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CONTENTS.

Original Communications.

THE PRESENT STATUS OF THE ELECTRICAL TREATMENT OF FIBROIDS.*

BY A. LAPTHORN SMITH, B.A., M.D.,

Member of the Royal College of Surgeons of England; Fellow of the American Gynæcological Society; President American Electro-Therapeutic Association; Surgeon-in-Chief of the Samaritan Hospital for Women, Montreal; Gynæcologist to the Montreal Dispensary; Surgeon to the Women's Hospital, Montreal.

The present age in gynæcology, and abdominal surgery, especially, may be called the extreme surgical age; and, as a result of the wonderful advances and the great lowering of the death-rate of surgical operations, owing to the application of the principles of asepsis, surgical enthusiasm has reached its highest point. One must have a great deal of courage, indeed, to advocate any other method of treatment than surgical operation, especially at a meeting where the surgical element so greatly preponderates; nevertheless, the writer believes that the majority of women with fibroid tumors can be relieved of their pain and bleeding by means of the constant electrical current. If employed within certain limits, it is absolutely devoid of danger; while the application of the treatment should be almost devoid of pain. On the other hand, the surgical treatment, even under the very best of conditions, has so far always been accompanied with a mortality rate; there are fewer deaths than there were when Freund lost seventy-five per cent. of his cases of abdominal hysterectomy, but still the death rate remains, so that the electrical treatment, with no death rate, has this great advantage over the surgical treatment. The electrical treatment, also,

* Abstract of paper read before the section of Obstetrics and Gynæcology of the American Medical Association, at Baltimore, May 7, 1895.

left the ovaries and the tubes in no worse condition, but, on the contrary, in a rather better condition than they were before, while the surgical treatment was nearly always accompanied by the removal of the ovaries. With married women, and indeed with all women, the loss of the ovaries was no small affair. The temptation to operate was very great. The patient's fate was sealed one way or the other, when the operation was concluded, and, whether she lived or died, the surgeon received a great deal of praise for having the courage to perform the operation. Also the remuneration was sometimes very considerable. With the electrical treatment, on the contrary, it was tedious, required sometimes as many as fifty or one hundred application, and there were occasional relapses. This application took up a good deal of time, but this objection may be lessened by devoting two afternoons a week exclusively to this treatment; in which case a considerable number of applications may be administered in a few hours, the patients being prepared in an adjoining room, by a nurse or an assistant.

The physician who cures the patient with electricity does not receive the same credit for his good work as the one who cures her by surgical means, so the temptation is very great to operate; but he could show fifty or sixty women who had been cured of all their symptoms, and who had remained well since several years, who had been treated by electricity. A great many well-known gynæcologists have used the Apostoli method for fibroids with good success, but have refrained from publishing their cases for fear of injuring their surgical reputation. This is a fact known positively to the writer.

One of the objections to electricity which has been raised is unjust, and that is that it causes adhesions. The writer referred to several cases which had been cured of their symptoms, but were subsequently operated on for other reasons, and in which no adhesions whatever were found after as many as one hundred strong applications of the galvanic current.

Another case which he referred to demonstrated the truth of Apostoli's dictum, that when the application of this method causes febrile reaction, the tubes are badly diseased. In this case, which had been treated for fibroid, it had every appearance of being one, could not endure the Apostoli method, and was operated on by the writer, who then found that the large pear-shaped mass in the centre of the abdomen was made up of two large sausage-shaped tubes filled with pus, and two ovaries, the size of oranges, and the uterus, all glued together and covered with lymph. These were separated from each other and removed, all except the uterus, which, not being much enlarged, was left. This patient made a perfect recovery. He was very much opposed to galvano-puncture, which was, he considered, a dangerous proceeding, and he thought that one could obtain all the benefits required, by the gentle use of the positive pole, either in the form of platinum, zinc or copper in the uterus, which dried up the bleeding mucous membrane, and by its tonic action upon the muscular tissue through which the blood vessels pass to supply the bleeding mucous membrane cut off the blood supply just as surely as though we tied the ovarian arteries. The action of the electric current, he said, as applied to fibroids, was threefold. The first was not mysterious, but was but the arrest of circulation in the dilated capillaries by electro-chemical cautery. The second is no more difficult to understand than the action of ergot or strychnine; it not only tones up the vasomotor system, making the calibre of the arteries less, but it calls into play the special and remarkable powers which the uterus possesses of controlling its own circulation when it has the strength to contract.

The third effect of the current, its electrolytic action, is, I admit, as mysterious as it has ever been, but not more so than the invariable absorption of syphilitic gummatous deposits following the administration of iodide of potassium. Whether what we call electrolysis means the actual breaking up of an organic tissue into inorganic atoms, or whether it means, as seems more likely to me, that the growth deprived of its blood supply undergoes fatty degeneration, and is partly eaten up by phagocytosis stimulated to greater activity by the trophic nerves, no one with a large experience with this subtle fluid can deny that a uterus infiltrated with and enlarged by the deposit of fibrous tissue, whether localized in the form of fibroids or diffused as in areolar hyperplasia, so that the sound will enter four or five inches, will invariably diminish in depth by means of electrical treatment.

Then, again, what is the enormously enlarged uterus after delivery but a bleeding myoma? Does it not stop bleeding when the arteries which supply it with blood are squeezed by its contracting walls? Does it not rapidly get smaller when, for the want of blood and exercise, that immense mass of muscular tissue silently undergoes fatty degeneration and returns to the blood from whence it came?

Wonderful and almost incredible as the total disappearance of a fibroid or myoma may seem to some, it is no more mysterious than this wonderful process of nature which we call involution. Have those who doubt and, even worse, deny the power of electricity to work a change in fibroids, never reduced the size and weight of a uterus which nature had failed to involute? Has Emmett never reduced its size by repairing a lacerated cervix? Have Churchill and Athill and ten thousand others with honored names never reduced the quantity of tissue in the uterus by the application of iodine? Have not a hundred thousand others reduced the weight of blood and muscle and areolar tissue in the heavy uterus by means of glycerine and hot water and other therapeutic measures? Then why in the name of reason and justice deny that an agent which we can see blanching tissues before our eyes, and making muscles of every kind contract, why deny, he said, that it can diminish the blood supply to and favor the fatty degeneration and absorption of the fibrous or myomatous uterus?

The electrical treatment of fibroids reduced to the above simple question, and stripped of all the extravagant claims which were at first made for it, stands today upon a foundation so strong and true that it will find an honorable place in the treatment of fibroids as long as women shall dread to die by the surgeon's knife.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 22nd, 1895.

G. P. GIRDWOOD, M.D., PRESIDENT, IN THE CHAIR.

Discussion on Hypertrophy of the Heart apart from Valvular Disease.—DR. JAMES STEWART introduced the subject by a paper on the etiology as follows :—

I have been assigned the duty of dealing with the causes of cardiac hypertrophy other than those due to valvular disease. Perhaps it would have been better if the term enlargement of the heart had been used instead of hypertrophy, for the reason that a pure and simple hypertrophy is rarely met with. I will confine my remarks chiefly to hypertrophy, but it will be necessary to refer frequently to the almost constant presence of dilatation.

The causes of cardiac hypertrophy have been recently attracting great attention, but not more than the condition merits on account of its great practical importance. No doubt a great deal can be done to stay the progress of an advancing hypertrophy if the cause or causes at work are clearly recognized.

A discovery of the causes is essential to judicious therapeutics.

I can only deal with the more important cardiac hypertrophies, and even those must be dealt with briefly.

The principal causes of cardiac hypertrophy other than disease of the valves, of the myocardium and of adherent pericardium can be divided for the sake of convenience as follows :

1. Organic changes in the arterial system, including obsolesence of the capillaries, and also congenital narrowing of the arteries.

2. The overfilling of the circulation.

3. The circulation in the blood of either foreign substances, or an excess of substances which in small quantities is a normal state.

4. Causes that act in a manner still unknown on the general or cardiac nervous system.

1. *Arterio Sclerosis.*—This is one of the most frequent causes of cardiac hypertrophy, and within the past few years has attracted great attention. It is, as is well known, a frequent condition after the fiftieth year, but it is not by any means a constant change in the physically degenerative period of life. It is not uncommon to often find the arteries of aged people free from any such change. Bamberger mentions that on several occasions he has found the arteries free from sclerotic changes as late as the ninetieth year. Then there is the famous case recorded by Harvey, where sound vessels were found in a man at the very advanced age of 153 years.

Although it is uncommon to meet with marked sclerosis under the thirtieth year, it still occurs sufficiently frequently to make it matter of great clinical interest and importance.

The most important form of arterio-sclerosis is that which occurs as a diffuse process, in men from the thirtieth to the fifty-fifth year.

Councilman, at the meeting of the Association of American Physicians in 1891, read a valuable paper on the connection between arterial disease and tissue changes. His observations were founded on the examination of forty-one cases which had been autopsied at the Johns Hopkins Hospital. He divided arterio-sclerotic changes into three different groups—the nodular, senile endarteritis and the diffuse arterio-sclerosis. All these varieties are followed at times by hypertrophy of the heart.

In the nodular form the changes are limited to the aorta and large arteries. The aorta is covered here and there, especially at its origin, with elevated patches, cartilaginous or calcified in appearance. Otherwise the lumen of the vessel presents a smooth aspect.

In this nodular form of arterio-sclerosis, hypertrophy of the heart is very common. In advanced cases it is to a great or less extent almost constant, the loss of elasticity in the vessels throwing more work on the heart. When the heart increases in size it in its turn tends to increase the arterial changes, so that we have the one condition keeping up the other, a morbid circle being formed.

In the typical senile endarteritis, the aorta and its larger branches are converted into almost rigid calcareous tubes. The arteries are irregularly dilated and lengthened. Cardiac hypertrophy is not as constant a result of the senile endarteritis as it is of the other varieties. This is in a great measure due to obsolescence of so many of the smaller arterial branches as people grow older. It is brought about by the loss of the elasticity in the arteries, so that the blood flow in the capillaries from being continuous becomes intermittent, and in many areas finally ceases.

No doubt hypertrophy of the heart in a certain sense must of necessity occur when the vessels have to a great extent lost their elasticity ; but owing to the cutting off of capillary areas this hypertrophy is more relative than absolute.

"The changes in the arteries due to age proceed slowly, imperceptibly, and, so far as the individual himself is concerned, unconsciously. If the heart responds normally to the calls for extra exertion demanded of it, the individual gradually descends into the vale of years, quite unconscious whether he has a heart or not. If this knowledge is forced upon him, trouble is not far off."—Balfour (*The Senile Heart*).

The diffuse form of arterio-sclerosis is in many respects the most important; here the arterial changes are widespread, affecting the whole arterial system to a greater or less extent. More than half of Councilman's cases were examples of the diffuse varieties, the youngest being a negro aged twenty-three, the oldest was a man aged sixty. The great majority of cases ranged in age between forty and fifty-five. Hypertrophy was present in every case, in some it reached an extreme degree.

Myocardial changes were found to be frequent, their extent depending on the degree of involvement of the coronary arteries in the sclerotic process. Dilatation of the heart is nearly always a constant accompaniment of the diffuse sclerosis of the arteries. In fact, in all varieties of sclerotic arteries the heart is not only hypertrophied, but also dilated. Cohnheim has said that the great majority of all idiopathic cardiac hypertrophies are eccentric, and that non-eccentric hypertrophy has chiefly a theoretic interest. The dilatation in these cases may be so excessive as to give rise to the leaking of the valves.

Clinically there is a difference between the diffuse arterio-sclerosis and the senile endarteritis, the former being characterized by the high arterial pressure, a condition which is not present in the latter, at any rate, when pure and simple. If, however, the kidneys have undergone degenerative changes, the arterial pressure will be increased.

The difference in the two states is chiefly accounted for by the slowness of onset in the senile disease as compared with the quicker process in the diffuse form. In the former the atrophy of tissue is also greater.

The chief cause of arterial degeneration in advanced life is the natural decay of tissues. In the diffuse form the primary event is a degeneration of the media of the large and small arteries. As to how this is brought about, opinions differ. There can be no question that the resisting power of the arterial tissues varies much in different persons. In many people they are the weakest spot—the *locus minoris resistentiæ*. There is abundant proof that this proneness to early decay is frequently hereditary. As to the exciting causes of early decay the following may be mentioned: overeating, the constant use of alcohol,—especially beer, excessive smoking, hard manual labor, athleticism, poisoning by lead or mercury, retention of uric acid (so-called gouty arteritis), the toxines of the various infectious diseases, etc.

In a recent paper in the *Journal of Pathology and Bacteriology* Hollis suggests that the entry of various micro-organisms played a leading part in inducing atheromatous changes.

I will first say a few words in regard to the abuse of alcohol in inducing hypertrophy of the heart, secondarily through producing arterio-sclerosis, and primarily without any arterial change whatever. In Germany, where beer is the favorite beverage, what is commonly known as the Munich beer-heart is very common. It is the form of heart lesion in more than 55.3 per cent. of all heart cases. It may exist with or without any arterio-sclerosis. In the great majority of cases, according to Mohr, it exists independently of any arterial changes. The fact that in countries where stronger alcoholic drinks are consumed than in Germany, renders it highly probable that the cardiac hypertrophy from the use of large quantities of beer is due, more to the filling of the vessels with fluid than from any direct action of the alcohol itself. The quantities consumed daily by every steady beer drinker in Germany amounts to three or four quarts—five, six and even seven quarts is the daily allowance of not a few.

"Four quarts of beer contains about eight ounces of hydrocarbons in solution, and therefore capable of complete absorption into the circulation."—Strunpell.

It is therefore easy to understand how the heart is over-burdened, especially when one considers that obesity is present as a rule in those who use beer so freely. In some cases it would seem that alcohol has a direct action in causing increased pressure in the vessels. Even allowing that alcohol may have no direct influence in bringing about the hypertrophy of the heart, it no doubt promotes the degenerative changes in the heart muscle and cardiac nerves, which at least render the heart's action inadequate and the circulation imperfect.

The consumption of excessive quantities is generally found in those who eat to excess and who are engaged in severe toil—all causes which tend to induce cardiac hypertrophy. In indolent people we have obesity which is in some respects as injurious as excessive work.

The consumption of large quantities of food and beer gives rise also to a hyperæmia of the intestinal vessels, which greatly increases the pressure in the arteries It is generally allowed the strong tea, coffee and tobacco have a direct action in causing increased pressure in the arterial system. They are all promoting causes of the cardiac changes. Seldom do we find anyone prominent. Practically we nearly always find over-eating, drinking, smoking, the excessive use of tea or coffee, together. Nicotine in the lower animals causes a great fall of blood pressure, but from this we are not to conclude that the continuous use has not an opposite action on man, as has been done.

The course of this hypertrophy varies considerably. In the great majority of cases it is found that the increased power is sufficient for a lengthened period to carry on the circulation compatible with a fair degree of health, but in not a few cases, especially in excessive beer consumers, an acute heart failure sets in, which rapidly proves fatal; this often happens without any degenerative changes in the heart muscles. Bauer has reported a number of cases where heart failure has set in a very short time after the hypertrophy developed, and in which fatal result followed—a veritable heart paralysis, as he calls it. In the majority of cases, if the cause is not removed, gradual degenerative changes go on in the heart muscle, which finally lead to general dropsy.

Another important cause of cardiac hypertrophy is over-work, leading to strain of the heart muscle. Both ventricles are usually involved, and dilatation and hypertrophy are always found together. It is met with in those whose work entails severe muscular efforts. On superficial examination, such patients usually present a very healthy appearance. On physical examination, however, the chest is found to be barrel-shaped, and the second sound, both aortic and pulmonic, is accentuated. It has been met with in soldiers, especially during active service in the field. DaCosta, Frantzel and many others have contributed valuable papers on this particular form of heart strain. It does not differ, however, in any respect from that met with from other forms of over-work.

In a recent paper on cycling, B. Ward Richardson points out that the ultimate action of excessive cycling is to increase the size of the heart, to render it irritable and hypersensi-

tive to motion, the cycling acting upon it like a stimulant. The over-development of the heart under the continued and extreme over-action affects in turn the resilience, modifies the natural blood-pressure, and favors degenerative structural changes in the organs of the body generally. Every medical man here must, I think, have met with instances of cardiac hypertrophy in athletes. There can be no doubt, that in such a violent game as lacrosse this condition develops. Cardiac hypertrophy from overwork may be recovered from, or it may go on to progressive heart failure. It develops more rapidly, and more often affects those who at the same time use alcohol in any form to excess.

It is easy to understand how severe muscular efforts bring about hypertrophy of both ventricles.

Very rare causes of cardiac hypertrophy are congenital narrowing of the arteries and general dilatation of the blood vessels. The former is, according to some, far from rare, and it is held that in many cases of enlargement of the heart from over-exertion the predisposing cause is congenitally narrow vessels.

In severe cases of lead poisoning cardiac hypertrophy is very commonly met with, due mainly to the parenchymatous and interstitial changes in the kidneys and arterial sclerosis. These arterial and nephritic changes are very constant phenomena of severe lead poisoning.

The explanation usually given of the action of lead on the kidneys and arteries is that it induces gout. Sir William Roberts, however, believes that lead does not induce gout. He considers that the gouty diathesis and lead poisoning, while differing in all other respects, have one tendency or vice in common, viz., the tendency to uratosis. However the facts may be explained, there can be no doubt about the influence of lead in bringing about sclerotic changes in the kidneys and arteries, and thus leading to hypertrophy. These changes, next to the encephapathy, constitute the most serious effects of lead poisoning, effects which, if their cause is not early recognized, will infallibly lead to irretrievable mischief.

Cardiac hypertrophy is the most constant change in the heart in gouty subjects. It is nearly alway present, differing in degree according to its intensity and age of the patient. It is in some cases combined with dilatation and myocardial changes, especially fatty degeneration. It is caused by the widespread arterial and kidney changes so common in gouty subjects. In forty-nine cases examined by Dr. Norman Moore, the average weight of the heart was 16½ ounces. Gout may cause hypertrophy without first bringing about arterial organic changes. In this connection it will be convenient to discuss the cardiac hypertrophy which is so frequently found in cases of sub-acute and chronic Bright's disease. The variety of Bright's disease which is most frequently attended by cardiac hypertrophy is the interstitial. For many years the connection between the circulating and kidney changes has been a subject which has given rise to a great deal of discussion.

There is no doubt that cardiac hypertrophy may occur in a simple Bright's disease without any involvement of the general arteries. We have probably two factors contributing to the hypertrophy, the increased pressure in the circulation caused by the necessity of getting rid of waste matters. As a great number of capillary districts are obliterated by the disease, the heart must increase in strength in order to effect the necessary elimination; but the chief cause for the hypertrophy of the left ventricle is the retention in the blood of matters which in a normal state of the kidneys would be eliminated. This causes high arterial tension and gives rise in consequence to increased work and consequently to hypertrophy.

The last group of causes giving rise to cardiac hypertrophy which it is my intention to speak of is the neurotic group. To this belongs the enlargement coming in exophthalmic goitre, essential tachycardia, insanity, prolonged emotional disturbance, etc. The excessive action of the heart in these cases leads to enlargement, but little is known about the intimate changes in the nervous system which brings them about. Our knowledge of the changes which take place in the nervous mechanism of the heart is very slight indeed. It is highly probable that in the case of heart changes coming on during the course of exophthalmic goitre, essential tachycardia and from the excessive use of tobacco, tea and coffee, the changes are of a molecular nature. There are very good grounds for believing that all the essential symptoms of exophthic goitre are due to the action of certain toxines generated from the thyroid gland. Possibly it may be found that essential tachycardia is brought about also by a chemical poison generated within the body. The hypertrophy and dilatation of the heart occurring in exophthic goitre reaches sometimes an extreme degree, and cases are not uncommon where death is the direct result of degeneration occurring in the heart muscle. I am not aware of any fatal case of tobacco-heart. It is quite possible that such a heart might give way at last under the continuous strain, but fortunately the cause is easily detected, and if removed the effects disappear, although to this there are rare exceptions. An abiding palpitation has been described even after tobacco has been given up.

The enlargement of the heart occurring in the course of infectious fevers is mostly due to dilatation of the cavities, and hence is properly beyond the range of my subject. The subject

is one of very great importance. I recently saw a case of typhoid fever where a fatal result came about indirectly, if not in a measure directly, from heart dilatation consequent on a secondary infection.

A word more about the symptoms and physical signs of cardiac hypertrophy.

The recognition of cardiac hypertrophy is easy when it is well marked, but difficult, if not impossible, when slight. There is seldom any pronounced subjective symptoms while the cardiac muscle retains its normal vigor. It is only when degenerative changes have set in that the patient feels that he has a heart. When this takes place the symptoms do not differ from those of cardiac failure brought about from valvular disease.

The physical signs of an hypertrophied left heart are increased tension in the radials, well-marked apex beat and accentuated aortic second sound. When the right heart is hypertrophied we have an accentuated second pulmonary sound. These signs are only of value as pointing to increased tension in the various vessels, and when this has lasted some time we naturally conclude that there is hypertrophy. If, however, a cause which has been in operation for some time is no longer present, the signs of increased tension will have disappeared, although the hypertrophy remains. Percussion is no doubt of value in many cases in detecting marked hypertrophy, but for slight degrees it can give us no reliable information. The shape of the chest has much to do with the extent of cardiac dulness. When it is barrel-shaped, a large heart will present a no greater degree of dulness than a small heart in a flattened chest. A great degree of dulness can only take place in dilatation. Again, a large heart may be more or less entirely covered by an emphysematous or hypertrophied lung.

Dr. ADAMI discussed the anatomy and experimental pathology as follows:

I shall, I think, best satisfy you, and at the same time myself, if what I contribute to this evening's discussion takes the form of a series of notes upon the experimental pathology and the anatomy of cardiac hypertrophy, rather than that of an academic survey of the subject from the clinical standpoint. Frequently, it is true, I must of necessity illustrate what I have to say by reference to clinical history, but, on the whole, I shall leave the clinical aspects to be dealt with by those more capable.

In the first place, if we study the causes of hypertrophied heart, whether of hypertrophy of one or both sides, we see this that reading the clinical history of these cases the assigned causes of hypertrophy may be summed up under the heading of *increased work*. This one heading may be subdivided into three,—increased work due to resistance from within, increased work due to resistance from without, increased work due to nervous stimulation and augmentor action. I shall not discuss this last subdivision, because frankly we are ignorant how far the hypertrophy that occurs in exophthalmic goitre and allied conditions is due to heightened blood pressure, and how far it is secondary to excitation of the accelerators or augmentors.

Of the increased resistance from within, or increased tension, the main causes are, heightened pressure in the arterial blood stream, and secondly, obstruction to the onward passage of blood within the heart itself, by stenotic diseases of one or other orifice. Of resistance from without, the one great cause is pericardial adhesion. To-night we have, as far as possible, to leave out the subject of valvular disturbance, and I shall neglect nervous disturbances. There is still the large field of hypertrophy due to increased arterial pressure, and the pericardial adhesion. In all these cases, the individual fibres of the heart muscles of the affected regions have to contract under increased difficulty, they have to carry or contract against a greater load, and as a result of this, just as is the case with the skeletal muscles, with the muscles in the blacksmith's arm, and the muscles of the body in the all-round athlete, increased work brings about increased growth—brings about, that is to say, hypertrophy of the muscle.

Into the subject of the nature of this increased growth I shall enter in a few minutes' time, at present I wish to carry a word further this parrallel between the behavior of the cardiac and skeletal muscles, under circumstances in which the load is increased. If you take a skeletal muscle, for example, the gastrocnemius of the frog, so dear to the physiologist, and observe its contraction with gradually increasing loads, there are two points especially to be made out. In the first place, the greatest amount of work is not performed with the smallest load, but there is a certain medium load with which the distance through which the load is pulled multiplied by the weight of the load gives the biggest result. This product of weight moved and the distance through which it is moved is the work done by the muscle. The most work, therefore, is done with a medium load. The second point is that with increasing weights fastened or brought to bear upon the muscle, that muscle in its resting state becomes more and more elongated, and with regularly increasing weights attached, the shortening attained by the contracted muscle constantly diminishes. Or, to put the matter in a slightly different light, and to combine these two statements of fact, although with a certain medium load the greatest amount of work is done, nevertheless with that medium load the muscle in contracting does not attain to the same amount of shortening as it does with a lesser load.

Let me now apply these observations to what

is found in the ventricular muscles of mammals. Experimentally, the amount of work performed by the ventricles of the mammalian heart can be increased by ligaturing the aorta with a sip-loop ligature, and drawing this ligature more or less tight, according to need. (This is an animal that has been narcotized and curarized and subjected to artificial respiration, the heart being exposed by making a window in the ribs.) In such a case as this, as shown by Professor Roy and me,* the behavior of the cardiac muscle can be observed and recorded by an apparatus, of which I give a rough diagram. The ends of this apparatus are attached to the surface, say of the left ventricle, by fine threads, and now it is possible to observe upon the recording drum the extent of contraction of the portion of muscle between the two points under different pressures within the heart. Narrow the aorta by drawing the ligature tight and the pressure is increased. Under these conditions it is found that the ventricular muscle reacts exactly along the same lines as does the gastrocnemius of the frog.

Similar results are obtainable if, instead of increasing the pressure in the arterial system by narrowing the aorta, we increase the work of the heart by increasing the amount of blood passing through it, either temporarily, by pressure upon the abdomen, whereby a large quantity of blood is expelled from the abdominal viscera, or by injecting into venous circulation some few hundred cubic centimetres of defibrinated blood. The results in all these cases are the same. By the instrument just described it is easy to see that the heart is more filled in diastole, so that the two ends of the levers are pushed further apart, and that in systole the ends do not approximate so nearly as in the condition when there is less resistance or less blood pouring through the organ.

It is seen from these observations that with increased pressure with the ventricle the wall expands in diastole. There is dilatation of the heart. But with the increased load to contract against, the fibres do not shorten to the same extent;—that is to say, with increased work of the heart there is, necessarily, accompanying the dilatation in diastole, a dilatation in systole. All the blood is not expelled in systole. There is of necessity *residual blood*, as Roy and I termed it, in the ventricular chambers.

There is a general belief that the healthy heart, even under conditions of increased work, contracts completely, so that the chamber is emptied at the end of systole. From what I have said it will be seen that this is not the case. One can go further and prove for one's self that even under ordinary conditions the mammalian heart does not completely expel all the blood within the ventricles. By taking a dog that has been curarized and subjected to artificial respiration, opening the chest wall, making an incision at the very apex of the left ventricle, so as just not to completely enter the cavity, then it is easy to push the little finger into the cavity through the thin apex without the loss of a drop of blood. The heart action is not recognizably disturbed by this procedure, and it can be felt that while the walls of the ventricle in the lower two-thirds up to the aspices of the papillary muscles close completely round the finger, there is clear space in the upper third which is not and cannot be emptied of blood.

Although it may seem at first sight to have no direct bearing upon the subject of this evening's discussion, nevertheless it is worth while to make a few remarks upon this subject, inasmuch as it is so intimately associated with conditions of hypertrophy without valvular disease. It is quite possible that where there is increased work to be performed by the heart, there is some economy of the action of the organ when there exists a certain amount of residual blood in and dilatation of the ventricles. Taking the ventricular chamber as a sphere,* there is this to be noted concerning the relationship between the circumference of the sphere and its contents, namely, that as a sphere expands, its cubic contents increase out of all proportion, I was going to say, to increase in cubic contents and increase in circumference is by no means an arithmetic ratio.

If the circumferences be taken as abscissæ, and the corresponding volumes as the ordinates, the curve of successive values is what is known to mathematicians as a cubical parabola. From this it follows that a degree of shortening of the fibres of the heart wall, sufficient, let us say, to reduce the circumference of the ventricle one inch, will cause a greater diminution in *volume* (a greater output) the more dilated the ventricle is at the beginning of its contraction. For example, a diminution of the circumference by *one* inch of a sphere whose circumference is *ten* inches causes a diminution of the volume or an output, in the case of the heart, equal to 4.5 cubic inches, while a diminution by *one* inch in the circumference of a sphere *five* inches round causes a diminution or an output of only 1.027 cubic inches, although in the first case the circumference was reduced only by one-tenth, while in the other case it was reduced to one-fifth. That is to say, if we have a dilated heart, the fibres will need to contract a very small amount in order to expel a given amount of blood, compared with the amount they would have to contract in the normal undilated heart.

There are other factors to be taken into account, it is true, and Roy and I went a little into this subject in our paper published in the

* Heart beat and pulse waves, *Practitioner*, February, 1894, p. 81.

* The sphere is the nearest geometrical figure that can be employed here for purposes of illustration.

*Philosophical Transactions.** All that I wish to do here is to point out that it is possible that in a hard-working heart a certain amount of dilatation, with presence of residual blood by diminishing the extent which each fibre is called upon to contract, may really be an economy to the organ as a whole.

It follows from these observations that *hypertrophy is never primary, dilatation always precedes hypertrophy.* This was recognized as most probable by Hilton Fagge; few other writers have laid stress upon the point. If, however, the heart muscle is well nourished, where this dilatation is due to increased work, by Paget's law hypertrophy ensues, and the numerical hypertrophy or hyperplasia of the ventricular muscle fibre will have the effect of lessening the load of each individual fibre. Consequently, with a lessened load, each fibre will contract more completely and the dilatation will tend to disappear. Where this is the case we have what is known as simple hypertrophy.

There can be no doubt that the early stages, where ample reserve force and good compensation are present, this simple hypertrophy exists and may persist for years. But I would add that in the post-mortem room it is more rarely to be seen than is generally accepted. If a hypertrophied heart, say of Bright's disease, without valvular lesion, be examined within a few hours after death, in very many cases we appear to have this simple hypertrophy. If, however, time be given for the rigor and contraction of the muscle to pass off, it is found—that at least is my experience—that the cavity of the left ventricle is distinctly larger than the cavity of the normal heart. I would say that only in those cases in which death has occurred from some intercurrent disease, and not from one of the cycle of diseases associated with cardiac hypertrophy—only when death occurs before the final stage of the disease of which cardiac hypertrophy is an integral part—do we obtain evidence of real simple hypertrophy. *Eccentric*, and not simple, hypertrophy is the rule,—that is to say, hypertrophy associated with definite dilatation of the ventricular cavities.

As for the concentric hypertrophy, which is said to be observable in non-valvular disease, I feel more and more assured that it is falsely so termed; there is no such thing as true concentric hypertrophy, for the condition implies a lack of economy in the work of the organ, a most unnatural lack; it implies that the ventrical in contracting expends a large part of its energy, after expelling the blood, in squeezing up the more internal fibres. Only within the last fortnight I obtained a specimen of so-called concentric hypertrophy. The patient, an old woman of eighty, in Dr. Stewart's ward at the Royal Victoria Hospital, died from cerebral apoplexy, following upon extreme atheroma of the aorta and the main vessels; there was, in addition, atheromatous stenosis of the aortic valves, both conditions favoring the development of hypertrophy, with dilatation of the left ventricle.

The old woman had lingered some days in a comatose condition, with presumable lowering of the arterial blood pressure. In addition, the tone of ventricular muscle had been in all probability considerably increased by digitalis. At any rate, at the autopsy a very few hours after death the left ventricle was found hypertrophied, and instead of being dilated was so firmly contracted that the only cavity left was immediately around the chordæ tendineæ. The thickness of the ventricular muscle at the junction of the lower and middle thirds was 20 mm.,—that is to say, there was moderate hypertrophy. However, on coming to observe this heart the next day, the concentric hypertrophy had quite disappeared. With the passing off of rigidity there was a relatively large cavity left behind.

Where the left or right ventricle alone is affected, the condition of the ventricle may be one of either simple or eccentric hypertrophy. Where, on the other hand, as Walshe noted more than thirty years ago, there is general hypertrophy of the organ, there hypertrophy is *always eccentric.*

A little consideration shows why this must inevitably be the case. So long as there is simple hypertrophy (hypertrophy without dilatation) so long the mitral valves remain competent, and there is no regurgitation into the left auricle, no increased work for that organ to do, no hypertrophy. So soon as the left ventricular muscle begins to fail and to be unable to contract properly under its load, dilatation ensues, and with this dilatation expansion or giving way of the muscular ring around the mitral orifice, and with this, relative incompetence of that orifice. It is only when this relative incompetence occurs, or when from other causes the mitral valves fail to perform their duty, that there is any possibility of the other chambers of the heart being called upon to do increased work. Thus it is that general hypertrophy of the heart demands or is associated with eccentric hypertrophy of the left ventricle.

Time forbids that I should go more fully into this subject or do more than point out that relative incompetence of the auriculo-ventricular valves is more frequently found at the post-mortem than it is diagnosed during life. Relative incompetence, therefore, is not necessarily indicated by the presence of a murmur.

I cannot here enter fully into the histological nature of hypertrophy, although perhaps as a pathologist it might be expected that I should say some words upon this point. I will only

*Phil. Trans. of the Royal Society, London, 1892.

say that while one can, in certain cases of hypertrophy, make out clearly that the individual fibres have undergone a definite increase in size, it is far more common to note, and of this there can be no doubt, that there has been an actual numerical increase in the fibres. This increase appears to be general throughout the ventricular wall, and is possibly, nay probably, due not only to a new growth beneath the endocardium especially, but also to a splitting up or division of pre-existing fibres. It must be remembered that the heart muscle fibre is not a single cell, but is a compound, the result of a fusion of several cells into one individual unit. As a consequence of this it is possibly more easy for the fibres to split up into independent territories without undergoing temporary derangement of function than is the case with the cells of those tissues formed of isolated cell units.

To pass on now to certain aspects of this subject of hypertrophy more immediately in connection with this evening's discussion, I would point out that of the cases of hypertrophy without valvular lesion, we have to consider in the first place increased resistance through the column of blood. This could be brought about by increased amount of blood to be propelled, or, in the second, by increased resistance to passage in the arterial system. Of these two the first may exist as a constitutional condition, but the more one studies the less assured does one become that there is such a condition as general plethora unless these cases be regarded as true plethora in which (as in German beer drinkers) there is oft repeated flushing of the circulation with imbibed fluid. Of increased resistance in the arterial stream the reverse would appear to be the case, and with further studies of blood pressure in the arteries one begins to see that this plays an extremely important part. The hypertrophy following upon not only gouty conditions and senile arterio-sclerosis, but also upon acute rheumatism, chorea and chlorosis, may be present with or without lesion of the aortic or mitral valves of sufficient intensity to explain its extent; so that in all these cases we have to fall back upon increased blood pressure as a cause of hypertrophy.

Increased blood pressure in itself is capable of setting up a vicious circle of which one segment may be hypertrophy.

In the first place it leads to an increased nutrition of the walls of the arteries, increased nutrition leads to increased connective tissue growth of the walls, the increased fibrous tissue of the walls leads to contraction and increased rigidity of those walls, the increased rigidity leads to increased resistance to the passage of the blood current, the increased resistance required increased propulsive power on the part of the ventricular muscle, that is to say, increased work; the increased work of the heart leads to overgrowth and hypertrophy, and with this, heightened blood pressure and further increased nutrition of the walls. And now at last the stage is reached, this vicious circle continuing, in which either the walls give way or the heart.

The longer I study the pathology of the circulation—and during the last eight years I have given more time and thought to this than to any other branch of my subject—the more assured do I feel that increased blood pressure alone (however it be primarily brought about) is sufficient to explain the anatomical changes so constantly seen in arteries, valves and heart walls, without of necessity calling in chronic inflammation or specific agency. The changes I refer to are arterio-sclerosis, atheroma, and general fibroid thickening of the valves. Perhaps here again I am diverging from the main subject of this evening's discussion, but I say this as a connecting link with what I have just remarked and with what is about to follow.

While I am far from wishing to indicate that this is to be regarded as the sole cause of atheromatous and arterio-sclerotic changes, I hold that the changes I have mentioned can one and all be explained by the increased pressure within the vessels leading to an increased passage of fluid from the blood into the sub-endothelial layers of the intima, to an increased nutrition, and as a consequence to a proliferation of connective tissue in this region, which in itself as it contracts cuts off its own supply of nutrition, degenerates, and, what is more, leads to degeneration of surrounding parts by cutting off their nutrition. The evil effects in arterio-sclerosis, with all its combined lesions, are not necessarily of an inflammatory origin.

Let us take now the hypertrophied heart. Time permits me to refer but briefly to the anatomical changes that may occur in it in the cases before us.

1. The overgrowth of the arterial walls may be associated with an increased tendency to the development of fibrous tissue in the immediate neighborhood of the arteries, and thus a condition of so-called interstitial myocarditis may be set up; or

2. With an increased fibrosis of the arteries the narrowing of the channel may lead to incomplete nutrition of the territory supplied by each arterial twig, and as a consequence the muscle fibres at the periphery of the territory may be atrophied through lack of nutrition and be replaced by fibrous tissue. This is the so-called dystrophic sclerosis of the French school, and can frequently be seen more especially in the papillary muscles.

3. With the arterial disturbance there may

be actual blocking of the atheromatous arteries, and so infarctous areas may originate, may undergo softening, may cause rupture of the heart or aneurism of the wall, or if the period of softening be successfully tided over, the replacement of the necrosed tissue leads to cicatricial development and disturbance of the normal contraction.

All these cases here mentioned inevitably cause interruption to the proper action of the remaining fibres, and lead towards a final failure of the organ.

Another set of causes would seem to act along rather different lines, not so much of disturbances in the coronary arteries as disturbance in the quality of the nutrition, whereby the heart muscle tends to undergo fatty degeneration. In the uncomplicated case of hypertrophy, without valvular lesion, however, this fatty degeneration is rare; more frequent, according to the observations of Renaud, Browicz and Von Recklinghausen, there is a tendency for a sudden rupture of the heart fibres, from segmentation or fragmentation. It would seem as though, from the very careful observations of the last two, the weakened condition of the muscles permits some slight increase in the work done by the organ to bring about, not a local rupture, but a generalized separation of the fibres.

Possibly this segmentation may explain the suddenness of many cases of death in those with atrophied and dilated hearts. For my own part I cannot as yet see that it has been proved with absolute satisfaction that the fragmentation of the fibres is agonal or pre-agonal. Nor, looking back, does it seem to me that the most strongly marked cases that I have encountered of this fragmentation have been in cases of sudden death.

Lastly, to round off this paper, it is necessary to say a word concerning the hypertrophy that follows pericardial adhesion. Of this I may say that I cannot recall any case seen by me in which the hypertrophy was not markedly eccentric. Most frequently the hypertrophy has disappeared with, in its place, peculiarly extensive degenerative change.

Dr. F. W. CAMPBELL described the treatment as follows:

I confess that when I undertook to speak on the treatment of hypertrophy without or apart from valvular disease, I thought my work would be a comparatively easy one. When, however, I began to look into the subject, I found comparatively little on this special form of heart disease, and what I did meet with was so mixed with the treatment of valvular hypertrophy that it was a somewhat tedious task to separate it. When accomplished it was not satisfactory, for, after all, the treatment of cardiac hypertrophy is much the same, no matter what is the cause. At the outset the enquirer is met with the question, "With what hope may the treatment of an hypertrophied heart be undertaken?" Can we control the nourishment of the heart by any means possessed by our art? Some have maintained that this can be done, but the majority hold a contrary opinion. The signs which were considered as indicating the former have been proved to be misleading and fallacious. Thus the impulse may be reduced in force and extent, the first sound changed in its character and the area of cardiac dulness lessened. Notwithstanding all these signs the hypertrophy still remains the same, and the apparent diminution has been brought about about by disgorgement of the right cavities.

Walsh says that the theoretical indication is to tranquilize the heart by diminishing the quantity without deteriorating the quality of the blood. For this purpose he recommends an occasional venesection from the arm, taking at each time from four to eight ounces, at intervals of from two to six weeks, according to the robustness of the patient. Care, however, must be taken not to induce an anæmic condition of the blood, which would very seriously aggravate the disease. If general bleeding is not to be thought of, then wet cupping should not be lost sight of. Personally I have met with very few cases of the disease under consideration, but in two or three I was decidedly of opinion that my patients were much benefited by wet cupping. I have also had experience of the benefit of a half dozen leeches applied over the cardiac region in calming the heart's action. We do not possess any drug capable of diminishing the bulk of the heart. Iodide of potassium has been used for this purpose, and pushed to iodism without exhibiting any such power.

Walsh says quietude—physical, emotional, intellectual—is the very first of curative agents for an enlarged heart. To aid in tranquilizing it, direct cardiac sedatives—hydrocyanic acid, acetate of lead, digitalis and belladonna (the latter both internally and as a plaster over the heart, which latter I heartily endorse), must be employed during the entire treatment of the case. There must be occasional intermissions. Aconite he also strongly recommended. I have given it in the form of Fleeming's tincture, one drop every two hours till its effect was manifest. It also has very great power in removing those disagreeable sensations so common in the præcardial region. Saline and aloetic purgatives aid the good effects of rest, and diuretics are useful, independent of any dropsy. Unless the patient is very plethoric, animal food in moderation may be allowed—fish under all circumstances is permissible. Alcholic liquors must be avoided; any fluid taken must be limited. Passive open-air exercise is to be strongly recommended.

Page says digitalis is contra-indicated as a

rule, unless associated with a mitral lesion. Even then, if the heart's action is very forcible, it may be omitted. He considers aconite as the drug of most value, and strongly deprecates the use of tobacco and alcohol. A course at the German Spa, Carlsbad, he has found often useful, not only for its immediate curative effect, but also for the knowledge one learns of how to take care of oneself.

Bartholow, whose faith in the efficacy of drugs is almost unlimited, says that he has met with good results from saline purgatives, which draw off considerable fluid from the intestinal canal. He has also used veratrium viride, which he considers more powerful but not so efficacious as aconite. He advises the potassa salts so as to act on the kidneys and thus carry off a larger amount of waste material.

Fagge has very little to say on the subject. In fact he only devotes twenty-six lines to it, in which he speaks favorably of means I have already mentioned, and adds, "Bromide of potash is mentioned favorably."

Our distinguished friend and late fellow-member, Dr. Osler, in his splendid work on practice, enters fully into the treatment of hypertrophy with valvular disease, dividing his subjects under two heads, viz., (1) stage of compensation, where he says medicinal treatment is not necessary and often hurtful, but lays down a course of general treatment such as I have already mentioned; (2) stage of broken compensation—under this head he speaks strongly of the benefits to be derived from rest, and illustrates it by cases he met with during the time he was one of the physicians of the Montreal General Hospital. The embarrassed circulation, he says, must be relieved. This is accomplished by venesection and depletion through the bowels. Those remedies must be used which stimulate the heart's action. The best of these is digitalis. Broken compensations, no matter what the valve lesion may be, is the signal for its use. He speaks of its toxic effect due to its cumulative action and sudden outbreak. One such case I saw when the resident house apothecary during my student days at the Montreal General Hospital. Strophanthus, convallaria, citrate of caffeine and Adonis vernalis are used, and I have named them in the order of their value. But why waste time over hypertrophy with valvular disease when our time has been occupied in discussing hypertrophy *without* valvular disease? I reply, because the treatment of each is much alike. In writing of our special subject Dr. Osler says: "The treatment of hypertrophy and dilatation has already been considered under the section on valvular lesions. I would only here emphasize the fact that with signs of dilatation as indicated by gallop rhythm, urgent dyspnœa and slight lividity, venesection is in many cases the only means by which the life of the patient may be saved, and from 20 to 30 ounces of blood should be abstracted without delay. Subsequently stimulants, such as ammonia and digitalis, may be administered."

Dr. Adolf Strumpell in his latest work on medicine says:

"The treatment of idiopathic cardiac hypertrophy is precisely the same as for valvular disease and myocarditis." On referring to the chapter on these subjects I find he divides them much as Osler has done, and that he practically discusses the same remedies. When compensation has been established Strumpell speaks highly of baths. He says they are not only well borne by cardiac patients, but they exercise a peculiarly beneficial and invigorating influence upon the action of the heart. Their temperature should be from 90° to 93° F.

Dyspnœa is one of the most distressing symptoms of heart disease. Our efforts should, of course, be directed to restoring compensation. If we fail, as in most cases we will, we must then treat the dyspnœa, systematically. Morphia is most efficient in this respect. It is usually well borne, and gives great relief, especially if it be given hypodermically.

There are certain principles which apply more or less to all cases of heart disease, and these are dwelt upon at considerable length by Roberts. General management is always a matter of much usefulness. If occupation is satisfactory it may be continued, but the effect must be watched. Oertel has written favorably of the plan of treating certain forms of heart disease by "graduated exercise." In carrying out this method, the patient is made to walk up paths of gradual ascent, the amount of exercise being progressively increased as the patient is able to bear it. Special treatment in the form of certain gymnastic exercises is also advocated. Avoid all mental disturbance. Anxiety, worry, mental strain or excitement in connection with pecuniary matters, business, public life or politics is very bad. Avoid anything emotional, and get at least eight hours sleep. As regards medicinal agents, Roberts says: "As regards digitalis, it is not suitable where there is marked hypertrophy." When dilatation is also present he considers it a valuable remedy. Nitroglycerine is recommended in cardiac dyspnœa, especially if the pulse tension is high. With regard to insomnia or disturbed sleep in cardiac cases, he finds stimulants useful—chloric ether, spiritus ether co. and spirits of camphor of service in some cases. Opiates, chloral hydrate, especially the latter, are dangerous. Paraldehyde, sulphonal, chloralamid and urethane are often good hypnotics. It is of great importance to pay attention to all the principal organs and, as far as possible, prevent them from becoming involved, especially the lungs, kidneys, liver and digestive organs generally. The article on the heart in Pepper's "System of Medicine" is

by Dr. Osler. It says: The treatment of hypertrophy consists largely of measures directed towards its maintenance to a degree proportionate to the extra work which the heart has to do. In organic disease the welfare of the patient depends on this—we cannot remove the cause, but we can, by careful hygienic and dietetic regulations, maintain the balance between the defect and the compensation. The original lesion is usually beyond control, and the special indications are to moderate certain dangers associated with hypertrophy and to promptly meet the earliest symptoms of heart failure. In the hypertrophy associated with arterial and renal disease, a special danger exists in the tendency to rupture of vessels. In these cases a vigorous heart beat, with a very high tension in the peripheral arteries, indicates mischief, which may be met by taking prompt measures for the reduction of the high pressure. A brisk cathartic may avert an attack of apoplexy, and there are cases where the old practice of bleeding—so much at one time in vogue for hypertrophy—is justifiable—might I add—*more* than justifiable. Palpitation and shortness of breath are the earliest signs of failing compensation, and call for treatment, in which rest is a very impotant factor,—in fact, in many cases is all that is required. Within the past year or two I have found very excellent results in cases of weak or dilated heart by the administration of pellets of cactina—one every two hours during the day. These pellets each contain $\frac{1}{100}$ of a grain of cactina—the active proximate principle of Cactus Mexicana. My friend, Dr. Fuller, of Sweetsburg, whom I saw last summer in consultation, told me that his experience of their employment had been very satisfactory. I have also lately, to a slight extent, used as a cardiac tonic the Kola cordial made by Stearns, of Detroit, and while my experience has been limited, yet I am satisfied that it is an excellent cardiac tonic. It accelerates the pulsations of the heart, at the same time increasing its power and regulating its contractions. It also has a diuretic action. In many ways its action resembles digitalis, but it has not its cumulative action. It also has an invigorating effect on the general system. This is due to the fact that it contains more caffeine than is found in coffee, and an equivalent amount to that met with in the highest grades of tea. It also contains theobromine, an important ingredient in cocoa. It thus possesses the properties of coffee, tea and cocoa, added to a peculiar active principle of its own, called "Kolanine," which so far is said not to have been found in any other vegetable product. Strychnia, either in pill form or in the liq. strychnia, of the British Pharmacopœia, or hypodermically, is a capital tonic to the muscles, both voluntarily and involuntarily. In cardiac dyspnœa I have had excellent and prompt results from the application of an ice bag over the præcordial regions.

Dr. McConnell thought the point insisted upon by Dr. Adami, that all the changes occurring in cardiac hypertrophy were the result of increased tension, was the essential one to keep in mind in considering its pathology. There were a great many causes which might bring about increased tension. Dr. Stewart mentioned many, probably most, but had not, he thought, laid sufficient stress upon the effect of poisonous substances circulating in the blood—the result of improper oxidation, or even of bacterial growth, especially in the gastro-intestinal canal, producing auto-intoxication. These often were the most important factors in giving rise to increased tension. Arterio-sclerosis and cardiac hypertrophy, as for instance in Bright's disease, especially that form known as "contracted kidney," were essential. Anæmia and chlorosis, Dr. McConnell thought, were also often accompanied by hypertrophy and dilatation where there was increased tension. They had a tendency to produce increased resistance in the peripheral blood vessels, causing hypertrophy and dilatation of the heart, the latter owing to the lessened nutritive qualities of its blood supply. Many of these cases seem to depend on deficient action in the gastro-intestinal tract with auto-intoxication, and the increased tension may depend on changes in the capillaries and arterioles, owing to the glandular functions of these endothelial cells being exercised in eliminating morbid matter from the blood. In the condition called lithæmia, also, the products of deranged metabolism led to increased tension. It was almost impossible, he believed, to separate dilatation from hypertrophy, as they so often occurred together. Lung affections also, emphysematous conditions, even chronic bronchitis or sclerotic changes, as in fibroid phthisis, by giving the right heart more work to do, were apt to cause hypertrophy. Even obesity might act as an etiological factor, and phenomena of a purely neurotic origin often tend to bring about this condition He had a case of tachycardia not long before, in which the whole trouble seemed to be of a neurotic character, and it became almost chronic tachycardia. There was no organic trouble, but a certain amount of hypertrophy resulted, then imperfect compensation followed, succeeded by heart failure and death. Dr. McConnell thought that murmurs following relative incompetence might be mistaken for valvular disease.

Regarding the treatment, he believed it must vary as the cause varies. Sometimes he would lessen the action of the heart, sometimes increase it, but the most important feature of the treatment was likely to be the clearing of the blood stream of all poisonous or extraneous matters, which might be the cause of increased tension by promoting the action of the chief

emunctories and lessening the amount of fluid in the body. Baths play an important part in this latter respect. A recent writer who studied the action of baths at Nauheim, Germany, in vavular disease, known as Schott's disease, believed they diminished the size of the heart by peripheral dilatation of the vessels, besides increasing the sink transudation. Brine baths, carbonic acid baths, and hot baths were all employed for this effect. The patient came out with a skin as red as a lobster, and the area of hypertrophy and dilatation as determined by percussion was sometimes reduced as much as one inch as the result of a single bath.

Dr. FINLEY thought too much stress might sometimes be laid upon arterial sclerosis as a causative factor in the production of cardiac hypertrophy; that it might sometimes be a secondary rather than a primary condition, although, with the sclerosis once established, a vicious cycle was set up, in which enlargement of the heart and sclerosis produced and kept up each other. He believed, however, that some cases occurred in which the cardiac trouble was the primary one. Cases of aortic regurgitation were not uncommon in young people where a considerable degree of arterial sclerosis existed. In Graves' disease Dr. Adami seemed to think that the enlargement of the heart was due to increased arterial tension; now, in these cases the arterial tension was low. It seemed to Dr. Finley that the cardiac changes that occurred in Graves disease might be the result of the increased work thrown on the heart by the increased number of pulsations. As to the symptoms of cardiac hypertrophy, one may say there were none. It was when dilatation supervened or when compensation was defective that symptoms occurred. They were, of course, similar to the symptoms following mitral disease when compensation was failing. All kinds of pulse were met with in this condition; sometimes weak and irregular like the advanced stage of mitral stenosis; sometimes in pairs, one weak and one strong; and the few cases of brachycardia and tachycardia seen by Dr. Finley were associated with this condition. He regretted that physiology had not been able to do more to clear up this subject; so far, experimental work had thrown very little light on the irregularity of the pulse. Touching the treatment, he believed it a good rule to divide the cases into two classes: (1) those of high tension, (2) those of low tension. In the first the object should be to decrease tension, and iodide of potassium was often very useful in relieving distressful attacks of palpitation; nitro-glycerine had its uses, and purgatives, especially mercurial, followed by a saline in the morning, were of very considerable value. For the purpose of relieving sleep and distressing dyspnœa, nothing equalled morphia. The other hypnotics, such as sulphonal, chloral, paraldehyde, often failed. In the second class attention should be directed towards strengthening the heart and giving the ordinary cardiac tonics.

Dr. LAFLEUR, seeing that Dr. Stewart had exhausted the etiology of the subject, would content himself with reading a tabular statement of cardiac hypertrophy in general. It was based as follows: (1) Causes within the heart: these were practically two: (*a*) myocarditis, however induced, either sclerotic, or that which is the result of chronic pericardial inflammation; (*b*) aneurisms, which by weakening one portion produced hypertrophy in others. (2) The second great division included causes outside the heart; among these were noted: (*a*) purely mechanical causes, and of these the principal and only one was in reality adhesion of the pericardium, synechia pericardii, which might or might not be combined with pleural adhesion; (*b*) a great number of causes which depended upon the raising of blood pressure. Here the distinction might be made of blood pressure raised in territorial areas, or a general increase of blood pressure; among the former were chronic or subacute nephritis, chronic pulmonary diseases, chronic bronchitis, sclerosis of the lung, and true chronic fibroid phthisis. Still dealing with territorial raising of blood pressure, we had the pressure of tumors upon large vascular trunks (quite a rare cause, but it might occur in mediastinal disease). Then the general raising of blood pressure, as brought about by poisons of various kinds; by excessive manual labor; nervous derangements; and arterial sclerosis. (3) Hæmic plethora. This was not infrequently combined with arterial hypoplasia. Dr. Lafleur remarked he had access to some statistics which showed the proportion in which these various causes come into effect, drawn from 360 autopsies representing the total number of autopsies from the opening of the Johns Hopkins Hospital, May, 1889, to April, 1893. In 360 autopsies, cardiac hypertrophy, due to some cause or other, was found to exist in no less than 105 cases. Of these, arterial sclerosis was found to be the cause in 59%; chronic nephritis in 13.4%; valvular lesions, 12.4%; adhesions of the pericardium in 7.6%; excessive muscular work in 3.8%; tumors, 1.9%; aneurisms in 0.95%; hæmic plethora in 0.95%. It was seen from this paper that more than 50% of the cases of cardiac hypertrophy in general hospital work was due to arterial disease. The frequency therefore of arterial sclerosis had certainly been underestimated. The speaker knew it to be extremely common in the United States, and, from all reports, it was so upon the continent of Europe. He agreed with Dr. Adami that dilatation, in the vast majority of cases, accompanied hypertrophy. Concentric hypertrophy was almost always a post-mortem change. An observer (Corvisart), during the

time of the "reign of terror" in France, records that persons guillotined were noticed in the post-mortem rooms to have firmer contracted hearts with small cavities, showing that the apparent thickening of the wall was due to strong rigor mortis. Dr. Lafleur wished to know if he had understood Dr. Adami rightly when he stated that in general arterial sclerosis the connective tissue change in the intima was the initial point? He, himself, had been accustomed to consider that the essential primary condition was a degeneration of the media, and that the connective tissue change was really a reparative process, such as was seen in all cases of sclerosis. This latter, at all events, was the view of Councilman and Thoma. The vicious circle, alluded to, was especially marked in those cases of arterial sclerosis accompanied with hypertrophy; why it should be particularly so in general arterial sclerosis was easily understood when we considered the enormous number of vessels involved. Not only the systemic, but the pulmonary circulation was affected in these cases, and the disease of the latter reacted on the right heart just as that of the former did on the left. The prognosis was especially bad in cardiac hypertrophy with dilatation when it occurred in cases of general arterial sclerosis. Dr. Lafleur remarked in connection with the treatment, that he thought Dr. Campbell should have been justified in protesting when asked to discuss the treatment of cardiac hypertrophy, because, after all, hypertrophy was a conservative process, and therefore beneficial. Allusion was made to Oertel's treatment of hypertrophy. That treatment had not found the favor here that it had in the Old Country. Some very stringent remarks have been passed upon it. One writer declared that a large number of people who have not cardiac disease will be cured by it, and the few who followed it, and really have the disease, will be killed. The speaker wished to add his testimony in favor of local and general bleeding in cases of hypertrophy from arterial disease. That and hydragogue purgatives were the only means we had. He had seen one case where bleeding certainly saved the man's life. The man was completely comatose, and was rapidly approaching his end, when he had him bled to the extent of 18 ounces; he was at work upon his farm two months later.

Dr. BLACKADER, in considering the treatment of the various forms of cardiac hypertrophy, held that much importance must always be given to the etiology; without clear ideas on this point we would certainly fail to obtain all the relief for our patient which was practicable. In some cases temporary rest of the body in the recumbent position formed an important therapeutic measure. We secured for the heart a comparative rest, also, by limiting the amount of fluids taken into the stomach, and in this way lessening the amount absorbed, and the total volume of blood to be moved. In the diseases of no other organ would a due consideration of ordinary physical laws give so much assistance in treatment. In another series of cases, disturbed innervation seemed to play an important role, either affecting the cardiac nerves and producing over-action, or acting on the minute arterioles, producing an increase in arterial tension, and thus adding to the work of the heart. Such cases might receive much benefit from the careful use of nerve sedatives, such as the bromides, or chloral hydrate. Both these drugs, but especially the latter, had a direct action on the cardiac and vasomotor nerves, while at the same time they overcame the insomnia and general restlessness which in many cases were prominent features.

While recognizing fully the value of the various therapeutic measures mentioned by Dr. Campbell for the relief of the later stages of the disease, when we had to deal with a failing heart, Dr. Blackader thought that attention had not been sufficiently called to the necessity of recognizing and treating the earliest condition in which there was a pure hypertrophy of the heart muscle. For treatment such cases might be grouped into two classes: (1) those in which the chief trouble, for the time being, lay in over-action of the heart muscle; (2) those in which the principal difficulty was undue contraction of the arterioles. And to meet these conditions we had two drugs which would, properly employed, give efficient assistance. The first was aconite, which acted directly on the heart, lessening its force and frequency, and had comparatively little action on the vascular system. The second was a solution of either sodium nitrite or nitro-glycerine. Both of these acted directly upon the small arterial vessels, and had almost no action upon the heart, and by them arterial tension could be lessened. If good results were, however, to be obtained, it was necessary to secure a steady action of the drug, paying due regard to the time required in its elimination. Aconite was eliminated comparatively slowly, and in order to maintain an even action it should be administered about every six hours; with the nitrites it was different, they were eliminated rapidly, and to maintain their action in the vessels the dose should be repeated at least every three hours. The ordinary routine method of administering them two or three times a day was very defective, and in most cases proved useless.

Dr. WILKINS mentioned a case which occurred recently in his practice, which tended to establish high arterial tension as the cause of cardiac hypertrophy. The woman had been under his care for the last three years. She first complained of difficulty of breathing on the slightest exertion. Examination showed the lungs normal, slight enlargement of the heart,

with increased accentuation of the second aortic sound. This led him to examine the urine. He found there sometimes slight traces of albumen, at other times albumen was entirely absent, but the urine was always of low specific gravity. During the last few months she suffered intensely from agonizing paroxysms of shortness of breath. They would seize her in bed, the face become pallid, the limbs cold, yet notwithstanding this the pulse was one of high arterial tension. Examining the lungs during these paroxysms, breathing sounds were at first normal, later on some few râles might be heard, but at no time sufficient to account for the dyspnœa. One naturally inquired what could be the cause of the dyspnœa. He thought it must be due to a spasmodic condition of the pulmonary vessels, and this spasm was an indication of the condition of the vessels throughout the rest of the body. The spasm must be the result of some poison circulating in the blood. Already medical men were discussing the nature of this poison. Bright, when treating of kidney disease spoke of the enlargement of the heart which was present in many cases. Some few years later Dr. George Johnson, of King's College, wrote a very interesting article upon this condition of thickening of the coats of the vessels in kidney disease, and described it as one of hypertrophy of the muscular coat. He thought the hypertrophy was due to the thickening of the capillaries which supplied nourishment to the body. Then came the demonstrations of Brown-Sequard and Claude Bernard. Johnson afterwards recanted his opinion as to the hypertrophy being due to obstruction in the capillaries; he then thought it to be due to a spasmodic condition of the muscles of the blood vessels, which contracted with a view to prevent impure blood from passing into the tissues. Now, this latter theory would account, Dr. Wilkins believed, for the conditions present in his patient. That there was a spasm there could be no doubt, but the cause of the spasm might be a question—whether it was a reflex or a contraction induced by the direct contact of an irritant upon the muscles of the vessels, was a subject still under dispute. Most authorities at the present day were inclined to believe that the blood itself acted directly upon the muscular substance of the coats of the arteries, and in that way prevented the passage through of the blood containing poison. Gaskell wrote an article upon the influence of irritants upon the muscular substance of the vessels and the heart; and he said that it was not necessary for the nervous system to be connected with the muscles in order to produce rhythmical contraction of the coats. An apparent objection to this theory was the fact that one would sometimes see spasms of the muscular coat producing epileptiform convulsions in one person and in another some different condition; and again, if these irritating materials were all the time circulating, why were not the spasms continual? That was explained by the fact that in the body are found poisons of directly antagonizing effects. A couple of years ago a murder trial had taken place in New York, in which some expert demonstrated the presence of morphia salts in the blood or stomach, and Dr. Vaughan, of Ann Harbor, was able to prove in court that substances could be obtained from the body having the same action as that of morphia, and that it was impossible to distinguish between the reactions of some of these poisons derived from the body and those of morphia. Some recent observers mentioned that poisons of an irritating nature could be obtained from the urine, which poisons were capable of producing tonic seizures. They said even that morning urine would give poisons differing from those of the urine of the evening. Considering all this, it did not take much to make one believe the possibility of poisons existing in the body which were able to produce a narcotic action at one time and at another time a spasmodic action, or at one time the coma of kidney disease and at another the spasms of such conditions as were under discussion. In the vegetable kingdom the poppy produced medicines which were narcotic, and also medicines which were tetanic in their effects. It therefore required but little stretch of the imagination to believe that the blood contained materials which at one time might produce tonic spasmodic effects and at another time the opposite condition. For treatment, he believed in cases of kidney trouble the great thing was to lower the tension. Many cases would be found in which all treatment failed to reduce the quantity of albumen in the urine until the arterial tension was lowered, and the moment that was effected the albumen diminished, the pulse improved and recovery supervened. On the other hand, in a case where the tension remained high (somewhat acute cases with large kidneys), even though the albumen diminished, the course was likely to be towards chronic Bright's disease.

Dr. MILLS said that Dr. Lafleur and Dr. Finley in their remarks had apparently assumed that the condition of the arteries in the lungs might be the same as in other parts of the body. A recent discovery in physiology was of prime importance to the subject under discussion—that is, that the vessels of the lungs were innervated like the systemic arterioles. This discovery explained why the right heart was invariably found full and distended in asphyxia, while the left was empty and contracted. If contraction of the pulmonary arterioles was assumed, it was easily understood why these phenomena occurred. Dr. Mills thought that the present views held with regard to the nature of blood pressure were far too

simple and would have to be modified in favor of some more complex theory. He thought blood pressure could no longer be regarded as the mean result of the cardiac impulse and peripheral resistance.

Progress of Science.

UNILATERAL SWEATING IN TUBERCULOSIS.

A. Zechanowitsch observed a case of phthisis in which there was abundant perspiration of the right side of the face and of the right temple, while the left side was perfectly dry. Another interesting feature was that the tuberculous process was confined to the right lung, while the laryngeal manifestations also appeared on the right side.—*Medicina, No.* 11, 1894; *St. Petersburger med. Wochenschrift*, June 9, 1894.

PERINEPHRITIC ABSCESS.*

By JOHN M. FOSTER, M.D., Richmond, Ky.

Having had the privilege of operating upon four cases of the above named trouble, through the courtesy of some of my fellow-physicians, and having found the literature rather meager on the subject, I take this opportunity of calling your attention to some observations which may be helpful.

As you are aware, the disease is comparatively rare, the diagnosis at times obscure, and the mortality very much increased by lateness in resorting to operative procedure. Since the four cases coming under my observation were quite similar, they will be discussed as a whole and not seriatim.

There were present in these cases certain symptoms which are not spoken of in the text-books and journals at my disposal.

With regard to the cause, I would say that all four of these cases were caused by sudden chilling of the body after exertion, although this cause is not mentioned by some writers, and is spoken of as infrequent by others.

With regard to symptoms, I did not find them typical nor well defined by any means. In all the cases the greatest pain and tenderness were found over the lower edge of the liver, in two in the axillary line, and in the other two anterior to this line, so that at first in two of the cases the liver was suspected for several days as being the seat of the trouble. In two of the cases the pain was severe, in the other two it was unimportant. There was an absence of chills and rigors which we are accustomed to expect in suppurative processes, and the fluctuation of the temperature resembled a mild remittent malarial fever. There was also an absence of swelling, œdema and redness which is found in a more superficial abscess. No tumor could be felt nor could deep-seated fluctuation be elicited, the latter symptom, however, being very deceptive at best.

The most prominent symptom, and one which I have not seen mentioned in any text-book, yet one which I consider almost pathognomic, was an approximation of the last rib toward the crest of the ileum, conjoined with a feeling of fullness and resistance in the flank of the affected side, although the body would appear to be in a straight line. This approximation of the rib toward the ileum could only be detected by deep pressure in the flank with the fingers. While the space of three or four fingers could be found on the unaffected side in the flank between the crest of the ileum and last rib, the space of only one or two fingers could be found on the affected side. Flexion of the leg was absent in one case.

An operation should be done early, and if there is doubt about the diagnosis, an aspirating needle can be used to determine the presence of pus. Dr. H. W. Bowditch, who has reported ten cases of this trouble, says: "If ever there be occasion for *cautious boldness* on the part of the surgeon, these abscesses present them."

In the choice of a site for operating, this must often be decided by the individual case, for there is generally some one point in the lumbar region of each case, which is the most favorable for reaching the pus. Generally speaking, a point one and one-half inches above the crest of the ileum, along the anterior border of the quadratus lumborum, is a favorable point. The incision or puncture being made in the direction of the kidney, an oblique incision is less likely to come in contact with important blood vessels. If the case is a recent one and the patient of average flesh, you need not be surprised at going from three to four inches in depth before reaching the pus. This should be evacuated by a free incision, unless you prefer to make a small incision which can be enlarged by inserting a pair of stout forceps or scissors, which on being withdrawn with the blades open will enlarge the opening without risk of hemorrhage. After the insertion of a large drainage tube and washing out the cavity with peroxide of hydrogen, the case is to be treated on general surgical principles.

The ages of the patients coming under my care were from 16 to 45 years. They were operated on from two to four weeks after the development of the first symptoms; the suppuration continued from one to five weeks. All recovered.—*International Journal of Surgery.*

* Synopsis of a paper read before the Southeastern Kentucky Medical Society at Livingston, Kentucky.

TREATMENT OF EMPYEMA.

The method recommended by Dr. J. Michael consists in establishing two openings in the thorax, in front and behind, so as to permit simultaneously of outflow of pus and injection of fluid into the pleural cavity. In desperate cases where the evacuation of a large quantity of pus would give rise to serious symptoms owing to the diminution of intra-thoracic pressure, this method has been found of great service. During evacuation of pus the bulging intercostal spaces should be closely inspected, and as soon as they are seen to become depressed, the fluid (chlorinated water, or distilled water with addition of tincture of iodine, 15 drops to 1 litre) is introduced into the pleural cavity with an irrigator. This procedure is kept up until clear water, free from pus, flows from the anterior opening. In a case treated by Michael, a cure resulted after three irrigations, as he terms this method.—*Therap. Monatsh, Jan.*, 1895.

FISTULA IN ANO.

In doing a radical operation for fistula, the following points, according to Dr. J. H. Bacon, should be observed:

1. Never sever the sphincters at more than one place at the same operation, no matter what the complications may be, otherwise incontinence is sure to follow.

2. Unless all the channels are followed up and laid open, the operation will fail of its purpose.

3. Fistula resulting from tubercular abscess must not be operated upon if there is sufficient tissue destruction of lung to produce hectic fever, sweats, etc., unless the fistula is causing severe painful spasms of the sphincters, then it should be divided at any stage.

4. After laying the fistula tract open, the wound must be made to heal from the bottom, and as the cutaneous or mucous side of the wound is better nourished, it will throw out a more healthy granulation, that tends to bridge over and close the slower granular surface at the bottom, thus leaving a fistula remaining.

5. When the fistulous tract is not too complicated it should be dissected out entire and the wound brought together, beginning at the bottom with continuous catgut sutures and approximating the surfaces in successive layers until the whole wound is closed.—*Northw. Medical Journal.*

TREATMENT OF SOME FREQUENT MALADIES OF CHILDREN.

Anæmia.—First, attention should be paid to hygiene and to regular feeding with nourishing and easily assimilable foods. Correct all intestinal disturbances. Before each feeding administer the syrup of the iodide of iron for fifteen days, followed for the next fifteen days by Fowler's solution, commencing with ½ drop for a child of two years.

From time to time suspend this treatment for a week, and give—

Syrup of rhubarb,
Syrup of gentian, of each, f℥iv.
Dessertspoonful for each dose.

Or of the following:

Tr. nux vomica, ♏xv;
Tr. anise,
Tr. gentian,
Tr. cascarilla,
Tr. colombo, of each, f℥i, ♏xv.
Dose—From 5 to 10 drops.

If there is indigestion, administer after meals a small glass of this lemonade:

Acid hydrochloric, ♏xv;
Syrup of lemon, f℥iii;
Distilled water, Oi.

If there are symptoms of rachitis, phosphated milk, phosphate of lime, or acid phosphate of lime in milk may be added to the above regimen, while stronger feeding also may be resorted to.

For anæmia with scrofulosis, cod-liver oil in winter and syrup of the iodides in summer should be administered.

Syrup of the iodide of iron may be alternated with Fowler's solution at the same time that the oil is being given.

If there are symptoms of tuberculosis, to the foregoing treatment add this plan:

Upon a plate pour a mixture of—

Tar, ℥iiss;
Creosote, ℥iii to ℥vi,

and place over a night-lamp burning throughout the night in the sleeping-room of the infant.

Anæmia of Syphilitics.—To the new-born give frequent small doses of mercury, and increase the dose; if the child is too feeble the medicine can be given by inunctions.

For anæmia following malaria, administer wine of cinchona in doses from a coffee-spoonful to a soup-spoonful before meals for fifteen days; then for the next fifteen days Fowler's solution, 1 to 3 drops.

In hæmophilia or anæmia from loss of blood, for the first few hours 1 to 2 drops of perchloride of iron every two hours, then three or four times a day.

For constipation at weaning-time, injections and glycerin suppositories, and before mea a spoonful of—

Syrup of rhubarb,
Syrup of gentian, of each, equal parts.

Or give every morning a coffee-spoonful of—

Olei ricini,
Syrup of orange flowers, of each, f℥ss.

Also, in the same dose,—

Calcined magnesia,
Sulphur, sublimed,
Cream of tartar, of each, ʒi;
Essence of anise, ♏iiss.

When the liver is sluggish, in the morning, once or twice a week, give the following in cachet, or in honey, or sugar water:

Calomel,
Scammony, of each, gr. iii. to gr. v.

For a purgative:

Boiling water, fʒiii;
Manna in tears, fʒi;
Senna leaves, ʒi;
Powder of parched coffee, ʒiiss.

Strain, and take during the day.

With atony of the intestines:

Tr. nux vomica, fʒss;
Tr. belladonna,
Tr. anise,
Tr. cascara, of each, fʒiiss.

Given in water (8 to 12 drops) before meals.

For biliary calculus in infants, in the intervals, bicarbonate of sodium in grain doses for ten days. The following ten days,—

Syrup of ether,
Syrup of turpentine, of each, fʒiii.
A dessertspoonful before meals.

Twice a week add to the above a coffeespoonful of—

Sulphur, sublimated,
Cream of tartar,
Magnesia, of each, ʒv;
Essence of anise, ♏xv.
Before meals.

The following table of foods may prove useful:

Foods permitted.—Milk, cream, and fresh cheese; soups, eggs; all meats in small quantities, especially chicken; legumes, well cooked and when green; potatoes; dried fruits, preferably cooked; marmalades and jams; cooked fish; bread in small quantity; alkaline waters.

Foods not permitted.—Butter and fats, old cheese, pork, mushrooms and truffles, pastries and sweetmeats, dried legumes, sausages, asparagus and tomatoes, liquors, coffee, wines, and strong beers.

For Nephritic Colic.—Hot baths, afterwards blisters, hot poultices, or hot fomentations or stupes applied over the renal region; then administer every half-hour a dessertspoonful of the following mixture:

Antipyrin, gr. viii. to gr. xv;
Chloroform water, fʒi;
Lime-water, fʒii;
Syrup of ether,
Syrup of belladonnæ, of each, fʒiiss;
Syrup of orange-flowers, fʒiiss.

If this is vomited, then give morphine hypodermically.—E. PÉRIER (*Revue Obstet. et Gynécol.*, August, 1894).

THERAPEUTIC BRIEFS.

—FOR PSORIASIS:—

℞. Ichthyol,
Acid. salicylic.,
Acid. pyrogallic.,
Aristol, āā gms. 2½
Vaselin,
Adipis,
Lanolin, āā gms. 30. M.

A powerful ointment, to be used in small quantities.

—FOR CHRONIC CONSTIPATION (*Gazetta Medica di Roma*):—

℞. Aloës, gr. iv
Strychniæ sulphat., gr. ¼
Extract. belladonnæ, gr. j¼
Ipecac. pulv., gr. vss. M.
Divid. in pil. xij.
SIG.—One every evening.

—In the German army the following application is employed for the rapid cure of BLISTERS of the feet incident to long marches (*Therapeutic Gazette*):—

℞. Saponis nigri, p. 52
Aquæ, p. 27
Vaselin., p. 15
Zinci oxidi, p. 6
Essentiæ lavandulæ, q. s. M.

—From *Medical Press and Circular* of a recent date we quote the following prescriptions:—

APPLICATION FOR CHRONIC PHARYNGITIS:—

℞. Iodi, gr. vj
Potassii iodidi, gr. xij
Mentholis, ʒj.
Glycerini, q. s. ad ʒj. M.

Apply with a camel's-hair brush twice or thrice daily.

USEFUL IN BRONCHITIC ASTHMA:—

℞. Potassii iodidi, ʒij
Ammon. carb., ʒj
Tinct. lobeliæ, fʒij
Sp. chloroformi, fʒiv
Vin ipecac., fʒj
Infus. senegæ, q.s. ad fʒvj M.

A tablespoonful in a wineglassful of water every four hours.

INCONTINENCE OF URINE:—

℞. Tincturæ belladonnæ,
Tincturæ cubebæ, āā fʒij
Tincturæ nucis vomicæ,
Tincturæ rhei aromaticæ,
of each, fʒj
Tincturæ cascarillæ, fʒij

12 drops at bed-time for a child from seven to ten years.

THE REMOVAL OF WARTS:—

℞. Hydrarg. bichlor., gr. v
Acid. salicyl., ʒj
Collodii, fʒj M.

This is applied every day, the upper crust of the previous application being removed before a fresh one is made. Usually after four applications the wart becomes so softened that gentle friction will remove it painlessly. If a further dressing is required, a five-per-cent. salicylic-lanolin ointment is all that is necessary.

OZÆNA.—Dr. Stein obtains in ozæna most remarkable results from painting the nasal fossæ with a solution of trichloracetic acid. The painting is done by means of a piece of cotton-wool steeped in a solution (one-tenth per cent.) and fixed on the point of a flexible wire. The operation is done three times daily for the first few days, and then once a day. The strength of the solution is gradually increased.

ASTHMA.—The following will be found most useful in this distressing complaint :—

℞. Chloralis,
Potassii iodidi, of each, ʒss
Syrup of oranges, fʒvj
Water, fʒvj
2 to 5 tablespoonfuls a day.

—FOR DIPHTHERIA (*Woman's Medical Journal*, April, 1894) :—

℞. Caffeinæ, gr. xx
Sodii bicarb., gr. v
Aquæ, q. s. ad fʒ ij M.

SIG.—Apply locally as a spray to the membrane.

—Woodbridge (*Jour. Am. Med. Asso.* in *The Philadelphia Polyclinic*) claims very positively that TYPHOID FEVER may be aborted, and that he has been able to accomplish this. He believes the disease is due to a germ having its effect in the alimentary canal; and that when a germicide powerful enough to destroy it without detriment to the patient can be brought in contact with it, the problem of the abortive treatment of typhoid fever is solved.

For this purpose he uses the following mixture :—

℞. Podophyllin, gr.j
Hydrarg. chlor. mit., ʒj
Guaiacol carb., ʒvj
Thymol, ʒv
Menthol, ʒj
Sacch. alb., ʒij
Eucalyptol (as much as possible).

This he uses in very minute doses [one-quarter grain] every half hour or hour.

Later he gives

℞. Eucalyptol, ʒss
Spir. rect., ʒj
Guaiacol, ʒij
Aquæ dist. q. s. ad ʒiv

SIG.—One-half teaspoonful every three or four hours, until the temperature has been normal for a day or two.

—When SEBORRHŒIC ECZEMA becomes universal, Unna has the patient put on at night a woollen garment soaked in a wash-basin half full of water containing, for adults, five grams of resorcin, and for children two grams, and wrap himself up between blankets. During the day the following ointment is applied :—

℞. Zinci oxidi, parts vi
Sulphuris præcipitati, " iv
Terræ siliceæ, " ij
Adipis benzoati, " xxviij. M.

SIG.—Paste.

FOR INSOMNIA (Bartholow, in *Woman's Medical Journal*) :—

℞. Antimonii et potass. tartrate, gr. i-ij
Morphiæ sulphat., gr. iss.
Aq. laurocerasi, fʒj. M.

SIG.—Teaspoonful every two, three, or four hours as required (in wakefulness of fevers).

—In operating for APPENDICITIS, Prof. Keen, as a rule, removes the appendix. He thinks that it is bad surgery to leave the appendix unless the adhesions are very marked and cannot be separated without the risk of harm. Where there is liability of breaking into the general peritoneal cavity he does not search for the appendix. Where there is a tumor he makes the incision over the tumor. He thinks that we should not go through the peritoneal cavity. It is rare to have an appendicitis going on to a condition of distinct tumor without pus being present. He would much rather operate before any appreciable tumor has formed. In cases of tumor he almost invariably operates even with a normal temperature or a declining temperature.

—SEDATIVE PLASTER (*Amer. Druggist*) :—

Lead plaster, 10 parts
Extract of belladonna,
Resin of Pinus sylvestris,
of each 1 part

Mix and spread on linen in the manner of an adhesive plaster, and apply over the painful sites in rheumatism, pleurodynia, etc.

—For the local treatment of PSORIASIS (Eddowes, *Amer. Druggist*) :—The various patches are painted, after removal of the scales with soap and hot water, with a saturated solution of tincture of iodine, about once a week, and an ointment consisting of equal parts of unguentum sulphuris and unguentum picis liquidum applied daily. Another useful application is the following :—

℞. Unguent. picis liquidæ, ʒiiss
Acid salicylic, gr. xxv
Unguent. lanolin, ad. ʒj. M.

—For CONJUNCTIVITIS (*Therapeutic Gazette*) :—

℞. Acidi borici, gr. xx
Sodii chloridi, gr. viij
Aquæ destillat., fʒij M.

SIG.—Use freely as a lotion every four hours, first warming.

TUMOR OF THE FACE.

By Charles McBurney

Professor of Surgery, College of Physicians and Surgeons; Attending Surgeon Roosevelt Hospital, N. Y.

This man is 54 years old. About four years ago he began to have pain in the regions of the infra-orbital nerve on the right side, which was very persistent, and gradually extended over that entire side of the face. He has had no epistaxis; there is no occlusion of the nostrils on either side; most of his teeth in the upper jaw are gone, and the sockets are in good condition. The roof of the mouth is symmetrical, and there is no abnormality on either side. When we come to examine outside and above the alveolar process on the right side, we find a swelling, which apparently arises from the superior maxilla, which is firm to the touch and is covered with perfectly healthy mucous membrane. This tumor produces a slight bulging of the face on the right side.

We are in ignorance both as regards the nature of this growth and its exact seat of origin. After the age of forty-five or fifty a large proportion of tumors of the upper jaw belong either to the carcinomatous or sarcomatous variety; even in earlier life, about one-third are sarcomatous, one-third carcinomatous, and the remainder belong to the other varieties. In this case, I think, we may exclude empyema of the antrum, ordinary hydrops, and probably anything in the nature of a cyst. When we take into consideration the fact that this disease has existed for four years, and that there is as yet no involvement of the mucous membrane, it is clear that it has progressed slowly, and this permits us, I think, to exclude carcinoma, positively, and perhaps sarcoma. Some of the latter variety of growths are very slow in reaching their full developments, even in this region, but usually they distinctly manifest their presence by a decided destruction of tissue long before three or four years have elapsed. In one case coming under my observation I removed from the inner side of a man's thigh a tumor as large as a two year old child's head, which had apparently remained unchanged for several years, and had existed in all over twenty years. At the time of operation I supposed we had to deal with a lipoma, containing considerable fibrous tissue, but on examining it we found a sarcoma, well encapsulated.

In trying to arrive at a diagnosis in the case, it is well to think of other growths besides those mentioned. It may prove to be a pure osteoma, which is dense, firm and smooth to the touch, and steadily increases in size. Or it may be an enchondroma, which is almost as firm as an osteoma; or we may have to deal with a pure fibroma, which, properly speaking, belongs to the sarcomatous variety.

The diagnosis in such a case as this is of the utmost importance, as upon it depends the severity of the operation which it will be necessary to perform. If the growth proves to be a sarcoma, originating in the antrum or the superior maxilla, it would be wise to perform a radical operation, even to the extent of removing the entire upper jaw, but it would be humiliating to do this and learn afterwards that the tumor was simply an osteoma or an enchondroma.

To clear up the diagnosis I will make an incision downwards from the right ala nasi to the mouth. By dissecting up this flap and turning it back, a view of the tumor is obtained. It rests in the canine fossa and originates in the tissues outside of the bone. The growth is about the size of a pigeon's egg, and is easily dissected loose. The tissues which compose it are hard and fibrous; a microscopical examination will be required in order to determine its exact character.—*Intern. Jour. of Surgery.*

CLASS-ROOM NOTES.

—*Tumors of the Subcutaneous Tissue* or of the intermuscular fascia, Prof. Keen says, should be removed as often as they recur, and if a limb is deeply involved it should be amputated.

—Prof. Wilson says that when *Relapsing Fever* attacks the well-nourished, it runs a similar course and presents the same characteristics that it does when it attacks the destitute.

—Prof. Longstreth says in a similar number of males and females attacked with gonorrhœa the males will be found to suffer more frequently from *Gonorrhœal Rheumatism* than the females.

Whilst a *Keloid* is growing, Prof. Keen says, its removal by the knife should not be attempted; repeated scarification or multiple electrolytic punctures sometimes succeed in destroying it.

—Prof. Wilson says whilst those in a condition of poverty and uncleanliness and privation are most often attacked with influenza, the rich who are surrounded with all cleanliness are often attacked.

—Plessure on a *Fungus Cerebri* by sponges or dressings sometimes, according to Prof. Keen, yields good results, but at other times convulsions follow the application of pressure, when it must be abandoned.

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MONTREAL, AUGUST, 1895.

SHOULD PATIENTS IN PRIVATE ROOMS IN PUBLIC HOSPITALS BE ALLOWED TO HAVE THEIR OWN DOCTOR?

For most people this question would seem to be an absurd one, for any other answer than the affirmative one would imply the subversion of every principle of right and justice. The question has been asked quite often of late, and has been answered pretty generally by the medical journals in Canada and the United States in a manner which has not pleased the cliques, who, havin gsecured control of some of the public hospitals and a monopoly of attending the poor, wish to use their position as a means of taking from their fellow-practitioners those of tne latter's patients who, by force of circumstances, find themselves in a private ward in the public hospital. Many of the laity are not aware of this unjust and selfish regulation, and others are loath to believe that such a thing is possible. A wealthy gentleman, subject to attacks of vertigo, falls down in the street. If he were left alone for a few minutes he would recover consciousness, call a cab and drive home, where his family physician would be summoned to attend him. But in less than five minutes an ambulance arrives, which rapidly conveys him to the Royal Victoria or General Hospital, instead of taking him home. When he recovers consciousness he finds himselfi n a private ward in one of these hospitals. He asks for his family doctor, but he is politely informed that only the best doctors in the city are elected to that hospital, and only those who are elected to the staff are allowed to attend private patients there, and that his family physician is not one of them. It is easy to see how prejudicial to the interests of the family physician this is, to say nothing of the slight to his reputation ; and it is extremely doubtful whether he will ever have an opportunity of attending either his patient or any of his family again. Many of the practitioners of the city are murmuring quite audibly against this unjust regulation, and it is more than likely that public opinion may become so strong that the management of the Royal Victoria and General will be compelled to follow the example of the Toronto General Hospital, the Hotel-Dieu, the Notre Dame and the Western, which all place their private rooms at the service of any reputable practitioner when patients are willing to pay for them.

SANITARY CONDITION OF MONTREAL.

The physicians and druggists of Montreal are all agreed that there never has been so little sickness within the memory of the oldest practitioners, and the superintendent of Mount Royal Cemetery bears out that opinion, having recently informed us that there never have been so few deaths as there have been this summer. This is as it should be, and is very gratifying to the medical profession, which has never ceased from putting forth every effort to improve the sanitary condition of the city. Although the healthier condition of the city and the diminished death rate are directly traceable to the efforts of the physicians, and although we were aware that if our efforts were successful there would be much less work for us, and that our incomes would consequently suffer, still, strange to say, many of these sanitary improvements have been persistently opposed by the citizens who have been the first to benefit by them. They could hardly understand such a thing as a whole profession working against its own interest for the public good. We are proud to say that such has been the case, and feel that such disinterested efforts in the public interest fairly entitle our profession to the claim of being one of the most noble of them all.

THE BUFFALO MEDICAL JOURNAL.

We cannot lay down the August number of the above journal, which is its jubilee number, and which we have just perused, without expressing our admiration for the enterprise of its editors, Drs. Lothrop and Warren Potter. It was founded in 1845 by Dr. Austin Flint, and has consequently completed its fiftieth year. The jubilee number, besides containing many very able scientific articles, is profusely illustrated with engravings of the Buffalo hospitals. We wish our bright and newsy contemporary as much success in the future as it has attained in the past. It has always been among the most welcome of our exchanges.

A QUIET RESTING PLACE.

There are few quieter or more charming summer resorts for overworked professional or business men, or more suitable for convalescents, than the village of Roberval on the eastern shore of Lake St. John, the northern terminus of the main line of the Quebec & Lake St. John Railway. An air of perfect restfulness pervades the whole place, and what is perhaps of quite as great importance as the salubrity of the atmosphere and the modifying influences of the great inland sea, on the shore of which the village is built, are the comforts and even luxuries procurable at the splendidly equipped and new hotel for tourists known as the Hotel Roberval. Built upon an eminence immediately overlooking the lake, the house contains accommodation for some 400 guests. It is heated by hot water and furnished throughout with electric bells and light. The rooms and beds are quite luxurious, and the cuisine and service of the best. There are ample lawns and promenade grounds, with tennis, croquet, billiards, bowling alley and other games, while the country around abounds in charming drives, and there are excellent facilities for canoeing, boating and fishing. A fleet of four admirably equipped steamers is at the disposal of tourists, one of which, the large and fast iron steamboat, the "Mistassini," has accommodation for 300 passengers, and makes daily trips to and from the Grande Décharge, the scene of the exciting sport afforded by the fishing for ouananiche. Others convey passengers and their canoes and guides, who are bent upon camping tours in the far northern country, to and from the mouths of the large rivers that are tributary to Lake St. John. So many and so varied are the attractions of the locality that it would be difficult to find a more suitable place than Roberval for sending either convalescent patients in search of strength and vigor, or worn out business and professional men in search of change and rest. We can speak from personal experience, having spent a most enjoyable holiday at the Hotel Roberval and in making various fishing excursions in the neighborhood.

PERSONAL.

Dr. Elizabeth Mitchell has gone for a couple of months to the seaside, to recuperate from her hard work of the past winter. Those who believe in the right of woman to attend her own sex can point with pardonable pride to Dr. Mitchell's success; she enjoys a lucrative practice among many of the leading families of Montreal.

Dr. Grace Ritchie, who is one of the most popular physicians, and has one of the most largely attended out-door clinics at the Western Hospital, has also gone to the seaside for a month. During her absence, Dr. Laadau, one of the prize winners at Bishop's College last year, remains in charge of her patients.

Dr. Lapthorn Smith, who has charge of the Gynæcological wards of the Western during the six summer months, has been kept so busy with operative work that he has not been able to leave town. Although the gynæcological operating days are nominally Wednesdays and Saturdays, so many cases have been sent in that it has been found necessary to operate nearly every week day. Many of the cases have been very bad ones, requiring five or six distinct operations, which he is in the habit of performing at one séance of a little over an hour, thus saving the patient the discomfort of several subsequent anæsthesias. His term of service for this year ends on the 1st of October.

We regret to learn that Dr. J. Anderson Springle has severed his connection with Bishop's College, where as professor of Anatomy he has made a brilliant record. We are not aware of his reasons for taking this step, and trust that he may yet return, as Bishop's College can ill afford to lose him. He intends, however, to remain on the staff of the Western Hospital, where he is one of the most able surgeons in the department of general surgery.

We are glad to learn that Dr. F. R. England is winning golden opinions both from the students of Bishop's College, where he is professor of Surgery, and at the Western Hospital, where he has been in charge of the department of general surgery during the summer.

The Western Hospital is rapidly coming to the front as one of the leading hospitals of Canada. It has now two well equipped operating rooms and fifty beds, which are kept constantly filled, not only by patients from the city, who prefer it to any other hospital, but also by those who are sent to it by the physicians of the Eastern Townships, and even from the New England States. Although it has a particularly brilliant record as a surgical and gynæcological hospital, it also has a medical staff consisting of such well-known names as Dr. F. W. Campbell, Dean of Bishop's College; Dr. McConnell, Professor of Medicine; and Dr. Reddy. The next report will show one of the lowest death rates in Canada, the few which have occurred being mostly of patients who were admitted in a dying condition, and died within 3 days after admission.

The Western offers special facilities for post graduate students during the summer months when the regular students are nearly all away.

We have recently heard a suggestion that the present site of the Western Hospital, which has become one of the most valuable ones in the city, should be sold for two hundred thousand dollars, and that with a portion of the funds thus obtained an equally suitable but less expensive site be purchased, while the remainder could be invested as a permanent endowment fund. As far as we can see, the suggestion is a good one, and eventually we hope to see it carried out.

Dr. Reddy has gone to New Brunswick for a month's holidays, which he was much in need of, being director of the Maternity on Osborne street, Professor of Obstetrics in Bishop's College, Physician to the Western Hospital, and Surgeon to the Samaritan Hospital.

Dr. Grant Stewart, who has one of the largest if not the largest general practice in Montreal, wisely takes a whole month every year, which he spends with his family at Metis on the Lower St. Lawrence, where he is one of the most popular acquisitions to society there.

NEWS ITEMS.

HALL OF THE COLLEGE OF PHYSICIANS.

PHILADELPHIA, August 1, 1895.

The William F. Jenks memorial prize of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, has been awarded to A. Brothers, M.D., 162 Madison Street, New York, for the best essay on "Infant Mortality During Labor, and Its Prevention."

The Prize Committee also reports as highly meritorious the essay on the same subject bearing the motto "Vade Mecum."

The writers of the unsuccessful essays can have them returned to any address they may name, by sending it and the motto which distinguished the essay to the Chairman of the Prize Committee, Horace Y. Evans, M.D., College of Physicans, Philadelphia.

JAMES V. INGHAM,
CHARLES S. WURTS,
I. MINIS HAYS,
Trustees of the Wm. F. Jenks Memorial Fund.

PAMPHLETS.

CYSTIC TUMORS OF THE VAGINAL VAULT, WITH REPORTS OF TWO CASES. By Frederick Holme Wiggin, M.D., Visiting Surgeon to the New York City Hospital (B. I.), Gynæcological Division, etc. Reprinted from the New York Medical Journal for July 13, 1895.

MEDICAL TERMINOLOGY; ITS ETYMOLOGY AND ERRORS. By P. J. McCourt, M.D., New York. Reprinted from the Medical Record, July 27, 1895. New York: Trow Directory Printing & Bookbinding Co., 201-213 East Twelfth Street, 1895.

CLASS-ROOM NOTES.

—For *Hemorrhoids*, Prof. Hare recommends the following ointment:—

℞.	Acid, gallic,	gr. x
	Extract, opii,	gr. iv
	Extract. belladonnæ,	gr. v
	Unguent. simplicis,	ʒiv. M.

SIG.—Apply locally night and morning.

—*Keloid*, according to Prof. Keen, may arise spontaneously, but generally from some injury to the skin, cuts, scars from burns, or also sometimes from the injury inflicted to the lobe of the ear in perforating it for ear-rings.

—According to Prof. Wilson, the emaciation after an attack of *Enteric Fever* continues until the diurnal temperature range becomes coincident with the normal, sometimes a patient losing one-sixth or one-seventh of his whole bodily weight.

—Cubebs, Prof. Hare says, is useful in *Gonorrhœa*, not because it possesses any specific action against this disease, but because it has a beneficial effect in modifying the ardor urinæ, which is generally the most distressing symptom in gonorrhœa.