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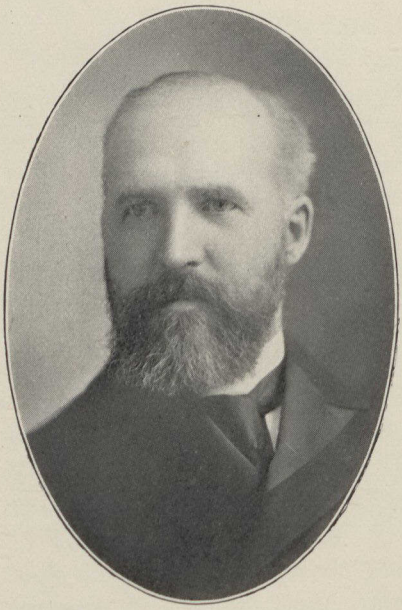

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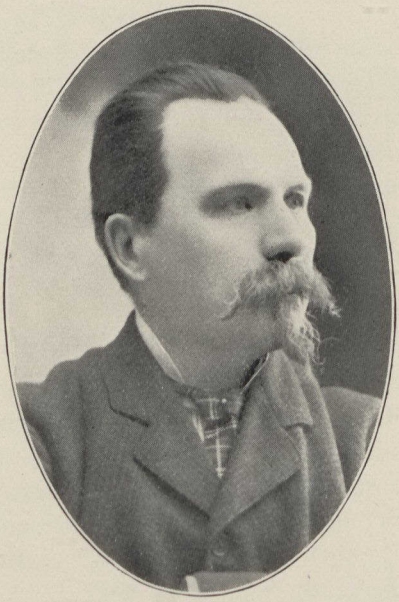

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DISEASES DUE TO ORGANIC INSUFFICIENCY.*

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GENTLEMEN:—As one who still feels himself a student of the University of Toronto, I have been particularly pleased and honored by an invitation to speak before the Society of Toronto Pathologists. The renown of Toronto as a city possessing unsurpassed facilities for pathological research is spreading abroad and one hears daily of the new buildings which may serve as models for future institutions. It is on that account, therefore, that I come to you, not bringing any store of information but rather a store of problems, and asking for help in their solution. The subject which I have chosen—a broad one familiar to you, even in many of its details—is beset, however, with doubts and obscurities, to which I wish to recall your attention, for their elucidation will put in our power the cure of a great many widespread diseases and the rescue from death or from a life worse than death, of thousands of our fellow men.

It is difficult to outline precisely the group of affections which may be said to be due to organic insufficiency: for the destruction of any organ will surely produce disturbances of a mechanical or chemical nature in proportion to the extent of the injury. Still there are several apparently insignificant organs in the body whose loss occasions such a profound disturbance as seems entirely out of proportion with their dignity, and it is of such instances that I wish to speak. These organs have enjoyed, and some of them still enjoy, an idyllic repose in the midst of the ruthless cross questioning, which has been applied to the other tissues of the body, but their turn has come and from their long hiding they are fast being dragged out and exposed as organs, which, though unobtrusive, are of vital importance.

It is evident that every tissue takes materials from the blood and gives back from its cells the products of their metabolism. When the tissue is specialised, for example into an organ of motility as a muscle, we cannot expect it to also produce some substance chemically useful to the body, and we are therefore satisfied to find that when after a great

* Read before Toronto Pathological Society, Dec. 30, 1903.

deal of activity the products of metabolism are turned back into the blood, they are not only useless but actually injurious to the system. In other cases, as for example the salivary glands, the function of the epithelial cells consists in forming from the constituents of the blood a useful material, which is conveyed by a suitable mechanical arrangement to the point where it is needed. Doubtless, these cells also form waste products, but the elaboration of useful material is the secretion. In still other organs, there is often no arrangement of the epithelial cells to accommodate secretion and there is no duct to care for the removal of any secretion. Still, although they do not go through the same changes in appearance as the ordinary secretory epithelium, it cannot be doubted that these cells are secretory, and that the substances which they produce are absorbed by the lymphatics and blood vessels—the so-called internal secretion. Thyroid, parathyroid, adrenal, hypophysis, and possibly also the pineal, carotid, and coccygeal glands may be included in this group, while the thymus, spleen, etc., form part of the lymphatic and blood circulatory system and, inasmuch as their function is concerned with the formed elements of the blood, do not belong here.

[Following this, the various types of myxoedema and cretinism were discussed, especial interest being found in the forms described as *Myxoedeme incomplet* and *Myxoedeme fruste*, all of which, however, differed from the myxoedematous idiocy or the idiocy of cretins only in degree and in the time of life at which the individual began to be affected, The nature of the common aetiological factor—the thyroid insufficiency—was further elucidated by the cases of myxoedema, following operative, extirpation of the thyroid, and by the results of experimental thyroidectomy in animals.]

There seems, therefore, no doubt that we have in all these disturbances one and the same basis, namely, the thyroid insufficiency, and we are called upon to explain its mode of action, but this is difficult because we do not know the function of the thyroid, and when we make the statement that it controls proteid metabolism, we are by no means sure in what this control consists. It is known, of course, that the thyroid produces a colloid material and it is thought that this is carried into the general circulation in small quantities by the lymph and that it serves there to neutralise some poisonous product of metabolism or by its presence to render possible some metabolic process. It is also known that it is by no means necessary, in order to gain these ends, that the thyroid should be in its proper position in due relation with nerves and vessels; on the contrary, it has been shown that transplanted pieces, provided they have become vascularized from the surrounding tissue,

may replace the extirpated thyroid. Indeed the subcutaneous injection or even the swallowing of the thyroid substance will replace the function of the thyroid completely. These results, as may well be imagined, were largely obtained in the strenuous attempts made to save the lives of those in who operative myxoedema had appeared. We must therefore think of the function of the thyroid as a chemical process and look to the chemical nature of its extract for light upon this subject. It was Baumann who first showed the abundant presence of iodine in the thyroid and isolated the iodine-holding compound which he named "thyroiodin" and which he showed to be equally effective with the thyroid extract itself in replacing the secretion of the thyroid. Since his time, Oswald has shown that it is only in the secreted colloid that iodine is to be found—that in infantile thyroids which contain no colloid, there is no iodine, and further that it is possible to separate from the thyroid an iodine-free thyreoproteid and an iodine containing thyreoglobulin. It is the latter only which is able to replace the thyroid secretion in its functions and which contains the thyroiodin of Baumann. This substance becomes much richer in iodine in those persons to whom iodine salts have been adminstered. It varies further in its iodine content to such an extent that it may be isolated under certain circumstances free from iodine, as for instance, in parenchymatous goitres, where it is derived chiefly from the cells and not from any secreted colloid. In colloid goitres, the colloid material is found to be very much poorer in iodine than that of the normal thyroid, and this probably affords the promised explanation of the existence of symptoms of hypothyroidism, even in patients who have goitre. It also explains in a way the beneficial effects of iodine in cases of goitre which may some times be greatly ameliorated by its administration.

What the function of this iodine-containing substance is, however, is a question that we cannot answer—a problem of fundamental importance in physiology and pathology.

Nevertheless, in spite of our ignorance of the nature of this secretion, there is much comfort in the fact that the treatment of the various conditions we have mentioned with the thyroid extract gives very good results. Naturally, it is not possible to convert the "sad old infant" of thirty or more years into an intelligent man, nor to restore the aged cretin to a better life, but with the myxoedematous children the effects of thyroid medication together with education are wonderful. The application of the same medication to various skin diseases has often been similarly successful, but on what grounds we do not know.

I have said that the result of the operative extirpation of the thyroid is invariably the operative myxoedema, and this is literally true, but practically there frequently intervenes in such cases a set of symptoms which have long been spoken of as the acute symptoms of thyroid insufficiency, the so-called *tetania thyreopriva*. This phenomenon can be readily produced in animals, and is due, as I may state briefly, not at all to interference with the thyroid, but to the coincident extirpation of the parathyroid glands. I need not stop to describe the structure nor the history of these glands, nor even to relate the experiments of Gley, Vassale, and others who have proven conclusively that the loss of the thyroid alone results only in myxoedema, while the loss of the parathyroids alone results in tetany, or in a rapidly fatal condition in which a kind of cachexia replaces the tetany.

Here, again, we are met by problems of a fundamental nature, whose appearance I foreshadowed in beginning. It is possible to conceive of the parathyroid, tiny structure as it is, as furnishing some material essential to the metabolism of the body, or as neutralizing a poison formed in the ordinary course of metabolism, and it is to the latter of these views that I have been led to lean by experiments, which showed that when a parathyroidectomised dog had passed into tetany it could be saved and restored to an apparently normal condition by bleeding and the infusion of salt solution into the veins. Similarly that the tetany is due to a poison which acts upon the central nervous system, and probably chiefly upon the medulla, can readily be shown by the elimination of the other possibilities. As to the origin of this poison or its more intimate nature we can however say nothing, except that it may be neutralised by the administration of the parathyroid extract.

I have not been able so far, however, to produce tetany in another dog by the injection of the blood of a tetanic dog, even when all but one of the parathyroids of the first dog had been removed.

What application of these facts we may ask can be made to human pathology—certainly we have the operative tetany, which is exactly similar to that in animals, and which I feel sure could be relieved temporarily by bleeding or infusion of salt solution, or both, and probably permanently by a continued medication with parathyroid extract, but as to spontaneous conditions we can speak only with reserve. The names of many convulsive diseases have been suggested in this connection, but the importance of the parathyroid as an ætiological factor remains to be proven. Various types of epilepsy, for example, and particularly the so-called myoclonus epilepsy, have been ascribed to its insufficiency. I have, however, examined the parathyroids in a few cases of epilepsy—

even including cases dying in the status epilepticus, and have found them normal. Similarly, without any anatomical basis of fact, eclampsia gravidarum and various types of convulsions in children and tetany in adults, have been suggested by Jeandelize as possibly depending upon insufficiency of the parathyroid.

In a recent address in England, Prof. Gley, who has added so greatly to our knowledge of these glands, suggested the possibility that their partial insufficiency might form the basis of exophthalmic goitre, a disease whose peculiarities are familiar to you all. We have entertained the same idea, and have examined the parathyroid glands in several cases without being able to arrive at a definite conclusion. In several cases no parathyroid gland tissue was found at all, but since these were operative cases it is probable that the glands were merely left behind. In other cases the glands have been found, and appear to be unusually small. In one case the structure was normal, while in three others there was an excessive amount of connection tissue throughout the gland in which the epithelial cells were atrophic. No definite conclusion may be drawn from such scanty observations, however, nor is the negative result of parathyroid therapy, which has been attempted in several cases, conclusive. Nevertheless, the fact that the beneficial results of extirpation of half of the goitre in these cases seem not to be influenced by the occasional removal of one or two of the parathyroids forms an argument against the idea that the symptoms are due to their inadequacy.

The most widely accepted theory as to the aetiology of this interesting disease—that of Moebius which assumes an excessive activity of the thyroid gland as the cause of the symptom—is supported by the facts that the gland is usually enlarged, that certain thyroid extracts aggravate the symptoms and that the extirpation of part of the gland is usually followed by an amelioration of those symptoms. It is, however not at all an invulnerable theory, for in the beginning we have no definite proof that there is hypersecretion—indeed often no colloid whatever is to be found in the gland, and Oswald's analyses show that the sum of its thyreoglobulin is often poorer in iodine than that of the normal gland. The somewhat lame hypothesis is however always adduced that the secretion is carried away so rapidly that none is left in the gland.

It may be further objected that no one has ever produced exophthalmic goitre by introducing excessive quantities of thyroid material into the animal body, indeed it seems probable that most of the untoward symptoms that have been so produced were due to impurities in the extract and to the fact that these extracts are often made from

decomposing thyroids, and repeated observations have tended to show that perfectly fresh thryoids have no such unpleasant effects. To meet this objection it is generally stated that the alteration in the secretion of the gland produces not so much a hyperthyroidisation as a dysthyroidisation or overflowing of the body with an altered thryoid secretion. It seems remarkable that no one has heretofore systematically tried the effect of feeding the thyroid from cases of exophthalmic goitre, and with this in view I have collected the glands from a number of cases but as yet have not accummulated a sufficient quantity for a conclusive experiment. One gland has been fed to a dog with negative results; but the quantity is so small that one can draw no conclusion from such an experiment. Aside from the methods of treatment of this disease by extirpation of the goitre, the method of Ballet and Enriquez, Lanz and Möbius is of interest as being based entirely on the theory of hyperthyroidisation. They treat the patient with the serum or milk of a thyroidectomised animal in the hope that the substances left in the blood of that animal and not neutralized by thyroid secretion, may furnish material for the activity of the superfluous thyroid secretion in the patient. Other methods in which the secretions of other glands or organs such as the thymus are employed are of less interest although as in every attempt at the treatment of this disease they boast of some successes.

Even though it be proven, therefore, by further research that the excessive or perverted secretion of the thyroid produces the symptoms of exophthalmic goitre we shall still be quite in the dark as to the cause of this alteration in the thyroid so that our information as to the disease is far from satisfactory.

In the case of the adrenals, while the anatomy is clearly enough known, we have again only scattered bits of information as to the physiology, chiefly obtained from the experimental extirpation of the glands and from the study of the chemical substances obtained from them.

When one adrenal only is extirpated the animal may live and it is afterward found that the remaining adrenal has become hypertrophied. When both are extirpated, however, the animal always dies within a relatively short time, with symptoms of extreme weakness and apathy, lowering of the blood pressure, slowing of the heart, weakening of the respiration and sometimes convulsive seizures.

These symptoms are explained as due to the loss of a specific secretion of the adrenal whose function it is to maintain the tone of the muscles and of the vasomotor centres as well as the respiratory and sympathetic functions. This blood pressure raising material is thought of as the specific secretion of the gland and efforts have been made to recognise it

in the blood of the suprarenal vein. Indeed, Strehl and Weiss state that after extirpating one adrenal the blood pressure may be lowered or restored to normal by merely clamping and releasing the vein of the other. Dr. Abel, however, points out in his recent paper (Vaughan's Festschrift) that the effect of such an experiment is far greater than would be the effect of the amount of adrenal priniciple secreted in that time and that it is doubtless due to the operative interference acting upon the vasomotor nerves. Further, he states that even although these decapsulated animals may be revived by the injection of adrenal extract, it is probable that other stimulating substances would do as well, and that the blood pressure raising substance is not the essential specific principle of the gland. Nevertheless, this adrenal principle which can be isolated in such a condition of chemical purity that it is possible to assign to it a formula, is of great physiological importance and in the animal body does produce effects which form practically the antithesis of those symptoms which result from the extirpation of the gland as far as we can recognize them.

On the other hand, the adrenal has been looked upon by many as an organ serving to neutralize a poison which without its influence would accumulate in the blood. It has been shown that the blood of decapsulated animals is poisonous for others in which a partial extirpation of the adrenals has been performed but that this poison may be neutralised by the addition of adrenal extract. Abel, while recognising the complexity of the substances dealt with, leans to this view also and suggests that the toxic material which accummulates in the blood may be the precursor of the substance extracted from the adrenals. The relation of the nerves is still more obscure. Section of the splanchnics and indeed of all the nervous connections of the adrenal produce no such effects as are seen after the extirpation of the whole gland.

[Following this the symptoms pathology and aetiology of Addison's disease were briefly discussed and the difficulties in the explanation of the symptoms on the basis of our present knowledge of the adrenal function brought forward.]

Even more difficult to explain than those cases in which the adrenal lesion is obvious are those in which no anatomical change is found. Neusser relies upon a functional disturbance of the nerve supply to explain them saying that the loss of function of the adrenal may be due to a lack of the proper trophic and secretory impulses from the splanchnics which may be conceived of as affecting the gland in the same way as the sympathetic affects the submaxillary gland. This loss of function of the adrenal would then recoil to produce further nutritive

and functional disturbances of the sympathetic, allowing at the same time the development of a general autointoxication.

The lowering of the blood pressure may probably be explained by the lack of that tonic secretion and it is possible as Neusser explains that this by widening and filling the abdominal veins may leave the extremities bloodless and the muscles hence easily exhausted. These are mere hypotheses though and it is quite as possible that in the general autointoxication which is assumed to exist the muscles and nerve cells may directly suffer. The explanation of the appearance of the pigmentation is still more difficult and in the present state of our knowledge it is as well to say outright that it is not understood.

Certain of these phenomena at least seem open to experimental investigation. It could surely be decided by operative interference whether lesions of the sympathetic could produce such conditions as are seen in Addison's disease. So far there seem to have been no especially definite results obtained from such isolation of the adrenals from nervous influences.

Possibly light may be shed on this complicated subject when we become able to distinguish the function of the cortex of the gland from those of the medulla a task which seems impossible in the higher animals but which might be carried out on sharks where these portions of the gland are quite widely separated.

As to specific therapeutic measures little can be said that is satisfactory. The various extracts and purified substances are all extremely active in producing the effects detailed above—contraction of blood vessels, elevation of pressure, etc., but their ingestion or subcutaneous injection, while producing sometimes a temporary amelioration of the symptoms, cannot be said to have a definite and specific curative influence. Possibly better results might be obtained by intravenous injection but the suggestion of Abel remains that probably this blood pressure raising substance is not the essential principle which is required when the adrenal is destroyed. Implantations of fresh adrenal glands have been similarly attended with little or no success. On the whole, therefore, the treatment of the disease is not satisfactory. A recent paper by Adams (Practitioner, Oct. 1903,) reviews 37 recorded cases in which he finds a considable percentage of improvements and apparent cures—the most favorable conditions are of course afforded by those cases in which the adrenals are converted into scars while the other organs remain intact.

In the hypophysis or pituitary gland, we meet again with the same problems—the anatomy of the organ is sufficiently well known but the physiological significance of its various constituent elements is far from

signs of it are not wanting in most anginous patients. It need not be wondered at then if some aortic valvular trouble, as indicated by signs of incompetency, is sometimes found associated with angina pectoris and such is the case.

The valvular lesions resulting from acute conditions, rheumatism for instance, may also be found related to angina but much more rarely than those that are degenerative. Mitral lesions and lesions of the right side of the heart are but very rarely seen to be accompanied with angina. Probably it will be correct to say generally of *endocardial lesions* that whilst the degenerative forms may be found in individuals who are subjects of anginous attacks, they can have little if any relation to the attacks. They are but further illustrations of the tendency to the kind of changes which go to produce angina. Changes in the aorta are also, of course, common. These may be of acute origin, acute aortitis, or, much more frequently, degenerative and of all degrees from simple, patchy, atheroma to aneurysm. In so far as sclerotic changes in the aorta may affect the openings of the coronaries, in fact we might say are prone to do so, and by thickening the intima more or less contract them, they are of direct importance in connection with angina. In a certain proportion of cases of pericarditis with adhesion angina has developed, undoubtedly from extension of inflammation to the myocardium with involvement of the coronaries in some part of their course. Cases of angina terminating fatally have been reported in which the post mortem examination results have been negative. Of these Osler says, " Nothing is easier than to overlook myocardial changes, particularly in the older methods of examination, and a heart may present extensive fibroid disease with obliteration of arteries which to the untrained eye looks healthy, or may not show any coarse lesions of the aorta or of the main branches of the coronary vessels ".

Causation of Lesions.

In the production of the morbid anatomy of angina pectoris there are three great factors at work, viz.—Heredity, Strain, and last and most important, Intoxications.

The influence of heredity as giving a certain quality of what Osler calls " vital rubber " to the blood vascular system is beyond dispute. The tendency in certain families to arterial sclerosis is too outstanding to require more than statement, and not infrequently a series of cases of angina will be found under these conditions. I myself know of a family in our midst of which the head died of angina pectoris not long ago, leaving a sister and a son both of whom are suffering from it. In all of

from such experiments performed in newborn as well as older animals that we may hope for light on the question.

The other method of investigation—the determination of the effect of extracts of the hypophysis has led to very indefinite results only. Numerous cases of acromegaly have been so treated and frequently improvement of certain symptoms has resulted, but striking change in the physical alterations could hardly be expected.

Of the pineal gland or epiphysis, the supposed remains of a third eye which shows its origin only in lower vertebrates, we can say practically nothing. Tumors have been described as developing from it, but no special disease is known to depend upon its destruction. In one case of epilepsy, which died in the status epilepticus, I have found it almost entirely atrophied, but in another similar case the pineal gland was large.

Cimmerian darkness, too, broods over the carotid and coccygeal glands, structures in which the abundant bloodvessels are surrounded by mantles of specialized cells of connective tissue origin. Beyond descriptions of their histology and of the structure of tumors originating from them we have no information regarding them.

I have reserved for the last one of the most interesting of these organs, chiefly because there has come to us quite recently, knowledge which, as it seems to me, must shed a flood of light back upon those dark paths through which we have come. This organ is the pancreas whose relation to certain forms of diabetes mellitus is well known. I need not detail the experiments which showed that extirpation of the pancreas produces this condition. Our interest hinges chiefly on that later time when Schultze, Opie and others, from their experiments and anatomical findings, concluded that it was not the general acini of the gland that controlled the disposition of glycogen in the body, but rather the islands of Langerhans which were left after the destruction of the rest, and particularly on the observations of Opie and those who have followed him, showing that when the islands of Langerhans are destroyed diabetes results and that in cases of pancreatic diabetes the islands are destroyed. These islands consist, like the other glands which we have considered, of solid strands of cells lying between and in direct contact with capillaries. They develop apparently from the ends of the original epithelial tubules that form the acini, but are later quite separate. Therefore we may feel sure that they have no outlet for any secretion other than the lymphatics or veins in their neighborhood. The destruction of the remainder of the pancreas by any cause such as the occlusion of its duct does not necessarily affect them, and they may come to be isolated in a bed of connective

tissue. In pancreatic diabetes, however, Opie has found that they are picked out by the destructive agent and are alone converted into a hyaline material and destroyed while the rest of the pancreas continues to secrete. Nevertheless diabetes appears with its characteristic glycosuria. Naturally the idea arose that these structures presided over glycogen metabolism, and quite naturally in the general reaching out for such specifics pancreatic extract has been given in diabetes, but usually without any satisfactory result possibly because such an extract must necessarily be very dilute since the islands are so small.

Now it has been observed (Pawlow) that in certain instances a combination of secretory products is necessary for their effects to be perfected—for example, tryptic digestion is dependent upon the admixture of the intestinal secretion with the pancreatic secretion. The one seems to act as a complement to the other. Again, while the probability seemed inevitable that an extract from the pancreas ought to effect the metamorphosis of carbohydrates, no such effect can be produced by mixing the two—nor will an extract or juice from voluntary muscle do any more toward burning up the carbohydrate which must furnish it with energy. With a happy inspiration Otto Cohnheim, in a recent paper, describes experiments in which, while he confirms the statements which we have just made, he succeeded in producing such a disappearance of carbohydrate in a mixture of muscle extract and pancreas extract as would correspond with the extensive consumption of carbohydrate by the energy-liberating muscle. Here, then, seems to be the key to the riddle. The pancreas by itself can effect no change in the carbohydrate—no more can the muscle alone—therefore when the islands of Langerhans are destroyed the glycogen is not used up by the muscles but accumulates everywhere in the tissues. When however the organs are normal the inner secretion of these islands is carried to the muscles, and in combination they readily effect the setting free of energy from the glycogen.

What a field of speculation and experiment this opens. Shall we not return at once to the thyroid and to the parathyroid, and seek out their complementary tissue. Shall we not find in this idea the clue to our difficulties with all of these organs, and is it not possible even that in those obscure diseases such as gout, rickets, osteomalacia, eclampsia, epilepsy, and many others, the grosser or servant tissue may first be thought of, and thence the clue to the finer governing tissue to be found. Just how these processes are to be explained is still not clear—possibly the theory of Ehrlich may be applied here, and the secretion of these

glands come to represent a complement to the antibody formed by the other tissue. Who can foretell without experiment and thought?

It is therefore to this great field so rich in problems that I have hoped to call your attention, confident that if, with your new facilities you approach it, you will surely be richly repaid.

LEIOMYOMA.*

By J. O. TODD, M.D., Gynæcologist, Winnipeg General Hospital.

IT is somewhat apparent that a pathologist has influenced the naming of this paper; for the term leiomyoma is more favored by gentlemen of the microtome and compound lens than it is by clinical and operating gynæcologists. The tumor I present for your notice to-night is one that, grossly, could be called a fibrous growth; but a glance through the barrel of the microscope there shows it to be made up of a large amount of muscular tissue of the non-striated variety mixed with fibrous tissue. We have then before us a growth made up of both muscular and fibrous tissue and not either one alone. It seems to me then, to be as unfounded to style the tumor a leiomyoma as it would be to call it a fibroid; hence until more is known of the aetiology of these tumors, I prefer to designate this growth a fibromyoma. This uncertainty in nomenclature is clearly indicative of our defective aetiological knowledge; and, in truth, this department of our subject is a maze of theory. Beginning with Velpeau's teaching of the organization of a blood-clot we come to the allied theories of Klebs, Kleinwächter, Gottschalk and Pilliet who in varying fashion have attributed these growths to the proliferation of the connective tissue and muscular layers of the uterine blood-vessels. Of these the theory of Pilliet is given especial prominence by Bishop in his recent book on myomata. Pilliet traces the the allied growths of sarcoma, fibromyoma and telangioma from respectively; (1) the endothelium of the blood-vessels; (2) the muscular and connective tissue layers of the vessel and (3) to a complete new-formation of capillaries. Williams in his recently published book on uterine tumors, practically gives place to no other view than that of Von Recklinghausen which associates the origin of myomata with defects in development. From this standpoint embryological remnants of the Müllerian or Wolffian ducts become included in the normally developing uterine tissue to take on proliferative changes under favorable provocation. Senn, of Chicago, views the origin of myomata from myoblasts which have been deposited during development. The last of the knots in the aetiological kite-tail is the inevitable microbe some having

* Paper read before the Winnipeg Medical Society, Dec. 11th, 1903.

endeavored to associate protozoic forms as the ultimate factors in the production of these growths. Throughout all this tangle of theory one fact predominates, viz., the intimate relation of the origin of these tumors to the blood-vessels and their immediate vicinity.

The history of this case is as follows:—Mrs. O. G——., aet. 45, was admitted to St. Boniface Hospital, February, 1903, under Dr. Dubuc, by whom she was referred to me, February, 21st, 1903. Patient complains of an abdominal swelling and bleeding. She has, up to the present, been a remarkably healthy woman, married twenty years, has had nine children all living, confinements normal. Four years ago she had a miscarriage and since that occurrence she has menstruated every three weeks instead of every four as formerly; also the flow has been more profuse though lasting, until latterly, only four days. She also noticed that following this miscarriage she never regained her former figure, being fuller in the abdomen, one and one-half years ago she observed her abdomen to be markedly enlarging and five and one-half months ago she miscarried for the second time, again she found that she was larger subsequent to than preceding the miscarriage. The most marked increase in her size has been during the last four months. The last menstruation was two weeks ago, the flow has been steadily increasing for a year and of late has been very heavy mounting almost to a hæmorrhage. The only symptoms otherwise exhibited up to quite recently have been attacks of palpitation of the heart and fainting spells. The present condition is that of an exceedingly well nourished woman presenting an abdominal enlargement measuring about the umbilicus four feet three inches, the enlargement is smooth, very hard, uniformly distributed, the uterus cannot be distinguished bi-manually, there is no tenderness, urination is frequent. Examination of the thorax detected extension of the cardiac area of dullness to the left of nipple line.

The specimen here shown is a single, non-encapsuled, soft uterine fibromyoma of the intra-ligamentous variety. It has arisen from the left side of the lower part of the body of the uterus and, after separating widely the layers of the broad ligament, has lifted its head out of the pelvis and pushed its way behind and to the right of the uterus, raising forward and upward the appendages on either side. It had become intimately connected with the intestines and omentum and received, during life, by far the greater part of its nourishment through the vascular connections thus established, for its pedicle was extremely smal as can be seen. This attenuation of the pedicle is an interesting feature in the growth of the pedicled fibroid. It is held that by the extreme attenuation of its pedicle, the myoma may detach itself completely from

the uterine base and thus form those curious tumors found absolutely free, like a ball, in the abdominal or pelvic cavities. Numerous authorities have described these wandering fibroids, notably Depaul.

The uterus in this case, as is usually seen in myomatous formation, is greatly hypertrophied and a section taken from its wall shows little difference from that of the tumor, except that it is less vascular. The endometrium is much hypertrophied though the uterine cavity is not greatly enlarged, a fact noticed in the initial passage of the uterine sound when making the diagnosis. There are no special changes noticed in the appendages such as are commonly met with. In this second specimen taken from a myomatous uterus double hæmato-salpinx existed and I have removed pus tubes from the myomatous pelvis. The commonest adjacent and distant changes noticed in fibroid cases are endometritis, pyosalpinx, hæmatosalpinx, cardiac hypertrophy, phlebitis, intestinal obstruction, renal changes, torsion of the pedicle and pelvic incarceration. In this case besides a commencing dilatation of the left ureter there was clinically observed a marked enlargement of the heart associated with functional disturbance for she had been having attacks of rapid heart action for some time past; and the great rapidity of the heart was a symptom following the operation that persisted, as the charts here show, for several days. The question of the original site of this growth is interesting. Williams states that "myomata may arise from either of these uterine layers; but most of them originate in the thick intermediate part, whatever position they may subsequently acquire." Over 90 per cent. of fibroids, according to the most accepted statistics, occur in the body of the uterus; only rarely do they arise from the cervix; the fundus and posterior wall of the uterus are their favorite sites. This growth manifestly arises from the lower part of the body on the left side.

The tumor weighed 32 pounds on removal, which for a solid growth is unusual, the most of the heavily weighing myomata having become cystic. Stoddart reports a fibro-cyst weighing 135 pounds. Hunter, of New York, records a solid growth of 140 pounds, removed from a cadaver, the body itself, devoid of the tumor, weighing but 95 pounds Others have reported growths, usually cystic weighing 40, 60 and even 90 pounds.

Fibromyomata frequently undergo degenerative changes, the most frequent being that of sclerosis. The term atrophy has been applied to this change but it does not seem to be a desirable one, since the process is but a substitution of fibrous for muscular tissue. Subperitoneal myomata most commonly take this course. This atrophy or sclerosis is a desirable state and would seem to be favored by the electrical treat-

ment though to claim a cure from such is scarcely justifiable since a large number take on this change quite voluntarily. The specimen here shows no such tendency; on the contrary muscle fibre largely predominates and the tumor was extremely vascular at excision. No evidences are present of calcification, softening, myxomatous or colloid changes and contrary to the observation of some writers pregnancy would seem to have favored rather than deterred it. That these growths may disappear after pregnancy cannot, I think, be doubted. Many have reported such occurrences. Inflammatory activity is a frequent corollary of myomatous growth. In nearly every instance of my own, more or less inflammatory action has been present giving rise to those attacks of pain and pyrexia so often noticed in their clinical history. Gangrene may ensue in cases, as is evidenced by this specimen of polypoid fibro-myoma which I removed recently. The question of carcinomatous and sarcomatous degeneration of myomata is a much discussed one and authorities are divided on the point. Probably the question will not find settlement until more is known of the aetiology of myoma; for old as is their history, and it stretches backwards into the far distant ages of Aetius and Oribasius, we yet know little more of their origin than did those worthies. Clinically there is very strong evidence favoring those who hold that such changes do take place and at present we can do no more than say that benign growths of a clinically fibromyomatous character may take on malignant features. In this connection Williams says "the contention of Klebs, Krische and others that ordinary myoma may recur, disseminate and manifest malignant properties without undergoing histological metamorphosis, should not be lightly entertained.

With regard to the treatment of fibromyoma the results of medicinal and electrical measures seem to me to entitle them to rank as palliative agents only. That they can lessen pain, check hæmorrhages and generally improve the condition of the patient, is, I think, indisputable; that the atrophy, expulsion and even disappearance of these growths observed under their administration is favored by their special powers, is supported on theoretical and some clinical evidence. Still all of these results may come in the natural course of these growths and the difficulty of establishing them as the effects of the remedies used is obvious. Failing to obtain from such measures a satisfactory remedy surgical methods have been invoked; and it is interesting to note that the ideal before physicians has kept itself to the fore of surgeons, to such purpose, that they have long endeavored to find some means that would throw in its weight with nature to aid the natural tendency of fibromyomatous tumors to limit their growth. Hence we have measures which to me take no higher

rank, as efficient agents, than drugs and electricity, such as curetting, incision of the cervix, incision of the capsule, ovariectomy, and ligation of the main arterial trunks. From these we turn to the radical measure, removal. Removal may be effected in varying degrees giving us (1) enucleation, (2) myomectomy (3) partial hysterectomy and (4) panhysterectomy. In our case to-night partial hysterectomy appeared to me, at the time of the operation, to be the indicated measure and to this end I adopted, from the many techniques, that amplified by Kelly, of Baltimore. Commencing on the left side ligatures were placed successively around the ovarian, round ligament and uterine arteries and followed by incisions till the cervix was reached and crossed when the opposite broad ligament was ascended step by step after the same fashion. The adhesions were very extensive and the left ureter had to be dissected from the tumor for three or four inches. The stump was closed by buried catgut sutures and the peritoneum drawn over and stitched to cover the stump. Hæmorrhage was slight and the most worrying symptom following operation was the rapidity of the pulse. With this exception the patient proceeded to an excellent recovery and is now well and doing her own work. I am indebted to Dr. Dubuc for his reference of this case as well as for his assistance in every stage of its course.

THE PRETYPHOID FEVER STATE.*

By ROBERT D. RUDOLF, M.B. (Edin.,, M.R.C.P. (Lond.), Associate Professor of Medicine in Toronto University.

BY the term pretyphoid state is here meant a state of health, or rather of ill-health, which occasionally precedes for perhaps some weeks the onset of enteric fever. I think that every physician will recall cases in which for weeks individuals have complained of indefinite symptoms, malaise with want of appetite, dyspepsia and disturbance of the bowels, usually in the direction of constipation, often attended by some irregular fever; and then at last a regular attack of typhoid sets in. As the laity would say the condition "turned to typhoid." This period of general ill-health preceding the onset of typhoid is what is here referred to.

The questions which naturally arise in connection with the subject are the following:—

1. Is it true that a stage of ill-health precedes typhoid sufficiently often to warrant special notice? In other words, is typhoid fever more often heralded by a period of ill-health than can be accounted for by mere coincidence?

* Read before the Toronto Clinical Society on January 6th, 1904.

2. If the first question be answered in the affirmative, then what is the essential nature of this stage?

I. It has fallen to my lot to see a good many cases in which, after weeks of ill-health of a more or less intestinal type, typhoid fever has set in, usually of a severe type. From the study of the case records of others, and from conversation with fellow practitioners, I do not think that my experience is peculiar, yet no text book that I have seen even mentions the point. Let me give a few examples.

CASE I. An indigo planter, aged 30, a typically healthy looking, athletic man, living most of his time out of doors, began to complain in February, 1896, of feeling weak and out of sorts. "My stomach seems all out of sorts and I am constipated," he wrote. Under careful dietary and a mixture containing cascara sagrada he improved temporarily, and early in March was feeling much better in a gastro-intestinal way, but still suffered from limpness and faintness at times. He looked poorly and had lost weight, and his friends began to suggest a trip home to England (that Anglo-Indian panacea for all troubles of mind or body). But it was not to be. In April he got rather suddenly worse, and before the end of the month died of malignant typhoid fever.

In this case a previously healthy man had two months of ill-health, which for him was quite unusual, before the typhoid fever set in.

CASE II. A girl of 5 years of age was first seen in November, 1901, for an indefinite illness, which was put down as influenza of the gastro-intestinal type, as influenza was raging at the time. The child was dull, had slight irregular fever, the tongue was furred, the bowels constipated, and she complained of nausea. A good deal of improvement occurred under treatment, but she did not get well, and on 24th December was again in bed with gastro-intestinal symptoms. I saw her again on 18th January for apparently the same condition, with the history that she had not been herself for two months. Now she had a sore throat as well as the gastro-intestinal disturbance. She grew steadily worse, and on 23rd January, that is on the 8th day of the last definite attack, and fully two months since her indefinite ill-health began, she first gave a positive Widal reaction, and was suffering from a severe attack of typhoid fever. She eventually completely recovered, although for months afterwards she was subject to slight gastro-intestinal disturbances, with a rise in temperature to perhaps 103° Fahr., in fact had a prolonged, what one might call post-typhoid stage, although such a term might be open to objection.

CASE III. A female child aged 2 years, previously quite healhty, began in August to suffer from slight looseness of the bowels with occasional

attacks of vomiting and marked anorexia. Her temperature would go up to 103° on such occasions and she would be limp and dull. The administration of castor oil always improved this state of things and after a few days she would be better again but never quite well. This condition continued until December when an apparently similar attack gradually became worse and soon it became evident that she had contracted typhoid fever and the Widal reaction was positive on Xmas day. The disease ran a severe course with two relapses, but eventually complete recovery occurred.

The records of such cases could be amplified considerably from my own experience and I feel confident that most physicians could add largely to the list. I looked through the records of cases at the Sick Children's Hospital for the past few years to see if such a history of previous ill-health was often noted, and must admit that it was seldom described. We must remember, however, that in taking histories of cases we all are too apt to make the record fit in with our preconceived ideas of what it should be and thus an indefinite feeling of ill-health would be very apt to be missed. In three cases, however, some note occurs of previous ill-health and in one it is so typical of the condition I am describing that I give it here verbatim.

CASE IV. Patient (a girl of 11 years) has felt miserable since the first of August. Was sent away for a holiday at end of September and while still away was taken ill—feverish, headache and general tenderness. Now (6th October) admitted for typhoid fever.

So much for some examples. I do not for a moment contend that typhoid fever is always or even generally preceded by the stage of ill-health. On the contrary, I have seen many that appeared like a storm in a clear sky, and in fact communicated at another society (Tor. Med. Soc., Jan. 10th, '01) a case which I saw with Dr. Peters in which the first symptom of the disease was a temperature of 104.° But in my experience it is a common thing for such a period of ill-health to anticipate typhoid fever.

I need scarcely say that most cases of continued ill-health of a gastro-intestinal type do not end in typhoid fever. They simply recover. Some, however, may develop into one of the paratyphoid conditions in which with an enlarged spleen, an eruption of rose spots and a remittent fever no Widal reaction occurs, the disease being due not to the Eberth bacillus at all but to one of the allied forms. I communicated such a case at another medical society nine years ago, (Tor. Med. Soc., Oct. 28, '98).

If it be conceded then that typhoid fever is often preceded by several weeks of ill-health (and to my mind the answer must be in the affirmative) then we can go on to discuss the second question. In what does this stage consist and what is its relation to typhoid fever?

Two possibilities present themselves.

a. That it is a lowered state of health from any cause, but especially associated with gastro-intestinal disturbance, which predisposes to typhoid infection by lowering the local or general resisting power of the individual.

b. That the typhoid bacillus may be in the intestine for weeks setting up a certain amount of disturbance before, either due to its increased virulence or to the lowered resistance of the host, true typhoid fever occurs.

As regards the first proposition it may be taken as proved that gastro-intestinal disturbance predisposes to such infections as dysentery and Asiatic cholera. The catarrhal condition which we may presume exists in the stomach and intestine during such disturbance lowers the resisting power of the mucous membrane to these specific infections. Practitioners in the tropics are very chary in the administration of purgatives when cholera and dysentery are about and such disturbing agents as over-ripe and under-ripe fruit are avoided by the natives as being likely to cause these diseases Is it not likely that in the same way a person suffering from a gastro-enteritis due say to any cause will be more likely to become infected by swallowed typhoid bacilli than one whose local and general health are good. By many the hydrochloric acid secreted during digestion is considered to be a safeguard against infection and experimentally animals must have this acid neutralized before they can be infected with cholera and probably typhoid via the mouth. (Levy and Klemperer Clin. Bacteriology, page 192). The secretion of this acid is apt to be deficient in gastric catarrh.

Dr. Shattuck, (Reference Handbook of the Med. Sciences Vol. VII. page 916), says recently "that the robust are quite as likely to be attacked by typhoid as the feeble and in the opinion of some are even more prone." but Dr. Seymour Taylor writes in a *Lancet* of last November, (Nov. 21st, 1903, page 1416), that "It is a notorious fact in all our military campaigns whether in South Africa or in the Nile Valley or in Northern India that those soldiers, especially the younger ones, who suffered from catarrhal affections of the bowels were more readily attacked by enteric fever than were their comrades who were in perfect health."

As regards the second proposition, *i. e.*, that the occasional pretyphoid ill health may be due to typhoid infection from the first (in which case

the name pretyphoid is a bad one) the probabilities seem to me to be opposed to this view.

But still something may be said in favor of this proposition. It is sometimes argued that "camp fever" in which typhoid fever breaks out in a camp of healthy men who have been weeks away from any settlement, is caused by the bacillus of typhoid lying latent in the intestine of some of the men for perhaps weeks. Again, when true Asiatic cholera is raging, cases of simple diarrhœa are common and are probably due to the comma bacillus as they can be produced in animals, while in other animals the same dose will give rise to the true cholera. Also when an epidemic of typhoid is raging there are often many cases of simple diarrhœa about. May not the typhoid bacillus be the cause of many of these. In some, nothing more will happen, the organism overcoming the invading bacilli, while in others after a more or less prolonged fight (producing during its course some gastro-intestinal disturbance and ill health) the invaders win and true typhoid fever occurs.

However, taking everything into consideration it seems probable that the first proposition is the true one and that when typhoid fever is preceded by ill health this ill health is due to some other cause, which by lowering the resisting power of the individual lays him open to typhoid infection.

The lesson to be learned from these notes, if any, is that when typhoid is about, cases of indefinite gastro-intestinal disturbance should be treated with special care, and as far as possible their infection prevented. In military camps also, where the milk and water supply is suspected, these should at least be boiled for all those suffering in this way

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ANGINA PECTORIS.*

By JOHN CAVEN, B.A., M.D.
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TO define angina pectoris in terms of anatomical changes is at present impossible; to define it at all is not easy. Like many other terms used in medical science the word "angina" now covers a good deal more than is to be found in it etymologically. According to derivation the word means a "strangling" or "constriction," and is ordinarily used by European writers in speaking of throat affections accompanied by swelling, with consequent obstruction to respiration; as commonly employed amongst ourselves it becomes synonymous with "heart pain," and such an adaptation of the word is easily understood. Heberden, who first applied the term "angina pectoris" to the complexus of symptoms of

*Read at the Toronto Pathological Society, 26th December, 1903.

which we are speaking, had in his mind chiefly the sense of oppression within the chest combined with mental distress rather than pain. His own words are: "The seat of it and sense of strangling and anxiety with which it is attended may make it not improperly to be called 'angina pectoris.'" That he was not unmindful of the pain is shown by his further statement: "Those who are afflicted with it are seized while they are walking, and more particularly when they walk soon after eating, with a painful and most disagreeable sensation in the breast, which seems as if it would take their life away if it were to increase or continue." The pain which is so characteristic evidently did not weigh so much with Heberden in his estimate of the symptoms as it has with most others since. When we come to study more modern authorities we find an essential agreement as to the outstanding symptoms by which angina pectoris is to be recognized, even though there be differences of opinion as to the propriety of sub-dividing, as for example, into the true and false varieties.

Lauder Brunton says: "In a typical attack the patient is suddenly seized with severe pain in some part of the cardiac region"; "the pain is accompanied by a peculiar sensation of oppression"; "in severe cases the patient feels as if death were impending."

Gibson's statement is in some respects peculiar. He makes pain the great central fact of angina pectoris and close by speaks of the sense of impending death being always present, thus making the latter symptom the real differentia. Osler says "Angina pectoris is not a disease but a syndrome or symptom group (without constant ætiological or anatomical foundations) associated with complex conditions, organic or functional, of the heart and aorta. Pain about the heart of an agonizing character occurring in the paroxysms is the dominant feature of all varieties of the syndrome." Taking these as short examples of what we may expect to find in recent authoritative statements, we may say that in a description of angina pectoris the chief points are the recognition of the subjective symptoms of heart pain, thoracic oppression and mental distress. Were it possible to complete the definition of angina pectoris with the simple statement of the cardinal symptoms as above our difficulties, (leaving out of sight morbid anatomy) would seem trivial after all.

When we come to consider, however, that there is generally recognized an angina pectoris without pain, (Gairdners angina sine dolore), that, as Brunton says, the fear of impending death may be absent in non-severe cases, that a division into cases which tend to end fatally and cases which have no tendency seems unavoidable, and that moreover, it is sometimes hard, if not impossible, to say to which class a given case

belongs, the real difficulties of reaching a concise statement are abundantly apparent.

I will not attempt further then to clearly define. Before entering upon the morbid anatomy perhaps it would be well to say first a word as to the so-called varieties of angina pectoris even although for the purpose of the anatomist, there is under the present conditions of knowledge but one and that the one in which the individual suffering from the symptoms has shown after death certain various heart changes.

A division has been made into a true and spurious heart angina, angina pectoris vera and angina pectoris notha, and strong exception has been taken to such a classification on the ground that since a group of symptoms is alone indicated by the name there can be no true or false; it is angina pectoris or it is not; in other words, that the division involves a contradiction in terms. Strictly speaking this objection is well taken, but until our means of ascertaining intra vitam the morbid changes at the bottom of the symptoms in any given case are much more perfect than at present, the classification seems useful. It is found that of some cases the symptoms may be modified by treatment, but that sooner or later death, and that usually sudden will be the result.

The following case illustrates this point well:—

Case I.—Male, age about 65; pain behind sternum on exertion; slight if any sense of oppression or anxiety; iodides exhibited; no recurrence for two years; sudden death in attack without severe pain after climbing stairs.

In other cases, again, distressing though the symptoms may be, treatment not only ameliorates but more or less perfectly removes them, and assurance may be given of freedom from danger of sudden death.

Case II.—Male, not 22; student; working hard; smoking heavily; for some weeks occasional præcordial discomfort; sharp cardiac pain followed by soreness on one occasion after exertion; some days later an attack of very severe pain while walking on street; had to stop for a time; afterwards sick feeling and soreness over præcordium and in shoulder; with tobacco restricted, earlier hours and less work, all symptoms practically disappeared. On resuming old habits angina returned. Has since disappeared again under proper treatment.

The first example illustrates angina pectoris vera; the second, angina pectoris notha. In practice, the difficulty not infrequently arises of assigning to individual cases their proper position, in other words, of giving an accurate prognosis. This difficulty is well illustrated in the following case:—

Case III.—Female, age 43; marked pain in præcordium radiating to shoulder, neck and left arm; pallor, some anxiety, sweating, sense of oppression in chest not marked. Pain most marked after exertion; not paroxysmal, no arterio-sclerosis discernible. Angina first experienced *after attack of pericarditic.* Improving. The sex, time of life, general condition of the patient, and almost complete absence of anxiety, together would incline one to a diagnosis of false angina; but the history of an attack of pericarditis previous to appearance of the symptoms makes one waver. It is worthy of note that in none of the considerable series of cases which Osler has diagnosed as "false" and recorded in his lectures on angina pectoris has mental distress been a symptom. Of these, he says they are still all alive at time of writing; in his true cases the results have been far otherwise. This will recall the statement of Gibson that the sense of impending death is *always* present, whether pain be or not. We might be justified in concluding that Gibson would not diagnose as anginous these cases of Osler's in which the symptom is absent.

Again, the attempt is made to classify according to etiology, hysterical, neurotic, toxic, vaso-motor being terms made use of and divisions of this kind are undoubtedly steps in the right direction because they look to causation even although when our knowledge becomes more exact simplification may be found necessary.

The question now naturally arises, "If angina pectoris be but a symtom complex, and if moreover the simultaneous occurrence of even the chief symptoms is not to be expected in all cases, where is the line to be drawn, and how far are we to go in disignating cases by the name?

Experience seems to show that whenever paroxysms of severe cardiac pain occur we will have the diagnosis of angina pectoris and that the chief error in practice in respect of it lies in failure to recognize those cases of true angina which occur without pain or with the pain referred to the abdomen.

Morbid Anatomy.

The important anatomical changes which have been found in individuals who have, during life, suffered from angina pectoris are those affecting the heart's muscle, valves, and blood vessels and vascular system generally. I refer of course only to such changes as might be seen to have some possible bearing upon the condition in question. Here, perhaps we had better call attention to the fact that what are grossly precisely the same changes occur in very many instances where angina has been entirely absent; indeed, I should

judge, in but a minority of the cases in which such findings have been reported, have we any history of angina. Even leaving out of count those cases in which death occurs suddenly, the first anginous attack being the last also, and where the whole tragedy is completed so rapidly that no statement of subjective symptoms from the patient is possible, even leaving these cases out of count, there are very many in which the symptoms of angina pectoris are absent. Where what we consider its anatomical basis is present, you will notice that I have said that lesions which are *grossly* the same may have failed to give rise to identical symptoms. It may be—nay, assuredly will be—that when our methods and means of research are sufficiently refined, quite valid reasons, chemical or physical, will be found to explain the apparent anomaly.

Lauder Brunton says "the essential lesion in angina pectoris is weakening of the heart" and this is probably a correct putting of the case. By weakening of the heart, we are to understand any changes in the heart's substance that will preclude complete and perfect action of its muscle, especially at such times as increased calls are made upon it. Changes of this kind may be generalized or localized and are due to defect of blood supply, a defect which may be toxic in its character or ischæmic or both. The changes are commonly grouped under the heading myocarditis. The acute febrile diseases and wasting diseases afford examples of the conditions necessary to produce a general weakening of heart muscle. In advanced fatty degeneration also we find a similar result. The following case is an example of the symptoms which may indicate such a generalized weakening.

Case IV.—This patient has been ill for a considerable length of time, with cancer.

Male, age about 70 years, first attack began with a peculiar convulsive seizure followed by nausea and vomiting, intense pain in the epigastrium and finally in præcordium. Great anxiety was present; pallor and sweating; subsequent attacks painless; nausea less marked; chest oppression and anxiety marked; pulse rapid and fairly strong; arterio-sclerosis not excessive for age so far as can be ascertained by examination.

Anginous attacks as a result of these widespread heart changes are comparatively rare, however, and it is to myocardial changes resulting from local anæmia that we have to look for an explanation in the great majority of instances in which what we have classified as true angina occurs.

To quote Lauder Brunton again "The essential lesion in angina pectoris is weakening of the heart and, more especially, such irregular weakening as may be produced by atheroma of the coronary arteries."

The myocardial change most frequently found in connection with angina pectoris is chronic interstitial myocarditis, patchy or more widespread and associated with it the vascular lesions upon which it is so frequently dependent. Chronic interstitial myocarditis is in nearly all forms a localized change; it is much more common on the left side of the heart than the right and there in the left ventricle.

The regions of the left apex and the lower part of the interventricular septum are its commonest seats. The right ventricle is rarely affected.

Without going into the minutiæ of the anatomy suffice it to say that the morbid alteration of the tissue is a sclerotic one, fibroid in character and as a result of which muscle tissue is definitely replaced thus leaving non-contractile weakened areas. A gross evidence of its weakening effect is not infrequently seen in the shape of localized bulging—heart aneurysm. In a consideration of the immediate causes of fibrous myocarditis the condition of the coronary arteries has by far the most important place.

It is true that by direct extension from endocarditis and pericarditis fibrosis of the myocardium may be brought about, but cases of this kind resulting in angina are relatively few and, moreover, such extensions cannot occur without involving to a greater or less extent the integrity of the coronary vascular system.

The coronary arteries are two in number—right and left—and these are respectively the main sources of blood supply to the corresponding sides of the heart.

I would like to ask you to recall for a moment the division and distribution of the one, the left, which is of vital importance in relation to myocardial change and angina.

The left coronary comes off from the posterior sinus of Valsalva and passes behind the pulmonary artery to meet the right coronary running in the auriculo-ventricular groove. It gives off a large branch anteriorly which passes downwards in the anterior ventricular groove, and from this again a branch is given to the anterior wall of the left ventricle. Smaller branches run into the septum. The branch to the anterior wall of the left ventricle is that most often affected by sclerosis, by embolism or thrombosis and therefore most closely related to fibrous myocarditis and angina pectoris. So distinctively is this artery connected with grave heart lesions tending to fatal outcome that Osler has called it the artery of Sudden Death.

Morgagni first described the changes of chronic myocarditis and he regarded them as being degenerative. Edward Jenner has the credit of

first connecting the symptoms of angina pectoris with coronary sclerosis.

He did not however observe the accompanying myocardial changes. Gairdner noticed the association of vascular and muscular changes but did not connect them causally.

Weigert demonstrated the causal relationship in his paper on Tissue Coagulation.

Much more work has been done along these lines, into the historical aspect of which we need not go.

The anatomical changes found in the coronary arteries are those resulting from periarteritis, mesarteritis and endarteritis imposed upon which we find a fatty degeneration—true atheroma—followed by calcareous deposit.

A so-called primary calcareous deposit may occur, the result, no doubt, of molecular changes within the cells affected. All of these are ordinarily spoken of as constituting arterio-sclerosis or atheroma. The calibre of the coronary arteries being diminished by the changes described, an explanation of the consequent myocardial alterations is not far to seek.

The ability to nourish itself of any organ or tissue must vary with the size of the vessels conveying blood to it. The coronary vessels are in health large relatively to the size of the heart and, of necessity so, since the limits of variation of calls for nutrition must be wide on account of the character of the work done by it. Any diminution in calibre of the coronaries must be followed by lessened nourishment to the heart muscle, *i.e.* by atrophy and the demands upon the heart being often large and not easily regulated, the result will be more marked.

The tendency to the replacement of slowly dying tissue (atrophic tissue) which is relatively complex and highly organized by the more lowly organized fibrous elements is well known, and is found operating in the heart as well as elsewhere.

Apart from the results of the gradual occlusion of the coronary vessels by aterio-sclerosis, the fact that embolism or thrombosis may happen must not be forgotten. Either of these may lead to sudden death or chronic myocardial change according to the size and position of the aterial branch plugged.

An embolus will come from the heart or valves; a thrombus will be secondary to changes in the coronary walls.

The growing tendency with advancing years, especially under modern conditions, to the development of more or less widespread arterio-sclerosis is well known. The conditions which give rise to this are the same as also tend to changes in the coronary vessels and the

clear. We know practically nothing of the function of its nervous portion nor have we any definite idea of the differences in nature between the cyanophile, eosinophile, and other cells which go to make up its glandular portion. Many attempts at the extirpation of this organ in animals have been made but it cannot be said that the results of this difficult experiment have been quite satisfactory or convincing, for while some authors (Horsley) have found no effects whatever, others (Vassale and Sacchi) have succeeded in producing such general symptoms as apathy, somnolence, dyspnœa, temperature, depression, emaciation, and muscular spasms, Schäfer and Vincent extracted two substances from the gland one of which raises the blood pressure on being injected while the other depresses it. Similarly Howell found a substance which would elevate the arterial pressure.

There is once more a disease the so called acromegaly which is thought to depend upon changes in the hypophysis, since it is so regularly accompanied by these changes. The alterations in the bones and other parts in this disease are so familiar as to need no discussion here. Sometimes when it begins in early life giant growth may ensue, although by no means all of the giants that are seen in our museums and circuses are acromegalics.

Autopsy in these cases of acromegaly shows various lesions in the different organs, the only constant change, however, being the enlargement of the hypophysis, either in the form of a general hypertrophy, or adenomatous growth, or as the result of the development of a destructive malignant tumor there. Usually the thyroid is also enlarged and presents the appearance of a colloid goitre.

Many questions as to the relation of these changes to the causation of the disease suggest themselves. We may ask for example whether the alteration of the hypophysis is primary or the result of a general disturbance which requires an effort on the part of the gland. Are we dealing with a gland whose activity is increased or have we in spite of its enlargement an organ which tends to be insufficient like the colloid goitre? Those cases in which the rapid appearance of symptoms of acromegaly after the destruction of the gland by a malignant tumor seem to lend some evidence to this latter view. Of interest too is the enlargement of the thyroid in this connection since it has been repeatedly stated that in cases of myxodema and cretinism there may be an enlarged hypophysis which is thought to compensate in a way, albeit imperfectly, for the loss of the thyroid.

The organ lies in such an inaccessible place that it is extraordinarily difficult to carry out extirpation experiments. Yet it seems that it is

them arterio-sclerosis has been marked. That these changes in several members of a family may be due to inherent tendency and not to coincidence or accidents of environment is made clear by history and by the fact of their appearance in early life in persons of both sexes.

Arterio-sclerosis is prone to develop in those who lead the "strenuous life," whether the activity be mental or bodily. Especially is it liable to appear in the mentally over-active, and worry is the form of activity which is most effective. How strain acts as causative is not very clear, but in all probability it does so as tending to the induction of various auto-intoxications, inducing or promoting toxic chemical changes within, which, in their turn, make possible the operation of toxic matters from without.

To intoxications of various kinds we will possibly also some day trace those peculiar family bodily characteristics which tend to shorten life and which we speak of as hereditary.

The great part which intoxication must play in arterio-sclerosis is apparent when we consider that disease in general is due to toxic matters of various kinds, from which every organized being suffers as a result of its struggle for existence with those around it

To sum up in a word, the all-important lesion in the production of the symptoms is one which affects the heart muscle, usually chronic myocarditis, and this is due to limitation of the quantity and likely quality of the blood supplied it.

THE DIAGNOSIS AND TREATMENT OF TEBERCULOUS * PERITONITIS.

BY A. GROVES, M D.
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THE diagnosis of tubercular peritonitis in its early stage is confessedly difficult in those cases in which there is no history of tuberculosis. If a patient has been failing in health, has loss of appetite, nausea, indigestion and pain in the abdomen, with or without tenderness, the possibility of peritoneal tuberculosis should be considered. If there are tuberculous lesions in other parts or a tuberculous family history the diagnosis is comparatively easy, but if the history and previous health have been good the problem is not so simple. There may be a swollen abdomen, dull or tympanitic and hardened masses of thickened omentum simulating cancer may be made out. There may be fluid which is often

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encapsuled and in some of these cases it seems impossible to differentiate them by physical examination alone from ovarian cysts. Between ovarian tumour and tuberculous cyst the diagnosis can be made by noticing that the former had been slow of growth, and that usually a definite lump was noticed by the patient at a comparatively remote date. In ovarian tumours there are no febrile symptoms as a rule, and in fact, in all cases the fluctuations of temperature are the most important guides in deciding whether the case may be one of tuberculosis or not. Given a case otherwise doubtful, if there is elevation of temperature and especially if at times it becomes subnormal, the case may be set down as tubercular. In the same way the difficulty as to doubtful tumours may be cleared up, for in the non-tuberculous, pyrexia is wanting. Ascites arising from other causes can be distinguished by the mode of onset, and by careful examination for other dropsy producing lesions. Typhoid fever is sometimes difficult to distinguish at first sight, but a little time, with careful watching of the case will suffice to settle the matter. Indeed, the temperature chart alone is diagnostic, and when to this is added the history of the case, and the various signs and symptoms, a mistake can hardly be made. If the physician keeps before him in all cases of abdominal disease, the possibility of its being tubercular he will rarely be in error. Tuberculosis is so widespread and insidious that one would almost be justified in diagnosing a case of abdominal disease as tubercular, unless he could prove it was something else. Regarding treatment, it is necessary to determine at the beginning, whether or not the tuberculous process has arisen by infection from some neighbouring organ or viscera; if such direct infection can be demonstrated, the primary focus should, if possible, be removed as a preliminary measure. In the general management of any case, the rules applicable to the treatment of tuberculosis in other parts should be followed, with such modifications and additions as may be required or indicated by circumstances arising from the particular region involved. Every effort should be made to improve the nutrition by diet rich in fat producing elements, and varied to suit the idiosyncrasies of the patient. Medicines except in so far as they improve the general tone of the system have no value. Iron, arsenic, hypophosphites and the bitter tonics will in suitable cases be of service. Abundance of fresh air and sunlight are essential, I had almost said especially sunlight, for the perfection of sunlight can only be obtained in the open air. To my mind it is advisable to expose the abdominal walls to the direct action of the sun's rays daily for hours at a time. The rays will penetrate to and through the peritoneum, and will lessen, if they do not destroy, the

activity of the bacilli. The fact of the sun's rays penetrating may be questioned, but it is a matter very easy to demonstrate. If the palm of the hand is pressed against one end of a metallic tube directed toward the sun, on looking into the tube a moderately bright reddish glare is visible. That sunlight has a very considerable effect in stimulating vital process in parts situated comparatively far from the surface is unquestionable. I have seen where in cases of delayed union of bones, improvement began and went on to perfect union shortly after the limb began to be exposed daily to direct action of the sun's rays. In a case of tuberculous abscess of the arm where thorough opening, curetting and drainage with local applications and treatment all failed, the exposure of the arm to the sun for three or four hours daily produced so great a change that at the end of a week the patient said "it takes the sun to heal it." If the days are hot the exposure should not at first be too long, otherwise a severe sunburn will be the result, but by gradually lengthening the time little or no soreness will be produced. The direct application of the Roentgen ray is worthy of faithful trial, seeing that lupus can be cured by it, and on account of the thinness of the abdominal wall it will have a powerful effect on germs in the peritoneum. So far I have tried it in but one case, and it is dangerous to deduce a rule from a single instance, but so far as I was able to judge, the effect of the ray was decidedly beneficial. In the same way Finsen's ultra violet rays by reason of their inhibitory powers over germ life ought to be serviceable, but I have had no experience in their action in these cases, and therefore can give no opinion of any practical value as to their effects. If all other measures fail the question of operation comes to be considered, and it is one of the conditions in which early operation is rarely to be advised, for many cases recover without operation, others die in spite of operation. Where other organs, as for instance the lungs, are at the same time seriously involved an operation is not usually advisable, except to give temporary relief when there is much effusion, nor have I found much benefit follow opening the abdominal cavity and washing it out in the case of acute peritoneal tuberculosis, even when there was a large collection of fluid. In my opinion, laparotomy is followed by the best results in chronic cases when there is a quantity of fluid, but the diseased process is quiescent. In such cases, I have known cure follow simple tapping, so that it would seem where cure followed or appeared to follow a laparotomy, it might be the disease had run its course or was tending to recovery, and the laparotomy only removed the products of disease, a most necessary thing, indeed. I might be permitted to refer to a few cases to illustrate those views.

Away back in 1874 I saw a case with a medical friend where for some months there had been a difference of opinion as to whether the patient was pregnant or had an ovarian tumour, but finally the time limit excluded pregnancy, and an operation for removal of ovarian cyst was undertaken. When the abdomen was opened the fluid ran out, there was no ovarian disease, but simply encysted fluid with the walls studded with tubercles. The patient promptly recovered. There had been no acute symptoms for a long time, and the results following the operation were apparently analogous to those seen after tapping the chest in cases of hydrothorax; in fact, the same rule will apply, for I find if a chest is tapped during an acute attack of pleuritis while the temperature is high it will generally refill, but if the acute stage is over it will not do so, although there may be mild pyrexia at the time of operation. In its essence the tapping is not curative of the disease, it only gets rid of products nature was unable to remove, and by so doing allows the vital forces to complete a cure already far advanced. Again, I might refer to the case of a young lady of a tuberculous family history who presented herself with her abdomen distended with fluid. In this case, simple tapping of the abdomen was done, and almost two gallons of fluid removed. It did not return, and her recovery was perfect. In neither of these cases could it be fairly claimed that the operation cured the disease, for its activity had already ceased. The disease was over, its products only remained, the operations at one stroke got rid of those products which nature unaided might not, and in all probability would not have been able to do. Even if it were possible that nature might in the end remove the fluid, I think it would be bad practice to leave it, for a tuberculous patient should have no burden to bear which it is possible to remove.

Lastly, I will quote a case of laparotomy in the acute stage of tubercular peritonitis. A young man who had never before been sick and whose family history was without tuberculous taint so far as was known consulted me regarding pain and tenderness of the abdomen. His temperature was 103 the first evening I saw him and his condition steadily grew worse; at the end of a month there was a considerable collection of fluid in the abdomen and a laporotomy was done, about a gallon of fluid being removed, his temperature at the time of operation being over 102. No benefit followed and in a week the cavity was again opened and a still larger quantity of fluid removed. Thorough washing out was done and drainage left in for a time but the high temperature persisted and the case went on to a fatal termination at the end of two months from the first operation. My experience in these

and many other cases which I have seen in more than thirty years of practical work goes to show that it is only where a previous arrest of the disease has been accomplished that recovery follows after operation and that where the disease is acute no improvement results. It is not claimed that removing the fluid from the chest in pleuritis is curative except in so far as it relieves the system from the presence of a body which it is difficult and often impossible for nature to do unaided. I see no reason to believe the problem is different in the abdominal cavity. I have not known an instance where operation helped in the sense of curing a case of acute tuberculous peritonitis nor one in which there was chronic effusion where it failed. It does not appear to me that a short exposure of the diseased surface to the air and the flushing of it with water can abort acute tuberculosis, but at the same time I am persuaded collections of fluid ought to be removed for by their removal the burden is lightened for the vital forces and to that extent the operation is curative. In many cases indeed without an operation the patient would not get well because the systemic processes were unable without assistance to cope with the products of disease. The fluid having been removed the same persistent attention to the patient's general health must be kept up, every agency having a curative tendency must be employed, for after an apparent cure has been effected the disease may be only dormant, ready to break out again with undiminished force.

THE TREATMENT OF PNEUMONIA.*

By D. B. LEES, M. A., M. D., F. R. C. P.

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IT may be well to combine the suggestions of the preceding lecture into an outline plan of treatment for pneumonia, though it may involve some repetition.

Every case in which a rigor occurs and the temperature rises should be sent to bed at once in a well-ventilated room without draughts, the warmth of the room being maintained at 60° F. If pneumonia is apparently developing, a trained nurse should be obtained from the first. The temperature, pulse-rate, and respiration-rate should be observed and recorded on a chart and this should be repeated every four hours. If the patient, when first seen, is cold and at all collapsed, it is desireable to give him a "hot pack," by swathing him in a sheet wrung out of hot water of temperature of 110° F. (the head being kept cool), and covering him with blankets. Some hot brandy and water may be given to him

* From the British Medical Journal of 5 December, 1903.

to drink. He should be kept in the pack for about twenty minutes, then the sheet should be removed, the patient dried quickly, and placed in a warmed bed.

When he has thus been rendered warm, let the practitioner make a careful examination of (1) the tongue, mouth, throat, glands, (2) the left heart, (3) the right heart, (4) anterior pulmonary regions, (5) posterior and lateral pulmonary regions, (6) liver, spleen, abdomen. If pneumonia is developing, it is usually possible, by a very careful percussion, to detect some slight indication of the coming trouble, and it is extremely important to make sure of the diagnosis as soon as possible, for before the expiration of twenty-four hours from the onset there is a chance of arresting the disease by vigorous treatment. There will probably be pain on one side of the chest, with somewhat limited expansion of that side in inspiration, and some slight local impairment of resonance at base or apex. Over this area there may be a very little subcrepitant *râle*, but the chief auscultatory indications will be local feebleness of breath sounds. This comparative absence of breathing in the earliest stage of pneumonia is mentioned by Professor Osler, but is not generally recognized: it is certainly a fact.

Put two hot-water bottles to the patient's feet, and, as soon as possible (every hour is of importance), fill two icebags with small fragments of ice, and apply them as already directed over the suspected part of the lung, one in front and one behind. If the mouth and fauces are foul, a sanitas mouth wash should be employed, and the throat sprayed with 1 in 2,000 perchloride of mercury lotion. This should be repeated every three hours for the first two days. It is probably desirable in every case, for the infection of the air passages doubtless often starts from the mouth, and the spraying can be easily effected during the early days of the attack, when there is little dyspnoea. The diet should consist of milk, or milk and barley water, given every two hours, and water if desired.

The patient should be seen again the same evening and again carefully examined. Any other area of dullness that can be detected should be covered by a third icebag. If pain in the side has not been already relieved by the ice, a subcutaneous injection of $\frac{1}{6}$ gr. to $\frac{1}{4}$ gr. of morphine should be administered, and a night draught of bromide and chloralamide should be ready if the patient does not sleep. This must on no account be overlooked.

If the attempt at arrest is successful, on the second day the dullness will be found not to have increased—possibly it may already have diminished; the air will enter the suspected area more freely, the temperature

will be lower, and the pulse-rate less frequent. It will in this case be necessary simply to persevere steadily with the treatment, but the greatest care must be employed to detect any fresh inflammatory foci, and to attack them immediately. Carelessness in percussion will lose the possible chance of saving the patient from a dangerous illness.

As proof of the assertion that if a case of pneumonia comes under observation within twenty-four hours after the initial rigor it is sometimes possible to arrest it by vigorous treatment, I give the two following cases:

CASE I.—W. B., 18, carman, was seized on the evening of October 31st, 1895, sixteen hours before his admission into St. Mary's Hospital, with a rigor which lasted an hour. Next morning he had fever and pain in the right side. On admission his skin was hot and dry, and there was some labial herpes. Temperature 103.6°, pulse 120, respirations 40. When I first saw him on the evening of November 1st, twenty-four hours after the rigor, I found dullness at the base of the right lung in front below the fourth rib, extending into the lower axilla, with some tenderness. The breath sounds were feeble over the dull area. No bronchial breathing, but a little crepitation at the end of inspiration. Behind, at the right base, breathing weak, and some impairment of resonance. Three icebags were at once applied.

November 2nd. Temperature, 101.8°; pulse, 100; respirations, 34. Feels better. Dullness decidedly less extensive.

November 3rd. Temperature, 100°, rising to 101.8°, falling to 99°; pulse, 100; respirations, 30. Dullness still diminishing. Says he is "a lot better."

November 4th. Temperature, 98; pulse, 72; respirations, 26. Now only a small dull area in lower axilla. Ice removed (after sixty hours.)

November 5th. Temperature rose to 99.8°, but fell to 98°.

November 6th. Temperature rose to 100.2°, but fell to 98°.

November 7th. Temperature, normal; pulse, 64; respirations, 20. Very slight impairment of resonance could now be detected.

CASE II.—E. N., 14, admitted May 22nd, 1896, twenty-four hours after immersion in a canal and twelve hours after a rigor. He had a headache and dyspnoea. On admission dullness was found in the right axillary region, and an icebag at once applied. Temperature, 103°; pulse, 120; respirations, 40.

May 23rd (10 a.m.). Both cheeks very flushed. Obvious dyspnoea. Temperature, 103°; pulse, 120; respirations, 40. Dull in the right lower axilla, not behind scapular line nor to inner side of nipple. Just below angle of right scapula there was distinct fine crepitation, with inspiration

only: this was so typical that I made all my clinical clerks listen to it. Breath sounds diminished over the dull area; no bronchial breathing. Dullness and diminished breathing in right suprascapular fossa also. Some pain on left side of abdomen on taking a deep breath, but no rub could be heard and there was no dullness. Heart normal. Three more icebags were ordered, making four in all; two to the right base, a third over the right apex behind, and the fourth over the left axilla. After one hour the temperature fell to 100°, and the ice was removed. It then rose to 102°, but at once fell again.

May 24th (forty-eight hours after the rigor). Temperature, normal; pulse, 74; respirations, 34. He had slept well, was not now flushed, and the right axilla was less dull. The temperature remained subnormal for thirty-six hours. There was a short rise to 100° on the 25th, and to 99.5° on the 26th. After this it was normal, and the boy was quite well, and the right axillary region was of normal resonance.

It will be observed that in each of these cases there was no crisis, but an immediate and rapid subsidence of temperature, physical signs, and symptoms. In such cases as these it is reasonable to claim that the disease has been arrested. But it is not always possible to arrest a pneumonia even when it is treated very early, and after twenty-four hours there is little hope of success. This is not surprising when we remember how rapidly micro-organisms increase in number under favourable circumstances. Washbourn and Eyre found, on cultivating the pneumococcus in nutrient broth, making plate cultivations from the broth culture and counting the living cocci present at different periods, that 140 colonies increased in three hours to 6,149, and in six hours more to 13,680; twelve hours later they were "innumerable."

As the normal temperature for the growth of the human body is only 1° F. below the optimum temperature for the growth of the pneumococcus, it is clear that if an attempt to arrest the development of a pneumonia is to have any chance of success, it must be made very early and very vigorously.

But it is always possible to influence the course of a pneumonia, to diminish its intensity, and often to shorten its duration. This of course is difficult to prove, because of the uncertainty of the time of occurrence of the crisis in the disease when untreated. But there is nothing really improbable in the assertion that there is reason to believe that the ice treatment sometimes brings about an earlier crisis. For however the crisis may be caused, whether by the manufacture of an antitoxin or by a failure of further growth of the pneumococcus, it seems clear that any treatment which can to any extent inhibit the

growth of the microbe and thus check the amount of toxin which it produces, will to that extent facilitate the earlier termination of the struggle between the attack and the defending forces, in other words, it will hasten the crisis.

If the attempt to arrest the disease is unsuccessful, on the second day the area of dullness will be larger, and over it may be heard inspiratory crepitation, or sharp *rales* of double rythm in children, or some prolonged expiration, or distinctly bronchial breathing. A third or fourth ice bag should now be applied, the sites for their application being outlined in blue.

It is desirable at this period to administer two or three grains of calomel, followed after three hours by a seidlitz powder. When a sufficient evacuation has been obtained the purgative should not be repeated, for in the later days of a pneumonia there is a tendency to diarrhoea.

On the second evening the hypnotic must be again given if necessary, and morphine if pain is present, for the patient must have sleep. It may, perhaps, be desirable to remove one or two of the icebags during the night, leaving two only in position. It might be thought that the necessity for the disturbance would be fatal to sleep, but the relief of pain and dyspnœa is so great that the patient easily falls asleep again, provided that his right heart is not over-full. In the case of young children the temperature should now be taken every two hours (hourly for babies), and it can be done without disturbing them. If any icebags have been removed at night, they should be replaced early next morning.

On the third morning the physical signs in the lungs must again be most carefully determined, and directions given for the alterations of position of the icebags necessitated by the changes found. But now special attention must be given to the right heart. If the dullness of the right auricle is found to extend two finger-breadths in the fourth right space, and there is distinct dyspnœa and some slight lividity of lips, or cheeks, or finger tips, leeches should be applied over the lower ribs on the right side below the nipple level. One should be used for a baby under six months, two for a child under two years, four for a child of 10 years, six for an adult, eight for a robust man. If not used at once the leeches should be held in readiness, for they may possibly be required in the evening if the patient is to sleep. Some tins of malted milk, and one or two cylinders of compressed oxygen should be procured.

On the third evening it will in most cases, unless the ice has already caused a marked improvement in the physical signs, be advisable to

apply leeches—if they have not been already used—an hour or two before the time for sleep. The relief thus given to the right heart will often induce sleep without any hynoptic, but one must be given if needful. Even morphine may be used safely under these circumstances

On the fourth morning, if the leeches have been applied, the patient will feel more comfortable, though the physical signs may have increased in extent. The same minute care in determining the physical signs in both lungs must be practiced. Watch carefully for fresh areas of dullness, especially if there has been any fresh rise of temperature, and attack them at once.

The right auricle having now been relieved it will be desirable to give considerable quantities of water, both to satisfy the thirst, and to promote diuresis and the elimination of toxin. During the twenty-four hours following the use of the leeches, 3 or 4 pints of water may be given, in quantities of 8 to 10 oz. every three hours; for a child 4 to 6 oz.

If the patient has not come under treatment until the fourth day of a severe attack, he will probably be in considerable distress. Dyspnœa and discomfort will be marked, cyanosis distinct, and the dullness of the right auricle may measure from two to two and a-half finger-breadths in the fourth space, one or one and a-half in the third, and half a finger-breadth or more in the second. This should be ascertained at once, before any attempt is made to discover the amount of disease in the lungs. The call for bleeding is urgent and imperative. A larger number of leeches must now be used than would have sufficed on the previous day. Two must be employed for a baby, three for a young child, four to six for an older child, eight to twelve for an adult. A venesection is often preferable: 4 oz. for a young adult, 8 oz. for a strong man.

An hour after the bleeding both lungs should be carefully examined and the outlines of the dull areas marked on the chest. Two icebags must be applied at once to the worst inflammatory foci, an hour or two later a third, and before long a fourth. We are now in the thick of the fight, and it is necessary to call up the reserves and have all our forces in readiness for the struggle of the next three or four days. The subcutaneous injection of strychnine should be begun and maintained systematically in increasing amount or frequency. Now is the time also to begin the administration of oxygen; this, too, should be regularly continued throughout. Milk and also water may be given in considerable quantities after the venesection. At night sleep will probably come naturally, the right heart having been relieved and the pulmonary congestion diminished by the ice, but if not a hypnotic must be given, and even morphine if necessary; the patient must have sleep.

On the fifth day, if the patient has been vigorously treated with leeches and ice, there is often a marked improvement in the physical signs, and much less tendency to extension. But a severe case may be not yet controlled. It will now be desirable to limit the amount of fluid given to the patient, so as to lessen the strain on the right heart. The diet for the next two or three days should be simply malted milk powder dissolved in milk, a tablespoonful in two ounces every two hours for an adult, two teaspoonfuls in one ounce for a child. The icebags must be continuously applied, and their position altered as may be necessary, special care being taken to discover and attack fresh or spreading areas of inflammation. If leeches have been used on the third day, it is desirable to examine the right heart again very carefully on the evening of the fifth day. The relief will almost always last for forty-eight hours, but by the fifth evening some more leeches may be required, In determining this point, especially when the left lung is mainly involved, it is very necessary to guard against being misled by overdistension of the right lung into an underestimate of the size of the right auricle. In case of doubt, let the decision be for the leeches. The amount of sleep which the patient has hitherto obtained is also of importance in deciding this question. If he has slept well, and the right auricle does not measure more than two finger-breadths, the leeches may be postponed. But if sleep has been defective, it will be wiser to apply them, and afterwards to give a hypnotic. For sleep is of great importance for the maintaining of vigour for the days which may remain.

If the patient has reached the fifth or sixth day of his illness, and neither bloodletting nor ice has been employed, the symptoms are often very severe, the distress great, and the outlook gloomy. Probably he has been sleepless for several nights, and his strength is rapidly diminishing. The call for active treatment is urgent. The prognosis depends on three factors: the age and previous health of the patient, the intensity of the infection, and the action of the medical attendant. At such a time the responsibility of the latter is great indeed. Life is trembling in the balance. His action or his inaction may decide whether or not the patient shall be deprived of many years of life, and his wife and children suffer an irreparable loss.

The first necessity is a venesection. Eight ounces of blood should be taken at once, twice as much or more if the lung be full of *rales*. If permission for venesection cannot be obtained, place a dozen leeches over the liver and encourage the bleeding. Hypodermic injections of strychnine in 3-minim doses every four hours should follow immediately, and the systematic inhalation of oxygen for ten minutes or more

every hour. Two icebags should be at once applied, soon followed by a third, and before long by a fourth. It is very probable that after this treatment the patient will fall asleep. If so, he should be undisturbed for four hours. But after this nourishment must be given and the icebags refilled every two hours. Malted milk in milk with a little brandy should be given every hour when he awakes, and all medicine by the mouth avoided. After sleep has been obtained a small enema may be given if necessary. If diarrhoea is present the rectum should be washed out with warm saline solution, and 2 oz. of starch decoction with a few drops of tincture of opium inserted.

Some improvement—often much—will certainly follow this treatment unless the patient is already very far on the downward road, or his heart be previously dilated, his lungs emphysematous, his liver cirrhosed, or his kidneys granular. Many cases are no doubt hopeless from the first; but not very rarely an apparently hopeless case recovers; and, at all events, whatever can be done to give a chance of recovery ought to be done. Here let me put in a plea for earlier consultations. Too often a "second opinion" is sought for only when death is imminent. The surgeon is right in asking that he may be allowed to see a case of perforated gastric ulcer as soon as the diagnosis is made; if twenty-four hours are allowed to elapse, the patient's chance of recovery is small indeed. It is estimated by Mr. Mayo Robson that if operated on within twelve hours after the perforation the mortality is only 16.6 per cent.; if within twenty-four hours, it is 63.0 per cent.; if within thirty-six hours, it is 87.5 per cent.; and if delayed for forty eight hours, the operation will only rarely succeed. So may the physician plead that in in pneumonia the final issue largely depends on the treatment, or want of treatment, of the first few days. In the case of an infant, or of an adult older than 30 years, the danger to life is great, and judicious treatment is required from the very first. This is not so obvious to the patient as when an operation is required, but it ought to be equally obvious to the practitioner. To delay the consultation in such a case to the fourth or fifth day is to imperil the patient's life.

Pneumonia in adults usually ends by a very rapid fall of temperature, with slowing pulse. This "crisis" often occurs in children also, even in cases which would be designated as "broncho-pneumonia," but in children the subsidence is apt to be more gradual, and to occupy several days. Pneumonia in children sometime lasts for three or even four weeks. It is necessary to keep a careful watch for the first indications of this quick diminution of temperature, especially in children. The icebags should be gradually removed as the temperature falls, and

the last should be taken off when the thermometer marks 100° F. There is a natural tendency to collapse at the time of the crisis which must be kept in mind. Icebags over the chest at this stage would probably be injurious, though in pericarditis, as I have already mentioned, they may sometimes be used with advantage, even when the temperature is subnormal. If, in spite of care, or for want of it, the reduction of temperature is so great as to cause some collapse, it is desirable to apply warmth over the heart and abdomen, also to the feet, and to give the patient some warm water with brandy, and a draught containing ether and ammonia. By these means it is usually easy to remove any tendency to collapse.

But the crisis is often preceded by a remission of temperature which lasts only a few hours. Hence, when the ice has been removed, the temperature should still be taken every hour. If it rises to 101° F. a single icebag should be again applied, if to 103° F. at least two. Much careful observation on the part of the nurse is required at this period. If the temperature shows a persistent tendency to keep above normal after the crisis has occurred, the existence of empyema should be suspected, and an exploring needle should be passed into the dullest area Occasionally it may be due to tuberculosis

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THE CONSUMPTION OF SPIRITS AND TOBACCO.

In 1902 the per capita consumption of alcoholic beverages was as follows:—Spirits, .796 gallons; beer, 5.012 gallons; wine, .090 gallons; tobacco, 2.404 pounds. In 1903 the per capita consumption was:—Spirits, .870 gallons; beer, 4.712 gallons; wine, .096 gallons; tobacco, 2.548 pounds. In 1902 the revenue per head was:—Spirits, $1,653; beer, $0.214; wine, $0.048; tobacco, $0.915. Last year the per capita revenue receipts were:—Spirits, $1.812; beer $0.205; wine, $0.051; tobacco, $0.992. The number of cigars taken for consumption in the last fiscal year was 151,780,516, as against 141,096,889 for the year previous. There were 22,677,302 pounds of tobacco taken for consumption, compared with 21,543,301 in the preceding year. In 1902 there were 27,623,767 gallons of malt liquor manufactured. For the last fiscal year the quantity manufactured was 25,755,154 gallons or a falling off of 1,868,617 gallons. In the fiscal year 1901-02 the quantity of spirits entered for consumption was 2,933-182 gallons of the value of $5,613,295. During the last fiscal year 3,207-748 gallons of the value of $6,158,275 were entered for consumption, being an increase of 274,566 gallons in quantity and $544,980 in value.

CURRENT MEDICAL LITERATURE.

MEDICINE.

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

LYSSOPHOBIA.

In the *Virginia Medical Semi-Monthly*, November, Kent describes a very peculiar case in which the patient developed the symptoms of lyssophobia. A morbid state produced by morbid dread of having contracted hydrophobia.

The first symptoms were those of fever, chill, with convulsions, supposed to be due to an injury, but in a few days the diagnosis was changed to that of hydrophobia. The patient had been bitten by a dog some two or three years before, and at this time the scar was inflamed and red. Abnormal acuteness of hearing and smell developed, the patient could bark like a dog, catch and shake things in the teeth like a dog, and became very much excited if a dog came near the house, and could not be quieted until it was driven away.

He gradually improved, the paroxysms becoming less common, but they returned some weeks later and lasted four or five days. No further history is given after this attack.

FILARIASIS.

In a recent issue of the *British Medical Journal*, Manson writes with regard to Dr. Primrose's contribution on this subject, and differs from him in the interpretation of certain phenomena. It will be remembered, by those familiar with Dr. Primrose's interesting paper, that in the case described the embryonic filaria disappeared from the blood of the patient after the operation for the removal of the scrotum, in which two or three adult parasites were found. The authority on tropical diseases holds that the condition could not be due to such a small number of adults, that there were probably many more, and that the real cause of their disappearance was a severe attack of lymphangitis, which is described as succeeding the operation. He quotes a number of cases in illustration.

THE BLOOD OF FISHES AND BIRDS.

In the December number of *Johns Hopkins' Hospital Bulletin*, there is an article by Earnest K. Cullen, M. D., Tor., 1902, descriptive of work done by the writer on the morphological peculiarities of the blood in certain fishes and birds. Much of this is unexplored ground and the findings therefore possess a more than ordinary interest to the biologist,

In the blood of the dogfish and skate an extensive haemocytolysis was found, which the writer believes is a normal process of dissolution and this seems to support the theory that the so-called granular degeneration of the red-cells in man is referable to changes in the stroma and that cytolysis occurs under normal conditions.

Twenty-nine species or birds were examined; at least four different forms of leucocytes were observed corresponding in general properties to the small mononuclear leucocyte, the large neonuclear leucocyte, the eosinoplatic leucocyte and the mast-cells in man. The proportion of these showed considerable variation among themselves and from the human species.

During the investigations, it is interesting to note that filaria were found in the blood of a blackbird, a grebe and a porcupine.

SURGERY.

Under the Charge of H. A. Beatty, M.B., M.R.C.S., Eng.
Chief Surgeon Canadian Pacific Railway, Ontario Division, Surgeon Toronto Western Hospital.

FIXATION OF THE KIDNEY,

In the *Detroit Medical Journal*, December, Benjamin R. Schenck discusses nephroptosis and the results of its treatment by fixation. In the female the shallow paravertebral niche predisposes to abnormal mobility of the kidney. Of the forces tending to dislodge the organ, the most potent is repeated mild trauma. such as the lifting of moderately heavy weights, the stretching of the muscles of the back by repeatedly reaching forward, and the increase of intra-abdominal muscles, especially following repeated pregnancies, is of great importance in causing enteroptosis and concurrent nephroptosis.

In doubtful cases where the woman's symptons may or may not be referable to a prolapsed kidney, Kelly's test is recommended. A renal catheter is inserted into the pelvis of the kidney, and by means of an ear syringe attached to the catheter, the pelvis is gradually distended with sterile water or boric solution. When about 10 ccm. have been in-

jected, pain in the side is complained of, and the patient will either instantly recognize this pain as being that from which she suffers, or will say that the latter is different in character or in a different location. Thus we can definitely ascertain whether the kidney is the offending organ or not.

As regards symptomatology, cases of movable kidney may be conveniently divided into three groups. 1. Those giving symptoms referable to the kidney itself; 2. Those presenting gastric symptons; and, 3. Those in which nervous manifestations are prominent.

The writer describes the steps of Kelly's operation, in which the posterior surface of the kidney is sutured by two or three silk sutures to the quadratus lumborum muscle, and emphasizes the following points in connection with the operation: 1. The kidney must be detached from the intestine should the latter be adherent. 2. The kidney must not be twisted by placing the sutures in the borders or the anterior surface. 3. One of the sutures must be as near the upper pole as possible, to guard against the rotation of the kidney. 4. The first lumbar nerve, which usually runs along the margin of the quadratus lumborum muscle, must be carefully sought for and retracted on a blunt hook, and thus excluded from the sutures. 5. The sutures should be inserted according to the method advocated by Broedel, a suture passed thus, forming two bridges on the renal capsule, from one to one and one-half inches in length, has been found to sustain a weight two and one-half times greater than one passed in the ordinary way. 6. No mischief is done by the silk sutures provided the asepsis is perfect.

Schenck then gives the results of this method of fixation from reports obtained, at least one year after operation, in a series of forty-eight cases. Dividing all the cases into the above groups, he reaches the following conclusions: 1. Operation is clearly indicated in the cases which, by careful differentiation, belong to the first group. 2. When a general visceroptosis is present, operation is of a doubtful value. 3. A partial recurrence may follow a subsequent pregnancy. 4. Cases belonging to the second and third groups are much benefited by the operation, but the results are not so good as in the cases of the first group.

The advantages of Kelly's method of operation are: 1. It is the simplest possible suture method. 2. The incision is short, and the kidney is reached with minimum traumatism. 2. The kidney is not injured. 4. Painful scar tissue does not follow. 5. It has no mortality, other than that of the anaesthetic. 6. The results in properly selected cases are better than those of the more extensive and more dangerous operations.

FRACTURES OF THE SKULL.

In the *Southern Practitioner*, January, Paul E. Ere gives the report of several cases of extensive fracture of the vault of the cranium and comes to the following conclusions as to treatment. 1. In all cases of injury to the vault of the cranium, where fracture is suspected, or where doubt exists, it is advisable even when there is no extensive wound to cut down and thoroughly investigate the seat of injury. Where there is a small external wound this should be enlarged and careful inspection made. 2. If a fracture is present and there are indications for the operation of trephining, this should be done as early as possible. 3. As a number of these cases prove fatal from sepsis, there should be a thorough irrigation of all the injured tissues with normal saline solution at a temperature of one hundred and twenty degrees. 4. Hæmorrhage should be arrested either by warm normal saline solution or by a light gauze pack. 5. After such operations, there should always be drainage by catgut, gauze, or tube, and should no pus present itself at the end of the third day, the dainage can be dispensed with.

In the treatment of fractures at the base of the skull, Ere urges that where there is hæmorrhage from the nose or ear these cavities should be irrigated for ten or twenty minutes with normal saline solution at a temperature of one hundred and fifteen or one hundred and twenty degrees, and then lightly packed with gauze.

GYNÆCOLOGY.

Under the charge of S. M. Hay, M.D., C.M.,
Gynæcologist, Toronto Western Hospital; Consulting Surgeon, Toronto Orthopedic Hospital.

CONSERVATIVE SURGERY OF THE FEMALE PELVIC ORGANS

Richard C. Norris, A. M., M. D., of Philadelphia, writes in the *American Journal of Obstetrics and Diseases of Women and Children*, in the October number, on the subject of "Conservative Surgery of the Female Pelvic Organs." Many gynæcologists have been criticised for recklessly removing pelvic organs which show no marked evidences of disease. And it is said by profession and laity that some of our best men are "too ready to remove ovaries." It is significant that at the last International Congress, held in Madrid, in April, this subject was thoroughly discussed by the leading operators of the world. The value of the power of procreation to the individual, the family, the state, and the perpetuation of domestic happiness in individual instances, are sociological problems apparent to the thoughtful physician.

Another important reason for preserving an ovary or a portion of an ovary, is the retention of the menstrual function and the maintainance of the nervous equilibrium. Where all ovarian tissue has been removed we often find our patient irritable, nervous, morbid, hysterical and neurasthenic.

In suppurative diseases of the appendages conservatism is not only dangerous to the patient, but there is a probable necessity for a second operation. Even here some surgeons are having considerable success.

An ovary bound in adhesions, but otherwise healthy, may be freed and allowed to continue its function. A prolapsed ovary, causing distressing symptoms, may be stitched up, at a proper level, to the posterior surface of the broad ligament.

In ectopic gestation it is considered safer to remove the diseased parts.

Many uterine fibroids may be removed by myomectomy rather than by hysterectomy, and in case of hysterectomy, normal ovaries should be preserved.

The most important field of conservative surgery upon the pelvic organs includes the chronic cases in which the operator finds structural changes in the tubes and ovaries, producing unilateral or bilateral lesions of greater or less extent: Hydro- and hemato-salpinx, ovarian hematosalpinx, ovarian hematomata, cysts of the ovary, and visceral adhesions. Frequently one side is irreparably diseased and must be removed, while the other offers possible success from conservative work. Operations may consist of puncture and drainage of a small hydro-salpinx, dilatation of an occluded tube, excision of small cysts of the ovary and closing the opening with fine catgut, etc., etc.

Dr. Norris says: "Associated with chronic pelvic inflammations structural changes in the appendix are so frequently found that conservative surgery is now studying the advisability of removing the appendix in all cases where the abdomen is opened for any cause. It has been my custom for several years to remove the appendix when operating for pelvic disease, whenever that organ was macroscopically diseased, but during the past year I have gone farther and have removed the appendix in all cases except when the patient's general condition, or the severity of the operation in hand, made the additional time required for its removal a distinct danger to the patient. There has been no mortality attributable to the appendectomy, and as a conservative operation it is, in my judgment, justifiable and indicated.

"From a study of my records, I have drawn some conclusions which will help me to formulate rules to guide me in this work in the future.

In the total series of cases the results have been somewhat discouraging. Where the trouble had been unilateral and not extensive, and brilliant results anticipated, sometimes the disease progressed rapidly, making a secondary operation necessary. On the other hand, when the patient's expressed desire had made me carry conservative efforts to an extreme, the most fortunate results followed. This means that no surgeon can with confidence predict the outcome in individual cases, and that should be made clear to the patient. Again, future fertility depends more upon the condition of the tube than upon that of the ovary. Relief of pain rarely follows plastic work on the ovary. A woman forty or more years of age, especially if she has children, should rarely be subjected to the risk of a second operation."

Young unmarried girls should have an attempt made to preserve the menstrual function and procreative power. Double oöphorectomy in neurasthenic or hysterical women, often leaves them more wretched than before.

THE TREATMENT OF HÆMATOCELE.

In the *British Gynaecological Journal*, of Nov. 1903, Paul Zweifel, of Leipsic, writes on "The Treatment of Hæmatocele." He exhibited a specimen which was very instructive, as it showed that the rupture of the tube is not by any means always delayed till the third or fourth month, as—in connection with the old theory of its distension by the ovum—was formerly supposed, for here the history showed that only one period had been missed; and that the hæmorrhage took place eight days after the omission, or five weeks after the last menstruation. This ovum, not larger than a hazel nut, could not have ruptured the tube by distension, but must have eaten its way into the tubal musculosa as first discovered by Fueth and established as a fact by the researches of Aschoff, Kuehne and others.

"Nowadays, extrauterine pregnancy is accepted not merely as the most frequent, but almost as the only cause of an hæmatocele.

"When a pregnant woman is attacked with symptoms of peritonitis, that is to say great pain in the hypogastrium, swooning, collapse, vomiting, decreasing volume of the pulse, if there be no fever, one must at once suspect an erosion of a gravid tube; and, in view of the great danger of inaction and the excellent prospects of an early operation, accept immediate operation as absolutely necessary."

The operation is not a difficult one; the bleeding tube must be quickly found and clamped. Begin the hypodermic infusion of salt solution during the administration of the anæsthetic, and, when the patient

is anæsthetised, ligate the tube and remove every drop of blood from the peritoneal cavity.

(The reviewer feels that on more than one occasion he has in such cases derived great benefit from opening the posterior cul-de-sac, at the conclusion of the abdominal operation, and draining the pelvic cavity into the vagina with gauze.—S.M.H.)

X-RAY THERAPY AND SKIAGRAPHY.

Under the charge of JOHN MCMASTER, B.A., M.D., C.M.

THE X-RAY TREATMENT OF CANCER AND TUBERCULOSIS.

In the January No. of the *St. Louis Medical and Surgical Journal*, Dr. G. E. Pfahler, of Philadelphia, gives the history and course of treating by x-rays of a number of cases of carcinoma and tuberculosis. Two cases of cancer of the breast have apparently been cured by 57 and 75 treatments, respectively. The recurring growth required the 75 treatments after two operations for removal had been unsuccessful. No dermatitis was produced in the first case, although exposures ranged from 10 to 25 minutes, whereas in the second on two occasions a dermatitis resulted with apparent improvement following each. In a 3rd case of recurrent carcinoma, where not only the breast, but the axillary glands had been removed the x-ray treatment was begun 7 mos. after the operation, and 2½ mos. after the recurrence was noticed. The supraclavicular and thyroid gland became affected early. Under treatment the case improved until a burn resulted and treatment discontinued. A recurrence developed on the side of the burn without the burn healing. He reports one case of sarcoma of the antrum in a girl of 16, in which the diagnosis was confirmed by microscope. The growth rapidly returned after the antrum had been curetted. There was protrusion of the eye-ball and contents of orbit, daily treatment of 5 minutes was given for a month with marked improvement. The treatments were lessened in number, but continued for 3 mos. longer. The result is important for there was no injury done to the sight of affected eye, and the improvement was continuous from the start. Apparent cure resulted.

The cases of tubercular adenitis, tubercular ulcers and lupus, all appear to have been decidedly influenced by the x-rays and symptomatically cured.

One case of epithelioma of the face was cured by 20 treatments with good cosmetic results, and one of the lower lips, involving the mouth

and neck was but little affected by the rays. Caustics had been employed for a long time previous to beginning the treatment. The mouth could not be opened to admit the rays to the parts most affected. The case was inoperable from the beginning. 90 treatments failed to materially affect it. He draws the following conclusions from his experience :—

(1) That the x-rays are of undoubted value in the treatment of certain cases of both superficial and deep-seated carcinoma and tuberculosis.

(2) That the more a case has been tampered with, the less likely it is to yield to the influence of the x-rays.

(3) That daily treatments, carefully and properly given, will produce the best results.

(4) That we should try always to avoid a dermatitis beyond a simple erythema.

(5) That there are idiosyncrasies in certain people which render them most susceptible to the x-rays, and in these people deeper burns may occur in spite of the most careful treatment.

(6) That an epithelioma involving the mucous membrane is much less likely to yield to the effect of the x-rays than when it simply involves the skin.

(7) That there is not likely to be any interference with the sense of sight, even though the x-rays are used directly over the eye.

(8) That tuberculosis, whether of the skin or of the glands, will yield, at least in certain cases, to the effects of x-rays.

(9) That the x-rays will give better cosmetic results than any other form of treatment in simple epithelioma of the face.

(10) That epithelioma of the mucous membrane should be removed as early as possible by the knife, and this followed by x-ray treatment.

(11) Operable cases should be operated upon, and in each instance followed by a course of x-ray treatment, and x-ray treatment should be given at the first sign of a recurrence.

(12) Inoperable cases should be given a trial with the x-rays, since even hopeless cases sometimes yield to this form of treatment.

(13) It is desirable to produce a distinct reaction in the treatment of lupus.

Dr. Charles Lister has made extensive use of the x-rays in diagnosing calculi in the kidneys and ureters. He claims much success with its employment for this purpose.

OPHTHALMOLOGY AND OTOLOGY.

Under the charge of G. STERLING RYERSON, M.D., C.M,
Professor of Ophthalmology and Otology, Medical Faculty, University of Toronto.

THE CAUSES, PREVENTION AND MANAGEMENT OF MYOPIA.

J. Herbert Claiborne in *The Journal of Am. Med. Asso.*, Nov. 28th, 1903. states, as his initial proposition, that the condition of emmetropia is the normal refractive condition of the human eye. Infants, as a rule, are born hyperopic and, if they arrive at a condition of emmetropia, there must be an elongation of the antero-posterior axis of the eye. Emmetropia, therefore, is an acquired condition. Now, if all infants are born hyperopic, the growth of the eye should cease when emmetropia is reached, otherwise an elongation of the antero-posterior axis is produced, *i.e.*, myopia.

Since nothing in nature is stationary, it follows that the condition of emmetropia is transitory. Many believe that hyperopia is the normal condition of the eye. Claiborne regards emmetropia as the normal condition, and the myopic eye as a diseased organ. He does not claim that this is a logical deduction, but a practical fact. The cause of myopia is an elongation of the antero-posterior diameter of the eye. There are two theories as to the direct cause. Antecedent to the paper of Foerster, which appeared in Knapp and Schweiger's Archives in 1884, the accommodative hypothesis had universal sway; but Foerster set forth the reasonable claims of the convergence theory, in explanation of the cause of myopia. Foerster pointed out that if the elongation of the eye were caused by the muscular action of the tensor of the choroid, myopia would carry with itself its own infallible remedy, for the simple reason that the work demanded of the accommodative apparatus decreases as the myopia increases. All this ceases the moment we look for the origin and increase of myopia in the excessive convergence of the visual axes. As the nearsightedness increases, the convergence of the visual axes increases, while simultaneously its claims on the tensor of the choroid decreases. Foerster discarded the accommodative theory, and pronounced himself in favour of the convergence hypothesis.

In convergence of the eyes for near point, there is pressure on the sides of the ball by the external muscles, and the nearer the object is, the greater the pressure. At the same time there is necessarily a determination of blood to the eye, in conformity with that physiologic law which demands the presence of a greater quantity of blood during activity than during rest.

Myopia rarely occurs in very early life, but in the great majority of cases occurs after the child has begun the use of the eyes at school. The act of study involves the convergence of the visual axes. Scarlet fever and measles predispose to myopia by lowering the general tone of the system. Most children are inclined to hold their books too near the eyes. The squeezing of the eyeball by the muscles, supplemented by the natural congestion of the eye and the softness of the tissues in childhood, bring about the elongation of the eye. Heredity is a predisposing factor, the mother being more likely to transmit myopia than the father. Faulty illumination and poor school books play an important part in the production of short sight. Blurred print, print which is too fine, or which is printed on poor, rough paper, or books in which the spaces between lines are too narrow, are injurious. In schoolrooms the light should be arranged so that the light, if possible, falls from the left. The inclination of the desk should be such that the visual lines when the head is held in an almost erect posture should strike the plane of the desk at right angles. This will obviate the habit, so many children have, of bending over the desk. As to the posture, the head should not be bent, but should be held erect; and the book, if it is read in the hand, should be held in the hand very nearly on the same plane as the eye. Claiborne condemns the unfrosted electric bulb, and the Welsbach or Auer light, and prefers the Argand gas burner, or German student's lamp. He believes the excessive amount of myopia met with in Germany is due to the German type. He advises against reading in a reclining posture. During convalescence from any sickness the number of hours of study should be cut down. He condemns in round terms the pressure of school work of the present day, as children have to employ their eyes often as much as twelve hours a day.

What course should be pursued in the case of a child under fifteen years who has developed myopia? He believes that the defect should be fully corrected by glasses. The discussion of non-correction is inadmissable. Foerster concluded that three things were necessary in correcting myopia; first, a full and proper correction; second, proper position of the eyes at work; and, third, the use of abducting prisms. In all cases of choroidal lesions in myopia, Claiborne uses atorpine, to relieve the tension of the accommodation on the choroid.

THE SURGICAL TREATMENT OF HIGH MYOPIA.

Wurdeman and Black chose this subject for their article in the *Journal of American Medical Association.* The conclusions they arrive at are derived from the histories of 7,160 eyes refracted under a cyclo-

plegic and 861 without, in persons over forty-five years of age. Extraction or discission of the lens was done in the extreme cases with excellent results. In all operated cases, the following advantages were obtained: Increase of the visual acuity, enlargement of the retinal images, enlargement of the visual field, increased range for near work, the wearing of light lenses in the place of heavy ones, the pupil being brought nearer the retina, the eccentric visual rays are excluded, and the more extended use of the eye opened a new world to the patients. As the result of their experience, Wurdeman and Black arrive at the following conclusions:

1. The surgical treatment of myopia should be limited to those cases over —12.00 D., who suffer great inconvenience from their correcting lenses. The ideal cases are those of —17. to —18. D.

2. The operation is mainly indicated in young adults.

3. Cases having active disease and changes in the ocular structure, such as progressive myopia, choroiditis, fluidity of the vitreous, or detachment of the retina, are not operable.

4. The dangers of operative interference are more than counterbalanced by the results obtained, which are, mainly, increase of visual acuity and of the visual field, and the more extended use of the eyes.

LARYNGOLOGY AND RHINOLOGY.

Under the charge of PERRY G. GOLDSMITH, M.D., Belleville.
Fellow of the British Laryngological, Rhinological, and Otological Society.

FACIAL NEURALGIA—SIX CASES DUE TO DISEASES OF THE NOSE AND ANTRUM.

Peyer-Poucher (*Laryngoscope*, Aug. 1903) gives notes on six cases of trigeminal neuralgia or tic douloureux. He considers, from the endless number of cases in which stretching, resection, or total removal of the various nerves and ganglia have been done for relief of the condition, that the etiology of the disease must have been overlooked in a great majority of cases. He says it is beyond question that, as a rule rather than the exception, the disease is a reflex neurosis, or pressure symptom, from inflammation in the nose and antrum; and in any case, it is more rational to seek for and remove the cause of the neuritis, than to remove the nerves or ganglia themselves.

The six cases are very instructive. All were of long duration but none had had a nasal examination. In one case, all the teeth had been extracted without relief. Next the spheno-palatine ganglion was removed, with no return of paroxysms for two years, when a resection

of the supra-orbital nerve was performed, giving two more years relief. The pain having again returned, all the tissues were separated from the upper jaw on the affected side, so as to tear off any remaining nerves. This operation not having given relief, in desperation he had the Gasserian ganglion removed, during which operation, owing to hemmorrhage, it was found necessary to ligate the external carotid. He was free from pain for two years more. The author now saw the patient for the first time, finding an occluded nostril and a suppurating antrum, correction of which has entirely cured the patient.

PERSISTENT SUPERFICIAL NASAL HYPERÆMIA, DUE TO ADENOIDS.

At the November meeting of the British Laryngological Association, the president Dr. Wyatt Wingrave, gave the notes of this interesting case. The patient, a groom, complained of persistent redness of his nose of two years duration, gradual in onset and of unknown cause. The tip, alæ, and quite two-thirds of the nose were of a livid red color, somewhat shiny but neither swollen, tender, nor painful. Being much troubled with indigestion, he was forbidden tea, and was treated with alkalies and saline aperients, to diminish portal tension. Otherwise he was in good health, and a teetotaler, but a moderate user of tobacco. No improvement followed a month's treatment. A prominence of the supra-nasal vein led to an investigation of the naso-pharynx which revealed a large crop of adenoids. The adenoids were removed, the prominent veins disappeared, and in a month the organ became normal in appearance. The case is interesting in so far as it affords a striking illustration of the close relationship between the supra-nasal veins and adenoids, during a period of life, too, in which neither is common. Wingrave is inclined to view the case as one due to vaso-motor reflex, since it varied considerably in intensity, and did not seem to be so closely associated with a general venous hyperaemia as one would expect, were the adenoids acting mechanically by interfering with venous return.

FORMALIN IN THE TREATMENT OF NASAL POLYPI.

Adolph Bonner, *Jour. Laryngology*, December, 1903, discusses this method of treating nasal polypi and speaks very highly of its usefulness. He removes as much of the polypi or diseased mucous membrane as he can with a cold snare, and then applies formalin, on a probe with cotton-wool, to the roots. He tries not to cut through pedunculated polypi,

but to pull them out by the roots. He is thus able to remove the entire growth and frequently part of the underlying diseased bone. Before using the formalin he applies a powder, consisting of equal parts of cocaine, eucaine, and desiccated suprarenal extract to the parts, by means of a probe and cotton wool. After a few days a formalin spray, 1-500 up to 1-100, is ordered to be used *ter in die* for a week or two and then less frequently. If excessive pain is complained of as is sometimes the case, a paroleine spray is used before the application. The formalin not only acts as a powerful disinfectant, but also causes contraction and hardening of the diseased tisssues. Alkaline lotions and insufflations of tannoform, aristol, and boric acid are also used in the after treatment. In cases when there is accessory series disease, suitable treatment must be directed to these cavities,

THE EARLY MANIFESTATIONS OF LARYNGEAL TUBERCULOSIS.

H. H. Briggs, *Jour. A.M.A., Dec., 1903*, gives his observations from the examination of the larynges of subjects of pulmonary tuberculosis, made with a view to ascertaining the condition of the larynx prior to the characteristic tumefactions and infiltrations. The great majority of these subjects had a subacute or chronic laryngitis, not differing in appearance from one due to a diathetic or climatic cause. There was either uniform thickening, or hyperplasia of a reddish hue of the ventricular bands and arytenoid commissure, inter-arytenoid catarrh, presenting dilated blood vessels and covered with thick, grayish mucus. This laryngitis persists, notwithstanding the ordinary treatment for such conditions, and is principally dependent on the tubercular dyscrasia. He thinks the constant irritation by pus may be the most potent factor causing the persistence of this condition. He points out also that one may have a laryngitis in a tubercular patient from some other diathetic cause, bearing no sequential or etiological relationship to the tuberculosis, and also that many such ulcerated larynges are non-tubercular. Briggs has also observed that in three-fourths of his pulmonary patients there existed some form of nasal stenosis, septal or turbinal in nature. The acute form of laryngeal tuberculosis usually begins when softening has taken place in the lungs, and when the laryngitis has reached its crisis. Hyperæmia, followed by multiple erosions, is usually the condition found. The chronic form usually begins with an anæmia in the arytenoid commissure, arytenoid bodies, ventricular bands, or epiglottis, and presents a homogeneous and smooth, yellowish-gray color of the intumescent membrane, with or without infiltration.

HYPERTROPHY OF THE PHARYNGEAL TONSIL.

Wood, *American Medicine*, Oct. 3, describes in detail the conditions accompanying overgrowth of the pharyngeal tonsil. He says the tonsils are of no more importance than the ordinary lymph gland, and their removal should not be objected to. He divides the complications into two groups, mechanical and infectious. Mouth breathing is almost purely a mechanical complication, but may produce conditions favoring infection. He thinks many children, who appear backward at school, are so because of aprosexia, or failure of attention connected with this condition of adenoids. Skeletal deformities, such as chicken breast, narrowing of the alveolar arch of the upper jaw, is also frequently due to mouth breathing. In the statistics, which accompany his paper, Wood found nasal stenosis and aural mischief present in a large proportion of the cases.

PRESCRIPTIONS:

℞ Iodine, grs. viii.
Potass. Iodid, grs. xvi.
Zinci Sulph. Carb. ℥ss.
Creolin xlv.
Aquæ ad. ℥vi.
M.

For use in an atomizer as a stimulant, antiseptic, and deoderant in atrophic rhinitis.

GRAYSON.

℞ Sodii Sulph. grs. x.
Sodii Carb. grs. x.
Sol. Hydrarg. Biniod (1-8000) ℥i.
M.

An excellent disinfectant and solvent for mucus and pus.

WINGRAVE.

THE TECHNIQUE OF MAXILLARY SINUS OPERATIONS.

In the abstract made last month from Dr. Holbrook Curtis' article on the above subject, the formula for the irrigation solution was wrongly quoted. It should be tr. iodine, ℥i; acid carbolici, ℥ss; sat. solution boric acid grs. ad. Oi, to be used during the acute stage, to be reduced finally to saturated boric acid solution.

PROVINCE OF QUEBEC NEWS.

Conducted by MALCOLM MACKAY, B.A., M.D., Montreal.

The Montreal Medico-Chirurgical Society has been favoured with two addresses of exceptional interest at its recent meetings. At the first of these, Dr. Osler reported upon the cases of aneurism of the abdominal aorta which had been treated at the Johns Hopkins Hospital. At the second, which was held in the McGill University Physics Building, Prof. E. Rutherford gave a demonstration on radium, with a series of experiments, and illustrated with lantern views. Prof. Rutherford opened his lecture with a short reference to the history of radioactivity. The investigations of Roentgen the x-rays were the first definite steps taken towards the solution of the problems presented by this form of energy, more particularly those researches concerned with their action upon fluorescent screens and photographic plates. Closely following Roentgen, Becquerel, while observing the properties of uranium, found that it had a slow but definite action upon sensitized films. The electrical action of the substance was also investigated, and it was seen that the separated leaves of an ordinary gold-leaf electroscope collapsed when uranium was brought close to the instrument. Schmidt subsequently found that thorium had similar properties but in even greater measure. The Curies made the next important discovery, namely, that pitchblende produced a similar action upon the electroscope, with the addition that it had five or six times the strength of uranium. Evidently then, uranium was not the sole cause, and an analysis of pitchblende was the next step required for the isolation of radium, and at this point considerable ingenuity was shown. The compound was treated with chemical reagents, and the filtrate and precipitate each tested by means of the electroscope; the inert material was discarded, and the active residue again treated in a similar way, until the analysis was complete. By this method, radium, which is 500,000 times more active than uranium, together with polonium, which is not so active, was isolated from the mass of pitchblende.

A tube, containing radium in a pure state was then produced, and the lecturer explained its properties When freshly prepared it was a white substance which gradually blackened the tube which contained it, and when brought beside a fluorescent screen or piece of willemite caused it to glow with a pale light, easily visible in the dark. It acted with intensity upon photographic plates, and a piece of radium placed in a

dark room would, in a few hours spoil all the plates, even though protected by wooden and metallic covers. Its rays could easily penetrate several inches of iron, lead, mercury, or aluminium, and would produce skiagraphs of objects on a photographic plate with the greatest of ease, although lacking the clear cut outline of those obtained from x rays. In illustration of some of the properties, photographs taken by means of radium were shown, and the effects upon fluorescent screen, willemite, and the gold-leaf electroscope were demonstrated.

Three different kinds of rays had been discovered emanating from radium, and called the x-,b-, and y-rays. The b-rays passed through wood, aluminium, and glass, and were equivalent to the rays from the cathode of a vacuum tube, inasmuch as they consisted of negatively charged particles moving at a speed a little less than that of light, and were affected when placed in a magnetic field. To illustrate this deviation, the lecturer caused a magnet to pass beside a vacuum tube, which was in action. The y-rays were very penetrating and could pass through a foot of iron or ten feet of wood, and corresponded to the Roentgen rays.

The x-rays were described as positively charged bodies, projected at the rate of 20,000 miles a second, readily absorbed, with slight photographic effect, and slightly deviated by a magnet in a direction opposite to that taken by the b-rays. This group of rays was the essential factor in the production of the remarkable phenomena which had been noticed in studying radium. By means of an ingenious instrument called a spinthariscope, the impact upon a fluorescent screen of the emanations from a weak solution of radium spread out over a considerable area, could be very clearly demonstrated. These emenations were first found by the lecturer to have all the properties of a gas, and on account of their negative effects were considered to be helium. Radium dissolved in water at once gave off these emanations which might be detected by a fluorescent screen, and the fact that they could be condensed, was a strong argument in favour of the conclusion that they really were of the nature of a gas. In proof of this a convincing experiment was performed before the audience, in which a tube containing the emanations rendered visible by means of a willemite screen, was placed in liquid air, and in the course of half-an-hour the emanations were found to be collected at the bottom of the tube, instead of being diffused equally throughout. Two questions of importance were: Of what did the emanations consist, and what could account for the facts known? Evidently one had to deal with something different from an ordinary mineral, as from the knowledge acquired by experiments, there must be an instability of some of the atoms, in which one was released from the others and flew

off at a tangent, this being the x particle, which was probably hydrogen or helium. If this process were going on then, there should be at least two types of matter permanent—eventually there must be something left and something expelled. Mr. Soddy and Sir W. Ramsay found, on investigating the emanations transferred to a glass tube, that there was at first no spectrum visible, but several days later they found the characteristic bands of helium, which meant that helium was present in the closed tube; hence, helium must be one product of the process, and Professor Rutherford thought that it was the x part.

Radioactivity was not controlled or influenced by anything known, and would continue for practically an indefinite time, although without question, in a thousand years or so some change in weight would be appreciable. In regard to the medical uses of radium, the lecturer felt that he was hardly in a position to speak with authority, although he could mention some interesting facts. If a tube of radium were held in the hand for several minutes, a peculiar prickly sensation was experienced, and continual handling brought on changes in the epithdium, which eventually turned into a very slowly-healing ulcer. Caterpillars exposed to the rays died very soon, and mice gradually lost their hair, became blind, and died a week or two after exposure. Bacteria were hindered in their growth, but apparently not killed. Radium held before the closed eyes could be distinguished by the glow, and caused pain in the eyeball; temporary blindness might even be produced by a short exposure Cancer had been treated by the rays, but with practically no success although the convenience of application was evident.

Professor Rutherford suggested that, as the emanations could be conducted like gas to any region where air could penetrate, by using an inhaler a fine deposit could be disseminated throughout the lungs of a phthisical patient, which would have a curative tendency, inasmuch as it was hostile to the growth of bacteria. Radium, he thought, would be too powerful for obtaining the emanations, as they would act upon the tissues, besides only lasting five or six hours. Thorium or letturium on the other hand would be milder in action, and one treatment would be effective for several days.

Dr. Girdwood in moving a vote of thanks to the lecturer of the evening for his very lucid exposition of an intricate subject, referred to some of the medical uses of the rays, stating that at all events they did not replace the x-rays in curative effect on superficial cancer. Dr. Ruttan seconded the motion, and pointed out that the lecturer had mentioned too casually the important part which he had taken in the investigation of of radium. Professor Rutherford had held for several years the theory

that the x emanations really were helium, and only lately had the Curies and other experimenters come round to this opinion, convinced by the unanswerable logic of facts.

Professor Rutherford briefly replied, and one of the most interesting and well-attended meetings of the Society adjourned.

The General Hospitals of Montreal have for the past month been crowded with patients suffering from typhoid fever. The Royal Victoria Hospital has had from 40-45 cases, the General Hospital form 25 to 30, the Hotel Dieu from 15 to 20, and the Notre Dame from 12-15. The epidemic is practically confined to the Western suburbs, and in St. Henri it is estimated that there are 250 cases, in Ste. Cunegonde, eighty cases, and in Westmount, thirty-seven cases have been reported. The Westmount water supply has been examined, and the City Analyst states that it is dangerous, in that at times it contains a remarkable number of bacilli, both pathogenic and non-pathogenic. Every effort is being made to prevent further spread of the disease.

Dr. Harvey Cushing, of Baltimore, will address the Montreal Medico Chirurgical Society, on February the fifth. The paper is entitled, "Observations on Twenty Cases of Gasserian Ganglion Extirpation for Trigeminal Neuralgia." The following points will be taken up:—

1. A discussion of the various operative procedures which have been proposed.
2. Report of two cases by writer's method, with operative and post-operative complications.
3. Remarks upon the physiological consequence of removing the Ganglion.

According to a statement issued yesterday by Medical Health Officer Dr. Laberge, the number of deaths in Montreal last year was 6,941, as compared with 6,275 of the year preceding.

By accepting the official census of 1901, as a basis of calculation, the death rate per 1,000 for last year would be 24.22. But Dr. Laberge maintains the census figures of 267,700, made up in 1901 are too low. The estimated population of the city last year, according to these figures was 286,000, but Dr. Laberge contends it should be 324,000 by which the death rate would be reduced to 21 per 1,000.

MARITIME TOPICS AND NEWS.

Conducted by W. D. Forrest, M.D., C.M., B.Sc., L.R.C.P., Lond., M. R. C. S. Eng., Halifax.

NOVA SCOTIA BRANCH, BRITISH MEDICAL ASSOCIATION.

A meeting of the Branch was held in the Council Chamber of the City Hall, Halifax, on Dec. 9th. Dr. Arthur Bert, of Berwick, read a paper on the relationship between visceral syphilis and pulmonary tuberculosis. The paper was the report of a case that came under Dr. Bert's observation in his practice. The patient came to him complaining of cough, pain in the right side of the chest, loss of weight, sweats, and an evening rise of temperature to 101.5° F. or thereabouts. He had a hypertrophic rhinites and there was considerable enlargement of the liver and spleen. There was some retraction of the right apex with a limited expansion and also some dullness on this side. Repeated examinations of the sputum gave a negative result. He was placed on appropriate treatment and carefully watched. During the following summer he improved somewhat and gained in weight. The following winter, however, he got worse and the above symptoms all became more aggrivated. The liver was very large and tender. About this time a history of syphilis was obtained although this had all along been stoutly denied. Potassium iodide along with grey powder was prescribed and under this treatment all his symptoms quickly disappeared. The improvement noted in the summer time was due to potassium iodide which was prescribed for him by a nose specialist on account of his hypertrophic rhinites. Dr. Bert then read extracts from a paper by Dr. Janeway, of New York, on a very similar case.

Dr. Bert referred to anomalies of the shoulder girdle and muscles that may mislead one when examining the chest. This patient was a left-handed man and was much better developed on this side than on the right, hence the retraction of the apex and the flattening on this side.

The patient's slight anatomical differences was sufficient to account for his lung condition.

The pain was due to pressure from the liver. The doctor dealt with the possibility of the two conditions, namely, phthisis and syphilitic visceral disease coexisting. He did not now think there was any pulmonary trouble present. Auscultation had shown nothing abnormal

beyond slight prolongation of the experatory sound on the right side. Dr. Bert emphasized the fact that in syphilitic liver disease you may have an evening rise of temperature, sweats, loss of weight, etc., which might suggest tuberculosis.

Dr. Chisholm referred to a case that came under his observation with a diagnosis of tubercular disease of the knee joint. The patient had a suspicious mark on his forehead that suggested syphilis. The knee rapidly improved on potassium iodide.

Dr. Chisholm thought in all obscure cases the possibility of syphilis should be considered.

The first meeting of the new year was held at the Nova Scotia Hospital, Dartmouth, on the evening of January 6th.

Dr. Lawlor read a short paper on the "Stigmata of Degeneration."

He also presented the following cases of degeneration illustrating his paper. (1) A patient with cleft palate—no angle to the jaw and very small or shrivelled up ears. (2) A patient with a very high arched palate. (3) A patient with very small ears—much too small for the size of the head. (4) A boy of 26 whose general appearance would indicate that he was about 15. He had no hair on any part of his body except the head. (5) A patient with one side of the face much larger than the other. (6) A patient with a difference of one inch in length between the two humeri. Dr. Lawlor pointed out that it was rare to find a perfectly formed man. Everybody had some stigma more or less noticeable and it was only when taken in conjunction with other conditions that any importance could be placed on them.

In hospitals for the Insane they were generally looked for.

Dr. McKenzie, assistant medical superintendent, read a paper on "Paretic Dementia." He dealt with the part played in its causation by syphilis and alcoholism. He referred to its more frequent occurrence in men than in women. Dr. McKenzie said that in making a diagnosis it should be remembered that many cases do not exhibit exalted ideas. Many in fact are melancholic throughout.

Dr Hattie, Superintendent of the Hospital, read a very interesting paper on the "Prevention of Insanity."

He spoke of the influence of heredity and alcoholism in the production of insanity.

Dr. Hattie thought that legislation was necessary to restrict marriage among people who exhibit evidence of marked neurotic instability.

The children of such marriages were generally of a neurotic temperament and more or less predisposed to insanity.

Consanguinity was not now looked upon as so important a factor in the causation of insanity, if both parents are healthy. Dr. Hattie thought that the question of education was most important and should receive more attention than it at present does.

Drs. Stewart, C. D. Murray, Trenaman and G. M. Campbell took part in the discussion.

After a lunch, presided over by Dr. Hattie, the meeting adjourned.

PERSONAL

Dr. H. M. Hare has recovered from a severe attack of grippe.

Dr. Murphy, of Dominion No. 2, was recently in Halifax with his bride. We wish them many years of happy life.

Dr. T. A. Wallace is about to leave Halifax to practice in Providence, Rhode Island. The doctors many friends all wish him success.

We are sorry to learn that Dr. M. G. Archibald, of Upper Musquodoboit has been ill for some time with influenza. The doctor fortunately is now recovering,

The Victoria General Hospital Halifax, was recently visited by an epidemic of measles. This disease has been very prevalent in Nova Scotia during the past few weeks.

Dr. Ross Faulkner, of Mahone Bay, paid Halifax a visit last week, Dr. Faulkner has charge of the part of the South Shore Railroad near Mahone and has a large number of men under his care.

At a meeting of the Board of Directors, of the Halifax Dispensary, Dr. H. M. Hare was appointed to the Women's and Children's Department: Dr. W. D. Forrest to the Surgical and Dr. D. T. C. Watson to the Medical Departments.

Dr. R. E Mathers has returned from New York where he has for the past three months been in attendance on his mother. We are glad to be able to state that Mrs. Mathers' health has much improved and that she will soon be able to return to her home in Halifax.

Dr. John F. C. Foster, son of John B. Foster, of Halifax, formerly of Dorchester, has been appointed head house doctor in the surgical side of the Lincoln hospital, in New York city. Doctor Foster has been in the Lincoln hospital for the past six months.

MANITOBA MEDICAL NEWS.

Conducted by R. H. Richards, M.D., C.M., Winnipeg.

Winnipeg has two large hospitals and two or three small private affairs, or nursing homes.

The Winnipeg General is the only one affording any clinical facilities. Of the 280 beds, 180 are used for teaching material.

This hospital was started in 1862 with about a half dozen beds. In 1883, $67,000 was spent on the first of the present group of buildings. Several additions have been made from time to time. A large surgical wing was added in 1899, costing $80,000. Still it was not sufficiently large for the needs of the country, and at present there is being finished an addition (costing $100,000) which will be ready for occupancy next spring. The government and management are entirely in the hands of a lay board of directors.

The hospital is supported by voluntary contributions, provincial, municipal, civic grants, church collections, regular subscribers, and pay patients.

The staff consists of a resident medical superintendent, under the direction of the board; six house surgeons, appointed yearly; a business manager, a lady superintendent, and seventy-five nurses. There is a very good nurses training school

The various departments are in charge of a visiting staff as follows:—

General Medicine.—For this department there are 120 beds under four visiting physicians, who take three months each. 100 clinics are given during the eight months' session of college. A student may have two, or even four beds alloted to him to write case histories of and follow the treatment, etc.

General Surgery.—For surgery there are sixty beds in the hands of three visiting surgeons, who take charge for three months each. Each student may have two beds to follow out. 100 clinics are given during the session. The position of assistant dresser is open to students for one month each, and affords excellent experience. The operating amphitheatre is particularly fine and roomy.

Gynæcology.—There are two visiting gynæcologists. The students are given twenty-five clinics and see gynæcological operations during the session.

EYE AND EAR DEPARTMENT.—There are two visiting surgeons, who take alternate months. Twenty beds are alloted for students. Twenty-five clinics are given, besides operations, which are, of course, usually precede' by a clinic.

MATERNITY.—Twenty beds are available for clinics. There are two visiting physicians. Each student witnesses and assists at eight or more cases.

ISOLATION WARDS.—These are in charge of two of the visiting staff. Occasional clinics are given on infectious diseases.

PATHOLOGY.—This work is in charge of members of the staff. A new laboratory in the morgue is in contemplation.

The outdoor department not being in charge of any member of the visiting staff, is only occasionally used for clinics.

The students' fees are $6 for maternity, and $20 for a perpetual hospital ticket.

On account of most of the staff, in particular the clinical teachers, being also teachers at the Medical College only two blocks away, the student's work can be made very satisfactory.

The total visiting and consulting staff number twenty-one, and are appointed yearly; as is also the house staff, numbering seven.

St. Boniface Hospital, run by the R. C. Sisters of Charity, has 150 beds. It was started, in a small way, in 1871. The sisters are now intending to enlarge, at a cost of $100,000 next year. The hospital is in charge of one resident house surgeon. As all are private patients, there is no visiting staff and no clinical teaching. A nurses' training school is in connection with the hospital.

The R. C. sisters maternity hospital, on Broadway, accommodates 40, and is usually crowded.

Dr. R. W. Simpson was invalided for some time.

Dr. McKenzie, of Brandon, has left for a visit to England.

Dr. Montgomery has returned from California fully restored to health.

Dr. Oakway, interne at the General hospital, had scarlet fever recently.

Dr. Bell was a delegate to the International Health Congress at Washington.

Dr. Chown was in the east a short time ago on account of family bereavement.

At the annual meeting of the Winnipeg Medical Association, Dr. MacArthur was elected president; Dr. Popham, 1st vice-president; Dr. Gordon Bell, 2nd vice-president; Dr. Davidson, secretary; and Drs. McKenty, Beatty, Rogers and Crawford, councillors.

MEDICAL SOCIETIES AND GATHERINGS.

TORONTO MEDICAL SOCIETY.

The fourth meeting of the 25th year of this society was held in the Medical Building, Toronto University, Dec. 3rd, 1903, at 8.30 p.m., Dr. Bryans in the chair.

Dr. Oldright read a paper on The repair of Recto-Vaginal Lacerations. He said that the principal point was the doing of a partial Whiteheads operation before the perineorrhaphy. He gave the histories of two cases as follows: 1st, Ilpara, the forceps had been tried and then turning had been resorted to, the sphincter was torn into the bowel to the extent of 1½ inches. Immediate repair was attempted and succeeded up to the top of the opening in the bowel which did not close, leaving a small recto-vaginal fistula the size of a quill. Two months after two attempts were made to repair this opening, under local anaesthesia: cocaine was brushed on in 6% soln. The vaginal mucous membrane was dissected back and rectal mucous membrane turned in and sutured, then closed with reinforcing sutures. Another row of sutures was inserted on the vaginal surface as in a perineorrhaphy. After apparently doing well for a few days a leakage occurred from the bowels, a very minute opening being left. Another attempt at repair was unsuccessful. Then in July, 1900, the mucous membrane was cut away at the skin line and dissected up to a point above the opening, so that an intact portion of bowel was brought below the edge of the sphincter and cut off, stitching it to the skin margin as in Whiteheads operation for hemorrhoids. After this a perineorrhaphy was done and this time with success.

The second was one of laceration through the sphincter, and was repaired at the time, but as there was no trained nurse and the parts were not kept clean, failure resulted, the sphincter not even uniting. The operation here was the dissection up of the rectal mucous membrane and the uniting of the sphincter ani. A sleeve of bowel was then brought down behind the sphincter and the edge sutured up over it to the skin margin. A modification of Tait's perineonhaphy was then done, lifting the vaginal mucous membrane and obliterating the dead space in the usual way by removing two "V" shaped pieces from it, one at each side. The advantages claimed were the protection of the sphincter

from infection by the bringing down of the rectal mucous membrane and turning it up over the sphincter to be attached to the skin margin. The result was a success, the patient recovering good control of the bowels with no fistulous opening, nor prolapse remaining.

In the discussion Dr. Macdonald said that the cause of non-union was infection. If, after the separation of the mucous membrane of the vagina from that of the rectum, a purse string suture is placed in the rectal mucous membrane and then the vaginal mucous membrane is sutured and not turned in toward the rectum, but out to the vagina, this infection can be prevented. The Tait operation was only suitable to a very small number of cases with small laceration. The common cause of failure was not placing the suture deep enough, and tying them too tightly.

Dr. McIlwraith said that if the tear was very high up it would be impossible to draw it down to the sphincter.

Dr. Hay said that when the sphincter was torn and united by scar tissue this must be cut out and muscle brought to muscle.

Dr. Primrose exhibited a number of lantern slides: 6 of carcinoma in the neck; 2 of hypospadius; 2 of epispadius; 2 of ectopia vesicæ; 2 of filariae in the scrotum; 2 of nevus lypomatodes; 3 of blastomycosis; 4 of lupus of the nose; 5 a number of sections showing the anatomy of the heart.

The Secretary read a letter from the Prisoner's Aid Society asking that a committee be appointed to act with similar committees from the Ontario and Canadian Medical Societies, to help on the movement to care for indigent inebriates. On motion, the President was asked to appoint such a committee.

Stated meeting Dec. 17th, 1903, Dr. Silverthorne in the chair.

Dr. Clarence Starr showed (a) a case of Pott's disease in which there had been a paraplegia from pressure, and which had been cured of the paralysis by removing the pressure, and had been allowed to go home, where the splints had been allowed to get loose, and finally been left off altogether, with a return of the paraplegia. Now the brace was again giving relief, and there was again commencing recovery from the paralysis. (b) a case operated on some years ago in New York for congenital hip-joint on the right side, resulting in osteo-myelitis, there was a sinus passing down to dead bone. It appeared to be tubercular, though the bacillus had not been found after repeated examinations. The left hip was also out, but from the long rest in bed there was no sliding up and down of the head of the femur.

Dr. Peters showed a case of ecstrophy of the bladder, and procidentia of the rectum. He described his method of operation in these cases and gave the results. The bowel is drawn up into an incision in the groin and turned in upon itself and stitched so as to form a support of the wall of the intestines; this is done on the opposite side to the mesentery.

Dr. Primrose showed (a) a case of Pott's disease. Extension had been kept up for two years without improvement. Laminectomy was then done six weeks ago the 7th, 8th and 9th dorsal being removed, and an abscess found pressing on the cord. Already there is considerable improvement. (b) He reported a case in which he had operated to-day to cure a hernia which had been operated on some years ago and in which a Halstead's operation had been done. The hernia was through the upper part of the old wound and was reduced and a Bassini's operation done.

(c) Also a case of Pott's disease. (d) A patient who two years ago had Bright's disease, with general anasarca at the time he was in the hospital, the quantity of urine passed being small. The right kidney was cut down upon and the capsule split, after which there was some improvement and about two months later the left kidney was cut down upon and a decapsulation done. Three weeks later there was not a trace of albumen and the ascites had disappeared. About two months ago, the swelling began again and there was a return of the albumen. Last week the right kidney was decapsulated. It was found to be beautifully fixed though no sutures had been placed when the capsule splitting was done and the band of adhesions was so strong that the kidney substance was torn.

(e) A tubercular abscess which had been opened and cleaned out. It was then filled with iodoform emulsion and closed, union by first intention resulting.

Stated meeting Jan. 14th, 1904. The President Dr. Silverthorne in the chair.

A letter from the Medico-Chirugical Society of Ottawa was read and on motion of Dr. Meyers and seconded by Dr. McMaster the President appointed Drs. Wilson, Ferguson and Carveth, a committee, to take the matter, there referred to, up and report. Dr. Carveth took the chair and Dr. Silverthorne read a report of a case of Anthrax with exhibition of the patient. The patient is a freight-handler whose occupation was removing from cars of broken freight, labelling and distributing to destination, green hides constituting a considerable portion of such freight and hardly a day would pass without some being handled.

Two or three days before Dec. 16th. Dr. McCormack saw him with what seemed to be a boil at the back of his neck, he felt poorly but was still working. On Wednesday, the 16th, he fainted on arising and had a bad headache. He was sent in to St. Michael's Hospital that evening. Dr. McCormack had suspected Anthrax from the picture,—a vesicle in the center drawn down with a dark area of tissue beneath; a ring of red vesicles complete and separate. The lump was never painful but from constitutional conditions the pain in the head was severe, but when transported to the Hospital it got better. The ring of vesicles had flattened and run somewhat into each other, there was much tumefaction. A smear was taken from the vesicles and stained with methyline blue and showed the bacillus Anthracis in abundance. The patient was anaesthetized and the part was prepared for operation by cutting with scissors and not shaved for fear of spreading the infection, then swabbed with pure carbolic all round and then washed with alcohol and this repeated, then the incision was carried down to and included the trapezius muscle, the entire tumefied portion was taken out and pure carbolic was applied to the surface, and packed with iodoform gauze soaked in carbolic acid. There have been no symptoms since. The smears were positive, a guinea-pig inoculated only lived 36 hours. There were four specimens under the microscope, (a) the original smear; (b) the liver; (c) the kidney from the guinea-pig; and (d) a section from the mass removed. He also showed six diagrams.

Dr. Peters moved seconded by Dr. Ferguson, and resolved, that the Toronto Medical Society express its appreciation of the work being done by the Canadian Medical Protective Association. That the society tenders its support to the efforts made by the officers of the association and that a copy of this resolution be forwarded to the President, Dr. Powell. Carried unanimously.

ONTARIO MEDICAL ASSOCIATION.

The following temporary committees were appointed by the President, Dr. J. F. W. Ross, prior to his departure for his trip to Egypt.

COMMITTEE ON PAPERS AND BUSINESS.

Dr. A. A. Macdonald, Dr. N. A. Powell, Dr. G. A. Bingham, Dr. J. T. Fotheringham, Dr. W. J. Wilson, Dr. T. F. McMahon, Dr. G. Chambers, Dr. R. D. Rudolf, Dr. J. Caven, Dr. H. Parsons.

CORRESPONDING MEMBERS OF COMMITTEE ON PAPERS AND BUSINESS.

Peterboro, Dr. McNulty; St. Catharines, Dr. John Sheahan; Windsor, Dr. Jas. A. Ashbough; Woodstock, Dr. W. D. Parke; Kingston, Dr. Jas. Third, Dr. R. W. Garrett; Hamilton, Dr. H. S. Griffin; London, Dr. H. A. McCallum; Ottawa, Dr. J. D. Courtenay; Belleville, Dr. Perry Goldsmith; Guelph, Dr. Angus McKinnon; Chatham, Dr. J. L. Bray; Owen Sound, Dr. T. H. Middlebro; Collingwood, Dr. Arthur; Barrie, Dr. J. C. Smith; Orillia, Dr. W. C. Gilchrist; St. Thomas, Dr. Frank Lawrence; Brantford, Dr. L. Ashton; Stratford, Dr. D. B. Frazer; Brockville, Dr. R. A. Bowie.

COMMITTEE OF ARRANGEMENTS.

Dr. A. Baines, Dr. B. L. Riordan, Dr. H. J. Hamilton, Dr. A. Primrose, Dr. W. B. Thistle, Dr. D. J. G. Wishart, Dr. A. H. Garratt, Dr. J. M. Cotton, Dr. E. E. King, Dr. C. J. Hastings, Dr. A. Eadie, Dr. J. B. Gullen, Dr. H. A. Bruce, Dr. R. J. Dwyer, Dr. W. H. Pepler, Dr. F. Fenton.

HOSPITAL ABUSE.

Dr. W. J. Wilson, Dr. R. A. Reeve, Dr. C. J. Hastings, Dr. E. J Barrick, Dr. A. A. Macdonald, Dr. C Sheard, Dr. G. A. Bingham.

NECROLOGY.

Dr. A. Primrose, Dr. J. McCullough, Dr. A. H. Howitt.

AUDIT.

Dr. D. J. G, Wishart, Dr. C. H. Carveth, Dr. G. Elliott.

CANADIAN MEDICAL ASSOCIATION.

The thirty-seventh annual meeting of the Canadian Medical Association will be held at Vancouver, B. C., on the 23rd, 24th, 25th and 26th days of August, 1904, under the presidency of Dr. Simon J. Tunstall of that city. Mr. Mayo Robson will be a guest of the Association.

AMERICAN INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The committee of arrangements are making every effort to perfect all the plans for the meeting which is to take place in St. Louis, in October, 3, 4 and 5, 1904, under the auspices of the Universal Exposition. It is to be hoped the attendance will be large. Prof. Maurice Benedict, of Austria, will give an address on the " Toxins of Tuberculosis. Dr. E. J. Barrick, Toronto is President.

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EDITORIAL.

CANCER: ITS ETIOLOGY AND TREATMENT.

In a recent number of the *British Medical Journal* there are a number of able and interesting articles on the above subject.

The first one is the Bradshaw Lecture by Mr. Henry Morris. In his lecture he reviews at great length the literature on, and the theories regarding, the etiology of cancer. He refers to Katz's division of the causes of cancer as entogenous or intrinsic, and ectogenous or extrinsic. The entogenous theories are mainly those of Thiersch, or the "lost balance theory," and of Conheim and Durante, the "matrix" or "tumor germ theory." By the former there is a loss of balance between the epithelial cells and the connective tissue. This occurs during the advancing years. The lecturer gives his adherance to the tumor germ theory of Conheim. This theory teaches that carcinoma arises from embryonic epithelial cells which are excited into activity under certain conditions, and multiply into large numbers. The ectogenous or extrinsic causes are divided into (1) injury, chronic irritation and chronic inflammation; and (2) micro-organisms. Mr. Morris rejects the view that cancer is due to micro-organisms such as fission fungus, yeast fungus, psorosperm, bacterium, blastomycete, or protöozon. In regard to Conheim's theory he quotes the words, "it has search-light luminosity. Like radium, it keeps on burning brightly, without consuming itself."

The next article is a contribution from H. G. Plimmer, who is in charge of the cancer laboratories of the Lister Institute of Peventive Medicine. He argues the microbic origin of cancer with much ability. He reviews the opinions of those who hold this view, and comes to the conclusion that no other theory can be advanced to explain all the origin and clinical characteristics of the disease. He contends that there are certain bodies that are always found in the cancer cells. But to obtain satisfactory results, it is necessary to examine the specimens taken from the living specimen, and examined on the warm stage. The bodies that are found in the cancer cells are not found in any other tissue in the body. The bodies that have been regarded as the parasite of cancer have been considered by some as merely portions of the cells,

or centrosomes. But this, again, has been shown to be an incorrect view. The role played by injury in the etiology of cancer is explained by the fact that weakened or new tissue is most easily infected by the parasite. But there are the facts that cancer has spread from one part of the body to another, as from the breast to the touching arm, and from the lower to the upper lip; that two or more persons in the same house have suffered from the disease; and that certain districts are known as cancer areas. The argument that the disease cannot be transferred to animals by experiment does not disprove a parasitic origin, as this is true of syphilis, leprosy, and the exanthemata. But when cancer does occur in an animal other members of the same species can be inoculated from it. He concludes by saying, "When we think of the clinical course of the disease, its beginning in one spot, its extension to distant parts by lymphatic or blood vessels, the cachexia, out of all proportion to the extent of the disease, the spread by contagion, the occurrence in certain parts of the body, and its return after years of quiescence, we are driven from this side, too, on to the parasitic theory, in which, as in no other, all these events find their explanation."

Mr. G Lenthal Cheatle, C. B., F. R. C. S., follows with an article on "the behavior of cancer within nerve and trophic areas." In studying cancer he states that it is necessary to keep in mind the following propositions:—

1. The genesis, which includes those matters which appertain to the actual agent which induces epithelial proliferation.

2. The incidence, those matters which relate to the site or soil in which cancer primarily begins.

3. The spread, that which concerns the area of occupation of the cancer when considered apart from its secondary deposits.

He contends that constant irritation over a long period produces marked intracellular changes in the ganglia of the posterior sensory nerve roots, it will also probably induce profound phsiological changes in the areas of their distributions as well as at the actual sites of irritation. Mention is made of the fact that epithelioma and rodent ulcer are very closely associated with the distribution of the fifth cranial nerve. When rodent ulcer is multiple, the points of incidence are nearly always on the area or areas of one or both fifth cranial nerves respectively. On the trunk rodent ulcers begin usually on points of certain nerve areas. This is so frequently so that these areas are called maximum points. He mentions the fact that in herpes zoster the epithelium over a certain area dies, and there are always changes in the posterior spinal root ganglia. Some change in these ganglia may cause proliferation, instead of death, in the epithelium. This would be the condition found in cancer.

With regard to the spread of cancer he remarks, "I now more firmly believe in the possibility of a direct or indirect nervous agent, above all others, influencing the spread, a belief which is constantly receiving support by the addition of fresh cases and continued investigation."

Dawson Turner, M.D., takes the important subjects of ultra-violet light, x-rays, and radium rays. Ultra-violet light possesses the following properties: It is powerfully active, can excite fluorescence, can discharge an electrified body, and has clinical and bactericidal effects. With regard to the x-rays he offers the opinion that all the effects are not due to the rays, but to the electro-static field and ionization round the tube. To test this view, he has treated some cases successfully with the cathode breeze. This would go to prove that the curative action of the x-rays is not wholly due to them. As to the properties of radium rays the following have been established. They can inflame and ulcerate the skin, act on the nervous system causing paralysis and death, and luminous effects in the partially blind. They have some curative properties for those diseases in which the x-rays are used; but as far as can be judged at present radium is not as efficient as the x-rays.

John McIntyre, M.B., F.R.S.E., discusses the merits of radium. He regards it as useful only in rodent ulcer, lupus, and superficial skin lesions. He does not regard it as of value in deeply seated disease. He records a case of epithelioma of the nose that was not improved by the radium rays, which was greatly benefited by the x-rays.

Lovell Drage, M.A., M.D, closes the series of articles with one on the treatment of cancer by the injection of cinnamate of sodium. Experiments have shown that the intra-venous injections of sodium cinnamate give rise to marked leucocytosis. In the treatment of cancer and tuberculosis, Dr. Drage gives an injection, about once a week, of m 30 of a 10 per cent glycerine solution of sodium cinnamate. He has not yet published his formula for making the preparations of cinnamic and salicylic acid solutions with glycerine and sodium. His reason is that he wishes to perfect his methods first. In seven cases of cancer in the breast, larynx, tonsil, and liver there was marked improvement following the injections of the sodium cinnamate. The injections are made, when possible, between the cancer and the subjacent tissue.

THE TREATMENT OF PNEUMONIA.

We offer no apologies in giving our readers that portion of Dr. Lees' Harveian Lectures dealing with the treatment of pneumonia. For sound therapeutic advice we have not seen its equal for a long time. It will well repay the most careful study.

To succeed in the treatment of pneumonia, one must be most unremitting in his attention to every detail. There is no disease that makes more demands upon the therapeutic resources of the attending physician. It must be borne in mind that we have no specific; and, therefore, our treatment must be almost wholly symptomatic.

Dr. Lees pays great attention to the condition of the right side of the heart. This advice is all important. He states that pneumonia tends to kill usually by heart failure,not of the left, but of the right side of the heart; not by syncope, but by asphyxia; not by enfeeblement of the left ventricle, but by over-distension of the right. The utmost attention should be given to increased area of dullness of the right auricle in the fourth intercostal space. This right heart distension and distress can often be relieved by the loss of a little blood, by means of 6 to 12 leeches, for an adult: or, 6 or 8 ounces from the arm in an early stage, or 18 or 20 ounces at a later stage with great distension. The leeching and the venesection may be repeated if required. The object of the bleeding being to relieve the right side of the heart and not to control the inflammation in the lungs.

The diet of the patient is of the utmost importance. One of the best nutriments is milk, as it is readily taken, easily digested, and acts well on the kidneys and skin. This is the ideal food for the first two or three days, and three or four pints daily for an adult should be given. But when the right side of the heart is becoming distended, it is well to administer small quantities of a highly concentrated and predigested nutriment. For this purpose malted milk powder is very useful. Its composition is one half desiccated milk, and the other of malted wheat and barley with a little sodium and potassium bicarbonate. Half an ounce of this powder dissolved in two ounces of milk may be given every hour. After the first bleeding has relieved the right heart, water may be allowed with sufficient freedom to allay the thirst. As much as four pints may be given every twenty-four hours. This also aids in ridding the system of toxins.

Sleep is one of the most important things to secure for the patient. The sleep may be disturbed by pain, by the fever, by restlessness, by dyspnoea, or by cerebral congestion. Sleep must be secured if the patient is to fight a winning battle. Every night's sleep is of great importance, and restless nights at the beginning of the attack tell heavily against the patient at the later stage of the disease. No matter then what else the attendant does during the first three days, he must secure sleep for his patient. If there is pain it must be relieved and the best way to do this is by a hypodermic injection of morphine. If

there is not much pain, sleep can be secured by a combination of bromide and chloralamide or trional given in hot brandy and water. When there is marked dyspnoea, the patient cannot sleep, and he needs all his energy to keep up respiration. Morphia must not be given in such a condition, as it reduces the activity of the respiratory center. Rest must be obtained by relieving the right side of the heart, and nothing will do this so well as a moderate bleeding. When this has been done, and the dyspnoea, cyanosis, and restless are quieted, the patient may sleep without a hypnotic. If necessary to ease pain and procure sleep, a small dose of morphine may now be given. Other hypnotics will answer if there be no pain. Chloral should, however, be avoided.

The proper employment of heart tonics calls for careful consideration. The best of these is strychnine, and it should be commenced early in the disease. It should be given hypodermatically. Atropine is of much service in the failing heart of pneumonia. It is, however, of far more value in children than in adults. One minim of the liquor atropiæ twice a day, increased to every four hours, for a child, is very valuable in the heart failure of diptheria and pneumonia. The inhalation for 10 minutes each hour of oxygen is a good heart tonic by causing aeration of the blood. Digitalis is useful if the right heart is not too distended and laboring. Ammonium carbonate is useful as a cardiac stimulant if there be much bronchial secretion. Alcohol is not a cardiac tonic, nor stimulant. It is a vasomotor depressant, and, by reducing arterial tension, may do good when the right heart is dilated and over full. In all cases, where the right heart is distinctly distended, there is no cardiac tonic equal to the abstraction of enough blood to relieve the distension, rest the dyspnœa and remove the cyanosis. It is not until this has been done that the cardiac tonics can act.

The next feature of Dr. Lees' treatment is the free application of ice to the chest wall. As soon as the disease is detected one or more bags of ice are applied over the affected areas. This is watched closely and additional bags are applied to new areas of consolidation. The icebags must be placed over the diseased areas. This requires much tact on the part of the nurse when they have to be placed on the back of the patient, as the lumps of ice will annoy the patient as he lies on them. Yet, with care, this can be overcome. While the icebags are being employed, the patients feet must be kept warm by means of hot water bottles. As many as three icebags may be required to cover enough lung surface. Patches of consolidation will yield to the icebag if they are detected early and the treatment carried out faithfully. The icebags lower the temperature, lessen pain, limit the spread of consolidation, and shorten the duration of the attack.

But Dr. Lees, along with most writers on pneumonia, does not appear to us to pay sufficient attention to the dangers of the first week of convalescence. While the system is still full of toxins and the heart muscle weak, to those who are past midlife, there is real danger for some days after the crisis. At this age the coronary arteries may be diseased. The utmost attention should be given to this period.

DR. OTTO SCHMIDT'S TREATMENT OF CANCER.

Dr. Johnson gave an address recently before the Abernethian Society of St. Bartholomew's Hospital on the specific treatment of cancer which has been worked out by Dr. Otto Schmidt, of Cologne. From Dr. Johnson's address, as it appears in *The Lancet* (British), we gather the following conclusions :—

In the first place, Dr. Schmidt holds that cancer is always of parasitic origin. There may be injury or irritation of the affected part as a predisposing cause, but the exciting cause is the characteristic parasite. It is this that must be combated. He has found this parasite in every case examined, and has succeeded in producing tumors in two white mice by injections of the pure cultures of these parasites.

The treatment is two fold. First, active immunisation, by the injections of cultures 14 to 21 days old, which are killed by the application of heat, 65° C., and second, passive immunisation by the injection of serum from the immunised animals, sheep and horses. Both methods have been tried in the same case. It is not material into what portion of the body the injections are given. If cancer be present in the body a reaction is invariably produced. After the third or fourth injection there is a sense of malaise, the temperature rises some, in a few cases as high as 102° F. It falls to the normal in a few days. If the system is very much poisoned by the toxins of the disease there may be no reaction. There is also some swelling in the tumor and in any infected glands, and pain and tenderness in the affected parts. This reaction diminishes as the treatment goes on and the patient becomes immune. The reaction always occurs. In one case there was no reaction, though cancer had been diagnosed ; but it was proven that the growth was not malignant.

Under this method of treatment a number of cases made remarkable improvement. There was decided decrease in the size of the growth, and in the foul odor from those that were sloughing. Portions of dead tissue are thrown off. The reaction is clearly of an inflammatory character. If the injections are repeated and the size of the injections increased, a state of chronic inflammation is induced, which leads to the

destruction of the cancerous growth, or tissue. There is a distinct leucocytosis produced in the tumor and adjacent tissues. The good results of this treatment is quite manifest in those external cases that are under ready observation.

It cannot yet be predicted whether this method of treatment will prove curative of cancer. Certainly in a number of patients distinct improvement took place. If the disease be parasitic, and Dr. Schmidt has suc-ceeded in isolating them and making cultures of them, then it may be possible to elaborate immunising products. In the meantime we must wait.

DR. MARMORECK'S ANTI-TUBERCULOUS SERUM.

A short time ago, *British Lancet* 12th December, 1903, Dr. Marmoreck gave an address before the Paris Academy of Medicine. It is well worthy of the closest study, as it shows the great advances that are being made, and affords good ground for the hope that the day is not far off when there will be in the hands of the profession a serum competent to control the ravages of the tubercle bacilli.

It is interesting to follow Dr. Marmoreck's reasoning that the injection of tuberculin does not act upon the tubercles, but stimulates the bacilli to form a large quantity of toxin, which causes the reaction. He states that if there are no bacilli in the system there will be no reaction; and, again, if the the system be profoundly saturated by the toxin of the disease there may be no reaction, as the extra quantity of toxin provided by the stimulus of the tuberculin may not be capable of bringing on a reaction when there is already so much toxin present, as the additional quantity of toxin is so small compared with the total.

Another portion of the address which is of much importance is the description of how a leucocytic serum is obtained. By injecting into the peritoneal cavity of a guinea-pig some peptonized bouillon, he obtains a large number of leucocytes. These are washed out by means of normal salt solution from the abdominal cavity. This salt solution containing the leucocytes is injected into a calf. In this way a serum is secured possessing leucotoxic properties. The primitive bacilli grow within this medium with great difficulty. Bacilli grown in this leucotoxic serum does not contain tuberculin for a long time but, some other toxic substance which does not cause any reaction in tuberculous animals. By this means the bacilli are maintained in their primitive condition for a long time.

Dr. Marmoreck took also into account the fact that the liver is very rarely the seat of tubercle. In this organ there appears to be some

quality that is inimical to the growth of the bacilli. It was thought that to cultivate the bacilli in a culture medium containing liver substance, it might be possible to obtain a strain of bacilli that might yield special products.

By working along these lines, Dr. Marmoreck has succeeded in obtaining a toxin of special power. By means of it he has been able to immunize animals, and to effect what appears to be cures in some cases of human tuberculosis.

We will all wait with eagerness for further announcements from Dr. Marmoreck. Enough has been done to warrant the prediction that this great plague will be compelled to yield its secrets to the keen search lights of investigation, and permit itself to be bound by the strong arm of science. It will then be possible to say, *post tot naufragia portum.*

THERAPEUTIC USES OF ORGANIC EXTRACTS.

At a meeting of American Therapeutic Society, Dr. O. T. Osborne gave an address upon the above subject, which appeared in the *Medical News.* Among other things, Dr. Osborne stated that in the thyroid gland there is an active principle that would cause nausea, vertigo, increased heart action; cause sweating, diuresis, faintness, cerebral irritation, tremors, and even glycosuria. The properties of the thyroid gland render it valuable in the treatment of cretinism, myxoedema, and strumapriva. It is also useful in cases of enlarged thyroid gland with loss of the essential elements of the gland. It should not be given in exophthalmic goitre. In all cases of this disease, if there be cerebral and vascular excitement, the gland should not be administered. If, on the other hand, the patient is dull, sleepy, is putting on flesh, and with little heart hurry, thyroid treatment may benefit, as in such cases the active elements of the gland are disappearing. The feeding of the gland will cause almost every obese person to lose flesh. The function of the thyroid gland is closely related to menstruation. This explains the great frequency of Grave's disease, and myxoedema among women. The gland has been found useful in preventing the connective tissue growth in ataxia, and arterio-sclerosis. It has also been given with benefit in melancholia, and the insanities of the menopause and the puerperium.

The pituitary body and thyroid gland are closely related in function. It is seldom that one is found diseased, and the other healthy. In true giantism and acromegaly, the pituitary body has always been found diseased. It is true there may be tumor of this body, without giantism or acromegaly; but in these cases there is no doubt some normal gland.

Giantism is caused by hypersecretion of the gland; while acromegaly is due to disturbed, or diminished, activity in it. The hypersecretion in giantism passes, in time, into the disturbed condition of acromegaly, so that if patients with giantism live long enough, they will exhibit the deformities of acromegaly. In cases of acromegaly, with headache and muscular weakness, much benefit is derived from the feeding of the pituitary gland extract. Two or three grains is the dose. This treatment may be useful for dwarfs.

It would seem that the thymus gland has something to do with the growth of bone. It might, therefore, be useful in children with slow or perverted osseous development. In Graves disease, where the thyroid gland exaggerates the symptoms, the thymus gland extract does good—the gland has been found valuable in pulmonary tuberculosis. It seems to do this by the deposit of lime salts in and around the tubercles. The dose is two to three grains.

The suprarenal gland yields an active principle. When taken into the system, it has wonderful power in raising blood-pressure, and stimulating the heart. It should be given in heart failure, in shock, the crisis of disease, or injury. The dose is five to ten drops of the 1 in 1000 solution, every fifteen to thirty minutes on the tongue for a few times; then every three hours if needed. The local action of adrenulin is well known and need not now be discussed. In diabetes, it has proven itself to be of signal service. The suprarenal gland is fed by the mouth, on the theory that it was likely the other constituents of the gland rather than the blood-pressure raising substance that was of benefit. Adrenalin should be used in all cases of low vasomotor tension, as Addison's disease and the anæmias. It should also be used in narcotic poisoning, in shock from anæsthesia, and in inflammation or congestion of the mucous membranes.

The ovaries and testicles yield important secretions. It is not yet known in what conditions these glands, or their extracts, may be given to advantation. It has now been determined, however, that the parotid gland possesses marked activity. It is of value in dysmenorrhœa, with too much flow. It is of great benefit in some examples of epilepsy.

Nothing definite, can as yet, be said on the use of mammary gland preparations.

THE CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

It is, we think, well within the truth when we state that there never was organized in this country a more useful association for the medical profession. But to be of use it must have members. The officers have

made every effort to forward the interests of the Association; but, so far, the response has been slow. It takes time, however, to educate the profession to the necessity of supporting such an association. The Association has been of very substantial assistance to a number of medical practitioners throughout the country, and is destined to be much more useful as its membership increases.

As an indication of what might be done to aid this Association, we take pleasure in mentioning the efforts of Dr. Peters, of Toronto. A short time ago, he brought the claims of the Association before the notice of the Toronto Clinical Society; and, as a result, has secured ten members. The other evening he introduced the subject at a meeting of the Toronto Medical Society and secured some additional members.

This would be excellent work for the various medical associations throughout Canada to take up. They could do nothing of greater value to themselves or to the profession at large. We hope that the Association has now seen its darkest days, and that its future will be one of rapid growth and great usefulness. *Sera nunquam est ad bonos mores via*—it is never too late to mend.

THE ANTI-VACCINATIONISTS.

The Anti-vaccination League of Toronto, interviewed Premier Ross on the 20th of January. The Premier very properly replied that public opinion was against the idea of the Anti-vaccination League. He suggested that the League should secure an interview with the Provincial Board of Health.

One of the greatest boons of modern science is the discovery and practice of vaccination. It has been in use now for about one century. During this time it is safe to say that it has saved more lives than all the wars put together have destroyed.

In Sweden from 1774-1801 the death-rate from smallpox was 2,008 per millon of population, from 1801-1815, a period when vaccination was practiced but optional, the death rate was 631; from 1815-1885, when vaccination became compulsory, the death-rate was only 173. In London, per million of population, the following death rates pertained from smallpox: 1771-1780, 5,020; 1801-1810, 2,040; 1831-1835, 830; 1838-1853, 513; 1854-1871, vaccination now compulsory, 388; and 1872-1890, vaccination compulsory and more efficiently enforced, 178.

But for children under 10 years of age, the attack rate is 5 per 1,000 among the vaccinated, and 101 per 1,000 among the unvaccinated. The death rate among the vaccinated was 0.09, and among the

unvaccinated, 44. In persons over ten years of age, the attack rate was was, per 1 000, among those twice vaccinated, 3; among those once vaccinated, 19; among those not vaccinated, 94. The death rate among those twice vaccinated was 0.08: among persons once vaccinated, 1; among those not vaccinated, 51.

It is absolutely useless for people to argue against vaccination. The law should be compulsory for re-vaccination as well as vaccination. Smallpox is so extremely contagious that nothing but vaccination will control its spread. In pre-vaccination days there was an epidemic every few years. This is what the Anti-Vaccination League would bring us back to.

But it would not do to leave it optional with such people, as they would not even protect their own children, and would be a constant menace to the health of the community. Dr. E. K. Richardson and Dr. Adams were reported as being in the deputation. One would like to know where they learned their objections to vaccination, and from what source they obtained the statistics against it.

PERSONAL NEWS ITEMS.

Dr. Conway Cartwright has returned to Ottawa.

Dr. J. F. Black, of Halifax, is touring through Egypt.

Dr. J. W. McCullough is gazetted a coroner for Moose Jaw.

Dr. Norman McLeod, of Toronto, is taking a three months' course in a Buffalo hospital.

Dr. Reid, Perth, has given up practice and left for near Collingwood, where he will locate.

Dr. T. S. Sproule, M.P. for East Grey, was banqueted at Meaford by Meaford and St. Vincent friends.

Dr. and Mrs. Ferguson, of London, spent New Year's at Courtright the guests of their son, Dr. J. Ferguson.

Dr. Osler, of Baltimore, has been for several days lately giving Mr. Harris, of Montreal, sittings for a large portrait.

Dr. C. E. Watson, Gladstone, Mich., spent the holidays with his parents, Dr. and Mrs. Watson, St. Patrick Street, Toronto.

Dr. J. Bryce McMurrich (Bothwell), spent some days in Toronto with his parents, Mr. and Mrs. McMurrich, of Madison avenue.

Dr. S. H. Westman sailed from New York, on the ss. Lucania, for England. He will take a special course in surgery in London.

Dr. S. J. Elkin, who has been practising at Emerson, Man., for the last ten years, has moved into Winnipeg to practice his profession.

Dr. Frank Mallory, of Harvard Medical school, claims to have discovered the germ of scarlet fever. It is similar in form to the malaria microbe.

Dr. Galloway, of Denver, Col., a former Ingersoll boy, has recently been appointed an alternate in surgery to St. Anthony's Hospital at that place.

Messrs. Hiram Walker & Sons, Walkerville, have sent a cheque for $10,000 to Mr. J. M. Courtney, treasurer for the Lady Minto Cottage Hospital Fund,

Dr. J. D. Page, of Waterloo, is in New York, taking a course in the treatment of diseases of the ear, eye and throat. He intends to locate at Quebec.

It is reported that Dr. J. O. Orr's mission to the Old Country is to make an attempt to secure the Crown jewels as an attraction for this year's exhibition in Toronto.

Dr. G. A. Berwick, Montreal, who was confined to bed for six weeks with a severe operation, has been removed from the General Hospital to his residence, and is now convalescent.

Dr. J. M. Stevens, formerly of Travers City, Mich., has entered into partnership with Dr. D. J. Sinclair, of Woodstock. Dr. and Mrs. Stevens have taken apartments at the Hotel Oxford.

The Mayor presented the City Clerk's official return of the vote on the question of Toronto contributing $50,000 to a consumption sanitarium. It was as follows:—Yes, 4,434; Nays, 4,031,

The many friends of Dr. Blanchard, of Winnipeg, will learn with much regret of the sudden death of his wife. She had lived in Winnipeg for over twenty years, and was very highly esteemed.

Dr. Pritchard, a former resident of St. John, Newfoundland, has been awarded much praise for his able work at Indian Harbor in controlling a severe epidemic of diphtheria which occurred there.

The marriage of Dr. R. D. Gurd, of Sarnia, to Miss Alice Thibaudeau, daughter of Hon. J. R. Thibaudeau, Sheriff of Montreal, was solemnized in the Archbishop's Palace there, on the 14th January.

Dr. Weld and Mrs. Weld and family have returned to Vancouver from the east. Mrs. Weld and children spent some months in Boston, where Dr. Weld went to meet them. They visited several cities en route home,

Dr. Charles Elliott, who is a Western University graduate, has been visiting his brother at Pond Mills, after taking a post-graduate course at the Chicago university. Dr. Elliott is now located near Vancouver.

Dr. Scott Conklin, formerly of Winnipeg, who has been practising his profession in Vancouver for the past few years, was married in that city last week in December, the bride being Miss Arnett, the lady superintendent of the hospital at Trail, B. C.

The residence of Mr. and Mrs. A. F. Murdock, MacGregor, Man., was the scene of a very pretty wedding on Wednesday, the 16th December, when their daughter, Pairline Lisle, was united in the bonds of matrimony to Dr. H. J. Johnston, of Coutts, Alberta.

Dr. Wm. H. A. Young, one of the best known physicians of Springfield, Mass., was shot through the heart by a bullet from his rifle, which he was placing in his carriage, previous to going hunting. The fatal accident was witnessed by his wife, and several friends who were visiting in the home.

One of the most stylish and interesting social events of the present winter came off in Port Perry, when, on the afternoon of January 7th, in the Church of the Ascension, Gertrude E., youngest daughter of Dr. J. H. Sangster, of "The Bungalow," was married to Dr. S. C. Corbett, of Winnipeg.

Dr. W. G. Anglin, of Kingston, while performing an amputation on a patient on account of a poisoned condition of the leg, contracted severe septic infection in his right hand. For some time his life was in great danger. The third finger of his right hand was removed. He is now recovering.

Dr. Bryce, secretary of the Provincial Board of Health, has been offered and will accept the position of Inspector of Immigration of the Interior, which has been offered to him by the Dominion Government. He will probably be succeeded by Dr. C. A. Hodgetts, who for some time past has efficiently discharged the duties of Provincial Health Inspector.

A judgment of vital importance to the Christian Scientists in Ontario was given recently by the full court of Appeal, including Chief Justice Moss, Justices Maclennan, Osler, Garrow and McLaren. The case was that of Rex. vs. Lewis, and has been before the courts for a long time.

A nine-year-old boy, Roy Lewis, died of diphtheria under Christian Science treatment, and the Crown instituted prosecution against the

father, John H. Lewis, on a charge of manslaughter. The case was brought before Chief Justice Falconbridge, and a conviction was rendered. The Crown intimated that it pleaded for a conviction on moral grounds only, so that no punishment followed the decision. From that decision the Scientists appealed, with the result that the conviction was affirmed. The chief point at issue in the case was whether the word "necessary" in the Act of the Criminal Code invoked, as applied to the attention and care that a parent or guardian is required to give his children, included medical attendance in cases of serious illness. The original conviction was made on the assumption that it did, and this view has been upheld unanimously by the Court of Appeal. The effect is that a parent who neglects to provide medical attendance for his family leaves himself open in case of a death occurring to a charge of manslaughter.

OBITUARY.

GEORGE COOKE, M.D.

Dr. George Cooke, one of the pioneer physicians of Bruce County, died at his late residence, 26 Leopold Street, Toronto, at noon, 31st December, 1903, after a somewhat protracted illness.

Dr. Cooke commenced the practice of medicine at Chesley over 35 years ago, and was well and favorably known throughout the district. He was reeve of the Village of Chesley for a number of years, and was also a coroner for the County of Bruce. Dr. Cooke had a large and lucrative practice, and amassed a fair competence. A few years ago he retired and removed to Toronto with his family.

The late Dr. Cooke was born at Cookstown, Simcoe County, where his brother, Major Cooke, still resides. He leaves a widow, three sons, Frank C., a barrister, of Pinkerton and Cooke; Charles, a practising dentist, Parkdale, and Harry, a law student, and two daughters, who reside at home. The remains were interred at Chesley.

THOMAS NORTON, M.D.

Dr. Thomas Norton, one of the most widely known physicians in and around Shelburne, died 14th January, 1904, after a lingering illness, due to cancer of the stomach. He was born in Montreal 52 years ago, and in 1874 graduated in medicine from McGill. He began the practice of his profession at Horning's Mills, but, later, moved to Shelburne. At one time he was president of the Turf Association and of the 36th Battalion Band. He was coroner for the Counties of Dufferin and Grey, and surgeon to the Canadian Pacific Railway. A widow survives him.

J. B. MURPHY.

Dr. J. B. Murphy, superintendent of the Brockville Asylum for the Insane, died suddenly at his home, 17th January, from heart disease. He attended services in St. Francois Xavier Church, and walked part way home, being driven the remainder of the distance. He made no complaint of feeling ill until after getting into the house. Upon removing his clothing he lay down upon a couch expiring almost instantly. Mrs. Murphy, who attended church with him, did not get back in time to see him alive.

Dr. Murphy was known to have a weak heart, but nothing of a serious nature was ever anticipated.

Deceased was born at Asphodel, Peterborough County, in 1850. He was educated at the Norwood High School and St. Michael's College, Toronto, and afterwards attended Queen's College where he graduated in medicine in 1876. He practised his profession in Belleville till 1891, when was he appointed medical superintendent of the Mimico Asylum for the Insane. Upon the opening of the Brockville Asylum in 1894, he was placed in charge, and held the position till his death. While a resident of Belleville he was physician to the Deaf and Dumb Institute. He married a daughter of the late L. C. Boulseter, of Toronto, who with a family of four sons and two daughters, survives.

OWEN BROWN, B.A., M.D.

The medical profession in Detroit lost a valued member by the death of Dr. Owen C. Brown, on 29th December, 1903. Dr. Brown attended Toronto University, from which he graduated with honors in both arts and medicine. He began the practice of medicine in Acton, Que., where he resided for 14 years, during that time being one of the district surgeons of the Grand Trunk Railway. In 1893 Dr. Brown settled in Detroit, where he has since resided. He is survived by a widow and one son.

D. S. BOWLBY, M.D.

Dr. D. S. Bowlby, of Berlin, died on Sunday, 29th December, 1903, at Rome, Italy. He had not been well for some weeks, and left New York on December 16th for Sicily, in company with Mrs Bowlby. The news of his death came by cable. Dr. Bowlby, who was in his 78th year, located in Berlin in 1853, and rapidly acquired a large and extensive practice When Berlin was a small villiage he identified himself with municipal life, and served in the council from 1957 to 1862. For many years he was a member of the Berlin Public School Board, and after-

wards of the High School Board, of which he was chairman for over twelve years. He was the first president of the Berlin Club, and at the time of his death was president of the Berlin branch of the Upper Canada Bible Society.

In 1882 he contested the riding against the late Hugo Kranz, but was defeated by a very small majority. He was jail surgeon for over twenty years. In religion he was an Anglican, and was the oldest member of St. John the Evangelist Church of the town. His is the first death in the Bowlby family, and he is survived by four brothers and one sister, viz.: William Bowlby, of Simcoe; Dr. Alfred Bowlby, of Waterford; Ward P. Bowlby, K.C., of Berlin; Ald. J. W. Bowlby, K.C., of Brantford, and Mrs. Walker Powell, of Ottawa. Besides the widow, who is the youngest daughter of the late Alex. A. Murphy, of Montreal, the deceased is survived by four children, viz.: Mrs. E. P. Clement, Dr. G. Herbert Bowlby, who is studying medicine in London, Eng.; Mrs. J. P. Fennell and D. Shannon Bowlby, Wapalla, N.W.T. Another daughter, Mrs. Gardiner Boyd, of Toronto, predeceased him. The body was brought to Berlin for burial.

R. McINTYRE, M.D.

Death came suddenly on the afternoon of January 4th, to Dr. R. McIntyre, Hespeler's oldest medical practitioner, in his 67th year. Dr. McIntyre had been summoned to attend a patient. He had hardly looked at the patient when he staggered forward to a sofa and instantly expired, death being due to heart failure.

Two hours later the polls announced that the dead physician had been re-elected a Public School Trustee, which office he had filled for seventeen years. Deceased was born in Lachute, Que., where he attended Public School. In 1857 he matriculated at the Berlin Grammar School, after which he entered the medical department of Victoria University, from which he graduated after a brilliant career in 1862. He commenced practice in Hespeler in 1863, and built up a large practice in the town and surrounding country. Deceased had been Medical Health Officer for thirty years, and had always taken a prominent part in the educational interests of the town. The doctor was connected with the old 29th Battalion for twenty years.

During the funeral, business was suspended, the Public School closed, and flags flew at half-mast out of respect for the late doctor who died while making a call on a patient. The interment took place with military honors, and was very largely attended. The Council and

School Board attended in a body, and the pall-bearers were officers of the 29th Regiment, from Galt, Guelph, and Hespeler. Canon Redley, of Galt, chaplain of the 29th Regiment, with Revs. Jamieson and Duthie, conducted the funeral services.

FRED. H. S. AMES, M.B., TOR., M.D.C.M, VIC

Dr. Ames died at Denver, Colorado, 4th January, after a somewhat protracted illness. He leaves a widow, formerly Miss Ida Taylor, of Parkhill, one son and two daughters. Dr. Ames was born at Sarnia, forty-five years ago. He was a graduate of Toronto and Victoria Universities, and practiced medicine at Brigden, then at Sarnia, removing to Denver about ten years ago. The remains were interred at Sarnia, where the funeral took place on 9th January.

BOOK REVIEWS.

DAVENPORT'S GYNECOLOGY.

A Manual of Gynecology for the use of Students and General Practitioners. By F. H. Davenport, A.B., M.D., Assistant Professor in Gynecology, Harvard Medical School. New (4th) edition, revised and enlarged in one 12mo volume of 402 pages, with 154 illustrations. Cloth, $1.75, net, Lea Brothers & Co., Publishers, Philadelphia and New York, 1902.

This compact volume was originally prepared for a two-fold object; first to give to the student in clear terms and with sufficient detail the best methods for examination, and the most trustworthy therapeutics of the more frequently met diseases of the female pelvic organs, and second to assist the general practitioner in understanding and successfully treating the gynecological cases which he meets in his every-day practice. For the sake of brevity and clearness the author describes only such treatment as in his large experience has proved to be of the greatest practical value. Special attention has been paid to many minor points which, although of great importance, have strangely enough been omitted from the larger treatises on the subject. Maximum practicality has been the aim of the author, and the demand which has rendered necessary the printing of four large editions shows clearly the esteem in which his work is held by the profession. The volume has again been carefully revised to the latest date. Considerable new matter has been added, as well as several new illustrations, but no advance has been made in its very moderate price.

PROGRESSIVE MEDICINE.

A quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart A. Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. IV. December, 1903. Diseases of the Digestive Tract and Allied Organs: Liver, Pancreas, and Peritoneum—Anæsthetics, Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics—Genito-Urinary Diseases—Diseases of the Kidneys—Physiology—Hygiene, Practical Therapeutic Referendum. Lea Brothers & Co. Philadelphia and New York. Price, $2.50.

The present volume keeps up the high reputation of this excellent series. The contributors to this volume are Drs. John C. Hemmeter, Joseph C. Bloodgood, William T. Belfield, John Rose Bradford, Albert P. Brubaker, Charles Harrington, and H. R. M. Landis. These names are sufficient guarantee for the standard of the various sections. The present volume is a trustworthy review of the medical literature of the subjects discussed in it. These subjects are diseases of the digestive tract, anæsthetics, the surgery of the extremities, genito-urinary diseases, diseases of the kidneys, physiology, hygiene, and practical therapeutics. The series form an excellent reference library.

THE LYMPHATICS.

The General Anatomy of the Lymphatics by G. Delamere. The Special Study of the Lymphatics in Different Parts of the Body by P. Poirier, Professor of Anatomy in The Faculty of Medicine, Paris, and B. Cunéo, Associate Professor in The Faculty of Medicine, Paris. Authorized Translation by Cecil H. Leaf, M. A., M. B., F. R. C. S. assistant Surgeon to the Cancer Hospital, and to the Gordon Hospital for Rectal Diseases, London. With, 117 Illustrations and Diagrams. Chicago: W. T. Keener & Co. 1904. Price $5.00 net.

Looking at the lymphatic system as one sees it described in the ordinary text-book of anatomy, it scarcely occurs to the mind to regard it as of such vast importance as it at once assumes when treated of in a separate work such as the one before us from the joint authorship of Poirer, Cunèo, and Delamere. The illustrations are very well executed, and enhance the value of the work very materially. The translation is well done and Mr. Cecil H. Leaf merits praise for his share n rendering the original into such idiomatic and clear English. Some books we read against our wishes, some we cannot read at all, and some we cannot help reading. To the last class belongs this volume. It is such interesting reading that one soon forgets that he is studying anatomy and reads on. The book gives an excellent exposition of the spread of disease by means of the lymphatics, and the great importance of the lymphatic circulation in the pathology and etiology of disease. It is an exceedingly interesting addition to anatomical literature.

LEVINGS ON TUMORS.

The Actiology, Pathology, Diagnosis, and Treatment of Tumors. By A. Hamilton Levings, M.D., Milwaukee, Wis., Professor of the Principles and Practice of Surgery and Clinical Surgery in the Wisconsin College of Physicians and Surgeons; Surgeon to St. Joseph's, Milwaukee County, and Mount Sinai Hospitals; Consulting Surgeon to Johnson's Emergency Hospital and the Milwaukee County Hospital for the Acute and Chronic Insane. Cleveland Press, Chicago, 1903: Chandler & Massey, Toronto, Price, $5.00.

This is a large octavo volume of 835 pages. Every pages bears the evidence of careful preparation. As the title of the work states it takes up the etiology, pathology, diagnosis, and treatment of tumors. The work from each of these view-points is very full and complete. The operative work for the removal of tumors is gone into with every detail, and the best methods described clearly. To every physician in active practice, this work would prove useful and interesting. To the surgeon it will be specially helpful. Of the many works on the subject of tumors, malignant and benign, we regard this as the most thorough and exhaustive with which we are acquainted. The author deserves much praise from the profession for his efforts in bringing so much use ful information together upon the subject of tumors. We trust the work will create an interest in this important branch of surgery.

ATLAS OF THE EXTERNAL DISEASES OF THE EYE.

A brief treatise on the pathology and treatment by Prof. Dr. O. Haab of Zurich. Authorized translation from the German second edition, revised, edited by G. E. De Schwinitz. A.M. M.D., with 98 colored lithographic illustrations on 48 plates, Philadelphia, New York, London. W. B. Saunders & Co. Toronto, J. A. Carveth & Co. $3.00.

This small but compact book is the result of an attempt to illustrate in colors the most common external diseases of the eye and to give a thorough description of the various methods of examining an eye case. A mere glance at any one plate will convince any one how accurately has the work been accomplished. The various methods of examining an eye, what to look for and where to find it, is told in very simple and clear language. We know of no other book containing such a clear exposition of this most necessary feature of eye work. The illustrations, each accompanied with a short clinical history gives a wonderfully accurate idea of nearly all external eye diseases. General practitioners who have not the time to spend in large eye clinics and who are every day seeing some eye cases will find the book invaluable, and he will derive more help from it than probably any book he might select. Dr. De Schwinitz says in his preface that "perhaps it is not too much to say that while one is reading this manual he distinctly feels that he is in the atmosphere of a large clinic." We cannot find words that more correctly convey our own impressions. We believe this to be the most useful and practical eye work any general practitioner can select. The publishers have done their work excellently.

SIMON'S CLINICAL DIAGNOSIS.

A Manual of Clinical Diagnosis by means of Microscopical and Chemical Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., author of Simon's Physiological Chemistry, etc. New (4th) edition, thoroughly revised and enlarged. In one handsome octavo volume of 603 pages, illustrated with 139 engravings and 19 plates in colors. Cloth, $3.75 net. Lea Brothers & Co., Philadelphia and New York, 1902.

The growing demand for this work must be construed as evidence of the esteem in which it is held as a plain and straightforward guide to those methods which at once facilitate and simplify the only certain path to success in practice, namely, accurate diagnosis.

The research which is constantly extending this field of knowledge is also simplifying it so that the equipment for laboratory investigation is practicable in every office. With these methods at his command the obligation to use them becomes binding upon the physician both legally and morally. The physician can readily acquire a working knowledge of precise diagnosis and the student finds it included in the curricula of a rapidly increasing number of colleges. It has evidently been the earnest endeavor of the author to adapt this book to the needs of undergraduates and practitioners alike. It states the best methods clearly and simply with all necessary instructions in careful detail.

The present edition shows revision from cover to cover, notwithstanding the short time that has elapsed since the issue of its predecessor. Every effort has been made to render the book as modern and as practical as possible. The author has supplied abundant references to the literature of the subject. This will be valued by those who wish to proceed further with the study of the subject.

INTERNATIONAL CLINICS.

A quarterly of illustrated clinical lectures, and especially prepared original articles on treatment, medicine, surgery, neurology, pediatrics, obstetrics, gynecology, orthopedics, pathology, dermotology, ophthalmology, otolgy, rhinology, larnygology, hygiene and other topics of interest to students and practitioners. Edited by A O. J. Kelly, A. M., M. D. Philadelphia, with the collaboration of Drs. Osler, Neuser, Stewart, Murphy, McPhedran, Rotch, Clark, Walsh, Ballantyne, Harold, Laudolt and Kretz. Vol. III., thirteenth series. Philadelphia ; J. B. Lippincott Company. Montreal : Charles Roberts, 1524 Ontario st., price $2.00

This volume contains six articles on diseases of the gall bladder and gall-ducts ; four articles on medicine ; and six articles on surgery. There are five handsome colored plates, five plain plates, and twelve other figures throughout the text. The volume is a very interesting one, and will well repay a careful perusal. We can speak in the highest terms of the International Clinics.

TYSON'S PRACTICE OF MEDICINE.

The Practice of Medicine. A Text-Book for Practitioners and Students with special reference to Diagnosis and Treatment. By James Tyson, M. D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University; Physician to the Pennsylvania Hospital; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians, etc. Third Edition thoroughly revised and in parts rewritten, with 134 Illustrations including colored plates. Philadelphia: P. Blakiston's, Sons & Co. Toronto: Messrs. Chandler and Massey. Price, Cloth, $5.50; Leather, $6.50.

The first edition of Tyson's Practice appeared in 1896, and, in the short space of seven years, a third edition has been called for. The present edition reflects great credit upon both author and publishers. The work is a large octavo one. The publishers have selected a specially fine paper of light weight, and have, by this means, given the profession a volume of 1240 pages without being too thick and heavy. The classification adopted is simple, natural, and effective for the author's purpose. One would expect a practical work from a person of Dr. Tyson's long experience as a teacher; and this is what his "Practice of Medicine" is in a preëminent degree. The various diseases are discussed under the heads of etiology, symptoms, course, treatment and termination. Dr. Tyson is a firm believer in what a wise physician can do for his patients. He is therefore an optimist, and it is encouraging and stimulating to read his "Practice." It is a wholesome sign of the progress of therapeutics to note that the author gives such a prominent place to the natural methods of treating disease, as food, air, rest, exercise, hygiene, and a less prominent position to the merely drug treatment. The present edition is bound to command a large sale, and equally sure to give complete satisfaction to its readers.

EDGAR'S PRACTICE OF OBSTETRICS.

The Practice of obstetrics designed for the use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College, Attending obstetrician to the New York Maternity Hospital. With 1221 illustrations, many of which are printed in colors. Philadelphia: P. Blakiston's Son & Co. Toronto: Messrs. Chandler and Massey. Price, cloth, $6.00. Leather, $7.00. 1903.

The work before us is a large imperial octavo volume of 1,111 pages. The author has long been known as a lucid writer on the subjects which he has taught so well for many years. The work is divided into ten parts: The Physiology of the Female Genital Organs, Physiological Pregnancy, Pathological Pregnancy, Physiological Labor, Pathological Labor, Physiological Puerperium, Pathological Puerperium, the

Physiology of the Newly Born, the Pathology of the Newly Born, and Obstetric Surgery. This is a complete and natural classification. Under each of these heads, the author gives the fullest and the most recent views upon the subjects discussed. Much of the work is based upon the author's own experience, some 2,200 cases. The question of asepsis is taken up and treated in a most thorough manner. There is an unusually full and interesting section of the book on the topic of the deformities and monstrosities of the fœtus. It is really impossible to review in detail so large and exhaustive a treatise. In every respect it reflects the highest credit upon the author and publishers. To say that it is as thorough and reliable as it is exhaustive is to say much less for the work than could be said. No one will ever regret the purchase of this work: for it is a masterpece.

CLINICAL EXAMINATION OF THE URINE AND URINARY DIAGNOSIS.

Second Edition, Thoroughly Revised.

Clinical Examination of the Urine and Urinary Diagnosis. A Clinical Guide for the use of Practitioners and Students of Medicine and Surgery. By J. BERGEN OGDEN, M. D., formerly Instructor in Chemistry, Harvard University Medical School, Boston; Assistant in Clinical Pathology, Boston City Hospital, etc. *Second Revised Edition.* Handsome octavo volume of 418 pages, illustrated, including 11 plates, 9 of them in colors. Philadelphia, New York, London: W. B. SAUNDERS & COMPANY, 1903. Cloth $3.00 net. Toronto: J. A. Carveth & Co.

The aim of this work is to present in as concise a manner as possible the chemistry of the urine in its relation to physiologic processes; the most approved working methods, both qualitative and quantitive; the diagnosis of diseases and disturbances of the kidneys and urinary processes. It is a work eminently in demand, since most of the books on the urine are devoted exclusively to urinary chemistry, a knowledge of urinary diagnosis being obtainable only by an extended search through works on medicine, surgery, pathology, and chemistry.

In this, the second edition, special effort has evidentally been directed toward making the tests complete and bringing it absolutely down to the present day advances in the subject. Important changes have been made in Part I, especially in connection with the determination of Urea Uric Acid, and Total Nitrogen; and the subjects of Cryoscopy and Beta-Oxybutyric Acid have been given a place. The changes in Part II, while not so extensive, are nevertheless numerous and practical, and show that the author has spared neither pains nor time in making the revision thorough. It is a good book, and both students and practitioner will find it a valuable aid in their clinical work. We recommend it.

MONTGOMERY'S PRACTICAL GYNAECOLOGY.

Practical Gynaecology, a Comprehensive Text-Book for Students and Physicians. By E. E. Montgomery, M.D., LL.D., Professor of Gynaecology, Jefferson Medical College; Gynaecologist to the Jefferson Medical College and St. Joseph's Hospital; Consulting Gynaecologist to the Philadelphia Lying-in-Charity and the Kensington Hospital for Women. Second Edition. Revised, with 539 illustrations, the greater number of which have been drawn and engraved specially for this work, for the most part from original sources. Philadelphia: P. Blakiston's Son & Co. Toronto: Messrs. Chandler and Massey. Price, Cloth, $5.00 net. 1903.

The first edition of this excellent work on practical gynaecology appeared in 1900. Many improvements have been made in the present second edition. The author is a well known writer and teacher. An examination of the book shows its very practical character. Padding is carefully avoided. The descriptions of operations are very clear, and the illustrations are of the best, and aid the reader in gaining a thorough knowledge of the author's plans of operation, examination and treatment. The Latin adage, *cave hominem unius libri*, would be particularly applicable to him who had mastered Professor's Montgomery's book. It is well printed, bound, written and illustrated, and contains a great fund of information.

THE AMERICAN POCKET MEDICAL DICTIONARY.

Fourth Revised Edition, Greatly Enlarged.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M. D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. Containing the pronunciation and definition of the principal words used in medicine and kindred sciences, with 566 pages and 64 extensive tables Philadelphia, New York, London; W. B. Saunders & Company, 1903. Flexible leather, with gold edges, $1.00 net: with thumb index, $1.25 net. J. A. Carveth & Co., Toronto

In this little work, now in its fourth edition, we have a pocket dictionary equaled by none on the market. It is a wonder to us how the editor has got so much information in such a small space. In this edition several thousand of the newest terms that have appeared in recent medical literature have been added, and the entire work subjected to a careful revision. Since the work has come to us for review, we have had many occasions to refer to it for definitions of new words, and in no instance have we been disappointed. We believe that the work in its new form will meet more fully than ever a real demand on the part of physicians and students.

A TEXT-BOOK OF OBSTETRICS.

A Text-book of Obstetrics. By J. CLARENCE WEBSTER, M.D. (Edin.), F. R. C. P. E. F. R. S. E., Profetsor of Obstetrics and Gynecology, Rush Medical College, in Affiliation with the University of Chicago; Obstetrician and Gynecologist to the Presbyterian Hospital, Chicago; Obstetrician to the Chicago Lying-in-Hospital and Dispensary, Chicago, etc., etc. Handsome octavo volume of 767 pages, with 383 illustrations, 23 in colors. Philadelphia, New York, London: W. B. SAUNDERS & COMPANY, 1903. Cloth, $5.00 net; Sheep or Half Morocco, $6.00 net. J. A. Carveth Co., Canadian Agent.

This work has been written for the student of obstetrics, as well as for the active practitioner. The anatomic changes accompanying pregnancy, labor, and the puerperium are described more fully and lucidly than in any other text-book we have seen. The exposition of these sections is based mainly upon studies of frozen specimens, in which department the author has had a larger experience than any other worker. Unusual consideration is given to embryologic and physiologic data of importance in their relation to obstetrics. The practical aspects of the subject are presented in such a manner as to be of direct assistance to the clinician. Diagnosis and treatment are presented with rare exactitude and clearness, particular consideration being given to those methods that have proved most successful by experience. The illustrative feature of the work is far above the average. Evidently, great care was taken in the selection o the illustrations, aiming to meet the varied requirements of both the undergraduate and the practising physician. Many of the illustrations are entirely original, having been made especially for this work, and never having appeared in any other text-book. The work throughout expresses the most advanced thought of the day, and the statements can be relied upon as accurate. We heartily recommend Dr. Webster's book to student and practitioner.

Adeno-Myoma of the Uterus. By Thomas S. Cullen, M.D., Associate Professor of Gynæcology in the Johns Hopkins University, and assistant Gynæcologist, Johns Hopkins Hospital, Baltimore, M.D. With 45 illustrations in the text. Berlin, 1903: August Hirschwald.

The assistants, scholars, and friends of Dr. Johannes Orth, celebrated his 25th year as professor in Göttingen, by contributing a number of papers, as a festchrift, in his honor. The contribution of Dr. Cullen makes a large octavo monograph of 90 pages. The edition before us is in German, is well illustrated and printed on very fine paper. The subject is divided into the three headings of adenomyoma with the proportionate preservation of the normal shape of the uterus, subperitoneal or intraligamentous adenomyoma, and submucous adenomyoma. The treatment of the subject throughout is of a very thorough and judicial character. The essay reflects great credit upon the author.

CLINICAL PATHOLOGY OF THE BLOOD.

A treatise on the general principles and special applications of Hematology. By James Ewing, A.M., M.D., Professor of Pathology in Cornell University Medical College, New York City. Second Edition revised and enlarged. Illustrated with forty-three engravings and eighteen colored plates drawn by the author. Lea Brothers Co., New York and Philadephia. Cloth. $3.50.

The appearance of this edition of Professor Ewing's work following the first at an interval of but two years is an evidence of the excellence thereof, and of the fact that it supplies a very well marked demand, as pointed out at the time of the appearance of the edition, of 1901. This work is more extensive than the ordinary treatises on clinical subjects and contains in a volume of moderate size, a very complete imposition of the theoretical and practical aspects of hematology, but besides this, on controversial points and they are many, the various opinions of different investigators are given and the reader is left to form his conclusion. One might venture a suggestion that from the standpoint of the man who is not a laboratory specialist, this impartial holding of the scales leaves one in the dark as to what to think especially as the value of an opinion which depends on the standing of the exponent of it and these are frequently forcing scholars whose attainments are unknown.

Among the additions since the last issue are those in the chapter on technics, the serum test for the blood, and the subject of crioscopy. A very full description of the serum test for the detection of blood is given (pp. 24-28), but it is pointed out that the limitations of the test make it only of indifferent value in those cases where it is most needed *i. e.* where the stains are old, impure, or scanty. Dare's hemoglobinometer is described and the writer considers it offers the best combination of convenience and accuracy, (p. 5,).

Crioscopy is the study of the character of fluids by the dermination of their freezing points; the presence of elements in solution in a fluid increases the osenatic tension of the fluid and lowers its freezing point in accordance with invariable physical laws. The freezing point of normal blood is 56° lower than that of water indicated $\Delta = 0.56°$, in uncompensated heart disease it may be 0.67°, in nephritis it may be as low as 0.71°. Beckmann has contrived an apparatus for the estimation of Δ which is described and illustrated. The author gives his support to Elerlach's classification of leucocytes according to the chemical composition of their contents and points out that notwithstanding the evidence of possible variations, the significance of the granules has been definitely determined, (p. 127). The side-chain theory of Ehrlich is given a concise and lucid exposition (pp. 141-147). After discussing the widely

varying views advanced on the question of the origin of the blood-cells the conclusion is "To summarize the work in this field, it may be said that we do not know certainly whether any common cell of origin of red and white corpuscles exists in the embryo or adult, or whether these corpuscles are derived from completely separate series. The late contributions favor the existence of a common mother cell both for groups persisting at least into late embryonal life," (p. 179).

Part II. deals with the special pathology of the blood, excellent original plates being given of the appearance of the blood in various anemias.

Part III. is devoted to acute infectious diseases the general conclusions being: (1) Decrease or relative increase in the preparation of red cells, but ending always in a loss in their total numbers, must be accepted as accompanying all cases of pyrexia, although requiring some time to become clearly apparent; (2) Coagulability varies in different stages of febrile diseases, but is not clearly connected with pyrexia as such; (3) The progressive loss of albumen in the blood is probably essentially connected with the febrile process, but occurs in increased degree when the fever is of infectious origin; (4) Febrile hydraemia is an accidental condition which may or may not occur as a result of the loss of albumens of the blood. Diminished resistance of red cells occurs in the majority of fevers, and depends on a variety of factors. Variations in alkalinity are frequent and considerable in fever, but are not proportional either to the height of temperature or to the toxic condition of the blood," (p. 280). The writer claims that the presence in the blood of the pneumoccoccus in pneumonia is rare except in fatal cases.

Part V. is devoted to general visceral diseases and Part VI. to animal parasites. The treatment of malaria is extremely full and interesting, the development of the parasite in the mosquito and the conjugation is described and the evidence of the existence of three varieties of full-grown tertian parasites as verified by Argutinsky, detailed. (pp. 431-464). A short appendix on contributions during the time of going to press, brings the subject fully up to date. To each chapter is appended a very full bibliography.

On the whole this work is one of solid merit and will be found of the greatest value to all those interested in blood work; the excellence of the binding, type and plates make the volume a handsome as well as valuable addition to any medical or scientfic library.

A POCKET DICTIONARY OF HYGIENE.

By C. T. Kingzett, F.I.C., Author of "Animal Chemistry," "Nature's Hygiene," and D. Homfray, B.Sc. Second Edition. London: Bailliere, Tindall & Co., 8 Henrietta Street, Covent Garden. Price, cloth, 2s. 6d.

This is an excellent little pocket manual. It is got up on the alphabetic arrangement of subjects. The type is small but clear, and the paper good. The little book contains a great deal of very useful information on hygiene, sanitary science, and allied topics. We believe that the book will give satisfaction to its readers.

THE JOHNS HOPKINS HOSPITAL REPORTS.

This report is volume XI. of the series. It contains papers on Pneumothorax, by Charles P. Emerson, A.B., M.D.; Clinical Observations on Blood Pressure, by Drs. Cook and Briggs; and the Value of Tuberculin Test in Surgical Diagnosis, by Martin B Tinker, M.D. The volume contains 555 pages of carefully prepared matter. The treatise on pneumothorax is very exhaustive, and will be of much help to those studying this important subject.

BABCOCK ON DISEASES OF THE HEART.

Diseases of the Heart and Arterial System, designed to be a practical presentation of the subject for the use of students and practitioners of medicine. By Robert H. Babcock, A. M. M. D. Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons, Medical Department of the Illinois State University, Chicago; Attending Physician to Cook County Hospital and Cook County Hospital for Consumptives; Consulting Physician to Mary Thompson Hospital, Hospital of St. Anthony de Padua, and the Marion-Sims Sanitorium; Fellow and Former President of the American Climatological Association; Member of the American Medical Association, etc. New York and London: D. Appleton and Company. Toronto: Messrs Morang & Co. Price, cloth, $6.00.

The author first takes up the anatomy, physiology, and examination of the heart. He devotes 36 pages to this section, and gives a very clear exposition of the signs of cardiac disease. He then takes up the diseases under those of the pericardium, the endocardium, the myocardium, cardiac neurosis, and diseases of the arterial system. The portion of the book dealing with valvular diseases is particularly clear and strong. The chapters on the diseases of the arterial system are also of a very interesting and suggestive character. The treatment is well thought out and of the most approved character. Throughout, the book is bristling with excellent suggestions on treatment. A pleasing feature of the work is that the author pays so much attention to the constitutional causes of cardiac and vascular diseases. The volume is well illustrated and is a fine sample of the bookmaker's best work. We can speak in the very highest terms of praise of Dr. Babcock's treatise on the heart and blood vessels.

DISEASES OF THE SKIN.

An outline of the principles and practice of dermatology by Malcolm Morris, consulting surgeon to the skin department, St. Mary's Hospital, London ; corresponding member of the K. K. Gesellschaft der Aertze in Wien ; honorary member of W ener er_ matologische Gesellschaft ; and the société Française de dermatologie. With 2 colored plates and 58 plain figures. New edition. Chicago : W. T, Keener & Co. Price $2.00 1903.

There are very few who take any interest in dermatology who do not know of Mr. Morris's " Diseases of the Skin." It contains the mature teaching of a very experienced dermatologist. This is one of those books that is a real *multum in parvo.* It is not saying too much to state that this is one of the most satisfactory books on skin diseases in the English language. It is handsomely got up.

ELEMENTS OF SURGICAL DIAGNOSIS.

By A. Pearce Gould, F.R.C.S., Eng. ; M. S., Lond., Surgeon to the Middlesex Hospital, Member of the Council of the Royal College of Surgeons of England, and of the Examining Board of England, Member of the Senate of the University of London. Third edition. Revised and enlarged. Chicago : W. T. Keener & Co., 1903. Price, Cloth, $2.

It is many years since Mr. Pearce Gould gave to the profession the first edition of his " Surgical Diagnosis." The book is now in its third edition, enlarged and carefully revised up to date. Mr. Gould is a surgeon of very wide reading and experience, so that what he has to say upon a surgical subject will be listened to with much attention. On many occasions in the past we have referred to Gould's " Surgical Diagnosis " with much satisfaction, and can recommend it to both practitioners and students. The book is got up in excellent style..

THE PRACTICAL CARE OF THE BABY.

By Theron Wendell Kilmer, M.D , Associate Professor of Diseases in Children in the New York School of Clinical Medicine ; Assistant Physician to the Out-Patient Department of the Babies' Hospital, New York ; Attending Physician to the Children's Department of the West Side German Dispensary, New York. 12mo. Pages xiv-158, with 68 illustrations. Extra Cloth, $1.00, net, delivered. Philadelphia : F. A, Davis Company, 1914-16 Cherry Street, Philadelphia.

We have had much pleasure in reviewing this little book. It is full of sound advice, and is written in an attractive manner. The illustrations are good, and the paper, printing and binding are all that could be desired by the most exacting. We can recommend this book to our readers. It would be a first-class book for physicians to advise for mothers' use.