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PHYSIOLOGICAL AND PATHOLOGICAL REVERSION.

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Writers on evolution, and especially Darwin, have endeavored to explain many curious facts in the forms, colors, and general appearance of animals by reversion to a condition existing in ancestors more or less remote. As this explanation has seemed to be the only one that met the cases, it has been largely accepted. But, so far as I know, physiological and pathological reversion in the sense in which the terms are used in this paper, has not been employed to any appreciable degree by writers of any class to explain phenomena which seem to me to gather fresh interest around them, and appear in a new light when thus viewed.* By physiological reversion I mean a return to a condition functionally similar to, if not identical with, that existing in some lower form; and by pathological reversion, an analogous result dependent on a disordered condition (disease).

It is now almost superfluous to point out that the embryo of the highest mammals passes through stages of development closely allied to the permanent forms of groups of animals lower in the

* It was not till long after this paper had been written, and a considerable time after it had been read before the Medico-Chirurgical Society of Montreal, that I became aware that the principle involved in the discussion had been previously announced by Dr. Milner Fothergill of London in a communication printed in the *Medical Press and Circular* for August, 1886. I am glad, however, to be able to make this acknowledgment on behalf of so bold and original a writer as Dr. Fothergill.

scale. But that there is also a close functional resemblance in many particulars has not been much insisted upon. The subject is so large that the various adaptations in the embryo to an environment that is but temporary can be only indicated, and not treated in detail. It is plain that the embryo of the mammal, being surrounded by a fluid medium and drawing the oxygen supplies for its tissues independently of any actual contact with an atmosphere, must resemble functionally aquatic animals proper in many respects. It breathes by the placenta, virtually as the fish and other aquatic animals by gills. The condition of the blood puts it on a par with lower forms; and, even in the highest intra-uterine stage of development, the blood supplied to the tissues is not completely aerated,—a condition remaining in all forms lower than the birds. Many functions peculiar to the mammal, or, if not actually characteristic, but indifferently developed in lower forms, are still less marked in the mammalian embryo. If there be consciousness, it is of that obscure kind existing only in forms of life low in the scale. Reflexes, indeed, there are in abundance, and probably much nervous automatism; but such limited action of the nervous system is precisely what distinguishes lower from higher groups of animals.

Nor is the adaptation of the newly born mammal to its surroundings immediate. Throughout the first days of the life of the infant, such adaptation is very imperfect, and in consequence many children perish. Further, the resemblance of the infant to animals of lower groups is shown in many directions, and especially in the neuroses and psychoses. The study of infant psychology has of late attracted much attention, and promises most instructive results.

Turning from embryonic and infantile life to the opposite pole of existence, old age, there is much that points in the direction of reversion. It is not a matter of great importance whether we regard this as physiological or pathological. Shakspeare's unrivalled description of the epochs (biological and psychological) of human life will occur to many readers. We must not, however, push the resemblances between the infantile and senile stages too far. There is sometimes a functional likeness which

can scarcely be considered genuine physiological reversion, although it is a species of functional reversion, for the consequences are the same. But in general in both conditions there is an imperfect adaptation to the environment. Moreover, in certain respects the old man reverts rather to the functional condition of lower forms of life than directly to a previous stage in his own existence. Thus the imperfect action of the respiratory, circulatory, cutaneous, and also of the nervous system, by which the functions of the cerebrum and the senses are weakened, are all either physiological or pathological reversions, as we choose to regard the matter. But it is not on such facts, however, that I would rely to establish the principles of this paper.

In the various stages of slow or natural death, we have the clearest evidence of physiological reversion in not one but many different systems of the body.

Normally expiration is largely passive, though possibly less so than the text-books of physiology have represented; but, as is well known, in the dying man this phase, and indeed all phases, of the respiratory act are in turn or contemporaneously modified; there may be a diminution of one phase, and an exaggeration of another, etc. In the frog and turtle both inspiration and expiration are active: in such animals we recognize a function, moreover, of the mouth and pharynx, in respiration, normally unknown in man. Dr. Garland has, however, pointed out that in the tracheotomized dog, and, as he believes, in man under the same circumstances, and also in the moribund, a form of the throat respiration supervenes. He has proved this experimentally in the tracheotomized dog (*Journal of Physiology*, Vol. II). In other words, there is a resemblance to what exists normally in the frog. Garland recognized this, though he has not spoken of it as a physiological reversion. But apart from this minor reversion, it is plain that in general the respiration of the dying bears a resemblance to that of the groups with an active phase in both halves of the act. Further, there is frequently a marked facial and laryngeal respiration, so well seen in the normal breathing of such lower mammals as the rabbit.

Accompanying this alteration in the respiration, there is a great

change in the circulation. As I have shown, as the result of a special study of the subject ("The Rhythm and Innervation of the Heart of the Sea-Turtle," *Journal of Anatomy and Physiology*, Vol. XXI), functional action ceases in the hearts of the cold-blooded animals invariably in a certain order; that is to say, the parts latest developed phylogenetically, as the ventricles, are the first to cease to act. The same applies to the mammal, and I have elsewhere ("A Physiological Basis for an Improved Cardiac Pathology," *Medical Record*, Oct. 22, 1887) expressed the conviction that it is fortunate for man that such is the case. It is difficult to see how the ventricles could retain at once that sensitiveness and power to adapt to the ceaseless and innumerable changes in the inner life of a mammal, and also the resistance so marked in the auricles and the great veins at their junction with the right auricle, corresponding to the *sinus venosus* of lower forms. Now, in the moribund there may be only an occasional beat of the ventricles to several of the other parts of the heart; or the ventricles may pulsate so feebly as to expel but little blood: hence the latter becomes gradually more venous, with corresponding effects in the venous channels, which become more prominent; in the nutrition, leading to lowered temperature generally most pronounced in the parts most distant from the heart; in gradual loss of all the functions of the cerebrum; finally, the only muscles that are functionally active are the respiratory, the sphincters, etc. In a word, the dying human subject sinks functionally lower and lower in the scale of animal life. There is physiological reversion of the widest kind. This seems the most instructive aspect of the facts; indeed, I can see no other way in which a really philosophical significance can be read into such phenomena.

It may be readily perceived that in sleep itself there is a daily reversion. Sleep not only reduces all human beings to the one level, but it puts all mammals on the one plane. Now, it will be seen, if we consider the nervous system, that the parts peculiar to man, or most developed in man, are the very ones that for the time being are as good as annihilated in sleep. Why should this be so? Why should this order be followed? To say that the

parts of the nervous system remaining functionally active are those necessary to maintain the vital functions, in reality throws no light on the question unless we regard man as derived from lower forms, while the whole becomes clear if we admit this. Much the same line of argument applies to the reversions witnessed in hypnotism, somnambulism, and allied phenomena.

Hibernation is one of the most interesting examples of physiological reversion to be found. We witness in the bat, though one of the most active of animals, a return during hibernation to a condition very much like that normally present in a cold-blooded animal such as the turtle; while the cold-blooded groups themselves pass into a winter sleep allied to the quiescent state of plants or the "resting stage" of the infusorians. Reversion alone—physiological reversion—seems to explain such behavior.

These general phenomena prepare us to understand certain results following experiment, which, so far as I know, physiologists have never explained satisfactorily. I shall take my illustration chiefly from cases mentioned in the ordinary text-books, and especially from the magnificent work of Prof. M. Foster, as in that we find subjects usually considered from different points of view.

It has been pointed out that if the nerves supplying the posterior pair of lymph hearts in the frog be divided, though their action ceases for a time, it is eventually resumed; that if the sino-auricular junction of the heart of the turtle be ligatured under favorable circumstances, the action of the auricles and ventricle, temporarily arrested, may be resumed.

In general, if the sinus, or the sinus and auricles, be ligatured off from the ventricle in a frog or turtle, and all the cardiac nerves be divided (precluding the possibility of nervous stimuli reaching them from distinct centres), these parts of the organ, I have observed, will beat more forcibly against the unusual resistance than before.

It is stated that, when the cervical sympathetic is divided, the dilatation and cessation of rhythmic action of the arteries in the ear of the normal rabbit, ensuing, are finally followed by a return to the normal condition.

The latter has been explained by the assumption of a local nervous mechanism, which, though habitually influenced by the central nervous system, suffices of itself when the connection with the nerve-centres is severed; but such local nerve-mechanism has never been demonstrated anatomically. These and many similar cases are explicable by physiological reversion. In lower forms,* in which it is quite impossible to believe in a local nervous mechanism at all, there is pulsation in vessels, etc., owing to the rhythmical action of unstriped muscular fibre or of cardiac muscle. This function of the muscle is no doubt under the control of the nerve-centres in all the higher groups of animals; and when it is exhibited apart from such connection, we naturally seek for an explanation. To my mind, the only one adequate is to be sought in physiological reversion. Whether there are not examples of it even when the nervous system is intact, as in excessive action of the bladder, ureter, etc., in cases of obstruction, is worthy of consideration.

Dr. Pye-Smith (*Journal of Physiology*, Vol. VIII) has maintained, from certain experiments made by him, that the vessels of the ear of the rabbit, etc., do not regain their tone after section of the nerves concerned, and concludes that nerves are not essential to nutrition. However it may be as to the first proposition, I cannot help thinking that the author's conclusions are broad to the verge of decided error when applied beyond the case in point. Assuming, however, that in most instances the vessels do not regain tone, I should interpret the case as one of still more remote reversion to a condition when nerves were not required for nutrition,—a condition existing in several large groups of animals. Such a case in the mammal must be very rare, however, and is offset by thousands of facts that show that nutrition is dependent on nervous connection.

It would appear that oxygen may be absorbed both from the skin and the alimentary canal; and, if we may judge by many analogous instances, this capacity would be augmented when the individual greatly needed such help, owing to imperfect action

* This subject is discussed in my paper on the "Causation of the Heart-Beat," etc., in the CANADA MEDICAL AND SURGICAL JOURNAL, January, 1887.

of the lungs. In such instances we have, on the one hand, a retained function operating in man to a very minor degree; but, as is now well known, in batrachians the skin is an important respiratory organ, though also one acting very much in a manner supplementary to the lungs, as circumstances necessitate. When in man the skin and alimentary canal function as respiratory organs to an unusual degree, we have physiological or pathological reversion.

It is well known that in certain pathological conditions (hysteria, etc.) large quantities of gas are secreted by the alimentary tract; nor is this so surprising when it is remembered that the digestive canal and the respiratory organs have a common origin from the same cell layers of the embryo.

If our swallowed oxygen can be absorbed by the alimentary canal, of which there is no reasonable doubt, it is plain that we retain a function discharged by an analogous organ, the air-bladder of fishes.* Certain groups of turtles (if not all, occasionally, as I believe) have a species of pharyngeal respiration. Oxygen is absorbed from the water gulped into the pharynx, and possibly the case of absorption of gases from the alimentary canal of mammals is still more like this than the analogous instances already mentioned; but, at all events, there is a potential capacity in the alimentary tract of man for respiratory functions which is unquestionably under certain circumstances considerably developed; and the most natural explanation is physiological reversion.

In an allied system, the renal, we have evidences of physiological reversion. In most fevers the skin is less active, and the kidneys function excessively or at least differently; the urine, though scanty in quantity, is of high specific gravity, and thus resembles more the same secretion in not only lower mammals, but the lower divisions of vertebrates. In a whole host of diseases† there is a great increase of a constituent which is but scantily present in normal urine—uric acid. But uric acid replaces urea in fishes, reptiles, and birds; and in not a few cases in man in which the uric acid is increased the urea secretion is

*See a paper by Gage in the Proceedings of the American Association, vol. xxxiv.

† The writer discussed the subject of uric acid in a short paper in the *Medical News* for June 27, 1885.

diminished. That man's kidneys should thus have the capacity to function in a manner analogous to those of lower forms, calls for explanation. The fact that in such cases the reversion does not wholly cover the functional disturbance arising from or giving rise to this change, is not a serious objection; for it is not to be supposed that an animal adapted to new conditions should, by any reversion to an ancestral state, escape wholly, or even in great part, the penalties of incomplete adaptation.

In the digestive system of man and other mammals we have interesting instances of physiological and pathological reversion. Regurgitation of food is normal in some birds, and I am inclined to believe that it is more common in lower vertebrates than has been as yet clearly ascertained. But the remarkable regurgitation of ruminants seems to be a specially developed function. Different groups of animals vomit with very varying degrees of facility. There is to my own knowledge in man a tendency to antiperistalsis in the œsophagus, if not the pharynx, independent of acid eructations. Some individuals experience this when there is interference with the regularity of the action of the bowels. Cases have been reported in which there seemed to be habitual regurgitation of food, like that of birds or even ruminants. Here, again, the most natural explanation seems to be that the alimentary canal of mammals, including man, retains a capacity to revert to a condition existing in a higher degree in antecedent forms; or, to interpret the matter slightly otherwise, that man retains a capacity which in some lower forms has been specially developed (ruminants, etc.), and which in himself, under certain abnormal circumstances, becomes greatly developed,—facts explicable by general community of descent.

In the conditions in man referred to above, the mere law of habit does not of itself suffice to explain the facts; indeed, apart from the wider laws of descent, there is very little basis for the action of such a principle; there is no fulcrum for the lever, or, at best, a very unsteady one.

In diseases of the blood or blood-forming organs we have some remarkable instances of functional reversion. Though exact quantitative determinations of hæmoglobin are wanting for most

lower vertebrates, there can be no doubt that in mammals the quantity of this substance furnished to the system within a given time is much greater than in those groups requiring less oxygen for their tissues, in consequence of a feebler cell activity. But in cases of anæmia in man the quantity of hæmoglobin may be greatly diminished, one result of which is that the subject is reduced not only as regards the condition of the blood, but in several other respects, to a state bearing a more or less close resemblance to life in the lower vertebrates. There is diminished activity in the locomotor, the nervous, and other systems of the body. The subject requires rest, careful feeding, quiet of the mind, etc. The treatment is unconsciously based on this fact of reversion. It may be stated, in truth, that the anæmic subject is unable to discharge the functions which are most characteristic of man, and that he naturally deports himself like a lower form. In leukæmia there is a still more marked reversion, for the blood in this disease approaches the condition found in the invertebrates, in which, as a rule, the red blood cell or hæmoglobin in any form is wanting. This being the case, it is not surprising that the disturbance of the normal functions is so great; the marvel is rather at man's capacity to adapt at all to such unnatural conditions; which, however, is clearer on the doctrine of descent from lower forms and in the light of the conception of physiological reversion than by any other explanation.

In that form of anæmia or chlorosis due to an imperfectly developed vascular system generally, we surely have a clear instance of reversion, so marked that during the whole lifetime of the individual there may never be other than the most defective adaptation to environment.

Instances of cyanosis due to permanence of foetal conditions of the circulation, and therefore resembling those normal to the frog and turtle, are such clear cases of human reversion as only to require mention.

In cases of valvular diseases with dilatation of the heart, or, indeed, any condition of this organ that permits of regurgitation with imperfectly aerated blood, we have similarly a reversion. It will be found that in not a few diseases of the heart,—in the

condition of that organ during fainting ; after shocks which have temporarily suspended many functions of the nervous system, and in consequence greatly imperilled life,—in all such cases it will be found that those parts of the heart the earliest developed in the history of the animal series are the very parts to continue their action latest. Now, this is at once fortunate for the mammal, and of great significance, inasmuch as the latest investigations show in the clearest way that the action of the ventricles is dependent on the functional integrity of the sinus and auricles, especially of the sinus. Suppose that the reverse were the case, and the sinus (or great veins) and auricles were the first to cease pulsating: the beat of the ventricle would be of comparatively little use ; but apart from this, what explanation can be given of this peculiar sequence in the mammal independently of derivation from lower forms, which makes all clear ? If this doctrine of physiological reversion went no further than the circulatory system, it would throw a flood of light on the significance of otherwise obscure if not absolutely inexplicable phenomena. But it is to the nervous system that we must look for evidence which places the doctrine beyond cavil to a degree perhaps not equally clear in other parts of the economy.

When a mammal is poisoned by curare, by which the nervous influences normally reaching the tissues and regulating heat-production (and, as I believe, nutrition) are wholly or partially cut off, the mammal becomes virtually a cold-blooded animal. Its temperature rises and falls with that of the ambient air. This is one clear example of physiological reversion experimentally produced. It is, however, only one of many that might be instanced. It is well-known, and can be shown in the simplest manner, that when the head of a frog is removed, reflex action is more readily excited ; the same applies to the removal of the cerebral lobes of the mammal. As Goltz has pointed out, one of the most remarkable results following removal of large portions of the cerebral lobes in the dogs which this experimenter kept under observation, is, as I can myself testify, the increase of reflex action. The animal becomes a sort of machine, which one may manipulate at will. A similar result follows in man when

the higher centres of the cerebrum are rendered functionally inactive by disease or injury.

Now, in all these cases the animal loses its own peculiar character, and sinks to the level of some form lower in the scale. All will agree that the higher forms of true automatic (spontaneous) action in the physiological sense are dependent on the existence of the cerebrum. It follows, therefore, that the lower we pass in the scale of life, the more machine-like animals become.

Pathological reversion is most plainly illustrated by the results of hæmorrhage into the cerebrum. Dr. Hughlings Jackson has so well described the order and relation of the various events, that I shall here quote his own words in describing lesions of the cerebrum (*corpus striatum*), from hæmorrhage:—

“It will be found that those parts suffer most and suffer longest which have the more voluntary uses. This is notorious of the arm and leg: the arm nearly always suffers more, and recovers later, than the leg. Of course, the distinction into complete and incomplete hemiplegia is artificial. There are all degrees of paralysis according to degrees of gravity of the lesion. But there is an order in which paralysis increases in increasing gravity of lesions. We observe that the graver the lesion, not only are the more voluntary parts (arm and leg) *more* paralyzed, but that the further spread in *range* is the paralysis, and the method of its spreading is from the more voluntary to the more automatic parts. Thus, neglecting very small clots, a considerable lesion paralyzes only the most voluntary movements of one side of the body, those of the face, arm and leg, and these parts in degree according to their degree of voluntary use. A larger lesion not only causes a deeper and more permanent palsy of these three parts, but it leads also to implication of more automatic parts. In still larger lesions the palsy spreads to the *most* automatic parts of the body, even to parts supplied by ganglionic nerves. It produces stertor from palsy of the palate and palsy of the respiratory muscles and of the heart,—the palsy of respiration and of the heart showing itself chiefly in *slowness* of movement. There is also abasement of temperature.”—REYNOLDS'S *System of Medicine*, Vol. I.

I have intentionally quoted the exact words of this eminent investigator of the abnormalities of the nervous system constituting disease, so that their interpretation alone may rest with me.

It being granted that the lower we pass in the scale of animal life the more machine-like or automatic does the organism become, it will be clear, that, taking the various degrees or grades of paralysis as described above, we have likewise degrees of resemblance to lower forms; *i.e.*, the graver the paralysis, the lower in the scale must we seek to find an animal comparable to man in this condition. The slowing of the heart and the lowering of the temperature are both modes of approach to the normal functional condition in cold-blooded animals.

When we add to this, or take by itself, paralysis of the muscles of the face, by which the expression peculiar to man is lost, we have a condition plainly like that in lower mammals, and, in extreme cases, even like that of the lower vertebrates, in which facial expression as determined by muscular action is minimal.

It must be conceded that the uneducated deaf-mute is in a condition mentally much nearer that of the higher mammals than is his uneducated fellow-man in possession of all his senses. But in aphasia, the result of disease or shock, there is in man plainly a marked reversion to a condition mentally resembling that in the "dumb-brutes" about him.

In the case of the idiot we have an example of man in many respects inferior to the higher mammals.

But it is not my intention to treat the subject of psychological reversion in this paper. The subject is at once large, tempting, and, to my mind, furnishes evidence the most conclusive for the doctrine of descent with modification from lower forms as an explanation of man's nature.

One naturally looks about for an explanation of such remarkable facts as the order of muscular failure or paralysis as indicated in the paragraph quoted above. The entire brain may be separated from the medulla in a rabbit, and respiration still continue. The lower we descend in the animal scale, the more do we find the brain reduced to a mere repository for mechanisms adapted to regulate those processes constituting the so-called

vegetative functions ; but the question again and again recurs, “ Why in mammals, why in man, should the functions first to fail be those peculiar to them or to him, and not the reverse ? ”

The longer even in the lifetime of a single individual a certain form of muscular action has been practised, the less attention is required for its performance, the less voluntary, the more automatic it becomes. But would the duration of man’s existence on this planet suffice to explain, on any system of gradual progression or functional improvement, the wonderful automatic action of all of those mechanisms essential to the maintenance of life ?

The doctrine of descent renders the whole plain enough ; and unless we adopt the view that man appeared suddenly and independently upon the scene, fully equipped for the battle of life, it seems but rational to assume that with all his departures, both by way of progress and retrogression, his functions are what they are by reason of such relationship as we are indicating. The morphologists have done much to account for the affinities of form or structure in the animal series : it remains for the physiologists to do their part in showing how the functions of the higher animals are related to the functions of the lower.

But once accepting this position, it is possible to explain phenomena following experiments on animals, and growing out of the experiments disease is producing, or, as I would prefer to say, the phenomena which are the deviations from the normal that constitute disease. Disease is no entity in itself, though we often use language which might lead to the belief that we so conceived of it.

When the normal adaptations to environment on which the very existence of an animal depends are disturbed, what more natural than that there should be a return to a functional condition prevalent in some ancestral group, or common to a host of such groups, as the case may be ?

PSEUDO-TABES.

BY JOHN FERGUSON, B.A., M.B., L.R.C.P.,

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In true tabes there is a wide difference of opinion as to the pathogenesis and morbid anatomy. At one extreme you find such men as Gowers and Charcot, who stoutly maintain tabes dorsalis is primarily and essentially an inflammation; while at the other extreme you have such an able pathologist as Ziegler, who looks upon it in all cases as a primary degeneration. Though my own means of observation has not been sufficiently extensive in true tabes to justify me in being dogmatic, I must nevertheless place myself between these two extremes, and ask leave to regard some cases as a primary inflammation, whilst others must be classed from the beginning as a degeneration. These few points on true locomotor ataxia are mentioned simply to show that the pathology and morbid anatomy of those cases that end in death are not yet settled. When this is the case, it is only right that we should keep ourselves in a receptive frame of mind, ever ready to accept information with regard to a certain number of cases that run, more or less faithfully, through a great deal of the clinical history of ataxy, and yet end in recovery, more or less complete. Such cases as these we meet with from time to time in the journals. Now, though I do not wish to be understood as saying that true tabes may not have periods of quiescence or even improvement, I do claim that there are instances among these reported cases which properly come under the caption, pseudo-tabes.

Let us look at the matter without any leanings, and ask ourselves the question, Why might these not be a simulated form of tabes? All the organs in the body are often affected with temporary disorders that pass away, and yet may have given rise to clinical symptoms that mimic the symptoms produced by organic and permanent changes. Of this statement we have a good instance in albuminuria. There is no reason for supposing that the nervous system is exempt from temporary and curable morbid conditions which, as far as they go, start into existence a

chain of symptoms similar to those dependent upon a hopeless pathology.

But let us go a step further. The more closely the morbid anatomy is found to have been confined to the posterior columns and root zones, the more closely did the clinical history follow the typical form of the disease which we agree to call locomotor ataxia. On the other hand, the more the clinical symptoms depart from the standard type of the disease the greater are the deviations found after death in the morbid anatomy, and the greater our reasons for believing that the case is other than a true tabes. Such was Westphal's teachings, as shown by his writings on the knee-jerk. We all know the position taken by Julius Althaus on this phase of tabes. He says that when the symptoms are irregular the pathology is mixed; and if there be an ataxy with increase of the deep reflexes, then there is either disease in the lateral columns or insular multiple sclerosis. From these facts it is clear that if we meet with a case—and many of us may have met with such a one—where there is well marked incoördination, and, at the same time, an increase in the deep reflexes, it behooves us to be on our guard lest this combination of symptoms may play a false game with us, and lead us into no small degree of error in our diagnosis. Still more, it has been shown by Leyden that in a really true tabes there may be other symptoms in no way due to the lesion of the tabes, and that nevertheless make the case very obscure and for a time renders a positive diagnosis an impossibility. Now, allowing ourselves to be guided for a moment by such an able observer, who states that irregular symptoms may appear, we are forced back upon the unimpeachable ground that there must have been an irregular pathology. Nor is Leyden alone in such a statement with regard to irregular and masking symptoms, for Erb, Charcot and Pierret, Gowers and Ferrier have all made the same admission.

At this point another very interesting problem comes before us. There are cases of complete-anæsthesia of both cerebral and spinal origin, in which the patients were thoroughly ataxic with the eyes shut, but could walk without ataxy if the eyes were open. It is such cases as these that lend support to Erb's

view that ataxia in some cases is due to lesion in spinal centrifugal coördinating conducting paths. For in those cases just mentioned there is complete anæsthesia of spinal or cerebral origin, so that the only normal conducting paths left are the motor or centrifugal. The centrifugal or motor tracts therefore must have some coördinating power, as such patients can walk without the ataxic gait, provided they be able to see where they are going. Lesions, then, in the spinal cord that would affect these paths would certainly give rise to some degree of ataxy, and yet the posterior columns be free from any morbid changes. Such a case would not, however, constitute a true locomotor ataxia, nor does Erb ask such a distinction for it. It would therefore come under the group of the pseudo-tabes. Opposite to this view of Erb's we must place that of Ferrier, that the spinal cord contains synergic coördinating centres that control the motion of muscles to some extent, without the necessity of these being coördinating conducting paths, as held by Erb. This difference, however, would not be a vital distinction, as disease of either the paths or centres would cause some ataxy on the ground of either of these views. In such cases as those under consideration there is some derangement that counteracts or neutralizes the effects of past experience and education and consequently the persons have once more to go back to the habits of earlier life and guide their actions once more by eyesight. So long as they are granted the use of their eyes they can walk without giving signs of ataxia ; but the moment they close their eyes, that moment they become ataxic and lose the power of coördinating their actual movements or maintaining their equilibrium in the erect position. Such a condition, however, is not that of a true tabes.

Passing on, we come to another and very interesting class of cases in which many of the symptoms of tabes dorsalis may appear. It has now been thoroughly proven, both by direct experiment and by careful post-mortem examination, that there is a frequently occurring descending degeneration of the cord, consequent to injury or disease of the brain. This degeneration may so affect the cord as to occasion mainly paresis of motion ;

or it may involve the posterior columns and posterior root zones, producing symptoms that imitate closely many of those that belong to true tabes dorsalis. Such cases as these are essentially a degeneration, and would be of that character which Ziegler believes to be the rule—a degeneration and not an inflammation. The question may be here raised that we would have the precedent history of brain disease. This is very true; and yet the symptoms of some of these cerebral cases have been so obscure that many of the very ablest clinicians admit the difficulty and acknowledge to having made mistakes during the life of the patient, the post-mortem table revealing the fact that the so-called case of tabes had its incipiency in the brain. When the tumor or disease is cerebellar, the mistake of regarding the case as tabes is very easily made. The pseudo-tabetic symptoms in some of these cases so closely resemble those of true tabes that the most carefully minded may readily fall into error. In such a case, due to syphilis, it is easily understood how a specific line of treatment can effect a cure, and lead the attendant into the belief that a case of genuine tabes has recovered under the use of specifics.

While dealing with the cases that have an intracranial origin, I shall briefly relate the histories of two instances which have fallen under my notice at different times. The first is an example of undoubted syphilis and its sequences. This young man contracted the disease about five years before the date at which I saw him for the first time. He was under the care of a regular physician in this city for about a year, by the end of which time he was considered well. Some two years afterwards his trouble returned, as he thought, and he went to the Hot Springs, where he remained for some six weeks, and brought some medicine home with him. Everything went on well again for about a year and a half, when he began to notice his speech to be a little thick and his sight and memory impaired. Then he began to have a steady pain in the back of his head, running down the back of his neck. This pain increased to a very extreme degree. Gradually he experienced difficulty in walking. When I saw him in May, 1885, the gait was quite ataxic. The reflexes were

still present, though weakened. The left pupil was extremely contracted; the right just as extremely dilated. The face was drawn to the right, while the tongue pointed to the left. The right side was more paretic than the left. The retinæ were hyperæmic. From these symptoms it is only fair to conclude that there was some disease affecting the cerebellum, as well as the motor area of the left cerebral hemisphere. And I regarded the trouble at the time as a thickened and hyperæmic condition of the meninges. Under the free use of anti-syphilitic remedies he got well. His pupils are now perfectly equal, the pains are all gone, the reflexes are normal, he can stand and walk with closed eyes, and every trace of ataxy has taken its departure. When one recalls the amount of ataxy that existed in this case, the weakened reflexes, the loss of equilibrium when the eyes were closed, the severe darting pains that shot down his extremities, the slow rate of travel of sensation, and the occasional viscera. pains he had, we must admit that his case simulated much that we meet with in true tabes. Notwithstanding all these symptoms, I do not think there was any real disease of the posterior spinal columns. I think medical literature will bear me out in the statement that in real tabes, with symptoms so well marked as in the case just recorded, a recovery so complete could not have occurred. W. R. Gowers' own words are "that a perfect recovery scarcely ever takes place." In this case we have an example of pseudo-tabes along with positive brain symptoms arising from an attack of syphilis. My own opinion is, that had there been lesions in the spinal cord of sufficient extent to cause the tabetic symptoms that were present, the patient could not have made the recovery he did even under the circumstances of these lesions being due to syphilis.

The second case which I desire to mention along with the above is that of a man about 70 years of age. Nearly three years ago he had an attack of hemiplegia. The right side of the face and the left side of the body were very much affected, the leg being perfectly limp. The patient improved some from the hemiplegia, and was able to sit out of bed, helping himself about by chairs and other objects in the room. Since then there has

steadily developed a very distinct amount of ataxy in the right arm and leg. Of the arm, it is very interesting and instructive to watch the movements in the attempt to pick up some small object, and the patient sometimes makes a great many futile efforts before he can place his finger on his nose. He has suffered on a few occasions with severe lancinating pains, especially along the fifth pair. On three separate dates he has had an attack of laryngeal crisis, in one of which I thought he would die. There is distinct atrophy of the skin. The tendon reflexes are wanting. He retains power over the rectum, but a catheter has to be used to empty the bladder. Here, then, we have one of those cases of tabes where the spinal trouble is secondary to the cerebral lesion, and partakes of the nature of a descending degeneration. It has been shown by careful observations on the human subject, and by experiments on the monkey, that when ataxy comes on subsequently to a lesion in the brain, if the brain repair is sufficiently early and sufficiently complete, the ataxic symptoms not infrequently slowly disappear. In the case I am now considering, such a result as this cannot be expected.

There is another and a very rare form of false tabes in which there is neither a degeneration in the sense that Ziegler uses the term, nor an inflammation of the posterior columns and root zones as understood by Charcot and Gowers, but rather some kind of derangement of the posterior columns. What the exact nature of this derangement is it is difficult to say, as there have been no post-mortem examination that I can find throwing any light upon such cases. Yet it seems to be recognized that the ataxy is of spinal origin, while on the other hand the cases are not fatal, but after a varying period get well. My own view of these cases, based on the accounts I have been able to find and upon one case of my own, is that the pathology consists of a hyperæmia of those portions of the spinal meninges that cover the posterior columns and dip down into the posterior fissures. In this way the vascular supply to these parts of the spinal cord would be altered, and there must, of course, ensue changes in function due to both pressure and altered nutrition. The case of my own to which I have just referred was a young woman of

22. She told me that she had had a similar attack on a previous occasion. When she consulted me first it was for pain along the entire length of the spine. A good many things were tried for its relief, but with very little success. She never had syphilis. The pain continued, and she became ataxic; the reflexes in both knees weakened until it became difficult to elicit them at all. She could not stand or walk with her eyes closed. The pupils were both dilated, and very slow in response to light. She suffered some, though not very severely, from shooting pains in her legs. Cutaneous sensation was lessened. She had constipation, and injections had to be given. On some half dozen occasions I had to use the catheter; she was annoyed with a frequent desire to micturate. There was almost constant formication, which she stated existed mainly down the back, sides, and over the abdomen. The perception of pain travelled slowly. It required four seconds to feel the prick of a pin in the soles of the feet. She had one attack of vomiting with great pain. Her illness extended over a period of five to six months, when she began to get well. The knee-jerk steadily returned, cutaneous sensation improved, the response of the pupils to light became normal once more, and the digestive functions regular. She described her symptoms very minutely with regard to her former attack; and there can be no doubt but that it was of the same kind, though not so severe. Here, then, we have an example of what might be called for the present, till more is known of such rare and obscure cases, recurrent pseudo-tabes. Whatever may have been the real condition present, one thing is certain, that there was no organic change in the structure of the posterior columns, as found in true tabes. Further, it was not secondary to any intracranial lesion, it did not follow any sickness, nor was she using any drug at the time, and I think it is equally clear that the case was not one of ascending neuritis of peripheral origin from exposure or cold.

And now for a few words on those cases of pseudo-tabes arising from peripheral neuritis. This class may be very conveniently divided into three subordinate classes: 1st, Those following some special disease where there is a poison in the system, as

diphtheria, syphilis, &c. 2nd, Those resulting from the use of toxic agents, as the pseudo-tabes of arsenic. Of this condition I have had the opportunity of noting two cases; one of these I reported at the Ontario Medical Association, the other I intend making a report upon at some future time. 3rd, Those coming on after cold and exposure. In all these forms there may be marked ataxy, loss of and irregular conditions of sensations, reduced or absent reflexes, characteristic pupil symptoms, crises, lightning pains, vaso-motor and trophic disturbances, and faulty action of the bladder and rectum, and yet the patient get well. Though we do not get a post-mortem, we are safe, I think, in drawing the conclusion that the posterior columns of the spinal cord, or, as Charcot and Pierret would prefer to say, the posterior root zones, were not the site of any organic change, either of degeneration, as Ziegler claims, or of chronic inflammation, as first shown by Türck. To Hippocrates is due the honor of having recognized locomotor ataxia, which he attributed to venereal excesses. He still further noticed that a certain number of all ataxics recover.

Bazire, Zenner, Bastian, Duchenne, Trousseau, Charcot and Landry have all described cases of a very interesting character which could not be grouped under any of the headings already considered. In these cases the persons possessed ordinary tactile sensation to its normal extent. They could walk, if allowed to see where they were going. They could move their arms and legs under their will freely, but had no knowledge of the force, extent or rapidity of these movements. They could form no estimate of the strength needed to overcome any particular obstacle, nor could they form any estimate of weight when tested by different methods. These patients cannot tell the position of their limbs in bed except by the use of their eyes, and yet sensation remains good. They cannot measure relative space. The deep reflexes may be increased in some cases, while in others they are greatly lessened. There may be spasms or twitchings. Some of the cases followed epilepsy; others followed injury to the head, leaving no evidence of brain lesion when this organ was examined subsequently. Other cases did not appear

to have any special forerunner, whilst in some there was lesion of the Rolandic area of the brain. The fact is that the derangement is loss of the muscular sense, by which we judge of weight and resistance. It is not my intention to go into any details regarding this sense, either physiologically or psychologically. In Bastian's own words, when the muscular sense is lost we have (1) defective knowledge of the extent of the movements executed, either actively or passively, as well as of the position of the limbs, when the eyes are closed; (2) difficulty in discriminating differences in weight or degrees of resistance when muscles are called into play; (3) difficulty in accurately performing given movements when the eyes are closed.

Some of these cases have tested the skill of the most astute of clinicians to make a positive diagnosis between true tabes and a simulated form arising out of the loss of the muscular sense. In these cases we have much, sometimes very much, of the clinical appearance of locomotor ataxy; and not the slightest trace of disease in the spinal cord in such instances as have afforded a post-mortem. In these cases we find that sensation remains; and that motions are free if guided by sight. The deficiency lies in connecting these two great factors together, and in performing the so-called automatic and subconscious movements of the body in an orderly and coördinated manner.

PHARMACOLOGY OF ARSENIC.*

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It is far from being my intention to deal with the entire subject of the pharmacology of arsenic. The subject is a very extensive one; and in some directions has been fairly well worked out; while in other directions we know little or nothing about the true action of arsenic. Having had some experience of some of the less common actions of this agent, I thought it a duty to bring it before the notice of this Society.

The following are the points in the pharmacology of arsenic that I intend dealing with:—

1st, The cause of the symptoms in cases of poisoning by arsenic.

* Read before the Medico-Chirurgical Society of Montreal.

2nd, The influence of arsenic in skin diseases.

3rd, General and localized arsenical erythema.

4th, Arsenical staining.

The first point I intend referring to is the explanation of the action of arsenic on the intestines when given in over-doses. The well-known fact of over-doses of arsenic in bringing about profuse watery stools—(*stools closely resembling those seen in Asiatic cholera*)—is generally explained on the at first sight very plausible assumption that arsenic, being a powerful irritant, sets up a severe gastro-enteritis. Now I believe it is very exceptional for arsenic to bring on this severe inflammatory action. There is no doubt but what the drug is a powerful escharotic, but it is very slow in its action, entirely too slow to account for the sudden and great vomiting and purging which follows its action. That these symptoms—that is, the vomiting and purging—are not due to a gastro-enteritis in the cases I am about to relate is, I think, sufficiently clear.

The first case is that of a girl.

A. S., aged 19, was admitted into the Montreal General Hospital five or six hours after swallowing two ounces of "Rough on Rats." Retching and vomiting very severe; intense thirst and pain over the stomach; pulse 120. Vomiting continued unabated up till her death, which occurred on Sept. 10th, four days after the injection of the poison. Twenty-four hours before death a profuse watery diarrhæa set in.

At the autopsy, performed by Dr. Johnston 80 hours after death, there was found near the pylorus, on the anterior surface of the stomach, an elongated ulcer $1\frac{1}{2}$ by $1\frac{1}{4}$ inches, with firm, rounded, undermined edges, base of the ulcer, which consisted of the muscularis, was smooth. At one place there is a few shreds of slough attached. No hyperæmia in the neighborhood of the ulcer or elsewhere in the stomach. Microscopically there was no fullness of the blood-vessels to be detected. Beyond slaty pigmentation of the solitary follicles, nothing abnormal was to be detected in the intestines.

With the exception of the ulcer found in the lower part of the stomach, nothing was found in either the mucous membrane of

the stomach or intestines to account for the constant vomiting and also the purging from which she suffered the day previous to her death. It is a question whether the ulcer was not an ordinary chronic gastric ulcer. Dr. Johnston at the time considered it to be of this nature. Even granting that the arsenic was the cause of this ulcer, its presence does not account for the uncontrollable and incessant vomiting.

CASE II.—E. S., aged 35, a prostitute, swallowed an unknown quantity of "Rough on Rats" on the evening of the 29th of October last. Eighteen hours afterwards she was admitted into the Montreal General Hospital in a state of great depression. Her pulse was 150, very weak and thready; respirations quiet; pupils somewhat dilated. She was quite conscious, but was unwilling to answer questions. She lay with her eyes closed on her right side, and groaned occasionally. There was profuse serous diarrhœa, with occasional vomiting. She sank rapidly, and died unconscious at 4 A.M., 33 hours after taking the poison.

Section forty-eight hours after death, performed by Dr. Johnston.—The stomach contained a quart of dark-brownish, opaque fluid, mixed with strings of mucus, and at the dependent portions this mucus was intimately mixed with about half an ounce of a heavy, dense, white powder, among which some glistening crystalline particles could be seen. These crystals, on examination, proved to be arsenious acid. The mucosa showed no signs of post-mortem digestion. There was no hyperæmia. The vessels were injected only in two spots, both situated posteriorly, one near the pylorus, the other just below the orifice of the œsophagus. Over the former the superficial part of the mucosa was defective. The intestines contained a considerable amount of thin, serous fluid. The mucosa was neither swollen nor hyperæmic. There was no ulceration or adherent mucus. The only anatomical change was in the solitary follicles, especially in the ileum and ascending colon; they were large, firm and opaque white—distinct evidence of syphilitic lesions. Ecchymosis beneath the endocardium of the right ventricle, near the papillary muscle.

This case may be taken as a typical instance of arsenical

poisoning, and without any evidence in the mucous membrane of the intestines of any irritation or inflammation. This patient undoubtedly came to her death from the action of the drug on the circulation. The profuse diarrhoea so lowered the blood-pressure in the arteries that the circulation could be no longer carried on.

CASE III.—Dr. Johnston has kindly given me the notes of a case of poisoning which occurred recently out in Sherbrooke. In this case an arsenical paste was applied to a fungating epithelioma of the dorsum of the foot. The patient was a woman aged 60. No reliable history of the symptoms during life. There was, however, vomiting and purging. There was no appearance of inflammation in the gastric mucous membrane. Intestines showed nothing abnormal beyond a slight excess of mucus in the jejunum. On washing this off, mucosa looked natural; the large bowel normal. All the internal organs were found to contain traces of arsenic, especially the liver.

We see here the same prominent symptoms produced—viz., vomiting and purging, even when the drug is applied externally. Arsenic is eliminated by the liver, gastro-intestinal and bronchial mucous membrane principally, and it brings about the same prominent symptoms, no matter how it is introduced into the blood.

At times arsenic in over-doses suddenly brings about a state of deep coma, death occurring rapidly without any symptoms whatever referable to the gastro-intestinal mucous membrane. This is the so-called "Arsenicismus Cerebro-Spinalis." I have no cases of this character to lay before you.

The death here is in all probability principally owing to the great and sudden loss of blood-pressure. The nerve-centres are the first to feel the effects of this loss, and death may follow before there is time for the development of any other symptoms.

The recognition of the cause of death in cases of arsenical poisoning is an all-important factor in the treatment. The treatment of a case of arsenical poisoning, where violent inflammation of the gastric and intestinal mucous membrane is the cause of the symptoms, ought to be entirely different from arsenical

poisoning where the symptoms are due to great dilatation of the abdominal arterioles. In the one case we use agents to combat the primary and secondary effects of the inflammatory action of the mucous membrane, while in the other the pressing indication is to raise the fallen pressure. The treatment of the former needs no reference in this place.

I would, however, strongly urge the importance of treating the lowered blood tension by the same means which Cantani has found so successful in the treatment of Asiatic cholera. There is a very close resemblance between arsenical poisoning and Asiatic cholera. In both death is commonly brought about by the immense serous loss from the blood.

In the collapse of cholera, the Italian physicians during the recent epidemics have had gratifying successes with the hypodermic injection of large quantities of serous fluids, the object being to supply the water and salts lost through the great transudation. The following solution is suitable for injection :

Sod. Chloride, . . .	4.00
“ Carbonate, . . .	3.00
Water,	1000.00

From six to ten ounces of this solution can be injected hypodermically every two or three hours. Three or four ounces can easily be got rid of in a few minutes even if injected in the one spot. Cantani has given the name of hypodermoclysis to this method of introducing fluid into the blood. It is more efficient than the injection of fluid into the rectum. The water injected into the rectum is apt to be quickly thrown out, while that introduced under the skin is at once taken up and replaces that which is lost.

No doubt arsenic is a protoplasmic poison, and will consequently tend to cause cardiac depression, but the clinical history and mode of dying point, I think, with great clearness to a lowered blood-pressure being the cause of death. This lowered pressure is brought about through paralysis of the splanchnics.

II.—THE PHARMACOLOGY OF ARSENIC IN DISEASES OF THE SKIN.

For one hundred years arsenic has been employed in various

forms of chronic diseases of the skin. At the present time its use is by many limited to the treatment of chronic eczema, psoriasis and pemphigus. There are, however, many dermatologists who have no faith in it at all. We have direct proof of its marked influence over the nutrition of the skin. Ringer and Murrell noticed that in frogs poisoned by it the cuticle could be stripped off the whole body with the greatest readiness within a few hours of its administration. This condition was found by Nun to depend upon softening of the protoplasm of the columnar layer of cells in the epidermis, so that the cuticle remained attached to the epidermis only by a few protoplasmic threads.

Arsenic is eliminated by the skin to some extent, and there is no doubt that during this elimination there is an action set up which tends to restore the skin to its normal state. I believe, however, that the mainly beneficial action of this drug on the skin is not a remote local action, but is brought about indirectly by the influence of the arsenic on metabolism.

There is no necessity here to refer to the wonderful hæmatinic influence of this agent. This regenerating influence on the blood cannot be a direct one, as is the case with iron. It is an indirect action—a result of the influence of the agent on metabolism. This is what physicians meant when they used to speak of the alterative influence of arsenic.

Very recently Mr. Jonathan Hutchinson has attempted to prove that arsenic may, if continued for years, bring about a cancer of the skin. The cases which he narrated as sustaining this statement were few in number, and were far from conclusive in the evidence they presented of the truth of this assertion. It is, however, the bounden duty of every one who prescribes this agent to have in his mind the possibility of its being able to induce epithelial cancer.

Arsenic frequently, however, gives rise to marked eruptions on the skin, and which may prove very troublesome unless the cause is quickly recognized. It is surprising how quickly some of these effects are brought about.

Three years ago I prescribed a mixture of Fowler's solution three times daily for a powerfully-built man who was at the time

suffering from a very profound anæmia. After the sixth dose he felt feverish, and noticed slight swelling and redness on his hands and forearms. The redness of the skin spread rapidly and soon involved the entire body except the face. On closely examining the reddened skin, it was found covered with countless papules about the size of millet seeds. There was great oedematous infiltration of the forearms, the integument of which had a dark color owing to the venous return being interfered with by the copious transudation into the subcutaneous cellular tissue. This was a case of erythema multiforme, or general erythema, set up by arsenic during its elimination through the skin.

At the present time I have a man attending my out-door clinic at the General Hospital who is suffering from pseudo-angina pectoris. Arsenic has been prescribed now on several occasions, and its action is invariably followed by a diffuse erythema confined to the face, which quickly disappears when the drug is stopped. A curious symptom, too, is the wart-like excrescences which form on the dorsal surface of the fingers and hands. This quickly disappears on his ceasing to take the arsenical mixture. It appears to me to differ from the erythematous affection of his face only in affecting the deeper layer of the skin and in being localized. In both cases there is desquamation, in the case of the erythema, of the superficial layers, and in the case of the wart-like excrescences, of the deep layers of the skin as well.

Another very peculiar action of arsenic is the production of a brown staining of the skin. I have had an epileptic under treatment now for two years with bromide of potassium. When he first commenced the use of the bromide it produced a very disfiguring acne; by combining it, however, with Fowler's solution this was in a great measure prevented. He, however, had not been taking the arsenic for any length of time before there appeared a brown staining of the skin, which was general, but more marked on the face and hands than elsewhere. The boy's mother was in a state of great alarm lest her child should turn into a "nigger." At the time I was not acquainted with the fact that arsenic may give rise to staining of the skin. On discontinuing the arsenic the staining slowly disappeared.

Arsenical staining is not permanent. It differs, therefore, from silver staining, which is permanent. The latter is due to the actual deposition of the metal in the tissues. The staining from arsenic, on the other hand, is simply pigmentary, and always disappears after the drug is given up.

Hospital Reports.

MEDICAL AND SURGICAL CASES OCCURRING IN THE PRACTICE OF THE
MONTREAL GENERAL HOSPITAL.

SURGICAL CASES UNDER THE CARE OF DR. JAMES BELL.

Anal Operations performed with Antiseptic precautions and dressed Antiseptically.

In the following cases, of which brief reports are given, the routine adopted was as follows. The patient's bowels having been thoroughly evacuated by a purgative (preferably castor oil), and the rectum washed out with an enema of soap and water, a few hours before operation, the perineum was shaved from the coccyx to the pubes, as well as an inch or two of the inner surfaces of the thighs. The parts were then scrubbed with soap and water by means of a nail-brush and irrigated with a solution of corrosive sublimate (1-2000). In the female, the vagina was also washed out with the same solution. The operation having been performed in the usual way, the wounds were dressed as follows. A cleansed rubber tube about six inches long, and with a lumen of from a half to three-quarters of an inch in diameter, was wrapped from end to end with iodoform gauze to a depth of about a quarter of an inch. The wounds having been carefully cleansed by irrigation with the sublimate solution, this tube was introduced into the rectum to a distance of about an inch above the upper limit of the wound. A sublimated gauze dressing was then applied, through the centre of which the tube protruded for a couple of inches. This method of dressing, which was adopted by the operator from Prof. Küster of the Queen Augusta Hospital in Berlin, is intended to allow of the escape of fæcal gases, blood, etc., through the tube without soiling the dressing, which remains clean and dry in contact with

the wound, and can generally be left undisturbed for from six to eight days, the patient being kept on a low diet, with, sometimes, occasional doses of opium in pill form to prevent any tendency towards defecation.

Removal of Hæmorrhoids with Clamp and Caутery.

CASE I.—E. S., aged 52, a healthy, well-nourished country-woman, was operated upon on the 24th of January last. She had suffered from "piles" for over twenty years, especially during her five or six pregnancies. After the child-bearing period had passed she suffered less for a time, but about a year before admission she began to suffer from great pain at stool, with tenesmus and loss of blood. These symptoms increased gradually until she came to hospital. On examination, a large superficially ulcerated mass was discovered on the left postero-lateral margin of the anus, just within the sphincter. A smaller internal hæmorrhoid existed on the opposite side. They were removed with the clamp and cautery, and dressed as already described. A grain of opium was given every six hours for four days, and the dressing was removed on the eighth day. A dose of castor oil was then given, and the bowels moved without pain. Suppositories containing each five grains of iodoform were used night and morning until the 8th of February, when the patient was discharged quite well and free from her previous troublesome symptoms, having been fifteen days in hospital after operation.

CASE II.—M. C., aged 21, a healthy young Englishman, who had suffered for over a year from prolapse, bleeding and tenesmus, which was constantly increasing, was operated upon on the 29th of December, 1887. He had two small ulcerated internal hæmorrhoids, which were removed with clamp and cautery. In one of them a small artery spurted with considerable force and volume, but was rapidly stopped with the cautery. A dressing was applied as above described, but about ten o'clock at night (eight hours after operation) a hæmorrhage occurred. The house surgeon removed the dressing and stuffed the anus with gauze saturated with a solution of perchloride of iron,

which seemed to arrest the bleeding. Early in the morning, however, I was hastily summoned, as the man was apparently dying from loss of blood, although none had escaped externally. The patient, who was almost pulseless, blanched and restless, was etherized, and the vessel ligatured, but owing to his weak condition, as well as to the fact that his whole large intestine was full of clotted blood, no dressing was applied and restorative measures were adopted. A febrile condition followed, with superficial ulceration of the rectum from the perchloride of iron application. Warm water enemata and iodoform suppositories were used for several days, until, on the 23rd of January, the bowels having been thoroughly evacuated, the patient was again anæsthetized, the rectum cleansed, and the sphincter ani cut partially through, to give rest to the ulcerated bowel. A gauze dressing, with tube, etc., was again applied. No further symptoms were complained of, and the dressing was removed on the 29th. This patient was discharged quite well (but very weak) on the 9th of February, seventeen days after the second operation.

CASE III.—A. H., aged 27, a healthy, well nourished young man, had suffered for two years with "piles," the symptoms being the painful extrusion of a mass when at stool, and chafing and discomfort about the anus when at work. On examination a large internal hæmorrhoid was discovered on the left side and two small external hæmorrhoids on the right margin of the anus. There was no ulceration, and there had been no bleeding. These were removed on the 2nd of March, and the tube and gauze dressing applied as in the preceding cases. This patient was given a grain of opium night and morning for four days. The tube and dressing were removed seven days after operation, a purgative administered and iodoform suppositories introduced into the rectum night and morning. The patient was discharged eleven days after operation free from pain and inconvenience, and with the wounds nearly healed.

CASE IV.—J. P., aged 46, a pale, but otherwise healthy looking man, had suffered for five or six years from hæmorrhoids,

but for the last two years had suffered very greatly from pain and hæmorrhage. On examination the anus was found to be encircled by a large œdematous ulcerated mass of hæmorrhoidal tissue. This was removed with clamp and cautery as in the other cases, on the 12th of March, and the tube and gauze dressing applied. This dressing was removed on the eighth day; and after purgation iodoform suppositories were used night and morning. A grain of opium was given every six hours for eight days. This patient is still (March 25th) in hospital, but free from pain and other symptoms, and the rather extensive wound is rapidly healing. He has daily evacuations with scarcely any pain.

Operations for Fistula in Ano.

CASE I.—A. H. W., aged 60, a pale and emaciated man, presented himself on the eighth of August last with a history of ischio-rectal abscess occurring seven months previously. On examination the whole ischio-rectal fossa was found to have suppurated and burrowed deeply in all directions. There were several small fistulous openings, one of which opened high up on the perineum just below the scrotum, and another into the bowel about an inch above the sphincter ani. The patient was prepared for operation, and on the 11th of August the sphincter was cut through by transfixion in the ordinary way. The other sinuses were laid open, and all were scraped with a Volkmann's spoon. After thorough irrigation the open cavities were stuffed loosely with iodoform gauze, a tube introduced into the rectum and a sublimated gauze dressing applied as already described. A grain of opium was given every six hours, and on the eighth day the dressings were all removed and castor oil administered. After completely emptying the bowels and washing out the rectum the parts were again irrigated and dressed as before. This second dressing also remained *in situ* for eight days, after which the tube was removed and simple stuffing of the sinuses, which were now very much diminished in depth and size, was resorted to. The patient made an excellent recovery, and was discharged five weeks after operation perfectly well.

CASE II.—L. S., aged 55, a pale, unhealthy-looking woman, had suffered from fistula in ano for twelve years. Acute suppurative attacks had also repeatedly occurred. On examination several fistulous openings were seen, one of which communicated with the bowel about an inch above the sphincter. Sinuses also extended deeply into the fossa and on the right side a very deep cavity burrowed up alongside of the vagina. On the 27th of August, after due preparation, this patient was operated upon—the operation, dressing and after treatment being in every respect similar to that employed in the preceding case. She left hospital at the end of four weeks contrary to advice, as the sinuses were not quite healed, and as she had still no control over the sphincter. She felt so well, however, that she insisted upon going to resume her work as a servant, but was obliged to return to hospital about the New Year. Three months rest, a little scraping of a sinus and a proper dressing sufficed to heal the wounds soundly.

CASE III.—J. McD., aged 40, a stout, rugged sailor, had been some time in hospital suffering from an acute circumscribed swelling in the right ischio-rectal fossa. Very little change had occurred in it, and on examination a fistulous opening was discovered in the bowel just above the sphincter. This was treated on the 5th of September, by cutting across the sphincter and laying the sinus open from end to end. The sinus was scraped, the wound cleansed, and the dressing applied as already described in previous cases. The dressings were removed in four days, and iodoform suppositories used, and the patient was discharged perfectly well four weeks after operation.

Remarks.—In all these cases, as well as in several others treated in the same way, the recovery of the patient after operation was particularly rapid and satisfactory. There was practically neither fever nor pain, and the wounds were always clean and healthy. The infrequency of the dressing is also a great source of comfort to both patient and surgeon. In the treatment of hæmorrhoids, it will be observed that one dressing was usually sufficient, but in the fistula cases it had, of course, to be renewed once or twice.

The second case of hemorrhoids reported is very instructive, as one would scarcely have believed that a small hæmorrhoidal artery would have bled sufficiently freely into the bowel to bring the patient to the point of death from loss of blood. Yet such was the case. The rectal tube may, I think, be looked upon as a safeguard against such an accident, as any considerable amount of blood escaping externally could never be overlooked. On the other hand, I have found no objections to its use.

GYNÆCOLOGICAL CASES UNDER CARE OF DR. ALLOWAY.

CASE I.—*Myoma Uteri*.—Aged 50 ; very anæmic and feeble. Has had profuse metrostaxis for the past four months ; also severe pain. Has had profuse and prolonged menstruation for a considerable time prior to this, but the hemorrhage had not become continuous until lately. The uterus was freely moveable ; one enlargement could be felt on anterior wall about the size of an orange, and another on posterior wall near fundus. Sound passed 10 cm.

Nov. 30th, 1887.—During profuse hemorrhage positive galvano-cauterisation to the endometrium was performed, 100 milliampères for fifteen minutes. During the application the patient did not complain of pain.

Dec. 7th.—Patient states the hemorrhagic discharge has been getting gradually less profuse. There is, however, some bleeding yet and a good deal of pain. Active pole positive, 100 mill. for fifteen minutes. Patient did not complain of pain during the seance.

Dec. 14th.—Patient returned to the clinic to say that there was still slight bloody discharge. Active pole positive, 100 mil., ten minutes.

Jan. 4th, 1888.—Patient states she did not feel well enough to return before. She now, however, feels very much better ; looks well and has lost greatly the haggard and exhausted appearance she at first presented. There is still, however, a very slight bloody discharge. Uterus now measures 9 cm. in depth ;

growth apparently more movable in pelvis and reduced in size. Active pole positive, 100 mil., ten minutes. No pain.

Jan. 11th.—Still improving and gaining strength; active pole positive, 100 mil., ten minutes.

Jan. 18th.—Active pole positive, 100 mil., ten minutes; no hemorrhage. During all of these applications Martin's platinum electrodes were used; No. 1 for first half of the sitting and No. 2 for the second half. The uterus now, however, appeared so much reduced that No. 1 electrode was thought sufficient.

Feb. 1st.—Active pole negative, 80 mill., seven minutes; no bleeding; feels very well. *8th.*—Active pole negative, 100 mill. for twelve minutes; no bleeding. *23rd.*—Having been now six weeks since arrest of uterine hemorrhage the positive pole was applied, 100 mill., five minutes.

March 7th.—Had a slight bloody discharge last week lasting eight days, and ceased three days ago. Applied active pole positive 100 mill., ten minutes. Sound now enters to the depth only of 7.5 cm. Patient feels so well she has been doing hard work for some weeks past. She has absolutely no pain to complain of.

At the beginning of the treatment in this case I had some difficulty in introducing the electrode, although I used Martin's flexible instruments. This difficulty always arises where the neoplasm encroaches upon the cavity of the uterus, notwithstanding that the organ is well pulled down with a volsella. After a few applications, however, the canal seemed to become quite patent and the sound easily entered.

CASE II—*Myoma Uteri.*—Aged 48; married 16 years, never been pregnant. Has always suffered from dysmenorrhœa, but it has only been during the past year she has experienced intermenstrual pain; this is chiefly in back and left side. The leucorrhœal discharge is constant and profuse. Micturation very painful. General health very bad; anæmic, thin, weak and despondent. Menstruation regular, but quantity large.

Examination.—Anterior segment of uterus enlarged by an interstitial myoma. Cervix looking backwards and downwards; posterior fornix free. In left iliac region there is a hard tumor

about the size of a cricket ball, freely movable in every direction and connected with uterus by a narrow pedicle. Uterine cavity passing anteriorly, and to the left, measures 10.25 cm.

Jan. 16th, 19th, 23rd, 26th and 30th.—Applied negative galvano-cauterization 100 mill., ten minutes.

Feb. 9th.—Returned after menstruation, which lasted eight days; quantity small; pain much less. Thinks tumor smaller and lower down in pelvis. General health much improved. Applied 110 mill. eight minutes, A.P.N.*

Feb. 11th.—Very much better; can move about quite freely; is very active. No pain whatever. Large sound enters quite easily. Applied 100 mill. ten minutes, A.P.N.

Feb. 20th, 22nd and 30th.—Applied from 120 to 150 mill. for five to ten minutes A.P.N. Still improving in general health.

March 9th.—Menstruation began on the 1st inst., flow lasted four days, and was fairly free in quantity; it disappeared suddenly on the fifth day and did not return. The flow was not accompanied with any pain whatever, and had had none since. *No leucorrhœal discharge.* She can walk now without any pain, and expresses herself as somewhat alarmed, thinking the disease may have gone somewhere else.

This patient has acquired a fairly healthy appearance, has made or saved blood, has become active and cheerful, and is certainly in a better condition in every way than when first consulting me. The growths have not apparently diminished after careful bimanual examinations, though the sound enters to 9 cm. instead of 10.25 cm. The negative pole as the active one was used, as there was not any excessive hemorrhage, and as the electrolytic effect seemed indicated. In this way the walls of the cervical and uterine cavity became much absorbed, allowing the largest size silver sound electrode to enter freely. This case is still under observation.

CASE III.—*Congestive Dysmenorrhœa; Galvanism.*—This patient, aged 26, married four years, no children, was one of the most aggravated cases of dysmenorrhœa I had ever seen. She was the subject of acquired ante flexion from

* Active Poles Negative.

chronic pelvic inflammation, with cicatricial shortening of the uterine sacral ligaments and general fixity of the whole pelvic floor. I had performed divulsion and posterior incision of cervix, with little benefit. She was, however, the only one of many on whom I had performed that operation who was unrelieved. During December and January she received six applications A.P.N., varying from 20 to 50 mill., lasting five minutes. She was at first very sensitive to the current, and suffered intensely during the day of the operation at the first and second sitting. This patient is now free from pain; can do housework, which she had not been able to do for years before. She is well nourished and improved in health in every way. The canal of the cervix remains large and admits the sound freely without pain.

CASE IV.—*Endometritis; Galvanism.*—This was a young English-woman who had been in the London Hospital for some months, and had been treated for ulceration of the cervix. She was the subject of bilateral cervical laceration, accompanied with enormous hypertrophy and proliferation of gland tissue, producing ectropion of the torn cervical segments. To make matters worse, the lesion became infected with gonorrhoeal poison, which accounted for the high inflammatory condition in which the parts were found. In this case I did as high a "Schröder" as it was possible. The result was very good, but there still remained a slight tendency to proliferation of the few glands left just below the internal os, causing discharge still to be kept up. Four applications of the A.P.P. and two of the A.P.N. destroyed the diseased glands and the discharge disappeared.

CASE V.—*The following is a case of sudden recovery after electrical treatment:—*

Aged 32, unmarried; hysterical tendency; suffered intensely from dysmenorrhœa, due to pathological anteflexion and stenosis of cervical canal. She had been a constant attendant at the out-door clinic for months, and always appeared in a most pitiable condition, no matter what was being done for her. The pelvic

parts were so intensely sensitive, and the pelvic floor so rigid *apparently*, that it was difficult to make a careful and satisfactory examination without the patient going off in a dead faint and causing no end of fuss. Transferred her to Electrical Clinic.

Jan. 25th.—Could only introduce Emmet's small silver probe to which I attached the negative reophore, 25 milliampères for five minutes. Had a slight faint after coming off the table. Uterus 6.5 cm.

Feb. 8th.—Could introduce No. 1 electrode easily; 50 mill. for ten minutes, A.P.N. *12th*—70 mill. for five minutes, A.P.N. *20th*—Menstruated since last visit, duration three days, very little pain; did not require to remain in bed as usual.

Cervical canal very large and freely admits largest size silver electrode. No pelvic pain or tenderness. Feels active, well, and free from hysterical tendencies. Applied A.P.N., 50 mill., six minutes. No pain whatever. Pelvic floor now feels soft and pliant and shows not a single tender point during examination.

I think the remarkable condition in this young woman was largely due to hysteria with stenosis of the cervical canal, the latter probably bearing some causal relation to the former. The electrolytic effect at the negative pole opened up the canal by causing absorption of its walls, and the interpolar current, as well as doing this, may to some extent have influenced for good the general hysterical tendency.

CASE VI—*Aggravated Congestive Dysmenorrhœa, General Chronic Pelvic Inflammation and Endometritis.*—Aged 22, unmarried; has been under treatment at out-door clinic for some time with some benefit.

Feb. 27th.—A.P.N., 20 mill., five minutes. Suffered a good deal of pain in right side during application.

March 5th.—A.P.N., 30 mill., five minutes. Pain in right side. Feels much better since last application. *8th.*—A.P.N. 40, gradually receiving 50 mill. Pain in right side increased with increase of current.

The cervical canal has become changed in its appearance; from giving exit to a muco-purulent discharge, its external os surrounded by an erosion, it is now open, free from discharge,

and the proliferating erosion disappearing. She states that she has no pain in the side or back when not receiving the current, and that there is absolutely no discharge apparent at the external parts. She is still under observation.

CASE VII.—Case of Chronic Pelvic Parametritis especially affecting the left Broad Ligament; complete invalidism for eighteen months.—Patient large and weighing over 200 pounds; aged 45; married twenty-seven years; eight children, no miscarriages. After birth of sixth child, suffered from an attack of septic pelvic inflammation. She has ever since complained of pain in her left side and back. During the last five or six years she has been more or less of an invalid, unable to do housework. Menstruation irregular; sometimes very profuse, prolonged and painful. Leucorrhœal discharge constant. Frequent and painful micturition.

Examination.—Uterus high up, drawn to the left side, and fixed. Left side of pelvis occupied by a firmly contracted cellulitic deposit, very tender, and displacing moveable portion of pelvic floor to that side. Cervix not lacerated, but congested, and the whole organ in a state of chronic metritis.

During the first two weeks in hospital the bipolar method of intrauterine faradization was employed to relieve pain. The high tension fine long wire coil was used. When a stronger current than 40 mm. was used a syncopal attack took place and the bobbin had to be rapidly withdrawn. After a few applications, however, this feeling passed off, and stronger currents could be taken. The pain in the side in two weeks of this treatment disappeared and galvanism resorted to.

Feb. 27th.—Had first application of galvanism, A.P.N., 50 mill., five minutes.

March 7th.—Has just finished menstruating, duration three days, normal in quantity, and entirely free from pain. Applied A.P.N.: 50 mill. five minutes. *10th.*—A.P.N. 50 mill. five minutes; feels much improved and can move about in hospital without pain. *14th.*—A.P.N. 50 mill. seven minutes; states she feels a different woman in regard to health, and wishes to return home.

This patient remained in the city for two weeks after leaving hospital, during which time she was able to take long walks without pain. As regards the condition of the parts involved, it can only be said that the uterus was somewhat reduced in size; the cellulitis had undoubtedly undergone some degree of resolution; the fixity of the uterus and pelvic floor generally on the left side was only slightly apparent (on steady downward traction which did not cause pain.

The foregoing are a few selected cases from a large clinic at present undergoing electrical treatment for uterine disease. I thought it better only to report those wherein some definite change had taken place for the better or otherwise. During this investigation I have observed the following few phenomena of interest in connection with the procedure:—

(1) If you allow the patient to remove her hands from compressing the dispersing electrode on the abdomen, she will probably experience a series of shocks from the breaking of the current. This occurrence will greatly alarm and may give you some trouble to induce her to continue treatment afterwards. It is the only unpleasant result I have seen from the accident,

(2) Do not have a huge pancake of clay with a small copper disc stuck in the centre of it for a dispersing electrode. Have a copper plate shaped to fit the abdomen of the size you wish your electrode to be. Fill this plate on its concave face with sculptor's clay after the latter has been well worked up so that it will form a smooth even surface. See that at the edge all round the plate the clay is at least one centimeter thick, thus preventing the copper edge from coming in contact with the skin and burning a hole therein. Now cover the whole disc with a piece of cheese-cloth and smooth it down over the face of the clay with your wet hand.

(3) Always pour a hot solution of common salt over the face of the electrode just before applying it to the abdomen; you will get the required intensity of current with much less volt power than otherwise.

(4) In placing the dispersing electrode, see that the pubic hair is brushed away with the wet hand so that it will not interfere with close contact of the clay with the skin.

(5) It is not necessary to have a special table with patent machinery elevating trestle work for the legs of the patient to rest upon. A plain examining table with the patient's buttocks drawn well to the edge, and where it is necessary to view the cervix in drawing it down a Goodell's speculum will be found to answer better than any other instrument.

(6) As you increase the current, pain is first felt by the patient in that area in which it is felt when due to over-fatigue or such like cause. In some cases of chronic parametritis I have witnessed very intense pain continue for 24 hours after the application. In such cases it is therefore necessary to begin with a current of moderate intensity, and gradually increase it at each successive sitting. I have, however, never seen anything more serious than pain result.

(7) Electricity in the treatment of neuralgic pain in women acts like a charm. In facial neuralgia, with or without severe headache in thin anæmic women, or during the advent of the menopause, I have had good results with the high tension current of the long fine wire of faradic electricity. Also the use of the same current in pelvic neuralgia, applied to the interior of the uterus by the bipolar method of Apostoli.

(8) Do not be too enthusiastic over this method of uterine therapy. If you are honest and open to accept *facts* you will meet with disappointment occasionally. The time it absorbs and the energy and perseverance it entails are its principal drawbacks. Its safe application undoubtedly requires special diagnostic skill and experience. Cases of death, it has been stated, are known and will shortly be reported.* A severe attack of pelvic cellulitis has been recorded by Keith (*British Med. Journal*, March, 10th, 1888). It has at present a middle position between physic and the knife and will surely achieve satisfactory results in well selected cases.

* J. Knowsley Thornton, *British Medical Journal*, March 24th, 1888.

Reviews and Notices of Books.

A Practical Treatise on Materia Medica and Therapeutics.—By ROBERTS BARTHOLOW, M.A., M.D., LL.D., Professor of Materia Medica, General Therapeutics and Hygiene in the Jefferson Medical College, Philadelphia. Sixth edition, revised and enlarged. New York: D. Appleton & Co. 1887.

Very considerable and important additions have been added to the sixth edition of this important work on pharmacology and therapeutics. We have on several occasions favorably reviewed the work. At present it is only necessary to say that the energetic author has fully kept up to the times.

A Manual of Medical Jurisprudence. With special reference to Diseases and Injuries of the Nervous System.—By ALLAN McLANE HAMILTON, M.D. With illustrations. New York: E. B. Treat, 277 Broadway. 1887.

This work will be found to be of great value for reference in many cases of insanity, especially when questions of a medico-legal nature arise. The subject is dealt with very fully and pointedly. A noticeable feature is a short account of many of the more important cases of true and alleged insanity that have occupied the attention of both medical and legal men. A very useful chapter is devoted to the consideration of hysteroid conditions and feigned disease. Epilepsy, Alcoholism and suicide are treated of in separate chapters. We have finally the medico-legal aspects of cranial and spinal injuries.

A Clinical Atlas of Venereal and Skin Diseases.—By ROBERT W. TAYLOR, A.M., M.D. In eight parts. Philadelphia: Lea Brothers & Co.

The prospectus of this work has been sent to us accompanied by some sample copies of the plates. It is to be published in eight imperial folio parts, by subscription only, illustrated by 58 full-page chromo-lithographic plates, selected from the works

of Helva, Hutchinson, Ricord, Fournier, Squire, and many others. A number of the plates, also, will be from original paintings. The specimens of the plates sent indicate a high class of work. No better man could have been selected for the preparation of such a publication than Prof. Taylor, who has been long known in connection with venereal and skin diseases as one in the front rank. The first three parts will be devoted to venereal diseases and syphilis, and the rest to the various affections of the skin. Besides being illustrated by chromo-lithographs, woodcuts are interspersed throughout the text. We welcome this work heartily and feel sure it will prove of the greatest use to teachers as well as practitioners.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, Dec. 9th, 1887 (continued).

Removal of Eight Calculi.—DR. RODDICK exhibited eight large calculi which he had removed from an old gentleman last summer by the lateral operation. The stones weighed $2\frac{1}{2}$ ozs. At the time of the operation the patient was in very bad health and there was much pus in the urine. He died some two days after the operation of uræmia. Although no post-mortem was allowed, there is little doubt that the kidneys were very seriously affected. In this case the supra-pubic operation was contemplated, but the lateral was preferred on account of the small capacity of the bladder, which would only hold $2\frac{1}{2}$ oz. of water.

Stated Meeting, December 23rd, 1887.

JAMES PERRIGO, M.D., PRESIDENT, IN THE CHAIR.

PATHOLOGICAL SPECIMENS.

Tuberculous Knee-Joint.—DR. BELL exhibited a leg recently amputated at the junction of the middle and upper thirds, for tuberculosis of the knee-joint. A longitudinal section was made to show the condition of the joint. Dr. B. gave the following history:—

P. F., aged 30, a pale, emaciated man, was admitted to hospital on the 19th of December with the following history: He began to suffer from a painful and swollen knee twelve years ago, which is vaguely attributed to injury. The knee has grown steadily worse up to the present, incapacitating him for work for the greater part of the time. For about four years he has been confined to his bed with it. Two years ago he was treated by a quack, who blistered the leg in large patches above and below the knee and then applied salt pork to the abraded surfaces. These sores never healed, and an attack of erysipelas, which occurred a few months ago, caused extensive burrowing of pus both in the thigh and calf. On admission, the patient's general condition and the condition of the soft parts in the leg and lower third of the thigh were very unpromising indeed. On this account the idea of excising the knee-joint was abandoned and the thigh amputated at the junction of the upper and middle thirds (it being impossible to secure sufficient healthy tissue for flaps at a lower point). The progress of the patient was uninterrupted after amputation, and he was discharged at the end of three weeks with a small sinus still open at the inner angle of the flap. The knee-joint, when sawn through from above downwards, although showing extensive and widely distributed disease, was yet in a condition suitable for resection had the patient's general health been better and the soft parts in the leg and thigh less extensively destroyed.

DR. RODDICK thought that as far as the condition of the joint itself was concerned it was a typical case for excision, but the condition of the soft parts necessitated amputation.

DR. SHEPHERD saw the case three months before; did not think there was pus in the joint at that time, and was struck at the time of the operation with the amount of suppuration in the soft parts about the joint. He thought the amputation might with safety have been made a little lower.

Tubing in Diphtheria.—DR. JOHNSTON showed the respiratory organs in a case of diphtheria which had proved fatal two days after the performance of intubation, the tube being shown *in situ*. The lungs were for the most part in a state of acute emphysema,

but showed a few small patches of collapse with commencing pneumonia. The tube was seen *in situ*, and was not obstructed. The membrane had extended into the first bronchi. A slight diphtheritic exudation was seen over the tonsils. The tube had produced no necrosis of the parts with which it lay in contact.

DR. MAJOR stated that the patient, a girl aged 3 years, had been temporarily relieved by the use of the tube, but had died two days later.

DR. GEO. ROSS had observed shortly before death that physical signs of severe bronchitis had existed.

DR. MAJOR, in answer to Dr. Roddick, said that the longest time he had left a tube in the larynx was ten days; there was only slight erosion of one ventricular band, but no ulceration. Tubes are very liable to be coughed up.

Angioma of the Liver.—DR. JOHNSTON also exhibited a microscopic section from a cavernous angioma he had found in an amyloid liver. The walls of the cavernous spaces were not affected by the amyloid change. The case was of interest in connection with the question as to whether the angioma arose in connection with the hepatic artery or the portal vein. This point had been left obscure, as attempts to inject angiomata by these vessels had led to contradictory results. As amyloid affects primarily the branches of the hepatic artery, this, the angioma being practically unaffected, would in this case be solely of portal origin. The minute spots of amyloid change in it being accounted for by the fact that the hepatic artery nourishes all the structures of the liver.

Physiological and Pathological Reversion.—DR. T. W. MILLS read a paper on this subject. (See page 513.)

DR. SHEPHERD referred to the extension of the principles of evolution to all branches of science. He has long been a supporter of evolution from a morphological point of view, and he believed the physiological aspect as developed by Dr. Mills affords quite as broad a field for investigation. Just as the development of the embryo is the compressed history of the development of the individual, so Dr. Mills' paper shows that death tells us the tale of development backwards.

DR. STEWART, referring to Dr. Mills' remarks on the dissolution of the circulation, said that in old age a man dies along the track of the circulation. Some one says that death from old age was the evolution of dissolution.

Laboratory Notes on Papoid Digestion.—DR. R. F. RUTTAN read a short paper on the above subject, which will be found in the February number of this JOURNAL.

DR. GEO. ROSS said he had been using the drug for some time in the hospital with satisfactory results in diphtheria. One of the marked effects of the application of the solution was the entire suppression of the characteristic foetor of the disease. He used a 5 per cent. solution, and the atmosphere of the ward was kept quite fresh and sweet. It certainly seems to dissolve the membrane.

DR. STEWART suggested its use as an escharotic for the removal of tuberculous infiltrations.

DR. GODFREY said he was now using a 5 per cent. solution to destroy a hard scirrhus cancer of the heart, and so far was thoroughly satisfied with its action.

Abdominal section for Sarcoma.—DR. WM. GARDNER exhibited specimens from a case of sarcoma of the uterus and ovaries on which he had operated. Rapid recurrence took place, with death on the seventh week. Dr. Gardner gave the following account of the case and the operation :

The patient was sent in by Dr. T. L. Brown of Melbourne, who was consulted only a few days previously for some bladder symptoms, when he recognized the rapidly-growing pelvic and abdominal tumor. She was a fair-haired, light complexioned, vivacious, and very prococious child, always delicate. Menstruation had not appeared, and the only evidences of approaching puberty was scanty pubic hair. The tumor evidently sprung from the pelvis, but had risen to the abdomen, was nodular, and scarcely moveable. Though recognizing its probably malignant nature, operation was decided on. The growth was a friable mass, with a few cysts adherent to omentum, intestines, posterior surface of bladder, and everything else in the peivis. Neither uterus nor ovaries were distinguishable. The cavity was washed

out and a drainage-tube inserted. Recovery was scarcely clouded by any symptom of importance. Appetite was regained to a considerable extent, but it was not long before a return of the growth was perceptible, and it went on with mushroom-like rapidity till the abdomen was greatly distended, and she died from exhaustion. The tumor was examined by Dr. Johnston and pronounced by him to be sarcoma.

Stated Meeting, January 6th, 1888.

T. G. RODDICK, M.D., IN THE CHAIR.

PATHOLOGICAL SPECIMENS.

Dislocation of the Sixth Cervical Vertebra.—DR. HUTCHISON exhibited the dislocated cervical vertebra and gave the following history:—

H. C., aged 37 years, a brakeman on G.T.R., while walking on top of a freight car, which was running at the rate of three miles an hour, fell between two cars, the rear one throwing him clear off the rails; he fell on his shoulders. The accident took place at 5 P.M., Oct. 29th, 1887. He was removed to the van and brought to Montreal, a distance of forty miles. During the journey he suffered a good deal of pain in both arms; did not lose consciousness. I visited him at 8.30 o'clock the same evening and found him conscious, paraplegic, with partial paralysis of arms. The arms were thrown at an angle to the body, causing great pain on any attempt being made to restore them to sides. There was preternatural mobility and crepitus in region of fifth cervical vertebra. The vertebral line was thrown forward above the seat of injury; pupils, pulse, temperature and respiration normal. Assisted by Dr. Kinloch, extension was practiced without an anæsthetic, which relieved the pain in arms and left patient in a comfortable position.

Oct. 30th, 10 a.m.—Patient slept several hours during night, suffered no pain. Noticed slight contraction of pupils and slight stertorous breathing. Urine drawn off with catheter. *4 p.m.*—Stertor increasing; temperature normal; partially comatose. *7 p.m.*—Death ensued twenty-six hours after accident; during

twenty-two and a half hours of that time the patient was perfectly conscious. From the faint crepitus obtained the case was thought to be one of fracture.

DR. RODDICK referred to a similar case of cervical dislocation that was successfully treated by extension by the late Dr. G. W. Campbell. Dr. R. had practiced extension in several cases, but unsuccessfully.

Anencephalic Monster.—DR. GURD exhibited an anencephalic monster showing a membranous sac filled with fluid corresponding to the cranium. This foetus appeared to be about at the sixth month, and was dead at birth. The mother, a somewhat delicate patient, had suffered a severe fright early in gestation.

DR. MILLS said it illustrated his paper read at the previous meeting. The development of this foetus, so far as the brain is concerned, seems to have been arrested in a stage of its existence corresponding somewhat to that of the lowest vertebrates.

Drs. Wyatt Johnston, J. C. Cameron and Shepherd were appointed to examine the foetus and to report at a subsequent meeting.

A Case of Nævus.—DR. RODDICK exhibited a foot removed by Syme's amputation. The patient, a woman, 30 years of age, had a nævus on the dorsum of the foot, which grew very slowly until she married some ten years ago, when with each pregnancy it increased considerably until it had assumed enormous dimensions. The tissues of the foot, including all the toes, had become thickened, resembling elephantiasis. Especially since the birth of the last child, three months ago, the increase in growth was very marked. Lately quite an extensive slough, amounting almost to gangrene, had formed on two of the affected toes. This caused troublesome and often alarming hemorrhage. Owing to the thickened elephantine condition of the tissues of the foot amputation was deemed the only feasible procedure. The posterior tibial artery and nerve were found enlarged to three or four times their normal size. The glands in the groin were also very much enlarged at the time of operation.

Stated Meeting, January 20th, 1888.

T. G. RODDICK, M.D., IN THE CHAIR.

PATHOLOGICAL SPECIMENS.

DR. G. ARMSTRONG exhibited the brains from two cases of cerebral disease.

(1) *A Case of Apoplexy.*—The first brain shown was removed from a man seven hours after death, occurring at the age of 56 years from apoplexy. The patient was an Englishman; enjoyed robust health, but since coming to Canada has been stronger than he was at home. For a fortnight before death he had been at home complaining of weakness, anorexia, a little frontal headache, and rheumatic pains about arms, legs and back. No elevation of temperature or acceleration of pulse; tongue coated; bowels moved by eating a little fruit. On the morning of the day of his death he awoke feeling particularly bright and cheerful. Expressed himself as feeling stronger, and thought he would be able to return to office in a few days. About 8 A.M. he went to the store and suddenly called for help, sank on to the floor unconscious, and in one hour was dead, never having regained consciousness. Dr. Johnston kindly performed the autopsy for me. We found, on removing skull-cap, a large clot in right frontal region, just beneath the arachnoid. On removing the brain the ventricles were found distended with blood, death having resulted from the blood passing along the iter into the fourth ventricle, and thus producing pressure sufficient to paralyse the centres of organic life. On closer examination the blood was found to come from a rupture of a vessel of the right corpus striatum. Dr. Johnston afterwards found that the vessels were fattily degenerated. Heart and kidneys were examined and found normal.

(2) *Cerebral Syphilis.*—The second brain shown was removed from a man who died at the age of 62. Dr. Armstrong gave the following account of the case: The patient claims to have enjoyed good health up to June, 1885. At this time, while walking to his office one morning, he fell down, but says he retained consciousness all the time. Some men passing helped

him up, and he went on to the office, but only remained a short time and then walked home again. I saw him soon afterwards, when I found him quite rational. There was present no paralysis of motion or sensation. He told me that for some time his appetite had been poor, and he did not enjoy his pipe as much as usual. For the past two years he has suffered from frequent micturition, and has an enlarged prostate. After he had micturated I drew off 10 ounces of slightly turbid urine with the catheter. Urine contained a considerable quantity of pus; reaction acid. No headache or dimness of vision. On the 14th November, 1885, when dressing, he fell suddenly to the floor, but did not lose consciousness. When his wife picked him up she thought he had no power in his limbs; but when I saw him a few hours later I could detect no paralysis of motion or sensation, but he was partially aphasic. He could answer questions correctly and could speak in short sentences, but stopped in the middle of a long sentence. Although previously a good penman, his present scroll was illegible. A peculiar subjective symptom at this time was his hearing pleasant music, especially in the left side of his head. He rather enjoyed listening to it. All the parts were carried correctly along together. The treatment at this time was Hg. and large doses of Pot. Iod. His condition improved somewhat, but aphasia never entirely disappeared. About six weeks ago he became suddenly hemiplegic on the right side, death finally resulting from exhaustion and septic poisoning from large gangrenous bedsores. Dr. Johnston kindly performed the autopsy for me. We found a large gumma occupying the third left frontal convolution, and a patch of softening extending almost quite across the left internal capsule, due probably, Dr. Johnston thinks, to an embolus. It is very satisfactory to find such well marked lesions, which account so well for the symptoms from which the man died.

Discussion.—DR. BULLER thought that the tumor must have produced doubled optic neuritis. Larger doses of potassium iodide, 40 to 60 grains three times a day, might have produced very beneficial results in this case. Referring to the subjective symptoms of the patient, Dr. B. said these were often caused

by preturbation of the nerve centres, and were the usual early symptoms of insanity.

DR. TRENHOLME strongly advocated the administration of large doses of iodide of potassium in cerebral syphilis.

DR. RODDICK could not understand how the wife could have been inoculated by the husband, as he had tertiary syphilis.

DR. ARMSTRONG, in reply, stated that the wife had all the symptoms of secondary syphilis about the time of the husband's attack. In answer to a question from Dr. Stewart, he said that the patient at no time exhibited facial paralysis or any other affection of the motor system.

Membranous Croup.—DR. JOHNSTON exhibited for Dr. R. J. B. Howard a specimen which he thought an example of membranous croup as distinguished from diphtheria. The case was a sporadic one, and the disease primary in the larynx. No membrane had even been seen in the fauces. Intubation had been performed by Dr. Major. The child had died suddenly two days later. At the autopsy the tube was found plugged with mucus. The larynx and trachea showed a uniform sheathing of membrane which formed a cast of the trachea, but was nowhere adherent. The same condition was seen on the posterior surface of the epiglottis. The only spot where the membrane was adherent was just at the rima, on each side, over a small area a quarter of an inch square. The glands were not enlarged. On detaching the membrane the mucosa looked healthy; on microscopic examination it was found to show signs of proliferation, but was nowhere necrotic, except where membrane was adherent. In about 15 cases of diphtheria he had dissected in the last $3\frac{1}{2}$ years, this was the only one which had appeared to bear out Virchow's distinction that in croup a necrosis of the mucosa was not the initial lesion.

Discussion.—In reply to DR. STEWART, DR. JOHNSTON said the cause of death was suffocation, from the child having coughed up the tube. The constitutional symptoms were not marked.

DR. J. A. MACDONALD believed that tracheotomy would have saved the patient's life.

DR. SHEPHERD agreed with Dr. MacDonald that this was a

case where tracheotomy was especially indicated. He could not see, clinically, any great difference between membranous croup and diphtheria. He did not think diphtheria was an extremely infectious disease. When whole families were affected they were usually exposed to the same influences, such as unhealthy surroundings, bad drains, etc. He did not believe diphtheria was a modern disease. The so-called putrid sore throat of former days was probably diphtheria.

DR. ARMSTRONG thought that there was a good clinical difference between these two diseases. True croup is not infectious, and there is no glandular enlargement or pharyngeal trouble accompanying the laryngeal affection.

DR. TRENHOLME had seen many cases of true diphtheria where the membrane was confined to the larynx.

DR. RODDICK said he was convinced that croup was one thing and diphtheria quite another. He remembered his first case of diphtheria, and it was widely different from any form of croup that preceded it. Undoubtedly the two diseases may occur together, as with tonsillitis and diphtheria. The line of distinction between the latter two diseases was much harder to draw.

DR. BULLER believed the diseases were distinct. There is certainly a great difference between croupous and diphtheritic conjunctivitis. The plastic exudation of the former affection is accompanied by no severe constitutional symptoms, and the inflammation is confined to the surface. The diphtheritic is well defined and virulent; the whole lid becomes tense and brauny; the disease is destructive and deep-seated. The two processes are quite distinct in the conjunctiva, and it is difficult to see why they should not be so in other membranes.

DR. BLACKADER said that the differences between pharyngeal and laryngeal diphtheria was due to differences in the nature of the submucous tissues; in the former the deeper tissues were not so closely attached. There was no difference in the microscopic appearance of croupous and diphtheritic membrane, but he believed it was, clinically, always safest to treat cases of membranous croup as diphtheria.

Trichorexis Nodosa.—DR. SHEPHERD presented specimens of

hair affected with the above disease taken from the moustache and eyebrows of a reddish-haired man aged 35. The nodes on the hair were pigmented. The disease was first noticed two years ago, and that time the left side of the moustache only was affected. He found he could not grow hair on this side of his moustache beyond a certain length, so he shaved, and for the next four months the disease did not appear; but as the hair grew larger, it reappeared and spread to the right side of moustache as well. During the last two months the same disease had affected his eyebrows. Many of the hairs have several nodules and many were split at the ends. The patient is very certain the affection is not due to pulling at his moustache. Dr. Shepherd remarked that this was a very rare disease, and was characterised by having nodular swellings along the shaft of the hair, and the hair breaks easily, usually through one of the nodules. When broken the hair has a brush-like end. *Trichorexis nodosa* is not a parasitic disease. It commonly affects the beard. The first symptoms noticed by patient are nodosities of the shaft of the hair and great brittleness, the part of fracture being at one of the nodules. Each hair has four or five of these nodes, which in people with reddish hair are pigmented. Nothing is known of the cause. Some think it due to mechanical causes. By some the lesion is regarded as due to the gradual drying of the cortical substance, whilst others look upon it as an atrophy of the medulla occurring at different points, especially at the points where the nodes are. The hair roots are unchanged or slightly atrophied. Treatment is of no avail.

Selections.

Unusual Symptoms following the Local Application of Cocaine —By Dr. H. C. McSHERRY.

—The physiological and therapeutical actions of cocaine have been so fully considered that one would hesitate to say more on those subjects, and would feel an apology almost necessary for adding to the happy experiences recorded by a very large number of writers. Of these matters I will have nothing to say beyond giving my favorable testimony, based on the use of this valuable alkaloid in hundreds of cases of throat and nose troubles. But since it is admitted that the drug is very potent for good, and in view of its extensive, almost indiscriminate, use, I will take the risk of writing on a hackneyed subject, hoping that the *audi alteram partem* maxim is always appropriate when one side has been fully heard from and but little said on the other.

In a small number of cases I have seen dangerous symptoms following the local use of cocaine, and in looking over the journals I find that some others have had like similar experiences. Of these cases I will speak presently, for they have made me more chary in using the preparation than I was formerly. Poisoning from the internal administration of the drug is generally admitted, but that a few drops of a very weak solution applied to the mucous membrane could be in the least dangerous, seems so improbable that not many except those who have seen instances of such apparent effects believe it. My own cases and those of others have convinced me, however, that :

1st. Extremely small quantities of cocaine solution locally applied to the mucous membranes will occasionally produce toxic symptoms.

2nd. The symptoms presented under such conditions are variable, sometimes showing nervous excitation and at others nervous depression and marked vascular disturbances. These variations of the influence not being dependent apparently upon the quantity used.

3rd. In selecting the antidotes, both the usual physiological actions of the drug and the symptoms exhibited by the individual should be considered.

The first case of which I will speak I saw with a physician who called on me in a very unpleasant emergency. The patient was a strong-looking man somewhere about 40 years of age, who was being treated for nasal polypi. On this occasion, to reduce the sensitiveness of the membrane prior to using the instruments, pledgets of cotton saturated with a five per cent. solution of cocaine were introduced into the nose. The physician told me that shortly after he introduced the cocaine the patient complained of a constriction in the throat, became very pale, and commenced to gasp for breath. Although he used various means for the relief of the condition, instead of improving it became worse, and the difficulty of respiration increasing, he called on me. It was about ten minutes after the use of the cocaine that I saw the man. Then there was stridulous breathing, a pallid, anxious countenance, twitching of the muscles of the body, and a frequent clutching at the throat. In fact there were all the symptoms of great nervous excitement and of alarming laryngeal spasm. Recognizing that some nervous sedative and antispasmodic was indicated we determined to try nitrite of amyl, which acted so satisfactorily, that, after the inhalation of three pearls of five drops each, the spasm had so relaxed that the breathing again became easy, and the general nervous excitement quieted down.

The symptoms in the second case were not so alarming, but were unusual. This was a young lady about 20 years of age. I sprayed into her larynx a small quantity of a four cent. solution of cocaine before applying galvano-cautery to a small laryngeal excrescence, which was on the free edge of the anterior portion of the left vocal cord. Immediately after using the spray her face and lips became pallid and I feared she would faint. She seemed almost to have lost control of the motion of the tongue, the speech became very indistinct. She complained of feeling a large lump in her throat and told me that her lips were perfectly numb. On testing this I found her statement correct, although I am sure the spray had not touched them. When she left my office she was still speaking with a "thick" tongue; and afterwards she said that this continued all that day (about ten

hours) and that for twenty-four hours she had violent headache and sick stomach.

At other times I used various other sprays and both before and after this experience the cautery was applied without cocaine, and no disagreeable symptoms ensued. It will be well to state, also, that neither this case nor the one following knew what preparation was being employed.

The third case is that of a lady who had been under my care a considerable time for naso-pharyngitis and relaxed throat. I frequently made applications to her larynx, pharynx, posterior and anterior nares, without her showing or expressing any extraordinary discomfort. While under treatment an acute coryza developed, which produced some puffiness of the nasal mucous membrane. For this I determined to make a local application of cocaine, as it frequently has a very comforting effect. So a flexible rubber probe having on the end a pledget of cotton saturated with a four per cent. cocaine solution was passed through the nose. Shortly after this was passed through both nostrils, her face and lips became very pale; she said she was going to faint. Her pulse became rapid and small, and as she was falling from the chair I caught her and laid her down. The syncope was extreme, pulse gone, respiration not perceptible, and her face had the pallor of death. The clothes were opened, ice water was thrown in the face, the hands and body rubbed, smelling salts held under the nose, but notwithstanding this she remained an inert body for at least ten minutes, when to my great relief she gave a gasp for breath. It seemed to me that her condition was alarming, and I believe that the friend who was with her thought I had pushed some instrument into the brain and killed her. The patient vomited repeatedly for an hour afterwards, and for two days was confined to the house with a headache and sick stomach.

These three cases represented my bad experience with cocaine, and in them so little of the drug could have been absorbed, that had such effects been observed but once, or without corroborative experiences, I might have doubted the relation between the use of the drug and the symptoms presented. But I find others have met with such cases.

Ziem of Dantzic recorded seventeen cases in which decided toxic effects occurred simply through the instillation of the drug within the eye, and in which the amount of cocaine reaching the general system must have been very small indeed. (*Medical News*, April 9th, '87.)

Mayerhausen narrated a case of which there is an abstract in the October issue of the *Centralblatt für Gesammte Therapie*, in which less than a one per cent.—so diluted was the solution by a copious secretion of tears—caused, when instilled into the conjunctiva, headache, nausea, constriction of the throat, weakness of the tongue, impaired speech and other severe symptoms, lasting 24 hours. (*Amer. Jour. Med. Sciences*, Jan. 1886.)

Schilling records a case of severe cocaine poisoning in which, after the intragingivæ injection of two drops of a 20 per cent. solution of this drug, motion and sensation entirely disappeared. Complete amaurosis and deafness were present. The patient complained of coldness and darkness. (*Med. News*, March 6, '86.)

Mattison, in the *Med. News* of April 6, '87, mentions a paper of his own which referred to forty authorities, English, French, German, Austrian, Russian and American, and cited more than fifty cases of dangerous conditions arising from the use of this drug. In four cases it caused death. The amount of the drug used varied from a fraction of a grain to 24 grains, and was applied to the eye, ear, nose, throat, larynx, teeth, gums, stomach, bowel, bladder, uterus, urethra and under the skin. This writer noted that the following symptoms were given by these various authorities: Nausea, vomiting, headache, lividity, deafness, blindness, loss of taste and smell, profuse sweats, cold perspiration, gastric cramps; frequent, feeble, irregular, intermittent, uncountable pulse; shallow, gasping, irregular, difficult, convulsive, suspended breathing (artificial respiration required in some cases); speech, gait and swallowing greatly impaired; rigid muscles, palpitation, sense of suffocation and great constriction about the chest; loss of motion and sensation in arms and legs; intense restlessness, extreme prostration, vertigo, faintness, feeling of impending death, unconsciousness, convulsions, paralyse, hallucinations, mania, delusions, delirium—death.

In the *British Medical Journal*, Feb. 4, 1888, Whistler of London notes that after a four per cent. solution is sprayed into the nose the pulse rate increases (in one case from 86 to 110 in five minutes), and usually there is great exhilaration of spirits. He also relates two cases in which, after the application to the nose, there was vertigo, nausea and faintness. One of these was a man and the other a woman. In the same journal of Feb. 18th, Dr. Fortesque Fox relates a case where after the use of a two per cent. spray there was coldness and numbness of the tongue, weakness of the lower limbs and staggering, mental distress and great depression from the very first. The husband of the lady, who was stout and healthy, except for "irritability of the windpipe," stated that she was more or less unconscious and unable to articulate for five hours.

Dujardin-Beaumetz recommends in the *Journal de Medicine* that the circulation of patients who are anæmic, or the subjects of cardiac or aortic disorders and liable to syncope, should be carefully watched (*Med. News*, Sept. 3, 1887). He refers here particularly to the internal administration, but it will also apply to the local use of the drug.

In regard to the treatment there is but little to say beyond the statement that it seems best to meet the peculiar symptoms exhibited. Sometimes one remedy will act well, and again some other will do equally as well. In the first case that I spoke of, where nitrite of amyl acted so happily, there was, the physician tells me, a recurrence of the symptoms, which were controlled by giving the man large doses of alcohol.

Among the most prominently mentioned antidotes for cocainism are nitrite of amyl, chloroform, ether, ammonia, digitalis, alcohol and nux vomica, and among the useful remedial measures are warm drinks and friction to the body.

In this paper I have treated particularly of the effects of cocaine applied to the mucous membrane of the nose and throat, and I have referred to but few journals, for there are recorded a sufficient number of cases to give substance to the belief, at which I had arrived from observation in my own practice, that once in a while we are liable to find persons whose idiosyncrasy

makes them intolerant of even an extremely small amount of this anæsthetic.—*Maryland Med. Journal.*

Salt in Milk for Children.—Dr. Jacobi says that the physiological effect of chloride of sodium is very important, no matter whether it is directly introduced through the mother's milk, or vegetable diet. Both of the latter contain more potassium than sodium, and neither ought ever to be given, to the well or sick, without the addition of table salt. A portion of that which is introduced may be absorbed in solution; another part is, however, broken up into another sodium salt and hydrochloric acid. Thus it serves directly as an excitant to the secretion of the glands and facilitates digestion. Therefore during diseases in which the secretion of gastric juice is interfered with, or in the beginning of convalescence, when both the secreting faculties and the muscular power of the stomach are wanting, and the necessity of resorting to nitrogenous food is apparent, an ample supply of salt ought to be furnished. The excess of acid which may get into the intestinal canal unites with the sodium of the bile in the duodenum, and assists in producing a second combination of chloride of sodium, which again is dissolved in the intestines and absorbed. Its action in the circulation is well understood; it enhances the vital processes, mainly by accelerating tissue-changes through the elimination of more urea and carbonic acid. A very important fact is also this: that the addition of chloride of sodium prevents the solid coagulation of milk by either rennet or gastric-juice. The cow's milk ought never to be given without table salt, and the latter ought to be added to woman's milk when it behaves like cow's milk in regard to solid curdling and consequent indigestibility. Habitual constipation of children is also influenced beneficially, for two reasons: not only is the food made more digestible, but the secretions of the alimentary canal, both serous and glandular, are made more effective by its presence.—*Archives of Pediatrics*, January, 1888.

CANADA

Medical and Surgical Journal.

MONTREAL, APRIL, 1888.

GUAIACOL AND CREOSOTE IN PHTHISIS.

The latest vaunted remedy in pulmonary consumption is guaiacol, a constituent of creosote. It is highly recommended by Fränkel of Berlin. It is asserted by Fränkel that the good effects are to be attributed to the influence of the guaiacol on digestion and not to any alleged antimicrobial action. Granting both actions, it is difficult to understand the alleged striking beneficial results obtained. Guaiacol is no doubt an antiseptic, but beyond this it can have no beneficial action on digestion, and after all, what permanent good can we hope from an antiseptic brought into the stomach. Decomposition for the time being may be prevented, but that is all. How little, after all, can this influence those deep nutritional changes which play such an important part in the origination and progress of pulmonary consumption? The anti-bacillary treatment of consumption has proved utterly untrustworthy. If we are ever to gain a mastery over this disease it will be through a defensive treatment—a treatment where the bacillus tuberculosis is left alone and attention directed to improving the general nutrition.

MESMERISM.

The citizens of Montreal appear to be annually favored with the visits of a "Professor" who entertains them with the antics of persons in the mesmeric state. It is high time these injurious and disgraceful exhibitions should be prohibited by law. In France, Italy and Belgium it is against the law to have such exhibitions. Why should not Canada have a similar law in

force? Unfortunately, a number of our daily papers aid these mesmeric exhibitions by publishing reports of them and advertising them. Even papers from which we expect better things do this. It may be from ignorance, but a high class journalist should not be ignorant.

It has been incontestably proved that the induction of hypnotism is injurious—that it not only induces a passing, but also a permanent, injury. As a therapeutical agent it may be of some value, but then it should never be employed even with this end in view except under skilled direction.

NOTES AND COMMENTS.

A case which I saw a few days ago illustrates the value of a careful examination of the peripheral vessels in diseases of the heart and aorta. A man aged 42, well-built, a glass manufacturer, had been troubled for three months with shortness of breath on exertion and feelings of distress about the heart. He had lived carefully, but had used tobacco to excess. Had not had syphilis. Was temperate in his habits. He had frequently lifted very heavy weights in helping the men in the factory, but there was no definite history of strain. The patient was a bright, healthy-looking man. Pulse 88, collapsing. Radials, brachials and carotids pulsated visibly. Apex beat in fifth space below and just outside nipple line. No thrill. Aorta not palpable in supra-sternal notch. Vertical and transverse dullness increased. Percussion clear upon, and on either side of, manubrium sterni. At apex there was a loud, rough, systolic murmur heard as far as anterior axillary line, but the maximum intensity was over the body of the heart. At the aortic cartilage and on manubrium there was also a loud systolic bruit; the second sound was well heard, not specially accentuated, and down the sternum I could just detect a soft diastolic murmur. In the carotids these murmurs were very clearly to be heard. Exercise did not materially modify the condition. I thought that he probably had sclérosis of the aortic valves, with dilatation and hypertrophy of the left ventricle, mitral insufficiency, and attributed the dyspnoea to failing compensation. I usually examine the

abdominal aorta and femorals in aortic insufficiency, and Dr. Wise called my attention to the fact that he had not been able to obtain any pulsation in the vessels of the lower extremities. The most careful palpation failed to reveal any pulse in iliac, femoral or popliteal vessels, nor could I feel distinctly the abdominal aorta. This made me return to the thoracic aorta, but anteriorly I could find no evidence of involvement—no dullness on manubrium, no pulsation in sternal notch, and no special accentuation of second sound. Posteriorly, however, a very different state of things was evident. The left interscapular space was more prominent than the right, and at the spine of the scapula pulsation was visible. Dullness in an area 3 by 2 inches; no thrill; impulse heaving. Auscultation gave a loud systolic murmur of maximum intensity over the pulsating region, but also heard up and down the spine. Undoubtedly we had here an aneurism projecting from the upper part of the thoracic aorta, or more probably just at the termination of the arch, and it must be of large size to appear externally in a region so thickly overlaid with muscles. The sac is of sufficient extent to absorb the entire expansile force transmitted from the left ventricle, so that the stream below it is no longer intermittent but continuous; hence the absence of pulse in the femoral and popliteal arteries.

Dr. Winckel, the well-known Professor of Obstetrics at Munich, has given an account of his American trip in three recent numbers of the *Münchener Medicinische Wochenschrift*. The first number is devoted to Montreal—"mit ihren zahlreichen prachtvollen villen, ihren grossartigen Hotels und ihren unzähligen kirchen." It is remarkable with what thoroughness he seems to have mastered the details of the plan of medical education at McGill University, which he describes at length, commending particularly the method of weekly oral, and the occasional written, examinations, the prolonged course of hospital study, the compulsory six months dispensing, and the practical obstetric teaching. He notes that in the duration of the course of study and the general requirements, McGill comes close to the best German universities, while in certain particulars—prolonged hospital

practice, dispensing and compulsory attendance upon a certain number of cases of labor—the arrangements are much better. He comments upon the large amount of acute disease in the General Hospital, and is astonished at the liberality with which the citizens subscribe money for its support, but—and this naturally strikes a stranger in Montreal—he compares the enormous and expensive churches, the superb buildings, public and private, with the meagre and insufficient accommodation for the sick. The Board of Managers and the medical staff of the Western Hospital should look to the arrangements of the maternity department before another such keen-eyed visitor enters the institution.

By the death of Ernst Wagner Germany has lost one of her best known physicians and the University of Leipzig one of its most distinguished professors. With the exception of Traube, no teacher to whom I have listened impressed me so favorably. He possessed a profound and accurate knowledge of disease, acquired by long years of study in the wards and post-mortem room, and he had the gift of imparting knowledge in a clear and logical manner. He died of nephritis, at the comparatively early age of fifty-nine.

WILLIAM OSLER.

Medical Items.

—Dr. Bayley Balfour, Professor of Botany in the University of Oxford, succeeds Prof. Dickson as Professor of Botany in the University of Edinburgh.

—A tablet erected by the Alumni Association of the Bellevue Hospital Medical College in memory of the late Prof. Austin Flint, was unveiled at the Carnegie Laboratory on the 10th ult.

—The Congress of American Physicians, Surgeons and Specialists will be held in Washington on September 18th, 19th and 20th. Discussion will take place on the following subjects:—
1. "Intestinal Obstruction in its Medical and Surgical Relations." 2. "Cerebral Localization in its Practical Relations."

—Professors Erb of Heidelberg and Liebermeister of Tübingen are mentioned as candidates for the directorship of the

Leipzig Medical Klinik, vacant by the death of Prof. Wagner. Erb is especially known from his contributions to Neurology, and Leibermeister to Fever and its Treatment.

—Cremation in England, according to the returns of the Cremation Society, appears to be gaining in favor, as during the present year they have cremated five bodies at their working crematorium. In the case of a child eight months old, the ashes weighed only eight ounces. Up to the present time thirty-five cremations have occurred at the Society's crematorium.

—Mr. G. J. Romanes has been elected Fullerian Professor of Physiology at the Royal Institution, London. He intends to devote the three years of his professorship to one continuous course of lectures on "Before and After Darwin." This year's course—"Before Darwin"—will give an historical survey of the progress of scientific thought and discovery in biology from the earliest times till the publication of "The Origin of Species." Next year's course will be on "The Evidences of Organic Evolution," and the third year's course on "The Factors of Organic Evolution."

—The matter for Fairchild Bros. & Foster's advertisement in this issue is taken from the original remarks of Dr. William Murrell in a lecture delivered at Westminster Hospital, London. This testimony is from a high source, and coming, as it does, so entirely independent and unsolicited, speaks well for the superiority of Messrs. Fairchild Bros. & Foster's "Pepsin."

—A. M. Sittler, M.D., Bowmanstown, Carbon Co., Pa., says: Have used Tongaline extensively during an epidemic of dengue or break-bone fever, where I had an opportunity to test it very thoroughly, and I secured much more successful results from it than from the ordinary treatment, consisting of pot. iod., vini colchici, acid salicyl., quin. sulph., etc. In every instance tongaline fully sustained the high character with which it is presented to the profession, and only deserves to be well known in order to be thoroughly appreciated.