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THE THYROID UP-TO-DATE.*

BY W. M. DONALD, M.D.

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What impresses the observer of the whole field of medical science, and during the whole period of growth of medical lore, is the wonderfully slow growth in the acquisition of our facts and of our knowledge. In no particular organ is this more manifest than in our knowledge of the thyroid gland. Hippocrates is said to have described ordinary goitre. Shakespeare, in one of his plays, refers distinctly to the same condition. Graves first described the disease which we call exophthalmic goitre, seventy-two years ago. Basedow, working independently in Germany, described it shortly afterwards, and consequently the names of both these men are associated with this disease. Up to ten years ago we knew little more of the functions of the thyroid and the diseases of the same than was known at the time of Graves, or even at the time of Shakespeare. During the last ten years a great deal of work has been done in connection with the thyroid gland, and particularly in connection with the differential diagnosis between the various forms of thyroid disease, and likewise among the Germans in the simplification of the nomenclature of these diseases. The English speaking races are accepting these advances with their usual conservatism, but even they are falling into line in this regard and are gradually accepting the differentiation and the nomenclature of their Teutonic confreres.

I said a moment ago that up to within a few years ago we knew little of the functions of the thyroid gland, and the same

* A lecture to the Alumni Association of the Detroit College of Medicine during Clinic Week, 1907.

remark would apply to all the other ductless glands—the adrenals, the thymus, the pituitary body and the accessory thyroids. We have learned, however, that there is a close relationship between all these ductless glands. Thus, for instance, the pigmentation in Addison's disease of the adrenals is sometimes simulated by the pigmentation of exophthalmic goitre. In acromegaly, now believed to be due to a lesion of the pituitary body, we have a condition which is not at all unlike the condition found in athyrea or myxedema. Again, the persistence of the thymus gland in many cases of exophthalmic goitre, and likewise in a number of cases of acromegaly has been noted by different observers. Our attention might also be directed to the point that as the thymus gland atrophies the thyroid often enlarges. This also we have learned, that the thyroid secretion exerts a profound impression over metabolism. Thus, for instance, the excessive secretion of the thyroid juice or the excessive elimination of this juice from the gland during operations gives us a condition characterized by a tachycardia, by mental excitement, by extremely rapid respirations, profuse sweating, and many other evidences of profound change in the metabolism of the body tissues. On the other hand the condition of the thyroid gland in which there is a diminished secretion of the thyroid juice or an absence of it, gives us that condition that we call myxedema, in which the metabolic functions of the body are wonderfully lessened; where, for instance, the pulse is slow, the mental functions are sluggish, the skin is dry and scaly, the frequency of the respiration is lowered, and the general condition is one of lowered vitality or decreased metabolism.

We cannot discuss the other ductless glands to-day, but must confine ourselves to a study of the thyroid gland alone.

Let me call your attention to an interesting point, and a point which to me is of considerable importance in the study of this gland. It has been computed, and justly, that the blood supply to this gland is greater than the blood supply to the brain; arguing thus for the importance of this organ in the human economy. Now just how this gland utilizes this immense blood supply, and just how the vital chemistry goes on in the interior of the organ, so that the blood emanating from the organ is potent for good or evil, depending upon the quality of the thyroid secretion, we do not know. This, however, we do know, that in some way some constituent of the blood taken from this large blood supply is utilized in the vital chemical laboratory of the organ, is there transformed into an agent all

powerful in controlling or stimulating metabolism, and is then in some way passed over into the outgoing blood stream to be distributed to the whole economy.

The Germans have based their classification of diseases of this organ upon the basis of the amount of secretion manufactured and poured out by it. They classify the three more common diseases of the organ thus:

Athyrea,
Hypothyrea,
Hyperthyrea.

Athyrea is the condition which we usually characterize as myxedema, or in children cretinism. *Hypothyrea* is the condition which we recognize as simple goitre, a condition in which it is generally acknowledged that the secretion of the thyroid gland is lessened. *Hyperthyrea* is that condition which we speak of as Graves' Disease, or exophthalmic goitre, in which there is always an excessive secretion from the thyroid gland. The wonderful simplicity of this classification must appeal to one. Our nomenclature is notoriously bad and complex. Myxedema refers simply to a myxedematous condition of the tissues. Goitre refers simply to the throat; while in exophthalmic goitre we may have neither exophthalmos nor goitre, but only a condition of tachycardia, tremor and general nervous excitement.

I make a direct appeal for the simplicity of the newer classification. It is so easily remembered, it is so suggestive of the pathological findings in any given case, and it has so little of the cumbrous or complex about it, that it must appeal to any man whose aim is for the simplification of our medical nomenclature. Some day, I hope, we shall have an Academy of Medicine, a national affair, built along the lines of the French Academy, which shall do for medical terminology and medical literature and medical nomenclature in the English language what the French Academy does for the general literature of that country in the French tongue. It is possible that as our knowledge broadens this may resolve itself into an international academy, including the whole civilized world. It should at any rate, to make it broad enough, include the whole English speaking world, and I deem the English-speaking world strong enough and progressive enough to take its proper place in the formation of medical terms and terminology for the rest of our sphere.

I have not considered in the classification just mentioned the other diseases of the gland to which this organ is susceptible.

Thus, for instance, the ordinary malignant growths find an abiding place here the same as in any other tissue in the body. Carcinoma, sarcoma, fibroma and other neoplasms have all been reported as being found in the thyroid gland. They possess no interest to us here more than in any other part of the body. Nor have I deemed it wise to distract your attention from the point at issue (diseases due to an aberration of secretion in the thyroids) by discussion of simple thyroiditis, which is always a consequence of some of the infectious diseases, and always resolves upon the application of a cold pack, or suppurates, is incised, and goes on to prompt recovery.

Now let us consider these aberrations of secretion seriatim:

Athyrea is a condition which we characterize as myxedema in adults and cretinism in children. It is caused by the partial or total lack of secretion in the thyroid gland, or, in the operative form (the so-called, *cachexia struma priva*), by the removal of the thyroid gland in its entirety. Where there is a complete obliteration of the thyroid gland we have a pure myxedema or cretinism, or as we have chosen to call it, *athyrea*. Complete *athyrea* is not a common disease in this country, in fact, it may be considered a very uncommon disease. In some of the older lands, notably in Switzerland, certain portions of Northern Italy, and among some of the counties of England it is comparatively common.

The next form, *hypothyrea*, is infinitely more common, and is the common goitre which we know in this part of the country so well. In this should be included the cases formerly characterized as partial myxedema. Partial myxedema (I use this term to make my point clear) is very much more common than a casual observer would believe. Among the children of the poorer classes, where comparatively little attention is given to the mental condition of the child, and none too much to the physical, most of these cases are found. My friend, Dr. Inglis, some years ago called my attention to this in looking over some cases of nervous disease and mental vacuity among children under my care in the Protestant Orphan Asylum of Detroit. Since that time I have been able to discover a goodly number of cases dropping into this class, and benefited very much (as were my cases in the Orphan Asylum) by the careful administration of thyroids. These children to which I refer are apathetic, dull, languid, mentally sluggish, much addicted to nocturnal enuresis, owing to the lack of control of the higher powers of will and judgment; apt to be careless in their habits, dirty in their appearance, and

marked as children of abnormally slow development. Of course some cases show these characteristics in a high degree, while others show them only in a very much less marked manner, but all of them are greatly benefited by feeding with thyroids, in doses adjusted to the age and size. I have met with similar cases in young women, where there has been an enlargement of the thyroid gland, and in whom there has been the same tendency towards apathy and dulness and carelessness in habits. In men I believe the disease is much less common, just as we know our ordinary simple goitre to be much less common in the male sex.

In that variety of hypothyrea, which we call simple goitre or bronchocele, there is little new added to our knowledge. The cause of it we do not know, but evidence seems to be accumulating which would point towards an infectivity in certain cases and particularly in certain epidemics. A goodly number of epidemics of this disease have been reported in barracks, and where men have been congregated in large numbers. Considering, however, a possible infectious agent in this connection, we must remember that these men were all confined under the same hygienic conditions, with the same food, and notably with the same water, all of which may be considered as possible causative factors equally with the infectious agent. Some years ago I conducted, in my clinic work at St. Mary's Hospital, a large number of experiments and a large number of observations to see if we could deduce any conclusions in regard to the racial, regional, or occupational factors in connection with this disease. After going over our statistics carefully, we felt that we could offer no conclusions in the matter, and consequently did not publish our observations.

Most of these patients, suffering with the ordinary enlargement of the gland, consult us on account of the cosmetic effect, but occasionally we see one who is suffering on account of interference with the respiration, or the swallowing, or on account of pressure upon the various organs concerned.

In the last variety, *hyperthyrea*, we have an entirely different condition. We Anglo-Saxons call the disease exophthalmic goitre, or Graves' Disease, or Basedow's Disease. We call it exophthalmic goitre in spite of the fact that we may never have any exophthalmos, and we may have very little goitre. It is generally conceded that in this variety of the disease of the thyroid we have an excessive secretion from the gland. We base our conclusions in this regard largely upon the fact that the symptoms are closely analogous to the symptoms of an acute

operative thyroiditis, where, after handling the gland during operations, a large amount of the secretion is expressed or squeezed by the operator out into the surrounding tissues, is taken up by the lymphatics, and distributed rapidly to the tissues throughout the body, there causing all the symptoms of an acute Graves' Disease.

The etiology of this disease is likewise unknown. I believe that certain cases may be due, not to an excessive secretion of the juice, but to a perverted secretion. However, we believe the syndrome of tachycardia, tremors, goitre of moderate extent, and exophthalmos, to mean practically always hyperthyrea.

Let me remind you that one of the earliest symptoms to be sought for in this disease is tachycardia, and next tremors. Goitre is usually moderate, sometimes practically absent, while exophthalmos may never be observed. If the disease is of comparatively short course and the blood supply to the post-ocular tissues not excessive, then we neither have protrusion of the eyeball from the excessive blood supply nor from the fatty growth sequential to it in the orbit. We consequently under these conditions fail to get the exophthalmos. Very often we find the nervous system of the individual in a peculiarly susceptible condition to be affected by the excessive secretion of the gland. We are perfectly certain that there must be a constant change in the amount of secretion poured out from every thyroid gland, normal or abnormal. With, however, that beautiful balance and adjustment of tissue and force existing in the human body, we know that an infinite number of changes in both quality and quantity of the thyroid secretion may take place in the normal body without any perceptible symptoms more than some slight disturbance of the economy. Given, however, great stress of excitement, or worry, or anxiety, or work, the nervous system may lose that balance of which we have spoken and fail even under rest to reacquire its equipose. Thus there is permitted the excessive and constant outflow of thyroid juice and nervous energy which produces the tremors, and the other symptoms just referred to.

A good deal of work has been done recently upon the pathology, gross and microscopic, of the various enlargements of the thyroid gland. The findings are not conclusive, but this much is deemed certain, that in ordinary simple enlargement or goitre there is always found a hyperplasia of connective tissue with a lessened secretion, while in the exophthalmic form there is a hyperplasia of glandular tissue with secretion

vastly in excess of the normal. Dr. Ballin, of this city, who has done considerable work on the surgery of thyroids, assures me that he always differentiates by the feel, the enlargement of the exophthalmic form from that of the simple form. In the former the gland is harder and has a very much more adherent capsule than in the latter.

Now as to treatment.—*Athyrea*.—In this disease there is nothing yet discovered which takes the place of thyroid treatment. Its results are most brilliant and most constant. Of course if the case is neglected until late in life, and permanent changes in tissues have eventuated, it is hardly fair to expect brilliant results from thyroid treatment; but given a case taken moderately early in life, or moderately early in the disease, and we may almost invariably depend upon results from this line of treatment. The same applies to the treatment of operative athyrea or myxedema, although we rarely see this condition at present, owing to the care with which a small portion of the thyroid gland is preserved in all cases of operation upon it.

Similarly we attach the same reasoning to the treatment of cases of *hypothyrea*. In this disease, with our lack of normal secretion from the thyroid it is necessary that we should supply to the tissues the thyroid in some form. In the cases referred to of children showing mental vacuity and physical inactivity, brilliant results may be achieved by careful thyroid treatment. In the young woman, likewise previously referred to, where we have the same mental hebetude, associated often with amenorrhoea and chlorosis, small doses of thyroid continued for some time give us most excellent results. Wherever in short, we have evidence of lack of secretion of thyroid juice, the feeding of the commercial gland, which is the only available form at the present time, is decidedly indicated. In most cases nothing can take its place.

In *hyperthyrea*, on the other hand, where we have an excessive secretion of this juice, we must under no circumstances be induced to feed thyroids: This is a point which I wish particularly to emphasize. I had supposed that the profession was a unit in realizing the necessities in this connection, but to my amazement, I have discovered within the last few months a number of reputable practitioners, standing high in the community, who have been guilty of the practice, the highly injurious and most careless practice, of giving thyroids in cases of hyperthyrea. It is quite manifest that the profession as a whole does not realize the true pathology in these cases. The nomenclature, which I have suggested to you to-day, should suggest the pathology in a moment. It should likewise sug-

gest the therapeutics. There are cases, it is true, which consult us for an enlarged thyroid in which one is apt to overlook the possibility of the enlargement being due to a hyperthyrea rather than a hypothyrea. If there is no exophthalmos and little tremor one is apt to overlook a moderate tachycardia occurring in a woman, in whose sex tachycardia is apt to be common and sometimes normal. Where, however, we have an enlarged thyroid with any evidence of nervousness, and any evidence of increased heart's action, we should give our thyroid with extreme caution. Many cases are on record where patients have gone to their death as the result of thyroid feeding in cases analogous to those I have just mentioned, in which the possibility of an obscure hyperthyrea was not considered and not discovered. As a terse summary, it might be put thus: In goitre, with evidence of diminished or lowered metabolism, give thyroid; in goitre with evidences of increased metabolism, shun it as a poison.

Since all the symptoms of hyperthyrea are due to an excessive secretion of thyroid and distribution of this secretion throughout the blood, some European genius conceived some time ago the idea that if some of the domestic animals, such as the goat, could have the thyroids removed, and so accumulate in its blood the anti-bodies which the thyroid secretion would normally neutralize; and could the animal be kept alive for a time sufficient to concentrate these anti-bodies in the blood, that when the blood was withdrawn and dried we should have a concentrated neutralizer for the excessive thyroid secretion. This idea has been adopted very largely by some of the manufacturing drug houses, and there is upon the market a preparation of dried blood of the goat or sheep which is prepared in the way suggested, and which is known as *thyreoidectin*. This has been used quite largely by many observers, and has given pretty generally good results. In certain cases it has failed to give any results whatever. An explanation which has been advanced for this failure is the possibility of accessory thyroids in the animal from which the blood was removed, or the possibility of the disease in the human subject being due (as I suggested before) not to excessive but to perverted thyroid secretion. Certain it is that in a given number of cases thyreoidection is valueless. Some observers have obtained excellent results in these cases of failure by giving full doses of iodine, usually in the form of the tincture. This is an old, old remedy for this disease, but an excellent one. A considerable quantity of iodine has been isolated from the normal thyroid gland, hence the theory that in these cases the iodine has been deficient

and that the supplying of the drug medicinally compensates for the absence of it.

One of the best articles upon the therapeutic uses of thyroid was presented by Professor Osborne, of Yale University, in the 1906 meeting of the American Medical Association, and was published in the Journal of the American Medical Association on November 3, 1906. It is an excellent summary of the therapeutics of thyroids, and has some most excellent allusions to experimental work done along the line of thyroid feeding by this author. Periodical literature, however, is full of short articles, experiments, therapeutic tests, etc., all bearing upon the thyroids.

In certain cases of thyroid disease, both of the hypothyrea and hyperthyrea types, we fail to get results from any of our therapeutic measures. In the hypothyrea type the deleterious results are frequently due to pressure manifestations; while in the hyperthyrea type the symptoms of tachycardia, tremor, muscular weakness and mental excitement may end in a fatal result unless the patient is promptly and suitably relieved. Where our therapeutics fail it is necessary that surgery should be resorted to. Comparatively little has been done in the surgical way upon the thyroid in this country, but in Switzerland a vast number of operations have been performed. Kocher, of Berne, did during his life nearly 3,000 operations upon the thyroid gland. Of these 3,000, 60 were performed upon cases of hyperthyrea or exophthalmic goitre. His results were wonderfully successful, he having lost only 3 per cent. of all his cases. He performed a series of several hundred goitre operations without losing a patient. Of these 3,000, many were exceedingly serious and dangerous cases. His results, in so far as improvement was concerned, were likewise excellent. Pressure symptoms were relieved in cases of hypothyrea with goitrous enlargement, and the ordinary symptoms of hyperthyrea were likewise greatly mitigated in most cases, if not entirely cured. Occasionally he had a failure, but taking it all in all his results were excellent. Operations done in this country and in England for hyperthyrea by removing a portion of the thyroid gland have shown likewise excellent results.

Surgery should never be resorted to however in hyperthyrea, until the resources of rest, thyreoidection, and iodine have been given their fullest test. Of the older remedies little need be said. Occasionally they may be of value, notably digitalis for the disturbed heart's action. We must confess, however, that our therapeutics in hyperthyrea have been woefully wanting in efficacy until the advent of the newer remedies.

EXAMINATION OF THE HEART.*

By T. MILLMAN, M.D.

Medical Director, Independent Order of Foresters.

The heart, as we all know, is one of the most important organs of the body. It is essential that it be sound in every respect in order that a person may enjoy perfect health. Medical science has devoted much time to the study of the heart, in health and in disease. Although we cannot see the heart in the living subject, science has so perfected the examination of it that we can, with few exceptions, diagnose its exact conditions. Of course many of the conditions can only be discovered by those who have made a specialty of this line of medical science. It requires careful study, much patience, a good ear and a long experience to be an expert diagnostician of the heart in health and disease. I cannot range myself in this class, so I do not intend to touch on the examination of the heart from a scientific point of view. Many of our text-books fully take up this. From what I have said it is evident that the young practitioner and the careless practitioner cannot flatter themselves as being reliable examiners of the heart.

This leads me up to the subject matter I wish to dwell on. The name of this Association implies that we are interested in the examination of the heart in connection with life insurance. From my long experience of over a quarter of a century as medical director of a large association, during which time I have reviewed over four hundred thousand medical examination papers and fifteen thousand six hundred death claims, I am convinced that the work done by the medical profession for life insurance is not all that it should be. In fact, there is some truth in the statement that the medical selection of risks for life insurance is of doubtful value. This should not be so. It is well known that medical selection, when carefully and honestly done, is of great value and materially reduces the mortality rate. Statistics show that the mortality rate of the male population over twenty years of age in the United States and Canada is about thirteen in a thousand. It is further shown that the medical selection reduces this death rate by 20 per cent. This, of course, is a very satisfactory result. But should we not aim in making a further reduction? Cannot we impress on the minds of the members of the medical

*Read at the Annual Meeting of the American Association of Medical Examiners held at Atlantic City, N.J., June 3-4, 1907.

profession the importance of making examinations for insurance as carefully as they would in examining patients who are seriously ill. Thousands of dollars are paid to the profession by insurance companies and societies. Our colleges should see that the students are as carefully taught to examine for insurance as they are for the diagnosis and treatment of disease.

It is stated that the benefit of medical selection terminates in five years. But I am satisfied that if the selections are carefully made the effects of same extend over a much longer period. For instance, a man may have heart lesion and enjoy apparent good health for more than five years, even ten, unless he has had some acute disease or be subjected to some strenuous occupation before he feels the effects of the lesion. A medical examination reveals the heart trouble and instead of the man getting a straight life policy, his premium is loaded; or he only gets an endowment policy, and thus the company has the benefit of increased rates as long as the man lives. An expert examiner can almost tell how long sub-standard risks will live—whether five, ten, fifteen or twenty years, thus showing that the advantage of the selection of risks does not terminate in five years.

Some of the above remarks may seem too severe on the medical men. They certainly do not apply to all. We have many who do their work carefully and conscientiously, and I believe they are the majority, but there are too many who are careless and incapable, and some even dishonest. When I make this assertion I am not alone. I am sure all who have filled the responsible position of Medical Director will agree with me. We have only to read Dr. Greene's work on "Examination for Life Insurance" to discover this. In his chapter on "Medical Selection and Heart Disease," he cites no less than eleven cases where there were well marked heart lesions which had existed previous to the time the applicant was examined for life insurance, and who had been recommended as first class risks with sound hearts. He further states that in some of these cases the physicians had always been considered able and faithful examiners. I personally know in several cases when I reviewed the death claims that heart lesions must have existed before the applicant was accepted, and yet these lesions were not reported. In 1900 I read a paper on "Some Results of Correspondence with Medical Examiners." I cited forty-two cases where the examining physicians recommended the applicants as first-class risks, yet, on writing for further information and a fuller investigation and examination, the examining

physicians could not recommend them. No less than fourteen of these had organic heart trouble, yet in the first place the heart, in each case, was reported as normal. A physician wrote me a few years ago that he was surprised to learn that we had accepted an applicant whom he knew had a well-marked mitral regurgitant murmur. The examining physician reported the heart sound and recommended the applicant. I saw the applicant two weeks after he was examined, and the murmur was so pronounced that you could hear it with ear three inches from the chest wall. The examiner was considered a reliable man and was examining for several companies.

Now let us be honest, and when an applicant enters your office instead of taking it for granted that he is a sound man, rather imagine there is something wrong with him, and set out to find it. The applicant is generally more or less excited, being conscious that he is about to undergo the ordeal of an examination. Set him at ease by a general conversation, such as the topics of the day, and while at ease count the pulse at both wrists simultaneously, observing if there be any difference in the radial pulse of each arm. Carefully note the condition of the arteries, whether they are quite elastic, showing no tendency to sclerosis; also note tension and the condition and rate of the pulse. After filling out the personal and family history you proceed to examine the chest. To properly do this all clothing should be removed. It is well known that the examination is frequently made over part of the clothing, even over a starched shirt. Well marked lesions might be detected, but those not so well defined will easily be overlooked. So make a point to have all the clothing removed. This is just as necessary in examining the lungs as the heart. After the chest is exposed observe the conformity of it. Note if there be any bulging or retraction, or any abnormal pulsation, and if the apex of heart is in its normal position. A heaving impulse indicates hypertrophy, a wavy impulse—dilatation. By percussion you will find out if there be any hypertrophy or dilatation, and the direction of the dulness will indicate what part of the heart is affected.

Auscultation should be made both while the applicant is recumbent, and while standing. The former position will better show up regurgitation, and the latter stenosis. As to the importance of each lesion in considering the applicant as an insurance risk I do not intend to dwell upon, except that I believe that where there is any permanent heart trouble, no matter how trivial, at the time of examination the applicant should

not be accepted for a straight life policy at ordinary rates. In fact, any sub-standard risk should be required to pay higher premiums or be granted only an endowment policy.

If the pulse rate is quicker or slower than normal the cause of same should, as far as possible, be discovered. The excitement of undergoing an examination may be the cause of the quickness. As before stated, try and get the applicant to feel at ease and count the pulse before you begin the examination; or you may ask him to return in a few days. If excitement does not prove the cause, question him as to the use of tobacco, alcohol, sexual indulgence, physical and mental overwork. Then again, the quick pulse should make one suspicious of incipient tuberculosis. The very slow pulse points to heart disease, with or without valvular lesions, or makes one suspicious of renal trouble. The strength and force of the pulse assist in diagnosing the condition of the heart and the general condition of the entire system. High tension of the pulse, if persistent, is a serious symptom, pointing to heart and kidney disease. There is also the danger of apoplexy in these subjects, and the irregular or intermittent pulse should also be carefully investigated. When there is a suspicion of anything wrong after examining the pulse and heart, and no cause can be found for said suspicion, my rule is to examine the heart and pulse after active exercise, such as running up two flights of stairs, and note results as to frequency and regularity of the pulse, and whether there are any abnormal sounds of the heart or undue tumultuous action. This frequently develops some latent trouble, as defective valves, disease of the muscular walls of the heart and defective nerve and blood supply to the heart itself, which may not be discovered when the applicant is quiet.

Many of the early deaths can be traced to something wrong in the circulatory system. Many cases of acute disease end fatally, owing to heart failure. A history of rheumatism, scarlet fever, etc., should make us very suspicious, and we cannot be too careful in these cases in examining the heart and circulatory system. Arterio-sclerosis is too frequently overlooked. This frequently occurs among the young as well as the old. Aneurism of the arch of the aorta should always be thought of.

PERFORATION OF THE GALL-BLADDER IN TYPHOID FEVER.*

By EDGAR BRANDON, M.D., C.M.

Surgeon to the Queen Victoria Memorial Hospital, North Bay.

The subject of perforation in typhoid fever is always one of great interest, not only to the general practitioner, who dreads and fears it as the one great and fatal calamity which may befall his enteric patient, but also to the surgeon who is called upon from time to time to repair the ravages of a perforating ulcer and to restore the continuity of a damaged ileum or colon. Fortunately, this very fatal complication is rare. Osler reports but 34 cases perforating in some six hundred and eighty-five, a percentage of 4.96. And in over 4,500 cases tabulated by Fitz, the mortality was but 6.58 per cent. Holscher found perforation in six per cent. of 2,000 cases; Murchison in 1,721 cases found its frequency was 11.38, so that on an average 6.58 per cent. is fairly representative of its frequency.

Perforation of the gall bladder in typhoid fever is, however, a still rarer occurrence. The literature on the subject is not abounding with records of cases, though in our search we were somewhat surprised in hunting about to find as many as there are so far reported.

The gall bladder is not the usual or common situation for a typhoid ulceration. The usual situations for perforations are found in the ileum, twelve to eighteen inches from the ileo-caecal valve, in 80 per cent. of cases in the caecum, appendix, or some portion of the ascending colon or jejunum.

The gall bladder is rarely perforated or ulcerated. There is abundant evidence to go to show, however, that the typhoid bacillus is to be found in the gall bladders of typhoid patients, and that acute cholecystitis in typhoid fever has resulted in quite a few cases is quite beyond dispute. The case I am about to report seems to be unique, in that it would appear to be almost a primary focus of the disease, as it was quite unassociated with ulcerated patches in the bowel by acute cholecystitis or gall stones.

Case N. L., female, aet. 18 years; family and personal history unimportant. I was called to see her on the afternoon of Christmas day, 1905. Condition then showed temperature

104.1, pulse 116, respiration 40, rose spots most abundant over the chest and abdomen, slight enlargement of the spleen, and pulse dirotic. In addition, there was a well marked bronchitis, rales being marked all over the chest, back and front. Indeed it was for this chest condition that her brother had called me, as she had been ill for a week or ten days, and, not improving, her friends were becoming anxious as to her condition. However, I had all the diagnostic marks of typhoid fever, and so told her friends.

I prescribed Yeo's Chlorine Mixture and an expectorant, with the usual fluid diet. She ran a typical course, the temperature varying from 100 to 103.5; her bronchitis cleared up, and she was progressing favorably till about midnight of the 10th of January, 1906, seventeen days from the time I first saw her, when she was seized with severe pain in the right hypochondriac region. There was considerable tenderness, and slight rigidity of the abdominal muscles; temperature 102, pulse 120. She described the pain as an "awful pain", though the appearance of the face was restful. I suspected perforation, and stopped fluids and medicine by mouth, gave her hypo. of morphia, and ordered hot stupes, with result that pain was relieved. The next morning her temperature was 101, pulse 120, abdomen slightly tympanitic. Her pain, however, had descended so that it was directly over McBurney's point, along with which was associated considerable dullness in percussion, and I had to think of appendical trouble. There were no other signs of collapse save the gradual dropping of the temperature and the slight change in the character of the pulse.

I had a consultation and we agreed upon a diagnosis of perforation in some form, either of caecum, colon, or appendix. We decided to remove her to the Victorian Memorial Hospital for operation, but in so doing we were immediately met with the objection of the patient, who did not realize the seriousness of her state, and it was only after considerable persuasion and some delay that we accomplished this, late that day. Unfortunately, not long after her removal to the hospital she suddenly collapsed, becoming pulseless, and soon expired.

The brother at first refused a post-mortem, though I did my best to secure the same. Much to my surprise an hour later he came back and gave permission for a small necropsy. On opening the abdomen the peritoneal cavity was found to be filled with a greenish yellow bile. The appendix was insignificant in size and perfectly normal and showed not the slight-

est sign of inflammation or ulceration. The gall bladder showed two perforations, one the size of the tip of my index finger, and the other that of my little finger. There was, in addition, two or three ulcerated patches. I have Dr. Harold Parson's report of the same. The bowels, both large and small, were apparently normal.

I propose here to review the literature in respect to gall bladder complications in typhoid fever. Keen, in "The Surgical Complications and Sequels of Typhoid Fever," states that, surgically speaking, "biliary infections may be divided into two clinical forms: First, those in which cholecystitis and empyema exist with or without gall stone; and secondly, a very much more important class, those in which perforations of the gall bladder takes place." In connection with the first class it is to be stated that the condition is not easy to diagnose because of the absence of symptoms. The attacks of cholecystitis are so mild that many latent cases are only discovered at the post-mortem. The pain is rarely marked and is only elicited by palpation, no other symptoms being present. The enlargement and distension of the gall bladder being ascertained only by palpation and percussion. Rolleston, in his work, states that "suppurative cholecystitis may occur, but that it is fortunately rare." In 494 cases of typhoid fever observed during six years at Montreal, there were 25 deaths, among which there was one due to suppurative cholecystitis. There were three cases of acute cholecystitis that recovered. In 2,000 fatal cases at Munich, tabulated by Holcher, there were but five of cholecystitis with suppuration. In 1,016 cases of typhoid fever treated during the years 1900-1901 in the Imperial Yeomanry Hospitals in South Africa there was but one case of suppurative cholecystitis. Camac has collected 115 cases. Murchison, in his work on the "Continued Fevers," refers to suppuration of the gall bladder, and reports a case in a boy in the London Fever Hospital, who died from perforating ulcer of the gall bladder, on the eighteenth day of enteric fever.

Messrs. Monier-Williams and Marmaduke Shields, in the *Lancet* of March 2nd, 1898, reviewed the literature of suppuration not dependent on gall stone. They found the condition as being rare, and stated that up to that time the English text books, except that of Murchison were silent on the possibility of suppuration of gall bladder occurring in typhoid.

Osler states that "Phlegmonous cholecystitis is rare, only seven cases occurring in the enormous statistics of Cur-

voisier. Empyema of the gall bladder is much more common and in the great majority is associated with gall stone."

The condition of acute cholecystitis is more common in young adults, but cases in young girls of five or six years have been recorded. The attacks, however, are separated by a considerable interval, as long as 14 to 20 years being reported between attack of typhoid and the acute cholecystitis. These latter cases, however, are nearly always associated with cholelithiasis, the typhoid bacilli being found in the gall stone. Halstead finding in ten out of 31 cases a history of enteric fever, the interval being from a few months to twenty years. However, one is struck with the infrequency of cholecystitis as compared with the great frequency with which typhoid bacilli are found present in the gall bladders of fatal cases. And in this connection, I would refer to my previous statement of the fact that typhoid bacilli are frequently found in the gall bladder of enteric patients. Councilman, referring to it, says, "I have come to regard the gall bladder as one of the surest places to obtain a pure culture of the organism. One must, therefore, look to some additional factor or exciting cause, which is necessary, before these bacilli are able to set up an acute inflammation.

The second surgical complication referred to, namely, the case of typhoid in which the gall bladder perforates, is much the more important, surgically. It is, indeed, also a very rare complication. The text books on typhoid, on the whole, are silent as to the possibility of the gall bladder perforating from typhoid ulcerations. Prof. Keen, in this same work, previously referred to, has collected the records of 31 cases of perforating gall bladder due to typhoidal cholecystitis, 26 were not operated upon and all proved fatal, and of the five who were operated upon, three recovered. Erdman, of New York, has collected four additional cases. Under 15 years of age there were 9 cases; between 15 and 25 years, 6 cases; over 25 years, 17 cases; 12 female and 13 male. Of the onset, one occurred in the first week, 5 in the second, and 21 in the third week, or later. My own case, a girl of 18 years, perforated during the fourth week, seventeen days after I first saw her, and about the twenty-fourth day of her illness. It will thus be seen that while the condition is met with, it is rare, and fortunately so—but 35 cases being reported in all the literature, so far as I could ascertain.

The diagnosis is not always easy. The symptoms are usually those of perforative peritonitis, hence location is not

easy. The sudden severe pain is the most prominent symptom, and it is usually in the region of the gall bladder or right hypochondrium. It is very necessary to elicit the exact site of the pain, as the pain might be due to a perforating ulcer of the duodenum or of the duodenal end of the stomach. Again, the descending character of the pain is very deceptive and most misleading. In my case the pain was first localised to the right hypochondrium, but afterwards descended so that it was over McBurney's point.

The signs of collapse are not always present as an early manifestation of perforation. This was evidenced by the suddenness of the demise of my patient. The onset of collapse is much more gradual in perforating gall bladder cases than probably any other abdominale viscus. As Dr. Murphy, of Chicago, remarked, in the surgical section of The British Medical Association last August: "Collapse is a manifestation of the absorption of the products of infection from the peritoneal surface. Rapid absorption of infective material does not take place until the endothelial cells of the peritoneum have been destroyed by the infective material." Hence, the delayed collapse may be in these cases entirely due to the much less infective character of the gall bladder contents, which in these cases consists mostly of typhoid bacilli.

Of the treatment to be followed in these cases there is but one thing to do, and that is to operate as soon as possible. Either a cholecystectomy or suture of the ulcerated perforated patches, followed by drainage as indicated.

DISCUSSION BY JAMES F. W. ROSS, M.D., C.M.

Calculi favor the occurrence of cholecystitis at any time, whether typhoid fever be present or not, but it must not be assumed that the pre-existence of gall stones is an essential feature in the infective process of typhoid. The bacilli alone may excite an acute cholecystitis, and this inflammation may later lead to the formation of gall stones. When any abnormal condition in the gall-bladder exists, and typhoid fever supervenes, the development of the typhoid bacilli in the gall-bladder will be materially assisted, and we thus have a condition ripe for complications. Calculi appear to be present in about one-third of the cases reported. Ehret and Stolz compiled a table of 32 cases of typhoidal cholecystitis, and stones were present in 20 of these. In Keen's 78 cases there were no gall-stones in 38, and of these 8 were under 25 years of age, and 6 under 15, a period of life when gall stones are rarely present.

The Incidence of Cholecystitis in Typhoid Fever.—The typhoid bacillus is said to be almost always present in the gall-bladder in large numbers during an attack of typhoid fever, and to persist in that situation for many years after the attack has ended in recovery, and yet with all, cholecystitis under such circumstances is said to be comparatively infrequent. This is a statement that to my mind must be taken *cum grano salis*; it is difficult to believe, and yet we are told that it is easy of demonstration. The milder cases of infection of the gall-bladder, complicating enteric fever often escape detection on account of the stupor of the patient, and the absence of any marked symptoms. Holscher gave us a record of 2,000 cases of autopsies after typhoid fever, and in these he found the gall-bladder diphtheritic in five and perforated in one. Courvoisier has reported ten fatal cases of typhoidal cholecystitis. In 494 cases of enteric fever, four were complicated with cholecystitis, one of which was suppurative and fatal (Montreal records). It is but recently that involvement of the gall-bladder in typhoid fever has been viewed with anxiety. No doubt many cases in which this disease was a complication have recovered or died without a diagnosis of the complication having been made. Mild attacks of acute cholecystitis, while passing almost unnoticed, may pave the way for future complications, by leaving a foundation for the formation of gall stones with the conditions necessarily incident thereto.

Time of Onset.—The period of onset of typhoid cholecystitis may vary considerably. It has been stated that it may set in from the ninth to the fiftieth day of convalescence. Many cases occur after the temperature has become normal; the condition may come on after a relapse, and in all cases, as a rule, its onset is sudden. As I have said elsewhere it has been stated that the period of latency may extend over months and even years.

Perforation of the Gall-Bladder in Typhoidal Cholecystitis.—In the cases collected by Westcott for Keen, numbering in all seventy-eight, primary perforation of the gall-bladder occurred in thirty. Four cases were operated upon and three recovered. Erdmann added four others to Keen's total, and another was recorded by McCrea, increasing the total to thirty-five. Seven were operated upon and four recovered. Of the twenty-eight not operated upon, all died.

Clinical Features of Acute Cholecystitis.—It is scarcely necessary to say that cholecystitis may be catarrhal, suppurative, phlegmonous or gangrenous. This is but a repetition of

what may occur in inflammation in other parts of the body. The symptoms vary considerably. In mild cases they may be looked upon as colic or indigestion. The most constant symptom is pain in the region of the gall-bladder, tenderness over the seat of the pain is to be found, the gall-bladder may be felt as a tumor, perhaps fluctuating, with a flat percussion note, moving with respiration or fixed by adhesions. Jaundice is rarely present; temperature, if not already elevated, owing to the fever, may rise to 100 or much higher; the pulse is liable to become rapidly increased, and is perhaps a better indicator than the temperature; there may be vomiting from the irritation of the peritoneum around the gall-bladder, and occasional chills may be met with if the inflammation is of the graver type. The symptoms may be increased in gravity; the phlegmonous cholecystitis may be considered as the extreme stage of the suppurative form of the disease, and when the inflammatory process has been so virulent as to destroy tissue, gangrene is to be met with, and it is in the gangrenous form of the disease that the symptoms are the gravest. I have written elsewhere and recorded five cases of gangrene of the gall-bladder operated upon with five recoveries. (Toronto Clinical Society Report, 1906.) These cases were in no way connected with typhoid infection as far as I am aware, but in two of these the condition was diagnosed as typhoid fever. When perforation of the gall-bladder occurs sudden pain may be produced beneath the right ribs, intense and spreading. There will be prostration, collapse and vomiting, the abdomen soon becomes rigid and tense, and then abdominal distention sets in; flatus soon ceases to pass, and the pulse becomes rapid, feeble and running. After a few hours there may be an interval in which the symptoms subside; jaundice then appears as a consequence of absorption of biliary pigment from the peritoneal cavity; distension increases, and free fluid can be made out by the dulness of the percussion note in the loin.

Differential Diagnosis.—The differential diagnosis of a distended gall-bladder and appendicitis, perforation of the intestine, perforating ulcer of the stomach or of the duodenum is not a matter of much moment, as surgical interference is indicated in all of these conditions, and when the abdomen is opened the presence of bile or of gall stones will at once direct the surgeon's attention to the gall-bladder.

Prognosis.—In the mild cases the prognosis is good, in the grave cases the outlook is not so good. The prognosis largely depends upon the period of time intervening between the per-

foration of the gall-bladder and the institution of surgical interference. The earlier the operation the better. The result in all these cases develops with great rapidity.

Treatment.—To such an audience as this it is unnecessary to say much of treatment of this condition. To my mind there is but one treatment, and that is surgical. The abdomen should be opened, drainage of Morrison's post-hepatic pouch should be instituted, the abdominal cavity should be thoroughly cleansed, the intestines and the five abdominal pouches should be irrigated with normal saline solution, all the while remembering that the intestines, perhaps the seat of typhoid ulcers, must be handled with the greatest gentleness; the operative procedure must be carried out with rapidity, so that not an instant of time is lost. If the gall-bladder is gangrenous it should not be removed, as its removal consumes valuable time and increases the shock. I am satisfied from my experience in the past that gauze packing with iodoform gauze and drainage of Morrison's pouch through its most dependant portion by counter puncture with the scalpel upon the protecting fingers inside the abdomen, rapidly carried out, is all that is needed to insure the greatest degree of safety to the patient. The gall-bladder may slough and come away at a subsequent date. The patient is always in a critical condition, and it is a great mistake to attempt too much. It is wonderful how nature repairs this condition at a late date, and it is, therefore, important, knowing this, that we should pay chief attention to the saving of the life.

Selected Article.

ON THE TREATMENT OF CHRONIC DISEASES OF THE HEART.*

BY PROF. THEODOR SCHOTT, M.D., NAUHEIM.

Allow me first of all to thank you heartily for your kind invitation, which affords me the opportunity to lay before you a few particulars of the treatment of heart diseases and some of my experiences in this connection.

Hardly twenty-five years have elapsed—and many of you remember that time—since there were, apart from hygienic directions, only two means of dealing with chronic cardiac diseases, viz., rest and digitalis.

The general opinion, and the one generally held in our universities at that time, was that when these two means failed heart diseases were a *noli me tangere* for medical therapy. Even the view of Stokes, that in certain cases of fatty heart stronger exercise and climbing might prove very useful, was soon forgotten. This was partly due to the fact that, especially in the matter of chronic heart complaints, particular attention was devoted to pathological anatomy and to physical diagnosis, whereas therapy itself was more or less neglected.

No longer than twenty-five years ago, three methods of treating cardiac diseases appeared nearly simultaneously and, as I shall point out, quite independently of each other; they are known to-day as physical therapeutics. They were, the so-called Swedish method, the leading feature of which was Zander's treatment by the use of machinery; Oertel's mountain-climbing cure; and the balneological gymnastic treatment described by my late brother, August Schott, and myself.

You are well acquainted with these different methods. I may therefore enter at once into the consideration of the single points which are perhaps of special interest to you.

For the sake of completeness I must not fail to mention that the number of remedial agents used in the treatment of chronic cardiac diseases has largely increased. But I find it impossible, to my regret, at present to dwell on this subject at greater length and intend to treat it more extensively in the manuscript.

Digitalis, either with or without digitalin and digitoxin, is

* Read before the Ontario Medical Library Association in Toronto.

and always will remain our most important remedy. But sometimes its cumulative and toxic effect compels us to look for other means, the most important of which is tincture of strophanthus, which acts more slowly and safely.

A special reference may be made to strychnia, which is used *by mouth* and also subcutaneously. Strychnia may, of course, be used when the heart muscle is weak and relaxed. Its use is often desirable, but in recent years there has been perhaps too strong a tendency to resort to it as a heart tonic. It produces stronger contractions of the walls of the heart, but unless carefully watched, or when used for too long a period, it sometimes sets up a condition of abnormal irritation, occasionally followed by a recurrent weakness of the cardiac muscle.

Many other heart tonics, called vasodepressors, have likewise been adopted, especially the nitrites. Their chief representatives are erythrol-tetranitrite and nitroglycerin, the latter being more successfully employed in liquid form, generally a 1 per cent. alcoholic solution. The action of this is highly effective in some cases of pain and oppression.

In angina pectoris the haloid salts, especially those of iodine, often produce effects similar to those of nitrites. But they are not counted among the vasodepressors, and it is still an open question whether a changed viscosity or other circumstances exercise an influence in this respect.

Salts of mercury and, above all, calomel are not remedies for the heart in the strict sense; combined with digitalis, they are, separately or collectively, excellent diuretics.

The slowing of the pulse caused by morphia is the result of weakening of the ventricular contractions; thus it fails to tone up the heart. This view is amply supported by clinical observations. For all that, this remedy is not to be discarded entirely in cases of intense pain, oppression or conditions of great cardiac anxiety. A strong dose may then be administered, though not too frequently or for too long a time.

The inherent defects of remedies and the oft-recurring want of success obliged us to look for other means, and led at last to the methods, which, as I have said, are known as the physical treatment of chronic heart diseases.

Let us begin with the method which, though the most recent, aroused general interest for a short time, viz., that of Oertel.

OERTEL'S METHOD.

The Dublin physician, Stokes, had already observed that an enervating régime is injurious to persons suffering from the

heart, and more especially in cases of fatty heart. He expressed himself in favor of bodily exercise, chiefly mountain-climbing, and described how patients that were breathless as soon as they had begun to climb returned with an improved action of the heart. His teaching was soon forgotten until, some twenty-five years ago, it was taken up by Oertel, who modified his method, combined it with a limitation of the supply of liquids and applied it to the sphere of all disturbances of circulation.

Oertel had three objects in view, viz., to facilitate the circulation by reducing the amount of liquid in the blood, to strengthen the heart by walking and climbing, and to remove the superfluous deposits of fat by a strict diet.

Numerous experiments and observations have proved the unsoundness of Oertel's original assumption that every quantity of liquid absorbed increased the amount of water in the blood. On the contrary, we have discovered that the composition of the blood is much more constant and, above all, that a reduction in the quantity of the blood does not tend to strengthen the circulation in the lungs. Oertel's diet may be employed successfully in dealing with fatty hearts, and especially with persons whose blood is of normal quality. His dietetic scheme possesses the great advantage over those of Harvey-Banting, Schroth, Ebstein, etc., of coming nearer to the components which Voit and those of his school have laid down as best adapted to the nourishment of the human body. However, the point must be insisted upon that most sufferers from cardiac complaints do not want to lose fat, but to increase muscle, and that a too great and too rapid loss of weight should be avoided. Losing from 40 to 50 pounds in from four to six weeks, as mentioned by Oertel, may be allowed now and again without injury, but experience shows that small losses of weight produced by inadequate nourishment combined with a diminution of liquids may cause serious harm within a short time.

The mechanical part of the Oertel treatment consists in the exercise of walking and climbing. For the latter the author selected mountainous localities of middling altitude named "Terrain kurorte," in which different degrees of climbing were prescribed. In this manner he hoped to obtain a development of strength of the heart by means of an increased action of the muscles. In later years Oertel combined the climb-cure with pneumotherapy, application of dry heat, electricity and massage. His manner of treatment was originally devised for

fatty heart. In order to generalize it for the treatment of all chronic cardiac diseases, he propounded a number of theories, which were for the most part erroneous. It was, above all, the want of success attending these therapeutic measures and the dangers to which they so obviously gave rise that led many to abandon them. Instead of a low diet we often require a very strong and general one. Furthermore, climbing entails so much exertion on the organism that such a course should follow and not precede other cures; moreover, climbing should only be resorted to when by other means the heart muscle has become sufficiently strengthened to allow it to perform such an increase of labor without danger.

In accordance with this, Oertel's treatment may be adopted only in a very limited number of cases. Undoubtedly his greatest and undisputed merit is, that he has given a remarkable impulse to the mechanical treatment of chronic heart diseases.

THE SWEDISH METHOD.

Gymnastics and massage were first carried on practically on a large scale in Sweden. Having no scientific basis and not being improved upon, the Swedish method never went beyond Sweden until Wide and others took it in hand.

The system began to find general acceptance only through its most clever exponent, Zander, who, besides manual therapy, invented very ingenious apparatus, expecting to render the patient independent of the position of the body and of the assistant. Opinions, however, are much divided on these points. Nevertheless, it is beyond doubt that Zander's method constituted a most important improvement. It is an excellent means for strengthening the muscles of the heart and accelerating the circulation of the blood. Many points applicable to gymnastics in general hold good in regard to Zander's system.

But a continual supervision is needful here, in order to regulate the resistance of the apparatus and the maintenance of the patients during and after the exercises, otherwise failure is the result. These failures occur very easily, because exact individualizing in the determination of the resistance of Zander's mechanical contrivances is very difficult to obtain.

The great expense of the apparatus and of their use, also the restricted conditions under which the patients can have recourse to them, must be an obstacle to their general adoption. In recent times Herz has improved the Zander machines by the introduction of an eccentric wheel and a weight moving on a

smooth inclined plane. There can be no doubt that the apparatus in question may be preferred to others, whose action is more limited, such as Gaertner's ergostatt, the so-called hygienist, rowing apparatus, tricycle and many other modern apparatus.

THE BALNEOLOGICAL-GYMNASTIC TREATMENT.

As far back as 1872 Beneke, in opposition to former views, showed that patients subject to acute rheumatic fever could successfully use mineral baths when the polyarthritis rheumatica acuta was complicated with cardiac complaints. Even when a freshly developed valvular lesion exists it may be cured within a short time by absorption of the exudations on the valves, obtained by the baths. My late brother and I found that a carefully executed balneological cure combined with gymnastics which culminate in mountain-climbing frequently and even regularly produce an improvement which is soon noticeable, and even, according to the nature and the condition of the complaint, an absolute cure. I wish to point out to you how we explained the mode of action of our treatment. We conclusively proved that the same principles obtain as regards baths as well as gymnastics, viz., to promote the action of the heart with the view to stimulate its activity, *i.e.*, toning up a weak heart. In the majority of cases we have to deal with a comparative or absolute inadequacy of the heart muscles to impel the circulation of the normal quantity of blood. This inadequacy involves an insufficient expulsion of blood from the cardiac cavities and hence leads to dilatation. But not every dilatation, as first proved by A. Schott, leads to the danger of want of compensation. We must differentiate between a dilatation produced by congestion and a compensatory one. The latter serves to overcome the obstacles caused by valvular lesions. Only the first form of dilatation requires treatment. The action of the heart muscles must be stimulated in such a manner that, by stronger systolic contractions, it may rid itself of the superfluous amount of blood. The dilatation—be it owing to insufficient ability to contract, or to a valvular lesion—means congestion of blood within the heart itself. The heart goes through many but insufficient contractions, and after each systole a certain quantity of blood remains within the heart cavities. The pressure within the aorta cannot be overcome merely by the force of the heart itself. My brother and myself were at last enabled to describe how, by means of our balneological as well as our gymnastic treatment,

the heart becomes stimulated to a more forcible and vigorous systole.

The pressure within the aorta and within the entire arterial system, as established by experiments on animals, often increases to a considerable extent, but on account of the hyperkinesis and hyperplasia of the heart, it is in better condition to overcome this increase of pressure within the arterial system. The heart is now able to empty its cavities completely during the systole and, concomitant with this, the suction-effect of the diastole is more effective. In this way the heart is relieved from the constant over-pressure which previously, during the permanent overfilling, acted upon the inner surface of the cardiac cavities, inciting the muscles to incessant and feeble beats. The increasing intra-arterial pressure endows the heart with new inhibitory impulses, and on this account it is enabled to beat more slowly and also more vigorously. This last fact is easily noticeable and has not only been frequently demonstrated by us, but also been confirmed by many others.

Various authors have attempted to explain the effect of the baths on the heart by a derivation of the blood from the internal organs to the skin and muscles. In this manner a saving and an alleviation of the heart's action may be produced. But to my view this theory does not sufficiently explain the vigorous and immediate effect of the baths and gymnastics. The action of the bath is generally weaker but more enduring, whilst that of gymnastics is more energetic but less lasting, especially at the beginning of the treatment. We observe a diminution of congestion within the pulmonary circulation as well as in the general venous system; in consequence of this a quieter respiration as well as a decrease of hepatic congestion and reduction of the cyanosis. Immediate observation usually shows a decrease in the frequency of the pulse. In consequence of the increased quantity of blood thrown into the arterial system the sphygmographic tracings show higher primary elevations. The slower pulsation causes the systolic and especially the diastolic tracings to be prolonged. The latter circumstance is the expression of a longer period of restoration of the weakened heart muscle. In suitable cases we notice that an already existing arrhythmia disappears.

In a large number of cases I have instituted exact investigations concerning the changes which the blood undergoes during a course of balneological-gymnastic treatment. In a dissertation, in which I communicated the results of these investigations, I proved that in such cases where the amount of hemo-

globin had been diminished, it again became considerably increased by the treatment in question.

And now I should like to give you a short description of our balneological and gymnastic system. You will find something about it in many medical publications. Some of these have also been issued in America, such as those of Wiliam Osler, Babcock, Tyson, Anders, Solis Cohen, John K. Mitchell, Kinneutt, Camak, Manson, etc.

THE BALNEOLOGICAL METHOD.

Let me begin by stating that it is just as impossible to give more than general rules in the matter of balneological treatment as in that of internal medicine at large. I need scarcely say that strong individualizing in treatment is absolutely necessary. Balneological treatment is an agent of great power as regards its influence on the heart; and unless it be applied with due caution and under uninterrupted medical supervision, combined with frequent observation of that organ, the clinical picture often changes; without this careful supervision and observation, results the reverse of favorable may ensue. *Pari passu* with the treatment cooler temperatures are better borne and also applied with good results. Opinions supporting this view may be found in the publications of several Nauheim medical men. It is very often advisable to observe the patient before, during and after the bath. In severe cases it is best to begin with a simple brine bath. Our Nauheim baths containing from 2 per cent. to 3 per cent. NaCl and the same proportion per mille of CaCl, they have sometimes to be diluted. The duration of the bath should not exceed ten minutes with a temperature of 93 deg. F. which should not be lowered much during the first week. When we have to deal with anemic patients or such as easily become chilled, prudence has to be exercised with the use of low temperatures. The temperature of 95 deg. F. must not be exceeded, even when a combination of rheumatism and heart disease presents itself, otherwise the tonifying effect on the heart might fail to appear. In such cases cooler but shorter baths should be preferred. If the patient remains quiet he may during the first minute experience a sensation of chilliness. After that time a feeling of comfort must come over him, partly because of the heating effects of the bath, partly by becoming used to it. But should this feeling of comfort not be attained within one minute, and the chilliness not disappear, the bath must slowly and carefully be raised to a sufficient temperature. As a rule the

patient must have the sensation of warmth as long as he remains in the bath. There are cases when patients, in spite of keeping quiet in the bath, feel chilly again in a little while. This second chilliness should be avoided, for it shows us that such a bath was too prolonged for its relatively low temperature. Either the temperature must be raised at once or the patient leave the bath immediately. On the following day the baths should be taken warmer.

If the patient bears the treatment well, more concentrated baths may be given. First of all the concentration of salts should be increased, especially the quantity of CaCl . Later on the baths containing CO_2 may be employed. We concentrate the brine bath by the addition of mother lye condensed from our springs. The next step upwards is furnished us by the so-called thermal baths with their weak percentage of natural CO_2 . For this purpose large open basins are provided into which the water is conducted. Part of the CO_2 evaporates in the air so that the water of three of our different springs reaches the bath with an amount of about 4-500 cc. of free CO_2 per liter. Besides these reservoirs large underground basins have been constructed, which make it possible to keep up the natural heat of the water and to reduce to a minimum the evaporation of the CO_2 in the open air. These reservoirs provide us with the water which we term "thermal sprudel." This water enters the bath with an amount of 1,000 cc. of free CO_2 per liter, and constitutes a transition from the thermal to the effervescent baths. The water for our effervescent or so-called sprudel baths is led directly from the main pipe into the bath tub; besides its strong mineral ingredients it contains between 1,200 and 1,500 cc. of free CO_2 per liter. Finally the strongest of the Naunheim baths is the effervescent running bath, known as sprudel-strombad. The water flows in and out, with an excess of pressure of from one-half to one and one-half atmospheres, whilst the patient is in the bath. The mechanical effect thus produced is still further enhanced by the largest proportional amount of CO_2 with natural temperatures of 86-93 deg. F. with which we are acquainted, that is, 2,000 and more cc. of free CO_2 per liter; this renders these baths the most efficient we know of.

The majority of patients require an intermission, in some cases after the first, but generally after the second, day. At a later stage three or four baths in succession may be given and at the same time the duration of the baths may be prolonged, but it rarely should exceed twenty minutes. After each bath the patient should be rubbed vigorously so as to put him into a

glow. After that he should remain in bed, at least one hour, in order to rest and maintain an equally warm temperature. The physician's endeavor should be to lead to a constant and careful increase of the efficiency of the bath. The baths should be given progressively cooler, longer and more frequently. A strict supervision of the condition of the heart should be kept up uninterruptedly; the success of to-day's bath should give the measure for to-morrow's. The efficacy of the Nauheim baths may be explained by the following data:

1. The possibility of the fullest graduation of the baths, which allows of beginning with a weak brine bath and then concentrating the mineral ingredients by means of mother lye, which acts strongly on the peripheral nerves, as it contains 40 per cent. CaCl.

2. The employment of waters of appropriate natural temperatures, viz., 86-93 deg. F., such as are used in ordinary life.

3. The possibility of beginning with a small amount of CO₂ which may be gradually increased to the greatest quantity we know of for these bathing temperatures. The water of the effervescent bath being in contact with the integument loses part of its CO₂ on account of the bodily heat. But in the sprudelstrom bath the water containing fresh quantities of carbonic acid gas in the nascent state is constantly being brought into touch with the bodily surface. We know by experiments that the mineral ingredients of the water act by imbibition, whereas the CO₂ with its movable molecules penetrates rapidly through the skin, and hence produces a quickly tonifying effect.

4. The mechanical effect of the sprudelstrom bath is added to this.

The radio-activity of the Nauheim springs was established two years ago by Professors Elster and Geitel, and the results were published in the *Physikalische Zeitschrift*.

The summer months are most suitable for the bathing treatment. In milder cases from four to six weeks are sufficient, after which an after-cure is advisable. This should be taken at a moderate mountain altitude, that is, not over 1,000 meters. On the other hand, in severe cases, the cure requires several months. In such cases it is advisable to divide the cure into two parts, between which the abode in the mountains should take place. In winter the patients should resort to a warm southern climate, in order to remain a long time in the open air.

The Nauheim baths may, to a certain extent be made artificially. My brother and I have published exact directions on

the subject. For this purpose either the Nauheim-bath salts may be used or else their most important ingredients must be employed, *i.e.*, NaCl and CaCl in due proportions. The development of carbonic acid gas is produced by bicarbonate of sodium and commercial hydrochloric acid. The chemical equivalents of both give the proportion in which they should be added to the bath. Should a solution of hydrochloric acid contain 42½ per cent. the proportion of bicarbonate of sodium should be the same. But when, as is generally the case, the hydrochloric acid is more diluted, the quantity of the solution must be increased in proportion to its concentration. The quantity of bicarbonate of sodium should at first be 100 gm. per bath, gradually being increased 1,000 to 1,500 gm., the bicarbonate of sodium being dissolved simultaneously with the other salts. The hydrochloric acid should be poured on the water close to its surface and evenly diffused, or else the bottle containing it should be placed in the bath, some time before the patient enters it, in order to allow a slow diffusion of the hydrochloric acid. In this way the CO₂ may be developed for one half hour or longer.

Through our directions the artificial Nauheim baths have come into very extended use. I wish to lay particular stress on the fact that many mistakes and misconceptions arise regarding the application of these baths. We often read in accounts of their effects that it is only the CO₂ which acts upon the heart. This, however, is quite erroneous. A good result—as already mentioned—may only be obtained with a gradual increase of all the component parts. Employing ingredients in fixed doses as manufactured and sold leads to the mischief that the quantity of CO₂ cannot be regularly graduated, the difference in the amount of CO₂ being too great and too sudden with each increase.

Thus, I have observed that unsatisfactory results were obtained with many patients, owing to the insufficient graduation, which rendered it impossible to regulate the bath either according to the nature of the complaint or to the temporary condition of the patient. It is evident that constant medical supervision based on long experience is absolutely necessary in the administration of artificial baths. In most instances a good result is obtained only when the patient is relieved from family and business worries, and, if possible, given better air and a change of surroundings. A suitable diet is likewise of great importance. In some cases and when proper means be adopted, excellent results may be derived from the artificial Nauheim baths. The number of successful cases must necessarily be

limited, because the strongest forms of the natural baths—effervescent and effervescent running baths—cannot be made artificially.

METHOD OF GYMNASIIC TREATMENT.

As already pointed out similar results may be obtained with graduated gymnastic exercises as with bathing. The baths act through the sensory nerves, gymnastics through the motor nerves. We make use of—

1. Exercises with resistance, in which the assistant resists the muscular action of the patient.

2. Gymnastics with self-resistance, in which the patient himself brings antagonistic muscles into action. The following principles may be recommended for the application of gymnastics: Each exercise must be performed so slowly and the resistance must be regulated in such a way that the patient is always in condition to breathe freely. This aim is best attained and fatigue of single muscles avoided when new groups of muscles are alternately brought into action and a pause made after each movement. When all the muscles of the trunk, arms and lower extremities have been exercised in this manner and the condition of the patient admits of it, the exercise may be repeated in several series. The different kinds of motion, consisting of flexion, extension, abduction, adduction and rotation are, of course, determined by the nature of the articulation of the joints. They have been so often described that no further description of them is required. I wish to add, however, that a great variety of exercises are performed. It is not very difficult to teach any one how to become a gymnastic operator, provided that he is conscientious and possessed of a certain degree of intelligence and power of observation. A certain amount of anatomical and physiological knowledge is presupposed; should it not be present it may of course gradually be acquired. In many cases it is advantageous to train a member of the family so that the patient may always avail himself of his services. Further rules for the operator are, that he must not grasp or in any way constrict a portion of the patient's body, so as not to impede the movements but resist them. When an exercise is carried on too quickly or with too great resistance he ought not to begin a new one before the patient breathes quietly and the pulse again becomes slower.

By adopting these exercises a bed-ridden patient may be relieved and strengthened to such an extent that he may be able to get about. I have received, on this point, most favorable reports also from medical men in the United States.

Even many years ago I had the opportunity to observe that in some cases in which digitalis had been extensively administered it ultimately proved inefficacious, whereas when used in combination with a bath and gymnastic exercises it again produced its effect.

It is advisable to resort first to the resistance exercises; later on the patient learns the exercises with self-resistance, which possess the great advantage of allowing him to make use of them at his own convenience and independently of any one else. After the resistance exercises the treatment, as already mentioned, should be concluded with the mountain climbing, but only then, when the heart muscles have already become strong enough to bear the increased strain without any risk.

The powerful effect produced upon the heart by the baths and the gymnastic exercises indicates under what circumstances this treatment is inapplicable, in fact, when it is contra-indicated.

These are: 1. Aneurism of the heart and of the large vessels. 2. Cases of advanced arterio-sclerosis and such extensive degeneration of the cardiac muscle that every increase of muscular action becomes dangerous, either by producing rupture of the aneurismal sac or by causing apoplexy or embolism.

It has recently been attempted to include in the treatment by mineral baths cases of advanced arterio-sclerosis and well-developed myocarditis, for the reason that at a suitable temperature these baths cause the blood to divert from the internal organs to the periphery. In such special cases this factor should not be considered decisive, because the ingredients of the baths, with or without the CO₂ have a far stronger effect upon the heart and may therefore lead to the above-mentioned dangers. Contrary to what has recently been maintained by some French and also by some German physicians it is inadmissible that the absolute height of the blood-pressure is any indication for the decision as to whether a bathing or gymnastic cure should be resorted to.

Thus we see that in cases of renal congestion or excessive dyspnea the unusually high blood-pressure decreases under our treatment while on the other hand a blood-pressure which has become too much lowered owing to debility of the heart increases under this same treatment. My brother and I resorted to massage, especially under the form of *tapotement*, particularly in cases of cardiac excitation, and by this means it often becomes possible to restore tranquility within a short time. But this result is not lasting, which may also be said of vibratory massage.

The application of cold, especially in the form of ice-compresses or ice-bags, is also a good means for quieting the heart's action. In cases where the heart requires quick stimulation, the use of high temperatures may be resorted to with great advantage. For this purpose an india-rubber-bag containing water of from 140 deg. to 160 deg. F. may be applied by shifting it gradually over the entire region of the heart and chest.

Until recently electricity was mainly used in order to quiet the heart's action. During the last years electricity has been applied in the form of sinusoidal currents; it has been claimed that, in this way, the heart could be quickly and permanently reduced in size; this view has not been generally accepted.

A separate paper would be required to give an adequate description of the diet required by patients with heart disease. I only wish to point out the following general rule: A mixed diet is to be preferred, the nourishment must be easily digested and not spicy. Exciting or effervescent beverages, or such as tend to produce gastric distention, should be excluded. The consumption of any large quantity of liquids or solids at any single time should also be avoided, for a distended stomach compresses the lungs and displaces the heart by pushing it upwards and outwards. In addition to this, the heart has to struggle against an increased intra-abdominal pressure, which should be avoided. When this pressure already exists, and is caused by constipation or flatulency, it may be made to disappear by combining a drinking cure of saline waters with the bathing cure.

The use of tobacco may easily prove injurious, and should either be restricted or entirely discarded, if possible.

Owing to want of time, and much as I should like to, I must refrain from dwelling upon certain accessory points such as dress, occupation, the advisability of contracting marriage, etc.

The skepticism which a few decades ago prevailed in the medical world has vanished in a great measure and a very material change has become apparent, especially as far as therapy is concerned. I should be greatly pleased if I have succeeded in showing you that satisfactory progress has really been made in the matter of therapy of chronic complaints of the heart.

Gentlemen, I thank you for the kind attention you have shown me during this lecture, and I hope that the subject I have laid before you may not have been entirely devoid of interest.
—*Boston Medical and Surgical Journal.*

Progress of Medical Science.

MEDICINE.

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

Adrenalin.

A comprehensive article on the "Physiological Action and Uses of Adrenal Extractions," by C. E. de M. Sajous, appeared in the May number of the *Antiseptic*, which had previously been read before the Medical Association of Greater City of New York. Sajous advances the theory of the connection of the adrenal secretion with the entrance of oxygen into the blood during the respiratory process.

Bohr found that the law of diffusion of gases was insufficient to account for the absorption of oxygen in the lung alveola. The identity of the secretion of the adrenals with Bohr's hypothetical substance is suggested by Sajous.

The adrenal substance after being secreted into the inferior vena cava becomes in passing through the lungs oxygenised. There is evidence to show that in the arterial streams it becomes a constituent of the plasma and hemoglobin. Now hemoglobin is composed of 6 per cent. of hematin and 94 per cent. an unknown albuminous body, which Sajous believes to be oxygen-laden adrenal secretion.

A substance, "Oxidase," of unknown composition, has been found in blood by many investigators. It is a powerful oxidizing agent, and Duclaux suggested its connection with the respiratory process, it gives the guaiac-blue reaction.

From the above and other experiments then oxyhemoglobin and oxidase resemble each other greatly, the former being albuminous, and giving the guaiac-blue test; it is the albuminous portion which reacts, as the iron-laden hematin is not affected; both oxidase and hemoglobin are colloidal.

Now Sajous finds that adrenal substance corresponds in every particular to the two apparently identical substances above discussed, after applying many tests, and he adds that the bronzing in Addison's Disease is probably due to oxida-

tion of the adrenal principle. Oxidasis also have the property of turning brown.

Glycosuria can be experimentally produced by the action of adrenal extracts on the surface of the pancreas, an over production of anylopin occurs, and an excess of sugar as an end-result is found. This suggests adrenalin as an active principle which acts as a general catalyzer of our tissues, and is thus able to transfer abundance of oxygen to the tissues involved without itself being destroyed. The local application of adrenalin produces anemia by exciting excessive metabolism of its cells, including its blood vessels, the vascular elements become exhausted by excessive metabolic activity and secondary hemorrhage, edema, etc., follow as a result of loss of tone.

Its action in producing arterio-sclerosis, Sajous attributes to the contraction of the vasa vasorum. Councilman found after its use degenerations in media chiefly about the nutrient vessels.

Its use in shock may be due to its property of carrying oxygen to the tissues, its active principles greatly augmenting tissue activity, and as has been shown slightly raising body heat. Solis-Cohen uses suprarenin in asthmatics with poor vaso-motor tone, others have confirmed his observations. Gout is due to imperfect nuclein catabolism; migrain and asthma, both being related to gouty diathesis, suggest its being tried in suitable cases, as also in hay fever.

In neurasthenia it has been found of value by Herchard. Mankowsky considers its greatest value to be in cardiac weakness, edema and cyanosis with dilatation.

The adrenals in Addison's Disease being the seat of destructive lesions, we should have in adrenal extract an infallible specific.

B. O'R.

Cardiac Dilatation.

Duckworth states that in dilatation of the heart the main indications for treatment are first to promote the power of the heart's walls, and, secondly, to relieve the venous engorgement which has arisen from their loss of function. The more pressing duty is to unload the venous system. It is seldom that a general venesection from the arm can be justified, unless it be of small amount, not more than six or eight ounces. Direct bleeding is oftener better done by the application of six or eight leeches to the epigastric or hepatic regions. The process of leeching is a source of more relief and comfort than the

amount of depletion would indicate. A poultice should be placed over the leech bites which encourages further depletion and induces a favorable hyperemia over a large surface. The hepatic congestion should be further relieved by purgation, the best purgative being mercury in some form. It is the best agent for lowering the resistance in the arterioles and capillaries, and thus relieving the labor of the exhausted cardiac walls. The dietary is important. It should be rather dry if it can be borne. Small feeds every three or four hours with solid or semisolid food are best. Much fluid with the meal is objectionable, as it depresses the stomach and the heart. Alcohol is commonly necessary, and is best given as old brandy, not more than two to four ounces in the twenty-four hours being given. Hot water should be given in the morning to promote diuresis; when the heart is once relieved, the urinary flow is more free. Ascites, if urgent, may demand tapping, and extreme edema of the legs must be dealt with by Southey's trocar. There is often difficulty in securing adequate rest and sleep at night. Recumbency is seldom possible, and the patient may be allowed to sit in a properly adapted chair with support for the arms and a rest arranged for the head to lean somewhat forward.—*Lancet*.

Technique of Heart Massage. BY SALOMONI.

There are three surgical methods of carrying out heart massage:

1. The thoracic or sterno-costal method (Tuffier).
2. The abdominal trans-diaphragmatic method (Poirier).
3. The abdominal sub-diaphragmatic method (Lare).

The thoracic is, of course, the most direct route. Massage can be effected extra-pericardially, or by incising the pericardium and taking the heart in the hand. By this method one runs the risk of wounding the pleura and setting up pneumothorax.

The second plan is carried out as follows:

Median supra-umbilical laparotomy, lowering of the left lobe of liver, incision of the diaphragm for 4 or 5 cm. directed towards the apex of the heart, without, however, touching it; therefore the bistoury will be directed not towards the right border of the heart. That is to say, from before backward, but from below upward, almost vertically, the border of the heart being far from the thoracic wall and resting on the diaphragm. If necessary, one can turn the xiphoid appendix

upwards, but never cut it, because the pleura passes behind it and can easily be wounded.

This method is the most direct and certain, especially during laparotomy. It avoids pneumothorax, makes artificial respiration possible, in case of need, and is better adapted for the practice of massage. Among the objections to the process is that of the serious character of the operation, rendering necessary the suturing of the diaphragm and often temporary resection of some ribs or cartilages.

The abdominal sub-diaphragmatic method differs from the preceding in leaving the diaphragm intact. In patients suffering from syncope, the diaphragm is relaxed, and consequently it is quite an easy matter to reach, through it, the apex and the ventricles, so as to press the heart against the sternum, while the other hand, resting on the praecordial region, rhythmically compresses the thorax. This method avoids the disadvantages of the thoracic, and is not so difficult and dangerous as the trans-diaphragmatic.

The single objection to this plan is the opening of the peritoneum, in those cases in which it has not already been opened. Salomoni has adopted a way of overcoming this objection, and has experimented with it on animals, practicing massage of the heart extra-peritoneally. He describes the technique as follows:

Incision of the abdominal walls on the linea alba, gently separating the peritoneum from the diaphragm, proceeding especially toward the left. Some closer adhesions are found at the level of the xiphoid appendix, and must be cut through. No pressure must be made on the diaphragm, as it is very easy to lacerate it or detach it from its insertions. In patients suffering from syncope, the diaphragm is much relaxed and thus the heart is easily reached with the fingers.

In the report made by Salomoni at the 19th Congress of the Surgical Society, full statistics were given. There were 27 cases, with only five complete successes, that is 18.5 per cent.

According to other authorities, the results are better, but they count also the indefinite survivals.

Here are Salomoni's conclusions:

1. Massage of the heart by itself, and practiced when all other simpler measures have failed, is not able to cause the cardiac beats to return to normal action and duration, bringing back to life patients who have died from chloroform, syncope or asphyxia.

2. That massage may avail, it must be applied at once, or a few minutes after the stopping of the heart.

3. The longer the period between the heart's stopping and the beginning of massages, the more doubtful will be the result. It is true that the heart remains excitable for several hours after death, but massage by itself is incapable of renewing the normal beats.

4. Therefore, used with other measures, it can help these to re-establish more easily and more quickly the functions of the heart and other organs.

5. From this point of view, it may be applied, especially in cases of chloroform syncope, without any fear, constituting an easy and safe method.

—Translated from *Giornale Internazionale delle Scienze Mediche*, by HARLEY SMITH.

Radium for Chronic Rheumatism.

Robin presented to the Academic de Medecine a communication by Dominici upon the action of radium in chronic rheumatism. The apparatus consisted of a metallic screen or shield covered with radium in the form of powder. It was stated that the radium exercised a remarkable effect—resolution of the swelling, disappearance of pain, disappearance of contracture, and the return of function.—*J. de Med. de Bordeaux*, in *N. Y. Med. Jour.*

The Effects of Nauheim Baths on Blood Pressure.

Dr. P. K. Brown, of San Francisco, detailed experiments made upon himself in which he had found that the Nauheim bath raised blood pressure. In cases of very advanced myocarditis, arterio-sclerosis, and arterio-sclerotic renal conditions the blood pressure was not raised. In normal persons the pressure was raised 15 to 20 mm. of mercury after a bath, and persisted for four hours. Drugs could not produce this result. In many acute diseases such a raise in blood pressure was an important aid to treatment. In many cases of pneumonia, even of the alcoholic type, the patient might be treated by baths, so that he would not require drugs.—*N. Y. Med. Journal.*

Thyroidectin.

Under this name the dried serum of animals which have been subjected to the thyroidectomy is used for the relief of exophthalmic goitre or Graves' Disease. The theory is that as a result of removing the thyroid gland in the animal a state is

produced in which the serum lacks the normal content of the thyroid secretion, and when this serum is given to a patient suffering from Graves' Disease it unites with the excess of thyroid secretion in the patient's blood, and so diminishes or antidotes its effect on the body. Under the name of "Antithyroidi" the liquid serum is given in the dose of 10 to 75 minims (0.65-5.0) in milk. Under the name of "Rodagen" the dried milk of the thyrosectomized goats is given in similar cases in the dose of one to four drachms (4.0-16.0) daily. Thyroidectin is prepared in this country.—*Hare, Practical Therapeutics.*

OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF ADAM H. WRIGHT, K. C. M'ILWRAITH, FRED. FENTON AND HELEN MACMURCHY.

The Induction of Labor in Contracted Pelvis.

In the *American Journal of Obstetrics*, June, 1907, we find an admirable paper on this subject, written by Dr. Joseph Brown Cooke, of New York. For extreme contraction of the pelvis he recommends Caesarean section. He considers that symphyseotomy and its more recent modification hebotomy are now to be considered obsolete, and be placed by the late lamented laparotomy.

He considers that the forceps are used too frequently, and that in some cases podalic version runs the risk of becoming a lost art. He considers that a vast number of infants are delivered instrumentally every year in cases where the necessity for operative extraction might be avoided by the timely induction of labor. Of these infants many are dead at birth, many die a few hours or days after birth, and of those that survive it may be said that the risk to which they are subjected by the operative methods employed would have been no greater, if as great, had they been expelled a few days or a few weeks prematurely.

He goes on to say: In the class of cases which come within the scope of this paper, we have to deal only with those forms of pelvic contraction of comparatively slight degree in which a Caesarian operation could scarcely be considered with propriety; and, as symphyseotomy and hebotomy have been tried and found wanting, we are forced to apply forceps or perform version at term, or adopt the more conservative and far safer procedure,

both as regards mother and child, of inducing labor at a suitable time, prior to the normal termination of pregnancy.

In considering pelvimetry, through which we learn the approximate truth as to the extent of deformity, he recommends Jacobson's pelvimeter. (We do not know that this pelvimeter has been used in Toronto.—Ed.)

After discussing various procedures with a view to discovering both the size of the pelvis and also the child's head, he says the physician should at or about the beginning of the eighth month of gestation begin the practice of the Müller method of cephalometry as modified by Hurst, and continue this practice at weekly intervals, until it is found that the relations between the fetal head and the external pelvis have become so strained that the induction of labor is indicated without further delay.

For those who need figures for guidance it may be stated in a general way only that with a true conjugate of 3.8 in. (external conjugate about 7 in.) labor should be induced at the thirty-sixth week; if the true conjugate is only 3.2 in. (external conjugate about 6.4 in.) labor should be induced also at the thirty-sixth week, and aided by forceps or version according to the character of the pelvic deformity, that is, forceps in justo-minor pelvis and version in a simple flat or a flat rachitic pelvis. Or, labor may be induced at the thirty-second week, and the child reared in an incubator. If the true conjugate is 2.6 in. or less (external conjugate 5.8 in. or less) the woman should be allowed to go to term, and be delivered by Cæsarean section, unless the circumstances are such that this operation cannot be skillfully and properly performed, when in justice to the patient, abortion should be induced as soon as the deformity is recognized. We hope the time will soon come when the induction of abortion under such circumstances will receive no consideration.

As to the methods of inducing premature labor, Dr. Cooke thinks that the choice will depend largely on the condition found. He has discarded absolutely the use of bags except in cases of premature rupture of the membranes, when he employs them only to replace the absent sack, and then with much trepidation, because the bag displaces more or less the presenting part.

In the case of primigravida he makes use of the Krause method as modified by himself, but only after suitable preparatory treatment of the cervical canal. In multigravida he employs either the same method, or one of his own expansion rings according to the case.

The principal objections which have been raised against the Krause method are the difficulty of inserting the bougie, the uncertainty of its action, the possibility of premature rupture of the membranes and the danger of sepsis. There need be no danger in passing the bougie. If properly inserted there will be neither uncertainty of action nor danger of rupturing membranes, and the matter of sepsis lies wholly with the operator.

Before any instrument can be inserted with safety into the gravid uterus, the cervix must be softened, the same would dilate by suitable preparatory treatment. This is accomplished by packing the cervical canal and, to a certain extent, the lower uterine segment, with five per cent. iodoform gauze, through a cannula gauze packer. In the case of a primigravida the smallest gauze packer is used, with one-half inch strips, and, in every case, the anterior lip of the cervix is steadied with a bullet forceps held by the assistant or nurse, while the instrument is introduced along the fingers of the operator's left hand, used as a guide. After the cervix has been packed the vagina is also filled with gauze, through a bivalve speculum, and the entire packing is removed at the end of twelve or eighteen hours. It is well to tie the end of the cervical packing to the vaginal gauze so that all may be withdrawn at once, and, as this introduction and removal of the gauze causes neither discomfort nor pain to the patient, an anesthetic is wholly unnecessary.

While it is true that, in certain cases, the mere packing of the cervix and vagina may be enough to induce uterine contractions, this result can never be definitely expected, and further treatment is usually required. The character of this subsequent method of interference will depend wholly upon the condition of the cervix, and this cervical condition is largely, if not entirely, dependent upon the number of children that the woman has borne.

A primigravida and, in many instances, a multigravida with no cervical laceration, will often present a more or less rigid cervix with no marked softening or dilatation, even after preliminary treatment with gauze. In such cases the Krause method of stimulating uterine contractions is the best.

The patient should be placed in the lithotomy position and the anterior lip of the softened cervix grasped and drawn down with a bullet forceps or volsellum. A silk or linen bougie about the size of a lead pencil, which has been prepared by thorough scrubbing with soap and warm water and then soaked for one hour in *cold*, bichloride solution (1-1000), is fitted with

a sterilized stiff wire stylet and anointed with sterile vaseline. This appliance, curved in the shape of a male sound, and guided by the fingers of the left hand of the operator, is now passed into the uterus, exactly as a sound is introduced through the penis into the male bladder. When the tip of the bougie has passed well around the globular fetal skull and points away from the promontory of the sacrum, the ring of the stylet is held firmly by the nurse and the operator slides the bougie off it and into the uterus, between the membranes and the muscular wall, until not more than two or three inches project from the external os.

The stylet is held in place merely to maintain the curve around the fetal skull and is withdrawn as soon as the bougie is in place. No force may be used in the introduction of the instrument, and, when this little operation is performed gently and carefully, the patient will suffer in no way, the sacral promontory will not be impinged upon, the membranes will not be ruptured, and certainty of action is practically assured. If sepsis follows the blame will usually lie with the operator.

The vaginal canal is now snugly packed with gauze, and if, after twelve hours, no labor pains have occurred, the gauze is removed and the bougie reinserted or another placed by its side.

It seldom happens, however, that the first bougie, if properly passed up to the fundus, fails to produce the desired result.

As soon as labor pains are well established both the packing and the bougie should be withdrawn and the case allowed to proceed without further assistance. It is a serious mistake to leave the bougie in place until it is forced out of the uterus by the contractions. Such practice not infrequently results in premature and high rupture of the membranes.

In the case of a multigravida with a short, softened and dilated cervix, I prefer my own expansion rings (so-called for want of a better name), which I present for the first time to-night, although I have used them successfully and with entire satisfaction in a large number of cases.

These rings are of such simple construction that I have not called upon any instrument maker to provide them for me, but make them myself, according to my needs. As one ring will suffice for several cases, unless the spring rusts and breaks, I have not made many.

The appliance consists simply of a soft rubber catheter with the tip cut off, into which is passed a long spiral watch spring of the cheaper grade. This forms a circle when in place and the approximate ends of the catheter are sewn together.

When boiled the instrument is sterile and ready for use.

It is then pinched up at one point and tied with bobbin tape, in a bow-knot with short loops and long ends, and grasped with a bullet forceps.

The anterior lip of the cervix is now drawn down and held by an assistant or nurse and the constricted segment of the ring, guided by the fingers of the left hand of the operator, is introduced, by means of the bullet forceps, into the cervix and just through the internal os.

The nurse now pulls on the long end of the tape, unties the knot, and releases the spring.

The operator, still holding the bullet forceps firmly in place while the anterior cervical lip is steadied by the nurse, grasps one side of the ring between his thumb and forefinger and pushes it slowly and gently into the uterus, until about half has passed the internal os.

This is accomplished without pain or discomfort to the patient and with absolutely no danger of rupturing the membranes.

When the ring is in place, in the form of a figure of 8 with its greatest constriction at the level of the internal *os uteri*, the vagina is packed with gauze as before, and labor may be expected to begin within a few hours or even minutes.

It is well to attach a tape to the vaginal portion of the ring, lest it work its way into the uterine cavity.

As soon as labor pains begin it and the vaginal packing should be removed at once and the case allowed to go on as when the Krause method is employed.

PSYCHIATRY.

IN CHARGE OF DR. J. G. FITZGERALD,
Clinical Director and Pathologist, Toronto Asylum.

At the recent meeting of the Ontario Medical Association, on the Symposium, "The Profession in Relation to the Public," ideals for asylum work in Ontario came in for considerable discussion, and it is particularly gratifying to note that the future is rich in promise and Ontario is coming into her own.

A member of the Provincial Government was present at the meeting and emphasized very strongly the position of the Government in the matter; and it was to the effect that Ontario not only was not going to lag behind, but thanks to praise-

worthy efforts on the part of the Provincial Secretary, was going to lead in Canada, and would be actually the first on the Continent of America to establish a modern up-to-date Psychiatric Clinic thoroughly equipped in every department.

That such a plan will meet with the hearty approval of every man in the profession who wishes to see Ontario lead in the matter of her treatment of the unfortunate insane, goes without saying.

It is most desirable that the men in the profession and the men in the asylum service get more closely in touch with one another, and the publication of a periodical devoted to Psychiatry is designed to serve this end. The *Bulletin of the Provincial Hospital* is the name of the most recently launched medical publication in Ontario, the first number is already in the hands of the general practitioner, and a second number will appear at an early date.

Treatment by Employment for Nervous Cases.—Laehr Wiener, *Klinische Wochenschrift*, 27th Dec., 1906.

That work is a most valuable method of therapy has been recognized for many years in the treatment of certain of the neuroses and psychoses.

In this article the author states that work to be suitable must give the patient pleasure in doing it, and the work should be of a physical nature. The neuropsychoses, are most suitable cases. The patient must feel and desire treatment, and best results are obtained when the patients realize that the work given them is part of the treatment.

The patient should always do purposeful work, preferably in the open air—carpentry, wood-carving, cardboard work, gardening and book-binding for men patients, drawing, painting, photography for both sexes and housework for women. The work done should be carefully supervised by a physician.

The Development of the Family Care of the Insane in Germany Since 1902.—Kourad Alt, *Carl Marhold*; Halle, 1907.

Professor Alt, of the Uchtspringe Insane Asylum, here gives a brief, concise account of the growth and development of the family care system in Germany. In 1882 there were in Germany two family colonies with about 50 insane boarding out. In 1906 there were 475 colonies with 2,400 patients boarding out.

The patients so taken care of, are well-behaved and able-

bodied individuals, who, as a rule, work much more willingly than when confined in institutions for the insane. Many patients who are quite unwilling to do any work whatever when so taken care of work readily and cheerfully.

From an economic standpoint, Germany, the State of Massachusetts, and other places where such a plan has been tried, have abundantly proven that colonies, as adjuncts to insane asylums for chronic patients, are most valuable.

The Relation of Alcoholism to Epilepsy.—M. Woods, *Journal of the American Medical Association*, 9th Feb., 1907.

In this article Woods points out that his experience has led him to believe, that the factor of prime importance in considering the etiological significance of alcohol in the production of epilepsy is the condition of the parents at the time of conception. When either parent is in a state of intoxication the likelihood of the child conceived at such a time becoming epileptic is very great.

The statistics of various authors in regard to the development of epilepsy in persons whose forebears were alcoholic, are given; and the interesting figures of Martin, who found in going over the histories of one hundred and fifty insane epileptics that 60 per cent. had intemperate families with four hundred and ten children, one hundred and eight were epileptic. The statistics of Bourneville are also worthy of attention. He found in examining 2,554 children suffering from idiocy, imbecility, epilepsy and hysteria, that 1,053 were the progeny of drunken parents.

One of Woods' cases was quite convincing—in this, a healthy temperate father had two healthy children, he became intemperate, had two other children, one of these developed epilepsy when six years of age, the other had paresis with epilepsy.

The significance of an alcoholic inheritance is very obvious throughout this careful clinical analysis, and furnishes additional ammunition for the therapists who stand out against the use of alcohol as a remedial agent, or for any other purpose.

Editorials.

ONTARIO MEDICAL COUNCIL.

The Council of the College of Physicians and Surgeons, of Ontario, met in Kingston, July 2nd to July 5th, inclusive. At the first session the following officers were elected: President, Dr. Wm. Spankie, of Wolfe Island; Vice-President, Dr. P. Stewart, of Milton; Registrar, Dr. J. L. Bray, of Chatham; Treasurer, Dr. Wilberforce Aikins, of Toronto. Before the nominations Dr. Pyne announced his retirement from the position of registrar, which he had occupied for twenty-seven years.

Shortly after the session opened, His Worship, Mayor Mowat, extended a civic welcome to the members of the council. The members of the council were also hospitably entertained in various ways by the profession and citizens of Kingston.

The retiring president, Dr. W. H. Moorhouse, delivered an address, in which he made special reference to the necessity for the erection of a new building for the Council, Dr. Creighton's case, and the board of Examiners. He also considered that the by-law covering the election of members of the Council needed revision, and urged the members again to forestall any attempts to lower the standard of medical education.

It seemed peculiarly fitting that the President elected this year was a graduate both in Arts and Medicine from Queen's University. He graduated, B.A., in 1882 and, M.D., in 1885. For some years he has been Inspector of the Frontenac schools, as well as a practitioner of medicine. He is deeply interested in all Provincial educational matters, and has been an active worker in connection with matters relating to medical education since he was elected a member of the Council. He has especially taken an interest in the standard for matriculation in Medicine, and other matters pertaining to the Council's curriculum.

There is probably a general consensus of opinion that the Council has sustained a serious loss through the resignation of

the Honorable Dr. Pync. It seems but a short time since he was known as a good fellow by the name of Bob Pyne. We now speak a little more respectfully of him since he has become the Hon. Robert Pyne, and yet the Hon. Robert is as good a fellow to-day as our friend "Bob" was in the past. As registrar for the Council he was an ideal officer. He not only did his work well in all respects, but was also extremely popular with the members of the Council, the general profession, and the anxious students.

On the morning of July 3rd the following resolution was unanimously adopted by the Council:

"Members of the Ontario Medical Council, with sincere regret, part with their esteemed registrar, Hon. Dr. Pyne, after a faithful and continuous service of well nigh thirty years. These years have witnessed the formative period of medical education in the Province of Ontario and in the Dominion of Canada. The high standard of medical education in the country, its exemplary ethical life, its culture and its history of noble and philanthropic deeds may fairly be attributed in no small degree to his unremitting energy and vigilance. He has always been a thoughtful and considerate friend of the student body. With great tact and never-failing courtesy, kindness of heart, his rare experience has directed the Council in many trying situations. Ontario has had a faithful servant in Hon. Dr. Pyne during these years, and we who know him best and the high value in faithful labor he has rendered to the State have pleasure in acknowledging our indebtedness for his efforts in the cause of humanity and for the public weal."

On the morning of July 7th the members of the Council presented Dr. Pyne with a silver service as a slight token of their appreciation of the valuable work which had been done by him for 27 years.

The new registrar, Dr. John L. Bray, of Chatham, requires no introduction to the profession of Ontario. No man in the Province is better or more favorably known. He was for many years one of the most prominent, and one of the most active members of the Council. He has sometimes been what is

called a fighter, but he has been the sort of a one that all Britishers respect, that is, he ever fought in the open. He deserves credit, however, especially for the large amount of constructive work which he has done in matters relating to the status of the profession and the Council's curriculum. It was a graceful act on the part of the Council to elect him to this new position by a unanimous vote.

One of the most important things considered by the Education Committee and discussed by the Council was the curriculum for the 5th year. No definite action was taken, but the matter will be carefully considered during this year, and a report will be brought in at the next meeting of the Council in July, 1908. It seems not unlikely that all the Universities of Ontario will be asked to make the medical course a five year, instead of a four year, one. McGill University has set a good example in that respect by establishing a regular five year course. The University of Toronto has made a couple of puny attempts to establish a regular course for the fifth year. Unfortunately these two endeavors resulted in miserable failures.

We are glad to know that the Property Committee (or the Building Committee) is now "sitting up," and endeavoring to accomplish some work in a business way. They have purchased a beautiful lot, admirably situated on University Avenue (which runs from Queen St. to Queen's Park) between the public school at the head of Simcoe St. on the south, and the Alexandra Palace on the north. This lot is about 100 x 130 feet, and on it is a substantial building, which may be utilized to some extent. A new building better suited for the wants for the Council than that formerly owned by this body will be erected immediately.

WITH PROF. SCHOTT AT BAD-NAUHEIM.

The delivery of an address some months ago in Toronto by Prof. Theodor Schott, on the Treatment of Chronic Diseases of the Heart (see page 470), bearing particularly upon the effectiveness of the Schott Method as practiced at Bad-Nauheim, created very considerable interest, and was largely the

occasion of our visit to the seat of operations for personal observations when in Germany last May.

The town of Bad-Neuheim is beautifully situated in the Grand Duchy Hesse, in the fertile district of the Wettereau, a few miles from Frankfort-on-the-Main, about eight hours on the train from Bremen or Hamburg, and twelve from Paris. It is an ideal health resort, with well laid out park grounds of over three hundred acres. A well shaded avenue bordered on both sides by pretty villas leads from the station to the Hot Springs (Sprudel) and to the baths, ending at the terrace of the "Kurhaus," where there is a concert hall and restaurant, reading rooms, billiards, etc. At eight o'clock each morning a concert is given at the drinking fountain by a magnificent orchestra of fifty musicians, and in the afternoon and evening the visitors have musical entertainment—choice and varied. The surrounding country is picturesque, with many points of historical interest.

The official season lasts from the 1st of May to the 30th of September, though some of the bath houses are also open in April and October. There are ten bathing establishments at the present time, and in all 267 bath-rooms, where are to be had the various baths as prescribed by the physician practicing in the town—Sprudel and Thermal alone, or in suitable combination, steam thermal and the ordinary brine baths (without any carbonic acid). These gaseous thermal muriated waters have attracted world wide attention, owing chiefly to the treatment of cardiac diseases by gaseous baths and special methodic resistance exercises elaborated after years of close study by the Doctors Schott, and further investigated in the most painstaking and thorough manner by Prof. Theodor Schott since the death of his brother, over twenty years ago. The form of treatment which was introduced through their genius was a radical innovation, and met with much opposition from those who had an innate prejudice against any advance therapeutically unassociated with drugs, and from others who did not spare the time to properly consider the subject; but the merits of the method are evident on personal observation, and it has

grown in estimation until now the Schott School of Treatment in heart diseases has enthusiastic adherents and advocates in all civilized countries.

We have to thank Prof. Schott for his cordial co-operation in assisting our purposes of study, and for the serious thoroughness he displayed and demanded in investigating the remedial processes, the efficacy of which has been so fully demonstrated scientifically that it can no longer be reasonably called in question.

W. H. B. A.

THE FREQUENCY OF GONORRHEA.

For more than a decade, it has become the fashion among a certain part of the profession to consider infective urethritis in the male almost universal. One author has gone the length of saying that in American cities, 90 per cent. of all the men under thirty years of age have had gonorrhoea at least once. The general practitioner, however, has never been able to accept any such figures, even though his humble opinion is frowned upon by the genitourinary specialist and by the gynecologist. One of the latter has stated that 85 per cent. of all his abdominal operations are made necessary by the presence of the gonococcus.

It comes, therefore, as a breath of fresh air to those who have stolidly maintained all such percentages to be greatly exaggerated, to read that Erb (Munich Med. Wochschr), the great German authority on nervous diseases, has compiled statistics which differ widely from those previously published.

He found in almost 2,000 cases of all kinds, drawn from men in every walk of life, that 48.5 per cent. had been infected, while 45 per cent. had never had either gonorrhoea or syphilis. He obtained a careful history of the wives of 400 of these patients who admitted having the disease, and found that only 4.25 per cent. had suffered from pelvic infection which might possibly be gonorrhoeal. He ascertained, also, that only 12 per cent. of the marriages were childless and in many cases causes other than gonorrhoea were present.

Erb's statistics are so trustworthy that one must be forced to the opinion that the usual gloomy picture is not correct, and that the views of specialists, who see for the most part only those infected, are altogether too pessimistic. In Canada, even in our largest cities, the percentages are undoubtedly lower than those quoted by Erb as being true for Germany.

THE CANADIAN MEDICAL ASSOCIATION AND THE MEDICAL JOURNAL.

Certain members of the Canadian Medical Association think it would be well for the Association to publish its own Medical Journal. So far as we can learn the Canadian Medical Journals at present in existence are opposed to this suggestion. It may be thought by some that the different editors are actuated by selfish motives in thus opposing the proposed scheme. Without discussing this especially we may grant for the sake of argument that self-interest does affect them more or less. At the same time we feel certain that at least the majority of them conscientiously believe that the scheme is impracticable for the Association as constituted at present.

The writer has been a member of the Association for more than twenty-five years—for many years an active member—and has studied certain questions carefully. During these years two important questions arose: one referred to the establishment of a medical journal, and the other to the publication of the transactions. The transactions of one meeting were published over twenty years ago; the publication meant much work for two or three men, and it was supposed that the members would appreciate the results of their efforts, and buy a volume for the small sum of fifty cents. Very few purchased the book, and among these we never met one who was anxious for a repetition of the experiment.

Another act of the Association did a certain amount of injury. It was decided at one time that the members should pay their annual fee, whether present at the meetings or not. The Association is, of course, peripatetic (and we hope will

always continue such), but this means that only a few members attend all or the majority of the meetings. For instance many members in the Maritime Provinces never attend a meeting west of New Brunswick. Such men do not wish to pay fees for ten years in order to attend one meeting. In a few years it was discovered that the rule was injuring the Association, and it was consequently rescinded. Having this in view we believe that an annual assessment of \$5.00 would tend to curtail somewhat seriously the list of membership.

We consider it impossible for the Association at the present time to establish a properly conducted medical journal on account of the expense involved. We think also that the strong and enthusiastic support of the present Canadian medical journals is more valuable to the Dominion Medical Association than a single proprietary journal could possibly be.

Transportation Rates—Montreal Meeting, 11th to 14th September, 1907.

The Standard Convention Certificate plan will prevail for this meeting: and all delegates when purchasing first-class single transportation to Montreal for themselves, their wives or daughters (no others), must get from the ticket agent at the same time a Standard Convention Certificate, which when vised at Montreal will entitle holders to return free if three hundred are present holding these; one-third if fifty or over. Every one should therefore endeavor to make one of these three hundred, so as to provide for free return transportation.

British Columbia points—The Canadian Pacific Railway will apply rate of single fare on certificate plan to Montreal and return, tickets to be sold and certificates issued on Sept. 1st and 2nd, and validated certificates honored for tickets for the return journey up to and including October 9th. Tickets good for continuous passage only in each direction.

Manitoba, Saskatchewan and Alberta—On Canadian Pacific and Canadian Northern, tickets to be on sale 5th, 6th, 7th and 8th Sept. west of Port Arthur, and to be honored at Montreal up to and including the 11th of October. If Lake route used in one direction, \$4.25; both directions, \$8.50 extra.

Ontario, east of Port Arthur and Quebec and Maritime Province—Tickets for sale on the 7th and 8th Sept.; final purchase at Montreal Sept. 18th. Passengers going rail and returning R. & O. Navigation Co., or vice versa, rate to be one and one-half fare—Toronto or Kingston to Montreal. Tickets will also be honored via R. & O. Navigation Co. on presentation of rail excursion tickets to the ticket agent at Toronto, or to the purser on board steamer, and payment of the following arbitraries, viz.: \$6.65 Toronto to Montreal; \$3.50 Kingston to Montreal.

The general secretary will issue his annual circular of information to members early in August.

Between Port Arthur and Halifax, the C. P. R., G. T. R., C. N. R., Intercolonial and R. & O. Navigation Co. are included in the arrangements.

Medical Organization.

On June 28th, the physicians of Toronto residing in electoral district 11a (west of Yonge street), met in Broadway Hall to form a Divisional Association, as provided for in the Medical Act. Dr. J. S. Hart, the member of the Medical Council for this district, was in the chair, and Dr. F. Arnold, Clarkson, was appointed secretary-treasurer. The fee was fixed at \$1, and collected from those present. A resolution raising the minimum fee for insurance examination in fraternal societies to \$2, was passed unanimously. Lodge practice was condemned as unfair to both the public and the profession, but no further action was taken. It was also resolved that nurses, ministers and members of a doctor's household, not his own family, should pay the usual fees.

A motion to raise the standard of matriculation to an Arts degree was not considered to be within the province of the meeting, and therefore did not carry.

A uniform tariff was presented, but was left over for further consideration till the next meeting, which will probably be held early in September.

RESULTS OF MEDICAL EXAMINATIONS.

University of Toronto Medical Examinations.

The following students have completed the examinations in the fourth year in medicine :—W. C. Acheson, R. T. Adams, J. S. Anderson, W. Baillie, G. A. Bates, H. W. Bell, F. R. Bennetto, E. Blanchard, G. F. Boyer, W. J. Brooms, W. H. Brydon, G. S. Buck, J. Burns, T. H. Callahan, A. D. Campbell, O. A. Cannon, J. Christie, E. C. Cole, A. R. Defoe, B. S. Elliott, J. A. Evans, R. W. Faulds, E. Fidler, A. G. Fleming, E. D. Gideon, L. B. Graham, M. Graham, G. C. Gray, T. L. Harrison, C. C. Hartman, J. F. Hazelwood, D. A. Henderson, E. M. Henderson, C. M. Hincks, J. W. Hunt, A. G. Huntsman, F. H. Hurlburt, T. O. Hutton, H. J. James, C. V. Jamieson, C. Johnston, H. B. Johnston, H. W. Johnston, W. J. Johnston, A. F. Kay, R. Y. Kenny, W. B. Large, S. S. Leigh, Miss M. L. Menten, F. C. Middleton, F. R. Miller, J. D. Milne, C. N. Mooney, A. H. E. Morgan, T. Morrison, R. P. Mulholland, A. D. J. McArthur, W. A. McClelland, H. M. McFadden, J. T. MacKay, D. W. MacKenzie, K. N. MacKenzie, J. MacEachlan, A. A. McLean, J. A. Macleod, N. MacLeod, W. A. McPhedran, A. W. McPherson, G. A. McPherson, J. M. McRuer, C. S. McVicar, C. J. Newall, M. A. Nickle, T. H. Norman, E. O. Platt, P. Reid, E. H. Relyea, E. F. Richardson, J. O. Robb, D. E. Robertson, F. W. Routley, A. B. Schinbein, W. C. Shier, L. J. Simpson, G. L. Sparks, J. H. Speers, Miss P. J. Sproule, C. G. Sutherland, W. A. Taylor, C. P. Thompson, J. J. Thompson, P. L. Tye, W. C. Walsh, G. H. Whitmore, R. A. Williams, N. K. Wilson, H. G. Willson, C. E. Wilson, H. B. Woods, E. H. Young, H. Walker.

The following obtained the degrees of M.D., C.M.:—I. S. F. Bigham, B. S. Cerswell, A. Crux, M. A. Hendrick, D. L. Lucklow, O. A. McNichol, W. G. Scheck, A. P. Stirrett and S. T. White.

Medals:—Faculty Gold Medal, G. C. Gray; First Faculty Silver Medal, C. S. McVicar; Second Faculty Silver Medal, F. H. Hurlburt; Third Faculty Silver Medal, A. W. McPherson.

Scholarships:—First Year, 1, S. B. Peele; 2, H. E. Alexander; Second Year, 1, W. J. M. Marey; 2, W. F. M. Adams.

Post-Graduate Scholarship. The George Brown Memorial Scholarship in Medical Science:—Archibald Gowanlock Huntsman, Edward Cooper Cole (*proxime accessit*.)

McGill University Medical Examinations.

The following, 74 in number, have fulfilled all the requirements to entitle them to the degree of M.D., C.M., from

the University.—Arthur, J. R., Perth, Ont.; Bailey, G. W., Fredericton, N. B.; Baird, W. S., Lucknow, Ont.; Benvie, R. M., Salt Springs, N. S.; Berstein, D. H., Montreal, Que.; Blanchard, H. B., Mallorytown, Ont.; Bray, D. G., B.A., Sherbrooke, Que.; Brydone-Jack, F. W., Vancouver, B.C.; Budyk, J. S., Montreal, Que.; Coburn, Josiah, Newton Robinson, Ont.; Covey, H. W., Everett, Mass., U. S. A.; Crowe, H. S., Central Onslow, N. S.; Dearborn, H. F., Malden, Mass., U.S.A.; Denovan, B., Montreal, Que.; Dixon, J. A., Almonte, Ont.; Edwards, W. F., Smith's Falls, Ont.; Eggert, C. A., Atlin, B. C.; Enright, W. E., M. A., Sherbrooke, Que.; Farris, H. A., White's Cove, N. B.; Fraser, S. B., Richmond, Que.; Furse, W. J., Westmount, Que.; Gabie, W. G., Kazabazua, Que.; Garcelon, W. S., A.B., Lewiston, Me.; Girvan, G. G., Rexton, N.B.; Graham, D. W., Arundel, Que.; Gray, W. E. Campbellton, N.B.; Grier, R. T., Montreal, Que.; Hawkins, Z., B.A., Sussex, N.B.; Healey, J. J., Smith's Falls, Ont.; Hollbrook, R. E., Minto, Man.; Holman, W. L., B.A., Summerside, P.E.I.; Hunter, J. D., Victoria, B.C.; Huycke, A. H., Warkworth, Ont.; Keay, Thos., New Glasgow, N.S.; Lake, W. E., Ridgetown, Ont.; Landry, A.R., Dorchester, N. B.; Lannin, G. E. J., South Mountain, Ont.; Locke, E. E., B.A., Westmount, Que.; Logie, F. G., Chatham, N.B.; McLachlan, W. W. G., Guelph, Ont.; MacNab, N. A., Montreal, Que.; McCann, J. H., South Framingham, Mass.; McCowen, G. R., St. John's, Nfld.; McLennan, A. L., B.A., Lancaster, Ont.; McPhee, T. J., Courtnay, B.C.; Morgan, J. D., B.A., Montreal, Que.; Muir, W. L., B.A., Truro, N.S.; Noble, E. C., Digby, N.S.; Norton, F. A., Savana le Mer, Jamaica, W.I.; Oulton, M. A., M.A., Jolicoeure, N.B.; Peltier, H. G., Fort William, Ont.; Penney, L. T. W., New Germany, N.S.; Peters, H. LeB., B.A., St. John, N.B.; Petersky, S., Vancouver, B.C.; Quinn, F. P., Ottawa, Ont.; Babinovitch, Max, B. A., Montreal, Que.; Robinson, R. C., Winchester, Ont.; Rublee, O. E., B.A., North Hatley, Que.; Scott, W. H., Edmonton, Alta.; Shankel, F. R., B.A., Hubbard's Cove, N.B.; Shirreffs, S. H., Clarence, Ont.; Sinclair, G. W., Provincetown, Mass.; Stein, S. F., Kemptville, Ont.; Stephens, G. F., Winnipeg, Man.; Stevenson, A. B., New Glasgow, P.E.I.; Sutherland, R. H., B.A., River John, N.S.; Taylor, G. O., Hillsboro, N.B.; Thomson, J. W., Mattawa, Ont.; Trufant, L. H., A.B., Auburn, Me.; Vesey, E. M., Little York, P.E.I.; Waddell, J. R., Chatham, Ont.; Whitelaw, W. A., Meaford, Ont.; Wilson, A. A., Perth, Ont.; Woodrow, J. B., Beaconsfield, Que.

Holmes Gold Medal.—R. M. Benvie, Salt Springs, N.S.
 Wood Gold Medal.—R. M. Benvie, Salt Springs, N.S.
 Final Prize.—L. H. Trufant, A.B., Auburn, Me.
 Second Year Prizeman.—E. H. Funk, Rossland, B.C.
 Senior Anatomy Prize.—E. H. Funk, Rossland, B.C.

Queen's University Medical Examinations.

Degree of M.D. and C.M.—Asselstine, B., Wilton; Bennett, A. E. H., Vancouver, B.C.; Bowen, H. M., Gananoque; Boyce, H. A., Murray; Brown, J. E., Kingston, Jamaica; Burke, M. L., Port Antonio, Jamaica; Casselman, S. B., North Williamsburg; Curphey, A. G., Kingston, Jamaica; Donevan, F. J., Bananoque; Greaves, G.A., Kingston; Johnston, A. C., Kingston; Kean, S. G. Brookfield, Nfld.; Keeley, F. J., Railton; Laidlaw, C. B. A., Georgetown; Longmore, H. B., B.A., Camden East; Mills, R. M., Kingston; McCormick, A. M., Ottawa; McDonald, A., Scotch Line; McDougald, W. L., Cornwall; McNamara, J. P., Stratford; Paul, R. D., Selby, Quigley, J. P., M.A., Kingston; Scott, R. A., B.A., Walkerton; Spankie, A. T., Wolfe Island; Spence, H. D. L., B.A., Kingston; Story, G. E., Everts, Alta.; Sullivan, J. H., Peterborough; Trousdale, F. H., Harrington; Walker, M. J. \$25.—J. E. Galbraith, Arnott.

Faculty Prizes in Anatomy.—1st year prize, H. R. Thompson, Morristown, N.Y.; 2nd year prize, J. B. Hutton, Kingston.

First Prize for General Proficiency in Second Year, value \$25.—J. E. Galbraith, Arnott.

N. Y. Alumni Association Scholarship, value \$50.—W. G. Wallace, Metcalfe.

Materia Medica Class Prize.—M. C. MacKinnon, Whim Road Cross, P.E.I.

Dean Fowler Scholarship for General Proficiency, Third Year, value \$50.—I. D. Cotnam, Pembroke.

Pathology Class Prize, Third Year.—W. C. Usher, M.A., Wicklow.

Chancellor's Scholarship for General Proficiency throughout Course, value \$70.—J. P. Quigley, M.A., Kingston.

University Medal in Medicine.—H. A. Boyce, Murray.

University Medal in Surgery.—J. P. Quigley, M.A., Kingston.

\$25 Prize in Mental Diseases given by Dr. Barber.—A. E. H. Bennett, Vancouver, B.C.

Recommended for House Surgeoncies at General Hospital.

—R. Wightman, Lancaster; H. A. Boyce, Murray, Ont.; F. H. Trousdale, Hartington. Next in order: J. P. McNamara, Stratford; A. T. Spankie, Wolfe Island; R. D. Paul, Selby; M. J. O. Walker, Kingston; R. M. Mills, Kingston.

Class Prize for Physical Diagnosis, third year.—F. R. Sargent, Kingston.

University of Manitoba Medical Examinations.

The following is a list of graduates and licentiates for Manitoba, 1907: M.D.—Frederick William Andrew, Alexander Howard Armitage, Daniel Baldwin, Edward MacDonald Blakely, Edward James Boardman, William Alexander Cogle, John Henry Conklin, Thomas Richardson Corbett, Robert William Henry Guilmette, Claude E. Kilborn, Alexander King, Benjamin Lang, Gordon Neill Mayme, William Angelo Mott, Prescott Campbell McArthur, Alexander Malcolm Macaulay, Duncan Alexander Macdonald, Herbert McGregor, Andrew Pritchard Mackinnon, Philip McRitchie, Thomas Henry Porter, Franklin Guy Schwalm, Lockburn Burton Scott, William Free Stevenson, Earl Stewart, Frederick Agar St. John, John Bain Thom, Eugene Walters, George Forrest Weatherhead, Victor George Williams. C.M.—Frederick William Andrew, Alexander Howard Armitage, Roslyn Brough Mitchell, William Wesley Lorne Musgrove, Herbert McGregor, Frederick Agar St. John. Honors.—Silver Medal, Frederick William Andrew; Bronze Medal, Frederick Agar St. John; O'Donnell Gold Medal in Obstetrics, Frederick William Andrew; Hutchinson Gold Medal, Frederick William Andrew. Scholarships, First Year.—George Washington Webster, \$80; William James Elliott, \$25; George William Mooney, \$25. Second Year.—Clarence Currie Everton, \$80; William Newton Maines, \$50. Third Year.—Percy Bissell Grant, \$80; David Alexander Volume, \$60. Licenses Granted.—Abraham Bercovitch, Raymond Brown, Chas. F. Covert, G. Garetti, J. A. Galliot, H. B. Gourlay, J. P. Hiebert, C. P. Holden, F. Lachance, G. G. Malcolm, W. H. Reilly, E. Richardson, J. L. Robinson, W. H. Second, C. P. Templeton.

Nova Scotia.

The following have passed Provincial Board of Examiners for Nova Scotia: Peter McFarlane Carter, Hugh Dan Chisholm, Benjamin A. LeBlanc, John Macdonald, Ronald Et. J. Macdonald, Cornelius E. Walsh.

Personals.

Dr. H. B. Anderson, Toronto, returned from Germany July 15th.

Dr. D. Gibb Wishart has quite recovered from his recent attack of septicemia.

Dr. Donald Armour, formerly of Toronto, has been appointed lecturer on surgery of the spinal cord at the College of Physicians and Surgeons, London, England.

Dr. Barrington Nevitt's many friends are considerably alarmed about his physical condition. Both eyes are affected with glaucoma, and two iridectomies have been performed.

We are pleased to learn that a portrait of Dr. W. B. Geikie, who was for many years Dean of Trinity College, will shortly be painted and hung in the Academy of Medicine. A committee of graduates of the college have the matter in hand.

Drs. Harry James and J. S. Pritchard have been added to the medical staff of the National Sanitarium Association. The former will be assistant at the Muskoka Cottage Sanitarium, and the latter at the Muskoka Free Hospital for Consumptives. The resident medical staff of the Muskoka Institutions now consists of Drs. C. D. Parfit, W. B. Kendall, J. K. M. Gordon, and James and Pritchard.

Dr. C. K. Clarke, superintendent of the Asylum for Insane, Toronto, and Dr. Edward Ryan, superintendent of the Hospital for Insane, Kingston, sailed for Europe July, 3rd. They will visit various institutions in Great Britain and Germany, and will study especially the new system of Psychiarity of the Mental Diseases. Hon. Dr. Willoughby sailed for Liverpool July 10th, and after a short stay in England will go to Germany, and meet Doctors Clarke and Ryan, and take part in their investigations.

Obituary.

DR. ACLAND ORONHYATEKHA.

Dr. Acland Oronhyatekha, son of the late Dr. Oronhyatekha, Supreme Chief Ranger of the Independent Order of Forsters, died suddenly at his residence, "The Pines," July 7th; aged 39.

STANLEY ARTHUR KING, M.D.

Dr. S. A. King, of Kingsville, who graduated from Victoria University in 1867, died July 8th.

SIR WILLIAM HENRY BROADBENT, M.D.

Sir William Broadbent, physician-in-ordinary to King Edward, died at his home in London, July 10th, aged 72. He attended the meeting of the British Medical Association last year in Toronto, and took a very active part in certain of the discussions of the medical section.

JOSEPH WALTER LESSLIE, M.D.

Dr. J. W. Lesslie, of Toronto, died suddenly from apoplexy, July 17th, aged 54. He graduated from the University of Toronto, M.B., in 1879, and M.D. in 1880. He was on the resident staff of the Toronto General Hospital in 1879-80, with Dr. Gerald O'Reilly, of Guelph; Dr. R. M. Stephen, of Collingwood, and Drs. J. F. W. Ross and W. Lehman, of Toronto. After graduating he commenced practice in Toronto, and was engaged in the work of his profession from that time until the day before his death. He took much interest in military matters for a number of years, and went through the campaign of the Riel Rebellion of '85. The report of his sudden death came as a great shock to "Joe Lesslie's" many friends, both in and out of his profession. He was generous and kind, especially to the sick poor, and to many families his death comes as a personal and irreparable loss.

Selections.

Radium.

Radium, symbol Ra, was discovered in 1898 at Paris, by Prof. Pierre Curie and Mme. Sklodowska Curie in collaboration with M. Bemont. It is the most important and the most interesting of the radioactive substances which have thus far been found in uraninite, or, as it is termed in popular parlance, pitchblende.

Radium, which resembles common table salt in appearance, is a new element, having an atomic weight of 225. In its chemical and other characteristics it resembles barium, with which it is closely allied, and which latter substance has an atomic weight of 157.

Radium is a metal, and while it is never prepared in a metallic form, it readily could be so produced, although only at a great loss, involving perhaps thousands of dollars, but it would not last in this form, being very unstable, and, like sodium, immediately oxidized and destroyed. In the form of a chloride or bromide, in which form it is usually prepared, it lasts indefinitely, without any apparent physical or chemical change. Prof. Henri Becquerel has stated that if a square centimetre of surface was covered by chemically pure radium it would lose but one thousandth of a milligram in weight in a million years' time.

It gives off three distinct types of rays, named after the first three letters of the Greek alphabet, Alpha, Beta and Gamma. The Alpha rays constitute about 99 per cent. of all the rays, and consist of positively electrified particles. These were at first supposed to be uninfluenced by magnetism, but Rutherford has recently shown that with a powerful magnetic field about 30 per cent. of the rays are deflected, and in a powerful electric field as high as 45 per cent. are deflected. The deflection is in the opposite direction to the Beta rays. The mass of the Alpha body is about twice that of the hydrogen atom. They have scarcely any penetrative power and are readily absorbed in passing through a sheet of ordinary note paper, or a few inches of air.

The Beta rays, which are the most spectacular of the rays and have been given the largest amount of attention by investigators, consist of negatively charged particles, or "corpuscles," approximately one two-thousandth the size of those constituting the Alpha rays. In every particular these rays resemble the cathode rays produced by an electric discharge inside of a highly exhausted vacuum tube, although they work at a

higher velocity than the cathode ray particles. They are readily deflected by a magnet, discharge electrified bodies, affect photograph plates, stimulate strongly phosphorescent bodies, and are of great penetrative power.

The Gamma rays are very few in number, so few indeed, that they have received little attention thus far. They are almost impossible to detect save in a highly radioactive substance such as radium. They resemble in many respects very penetrative X-rays produced at the moment of the expulsion of the Beta or cathode rays. They are uninfluenced by magnetism, pass in straight lines at great speed and possess remarkably penetrative properties, even affecting a photograph plate through a foot of iron.

It gives off a gaseous emanation, as does thorium, which is also a powerfully radioactive substance. The emanations possess all the properties of gases; diffusing through air and porous substances, such as paper, they can be stored like ordinary gas and can be condensed at temperature of liquid air, and are unaffected by chemical reagents.

It ionizes the air, or makes the air (in fact, any gas through which it passes) a conductor of electricity. It discharges negatively electrified bodies. It is, according to Mme. Curie, the first example of a body which spontaneously charges itself with electricity. It acts upon the chemical constituents of glass, porcelain and paper, giving them a violet tinge, changes white phosphorus into yellow, oxygen into ozone, affects photograph plates and produces many other curious chemical changes. It imparts radioactivity to everything surrounding it. It destroys the germinative power of seeds. It likewise destroys various micro-organisms and checks the growth of others. It has given encouraging results in the treatment of certain classes of disease.

It retards the growth of certain forms of life, such as larvae, so that they do not pass into the chrysalis and insect stages of development, as their companions do, but remain larvae.

It causes other forms of life, such as very young tadpoles, to become monstrosities or abnormalities. It causes the hair of mice to fall out, and they run about without a hair on them, and, if the radium is placed closer, the mice are paralyzed and killed. On the other hand, it causes a growth of the hair or fur of rabbits when they are exposed to radium placed at a proper distance.

It has frequently caused serious burns and ulcers when

placed near the flesh for a short time, the rays acting through the clothing of the person exposed, and in fact, to a greater or less degree passing through everything, solids, liquids and gases, even through many inches of steel.

It is not affected by great extremes of heat and cold in respect to its radioactivity, but varies in the degree of its luminosity. It gives off but little light, its luminosity being largely due to the stimulation of the impurities in the radium by the powerful but invisible radium rays.—*The Americana*.

Motor Aphasia and Broca's Convolution.

G. Pieraccini (*Riv. Crit. di Clin. Med.*, Florence, 1907), after discussing Marie's recent dictum that motor aphasia is not caused by destruction of Broca's convolution, details the case of a man who received a blow from a hatchet on the head at the age of 47, and suffered from aphasia afterwards. The blow caused loss of consciousness; a depressed fracture of the skull was produced, running vertically upwards and a little forwards for 4 in. from just above and in front of the left ear. Several long fragments of bone that had lacerated the cortex were removed; the wound healed by first intention. This was in 1891; a few months later the patient exhibited a moderate amount of right facial paresis and a little weakness of the right arm and hand, and typical motor aphasia. Since that date the patient has been periodically examined again, and has shown continuous improvement in his pronunciation and vocabulary. Thus, in 1893 he had difficulty in counting aloud up to 10, and could talk but little; in 1895 he could count up to 100 and more with ease, and could express his ideas well, although his pronunciation of certain words was bad—probably for want of better education. A table of the patient's pronunciation of numerous words and of his answers to certain questions on various dates up to 1906 is given, and conveys a clear idea of the progress he made in his speech. He was at all times able to understand spoken words. Pieraccini argues that this case supports the older view, and that there is such a thing as motor aphasia due to injury of the posterior part of the third left frontal convolution.—*British Medical Journal*.

Anal Pruritus.

Of the lotions one of the best is the lactate of lead, highly recommended by Miles, of London. It can be easily prepared by mixing one drachm of liquor plumbi sub-acetatis with seven drachms of fresh milk. It forms a thick, creamy compound with which a piece of gauze or cotton can be saturated and placed in contact with the itching surface.—*Asman*.

Miscellaneous.

The Treatment of Inoperable Malignant Tumors—Carcinoma.

I have two reasons for presenting a discussion of the treatment of cancer at this time: First, the importance of the subject, and, second, the hope that I have discovered a method which may result in saving many lives. It has been affirmed by Wutzdorff that there has been an increase in the number of cases of cancer in the last few years, and some, with Sir W. M. Banks, believe the increase is due to excessive meat eating. At any rate, it has been shown that many cases occur in robust and well-fed individuals and especially in the comparatively young of both sexes. It often happens that the presence of such a growth is not suspected until it is too late for operative interference because of the fact that the appearance of the patient does not indicate the progress of the disease. (Nothnagel). Many cases also occur which cannot be operated on because of the location, as when situated near vital organs or around important blood vessels. Then, again, there are patients who will not submit to an operation.

To the medical man has usually fallen the duty of caring for these classes of unfortunate cancer patients, and from time immemorial the professional mind has been taxed to discover some means of relief, some agent or remedy which might destroy the abnormal growth.

Lauder Brunton was the first to investigate the chemical composition of cell-nuclei, from which has been secured a compound called nuclein. This substance is an albuminoid and contains phosphorus. Nuclein is the most distinctive element of leucocytes, being the constituent by virtue of which the cell grows (E. R. Larned). Vaughn and McClintock have demonstrated that the nuclein is the germicidal agent in blood plasma and is furnished by the polynuclear leucocytes.

The bromide of gold and arsenic is another remedy which, in my hands, has seemed to prove useful in the treatment of inoperable carcinoma; but I have always used it in connection with other agents. I have had more confidence in the nuclein than in the bromide, chiefly, perhaps, because I have had two cures in which I did not use the bromide, while I have had none where nuclein was not used. I have come to consider the administration of nuclein and the bromide of gold and arsenic together as a most rational and valuable treatment in

cases of inoperable carcinoma. It is the combination upon which I depend rather than on either agent singly.

I have used this method of treatment in many cases with apparent benefit, but I am able to report only five cases in which the treatment was carried out as prescribed from the time the patient came under my observation until the termination of the case. One of the cases died. The other four recovered.

Case 1.—Mrs. S., aged 50. She had suffered no serious illness prior to the beginning of her present ailment, about one year before my first visit. Her first symptoms were indigestion, flatulence, heartburn, eructation of gas and similar disturbances of the stomach. The symptoms had gradually grown worse until pain and vomiting had supervened some weeks before. She had lost flesh and grown weak. At the time of my first visit, the patient was lying on a couch, in pain, pale and cachectic. She had been vomiting and apparently had suffered much. The ejecta having been destroyed, no opportunity offered to analyze the vomited material at that time. The temperature was normal. Temporizing treatment was adopted and the patient was not seen again for a week. Then I was summoned hastily to see her and found her vomiting and in great pain. She had not been free from these symptoms since my former visit. This time, following my directions, the vomited material had been reserved for examination. The patient had not improved. The ejecta were typical and abundant and contained dark grumous material, mucus and remnants of food. The occurrences of vomiting were periodical. A distinct tumor could be outlined at or near the pylorus. The bowel evacuations also contained dark material. Chemical examination showed increase of lactic and absence of hydrochloric acid. The microscope showed cell-nests and bacteria.
Diagnosis, carcinoma of the stomach.

Treatment.—The local treatment consisted of the use, by mouth, of a 2 per cent. solution of Hydrozone. The patient was told to drink half a pint of this solution half an hour before mealtime, lie on the back for five minutes, then turn on the right side and remain in that position for twenty-five minutes. This remedy was given for its antiseptic effect. The internal treatment was nuclein. The particular preparation was Reed and Carrick's protonuclein. The dose was 24 grains a day. This time the patient was kept under observation for a month, until the symptoms were not quite so severe. The treatment was continued, however, and after several

weeks I called to see the patient in another exacerbation of her symptoms; but this time they were not so severe. After a few days I dismissed her again, with advice to continue the nuclein, *but to omit the Hydrozone*. Some five months later I called to see the patient and found her at work about the house. The symptoms and tumor had disappeared and the cachectic look had given place to a more healthful appearance. I did not see her again, but three years later I was informed that she was well and had had no return of the old symptoms.

Case 4.—Mrs. M. H., aged 38, mother of one child, six years old. She came to me in January, 1901. She was very nervous, somewhat cachectic, and suffered slight pain in the pelvis. She had slight, if any discharge, but was losing flesh. Digital examination revealed a hard enlargement on the anterior lip of the cervix. The growth presented considerable resistance to the finger, but the uterus was freely movable. The use of the speculum showed a small cauliflower area at the edge of the hardness and a slight discharge. The diagnosis made was probable carcinoma of the cervix. The patient put herself under my immediate care, so that I could watch the case daily. The local treatment *adopted was spraying the cervix with full-strength Hydrozone*, and the daily use of astringent and sterile douches. Internally, nuclein was used in 24 grain doses daily. A nervine and nux vomica were added to control the patient's nervous or unstrung condition. After a month of this treatment, the symptoms did not seem to be so severe. From this time the patient began to improve. In three months from beginning the treatment the hardness of the tissues had disappeared, the cauliflower appearance was removed, and the pain and other symptoms had entirely subsided.

Case 5.—Mr. M. L. E., aged 55, a teamster. He had been strong and well and usually free from any ailment except a diarrhea until about a year before I saw him. The first intimation he had of serious trouble was in March, 1904. At that time he had pain and diarrhea. A physician was called and discovered a tumor in the region of the sigmoid flexure. After recovery from the temporary illness, he sought advice concerning the tumor; and, although he visited several surgeons of note, no one seemed willing to remove the growth, and their opinions gave him no hope of final recovery and little expectation of temporary relief. Most of them refused to operate, saying that the tumor was probably cancer and he would be better off without an operation.