the infective micro-organisms are no longer to be found in the intestinal contents. But after some time, about the eighth* or ninth day and during the remainder of the attack, they may be found in the bowel discharges.

When one stops to consider it, this seems an improbable thing, for, in the first instance, the contents of the intestine must have been favorable for growth at the time the intestinal lymphatic nodes and the body generally became infected. Then, in the second, it is necessary, in order to have simultaneous invasion of many glands scattered over several feet of intestine, to presuppose that the bacilli taken in with the glass of impure water must have multiplied to some considerable extent. Now, how comes it that after this widespread infection of the intestinal glands the bacilli are no longer able to flourish in the intestinal contents? They most assuredly have been able to exist and flourish there, and, according to those who hold the view I have mentioned, after this disappearance they return again, and once more find the conditions suitable. From this time, as early as the eighth or ninth day (Klein), until the termination of the disease, they continue in the intestine.

I confess that this theory of presence in the intestinal contents, followed by disappearance, and again by reappearance, is hard to understand. To those who urge that it is exceedingly difficult to distinguish Eberth's specific bacillus from certain forms of common colon bacilli, or to those who maintain that typhoid is due to a virulent form of colon bacilli, this difficulty does not present itself. According to them, the specific germs may be present in the intestine throughout the first days of the active disease, as well as during the period coincident with infection of the intestinal lymphatic nodes, and that period remaining after the first ten days or fortnight.

*Klein: *British Medical Journal*, October 13, 1894; and Hirschfeld: *British Medical Journal*, April 20, 1895, p. 869.

Leaving these diverse views, and taking into consideration the facts of the case only—whether it is decided to have a specific Eberth's bacillus or modified colon bacillus, or whatever may be decided as to name—it becomes clear that the infective germ must have been present in the lumen of the intestine in order to have infected the intestinal glands, and there in very considerable quantity, in order to have produced infection simultaneously in so many glands scattered over so great an extent of surface.

It is also beyond a doubt that the specific germ is present in the discharges during a portion of the period which follows infection of the intestinal glands, because whole epidemics have been traced to contamination from active cases. Besides, there is no disagreement concerning their presence during the later period. Now, what reason is there for the assumption that the intestinal contents possess immunity during this intervening period?

Then, are we to assume that migration of bacilli from the intestinal contents to the intestinal lymphatic glands is fully completed before any constitutional symptoms arise? Such a theory is manifestly unreasonable, yet unless we maintain it absolutely we must admit that the infectious germs which give rise to the disease form part of the intestinal contents in the early stage of the disease. In other words, the process of invasion of the glands is coincident with the earlier symptoms of toxæmia.

When all are agreed that it is impossible, from a morphological standpoint only, to distinguish a specific typhoid germ from the colon bacilli which are always present, and when many bacteriologists maintain that there are no specific germs apart from the modified colon bacillus, it does seem unnecessary to assume this period of absence, leaving out of consideration altogether the manifest absurdity which I have just shown this theory to involve.

I have devoted some space to this question, because since I first advocated active treatment of typhoid objections have been raised on the ground that in the early stage of the disease no specific bacteria are to be found in the intestine.

Let us, now, turn to the question of treatment of the condition arising from the infective process briefly described above, and in so doing adopt the plan indicated in the beginning of this paper, to arrive at the treatment by applying the knowledge possessed of the infective germ, and all relating to it. It can scarcely be said that this has been the plan adopted in arriving at the treatment of the past. Until recently treatment was nothing. In many countries "let alone" is still the vogue.

In my first paper, I stated that I believed all the indications furnished by a study of the morbid process were met by the adoption of a plan of treatment embracing three distinct heads or principles: Elimination, anti-

sepsis, and dilution. I still adhere to that belief. Elimination is accomplished by free and continuous purgation, as well as by the flushing action of large quantities of water on kidneys and bowels. By the use of purgative medicines the infective process is disturbed in several ways : (1) Bacilli are carried out of the intestine, together with the toxic substances produced by them. (2) Poison held in solution by the body fluids escapes with the free secretion into the intestine ; and besides, at frequent intervals, a quantity of what, in this instance, must be extremely toxic bile is swept away, instead of continuing in the circuit from the liver to the intestine and back again. If constantly relieved in this way, the liver can more frequently perform its rôle* of standing guard and intercepting toxic substances which would otherwise reach the general circulation. (3) Infection of intestinal glands is limited, or, in other words, the source of supply from which bacilli and poison are carried from the intestine is cut off. That is, just as you can and do limit the dose of poison received by the system generally, so do you limit the local dosage and consequent injury of the intestinal glands by the same means. This surely requires no argument, it is evident, if only one stops to recall the manner in which infection takes place. In the one case, lessened dose means milder symptoms, and, in the other, the smaller the local dose the less severe the local lesion.

Concerning toxin already absorbed and in contact with the tissues, held in solution by the body fluids, some portion of it must be removed with the secretion poured into the intestine, when stimulated by purgative medicines, as well as that drained off through the kidneys. There is nothing unusual in such a claim. We have many examples of removal of poisonous material from the body by similar procedure.

By repeating this process, it certainly tends to prevent a dangerous accumulation of toxin in the system, and, at the same time prevents, or tends to prevent, local lesion in the intestine from becoming sufficiently great to destroy a vessel, or extend entirely through the intestinal wall. It must not be forgotten that tissue resistance is increased just as the tissues are freed from the effect of the poison. Hence the tissue cells are in this way rendered more capable of resisting and destroying the bacilli already present in them. It is obvious, too, in order to escape harm, the earlier elimination is brought about and the more constantly it is secured, the better, whether with reference to general symptoms or local lesion. In many instances, I believe, brisk purgation in the early stage carries out so much of the culture and relieves the tissue to so great an extent that the remaining bacilli are destroyed by the liberated tissue and the fever is aborted.

When this is not accomplished, or when the case is not seen early, then purgation must be prompt and energetic enough to relieve danger-

*Bouchard : Auto-intoxication in Disease.

ous conditions, and continuous enough to keep the dose of poison below a harmful point, if possible, until such time as immunity is reached. In judging of the amount of poison present, attention should not be exclusively directed to one or two symptoms, but the entire list of symptoms should be considered.

Coming now to the second feature in treatment, that is, attempting to destroy micro-organisms by antiseptics, there can scarcely be doubt about the possibility of doing this to some degree. It is quite possible to completely deodorize the contents of the intestine by means of salol or salicylate of bismuth, and, no doubt, by other agents, as any one can demonstrate. But, to be efficient, antiseptics should be used in association with purgatives for the following reasons :

(1) Just as it is easier to approximately sterilize an abscess-cavity after first having emptied it, so is it to derive benefit from intestinal antiseptics if the intestine be first cleared of its contents.

(2) Intestinal antiseptics, while lessening the production of poison by destroying bacilli, yet could have no possible effect on the poison already in the intestine, but in many instances might themselves add to the toxins present.

(3) Much larger quantities of antiseptics can be used without poisonous symptoms arising, if, at the same time, elimination by the bowels is continuously maintained. Any benefit derived from an antiseptic is obtained at once, and, if it is speedily cleared away, much which would otherwise be absorbed escapes with the contents of the bowels.

The remaining factor in treatment is clearly indicated, for the local effect of the poison depends upon its degree of concentration, as well as upon duration of contact.

Injection of large quantities of fluid is a necessary adjunct to elimination. Fluid drained off, continuously carrying with it the poisonous material it contains, must be replaced. If this were not done, the tissues would suffer from lack of fluid, and the toxin remaining would assume a more concentrated, and therefore a more active, form. It might be well, at this point, to consider elimination by purgation in its relation to certain accidents of the disease, *i.e.*, hæmorrhage and perforation. I do not propose to enter into the question at length, but shall content myself by pointing out that, if it is true that the local lesion is proportionate to the local dosage and duration of contact, and if it is true that the toxin and bacilli, which would otherwise reach the lymphatic glands, can be carried out by purgation, then it must be that elimination by purgation tends to lessen the occurrence of both hæmorrhage and perforation.

In the late cases the indications are the same. If a vessel is already necrosed, hæmorrhage is unavoidable ; if not already necrosed, the way

to prevent it becoming so is by removing the poison. With reference to this point, I beg to refer to the paper in *THE CANADIAN PRACTITIONER* of April, 1893, or to the *Medical Record* of March 10, 1894, where I have discussed this question at length. I still maintain the same conclusion, that purgation at no time causes perforation or hæmorrhage, but at all times tends to prevent its occurrence. Misconception regarding this matter was the great barrier which interposed whenever an attempt was made to follow in treatment the indications furnished by study of the morbid process. So great was the dread of these two accidents that the fact that the great majority of fatalities were due, not to hæmorrhage and perforation, but to toxæmia, was lost sight of. A study of the cases I have to report with reference to this point will, I believe, convince the most skeptical that formerly a misconception did exist.

So much for meeting the indications furnished by consideration of what has been determined concerning micro-organisms on paper or in theory. How does it work out in actual practice? Precisely as it does in theory.

I have to report 172 cases with a mortality of five or three per cent. No cases were excluded, late cases are taken as well as early. Forty-four of these were my own patients. Forty-one cases were treated at the Toronto General Hospital, to a considerable extent under my own direction, and in every instance under my observation. The remaining 87 cases were furnished me by several medical friends, with two exceptions resident in Toronto.

I have excluded none from my list, whether coming under eliminative treatment early or late, provided only that the treatment had been fairly carried out from that time. Concerning the cases received from others, I can only speak in general terms. All these cases were reported as having done well, with two exceptions, and the treatment gave results such as I have indicated in the papers published. One case died from hæmorrhage, and one from pneumonia during early convalescence. The hæmorrhage case had been ill in the country while nursing a case of typhoid; returned to the city, and, after two weeks' illness, was again taken to the country. When seen she was comatose, had tympanites, and temperature of 104° F. Given saline in drachm doses every four hours, and shortly the temperature fell, tympanites disappeared, and consciousness returned. On the third day at 12 a.m., she had a slight hæmorrhage, and the saline was discontinued. Next day, at 5 p.m., she had a severe hæmorrhage, and died at once.

The case of pneumonia occurred in an alcoholic, and, in my opinion, it is doubtful whether he ever had typhoid. However, I have included his case in my list. In two other cases hæmorrhage occurred, but treatment was persevered in with favorable results.

Coming now to my own cases, forty-four in number, I had one death from pneumonia, following a very severe attack, in a boy nine years of age. In this case, too, there was slight hæmorrhage, which I thought might come from the rectal veins, as it was small and bright in color. The autopsy showed a remarkable condition of the intestine. Although death took place in the fourth week, two minute ulcers only were found in the ileum, but the intestinal glands throughout were swollen.

The forty-one hospital cases gave two deaths. One from hæmorrhage, where the autopsy showed the presence of ulcers from the ileum as far down as the sigmoid flexure. She had been in the hospital eight days when death occurred. This case presented symptoms of severe infection, high temperature, distension, and a dusky expression. She did well until the hæmorrhage occurred. This was slight at first. The purgatives were discontinued and opium given until termination fatally from extensive hæmorrhage.

The second fatal case occurred from hæmorrhage from the stomach and nose with general purpura, hæmorrhage in every part of the body. Autopsy showed a large number of ulcers, covered with black, dry sloughs. The patient died on the fourth day in the hospital. These five cases make up the entire list of the fatalities. Two died from pneumonia after recovering from severe attacks of typhoid.

The two fatal hæmorrhages occurred in cases coming under observation, certainly, in the third week of active illness. Both cases gave indications of profound and dangerous toxæmia, which disappeared as soon as elimination was secured.

Analysis of one hundred and seventy-two cases. Mortality of three per cent. No death from toxæmia. No perforation. Hæmorrhage in eight cases, including the two fatal cases. My own single case of hæmorrhage was so slight that I attributed it to rectal engorgement. In all the cases where I had opportunity of observing, except the two fatal cases, the amount lost was small.

Tympanites never developed in my own or hospital cases during treatment, and where present at first invariably disappeared as soon as elimination was freely secured. Delirium practically unknown after the first days, and I cannot recall a single instance where it was present after treatment became established.

Out of sixty-four charts in my possession, fifty-eight show that the highest temperature reached was in the first three days. That is, the temperature inclined toward normal as soon as elimination was secured. In many instances the chart shows decline in temperature as regular as a flight of stairs.

The pulse, contrary to opinion often expressed, improves with the

general symptoms, and it is no uncommon thing to have a pulse between seventy and eighty, strong and regular, after two weeks of continuous purgation. For example, average movements five per day for eleven days, pulse eighty; average daily movements four for eighteen days, pulse seventy-eight; average movements per day five for twelve days, pulse sixty-eight.

Diarrhœa, in my own cases, never required controlling treatment. The difficulty was rather the other way. In many instances, it is not an easy matter to secure sufficiently free movement, and different purgatives and expedients must be resorted to. Sponging as routine treatment twice daily, but in my own cases never required for reduction of temperature. Lately, many who are warm advocates of the cold bath or Brant treatment have arrived at an explanation of its action. It promotes elimination* of toxin by the urine, increasing the toxicity of the urine five times. Very good; but why confine elimination to the kidneys? Bouchard has shown that in health the bile discharged into the intestine contains just six times the amount of toxin that is discharged with the urine. In the event of unusually toxic processes occurring in the intestine, it is fair to conclude that the toxicity of the bile would be very greatly increased. If increased elimination of toxin is the great desideratum, one need not look far for a more direct method than that of immersing the sick man many times a day in a tub or a bed full of cold water. Besides, he is not likely to cry so loudly or beg so pitifully to be allowed to escape if elimination is promoted in some other way.

In short, under this method of treatment the striking feature is the absence or speedy disappearance, in practically every case, of the classical group of symptoms, delirium or coma, tympanites, subsultus, and the extremely foul condition of the mouth and tongue. The two following cases are examples of speedy improvement :

CASE 1. Alice G——, aged twenty-four, under Dr. J. E. Graham, was the first case treated in this way in the Toronto General Hospital, Dr. Graham kindly allowing me to supervise the treatment. When the treatment began she had already been seven days in the hospital. Had been given no purgative medicine whatever. She was dusky and drowsy, had decided tympanites, and muscular tremor. There was a well-marked pericardial friction rub, also an aortic regurgitant and mitral systolic murmur, all appearing within a few days. Treatment began on the 17th, and free elimination by daily doses of calomel and Rochelle salts secured. Improvement every day. Tympanites completely gone on the 20th, and on the 24th the temperature became normal and continued so. At the same time a perfectly typical rash was present.

CASE 2. Also a patient of Dr. J. E. Graham in the General Hospital.

* Burr : Chicago Medical Recorder, October, 1894, p. 229.

I was asked to see him in the absence of Dr. Graham. He had been ill for two weeks, and had been in the hospital five days. Temperature, 104.2° F., when seen on the evening of the fifth day (Thursday). At the time of my visit he was profoundly unconscious, with greatly distended abdomen, stertorous and rattling breathing, jaw fallen, tongue dry, tremulous and spasmodic conditions of muscles, subsultus, and picking at the bedclothes. In fact, he seemed to be *in extremis*. I advised magnesia sulphate, half an ounce at once, and continued in drachm doses every hour, and plenty of fluid. In addition, in order to hold him until toxæmia should lessen, strychnine and whisky were given at intervals. This was on Thursday evening, the sixteenth, and on Saturday morning he was quite conscious. Purgatives were continued vigorously. Condition continued to improve, and on the 22nd the temperature became normal; subsequently it rose slightly, and again became normal on the 27th, to continue so.

In this case I am convinced the patient would have died in a very short time if the toxæmia had not been quickly lessened.

Charts 2, 3, and 4 are quite characteristic, and show the number of bowel movements daily. I have frequently been asked how much purgatives should be given in a day. One can have no fixed rule. The idea is to give enough to secure elimination, and the amount required is a matter of experiment in each case. Usually three or four grains of calomel in divided half-grain doses, followed by a saline in three or four hours, will result in free elimination. If not, compound cathartic pill (improved) No. 2, followed by sulphate of magnesia or other saline, or else sulphate of magnesia alone in repeated doses. At any rate, secure elimination quickly, it matters little how it is done. In many cases days are lost. The dose ordered to-day fails to purge. Next day another is ordered, still without result, no provision having been made in the event of the medicine ordered not being sufficient. In this way several days may go by, and, while the patient may be taking purgative medicine, he is certainly not receiving eliminative treatment. Indeed, I have known this condition of things to exist during an entire illness. Of course, treatment after that fashion must be due either to carelessness, or failure to grasp the principle in eliminative treatment.

THE PRINCIPLES WHICH GOVERN OPERATIONS FOR INFLAMMATORY PROCESSES IN BONE.*

BY ARPAD G. GERSTER, M.D.,

Professor of Surgery in the New York Polyclinic; Visiting Surgeon to the German and Mount Sinai Hospital, etc., New York City, N.Y.

WE shall consider at this lecture the principles which govern operations for inflammatory processes in bone. This is a subject of great importance, and one of special interest to the general practitioner, who must often take charge of cases of necrosis.

Extensive necrosis has its origin in acute osteomyelitis, in reality a phlegmon of the bone, a sloughing of the bone, analogous to suppuration in the soft parts, but more rapid and certain in its results because the bone permits no expansion, and the exudation sooner occludes the vessels which furnish nutriment to the part. Grave mistakes in diagnosis are frequent in this condition, the symptoms being mistaken for those of other maladies, especially acute rheumatism and typhoid fever. Acute osteomyelitis has, however, its places of predilection. It oftenest attacks the upper end of the tibia and the lower end of the femur. The symptoms of acute osteomyelitis are a chill following a traumatism of greater or less severity, or exposure to the weather. We may have rigors, with a temperature of 104° or 105° F. The tongue is coated, the breath foul, there is nausea, thirst, the eyes are bloodshot. The physical signs show the foot drawn up, the knee bent and painful. There is swelling; but the swelling is white, not red. There is a deep-seated œdema. The case may be mistaken for one of acute articular rheumatism. The patient is put upon the salicylates for three or four weeks, and the swelling gets larger and larger. Finally a needle is inserted and the presence of pus is demonstrated. We then hear that the rheumatism has led to an abscess, but when this abscess is evacuated the joint is found free. After the abscess a sinus remains which will not heal, and a probe shows at the bottom of this sinus a sequestrum, and then the eyes of the physician are opened. It was no case of acute articular rheumatism, but something else. Such mistakes

* Clinical lecture delivered at the New York Polyclinic.

are very frequent, and they are errors which it is very embarrassing to make. The patient does not get well, and your rival is called in at a time when the diagnosis is easy. His wisdom is really no greater than yours; but he is called at a time when the merest tyro could make a diagnosis. There is a fistula, there is a sequestrum, the treatment for weeks or months has been misdirected; the trouble is clearly due to the presence of dead bone.

Acute osteomyelitis may be mistaken, then, first, for acute articular rheumatism. It may be mistaken, in the second place, for typhoid fever. The patient has some of the most prominent symptoms of typhoid fever. He is unconscious unless violently aroused, and then gives but stupid answers. The temperature is 105° F., and the patient is so dull that he allows you to take hold even of the inflamed area. I recall two such cases which were treated for weeks as cases of typhoid fever. A careful physical examination will, however, reveal the abscess, and with the evacuation of the pus the typhoid symptoms disappear. This patient's typhoid fever has been cured with the knife.

Acute osteomyelitis may be in the child mistaken for spinal meningitis. The general symptoms are similar, and only a careful physical examination will prevent you making a mistake. The diagnosis should be made promptly in these cases, however, not only for the protection of the physician's reputation, but because by prompt treatment we may save the bones from necrosis. In the old books on surgery—Sir Astley Cooper, for instance—this condition is called purulent or suppurating periostitis. The pain is excruciating, indescribably intense, due to the absence of a vent, the pus being confined under the tense periosteum. The first indication, then, is to use the knife and cut through the periosteum to the bone, and not to permit the tension to increase so that it must result in necrosis. In a neglected case the violent symptoms of the onset spontaneously subside after a certain period, the local pain is suddenly alleviated, the temperature falls, and a doughy swelling appears. The periosteum has been penetrated, and the pus has obtained an exit. The improvement lasts for several days, but the external swelling increases, and we have a repetition of the former symptoms, although not accompanied, perhaps, by the same violent pain. Often the patient does not go to a physician at all, or he goes to a physician and his condition is not recognized until necrosis has occurred, and we have dead bone, with one, two, or three cloacæ leading out from the sequestrum, and the discharge is interminable. In such a case, feeling sure that your line of demarcation has formed and that the necrosed portion is separated from the healthy bone by a mass of granulations, what shall be your action? Formerly the dead bone was extracted, if possible, or if too large for an easy extraction was broken up, and the expulsion of the pieces

was left to nature, the surgeon merely pronouncing a benediction over the process, which often required years for its completion. Formerly great hæmorrhage was unavoidable in operations upon these bones, as the theca is highly vascular. The surgeon feared the laying open of the theca, and contented himself with making a small hatchway into it, and breaking up the sequestrum with forceps. He expected suppuration to follow, and it did follow. Where the surgeon thought that he had removed the fragments, a large flake of bone would separate later, and a second operation would be required. The results were sometimes good, but more often unsatisfactory.

At the present time we find a great ally in the artificial anæmia we are able to establish in the limb. We now shut off the blood-supply, so that we not only avoid loss of blood during the operation, but we have also a dry, clean wound in which to work. We can see what we are doing; it is no longer necessary to sponge as formerly, and when we reach dead bone we are able to recognize it.

Secondly, we no longer dread a large opening into the cavity. It is our routine practice to take off the whole roof of the cavity and to freely expose the sequestrum *in situ*. We then gently lift the sequestrum from its bed as a silver spoon is lifted from its velvet case. We use no violence whatever in the manœuvre, we simply lift it from its bed. Should resistance be met with, and one or another projection of the sequestrum still be held in a recess, the roof of this recess is also taken away, until the sequestrum can be raised without breakage.

Thirdly, the suppuration which formerly followed this operation has now, by our antiseptic methods, been reduced to a minimum. We have also certain advantages in improved methods of operation. We have, first, Neuber's method of closing the cavity. Having removed the roof of the cavity with the chisel and mallet, and having withdrawn the sequestrum and scooped away the unhealthy granulations which line the cavity, we shall have left a healthy bleeding surface, in form resembling the inside surface of a trough, such as you see used in the country for feeding stock. We then dissect up the skin upon either side, and finally fix it in the bottom of the cavity. This is accomplished by means of steel nails and a few taps of the mallet, and primary union is the result. Formerly, six to twelve months were required for the filling up and cicatrization of a large cavity. Now three or four weeks are sufficient for healing. What a contrast this is to our former methods when we followed the fistula to the dead bone!—we took out a piece of the theca with the chisel, we broke the sequestrum into two or more fragments, and then attempted their withdrawal through a small opening. How often it happened that the sequestrum broke, leaving a mass in some distant recess, so that the

object of the operation was defeated. The cavity was stuffed with lint, suppuration continued until the cavity closed by granulation, or it did not close, when the operation had to be repeated. As regards the external incision, we no longer slavishly follow the fistulæ. For instance, I never make my incision on the inside of the femur, even though all of the fistulæ may be there. On the outside, between the quadriceps and the muscles of the back of the thigh, I find a region destitute of large vessels, and there I make my long incision, feeling sure that I shall find the sequestrum if it is present, whether I attack it from this or the other side. We no longer make a hatchway through the roof of the cavity, but remove the whole, so that we can follow the irregularities of the sequestrum and remove it intact. We scrape out all the granulations lining the cavity, so that a section of the bone shows a smooth surface.

Where the operation cannot be completed by Neuber's method, we have still another resource in the invention of the German surgeon Schede. This depends upon the well-known fact that in an aseptic wound a fresh blood-clot does not act as a foreign body. The granulations encroach upon it, and finally eat it up, as it were, or absorb it. This is the normal process of healing in subcutaneous fractures and many other injuries. A blood-clot forms between the ends of the bones. This organizes, and we have the foundation of callus as a result. By antiseptic precautions we approach the conditions of the subcutaneous fracture. Schede's method utilizes this principle. Where there is not much skin left, or where the skin is cicatricial and unreliable for the amount of tension required for the previous method, with a needle and a catgut or silk we sew up the outer wound, leaving only a small opening in the lower angle ununited by sutures. After the removal of the constrictor blood collects in the cavity, the surplus escaping through the opening in the lower angle. For the success of this method we must cover the part with a well-disinfected piece of rubber tissue or Lister's protective. Outside we apply the ordinary dry antiseptic dressing, kept in place with a roller bandage. The object of the rubber or protective is to prevent evaporation and to keep the clot moist. If the rubber were not used the clot would shrink, and the wound would again open up. Both of these methods are successful.

In operating for necrosis, you must be careful to leave behind no little spiculæ of bone or granulations, or you may be obliged to reopen and finally pack the cavity. It is better to prolong the operation ten minutes, twenty minutes, or half an hour, and make a thorough job of it, as you may thereby save the patient months of surgical treatment and suffering. If you have used no drainage-tube, the first dressing may be removed at the end of several weeks, or when its outer layers become fœtid. This does not mean that the inner dressings or the wound are fœtid. You have

often seen a foetid external dressing covering a perfectly clean and sweet dressing beneath. Many times have I left the dressing intact for four weeks in cases of excision of the knee-joint.

In Neuber's operation, however, we must open the dressing to take out the nails at the end of three, four, or five days. If agglutination has not occurred by that time it cannot be expected, and the nails are consequently useless. Where no nails are used the dressing is left undisturbed certainly for ten days or two weeks. With exceptions, these rules hold good, not only in operations for acute osteomyelitis or necrosis, but also for any chronic suppurative process or for tuberculosis.—From *International Clinics*, Vol. I., Fifth Series, p. 175.

Progress of Medicine.

THERAPEUTICS

IN CHARGE OF

GRAHAM CHAMBERS, B.A., M.B. Tor.,

Professor of Analytical Chemistry and Toxicology, Ontario College of Pharmacy ; Lecturer
in Organic Chemistry and Toxicology, Woman's Medical College ;

AND

WILLIAM LEHMANN, M.B. Tor.,

Physician to the Home for Incurables and House of Providence.

LOCAL ANÆSTHESIA.

Local anæsthesia, lasting about five minutes, can be quickly obtained by using the following mixture in a spray :

R.—Menthol, $\bar{3}$ ss.
Chloroform, $\bar{5}$ v.
Ether, $\bar{3}$ i.
M ft. nebula.

Sig.—To be used with a hand-spray.

FIRST AID TO PERSONS INJURED BY ELECTRIC CURRENTS.

Professor Gariel, of the Paris Academy of Medicine, presented a committee report at a recent meeting of that body upon the means to be taken in treatment of persons coming in contact with electric wires or apparatus. The following are the conclusions :

When a person meets with an accident due to contact with electric conductors or generators, the contact must first be broken, if it still exists, as otherwise those who come to render assistance may also become victims of the same accident.

The victim is to be carried to a well-ventilated room, from which all persons, except, at the most, three or four assistants, are excluded.

The clothing should be loosened at once, and efforts are to be made at the earliest possible moment to re-establish respiration and circulation.

To restore respiration, recourse should be had mainly to the following two procedures : rhythmical traction on the tongue and artificial respiration, but both must be continued for a sufficiently long time.

Lastly, concurrently with these procedures, the circulation should be stimulated by rubbing of the skin, flagellation of the trunk with the hand or wet towels, and any other means usually resorted to in such cases.—*American Medico-Surgical Bulletin*, February 1, 1895.

ETHYL IODIDE.

We again desire to impress upon professional attention the great usefulness of this much-neglected drug. Its extreme volatility renders its inhalation a simple matter. All that is necessary is for the patient to take the unstoppered vial in his hand, hold it to his nose or mouth, and inspire. Inhalation may be continued from two to five minutes, according to the effect produced, vertigo being the indication for its cessation. In the treatment of pulmonary and laryngeal tuberculosis, in syphilis of the air-passages, and in some cases of constitutional syphilis, it affords a ready means of local and systematic medication with iodine. It is an antiseptic of considerable power, and as such has been utilized in the treatment of acute pneumonia. In the relief of asthma, and especially of the asthma associated with hay fever, it is very often effectual ; for the latter purpose it may be combined with ether or chloroform when necessary. Care should be taken to get a pure preparation. The drug should be dispensed in amber-colored bottles, with glass stoppers. When amber bottles cannot be obtained, the vial containing the drug should be wrapped in black paper. It should be kept in a cool place. The development of a brown color, showing the presence of free iodine, indicates that the preparation has become decomposed, and is no longer suitable for use by inhalation.—*Philadelphia Polyclinic*.

SIMPLE TREATMENT OF GANGLION.

Duplay (quoted by *Lyon Médical*, No. 9, 1895) describes a simple, safe, and invariably successful treatment for this troublesome affection. This consists in the injection of a few drops of iodine into the cyst. Such injections must, of course, be practised under antiseptic precautions, the needle being driven in at the point where the cyst is most prominent, the skin having first been drawn aside so that a valvular opening is made. The cyst is not previously evacuated, but the iodine is driven directly in. A small antiseptic dressing is applied with a bandage. Cure is accomplished in five or six days. Sometimes in large cysts a second injection is necessary.—*Therapeutic Gazette*.

CHLOROFORM.

V. G. Stadnitzky (*Vratch*, No. 43, 1894) has carried out a series of elaborate experiments on seven healthy young men, in order to study the influence of chloroform, when administered internally, on the gastric functions. In each instance the experiment lasted fourteen days, being divided into two equally long stages, during the second of which the subject was given from three to ten drops of the drug (with water) three times daily. The author's general conclusion is to the effect that CHCl_3 markedly improves all the functions of the stomach, which fact suggests that the drug might prove very valuable in the treatment of various gastric disturbances, and, before all, in dyspepsia.—*British Medical Journal*, February 9, 1895.

DIGITOXIN.

Of the various derivatives of digitalis the one most constant in its effects, and more constant than digitalis itself, is considered by M. G. Corin (*Les Nouveaux Remèdes*, May 8, 1895) to be digitoxin. Although there has been much said against the constancy of its action, the author believes that it is entirely due to a false method in its prescription and use. In order that a fair judgment can be made, it must be administered according to the best method. It should not be forgotten, for instance, in the case of this alkaloid, that it is nearly insoluble in water. It is not alone necessary to dissolve it in water, chloroform, and alcohol, but it is also necessary to guard against its reprecipitation when it comes in contact with the fluids of the body; for if it is thus reprecipitated, its action may become cumulative when it is again absorbed in mass. Effects entirely dissimilar may thus be produced by the same dose. To avoid such results, the author employs the following formula :

R.—Digitoxin, gr. $\frac{2}{84}$ to $\frac{3}{84}$.

Chloroform, *m* x.

Alcohol at 90°, f̄3iii.

Aquæ dest., q. s. ad f̄5v.

Sig.—To be taken in three doses.

With this solution the author has never seen a reprecipitation when in contact with water or physiological fluids or serum. On the contrary, solutions in alcohol of twenty per cent. strength, which some authors have employed, reprecipitate under similar circumstances, thus explaining the failures which they have experienced in their experiments.

The drug has been used with excellent effect, and has proved clinically its superiority over the other alkaloids derived from digitalis in the treatment of cardiac asthenia and pulmonary weakness. The author has pub-

lished his experiments and clinical research that lead him to believe that digitoxin has a veritable abortive action in the progress of an infective pneumonia.—*Therapeutic Gazette*.

[The fact that digitoxin is insoluble in water should be an important consideration in the administration of digitalis. Aqueous preparations such as the infusion would not likely have any marked therapeutical effect.—ED.]

INTRAVENOUS SUBLIMATE INJECTIONS.

Görl gives details of nine cases of various forms of syphilis which he has treated in this way. He uses a solution of sublimate of 1 in 1,000, and injects 1 to 2 to 5 c.cm. As experiments have shown that the sublimate is not entirely excreted in the urine on the first day, the author gave the injections every second or third day. He has never seen unpleasant symptoms. The pain that was complained of in Blaschko's cases the author would attribute to the strong solution used. If the vein is properly entered, no pain is felt. The pain is caused by the escape of the solution into the connective tissue. The advantages of this method of treatment are (1) the small quantity of sublimate used; (2) the rapidity of the cure; (3) the absence of danger so far as at present known; and (4) that the treatment can be carried on without interfering with the patient's occupation. The disadvantages are (1) the impossibility of making the injections if the veins are not accessible; and (2) the rapid appearance of relapses. The latter is the most serious objection. These injections are to be used only when the intramuscular or subcutaneous injections are objected to, owing to pain, or when inunction or administration by the mouth is impossible. They are also indicated in the tuberculous or in those peculiarly susceptible to mercury, or when a rapid effect is necessary, as in cerebral syphilis.—*Munch. med. Woch.*

PILOCARPIN AS A SUDORIFIC.

Grandclément concludes from his experience of pilocarpin (1) that to produce general sweating, which he considers has been too much abandoned of late, one ought to employ the old methods as a rule, and use injections of pilocarpin only as the exception, as in some subjects the latter drug produces poisoning resembling that caused by nicotine or aconite; and (2) to produce local sweating, the old method of wrapping the part in cotton-wool and oiled silk is the best, as frictions with pilocarpin produce only an insignificant amount of sweating. In support of this latter assertion, he relates a case which was treated by him with local applications of pilocarpin combined with the old cotton-wool and oiled silk method. It was found that unless the latter was well applied, the sweating was practically *nil* in spite of the pilocarpin.—*Lyon Méd.*

VASELINE INJECTIONS IN OTITIS MEDIA.

F. Alt has, at Gruber's desire, systematically tested on some 250 out-patients Delstanche's method of injecting sterilized liquid vaseline (usually 1 c.cm.) through the Eustachian catheter. He finds it absolutely harmless and well borne. The following are his conclusions as to its value : (1) In chronic adhesive otitis of long standing, the injections are very useful, and much preferable to simple catheterizing and inflation. The hearing in nearly all cases is improved, and tinnitus lessened or even cured; sclerosis is but rarely benefited, and that slightly. (2) In chronic serous catarrh, the injections cannot take the place of paracentesis, and it is doubtful if they have any advantage over the air douche. (3) In acute otitis media the vaseline treatment does not appear to be indicated.—*Centralbl. f. ges. Therapie.*

SURGERY

IN CHARGE OF

L. M. SWEETNAM, M.D. Tor.,

Lecturer on Therapeutics in the Woman's Medical College; Surgeon to the Outdoor Clinic, Toronto General Hospital; Surgeon to St. Michael's Hospital;

AND

A. PRIMROSE, M.B., C.M. Edin.,

Surgeon to the Hospital for Sick Children, etc.

AN UNUSUAL CASE OF MULTIPLE HERNIA WITH HYDROCELE; STRANGULATED FEMORAL HERNIA; OPERATION; RECOVERY.

Ethelbert Collins, L.R.C.P. Lond., M.R.C.S. Eng., in *Lancet*, August 24, reports a man, aged sixty-five years, who had on the right side a complete inguinal hernia and a femoral hernia, and on the left side an incomplete inguinal hernia. There was also a hydrocele of the right tunica vaginalis. According to the patient's statement both inguinal herniæ appeared about ten years previously, and were caused by lifting heavy weights; he was, however, uncertain as to the duration of the femoral hernia. The hydrocele had existed about six years, having been regularly tapped twice a year.

On the morning of January 4, 1895, he was summoned to this case "as one of the man's ruptures had come down, and he was unable to get it back." When he saw him (about three hours after his rupture had come down) he presented the symptoms of a case of strangulated hernia, he had vomited several times, there was distressing hiccough, and pain in the region of the hernia and at the umbilicus. On examination he found that the femoral hernia was strangulated; it was about the size of a large walnut, tense, hard, and there was no impulse on coughing. He was unable to reduce it. He again saw the case in the afternoon with his brother, Mr. J. B. Collins, and they agreed to operate. After the patient had been fully anæsthetized, he again tried to reduce the hernia, but was unsuccessful. Having first tapped the hydrocele, which was rather in the way, as it contained twelve ounces of fluid, he proceeded to operate in the usual manner. The sac was excessively thick, and contained a small quantity of clear fluid and a knuckle of intestine; it was tightly gripped in the femoral ring. After making a few notches in Gimbernat's ligament the

gut was easily returned. He then ligatured the sac with carbolized silk and removed it, closed the wound, and dressed it with sal alembroth gauze and wool. Carbolic acid was used during the operation, and all the antiseptic precautions it was possible to take in an ordinary cottage were observed. The patient made an uninterrupted recovery, no rise of temperature or any unfavorable symptom occurred, and he was able to leave his bed on the twelfth day after the operation with the wound perfectly sound. On February 11, he was in good health, and, wearing a suitable truss, was walking about as usual.

He suggests that the man had an abnormally long mesentery, which might account for his several herniæ; the shape of his abdomen would indicate that he had, it being flattened above and bulging below.

A NEW BOBBIN FOR INTESTINAL ANASTOMOSIS.

Mr. Herbert W. Allingham (*Lancet*, August 31) describes a new bobbin for intestinal anastomosis. He relates the weak points in the Murphy and Mayo Robson buttons, and proceeds to describe his improvements. He says it is to remedy various disadvantages that he has designed his bobbin. Its principle rests in the fact that it consists of two cones with their apices coming together to form the centre. The tubes are of bone or ivory, the shape of two hollow truncated cones with their lesser ends together, having the appearance of small dice boxes. These are carefully decalcified to within about three-sixteenths of the centre, leaving at the junction of the two cones a hard, unyielding portion upon which any pressure from the sutures is borne. The ends of the tubes are quite soft. There are several sizes, the most usual being :

Diameter of bore.	Diameter of end (outside).	Length.	Angle of cones.	Known as—
$\frac{1}{4}$ inch.	$\frac{5}{8}$ inch.	$1\frac{1}{4}$ inch.	150°	No. 1 size,
$\frac{3}{8}$ "	1 "	$1\frac{1}{2}$ "	140°	No. 2 "
$\frac{1}{2}$ "	$1\frac{1}{8}$ "	$1\frac{1}{2}$ "	140°	No. 3 "
$\frac{3}{4}$ "	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	140°	No. 4 "

They can be made in any other sizes required, but the above four sizes can always be had without delay from Messrs. Krohne & Sesemann, Duke street, Manchester square, W. This appliance is exceedingly simple, and appears to serve all the purposes required of a bobbin or button, for it keeps the parts at absolute rest; can be absorbed, as it is made of decalcified bone; and can be liberated without any absorption or sloughing of

the parts it unites. Moreover, from its shape it cannot, until the decalcified bone is absorbed, slip away from the seat of union, and when the sutures in each piece of intestine are tied the parts to be joined must be brought together, and yet no excessive pressure is exerted on the edges which it is desired to connect. In those bobbins for small intestine cases, seeing that the intestinal contents are liquid, the width at the narrowest point need not be more than one-half or three-eighths of an inch. Much larger ones are required for large intestine cases, as the intestinal contents are solid or semi-solid, viz., three-fourths of an inch. Its use may be most conveniently explained by presuming that two pieces of intestine are to be united end to end. Into or round each piece of intestine a fairly stout continuous silk suture is passed, which should include in each stitch the peritoneum, the muscular coat, and the mucous coat. Then one end of the bobbin is inserted into one piece, and the suture is pulled tight by a knot twice threaded, so that it will not slip, but the final tie is not made until the other end of the bobbin has been inserted into the other piece of intestine. After this, one of the sutures is tightened up to its utmost; this brings the part down to the centre of the bobbin, for, as the bobbin consists of two cones with their apices pointing to its centre, the tighter the suture is drawn the more completely must it draw the intestine to the apex of the cone which has been inserted into it. A similar tying of the other suture brings the other piece of intestine down to the apex of its cone. Thus, from the shape of the bobbin, the parts to be united are brought into exact apposition, and, at the same time, are pressed together. A few Lembert sutures may then be inserted at various points, or a continuous Lembert suture may be used all round, if that be thought necessary. It is wise to scarify the peritoneum of the intestines with a needle for about half an inch round the seat of union. This scarifying promotes the exudation of lymph, which acts as a callus (just as in a fracture of bones) round the ends to be united. Especially should this be done if no Lembert sutures have been employed. The intestines when united cannot move in either direction, for the sutures, which are tied up tightly at the narrowest part of their respective cones, naturally cannot slip up to any broader portion; moreover, the bobbin itself cannot possibly alter its position either upwards or downwards.

A COMMUNITY WITHOUT VACCINATION.

Dr. Kerr, writing from Rabat, on the westerly shore of Morocco, states some facts that will serve to remind the anti-vaccinationists of England of the condition of their own country before the grand discovery of Jenner. Smallpox makes fearful havoc among the Moors, with whom Dr. Kerr has

lived seven years. During an epidemic at Rabat, over one thousand persons died from that disease in the course of two months. Rabat is a town on the Atlantic seaboard of Morocco, having a population of 26,000. Of the condition of the town during the epidemic, Dr. Kerr writes the following : "Often we felt it sickening when going through the streets to see young men and boys sitting at shop doors, flour mills, etc., covered with smallpox eruption, in every way facilitating the spread of the disease. Every one thinks that it is impossible for him to escape smallpox, hence no precautions are taken. It is painfully sad to see so many people who have lost the sight of one eye, while many are blind altogether. One day not long ago, I paid a passing visit to a *douar*, or collection of tents, outside the city, and it was touching to see the mothers bring their children, asking me to put the medicine in their arms to prevent the infection. I vaccinated all the children in the village, and, although they were surrounded by smallpox, none took it."

These conditions, given by Dr. Kerr as to the Africa of to-day, are a simple repetition of what existed in England and Europe before Jenner's great boon to mankind was made possible.—*Journal of the American Medical Association.*

OBSTETRICS

IN CHARGE OF

ADAM H. WRIGHT, B.A., M.D. Tor.,

Professor of Obstetrics in the University of Toronto; Obstetrician to
the Toronto General Hospital.

ASSISTED BY

H. CRAWFORD SCADDING, M.D.,

Physician to Victoria Hospital for Sick Children.

KIDNEY OF PREGNANCY.

Tranteroth (*British Medical Journal*) finds that in about half the cases of pregnancy in healthy women, primiparæ or otherwise, a trifling amount of albuminuria is to be detected in the second half of pregnancy. In a minority of cases this symptom is not due to renal changes; in the majority it represents a special morbid condition, best termed "the kidney of pregnancy." As a rule, this condition involves no symptoms besides changes in the kidney. Eclampsia and œdema are rare. The pregnancy kidney never changes into the kidney of any chronic form of nephritis. There is no true nephritis of pregnancy. Albuminuria is the rule during labor, especially in primiparæ, and casts (usually hyaline) are to be found in almost a third of the cases. In the albuminuria of pregnancy casts are much rarer. The albuminuria of labor is most marked during the period of dilatation, and disappears rapidly during childbed, except when there is fever; later on, towards the second week, albuminuria usually indicates catarrh of the lower part of the urinary tract. The albuminuria of pregnancy and labor does not render chloroform dangerous. Renal disease, existing before pregnancy, is greatly aggravated by that condition, often ending in death of the ovum and abortion, after which the disease abates more or less. The causes of pregnancy kidney are the increase of intra-abdominal pressure, changes in the nutrition of the kidney brought about by the altered condition of the blood, and in special cases obstruction of the left ovarian vein which joins the left renal, and compression of the ureter by the foetal head. The last two causes apply to the kidney of labor (*Geburtsniere*), where also septic changes from pieces of foetal appendages play a part. The degree of the changes which make up the kidney of pregnancy depends on the resisting power of that organ in the individual patient.—*Kansas Medical Journal*.

TREATMENT OF EXTERNAL GENITALIA AFTER LABOR.

Dr. Ridgeway Parker, of Philadelphia, treats bruises of the external genitalia as follows (*American Journal of Obstetrics*): After delivery of placenta dip a large diaper in a pint of hot water with two ounces of fluid extract of witch-hazel. The cloth should not be too hot, and should be changed every fifteen minutes for three hours, and afterwards every half-hour to hour for six to twelve hours.

TREATMENT OF VAGINISMUS.

In an article in the *Provincial Medical Journal* for September 1, 1894, Madden states that he has based his treatment of this state on certain reasons, and has found it most successful in these cases, viz., first, the employment of constitutional nerve sedatives and tonics to allay the general neurotic condition; and, secondly, the application of local nerve-stretching to the affected parts. On the latter point the writer briefly recapitulates the steps of the local procedure which he has proved the efficacy of, and which he would, therefore, venture to recommend to other practitioners. First, then, the patient, properly prepared for an antiseptic vaginal operation, and the rectum and bladder evacuated, is to be etherized and placed in the ordinary left lateral semi-prone position; secondly, a large-sized bivalve vaginal speculum is to be introduced, and the blades then fully expanded; thirdly, a tampon of antiseptic cotton or wood wool, saturated in boroglyceride, is to be passed in through the speculum, so as to fill its calibre from the vulva to the roof of the vaginal vault; fourthly, the speculum, still widely expanded, is to be forcibly withdrawn, so as to overcome the contractility of the parts, and at the same time thoroughly stretch, or even slightly rupture, the affected nerve fibres. In so doing, some little abrasion of the vaginal walls may possibly be occasioned; but any hæmorrhage therefrom will be sufficiently controlled by the tampon, on which counter-pressure should be made during removal of speculum, so as to retain the included plug in the vagina, where it may be left for at least twenty-four hours, and then, at the same intervals, replaced by other antiseptic tampons, which should be employed for the next week to maintain the patency of the passage. Immediately after removal of these tampons the vagina should on each occasion be thoroughly flushed out with some antiseptic injection. Finally, if at the end of a week any evidence of vaginismus or spasmodic contraction should still remain, then the same procedure may be again repeated, after which it will probably be found that the passage has regained its normal sensibility and capacity. In some exceptional instances that curative result may not be thus obtainable, and in such cases it may possibly become necessary to resort to the removal of

any specially hyperæsthetic tissues in the vulva vaginal area, or else to some of the recent modifications of Sims' or Emmett's operations for vaginismus. These procedures will, however, be comparatively seldom required by gynæcologists, who may adopt the simpler and, according to the author's experience, generally effectual plan of treatment he has described.—*Therapeutic Gazette*.

ANTISEPTIC TREATMENT OF THE NAVEL IN THE NEWLY-BORN.

Schliep (*Therap. Monatshefte*, June, 1895) advocates antiseptic treatment of the stump of the umbilical cord after childbirth, instead of the usual dirty treatment commonly adopted. He mentions Schroder, who insisted on strict asepsis during and after treatment of the cord by means of antiseptic baths and treatment of the stump with dermatol, which hastened the process of mummification. By this means Schroder showed that many sources of infection were avoided, especially contamination by dirty bath water. Schliep advocates this treatment, but substitutes for dermatol a 2 per cent. solution of silver nitrate, applied twice daily by means of a brush. He states that the day after birth the stump begins to become dry and leathery, on the second day it has shrunk to a fifth of its normal size, and on the fourth day the treatment is complete.—*British Medical Journal*.

DILATATION OF THE CERVIX OF THE UNIMPREGNATED UTERUS.

Dr. Braithwaite read a paper before the Leeds and West Riding Surgical Society on a point in the dilatation of the unimpregnated cervix uteri. The point was that when the unimpregnated cervix was dilated, for whatever purpose, it was infinitely easier and more satisfactory to do it on the last day of the menstrual period, or when the discharge had just ceased. At that time the work was already done for us to some extent, and the tissues were so soft and elastic that dilatation could be accomplished to almost any extent in about twenty minutes, provided the patient was under an anæsthetic. If it were done for the cure of dysmenorrhœa, Hegar's dilators could be passed one after the other, up to, say, No. 15; if for the purpose of examining the interior with the finger, up to No. 17 or 18. In many cases very little resistance was met with, and there was none of the injury to the tissues likely to result at other times. The use of tents was done away with. The curative action in dysmenorrhœa was better than if the dilatation were done between the periods, for it was more free, and to cure a bad case of dysmenorrhœa the dilatation was considerable. This plan opened up a vista of utility in the diagnosis of small intrauterine growths.—*British Medical Journal*.

VIBURNUM PRUNIFOLIUM IN ABORTION.

Mme. Michailowa (*Meditzinskoje Obozrenije*, 1895) concludes from the trial in five cases that, contrary to the accepted opinion, this remedy not only does not always prevent abortion, but sometimes even occasions it, or, at least, accelerates a miscarriage already commenced. The hæmostatic action of the drug (two grains, in powder four times daily) was constantly observed, but in two cases, after the first day, contraction of the uterus followed, favoring the commenced abortion. In three cases, directly after the administration of a dose, contraction of the external os was observed. The author believes that, although viburnum may occupy a prominent place in the treatment of female diseases, it is not without danger in threatened abortion.—*University Medical Magazine*.

GENITO-URINARY AND RECTAL SURGERY

IN CHARGE OF

EDMUND E. KING, M.D. Tor., L.R.C.P. Lond.,

Surgeon to St. Michael's Hospital; Physician to House of Providence and Home for Incurables; Pathologist, Toronto General Hospital.

GONORRHOËAL PYELITIS AND PYO-URETER CURED BY IRRIGATION.

In the case of which I shall give a detailed account in this article, I have been able to realize one of the important benefits attainable by my new method of examining the female bladder and ureters (*vide John Hopkins Hospital Bulletin*, November, 1893, and *Amer. Jour. Med. Sciences*, January, 1894).

The patient came to me with an extensive accumulation of pus in the left ureter, extending up into the pelvis of the kidney. This was caused by a stricture of the vesical end of the ureter with a dilatation above it, associated with a gonorrhœal infection.

I treated the stricture by dilating it with a series of ureteral catheters, increasing in diameter from 2 mm. up to 5 mm.

After drawing off the purulent fluid, the ureter and pelvis of the kidney were washed out with medicated solutions. The calibre of the stricture was enlarged, reducing the quantity of the accumulation above it from 150 to 106 c.c. The purulent character of the secretion was removed, and all trace of gonococci disappeared.

My patient was sent to me by Dr. Stark, of Cincinnati, O. She was a married woman, slight, somewhat haggard-looking, thirty-one years of age. She had one child four years ago, without any special difficulty, her only pregnancy in six years of married life. The menses were regular and without pain. Headaches were rare; the appetite was good and the bowels regular.

She was feeling depressed, and had lost weight, and complained of a severe pain on urinating, persisting for about a half-hour afterwards. She had also a sense of pressure in the bladder, and was obliged to urinate every two to three hours. The trouble was especially distressing at night. She had no acute pain, but an aching in the limbs, and lower abdominal

discomfort. The appearance of the urine as noticed by her varied greatly, being clear at times, and at other times containing much yellow sediment.

My examination showed that the vaginal outlet was torn back near the anus, but was well lifted up under the symphysis by an intact levator ani. The cervix was in the axis of the vagina somewhat low down, showing a slight tear, and the uterus was in retroflexion. There was no marked tenderness of the uterus, the left ovary was displaced downward and tender on pressure, but not adherent. On examining the anterior wall of the vagina, no special tenderness was developed on palpating the bladder.

The ureters were then palpated per vaginam, and the left distinctly felt to be harder than normal and somewhat thickened, but without marked tenderness. The left ureter also showed a displacement towards the pelvic floor.

The bladder was examined under atmospheric dilatation with the patient in the knee-chest position, through the No. 10. speculum. There were abundant evidences of a patchy, mild grade of cystitis. The field opposite the ureter, the posterior pole, and its surrounding area were of a mottled red, injected appearance, the vessels being entirely obscured; this injection increased towards the vault, where no normal background appeared. The vault over an area 4 x 5 cm. was covered by fine granules, averaging one or two to the square millimetre, most marked on the right side. The tips of each of these granules reflected the light, and gave the surface a bright studded appearance. On the left side, in places, the surface presented a superficial, worm-eaten appearance. On the right lateral wall, $2\frac{1}{2}$ cm. behind the ureteral orifice, was a ridge 2 mm. in height, extending downwards to the base of the bladder. Near the right ureteral orifice was an area of intense congestion presenting an œdematous appearance, surrounding the ureter, whose orifice could only be located by a little pallor in the form of a crescent.

Posterior to the right ureter was a superficial ulcer 2 x 3 mm., with a narrow, red border and a yellow centre.

The left ureteral orifice was situated on a truncate cone about 6 mm. in diameter at its base and 2 mm. at the top. It was slightly œdematous, and on the urethral side broken up by a number of irregular papillary eminences. The site of the ureteral orifice at the first examination was marked by a yellow spot of pus. On introducing a searcher into the opening of the orifice, a thin stream of pus escaped and ran down over the bladder wall.

Upon leaving the ureteral catheter in the left ureter for three minutes, 11 c.c. of dark fluid escaped, followed by 6 c.c. of fluid containing pus. In the twenty-four hours following the examination, the patient passed 700 c.c. of urine.

During the whole time the patient was under treatment, lasting from the 1st of March to the 4th of August, 1894, I catheterized her left ureter about 120 times in all. The first three weeks of her stay were passed in vain endeavors on my part to get the ureteral catheter well into the ureter. Three difficulties prevented this at first. In the first place, the irregular papillary prominences on the left side in the neighborhood of the ureteral orifices obscured it and made it impossible to locate it with certainty, after the first examination in which the pus was seen in it as stated; in the second place, the location of the orifice was unusual, lying extremely displaced to the left; in the third place, there was a spiral stricture of the intravesical portion of the ureter, and it was necessary for me to learn the twist of the stricture before I could pass the catheter at once at every sitting. I cannot say too much in praise of the tenacity and pluck of my patient throughout the first part of the treatment, which was very trying to me and more so to her, as I was entirely uncertain as to the ultimate outcome, and could give no positive assurances.

After almost daily efforts for three weeks, the stricture was finally cleared by an accidental turn of the hand; this was more readily repeated on two or three occasions subsequently, but not without discouraging failures, when the ureteral orifice was definitely located on the side of the pyramid in relation to certain papillæ and the direction of the stricture was ascertained so that the catheter could after this be passed with ease. After pushing the catheter through the stricture, it entered about 8 cm.; a distinct sense of resistance was felt in attempting to withdraw it, due to the bite of the stricture, which was about $1\frac{1}{2}$ cm. long. So long as the point of the catheter went no further than the stricture no urine escaped, but as soon as the catheter cleared the stricture pale urine began to pour out in a steady stream, continuing until 130 c.c. was collected in three minutes. Sometimes the first urine drawn off would be of a reddish-brown color, followed by a whitish sediment, and at the last a thick, creamy fluid like pure pus.

The fact that so much urine escaped in so short a time proved conclusively that the case was one of extreme dilatation of the left urinary channels above the stricture, for the normal rate of secretion is but one cubic centimetre a minute for both ureters together, or one and a half in three minutes for one ureter. The discharge of 130 c.c. would be twenty-nine times the normal amount, or at the rate of about twenty-two gallons a day for both sides together. Thus by a *reductio ad absurdum* proving that the case was a dilated pyo-ureter and pyelitis.

After drawing off all the fluid, a piece of fine rubber tubing with a funnel at the end was connected with the catheter, and a saturated boric acid solution, two-thirds of the quantity of fluid taken out, was run into the

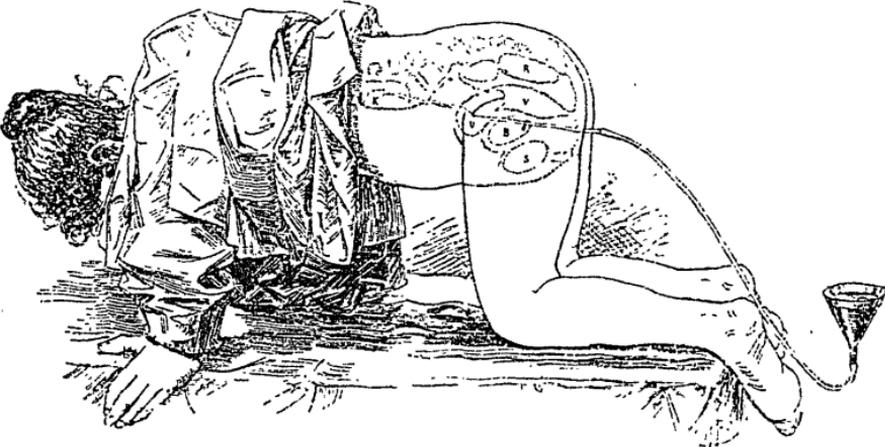
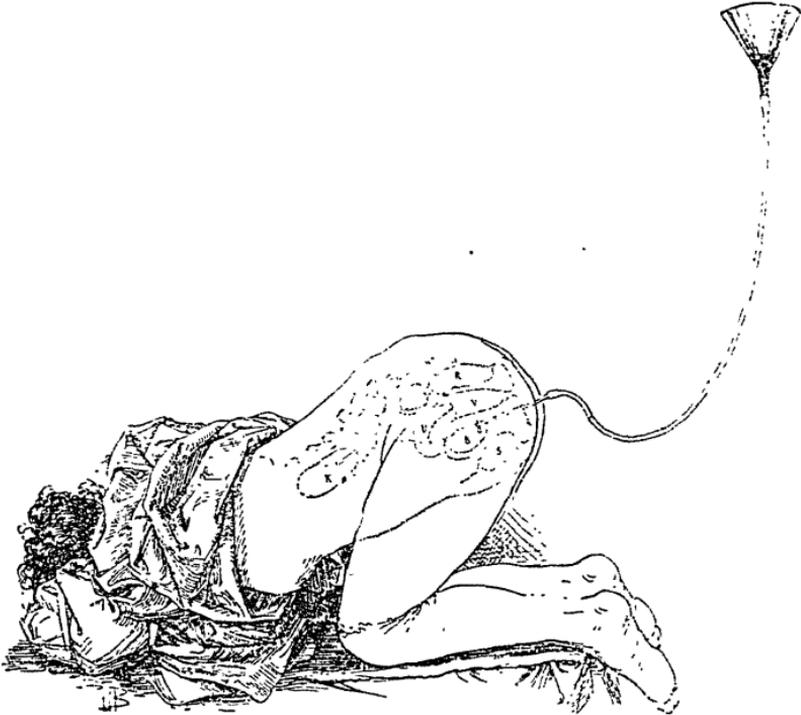
ureter by gravity, by simply elevating the funnel filled with the fluid from 40-60 cm. above the level of the bladder. Care was taken to have the tubes full of fluid so as to inject no air. The patient, during these manipulations, was in the knee-breast position. She took no anæsthesia, as the treatment was not painful. After introducing the catheter into the ureter, she raised her body on her hands so as to make it horizontal, to better dispose the fluid to run out. When the injection was given, she again let her chest down to the table, and rose again when it was to flow out. I found that I could wash the urinary tract repeatedly with the same fluid, if I desired it, by holding the funnel high when the fluid should run in, and by holding it an equal distance below the level of the table when all the fluid would well back into it again, often bringing, too, a considerable amount of shreddy white débris from the ureter.

After the first few treatments of this kind, she began to experience relief from her pain, and was much less frequently disturbed at night.

An examination of the urine made by Dr. Barker, in the pathological laboratory of the Johns Hopkins Hospital, states that it was of a straw color, neutral in reaction, and containing an abundant muco-purulent, stringy, tenacious sediment. There was a small amount of albumen, but no sugar, and no casts. The specific gravity was 1032. There were a great many polynuclear leucocytes, crowds of pus cells, and many diplococci, nearly all of which were within the protoplasm of the leucocytes. Octahedra of calcium oxalate were found, and a few cylindroids. There were no tubercle bacilli, and no other bacteria than diplococci, which were of the typical appearance of gonococci, and much smaller than staphylococci or streptococci.

The bladder walls were treated by occasional applications of a five per cent. solution of nitrate of silver, applied directly to the affected areas on absorbent cotton with an applicator, and by daily irrigations of a bichloride solution 1-150,000.

My first effort in the treatment of the case was to secure a continuous drainage of the ureter, avoiding all accumulation above the stricture, hoping by this plan to induce a contraction of the ureteral walls. To do this I made a short ureteral catheter 2 mm. in diameter and 5 cm. long, with a little shoulder about 2 cm. back of the inner end to keep it from slipping out of the ureter after introduction, and with a flange 6 mm. in diameter at the lower end to keep it from slipping altogether into the ureter. I placed this in the ureter by means of a searcher used as a mandarin to conduct it through the stricture. I found, however, that its presence gave so much pain and increased the irritation of the bladder, after being in place for twelve hours, that I was obliged to abandon its further use, although it acted well mechanically.



My next plan, which was successful in curing the case, was to have ureteral catheters made in four sizes, increasing from the smallest, 2 mm., to the largest, which was 5 mm. in diameter. The points of the catheters were blunt and straighter than the ureteral catheters ordinarily used, on one side almost on a line with the shaft.

In the course of two months, the ureter was dilated sufficiently to permit the introduction of the largest catheter, from the end of which the accumulated urine would drop in a large free stream. With the catheters I began systematically to wash out the ureter and kidney with a bichloride of mercury solution 1-150,000, constantly increasing the strength until 1-16,000 was used. The treatment with the bichloride was interrupted several times for the injection of a one per cent. nitrate of silver solution, and once for a weak iodine solution. Towards the end, while using the larger catheters, I was obliged some six times to suspend the treatment for from two to three days on account of a chill followed by elevation of temperature from 102°-104° F. with a quickened pulse (120), headache, nausea, and pain in the left inguinal region and legs. She was flushed and restless, and suffered from sleeplessness at these times.

The result of the bichloride washings was a complete disappearance of pus cells, leucocytes, and gonococci from the urine, and the reduction of the size of the distended ureteral tract from one holding regularly from 140-150 c.c. down to 90 or 100 c.c. The bladder assumed a normal appearance, and she became able to sleep through the night without rising once. She gained 20 pounds in weight, and resumed the rosy appearance of perfect health, with a corresponding remarkable improvement in spirits.

The treatments were discontinued August 8, 1894, and I saw her again in January, 1895, and then on two occasions catheterized the ureter, drawing off only 90 and 100 c.c. of clear urine from the left ureter, without a trace of pus or cocci. She has, therefore, recovered from the infection, but still has a stricture of the ureter of larger calibre with a lax distended ureter above it.

I made several attempts to empty the ureter by massage, with considerable success at first, but the procedure became so painful that it had to be stopped. Just before the massage the bladder was emptied by catheter, and immediately after treatment as much as 90 c.c. of urine were secured.

I demonstrated the success of the massage and mapped out the exact positions in which to make pressure, by placing a catheter in the ureter with the patient in the dorsal position, with a rubber tube attached to its outer end, a straight glass tube 50 cm. long, attached at the other end of the rubber tubing, filled at once with urine to the level of the ureter and acted as a manometer. Respiratory movements were traced by its rhythmical ascent and fall. On making pressure over the ureter through the

abdominal wall, the column ascended in the vertical glass, and by increasing the pressure could be forced out over the top. If the pressure was made to one side, there was only a slight effect or none at all. By marking all the points of effective pressure on the skin, and afterwards connecting the markings, the course of the ureter was accurately mapped out.

The following novel and important points are demonstrated by this case :

(1) Stricture of the lower extremity of the ureter can be diagnosed without any operation, by using the cystoscope with the bladder dilated with air by posture.

(2) Stricture at the ureter can be improved by gradual dilatation by a series of hollow bougies (catheters) and without a kolpo-ureterotomy. (See Kelly, Johns Hopkins Gynæcological Report, No. 1.)

(3) A stricture through which a No. 5 (5 mm. diam.) bougie is passed every day for several weeks will still hold back the urine if the walls of the ureter above have lost their contractility.

(4) Pyo-ureter and hydro-ureter can be diagnosed by drawing off in a few minutes such a quantity of fluid as it is manifestly impossible for the kidney to secrete in that amount of time.

(5) Pyo-ureter and pyelitis can be cured by washing out the ureter and pelvis without any preliminary cutting operation to disclose the ureteral orifice (as in kolpo-uretero-cystotomy, Bozeman).

(6) Variations in pressure in the column of fluid in a distended ureter can be demonstrated by a manometer attached to the ureteral catheter.

(7) In this way the course of the ureter can be mapped out.—Howard A Kelly, M.D., in the *Bulletin of the Johns Hopkins Hospital*.

[NOTE.—The whole of the above paper is published on account of its very great interest. The frequency of these cases occurring in private practice, and the comparative ease with which the treatment can be carried out by the general practitioner, makes the matter of the greatest importance.]

PÆDIATRICS AND ORTHOPÆDICS

IN CHARGE OF

W. B. THISTLE, M.D., L.R.C.P. Lond.,

Assistant Demonstrator of Anatomy, University of Toronto; Physician to Victoria Hospital for Sick Children; Clinical Lecturer on Diseases of Children in the Woman's Medical College;

AND

B. E. MCKENZIE, B.A., M.D.,

Lecturer on Orthopædics and on Surgical Anatomy in the Woman's Medical College, and Surgeon to the Victoria Hospital for Sick Children, Toronto.

LUMBAR PUNCTURE.

In *Berl. Klin. Woch.*, July 8, 1895, Stablemann draws attention to the importance of puncturing the spinal canal in the lumbar region for diagnostic purposes in order to ascertain the character of meningitis. The author lays stress upon the importance of the positive and unreliability of the negative evidence obtained by this procedure. In tuberculous meningitis the fluid drawn off should be clear, with tubercle bacilli in it; in suppurative meningitis turbid or purulent, with pyogenic micro-organisms in it; and in cerebral abscess clear, and without micro-organisms. Tubercle bacilli have not been found at times by some observers, although Lichtheim has never missed them. Clear fluid without micro-organisms may also exist in tumor cerebri, simple meningitis (Quincke), and even suppurative meningitis. The difficulty of distinguishing at times between cerebral abscess and meningitis is well known. If pus is drawn off by lumbar puncture, suppurative meningitis must be present.

A CASE OF SPLENIC LEUKÆMIA TREATED BY BONE MARROW, WITH RECOVERY.

In the *British Medical Journal*, 1894, ii., 1238, Lawrie Macpherson reports a case of splenic leucocythæmia treated by bone marrow, with recovery. The patient, a child of seventeen months, was in an advanced state of emaciation, and with a greatly distended abdomen. Appetite was entirely lost. Sickness and diarrhœa were constant and severe. The skin was harsh and dry, and the pallor of skin and mucous membranes was extreme. Respiration was rapid and shallow; the pulse was about

120. There was a daily rise of temperature, followed by exhausting perspirations. There was no albumen or sugar in the urine.

Abdominal examination revealed the existence of an enormously enlarged spleen, which occupied two-thirds of the cavity. The anterior edge, easily defined, was indicated by a curved line extending from the ensiform cartilage to the middle of Poupart's ligament on the left side, and passing well to the right of the umbilicus. The surface was smooth, and free from tenderness. A slight amount of fluid existed in the peritoneal cavity; there was no evidence of effusion elsewhere.

Inquiry failed to elicit any history of syphilis or malaria. A teaspoonful of bone marrow thrice daily was prescribed, with appropriate nourishment, and no other treatment.

Although the case seemed somewhat hopeless, improvement rapidly followed; appetite soon returned, sickness and diarrhoea ceased, and fever disappeared. The skin and mucous membrane assumed a healthy color, and the child put on flesh.

The most striking alteration was the steady diminution in the size of the spleen, which can now only be felt in its normal position, under the ribs. After four months' treatment the patient has been restored to health and strength.

INTRAUTERINE INFECTION WITH THE TYPHOID BACILLUS.

A case is reported (*Berl. Klin. Woch.*, June 14, 1895) where a woman in the fifth month of pregnancy aborted while suffering from an attack of typhoid fever. The accident happened in the fourth week of the disease. The foetus died soon after the cord was cut. Bacteriological examination of blood from the spleen and placental blood was commenced twenty minutes after birth. In three days colonies were developed in the tubes, giving all the distinguishing features of typhoid bacilli. Every precaution was taken to sterilize the genital passages. The number of bacilli present was small. The case shows that typhoid bacilli can pass over from the mother to the foetus. Nothing abnormal was found in the foetus except an enlarged spleen. Careful examination of the placenta and of the endometrium revealed no lesion.

TOXIC PRODUCTS OF TUBERCULOSIS.

After many experiments, Angelo Maffucci (*Il Policlino*, January 1 1895) affirms that there exists in culture preparations of tubercle where the bacilli are dead a toxic substance which resists the action of time, heat, desiccation, sunlight, and gastric juice, and this substance is not a product of bacillary secretion, nor derived from the nutrient medium, but a poison

contained in the substance of the bacillus itself, and due to its disintegration. Maffucci found that culture preparations three years old had not lost their toxic power; that fresh as well as old cultures submitted to the action of 65° to 100° C. for an hour or more, though this might destroy the vegetative power of the bacillus, had little or no effect on its toxic power, nor did desiccation for fourteen months destroy it. Sunlight from fifteen to forty-five days at 32° C., followed by exposure to heat, 100° C., and then treatment with gastric juice, had no effect on toxicity. This toxic substance is very active in its power, as an infinitesimal dose sufficed to cause marasmus; moreover, it may be transmitted by tuberculous parents to the foetus without any transmission of the bacillus itself, causing abortion, or marasmus in those foetuses that are born alive; it may also be eliminated by the milk. The action of this toxin is to cause inflammation and necrosis of the tissues; in concentrated solutions, it causes tuberculous abscess; diluted, it produces disturbances of the circulation, catarrhal inflammation, and alteration of the red corpuscles of the blood; by passing repeatedly through the kidneys, it may set up a parenchymatous nephritis, or a fatty degeneration of the renal epithelium.

Editorials.

PASTEUR.

THROUGH the death of Pasteur, France has lost her most gifted son in the great field of science. The son of a journeyman tanner, born in obscurity in a small village in the Jura region, died in Paris, long after he had been acknowledged by his countrymen to be one of the greatest men the French republic has produced. He received almost every distinction that his government could give him. His memory was honored by giving his remains a national funeral, conducted with most imposing ceremonies, and attended by President Faure, the members of the diplomatic corps, Prince Nicholas of Greece, the Grand Duke Constantine of Russia, and various other representatives of foreign countries. France is one of the most progressive nations in the world as far as science is concerned, and is ever ready to give substantial assistance to those engaged in scientific researches.

Pasteur's reputation was by no means confined to his own country. It extended throughout the world of science—and far beyond it. Everybody, scientific or otherwise, has heard of him. We feel proud that our profession can produce such a man, and we feel glad that his countrymen and his government appreciated his worth so long before his death. France, in honoring her distinguished scientist, has done honor to herself. Pasteur is dead, but his work will live and grow through all time.

THE MEDICAL COLLEGES.

CANADIAN medical schools adhere to the custom of opening their sessions in a formal manner by the delivery of what is called the introductory address. Many, but not probably the majority, of the schools of Great Britain have given up the custom. The *British Medical Journal* says: "That event used to be celebrated everywhere with an efflorescence of homiletic and didactic oratory that reminded one of the eloquent harangues which ancient historians put into the mouths of generals before a battle"; but, at the same time, admits that the introductory address

forms an appropriate commencement of the medical session, and considers it a pity that it should have been allowed to fall into desuetude at some of the schools.

The opening exercises in the Toronto and Trinity schools included the usual formal addresses, which were well received by the students and their friends in attendance. The Rev. Professor Clark, of Trinity University, delivered the address for Trinity Medical College, while Professor A. McPhedran performed a similar service for the Medical Faculty of the University of Toronto. The lecture (which we hope to publish in full in our next issue) was delivered in the building of the Biological Department, and dealt especially with the facilities which were placed at the disposal of the students by the University authorities, and the duties of the students in connection therewith.

TORONTO WATER SUPPLY.

IN our March issue, 1893, we published an editorial on the water supply of Toronto, written by a physician who had very carefully studied the whole subject. As we are now, more than ever before, convinced that the views then expressed are correct, and have reason to believe that many who have given the subject much consideration agree with us, we have decided to reproduce a portion of it, as follows :

“There is a proposition before the council to lay another conduit across the bay. What are we to do? The people will not be satisfied with water carried across the bay. Tests have proved fallacious before, and may again. Even should the pipe recently relaid be now sound, the liability to another break would be great. A small leak may mean a great loss of life. We should have pure water that is not brought through a cesspool. We believe that Lake Ontario should be the source of our water supply. It appears to be Nature’s gift to us.”

There are, at least, two lake currents that should be taken into account in determining the place from which the supply should be taken. The present intake pipe, about one-half mile southeast of the western end of the island, is in fairly good position, although it could be moved farther west without any danger from either current. We take it for granted that some day the city will have a trunk sewer which will drain east, perhaps to a farm, but, at any rate, out of the bay. The current from the east, supposed to be caused, partially at least, by the force of the Niagara river’s discharge on the opposite side of the lake, sweeps around the southern shore of the island, and meets a current from the west caused by the swirl from Mimico Point through Humber Bay at a point south of the south-

western point of the island. The current in the bay, which is only slight, is from west to east. We believe that the conduit should be entirely through pure water, so that, in the event of a break, there would be the least danger of receiving impure water. We also believe that the proper place is farther west, say, south of Garrison common, or possibly as far west as Dufferin street. The only change this would necessitate would be moving the pumping station and plant, and laying a large main from Peter street to the new site. A conduit laid there would be little or no more costly in proportion to its length than one laid across the bay, and pure water would be guaranteed. There is at present one slight objection to this scheme, but that is of very small moment indeed. There are three sewers emptying into the lake west of the Queen's wharf. They have a capacity of about three millions daily. This sewage could be conveyed to the bay by a trunk or collecting sewer, which would free that portion of the lake entirely from sewage contamination, besides inaugurating the commencement of a trunk sewer system.

DOMINION MEDICAL REGISTRATION.

IT is unfortunate that the question of medical registration for the whole Dominion is surrounded by so many difficulties. The matter has frequently been discussed at meetings of the Canadian Association, as it is naturally supposed that that is the proper body to consider the question. It was hoped that the committee of this association which was appointed at the St. John, N.B., meeting in 1894, to consider and report on the question, would be able to do something in the way of removing the difficulties which prevent a satisfactory settlement of the whole matter. In the report presented, the members of the committee "expressed their regret that, by the system which at present obtains, a graduate in medicine entitled to practise in our province is not free to exercise his functions in all the provinces in this large but sparsely settled Dominion; that this condition of things prevents the names of medical practitioners in this Dominion being placed on the British register, becoming thereby British practitioners. This latter is a boon which the council of Great Britain has more than once signified its willingness to grant. To secure these ends, it is considered most desirable that a uniform standard of medical education for the whole Dominion be established. In order to effect this purpose, it is suggested that the secretary be instructed to communicate with the various provincial councils before the next meeting, asking that each council discuss the position, and, if possible, appoint one or more delegates to a Dominion committee for the purpose of adjusting a suitable curriculum to carry out the

suggestion herein, and that such committee be requested to forward its findings to the provincial councils and to the secretary of the association before the next meeting."

This report is somewhat disappointing to those who hoped that the committee would have worked in the direction of communicating with the various provincial councils, instead of simply suggesting that something of this sort be done in the future. What we wanted to get from the committee was work, and not suggestions. We have been deluged with suggestions for some years; we want now to get one step farther.

The Montreal Medical Journal fears that the representatives of Ontario will demand more than those of Quebec will be prepared to grant. It also suggests that reciprocity would answer the purpose for the present, and states that such reciprocity now exists between Quebec and Manitoba. If Ontario and Quebec could agree, it is likely that the other provinces would readily fall into line. We think a great deal will depend on the attitude of the Ontario Medical Council, which, in the past, has not always shown a conciliatory disposition. We have reason to think, however, that a majority of the present council are anxious for reciprocity or Dominion registration, and will gladly confer with delegates from the other provinces, and assist in finding a solution of the many opposing difficulties.

LODGE PRACTICE.

WE publish in this issue a letter on lodge practice, from three representatives of the Ontario Medical Council, and published in the *Free Press*, of London, Ontario, which will probably be read with much interest by the profession of this province. The evils connected with this class of contract practice are generally recognized by our physicians, whether they be engaged in such work or not. It has been found difficult, however, to get the profession to agree unanimously on any solution of the difficulties surrounding the whole vexed question. The physicians of London are making a very determined effort to stop lodge practice, and forty-one out of a total of forty-six medical practitioners of that city have signed an agreement which reads as follows:

"We, the undersigned medical practitioners of the city of London, severally covenant and agree each with the other, that on and after the first day of January, 1896, we will not engage in, or contract our services for, lodge or club practice."

"And we do hereby severally covenant and agree each with the other, that any party to this agreement who violates the same will subject himself to the payment of the sum of sixty dollars as liquidated and ascertained damages for such breach, and that the said sum may be sued for in the

name or names of one or more of the other parties to this agreement in the First Division Court of the County of Middlesex, the jurisdiction of which court we hereby admit and consent to, and that upon any sum being recovered in such action the same shall be applied to whatever object a majority of the parties to this agreement may decide upon.

“It is further agreed and understood that this agreement shall not be binding until it is signed by all the medical practitioners in the city of London.

“In witness whereof we have hereunto set our hands and seals this 23rd day of September, 1895.

“Signed, sealed, and delivered in presence of.”

It will be noticed that this agreement will not be binding unless all the physicians of London sign it. We sincerely hope that the remaining five will be induced to co-operate. We have no desire to see the public suffer, and we hope that the sick poor will, in no case, be neglected; but we do wish to see the end of a system that is very materially lowering the tone of our profession. It is feared by some that, even if all in London agree upon this course of action, outsiders might be imported. This might happen, but such importations would be such contemptible creatures that they could scarcely hope to command the respect even of lodge members.

We understand that some are in favor of continuing the system of lodge practice, but desire to raise the fees to a paying basis. This might be right, from a strictly commercial point of view; but it would be simply a sacrifice of principle for the sake of expediency or profit, without removing these features which are mainly objectionable to the old system.

Correspondence.

DR. W. T. McARTHUR (Tor., '95) has commenced practice in Los Angeles, California. From a private letter, received September 28, we extract as follows :

I was exceedingly sorry to see in Saturday's *Globe*, 14th inst., which arrived here yesterday, an account of the death of our esteemed class-mate, Dr. A. K. Merritt. It is so sudden, I can hardly realize that such is so. In his death, I feel that we have lost the cleverest of the graduates of class '95.

It is about ten days since I arrived here. I am delighted with the city, the climate, and the people. This city is growing very fast, and will soon be far ahead of the cities which are now its superiors. The people are quiet, orderly, industrious, good-looking, etc.; in fact, I see no difference from the people of Toronto, with this exception—there is a great number of lady bicyclists here. They climb on regular racing wheels—handles low—get a hump on the back, and away they go, at what they suppose to be four miles in three and a half seconds. With such a state of affairs I meet with two difficulties, viz. :

In the first place, when I see a wheeler coming it is difficult to tell whether it is a lady or gentleman. Secondly, if a lady, it is hard for me, when she is off her wheel, to tell, without looking at her face, which is front and which is rear.

There are a great many quacks in the city, still they do not work much among the better classes. I am the only graduate of the University of Toronto here. If you ever come out this way, be sure to come to see me ; or if you have any of your friends or acquaintances coming, I shall be pleased to have them call to see me. The fall term will soon be opening, and you will be into your work again. If you have an opportunity, kindly remember me to the boys. I wish the University of Toronto every possible success, especially the medical department.

I have written a longer letter than I had intended ; however, if I have wearied you, I hope you will pardon me.

W. T. McARTHUR.

LODGE OR CLUB PRACTICE.

To the Editor of the *Free Press*, London:

DEAR SIR,—The sentiments of the medical profession in this city respecting lodge or club practice are as follows:

(1) The practice is unbusiness-like, inasmuch as the lodge doctor engages to do an indefinite amount of work for a definite limited remuneration. Whether the demands upon his services are, as in the majority of cases, out of proportion to his remuneration, or whether perchance by reason of preference some lodge members employ the family physician, regardless of their privilege of free medical attendance; whether, in fact, the lodge doctor receives more or less than a fair remuneration for his services, is a matter governed by circumstances which his contract takes no cognizance of—a contract which, from its very nature, ignores the fundamental business principle, that every man should pay for what he gets, and get what he pays for. The violation of this principle renders contract medical practice objectionable on the very face of it, while the observance of the principle renders some forms of medical practice tolerant, even though not wholly satisfactory. For example, medical examiners are paid only from \$1 to \$2 for examinations by the societies, while insurance companies pay from \$3 to \$5 for precisely similar examinations, and yet the medical profession, while feeling the inadequacy of the former fee, have not raised any general complaint, inasmuch as the remuneration, whatever it may be, is a fixed fee paid for a definite limited service, and thus differs essentially in principle from a contract for free medical attendance.

(2) The remuneration for contract medical attendance and free medicine, viz., \$1 to \$1.50 a year per member, is grossly out of proportion to the services rendered. Taking the last medical report of the I. O. O. F. as a basis of computation, on account of its completeness, we find that out of a total membership of 21,685 there were sick, during the year 1894, 3,019 members for an average of four weeks, five days, and thirteen hours each. The sum of \$6,333 was paid lodge doctors for medical attendance and free medicine. On the reasonable basis of four visits a week to each patient, the amount paid by the order would allow for each visit the sum of a little over ten cents. In private practice the minimum fee for ordinary visits is recognized by common consent, as well as tariff schedule, as \$1 per visit, a fee the reasonableness of which has never been called in question, and one certainly not excessive when the study and skill necessary and the responsibility and anxiety incidental to the work of a physician are considered. Making due allowance for losses entailed from bad debts

in private practice, it will be seen at a glance that the fees received for contract services are many times less than that paid in ordinary practice. Why should medical men contract their services to societies at a mere fraction of the fees cheerfully paid by the general public in private practice? Is it warrantable or politic for beneficiary societies to engraft upon their organizations a relief system which is unjust to the medical profession on the one hand, and contributes to an unfair discrimination against the general public on the other hand?

(3) The medical contract feature of beneficiary societies cannot be defended on charitable grounds. The well-to-do, as frequently as the less favorably situated, seek and obtain membership in these societies with a view to securing cheap medical attendance. Business men, professional men, manufacturers, and contractors are found in their ranks and sharing their advantages. The absolutely poor do not suffer in a city like London for medical attendance. Not only have we our free hospitals and dispensary, but every medical man is in himself a centre of charity in the ordinary exercise of his professional work. It may be said truthfully, though with no desire for parade or boasting, that no class in the community have such demands made upon their charity and consideration for the poor, or respond more cheerfully to these demands, than the medical profession. We doubt not, the public have sufficient confidence in the generosity of the profession to rest assured that the poor shall not want for medical care, even though this system of contract practice, now sought as eagerly by the well-to-do as the ill-to-do, should cease.

(4) The system does not contribute to improve the tone of either the profession or those who participate in the privilege of free attendance. Some men are led to engage in it in the expectation that it will be the means of gaining access to family practice; others with limited practice avail themselves of it in order to supplement, though at great labor, their ordinary practice; while others reason that, on the principle of self-protection, they are obliged, however reluctantly, to accept contract work because others are doing it. The result is that unseemly competition, rivalry, and ill-feeling is engendered. Probably most of the little animosities and jealousies found in the medical, as well as other professions, are in its case at present traceable to this mischievous system. Further, the remuneration not being commensurate with the services required, there is a temptation to render indifferent attendance and supply inferior and cheap medicines. Again, lodge members are liable to fancy that they are being neglected and treated akin to charity patients even when they receive reasonable attention. The consequence is, the medical attendant is frequently subjected to annoying complaints on this score, complaints which his insecure tenure of office will not permit him to ignore, however unreasonable

they may be. In short, we believe the system to be subversive of the manliness and independence of the profession.

Nor is the position of the beneficiary members themselves wholly satisfactory. Here extremes exist, if they do not meet. In those of selfish tendencies, the greed to get as much as possible because there is no proportionate increase in the cost is developed and manifested in the frequency with which, on the slightest pretext, they are ever calling in the services of their doctor, and in the satisfaction with which they dispose of the most liberal supplies of medicines. Those of finer sensibilities, on the other hand, refrain from seeking as much medical counsel as they should, lest they may be suspected of taking undue advantage of their privilege of "free attendance." Again, the ramifications of the system are becoming so extensive that the confidential relations of family physician, once so sacred and honorable, are fast becoming a thing of the past. It is at the present time no unusual thing for a family to have as many different doctors as there are members in the family. Not merely male members and heads of families, but affiliated societies of women and children even, are now found in some of the orders. It is no uncommon experience for a physician who has been called in to attend a non-society member of a family to find another member in charge of a lodge doctor, a daughter or sister, belonging to a society, under the care of a second doctor, while a child in the same house may be attended by a third doctor—a physician for one of the juvenile societies! Surely human life ought to be of more consequence than to assign its ills and ailments in a job lot to the contractor who will give the cheapest service, or who has found most favor in the eyes of a majority of a lodge or club. He may be a capable man, but in the nature of things, he cannot possibly be as serviceable to the members as if they were governed by their individual judgment and preference in the choice of a medical attendant.

(5) Free medical attendance is by no means essential to the successful working of beneficiary societies. As a matter of fact, the system is not in vogue in one-half of the beneficiary orders. The three orders of Foresters, the Knights of Pythias, and the I.O.O.F. (with whom it is optional), provide medical attendance for their members. The Chosen Friends, the Ancient Order of United Workmen, the Canadian Order of Home Circles, and the Select Knights provide sick benefits, but not medical attendance. The Royal Arcanum, Woodmen, and National Union provide insurance protection only, and of course have not medical attendants. It is evident, therefore, that less than half of the beneficiary system do not approve of the system of providing free attendance; and while they provide weekly sick benefits, they allow their members to choose and employ their own medical attendants.

(6) Lastly, the profession in this city has no quarrel with beneficiary societies. We recognize that they are engaged in laudable work, and that they are promoting provident and thrifty habits among their members, as well as relieving the sick and the distressed. We do not wish to antagonize them, and we are prepared to render them every assistance in our power in actual charitable work. We do not propose to enter upon any further discussion of this subject. We trust, however, that we have put our attitude towards the system of contract practice in such a light that the societies employing lodge doctors will recognize the reasonableness of our position, and see their way clear to dispense with the system. We have been reminded that the withdrawal of the services of the profession in this city from contract practice might result in the importation of outside medical men to carry on the work. Even if such a course were practicable, even if men could be found who were prepared, in the face of the medical profession of this city, and in opposition to the sentiments of the best elements of the profession throughout the province, to come here to engage under such circumstances in contract and other practice, we doubt, indeed we question, whether such men would be found worthy of the confidence reposed in the skill and honor of reputable physicians. It may, however, be premature to refer to this aspect of the question, as the profession of this city, although of one mind in the matter, has not quite decided what course to adopt with reference to this vexatious subject. But whatever the outcome of our present consideration of the question may be, beneficiary societies and the public generally may rely upon the exercise by the medical practitioners of the city of London of a fair-minded spirit, and that if a unanimous course be decided upon that course will, in our candid judgment, be alike honorable to the profession, and consistent with the best interests of the public.

W. F. ROOME,

Territorial Representative.

W. H. MOORHOUSE,

Collegiate Representative.

CL. T. CAMPBELL,

Homœopathic Representative.

London, Sept. 30th, 1895.

Meetings of Medical Societies.

TORONTO MEDICAL SOCIETY.

THE first regular meeting of the Toronto Medical Society for the year 1895-1896 was held in the council buildings, October 10, 1895.

The president, Dr. W. H. Oldright, occupied the chair.

The minutes of the last meeting were read and adopted.

Dr. Oakley, of Dundas street, was elected as a member of the society.

The following gentlemen were present: Drs. W. H. Oldright, J. N. E. Brown, W. J. Wilson, A. R. Gordon, Gilbert Gordon, Price-Brown, J. Passmore, Cook, Cameron, Peters, Primrose, Anderson, Hamilton, Harris, Cuthbertson, McPhedran, Greig, Guinane, Graham, C. J. Hastings.

The president, Dr. W. H. Oldright, delivered his address, which consisted in a graphic description of his recent tour through Europe. It referred more particularly to points of interest for medical men. He also exhibited a number of new instruments he had secured while in London. A number of very interesting photographs of points of interest were exhibited.

Mr. I. H. Cameron presented a hairpin which he had removed from the bladder of a little girl aged $5\frac{1}{2}$ years. It was encrusted at the time of removal by a phosphatic deposit.

Dr. Oldright presented a double placenta which was delivered after the birth of one child. The cord was very large.

Dr. McPhedran related the history of a case of appendiceal abscess discharging through the lung.

The patient was a man aged 40. In January, 1895, he had an attack of colicky pain in the right side of the abdomen. In two or three days he was well, and remained so until February, when he had a second attack. This attack was very severe, from which he did not recover. Following the acute attack he was conscious of a feeling of discomfort in the right iliac region, and he had a tendency to stoop over to that side when walking. He did not notice any swelling in that region at first. In March, a tumor was noticed first. In April, he had a third attack. With this a large, solid tumor was felt. There was considerable tympanites. The

tumor grew smaller, but did not disappear entirely. The patient began to cough a great deal; the expectoration consisted of a dark purulent sputum with mucoid material with a very offensive odor. Toward the end of June he felt a soreness below the right scapula; this was followed by a tumor in this region. There was no dyspnoea. The appetite was fairly good, and the pulse regular. On June 29, he had the appearance of a man in the last stages of tuberculosis. The emaciation was extreme. It was with great difficulty that he was able to stand or walk. The swelling was soft and fluctuating. Examination of the chest gave negative results, except around this lump, where there was absence of the respiratory sounds. The abdomen was flat. On the right side, there was a moderate-sized mass, quite hard, flat on light percussion, and slightly resonant on firm percussion. The mass did not move with respiration. Pulse 110, respiration 22. Urine normal. Appendiceal abscess was diagnosed, which had perforated the bronchus, and also the eighth intercostal space. The abscess in the back was opened, and two or three ounces of stinking pus was discharged. This caused him considerable relief. Operation was advised. The mass was found to be adherent to the anterior abdominal wall. Communication was found existing between the abdominal and thoracic cavities, water passing through and emerging from the sinus in the chest wall. Patient did well for about a week, when collapse supervened.

Dr. Graham asked if the abscess had passed in front or behind the liver.

Dr. Hastings asked if this case did not prove that it was wise to operate on all cases of appendicitis, especially after the second attack.

Dr. McPhedran thought not. He believed many of the cases, even after several attacks, became quite well. The abscess passed in front of the liver.

Mr. Cameron said the case was interesting to him, as it was the third he had met inside of the year. In twenty years he had not met such a case before. He had a patient under his care lately who had seven or eight attacks of appendicitis of the catarrhal variety. It was thought prudent to remove the appendix. The appendix, on removal, was found to be quite healthy, with the exception of some slight infiltration of the muscularis mucosæ. There were no adhesions.

Book Reviews.

SURGERY TWO HUNDRED YEARS AGO. F. Tennyson Neely, Publisher, New York.

This is a neatly bound book illustrated from original copper plates. There are a dozen full-page illustrations of surgical operations and the instruments used two centuries ago. The text is clear and concise, and, on the whole, the book is a very creditable production of its class, and will be interesting to many physicians.

The advertising matter is in the interests of the Antikamnia company, and the book is, we believe, sent free by them to physicians.

HANDBOOK OF CHARITIES. By John Fisher, Secretary of the Illinois Conference of Charities. Second edition. Publishers: Charles H. Kerr & Co., Chicago, 175 Monroe street.

The object of the book is "to give such authoritative data as will enable a business man to form an intelligent opinion as to the relative value and scope of the various charitable efforts of the city and state."

The idea is a good one, and in this little book of 260 pages it has been carried out in a concise and systematic manner. Among the many special charities worthy of note is that of the Chicago Medical Mission, which is conducted under the same auspices as that of the Battle Creek Sanitarium. Besides supplying free nursing, free baths, and free laundry, there is also a free dispensary and a free sanitarium. It has also established medical missionary work on various lines, and in different parts of this and other countries. Its principal branches are at St. Helena, Cal.; Guadalajara, Mexico; and Cape Town, South Africa. J. H. Kellogg, M.D., has the superintendence of the work of the Chicago Medical Mission. It would be well if sanitarium principles were more in vogue in the management of some of our institutions for the sick poor.

ANNUAL REPORT OF DEPARTMENT OF HEALTH OF CHICAGO FOR 1894. Arthur R. Reynolds, M.D., Commissioner of Health. Chicago, 1895.

The report consists of 268 pages. Besides some comprehensive and exhaustive statistical reports, it also contains some very interesting charts showing the mortality from the various diseases during the past forty-four years, with a summary of the various sanitary and epidemic memoranda for

these years. These charts show that the total death rate from all diseases is on the decrease. The death rates from the infectious diseases, with the exception of cholera infantum and pneumonia, are diminishing, while the deaths from Bright's disease, cancer, heart and nervous diseases, are on the increase.

The commissioner of health claims the death rate of Chicago (15.24 per 1000) to be the lowest of all the cities in the world of over 200,000 population. He claims also average accuracy in the death records and in the census records of the city. He states that the five lake cities, Chicago, Detroit, Milwaukee, Cleveland, and Buffalo, have an average death rate of only 15.56 in the thousand, as against about 19.88 per 1000 in the remaining eleven large cities of the United States.

He holds, with considerable truth, that the climatic conditions of the great lakes region upon health and life are worthy of more attention than they have yet received from the sanitary climatologist and demographer.

THE JOHNS HOPKINS HOSPITAL REPORTS. Vol. IV., Nos. 7, 8. Being the report in Gynæcology, III. Contents: I., Hydrosalpinx; II., Post-operation Septic Peritonitis; III., Tuberculosis of the Endometrium. By Thomas S. P. Cullen, M.B. Tor. The Johns Hopkins Press, Baltimore, Md.

The reports of the Johns Hopkins Hospital, issued regularly, are always replete with information of the most interesting and instructive nature. The surgical work done in Johns Hopkins is amongst the most advanced in the world, and very frequently leads.

Dr. Cullen (Tor., '90) has had great opportunities presented to him, and has made the most advantage of them. This report shows a great amount of work in each section. The operative work on which this report is based was done principally by Dr. Howard Kelly, the chief of the clinic, but the report is Dr. Cullen's. We notice with much pleasure the magnificent illustrations that accompany the report, and must say that we have never seen such technically correct illustrations in any work on this or kindred subjects.

It is no discredit to our publishing houses to say that it is impossible to turn out this class of lithography. Germany is the only country in the world that can do it. The Johns Hopkins Hospital should be congratulated on securing the very best illustrations for their reports. Illustrations are only useful when they are accurate and true to nature. The expense is greater, no doubt, in using these, but it simply makes the illustrations in a volume useful or useless.

These reports should be more generally found on the library shelves. The work reported is practical, and done in the most recent advancement of the medical or surgical art. The price is very reasonable, the whole volume averaging about five dollars, and the separate fasciculi about one dollar each.

THE DISEASES OF PERSONALITY. By T. W. Ribot, Professor of Comparative and Experimental Psychology in the College de France. Authorized translation. Second revised edition. Chicago: The Open Court Publishing Co., 1895.

That the works of Ribot are appreciated in this country is manifested by the number of excellent translations which have been published in America. It is not so long ago that Professor Baldwin, late of Toronto University, trans-

lated Ribot's "German Psychology of To-Day," while the Open Court Publishing Co. have authorized translations of his "Psychology of Attention," "The Diseases of the Will," and, lastly, "The Diseases of Personality."

Ribot is a strong advocate of the new psychology, *i.e.*, a psychology which repudiates metaphysics. Experimental psychology presents a wide field for future research, and it is from a more thorough and practical study of the pathological and physiological manifestations of the nervous system that we are to expect much advance in psychological lore. For purposes of analysis of the human personality, Ribot has made a division into the organic, affective, and intellectual conditions of personality.

Among the organic disorders he discusses slight variations of the personality in the normal state, cases of double personality, personality of doubles, monsters, and the personality of twins. Among the affective disorders he discusses depressions and exaltations of the personality, their alteration in circular insanity, complete metamorphosis of the personality, sexual characters, eunuchs, hermaphrodites, opposite sexuality, total transformation of the character, etc. In disorders of the intellect he discusses the alterations proceeding from paræsthesia and dysæsthesia, alterations proceeding from hallucinations, cerebral dualism, and double personality, the role of memory, and the role of ideas. In another chapter on the dissolution of personality the changes of personality in progressive dementia are discussed.

The medical practitioner interested in psychology will peruse with interest this excellent translation of one of Ribot's latest works.

The following books and pamphlets have been received :

KING'S MANUAL OF OBSTETRICS. New (6th) edition. A Manual of Obstetrics. By A. F. A. King, M.D., Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D.C., and in the University of Vermont, etc. In one 12mo. volume of 532 pages, with 221 illustrations. Cloth, \$2.50. Lea Brothers & Co., Publishers, Philadelphia, 1895.

THE PATHOLOGY AND SURGICAL TREATMENT OF TUMORS. By Nicholas Senn, M.D., Ph.D., LL.D., Professor of Practice of Surgery and Clinical Surgery, Rush Medical College; Professor of Surgery, Chicago Polyclinic; Attending Surgeon to Presbyterian Hospital, etc., etc. Illustrated by 575 engravings, including full-page colored plates. Subscription, only \$6, cloth; \$7, half morocco. Philadelphia: W. B. Saunders.

Medical Items.

DR. A. B. ATHERTON has removed from Toronto to Fredericton, N.B.

DR. JAMES G. CAVEN (Tor., '95) has located at 35 Carlton street, Toronto.

A PENSION of £1,000 a year has been granted to the widow of the late Professor Huxley.

DR. J. T. FOTHERINGHAM, formerly living on Yonge street, Toronto, has removed to 39 Carlton street.

THE second annual meeting of the American Academy of Railway Surgeons was held in the Banquet Hall of the Auditorium Hotel, Chicago, September 25, 26, and 27.

LECTURES IN LONDON, ENGLAND.—Dr. Bradbury will deliver the Bradshaw lecture; Sir Dyce Duckworth, the Lumleian; Dr. Mason, the Gulstonian; and Dr. Oliver, the Crooman.

THE nineteenth annual meeting of the American Dermatological Association was held at the Windsor Hotel, Montreal, September 17, 18, and 19, under the presidency of Dr. S. Sherwell, Brooklyn.

DR. J. H. SHOULDICE (Tor., '93), of Hamilton, was married in Chicago, Tuesday, October 8th, to Miss O. L. Mullin. He has removed from Hamilton, with the intention of practising in St. Louis, Mo.

AT a recent meeting of the trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL.D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

PROFESSOR HUXLEY.—The following lines have been engraved on the tomb of the late Professor Huxley in compliance with his request: "And if there be no meeting past the grave, If all in darkness, silence, yet 'tis rest. Be not afraid, ye waiting hearts that weep, For God still giveth His beloved sleep. And if an endless sleep, He wills so best."

ON September 25th, at the residence of Mrs. A. Frazer, Shakespeare, Ont., her daughter, Miss Jean Frazer, was united in marriage to Dr. S. T. Rutherford, of Listowel, Ont. Miss Watson, of Toronto, a college friend of the bride, performed the services of bridesmaid, while the groom was supported by his old college chum, Dr. J. L. Turnbull, of Clinton. The newly wedded couple left in the evening for an extended trip *via* Buffalo, Albany, and down the Hudson to New York, and other eastern points.

IN an illustrated American paper of August 17th a paragraph is published in which it is urged that a rumor which has circulated "all over the

world" to the effect that Prince Edward of York is both deaf and dumb should, if untrue, be promptly contradicted, as tending to give unnecessary pain to his parents and the rest of the royal family. We are glad to be able to state authoritatively that there is absolutely no truth in the report in question. Indeed, we have excellent reasons for knowing that Prince Edward of York is in every respect a very fine child, that he displays remarkable intelligence for his age, and that he can already repeat a number of words. Do our go-ahead American cousins expect a child nowadays to speak as soon as he (or she) is born?—*Lancet*, September 7, 1895.

TORONTO UNIVERSITY SENATE.—Following are the official returns of the figures in the recent University Senate election :

Arts.—Total number of votes polled, 1,212. Hon. W. R. Meredith, 1,015 ; Prof. Baker, 919 ; Hon. A. R. Dickey, 862 ; A. B. Aylesworth, M.A., 818 ; Hon. W. G. Falconbridge, 785 ; J. H. Coyne, B.A., 768 ; Wm. Dale, M.A., 763 ; Prof. Hutton, 681 ; W. H. Ballard, M.A., 600 ; Wm. Houston, M.A., 591 ; Dr. Ellis, 580 ; J. King, M.A., 563 ; Rev. J. Somerville, 532 ; W. Barwick, M.A., 488 ; Dr. J. Ferguson, 487 ; W. F. Walker, M.A., 442 ; A. MacMurchy, M.A., 435 ; L. E. Embree, M.A., 430 ; W. B. Northrup, M.A., 374 ; G. Ross, B.A., 231 ; C. Elliott, B.A., 221 ; C. J. Roche, M.A., 113. The first twelve named are elected.

Law.—Number of votes polled, 200. J. M. Clark, M.A., 112 ; W. R. Riddell, B.A., 98 ; Hon. W. P. R. Street, 83 ; A. H. Marsh, M.A., 66. The first two named are elected.

Medicine.—Total number of votes polled, 616. Dr. J. E. Craham, 462 ; Dr. A. H. Wright, 454 ; Dr. L. McFarlane, 405 ; Dr. I. H. Cameron, 377 ; Dr. W. H. B. Aikins, 361. The first four named are elected.

Victoria University Arts Representation.—Total number of votes polled, 257. Prof. Reynar, 204 ; Dr. J. J. Maclaren, 192 ; Rev. Dr. Carman, 174 ; H. Hough, M.A., 160 ; Rev. Dr. Burns, 150 ; C. C. James, M.A., 116 ; C. A. Masten, M.A., 70 ; J. W. St. John, M.A., 69 ; J. R. L. Starr, B.A., 67. The first five named are elected.

High School Teachers' Representation.—Total number of votes polled, 309. Mr. J. Henderson, 205 ; Mr. A. Steele, 180 ; Mr. Fessenden, 152 ; Mr. Spotton, 19 ; Mr. Dale, 3 ; Mr. Embree and Mr. MacMurchy, 2 each ; Prof. Baker, Prof. Reynar, Mr. C. Elliott, and Mr. Strang, 1 each. The first two named are elected.

PROPOSED MEMORIAL TO PROFESSOR HUXLEY.—It has been decided to establish, in connection with the Charing Cross Hospital Medical School, a permanent memorial to one of its most distinguished students, the late Professor Huxley. To this end the following committee has been formed : Sir Joseph Fayrer, K.C.S.I., F.R.S., Sir Guyer Hunter, K.C.M.G. (both old friends and fellow students of Professor Huxley at the Charing Cross Hospital) ; Dr. Watt Black (honorary treasurer), Mr. J. H. Morgan, Mr. Stanley Boyd, Dr. Montague Murray, and Mr. H. F. Waterhouse (honorary secretary). It is proposed that the memorial shall take the form of an annual lecture and a science scholarship and medal. A meeting to consider the matter will be held at the school on

Tuesday, July 16th, at 3 p.m., under the chairmanship of Sir Joseph Fayrer. Subscriptions will be received by Dr. Watt Black at the Charing Cross Hospital Medical School. Sir W. H. Flower, writing to the *Times*, says: "In the great hall of our Natural Museum of Natural History the noble statue of Darwin will hand down to posterity the image of the man as he appeared to all who knew him in life. Near this will soon be placed another statue remarkable for the accuracy with which the striking personality of Owen is represented, as all can testify. Surely this group of the great naturalists of this country and this century must be completed by the one we have just lost, in some respects the greatest of the three. The statues of Pitt and Fox stand side by side in Westminster Abbey. Huxley and Owen, often divided in their lives, would here come together after death in the most appropriate place, and amid the most appropriate surroundings. I should have waited before venturing to launch such a suggestion in public until it had been considered by a properly chosen and representative committee, but that I see other memorial projects have already been widely circulated."—*British Medical Journal*.

THE GENERAL PRACTITIONER.

He must not walk his rounds, for fear his patients think him poor,
And dearly do they love to see a carriage at their door ;
And if his horse is fat, " He must have little work to do ;"
And if it's lean, the reason is, " He starves the poor old screw."

Should he call upon his patients every day when they are ill,
His motive plainly is, " To make a great big doctor's bill ;"
If he visits them less frequently—thus lessening their expense—
The chances are he'll be accused of wilful negligence.

He must work all day and half the night, and never say he's tired,
For the public look upon him simply as a servant hired ;
And should he take a holiday, he'll find when he comes back
Some patients have resented it by giving him " the sack."

Concerning money, he must seem indifferent to be,
And folks will think he practises for pure philanthropy ;
When we hear about him boasting of the guineas that he earns,
We wonder if they all appear in his income tax returns.

About his own afflictions he must never say a word,
The notion of a doctor being ill is so absurd ;
And when, perhaps, from overwork, he's laid upon the shelf,
His sympathizing patients say, " Physician, heal thyself."

—*J. Johnston, M.D., in Lancet.*

OBITUARY.

PROFESSOR DE SURY.—The Swiss school has just lost one of its most distinguished representatives in Dr. Ernest de Sury, Extraordinary Professor of Legal Medicine in the University of Bâle.

DR. JOHN SYER BRISTOWE, one of the physicians of St. Thomas' Hospital, London, for many years, and author of a " Treatise on the Theory and Prac-

tice of Medicine," and a work on "Diseases of the Nervous System," died in Monmouth, England, August 20.

CHARLES ALLEN ORR, M.B.—The class of 1865 in the University of Toronto has lost another member by the death of Dr. C. A. Orr, who recently died from phthisis. He had been in poor health for some time, but it was hoped, last fall, that he would soon regain his strength. He got worse, however, during the winter, and, on the advice of his physicians, went out to California. He was a good and faithful student, and, as a consequence, the authorities of the University had no hesitation in granting him an *ægrotal* degree when he was unable to write at the final examination.

PROFESSOR LOUIS PASTEUR.—The father of bacteriology, Pasteur, died September 27, at the age of 73. He graduated in medicine in 1847. The following year he was appointed a professor of physics in the college at Dijon, and three months later was called to the University of Strasburg, where he was appointed professor of physics in the Faculty of Sciences. In 1854, he accomplished the organization of the newly-formed Faculty of Sciences at Lille, and three years afterward he returned to Paris and assumed the "direction of the scientific studies" at the *École Normale*.

In 1865 he was made a professor of geology, physics, and chemistry at the *École des Beaux Arts*, and, in 1867, professor of chemistry at the Sorbonne, and he remained here until 1875. He was elected a member of the Academy of Sciences in 1862, and six years later the Faculty of Medicine at Bonn gave him the title of Doctor, but he returned the diploma on account of the Franco-German war. In 1869 he was made a foreign member of the Royal Society of London, and in 1881 a member of the French Academy. The University of Oxford conferred on him the title of Doctor of Sciences. Since 1886 he had conducted the Pasteur Institute in Paris.

Among Pasteur's earliest discoveries was that a micro-organism caused the fermentation of impure tartrate of lime. He then went on and showed that lactic, butyric, acetic, and other fermentations are due to organisms. The result was important practical suggestions in regard to making vinegar and preserving wine, and Pasteur was able to demonstrate the errors made in those experiments which seemed to indicate the possibility of spontaneous generation. In 1865 he made a study of the diseases that had injured the silk industry of France, and pointed out the precautions to be taken to prevent the infection of the worms. The organisms that affect the beer industry were next studied, and later came researches as to the bacilli that cause fowl cholera and diseases of cows and sheep, the result of which was to prove that animals which had been vaccinated with the attenuated bacilli were protected from evil results when exposed to the virulent poison.

Between 1880 and 1886 Pasteur achieved his greatest triumph by demonstrating a method of treating hydrophobia in man similar in principle to that which he had employed in the case of diseases affecting fowls and sheep although he was never able to discover the specific microbe of rabies. His successful experiments for preventing an outbreak of the disease in the case of persons exposed are more or less familiar to the public.