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THE

# MONTREAL MEDICAL JOURNAL.

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VOL. XXXII.

DECEMBER, 1903.

No. 12.

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THE NEURONES AND THE NEURONE CONCEPT CONSIDERED  
FROM THE ANATOMICAL, PHYSIOLOGICAL, PATHO-  
LOGICAL AND PSYCHOLOGICAL POINT OF VIEW.

BY

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In all advances in science both men and methods must be considered. In some instances the man is of more importance; in others, the method. In that evolution which has been wrought in neurology within the memory of the present generation, the methods seem to have been more important than the men. It is about twenty years since Golgi published his paper on his new method of nerve staining, which attracted but little attention till he again appeared on the scene about twelve years later. That method has probably been most successfully applied by Ramón y Cajal, of Madrid, who has made greater conquests through it than any one else, not excepting Golgi himself. It may be termed appropriately a Chrome-Osmic-Silver method, as Bichromate of Potash, Osmic Acid and Nitrate of Silver are the reagents used, the result being that the nerve elements are stained a dense black. This method brings out the processes of the cell more effectually than perhaps any other.

In the case of the *intra vitam* Methylene Blue method of Ehrlich, a strong solution of Methylene Blue is injected beneath the skin, into the cavities of the body, or into the blood vessels at short intervals till the animal succumbs. Then by the use of subsequent processes, too detailed to be mentioned on this occasion, a blue staining of the nerve cell results, in consequence of which the axis cylinder and its branches, the ends of the axone, or end-organ, and the nuclei of the cells come out in a beautiful blue colour in the most successful preparations.

One of the most important means for tracing out nerve tracts is known as the Weigert-Pal method. After fixation of the nervous tissues in bichromate of potash and sectioning, there follows staining with hæmatoxylin with differentiation in a special manner, which may be compared to a sort of bleaching process. This is especially adapted for staining

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From a Lecture delivered before the Montreal Medico-Chirurgical Society, illustrated by lantern slides, Nov. 19th, 1903.

the medullary sheath of nerve fibres; and by virtue of this Flechsig was able to trace the various nerve tracts in the brain and spinal cord of the incompletely developed young animal. Of course in nerve degeneration when the myelin of the nerve fibres has disappeared, the degenerated region is marked out simply by absence of staining.

In like manner by the Marchi method the medullary sheath of degenerated nerve fibres is demarcated by a black staining, by the use of osmic acid, after the tissue has been first fixed in bichromate of potash. Of course such a method is inapplicable after degeneration is so complete that the myelin has been wholly absorbed. The Marchi method has proved of great value in marking out nerve tracts as in the nature of things degeneration must follow the lines of physiologically related neurones.

All the methods thus far referred to possess the great advantage over staining with ordinary dyes, that the processes of the nerve cells are to an infinitely greater extent brought into view. Nevertheless in all cases the minute structure of the body of the cell is more perfectly delineated by staining with anilin and other dyes.

One method which has proved of great practical importance is that of Nissl, which is a form of methylene blue staining, and a modification of which, useful for certain purposes, has been devised by Held. By the Nissl method certain constituents of the cell body are precipitated or fixed in more or less definite forms known as Nissl's bodies, or tigroid masses.

It will be seen from the above brief account that each method has its own special excellencies and limitations, and it is only by the use of all these and other methods of less importance, that justice can be done by means of the technique of the present day. It will be my object this evening to show, in necessarily a very imperfect manner considering the brief time at my disposal, some of the fruits of these most modern methods. In other words, I propose to outline the meaning of the expression "Neurone Concept," and to indicate its significance for Anatomy, Physiology, Pathology and Psychology, by a few illustrations; an attempt which, at the best, must be a mere sketch, but sufficient, I hope, to warrant the belief that the neurone concept had done for neurology what the doctrine of evolution has accomplished for biology.

It is now twelve years since Waldeyer, the great Berlin anatomist, presented a clear statement of what was implied by this doctrine. He held that the latest researches justified the opinion that the nerve units throughout the nerve centres were anatomically independent though physiologically related. It was believed that one nerve unit, nerve cell, or neurone, came in contact with another through its processes, but that these did not actually unite anatomically. In other words he set forth the doctrine of *contact* as opposed to the doctrine of *concreescence*.

I shall now proceed to show what is the real significance of this concept by a series of illustrations, without which it would be practically hopeless for any one to attempt to follow what I have to say. The illustrations which I am about to use are derived from a great many original sources, but the large proportion of them are to be found in Barker's magnificent book on the nervous system, and it is with no little pride and pleasure that I refer to the fact that this work has made a profound impression on the leading neurologists of Europe as well as America.

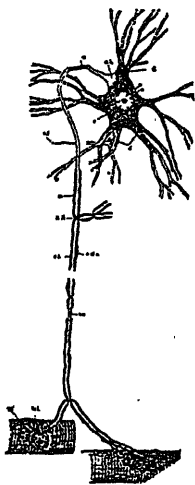


FIG. 1. Diagrammatic representation of a motor neurone of the lower level. The cell-body together with the protoplasmic processes, its axis cylinder process or axone, side branches or collaterals, and end ramifications, all belong to a single cell or neurone; a. h., axone hillock devoid of Nissl bodies and showing fibrillæ; ax, axis cylinder or axone; at m it becomes surrounded with myelin and the outermost sheath or the neurilemma, which is probably formed from the mesoblastic layer of the embryo; c, cytoplasm showing tigroid bodies in the ground substance; d, protoplasmic processes or dendrites containing Nissl bodies; n, nucleus; n', nucleolus; n.R., node of Ranvier; s.f., side fibril; n of n, nucleus of the neurilemma; tel, the motor end plate or telodendrion; m, striped muscle fibre; s.L., segmentation of Lautermann.

Figure 1 is diagrammatic and is meant to show practically every part of a neurone. One recognizes a *cell-body* with a *nucleus* and *nucleolus*, both of which are very distinct, and a large number of branching processes known by various names. The Germans with much appropriateness term them, *protoplasmic processes*, as they are evidently mere extensions of the material of the cell body; by English writers they are more frequently termed *dendrons* or *dendrites*. Passing off either from the cell body, which has been termed a *perikaryon*, or from the base of one of the dendrites one sees a single long arm of the cell termed its *axone* and ending in this instance in a very complicated modification of its axis cylinder known as *muscle plate* when it terminates as here in a muscle; but when the axone ends in a multitude of branches which may come in contact with similar branching ends in another neurone, such an anatomical complex is spoken of as an *arborization*, *telodendrion* or *synapse*. At the beginning the axis cylinder of the axone may be absolutely naked, but further from the cell body it is usually covered with a coat of myelin, known as the *medullary sheath*. In the nerve centres these two alone and their branches constitute the axone, but outside the nerve centres, that is to say, constituting the nerve fibre, the axone may be provided with a third covering known as the *neurilemma*. Both when naked and after it is covered with this myelin sheath the axone may give off side branches termed *collaterals* and which are of great physiological importance. Such a result as that represented in Figure 1 cannot be achieved by any one techni-

cal method, but it may be said to represent the generalised outcome of all of them.



FIG. 2. Golgi cell of type I. Neurone from the optic tract of the cat (after Kölliker). The dendrites are very numerous with broad spreading branches; the axis cylinder in this case branches but moderately; c, indicates where the collaterals come off.

amazingly complex a arborization of the single axone may be as in this case of a Purkinje cell of the cerebellum.

These three illustrations represent admirably the great advances made through the use of the Golgi method in displaying the complexity of the processes of the neurone.

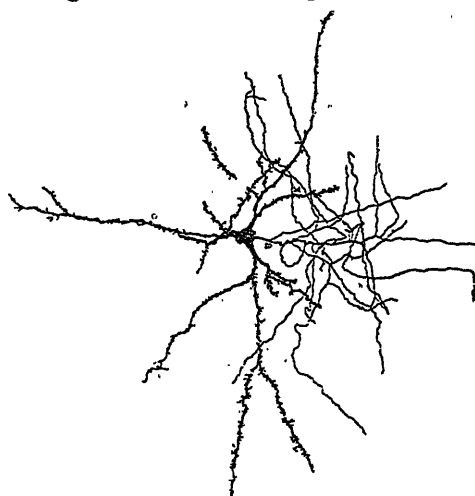


FIG. 3. Golgi cell of type II. From the cerebrum of a cat (after Kölliker). In this case the axis cylinder a is very greatly branched while the dendrites are represented by the coarse processes which are covered with "thorns" or "gemmules."

Figure 2. Represents what is known as a Type I. Golgi cell or neurone, in which the dendrites are much more prominent than the axone.

The reverse of this is seen in the Type II. cell of Golgi, represented in Figure 3, in which it may be observed that the axone is very much branched. The little projections on the dendrites known as *gemmules* or *thorns* are very well seen in cells of the cerebral cortex and can be better explained later.

Figure 4. Shows how amazingly complex a arborization of the single axone may be as in this case of a Purkinje cell of the cerebellum.

Figure 5 will serve to illustrate the real nature of the nerve tract on the one hand and collaterals and arborizations on the other. The fibres proceeding upwards represent the axones of neurones of the spinal ganglia, which axones form the posterior columns of the spinal cord; while given off from either the upper or the lower branch into which the axone divides after it enters the cord, are the collaterals, i.e., side branches, which in turn may arborize around the dendrites of axones whose cell bodies are in the grey matter of the cord. Thus it will

be seen that a single neurone may make connection with a large number of other neurones, a fact which it is obvious must be of great physiological and possibly also psychological importance.

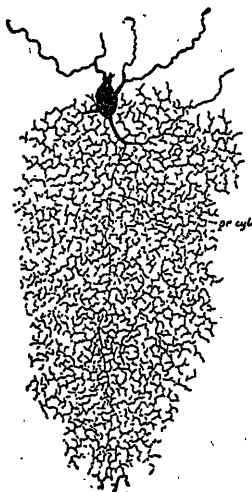


FIG. 4. An axone with a greatly branched axis cylinder pr. cyl. (after Van Gehuchten).

Figure 6 shows how abundant the branches of axones may be which surround a single cell body, making in this case what is termed a *basket*.

In figure 7, the neurones are represented in different stages of development. In the portion on the left hand which depicts the spinal cord in a chick on the third day of incubation, we may notice cells in process of great activity (*mitosis*) and others (*neuroblasts*) that are in a somewhat later stage of development which is carried still further in what is shown on the right representing a chick embryo two days older.

Figure 8 is a truthful representation of an unusually happy transverse section of the spinal cord in an early chick embryo. Outside the cord one sees the spinal ganglia on each side; one set of axones proceeding towards the cord as the

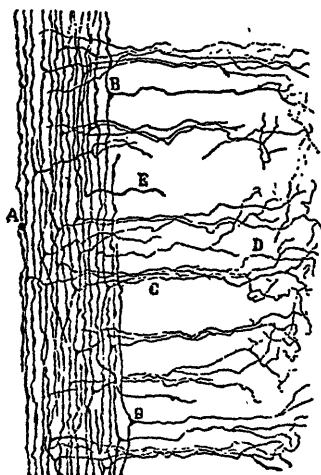


FIG. 5. A longitudinal sagittal section of the posterior column of the spinal cord of cat 15 days old (after Ramón y Cajal) by the Golgi method. A, nerve fibres or axones of posterior column; B, collaterals; C, groups of collaterals running towards the grey matter; D, end arborizations of collaterals in the dorsal horn; E, axis cylinder of a neurone.

posterior root, the other outwards and joining with the anterior root to form the mixed nerve. Within the cord terminal arborizations are abundantly present. The motor neurones of the anterior horns are sending out their axones to form the anterior root which being continued, constitutes the motor nerve, or the motor portion of the mixed nerve. All the facts go to show that the cell body is the trophic or nutritive centre of the whole neurone; hence it follows that if an anterior root be divided, degeneration is towards the periphery and constitutes *secondary* or Wallerian degeneration. If the section be made in an afferent or sensory neurone on either side of the cell-body, degeneration follows beyond the point of section, so that what could not be adequately explained at all a comparatively few years ago is now so simple that no effort is required to remember the ordinary laws of degeneration.

From the same illustration the anatomical basis of reflex action can be readily understood. It is only necessary to have one sensory neurone



FIG. 6. Arborizations forming a basket or basket-work about two Purkinje cells of the cerebellar cortex. (From Schäfer after Ramón y Cajal). a, axone; b, basket-work.

arborising, as represented in this figure, around a single motor neurone to complete the circuit, for the sensory axone begins in the periphery, as for example, the skin, while the motor ends in a muscle. Nothing can be simpler, and if, as some believe, a third subordinate neurone, is interposed between the arborisation of the afferent axone and the dendrites of the motor neurone, there is still no great complexity in the concept.

Figure 9 is a very old one, because what is there represented can be seen by simply teasing up with needles a small piece of degenerated nerve. It does, however, represent very well two stages in the process of Wallerian degeneration. On the

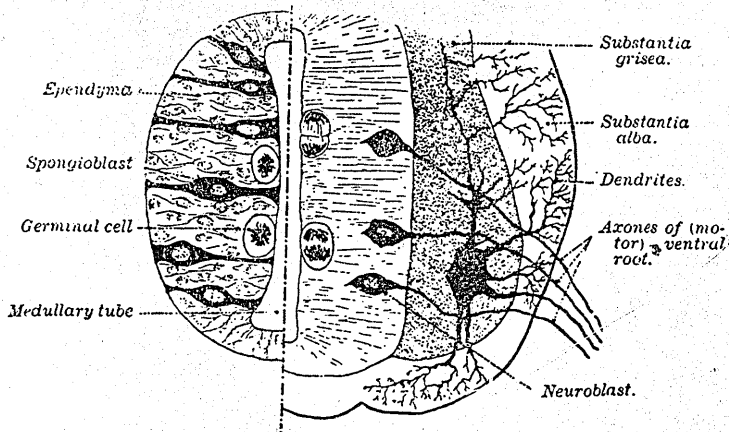


FIG. 7. A transverse section of the spinal cord of the chick. Right side, from a five day chick; left side from a two day chick (after J. Kollmann).

In figure 10 we get an illustration of the results of the use of the Marchi method; a series of transverse sections from successive segments of the spinal cord, from the 7th thoracic to the 5th sacral, being represented. It will be noticed that certain regions of the sections are marked off

by black dots owing to staining of the medullary sheaths by osmic acid, as formerly described. In consequence of a transverse lesion, degeneration is shown to have taken place in the *direct* and *crossed pyramidal tracts*, more especially, on each side, so that it must be apparent that the Marchi method is one of the best known for determining the extent of degeneration of nerve tracts in consequence of a lesion above or below a certain point. Of course when degeneration is complete and the myelin has been absorbed, it is impossible to apply such a method. In such cases, however, the Weigert-Pal technique would reveal the presence of old degenerated areas by the absence of staining. There is, besides Wallerian degeneration another which was not known to us till a few years ago.

It has been shown by numerous observers that after section of the nerve there is not only peripheral degeneration, but important changes in the body of the neurone itself. This form of alteration has been termed

*primary degeneration*, a good example of which is represented by Figure 11.

On the right is seen a fairly normal multipolar neurone of the nucleus of the oculomotorius nerve; on the left another from the same nucleus, showing the results thirteen days after the operation—section of the oculomotorius nerve on one side. It will be readily observed that the orderly arrange-

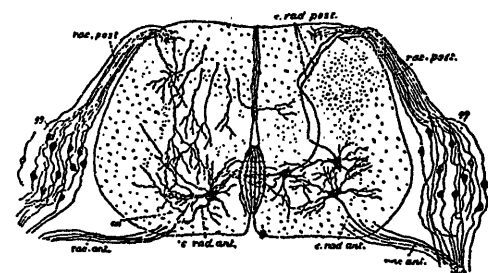


FIG. 8. Transverse section of the cord of a chick embryo (after Van Gehuchten). c, rad. ant., cells giving rise to axones of ventral roots; c, rad. post., cells whose axones give rise to dorsal roots; col., collateral passing from axone of cell of the ventral horn back into the grey matter; gg, the cells of spinal ganglia; rac. post., dorsal root fibres; rac. ant., ventral root fibres.

ment of the Nissl bodies has been greatly disturbed; that many of them have entirely disappeared, and that the nucleus is eccentric in position.

There has been a good deal of discussion as to the nature of these Nissl bodies. There seems to be little doubt that in the fresh uninjured cell or neurone they are not to be seen, but that they arise as a result of treatment with reagents. They, however, represent material that in the fresh cell is in solution and which is probably of the nature of a nucleoprotein. It has been suggested by Held that they represent reserve material on which the cell can draw during activity. At all events, their study is of practical importance, for they are destroyed by numerous body poisons, elevation of temperature and during prolonged anaesthesia, it is said. Very interesting to the physiologist is the fact that section of the posterior roots leads to degeneration of this character in the neurones of the anterior horn of the spinal cord. It would seem that the



life of the ganglion cells of the anterior horn is in a certain degree dependent on the integrity of the corresponding afferent neurones, which influence them in some way.

So long as the nucleus has not escaped from the cell-body there is some hope for the neurone, so that in this case the cell is not necessarily doomed as is the nerve fibre beyond the point of section. Of course degeneration may sometimes go on to the actual death of a large proportion of the cells in any nucleus.

Figure 12 illustrates this. On the left one may see a representation of a normal lateral geniculate body; on the right the cell bodies are atrophic, or have entirely disappeared in consequence of an extensive lesion in the temporal and occipital lobes of the corresponding side.

Turning again to normal anatomy and physiology it is clear that by means of these recent investigations on the neurones, we have been able to get a truer classification of nerves and a juster conception of brain nuclei.

An examination of Figure 13, which is a schematic representation of the trigeminal nerve, shows that it is not essentially different in its sensory part from an ordinary spinal afferent nerve. The Casserion ganglion corresponds to the spinal ganglion, but of course here represents really an aggregation of three ganglia. Its afferent axones pass inwards as do the posterior roots of the spinal nerve and, as in the last case, divide each into two branches which arborise around a new set of neurone bodies, constituting a form of grey matter known as *substantia gelatinosa*. Such a centre is plainly very different from an ordinary *motor nucleus*. The former may be designated a nucleus of termination, the latter a nucleus of beginning. The motor

FIG. 9. Wallerian or secondary degeneration of nerve fibres after section. i, normal nerve fibre; ii and iii, fibres showing different degrees of degeneration; S, neurilemma; m, medullary sheath; A, axone; k, nucleus of neurilemma cell; L, marking of Launtermann; R, node of Ranvier; mt, drops of myelin; a, remains of axone; w, proliferating cells of neurilemma. Somewhat schematic (after Thoma).

portion of the 5th nerve represented in this figure springs from an ordinary collection of motor ganglion cells such as one finds in the anterior horns of the spinal cord, while its axones form an ordinary motor nerve answering exactly to a motor nerve of the spinal region. Sometimes, as in the case of the vagus nerve, the ganglion may be some little distance down on the trunk and the cell bodies therein of a form corresponding to that in the spinal ganglia of the immature animal; that is to say, bipolar.

In Figure 14, a number of interesting relations are diagrammatically represented in a form necessary to the neurone concept. On the right

an afferent or sensory neurone is seen terminating in the skin; its cell body is in a spinal ganglion; the other axone passes into the white matter of the posterior columns and divides into two branches, each of which sends off collaterals. Then one main branch passes downwards, and the other and much longer one, upwards—in fact the latter may

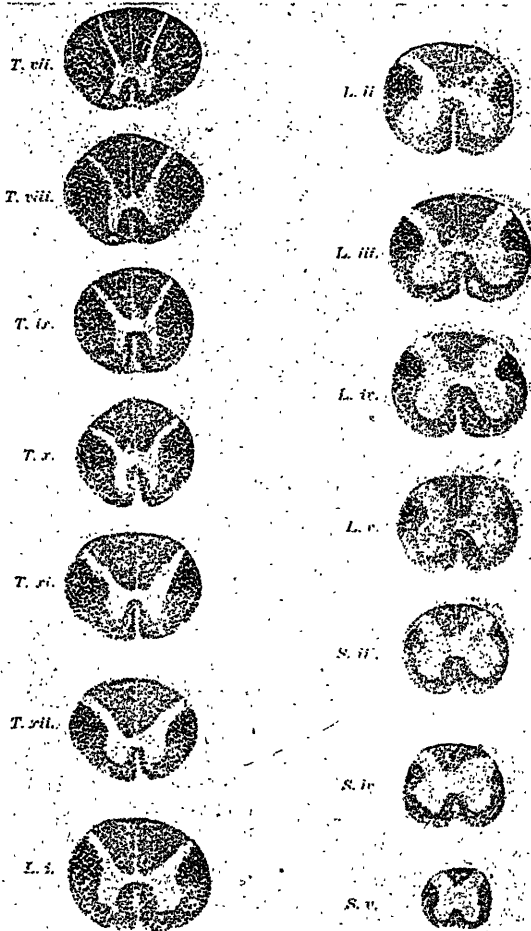


FIG. 10. Represents a series of transverse sections of the spinal cord at different levels and showing by the black dots the site of degeneration as marked out by the method of Marchi (after A. Hoche).

reach to the very top of the cord where the second neurone begins in the nuclei of Goll and Bürdach. A series of such axones have manifestly the same physiological function and running together constitute a spinal tract, the posterior branches of the neurones constituting the comma tract of Schultze and the upper ones the columns of Goll and

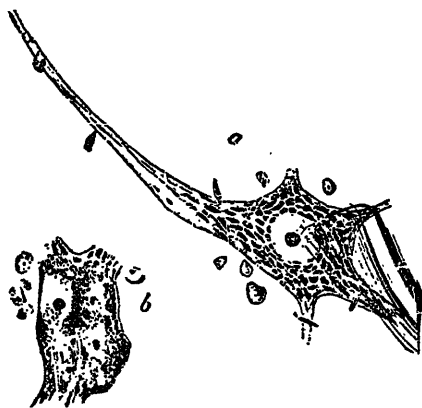


FIG. 11. Cells from the nuclei of the oculomotorius nerves of the cat thirteen days after section of the root fibres of the nerve on one side (after E. Flatau). a, cell from the nucleus of side not operated on showing normal arrangement of Nissl bodies; b, cell from the nucleus of the side operated on. The eccentric position of the nucleus and the disappearance and dust-like destruction of Nissl bodies are evident, illustrating "primary degeneration."

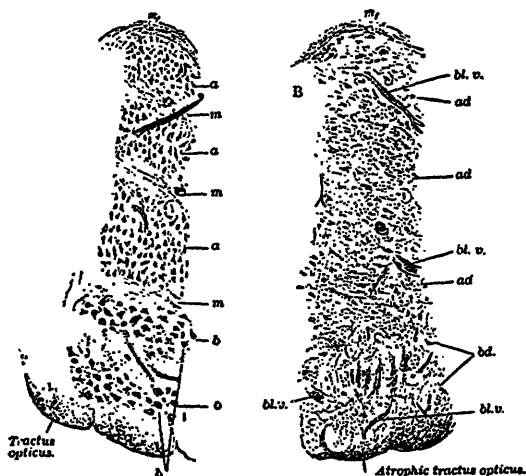


FIG. 12. Corpus geniculatum laterale; normal on the left, degenerated on the right after an extensive lesion in the temporal and occipital lobe of the corresponding side. a, mass of small ganglion cells arranged in layers, shown atrophic in B; m, Medullated layers, atrophic in B; b, masses of large cells; to., optic tract; m. dorsal white capsule; at a d, in Fig. B, loss of ganglion cells is represented; at b d, total degeneration of the large cells. The optic tract is atrophic in B. (after C. von Monakow).

Burdach. Hence after section of the posterior roots or pathological changes in the cell-bodies of the spinal ganglia, one would expect ascending degeneration in the posterior spinal tracts of Goll and Burdach and descending degeneration in the "comma" tract. The afferent impulses after reaching the upper dorsal nuclei pass on to the neurones which begin in these nuclei through arborisations of the first neurone around the dendrites of the neurones of the nuclei of Goll and Burdach and so proceed to the optic thalamus, and by a third neurone to the cerebral cortex; or possibly, as represented in the figure, by a second neurone only, and thus reach the cortex of the cerebrum. It must follow that sensory impulses reach the cortex of the cerebrum by a series of relays of neurones, and in all likelihood at least three are in most cases required. On the other hand, as may be seen, a motor impulse commencing in the cortex is carried down and out to the muscle by two neurones; and the first, which begins in the grey matter of the cortex, arborises around the dendrites of the second neurone, which is located in the anterior horn of the spinal

cord. Thus for a motor impulse only two principal neurones are required from its beginning till it reaches the muscle concerned.

Neurologists frequently speak of neurones of the upper level and neurones of the lower level, which can be understood from Figure 14. It is also easy to see from the same illustration why lesion of upper neurones does not give rise to degenerative paralysis, for, according to the neurone doctrine, the two essential neurones of a motor tract are independent of each other. It can also be understood from this figure how sensory and motor neurones may come into close relationship in the cortex cerebri, so that on purely anatomical grounds a *sensory-motor* cortical region is comprehensible.

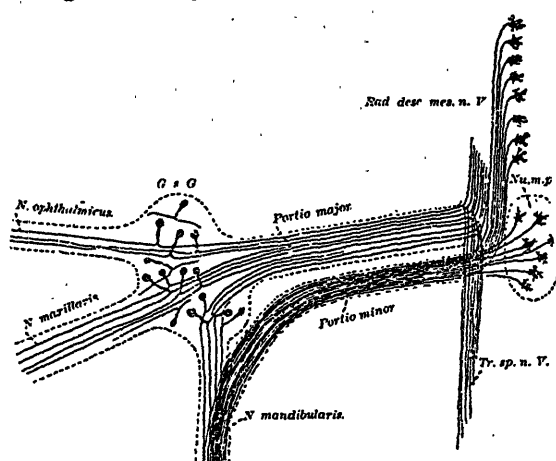


FIG. 13. Diagram showing the motor and sensory neurones, the axones of which enter into the formation of the trigeminal nerve (after Van Gehuchten). g. s. g., semilunar ganglion of Gasserius; Nu. m. m. n. V., Nuclei motorii minores nervi trigemini; Nu. m. pr. n. V., nucleus motorius princeps nervi trigemini; Rad. desc. mes. n. V., radix descendens nervi trigemini; Tr. sp. n. V., tractus spinalis nervi trigemini.

nerves are abundantly supplied to the hair bulbs, enabling us to understand why touching hairs gives rise so readily to cutaneous sensations, and why the "whiskers" of the carnivora can serve such a good purpose, especially in the dark. In revealing the extent of the exact structure of the various modifications of the axone known as sensory *end-organs*, the methylene blue method has probably served a better purpose than any other.

In figure 16 we have a representation of the nerves ending in heart muscle. It was formerly considered probable that every skeletal muscle fibre was supplied with a small branch of nerve, and actual observation by the methylene blue method and also with the Golgi method would seem to lend the support of actual observation to an old suggestion; and from very prolonged observations on the nerve supply to the hearts of various

By the help of this most modern technique we have been the better enabled to realize what a wonderful sensory organ or combination of organs is the skin. Fig. 15, for example, illustrates the application of the Golgi method to sections of skin, from which it can be learned how extremely numerous are the nerve branches distributed to even a small area of the cutaneous surface. Further it will be observed that

cold-blooded animals I should be disposed myself to believe that we would be justified in holding a similar view for the heart muscle. The so-called *ganglia* of the heart are, of course, as in the case of the intestine, really neurones.

In Figure 17 we have an illustration of a form of end-organ known as a *muscle spindle* and which is

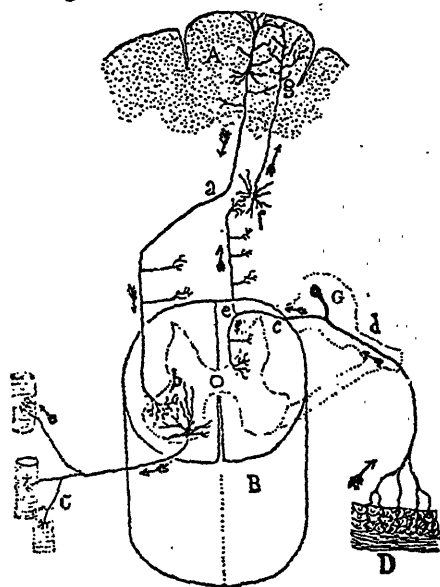


FIG. 14. Diagrammatic representation of the relations of certain neurones illustrating nervous conduction within the brain and spinal cord. Sensory neurone whose body is found in the spinal ganglion, G, extends by its axones on the one hand into the skin, D, on the other into the spinal cord, B; d, indicating the peripheral axone, c, the central, which at e divides into an ascending and descending branch, the former of which arborises at f around the dendrites of the secondary neurone. These together, according to this diagram, give the entire path of sensory impulses from the surface to the termination in the cortex. On the left hand side we have the first or upper level neurone, represented at A, in the cerebral cortex, its axone a, extending downward and crossing the middle line (pyramidal decussation) giving off collaterals by the way and finally arborizing at b around the dendrites of the lower level neurone in the anterior horn of the cord, the axone of which is distributed to muscle fibres C. Throughout the figure the arrows indicate the paths of the impulses (after Ramón y Cajal).

seen to be highly complicated, the modifications of the axis cylinder of the nerve fibres passing in and out around the muscle fibres. Owing to recent researches on the physiology of movement, especially those of Sherrington, it has been shown that the contraction of one muscle is associated with the relaxation of its antagonist. This can only be understood as a result of reflex action, so that a movement is in a sense self-regulative; that is to say, owing to afferent nervous impulses started in all probability in these muscle spindles or other similar end-organs, inhibitory influences are originated in the centres which causes a relaxation of the antagonist muscles. It has further been demonstrated that several forms of end-organ are to be found in tendons, and there can be no question that the sensory impressions arising in joints have a very important influence in determining the character of any movement,

so that in these considerations we see how anatomy and physiology unite to help us to a better comprehension of the phenomena.

To illustrate further how the revelations of this technique have brought anatomy and physiology into closer and more useful relationship, I pro-

ceed to give additional examples. Turning to the senses, in Figure 18 we may see how the first neurones, which begin in the mucous membrane of

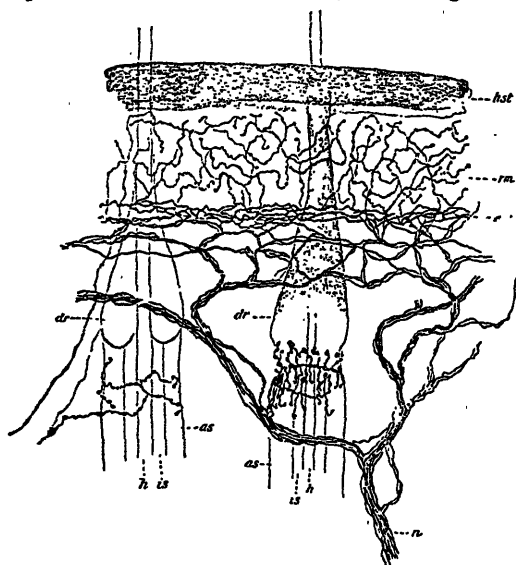


FIG. 15. Nerves and nerve endings in the skin and hair follicles (after G. Retzius). hst., stratum corneum; rm., stratum Malpighii; c, most superficial plexus of nerve fibres in the cutis; n, cutaneous nerve; is, inner root sheath of hair; as, outer root sheath; h, hair itself; dr, sebaceous glands.

be seen from Figure 20 that the rods and cones are simply specialized nucleated cells and constitute in the most limited sense the end-organ of

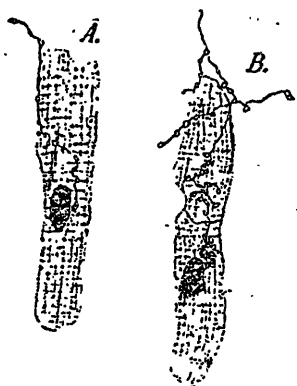


FIG. 16. View of cardiac muscle cells with their nerve endings by the methylene blue method (after G. C. Huber and Lydia DeWitt).

the nose, meet by arborizations of their axones the branching dendrites of the mitral cells forming the so-called *glomeruli* of the olfactory lobe, while the axones of these second neurones that is the mitral cells, passing inwards constitute the olfactory tract.

Turning now to Figure 19 one notes the relationship of the retina to the visual centres. All representations of the retina as depicted by the old methods failed to enable us to understand how the impulses passed from the rods and cones to the optic nerve. It will

be seen from this illustration that the rods and cones are simply specialized nucleated cells and constitute in the most limited sense the end-organ of vision. The impulses beginning in them were carried by their arborizations into others of the intermediate cells and thence to the neurones of the ganglionic layer whose axones constitute the optic nerve which terminates in the primary centres of vision, that is to say, in the external geniculate body, the corpora quadrigemina, etc., whence by another neurone the cerebral cortex of the occipital lobe is reached. An inspection of this illustration will show that there is no longer any difficulty in understanding the significance of the molecular and nuclear layers. In the former case we had simply the cut ends of the arborizations represented, and in the latter the nuclei of the intermediate cells.

Prior to the investigation of the path of hearing by the newer methods, especially the Golgi method, we had no really clear notion of the nature of the auditory centres, but from Figures 22 and 23 it can be seen that these are really centres corresponding to the primary centres of vision ;

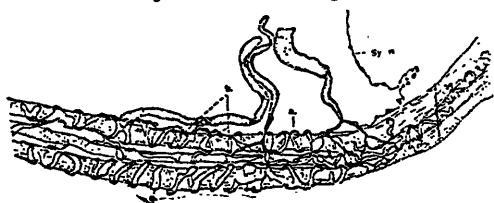


FIG. 17. Muscle spindle in intrinsic plantar muscles of a dog showing how the axis cylinder spreads among the muscle fibres forming by its modifications the essential part of a muscle spindle; sy. n., sympathetic vaso motor nerve.

in fact that, just as the neurones terminate in the case of vision chiefly in the anterior quadrigemum, so in the case of hearing do they terminate in the posterior corpus quadrigemum. And the fact that these two sensory processes are brought into anatomical relationship in

neighbouring nuclei, and indeed the same nucleus enables us to understand how an auditory impulse may give rise to a visual phenomenon, as a movement of the eyes, often to be noticed when we unexpectedly hear a loud sound. In the case of hearing the body of the first neurone is really in the cochlear nucleus of the ear and its axones constitute the auditory nerve which is now known to be in reality anatomically and physiologically distinct from the vestibular nerve. All the essential facts of the physiology of the senses can at the present time be given an anatomical basis which makes the whole at once broader, truer and in every way more satisfactory.

To apply the technique of the Weigert-Pal method one finds that such a result as that shown in Figure 21 makes a subject clear

FIG. 18. Diagrammatic representation of the olfactory nervous mechanism of the mammal. A, olfactory lobe; B, olfactory bulb; C, cartilage of the cribriform plate; D, nasal mucosa: a, supporting cell; b, peripheral olfactory neurone; c, arborization of the olfactory neurone in the glomerulus of the olfactory bulb; d, small nerve cell; e, mitral cell; h, "granule"; g, large stellate cell with short axone; j, arborization of axones of central origin (after Ramón y Cajal).

which has been a great bug-bear to medical students who endeavour to understand the *fillet*. In this illustration of a cross section of the first part of the posterior region of the bulb, one sees, not the motor decussation which is much better understood, but the *sensory decussation* or

decussation of the fillet, which is somewhat superior and anterior to the other. It may be noted that fibres are proceeding from the nuclei of Goll and Burdach and crossing to pass forward to constitute the fillet; in other words, we have here represented the secondary neurones of the sensory tract which began in the nuclei above mentioned and around the

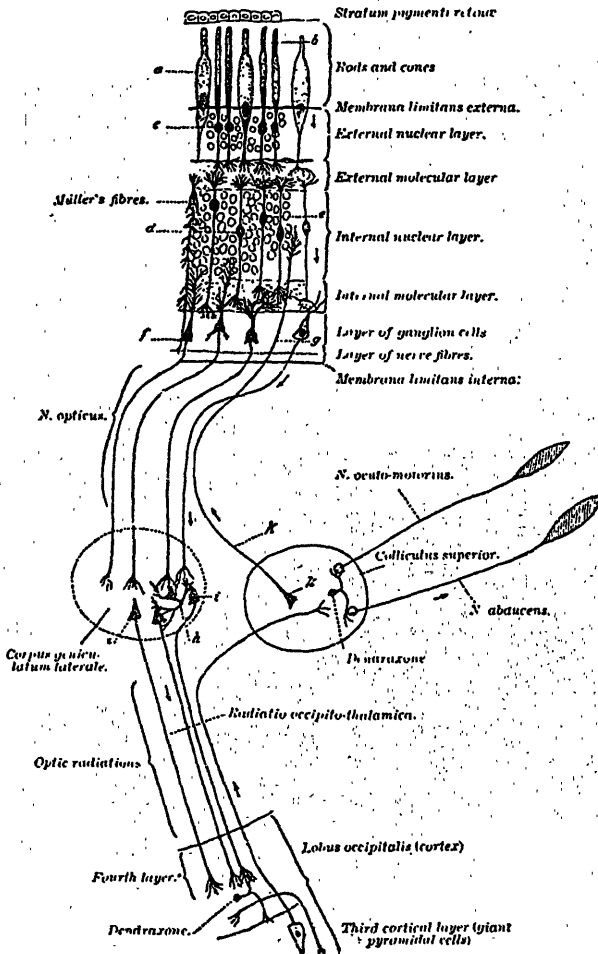


FIG. 19. Schema of the visual conducting paths (after C. von Monakow). The arrows in the figure indicate the direction of the nervous impulses.

cell-bodies of which the axones of the posterior column of the cord arborise. By the Weigert-Pal method all medullated axones are stained dark, hence the decussation is well brought out in the illustration under consideration. It must follow then that the fillet carries on the sensory impulses which reach it by the first afferent neurone.



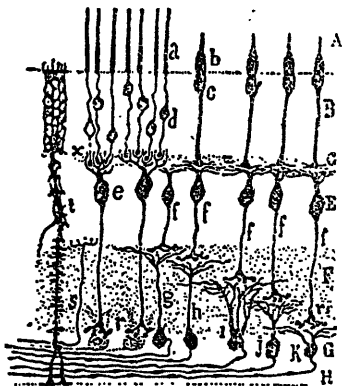


FIG. 20. Schematic representation of the structure of the retina (after Ramón y Cajal). A, layer of rods and cones; B, bodies of visual cells (external nuclear layer); C, external plexiform layer; E, layer of bipolar cells (internal nuclear layer); F, internal plexiform layer; G, layer of ganglion cells; H, layer of nerve fibres. a, rods; b, cones; e and f, bipolar cells; r, lower branches of bipolar cells; g, h, i, k, ganglion cells branching in different layers of the internal plexiform zone; x, contact between rods of the bipolar cells; z, contact between cones of the bipolar cells; t, Müller's cells; s, centrifugal nerve fibre.

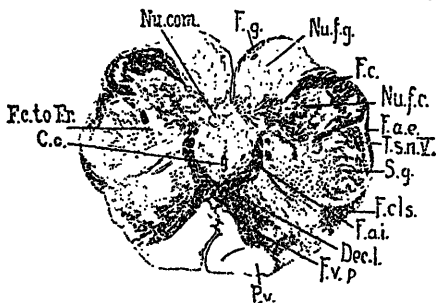


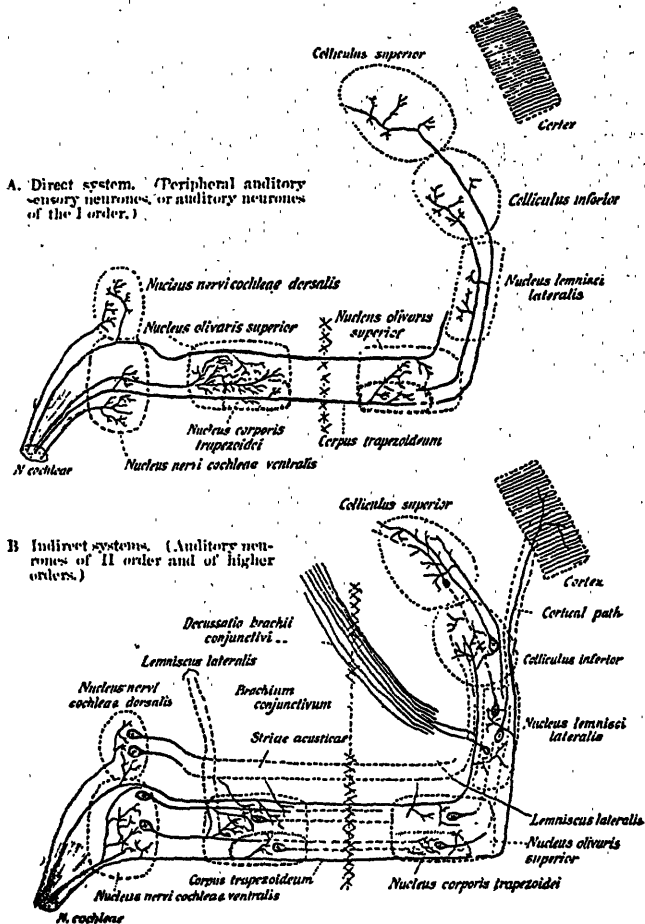
FIG. 21. Transverse section through bulb (medulla oblongata) of new horn child at level of decussation of fillet (lemniscus). C. c., central canal; dec. l., decussation of lemniscus; F. a. i., internal arcuate fibres; F. a. e., external arcuate fibres; F. c., cuneate fasciculus of Burdach; F. c. t. F. r., fibres from cuneate fasciculus to reticulate formation; F. cl., direct cerebellar tract; F. g., fasciculus gracilis of Goll; F. v. p., ventralis proprius; Nu. com., commissural nucleus; Nu. f. c., cuneate and gracile bundles; Nu. f. g., nucleus of the gracile funiculus; Py., pyramid; T. s. n. N., the spinal tract of the trigeminal nerve; S. g., substantia gelatinosa (Barker and Hewetson, the Weigert-Pal method).

We may learn from a comparison of Figures 24 and 25 how great an advance is the Golgi method upon that of staining with ordinary dyes. Figure 24 represents well enough the bodies of the neurones of the cerebral cortex and their arrangement in layers; but little is learned of that complexity which really exists as indicated in Figure 25, which is a somewhat diagrammatic representation of the results of the application of the Golgi method.

All investigators do not believe in the neurone concept as stated originally by Waldeyer. On the contrary, some, especially Bethe, Apathy, Held, and others, subscribe to the doctrine of concrescence as opposed to that of mere contact. This doctrine is, in the opinion of Held, from whose writings I have taken several illustrations, warranted by the facts of the case as shown in Figures 26, 27, 28, which are themselves further explained by Figures 29 and 30.

To begin with Figure 29 we have here an explanation, in the opinion of Held and others, of the *gemmules* to be found on the dendrites and shown, not only in this illustration, but also in Figure 3. This author, with many others, believes that the *gemmules* are the result of the imperfect staining of the connections with one set of dendrites by the processes, it may be, of others or of axones. In both Figures 29 and 30 we seem to have authorization for this explanation. Held and some other investigators are of opinion that the *net-works*, shown to a greater or less extent in all

the above illustrations, not only surround the cell body, but actually penetrate it. If we acknowledge that these are natural and not *artifacts*, the result of our technical methods of treatment, there seems to be no escape from this conclusion; moreover, Bethe and Apáthy think that conduction in the nervous system is through *neuro-fibrils* which are in



FIGS. 22 and 23. Diagrammatic representation of the arrangement of the axones of the cochlear nerve, etc., in the central nervous system, etc. (after H. Held).

so far independent of the bodies of the axones that even reflex action can be brought about independently of the ganglion cell-bodies.

It would probably be premature to adopt this conclusion, nevertheless, one must admit that the neurone concept in its original form can scarcely be accepted as expressing the whole truth at the present time. But even though this be true, the conquests won through these methods and for-

mulated by this doctrine are none the less real and admirable. A "neurone" is to-day to those who thoroughly understand the nervous system in the light of this concept, an altogether different thing from the "nerve cell" of twenty years ago; and probably the ground thus gained will not be lost to future generations of investigators.

The psychological implications of the neurone doctrine constitute a large and tempting field. Reflexes alone with their related subjects of habit, instinct, etc., in fact the whole field of physiological psychology presents itself from new points of view. I have treated this topic to a

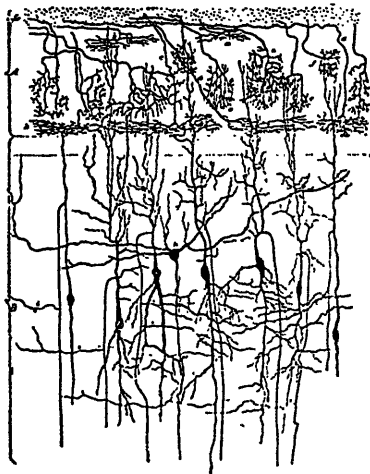


FIG. 23x. Section through the optic lobe of the chick (after A. Van Gehuchten). In the upper or outermost layer A are represented the terminations of the axones (optic nerve fibres) of the ganglionic cells of the retina; at B are to be seen neurones of the middle zone. The whole picture is that of a structure more elaborate than one expects to find in the spinal cord or bulb, in fact, suggests cortex from which one would infer that the optic lobe which is physiologically perhaps equivalent to the primary centres of vision in the mammals is also something more.

uses the most modern methods for microscopic examination of this part of an animal's structure. As we ascend the scale of animal life, it may be observed by the help of the Golgi and other methods that the neurones differ from one another not only in numbers but also in complexity; and in man the neurone is more complex, that is, has a larger number of processes than any other animal. From this one would suspect an infinitely greater amount of communication between neurones with a corresponding psychic

certain extent in an address of mine published in this JOURNAL in June, 1902, and I will not on this occasion refer further to these subjects. When one attempts to correlate the nervous system with the psychic manifestations of different forms in the animal kingdom, it cannot but be recognized as a most prominent fact that mental development has evolved, *pari passu*, with the nervous system. This, it is true, is obvious from an examination of the nervous system without the help of the microscope at all, but it becomes a very impressive fact when one

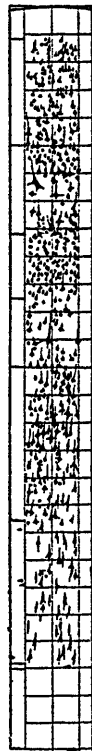


FIG. 24. Shows the neurone cell-bodies more particularly in the cortex of the superior temporal convolution, as brought out by staining with ordinary dyes (after C. Hammerberg).

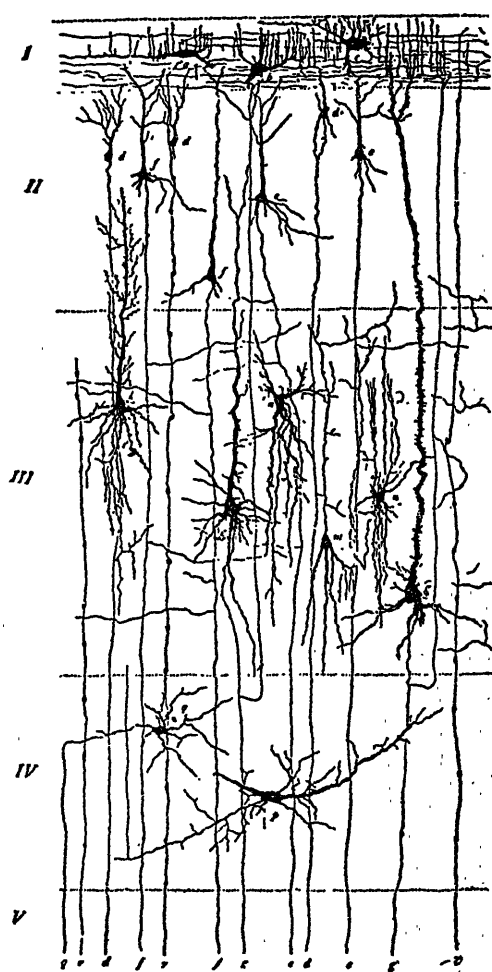


FIG. 25. Diagram of the cells of the cerebral cortex as brought out by the Golgi method (after Starr, Strong, Leaming). I. Superficial layer; a, fusiform; b, triangular; c, polygonal cells of Cajal; II. Layer of small pyramidal cells; d, smallest; e, small; f, medium sized pyramids with axones passing down into the white matter and giving off collaterals in their course; III. Layer of large pyramidal cells; g, largest or giant pyramids; k, large pyramidal cells with abundance of dendrites; all the pyramidal cells send long dendrites up to I.; m, Martinotti cell with descending dendrites and ascending axone; n, polygonal cells; IV. Deep layer; p, fusiform cell; q, polygonal cells; V. The white matter containing the axones from the pyramidal cells d. e. f. g., and from the cell of the deep layer q; r, neuroglia fibres.

advancement. The idiot is an individual who, looked at from this point of view, lacks a large proportion of those neurones which are of the highest importance to man, namely, those of the cerebral cortex. Hence we find that his psychic life is shrunk or rather has never properly developed; while in the insane there is often both shrinkage and actual alteration or disappearance of both the cell-body and its processes. It is probable, although this lacks demonstrative proof, that the greatest intellects have been the possession of those with, if not the greatest number, at all events the most perfectly developed neurones.

Possibly no principle has played a greater part in the most modern explanations of psychological processes, including memory itself, than the *law of association*. Now, a mere glance at the illustrations of this paper will suggest how much more completely we are acquainted at the present day with the physiological basis for all such explanations than at any former period. One can understand both localisation and correla-

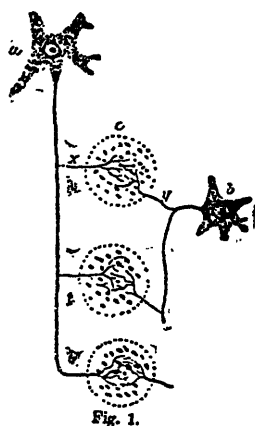


Fig. 1.

FIG. 26. A diagrammatic representation according to Held of the manner in which two neurones, a. b., communicate with one another by axones, their collaterals and the arborizations of both (after H. Held).

to the discovery and application of special technical procedures; particularly of new methods of staining, which not only bring out the form and structure of the cell-body but also

tion; and the whole truth about the brain or intellect cannot be told by one or by the other alone but only by interpreting the one through the other. Localisation in the extremely narrow sense of a former period cannot any longer be held, and in the most extreme psychic specialization it is likely that several parts at least of the brain are concerned. But this field is so large that I can only throw out a few suggestions on an occasion like this.

### SUMMARY.

The great advance within the past two decades in the knowledge of the minute structure of the nervous system is due chiefly

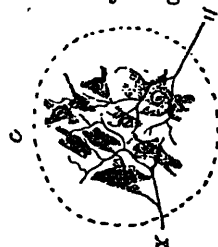


FIG. 27. A representation of an axone terminating by free branches among the cell-bodies (after H. Held).

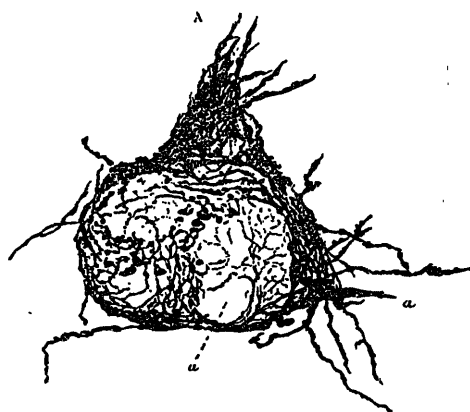


FIG. 28. A, B and C. Pericellular net-works considered by Held to be formed by the terminations of axones. Preparations from a cat twenty days old by the Golgi method (after H. Held). A cell with net-work from the cochlear nucleus. In this case the net-work surrounds the entire cell and also a dendrite passing upwards. The fibre a. corresponds to one of the thickened fibres of the cochlear nerve; B, part of the net-work around the cell in Deiter's division of the vestibular nucleus; the thickenings in the net-work may correspond to aggregations of neurosomes, a. b. c., d. e. f. axones which help to form the net-work. C, part of the net-work around a cell of the ventricular cochlear nucleus; the anastomoses of the coarser subdivisions of the fibres, a. b., and the larger swellings of the threads are specially well shown.

reveal the various processes or extensions of the cell in such a way as to show that the nerve unit is complex to a degree till lately scarcely suspected; and that there is all that variety and individuality in nerve cells which one should expect to find in the nervous system with its numerous and complicated functions.



FIG. 29. Represents a cell stained by the Golgi method and viewed with a high power (after H. Held). The finer branchings of probably the axones of other neurones may be seen uniting with the cell body and dendrites of the main neurone. It may also be inferred according to Held from this figure, that by the Golgi method there is at the best only a partial staining of the entire mass of fine branches in connection with any particular neurone, which would explain the so-called gemmules or thorns so frequently seen on the dendrites of neurones and especially those of the cerebral cortex.

for some purposes, as a double staining by Held, and which has brought into view the Nissl or tigroid bodies which have proved so useful a guide to the knowledge of the physiological condition of the cell, and by the help of which "primary degeneration" was discovered.



FIG. 30. Shows the terminal branches ending on the cell-bodies and dendrites and helping to form a complicated net-work such as that shown in Fig. 28 (after H. Held).

The principal new methods are :

1. The-chrome-osmic-silver method of Golgi, perhaps most extensively and fruitfully applied by Ramón y Cajal, which stains all the main parts of the cell a dense black and is more useful possibly than any other in bringing the nerve processes into bold relief.

2. The *intra vitam* methylene blue method of Ehrlich which has proved itself particularly useful in determining the forms of the nerve endings of the periphery.

3. The Nissl method of staining with methylene blue, successfully modified

4. The Weigert-Pal method of hæmatoxylin staining, by which after fixation and hardening with bichromate of potassium, the cell-bodies and their myelinated processes or axones are marked off from each other, the latter staining a blue black while the bodies of the cells appear of a yellowish tinge. By this method Flechsig determined that in the developing animal certain groups of neurones in the nervous centres become me-

dullated at about the same time and that these are physiologically equivalent and so constitute "nerve tracts". The method is also applicable to marking out degenerations in a negative way when these processes are so complete that the whole of the myelin has disappeared, there being no staining of axones or nerve fibres in such regions.

5. The Marchi method is the most useful known to demonstrate degenerative processes of the neurones when these have not gone too far, because by the application of osmic acid to specimens hardened in bichromate of potassium or chromic acid, the myelin sheath now reduced to fat is stained black.

In consequence of the discoveries in minute anatomy rendered possible by these various methods, all departments of neurology in the broadest sense have been advanced; physiology, pathology and psychology, have taken on a more or less new form.

In consequence of the results of the researches of such investigators as Bethe, Apáthy, Held, and many others, the Neurone Concept or Doctrine, as formulated by Waldeyer in 1891, must, in all probability, be modified; i. e. the doctrine of concrescence must be admitted at least to some extent.

The Neurone Concept in its original form has put most if not all the facts of the nervous system already known on a more reliable anatomical foundation; enabled the teacher of every department when dealing with the nervous system, the better to explain its processes whether physiological, pathological or psychological. And so far as can be seen at present these advantages, which are of the highest pedagogical importance at all events, are not likely to be seriously diminished by any modifications in the Neurone Concept that the future is likely to bring forth; though, bearing in mind the revolutions in thought that have been wrought in the past in consequence of new discoveries, one must speak with caution and modesty. It may be truthfully said that the Neurone Concept has done for neurology what the doctrine of organic evolution did for biology generally—it has completely changed the point of view.

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## ATROPHIC SCIRRHUS OF ONE MAMMARY GLAND ASSOCIATED WITH PAGET'S DISEASE OF THE NIPPLE ON THE OPPOSITE SIDE.

BY

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Surgeon to the Montreal General Hospital; Assistant Professor of Surgery,  
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The following case has appealed to me as being worth reporting because of the co-existence of a benign and a malignant condition in the breasts of the same patient, and the undoubted evidence it fur-



FIG. 1. Scirrhus Carcinoma of left breast : Paget's disease of right nipple. M. G. II. Series, 1902, No. 556.





FIG. II. Scirrhus Carcinoma of left breast : Paget's disease of right nipple. M. G. H. Series, 1902, No. 556.

nishes of long continued irritation and inflammation as an etiological factor in these conditions.

Mrs. M. W., aet. 41, married at age of twenty-four, seven children, last one born prematurely nine months before admission to the hospital, and died at age of four months. Patient had been subject to bronchitis, otherwise healthy save for breast troubles during periods of lactation, when she always had sore nipples and acute mastitis. Left nipple had always been retracted and she has never been able to nurse with it. The right nipple invariably became cracked and bled during lactation, in spite of which she always nursed her children from this breast.

Present trouble in the left breast was referred by the patient to two years before admission to the hospital, when she began to have a dragging pain in her breast, and noticed a dimpling of the skin over a small tumour near the nipple. This condition remained stationary until six weeks after the birth of her last child, when suppuration occurred, and an abscess ruptured above the left nipple, leaving an angry red scar, overlying a hard lump in the breast tissue. Pain was present only on severe over-exertion. Only in the last few weeks prior to admission did the patient notice any enlargement in the axilla. There had been no appreciable loss of weight or strength.

During last lactation a small abscess appeared in close relation to the right nipple, which as usual became cracked and bled easily, leaving a hard rough area close to the nipple.

There was a family history of tuberculosis; her mother and one brother had died from pulmonary tuberculosis; none of cancer.

Condition on admission, May 21, 1902 :—Just above the left nipple was a red angry ulcer, with scab and dried up secretion, in mid-clavicular line, the size of a twenty-five cent piece, with red edges (Fig. 1), and beneath it was a hard tumour, the size of a small egg, firmly adherent to the skin, but movable on the deeper structures. It was about one and a half to two inches in diameter and was in the upper and outer quadrant chiefly. It was not painful or very tender. Below the nipple two other small isolated masses were to be felt, one tender on pressure. The skin over the centre of the tumour was retracted. The axillary chain of glands beneath the pectoral border were markedly enlarged, and a mass could be distinctly felt there. The deeper axillary glands could not be palpated. It was a typical clinical picture of the atrophic form of scirrhous of the mammary gland.

The right nipple was larger than normal, of very firm consistency, showing slight hypertrophy of papillæ; the surrounding skin was

thickened and infiltrated to the touch. There was no tumour to be felt in the breast itself, nor any evidence of enlarged axillary glands. The diagnosis of schirrus of left breast and Paget's disease of nipple on the right side was made, and on May 26th, 1902, the patient was operated upon under ether anæsthesia. Both breasts were amputated, and the glands in the left axilla dissected out. The pathological report was: "right nipple densely fibroid; left breast shows schirrus cancer with glandular axillary metastases; a confirmation of the clinical diagnosis."

At the operation for the left breast, a racket-shaped incision was made, the handle extending beneath the anterior axillary fold to the axilla, and this was first opened and all axillary glands removed and dissection carried out towards breast. Consequently all vessels were tied near their origin, lessening the number of ligatures required, and enabling me to remove the chain of glands and breast *en masse* without rupturing the lymphatics, and so making it impossible to disseminate infective material over the operative area. The incision was sutured without drainage.

We next turned our attention to the other breast, which required to be excised, but without the necessity of opening the axilla. As the patient was a very spare woman, and we had already sacrificed considerable tissue in getting wide of the trouble in the left side, we had to plan the incision here to allow us to get sufficient flaps to admit of closure of the wound. This we got by making a transverse elliptical incision, thus removing the diseased nipple and the entire mammary gland, and enabling us to approximate the flaps from above and below (Fig. 2).

Dry dressings were applied to both sides and the arms folded across the chest and bandaged there to prevent any tension on the suture lines, and to act as splints at the same time. Patient was allowed up on second day, hand and fore arms massaged daily, sutures removed tenth day, and she was discharged June 14th (nineteenth day) with perfect union of flaps. So far (October, 1903), there has been no recurrence on either side.

Here we have the long continued and frequently recurring attacks of mastitis in the left breast producing a local irritation which we so often find preceding cancerous degeneration, and, to a lesser extent, the same causes in the right nipple, producing a chronic fibroid change, which of itself is suggestive of degenerative processes. The left breast and axilla showed nothing we are not quite familiar with, though we

seldom get such a clear history of frequent attacks of mastitis as an etiological factor.

The right nipple undoubtedly owed its pathological condition, in part at least, to over-use; and the history of slight ulceration, cracking, watery discharge, and the condition of thickening and hypertrophy of papillæ with the brown discolouration and scaly feel that were present, enabled us to make the diagnosis of Paget's disease of the nipple.

The sequence of cancer on Paget's disease of the nipple has been frequently demonstrated since this author first drew attention to it by the report of fifteen cases. All of these within a year or two developed carcinoma. The chronicity of the disease is referred to by many authors, and Morris reports a case in which it was six years before carcinoma supervened. Duhring reports another lasting ten years, and Jamieson one of twenty years' duration.<sup>1</sup> The undoubted development of cancer, sooner or later, calls for the total removal of the breast in which this condition of the nipple persists. In the American Text Book of Surgery, twenty-four out of thirty-five cases of Paget's disease are cited as having become malignant, and this is probably an underestimate.

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## AN OPERATION FOR THE RADICAL CURE OF UMBILICAL AND MEDIAN VENTRAL HERNIA.

BY

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The ordinary operation for the cure of large umbilical and median ventral hernias was so unsatisfactory, in that it gave such a large percentage of relapses, that it was with much interest I saw practised some three years ago, in Dr. Weir's Clinic at the Roosevelt Hospital, New York, what was, to me, a new method of treating these hernias. To Mr. W. J. Mayo is due the credit of being the originator of this operation, which he first described in the *Annals of Surgery* for August, 1901; but I find no mention of the operation in any of the later surgical text books. I, therefore, thought it would be of interest to some of the members of this society to briefly describe the operation, and tell the results of my own experience of it.

A vertical<sup>2</sup> incision, linear or elliptical, depending upon the

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Read before the Montreal Medico-Chirurgical Society, Nov. 6th, 1903.

<sup>1</sup> Diseases of the Skin, Crocker.

<sup>2</sup> Mayo's incision was transverse.

redundancy of tissue, is made over the hernial protrusion, and great care will often be necessary in cutting down, not to wound the contents of the sac, so thin often are the walls. The sac is then dealt with in the usual manner, and in large ventral hernias it is preferably reduced *en masse*, unless operation is done for some inflammatory affection. Having returned the abdominal contents, and closed the peritoneum, should it be necessary to open it, the operator next directs his attention to closing the opening between the two recti abdominalis muscles, which have become separated to such an extent as to permit the hernial protrusion. The old method was to suture together the aponeurosis of these muscles, and thus try to restore the linea alba. This was just where the operation failed. You only replaced the linea alba, which had already given way, by a line of scar tissue, which readily yielded to pressure again, with a resulting relapse of the condition, necessitating wearing a truss—no true cure.

The operation I bring to your notice to-night aims at filling in the hernial opening with firm *muscular* tissue, thereby preventing relapse, and leaving a strong anterior abdominal wall. This is effected by opening the sheaths of both recti muscles at their inner edges from a point well above the hernial opening to another point well below it. The muscles are then thoroughly separated from their sheaths opposite this area, a proceeding attended often by troublesome hæmorrhage. The muscles are then held up by retractors, the posterior aponeurosis is next brought together in the median line. Mattress sutures of heavy (preferably chromicised) cat-gut, are passed up through the *internal* median border of one rectus muscle, and the free ends then passed up through the other muscle near its *external* border. When these sutures are pulled upon, it will be seen that the first muscle will be pulled over under its fellow, and there it is kept by tying the sutures. Two to four of these sutures will be required, depending on the size of the hernia. A few interrupted sutures of the same material fastens down the free edge of the upper muscle to the body of its underlying fellow. Thus the one rectus muscle will be super-imposed upon its fellow over the old hernial orifice, and, if all hæmorrhage is carefully checked, these raw surfaces will unite, and the firm, muscular pad thus formed will prevent any future hernia.

The operation is completed by uniting the anterior aponeurosis in the median line by a running suture of cat-gut, and closing the cutaneous opening with silk-worm gut sutures. A firm pad, retained over the wound by strapping, with an abdominal binder to give support in case of post-anaesthetic vomiting, completes the dressing. The after treatment is the same as for other operations for radical cure of hernia, and the patient, I hold, should in no case be allowed to use

the muscles concerned before three weeks, at least. No form of truss should be allowed, as pressure is bad in these cases, but an ordinary flannel or elastic abdominal binder or better still, one of linen mesh, should be worn for the first month or two after the patient is going about. One would expect that there would be some loss of function in, or painful action of, the recti abdominalis muscles after the operation, but I have so far failed to find such a condition in the few cases I have operated upon.

I have performed the operation upon four patients—all women,—three of them in the summer of 1902 (Nos. 546, 729 and 1122 Montreal General Hospital Reports), and one I did in a private hospital this autumn for a confrère in this city. Two of the cases were purely umbilical hernia, of large size; in one there was strangulation with infection of the sac, necessitating immediate operation, and in the other, I could not reduce the adherent omentum and had to remove it. The others were more ventral, one especially extending from well up in the epigastric fossa down below the umbilicus. All the hernias had lasted for years—one followed a laparotomy for some gynecological operation, and a previous attempt at cure had resulted in a relapse, with strangulation. The ages of the patients varied from thirty years to fifty-six years. I have kept track of all of them since operation, and, so far, there has not been the slightest evidence of recurrence, and the functional result has been all that could be desired. Especially can one feel the firm muscular ridge left in the median line by the union of the two recti muscles. In all the operations there was considerable shock, but in none did I have any septic or other troublesome symptoms after the first twelve hours.

#### SYNOPSIS OF REPORTS OF THE CASES.

##### I.—No. 546, *Surgical Reports, 1902, M. G. H.*

Mrs. R. P., age 56, house-wife, mother of eight children, admitted to ward "K" May 20th, 1902, complaining of varicose veins of left leg. A large umbilical hernia was found on examining her, which she says first appeared 14 years ago, at the birth of her last child, and has been gradually increasing in size. It is not reducible, though it has never given symptoms of strangulation. The abdomen is fatty and pendulous, and the note over the hernial protrusion is dull with patient recumbent, but becomes tympanitic when she stands up, and the coils of bowel in it could then easily be palpated.

The varicose condition in the left leg was first treated by excision of the affected veins, and ten days after the first operation, which had resulted very favourably, the umbilical hernia was operated upon after the method mentioned above. The sac had to be opened, as the con-

tents could not be returned through the neck, and it was found that the omentum was adherent to the sac wall. After ligaturing the omentum and returning the free end into the abdominal cavity, the sac with the adherent omentum was excised, and the peritoneal opening closed with cat-gut sutures. The operation was then finished as described above. Recovery was without incident, and when she left the hospital one month after admission, there was a thick muscular pad at the site of the former umbilical hernia.

II.—No. 727, *Surgical Reports, 1902, M. G. H.*

Mrs. M. P., age 33, charwoman, the mother of eight children, having twice had twin pregnancies, was admitted to hospital on June 30th, 1902, complaining of umbilical hernia. About two years previously, after giving birth to twins, she noticed a swelling at the umbilicus about the size of a large orange. It gave no special trouble until five months before admission, when she had another baby, after which the tumour increased in size, and it pained her on standing or lifting, and especially on jumping down from a step. After eating, during past week, she notices a distressed feeling at the site of tumour, associated with nausea, vomiting and anorexia. Rest in bed in hospital, with fluid diet, caused a marked diminution in the size of the tumour. Examination showed a complete separation of the two recti muscles, along the median line, from near the ensiform cartilage to near the pubic symphysis. At the umbilical region this separation amounted to  $1\frac{3}{4}$  inches, and through the opening at this point a definite hernial tumour, the size of a large orange protruded, and became pendulous when the woman stood up or strained. There was impulse on coughing, and percussion over the tumour gave a tympanitic note. Here we had a median ventral hernia extending down between the two recti muscles, with a marked protrusion at the umbilicus. At operation two elliptical incisions were made, extending nearly the whole length of the recti muscles and enclosing all the skin in the pouching area between the separated muscles. The peritoneal cavity was accidentally opened at the umbilicus, but for the most part the protruding peritoneum was allowed to drop back and the operation completed in the usual way. She left the hospital on the 25th day after admission with a good result, and has remained well since, continuing her former arduous occupation.

III.—No. 1122, *Surgical Reports, 1902, M. G. H.*

Mrs. L. R., age 50, was admitted September 23, 1902, with symptoms of partial strangulation in an umbilical hernia. She was the mother of two children, and had noticed the hernia for the past 10 years, seven years after birth of last child. On several previous occasions she has

had symptoms of strangulation, but they always passed off upon reduction of the hernia. For the past year she wore a truss, but it had failed to always retain it. The present attack of strangulation began the day before admission, and as it did not yield to the usual remedies, and vomiting and pain were becoming incessant, patient was sent into the hospital from her home in the Eastern Townships. The bowels had moved slightly on day of admission.

Operation done by removing skin covering tumour by a vertical elliptical incision. On opening sac, the contents were found to be omental, which was gangrenous, and sac wall was, of course, also infected. All the infected tissue was removed, and the peritoneal opening closed without drainage. The recti muscles were then plicated so as to cover up hernial opening, and the wound closed as in the other cases. In this case, as was to be expected, there was fever ( $101^{\circ}$  to  $102^{\circ}$ ) for the first two days after operation, but this subsided nicely, and patient made a good recovery, and left for home within the month. She still remains well, with no tendency to hernial trouble.

IV.—A private patient upon whom I operated for Dr. C. H. Church, Montreal, at the Glengarry private hospital here. The case was one of post-operative ventral hernia which had already been operated upon. I subjoin Dr. Church's report of this case, which he was good enough to furnish me for this article, he having carried out the entire after-treatment of his patient.

A. M. W., aet 38, female, unmarried. Patient is large and fleshy with pendulous abdomen, weighs 190 pounds. Always enjoyed good health until 1893, when she had both ovaries and tubes removed, by usual median incision, for a tumour of unknown nature. Within one year following this operation a hernia developed, which in three years had reached the size of an infant's head.

In 1898, an attempt at a radical cure was made, resulting in only a temporary cure, the hernia reappearing two years later. In 1892, the hernia had again increased to a very large size, necessitating the constant use of a truss day and night, in order to keep the hernia from appearing, which, however, in the erect posture never was sufficient to retain it. In February, 1903, and again in September, strangulation took place and was only relieved with great difficulty. Operation advised for radical cure on September 16th. Operation on 18th. Stitches removed on the 29th, a normal temperature intervening after first day following operation. Patient up and about in five weeks.

The patient made an uninterrupted recovery after operation, suffering very little pain at any time. When the first dressing was done, ten days after operation, a distinct padding could be easily felt, along



the line of incision, and extending outward for half an inch on either side, this prominence is quite perceptible at the present time, though to a less degree. Since getting up, patient has worn a light abdominal support of linen mesh.

If one may be permitted to judge, from an external abdominal examination of the lower abdominal area, at the present time, there would appear to be a strong, muscular union between the opposing surfaces of the recti muscles, extending from the umbilicus to the symphysis pubes, resulting in a strong barrier to any attempt at a return of a hernia in this area.

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### COMPLETE ABSENCE OF THE LEFT FIBULA ASSOCIATED WITH DEFORMED FEMUR.

BY

A. E. GARROW, M.D.

While partial or complete absence of the fibula associated or not with other deformities or defects is not of rare occurrence, nevertheless, the number of cases coming under the observation of any one surgeon is comparatively small. Complete absence of the fibula is very much more common than partial, in the latter the upper middle or lower segment of bone may be wanting.

In most of the cases recorded, there is associated with the absent fibula alterations in the shape of the tibia, viz.: a sharp bending usually forward, at the junction of the middle and lower thirds, and over the prominent angle a more or less well marked "scar-like" depression.

Kirnisson refers to coexistent tarsal and phalangeal deformities and defects, several tarsal bones being united into one bony mass, lack of one or more toes with their corresponding metatarsal bones. Obliquity of the lower articular surface of the tibia favoring dislocation of the ankle outwards seems to be common.

Very little seems to be known about the causation of this condition. Cotton and Chute, in criticizing the various theories advanced, are inclined to agree with Kirnisson, Hoffa and Walsham, who accept Dareste's view published in 1882, viz.: "That the origin of the typical deformity would be as follows: Between the fifth and eighth week, pressure of a too tightly fitting amnion interferes with the development of the exposed fibula and the outer toe or toes of the exposed foot. Lack of space determines the bend of the growing tibia; the adhesion which produces the so-called scar is a result of contact and adhesion of the most salient points of the tibia with the enveloping wall. The

FIG. II.

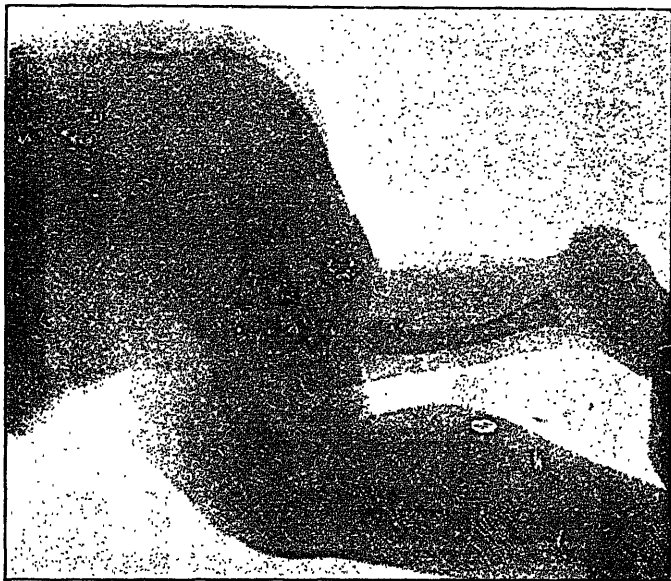
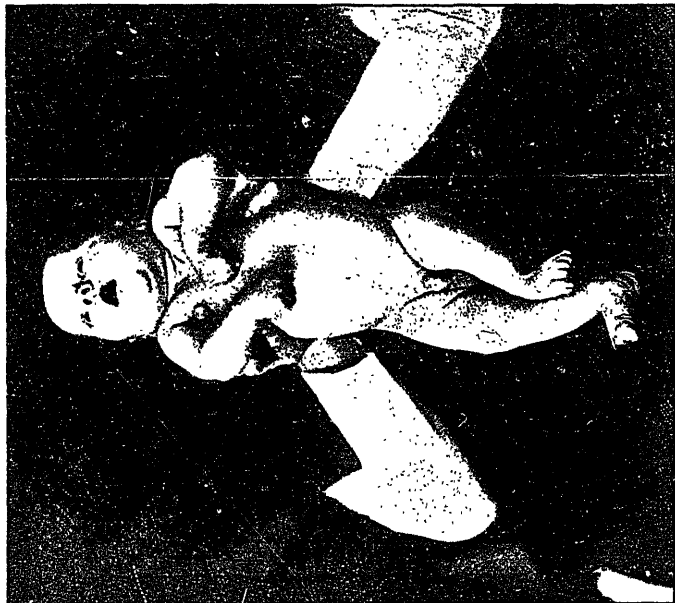


FIG. I.



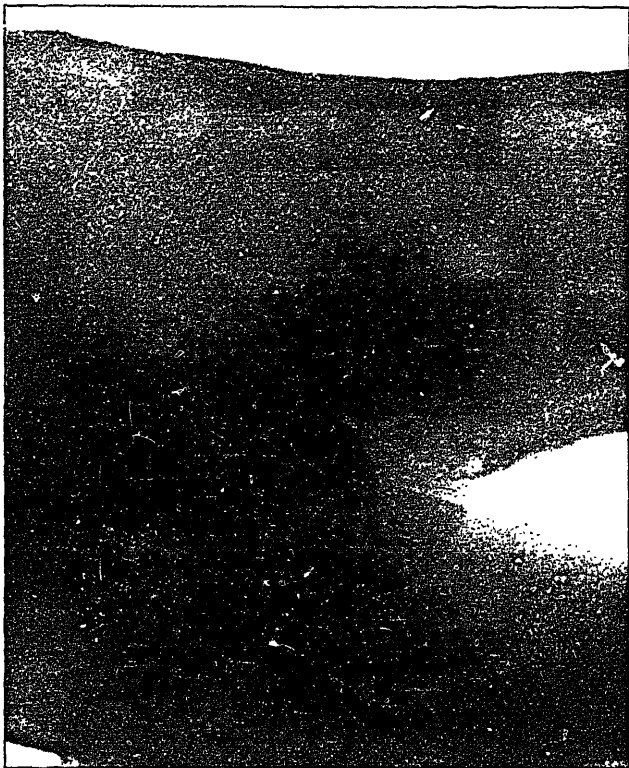


FIG. IV.

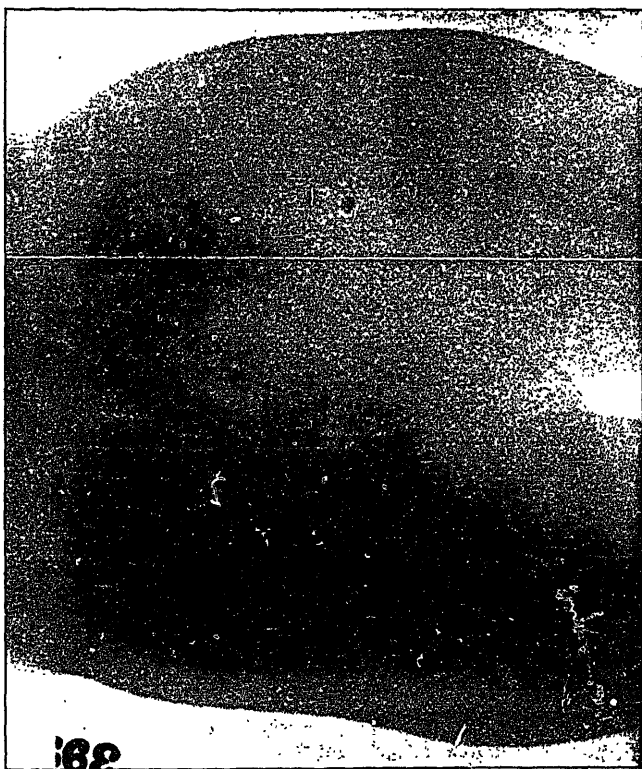


FIG. III.

persistent lack of growth of the whole limb is probably a result of deficiency in vessels and nerves due to the early pressure, as well as of disuse."

Handek, in 1896, showed by microscopical examination of the so-called scar—that no scar really existed, but only such fibrous and atrophic changes as might arise from pressure.

This child, 3 weeks old, whose photograph and skiagraphs I show, was referred to me by Dr. Berthiaume, of St. Jérôme. The deformity was recognized at birth. The left limb is shorter and somewhat less developed than the right. The thigh is held flexed and abducted, abduction and extension are much limited, the left patella is smaller than the right; the leg is held in a somewhat abducted position as in genu valgum. The thigh is much shortened, and the femur is markedly bowed forward, as can be seen in the large skiagraph (not reproduced here). Examination readily reveals absence of the fibula, with the foot abducted and everted—there is no evidence of bowing of the tibia nor of any scar on the skin. The toes are intact, well formed, not webbed—nor can any tarsal deformity be recognized either on examination or from the skiagraphs.

The muscles are as well developed proportionately in the left as in the right limb, otherwise the child is healthy and strong, being the fifth in the family; all the other children are strong, well developed and normal.

## CASE OF CONGENITAL DISLOCATION REDUCED BY THE LORENZ METHOD.

### II.

This child, now seven years old, is one of a series of four cases which came under my care last year, short notes of which I have already presented at a recent meeting of the Canada Medical Association.

Reduction was effected by the so-called Lorenz method on October 26, 1902, the limb fixed in the abducted and everted position by means of a plaster of Paris spica, and the child allowed to walk about. At each change of dressing the abducted position was diminished, and at the same time a skiagraph was taken after the plaster had set, in order to determine the position of the head of the bone.

The last bandage was removed about the first of July, 1903, less than nine months from the time of reduction; the child walks as you can see with a very slight limp, movements at the hip joint are perfect and there is less than one centimetre of shortening.

An examination of the skiagraph taken before reduction shows the head of the bone lying well above the acetabulum, while the second

skiagraph, taken when the last bandage was applied, illustrates the abducted position maintained as well as the head of the femur lying in a comparatively deep acetabulum.

The improvement in the child's posture and gait is very satisfactory, no lordosis is present, and there is a complete absence of the lurch which characterized the walking.

I am inclined to attribute the satisfactory result of treatment to the following conditions: The age of the child, the poorly developed muscular condition, but above all, to the well developed acetabulum which existed prior to reduction, as can be seen from examining the skiagraph.

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## THE STUDY OF ANATOMY.

BY

CHARLES A. HEBBERT, M.R.C.P., LONDON,  
Professor of Anatomy, Bishop's College, Montreal.

### INTRODUCTORY LECTURE, 1903.

One of my teachers for whom I had a very great respect and esteem, wrote in the introduction to his first book, "that a time came in every man's life, when it was becoming to him to give the result and expression of his own experience and observation so far as in him lay," more especially to further in every possible way, the progress of his students, to encourage their efforts to succeed and to strengthen their energies to master the subject or subjects of their investigation. In such a spirit, help may be suggested by the description of one's own difficulties and failures in learning this most important branch of his medical training, the basis in fact of all his professional studies.

When I use the term profession, I say the most acceptable, the best accepted and proper phrase to indicate our position in the world, a term honoured by all nations as above the sordid consideration of greed. Never let your profession be degraded by such conditions as might be indicated in the conduct of a grocery or general utility-store, or other business conducted on so-called "business principles" dealing with mere personal advantages, inconsiderate of others' comfort, health or condition.

To return to our original subject, though much I may say will apply to other lines of the study of medicine I insist that a thorough knowledge of the frame and anatomy of the human body is *imperative*, before any future proceedings or interference are suggested or undertaken. You cannot too earnestly think what the value of this study may be to you, and it is in the after life of your career that you will learn to esteem, as of infinite importance, the time, often wearisome

and painful, sometimes almost beyond endurance, you have spent in the acquisition of your knowledge of anatomy. You must always be alive to the fact that your study of anatomy and its foster sister physiology, are only preparations for your aid to the sick and suffering and your knowledge of or the want of it, may be the cause of life or death to your patients. Never let this fact be absent from your minds, you are assuming the gravest responsibility, if you neglect this serious and important study. An eminent surgeon in England told me that busy as he was, he never failed to read some pages of his book on anatomy every day in his life, and he attributed much of his success to this daily re-collection.

In approaching the subject let me impress on you the value of the study of anatomy as an element, a great, important educational element, not only in this special branch, but in all your future life interests and work. When a traveller first visits a new country he uses all his senses and applies them to his own progress and advantage. That is, he observes, reasons on details and decides his further action. In fact he follows the processes of mind as laid before you in your works on logic and physiology. 1st perception or apprehension; 2nd comparison or reasoning; 3rd willing or decision. In your work do not forget that by these same simple processes you will most easily master, and when mastered, retain your details of the subject. Use your common sense and apply your comprehension of details as in ordinary life. By such means you will find the value of the study, still aiding in your life education, leading to trains of thought and ideas, at first you will think hardly conceivable; you will learn those essential conditions of scientific thought, accuracy of details, clearness in description, conciseness in expression.

All these factors in your education I repeat are of the highest importance, and I cannot too emphatically and earnestly insist on your deliberate consideration with regard to your teachers, or whatever title best or least befits their dignity, think of them as guides, who have tracked and passed over the trails you are invited to follow. They have, as all guides, found the way "o'er moor and fen, o'er crag and torrents," and encountered many obstacles and dangers. They are merely showing you what they have experienced and endured. Such faithful guides trust! and they will trust you. A faithful trust in a man who is believed to be loyal to work and endeavours, begets loyalty, honest and manly work in his pupils and disciples. It is by such genuine qualities that the greatest teachers and instructors of our art, have aided humanity's interest and well being: nihil dico amplius.

One of the first difficulties you have to meet with is the nomenclature, often vague, grotesque and at first sight apparently unmeaning, but it is founded on the work of centuries, the work of men who patiently and labouriously examined the body under conditions unknown and unappreciated in these times. Terms which they used and have handed down to us, are derived from the current language of science, Greek, Latin and their derivatives. Many names of illustrious observers and workers are used in the description of tissues and parts of the body, and we have to mention those names in our lectures, names though to be remembered and thought of by every earnest student. They are those who have simplified and illumined our work. Recall these names, Harvey, Vesalius, Scarpa, Paré, Colles, Quain and others, and we must acknowledge with all feelings of reverence and gratitude, the genius and carefulness of our great predecessors.

Other terms are used to denote the position of parts, these are sometimes direct derivatives of Greek or Latin and sometimes hybrid. These certainly present trouble to the tyro, but they have the authority of age and tradition and so must be respectfully learnt: I refer to such words as *Acromion ἄκρος ὤμος* the tip of the shoulder olecranon *ὠλενη κερας* contracted to *κρᾶς*, the elbow tip. All such troubles can be overcome by strenuous and constant labour.

The next obstacle will be the learning of the mechanism of joints and the bony framework. The longer we study the more we appreciate the wonderful and interesting arrangement of these parts of our body. You will learn the structure of the wrist and hand, showing how precision, dexterity and delicacy of movements are possible owing to the number, variety and arrangement of the articulations, how force is distributed and friction is minimized. You will learn how in other parts strength is effected and weight is maintained by the massiveness and thickness of the bones, as in the pelvis, and you will still further learn how such delicate, fragile structures as the brain and spinal cord are protected and supported with the least possible danger to their important function and action. Do not be discouraged if you find you do not readily recollect the facts of anatomy. It will come in time and remember "*Quum se colligat animus atque recreavit, tum agnoscit illa reminiscendo.*"

When you have collected the facts they remain. The brain never forgets!

Anatomy in its literal sense means the dissection of parts by cutting. *Ἀνατομή, τέμνω*. It is difficult to determine the date at which this science began to be cultivated, but it is probable from the earliest times some persons took advantage of favourable circumstances to acquaint themselves with it. The Druids, priests judges and physicians

executed victims as sacrifices, and no doubt availed themselves of the opportunities of acquiring some knowledge of anatomy.

Æsculapius dissected animals for the instruction of his students and his descendants, the Æsclepiades founded the schools in Cos, Rhodos and Cnidos. The Jews did not neglect anatomy, which they studied from the carefully prepared bones of their ancestors and their manipulation for embalming. But the first real progress was made by Erasistratus, born, 300 B.C., who obtained permission to dissect human bodies. Up to that time the work had been done on animals with a view to study the comparative anatomy of man.

Herophilus, whose name remains with us as a term in the skull ("Torcular Herophili"), was born in Carthage about the same time and was reported to have dissected living subjects in Alexandria. Parthenius, 200 B.C., published a book on the dissection of the human body. The next great name was Galen, A.D. 181 (*Venæ galeni*), who was the principal historian of the subject and to whom we are indebted for the knowledge of the works of the earliest observers from Æsculapius to his own time. Anatomy was now neglected for a long period, till in the reign of Frederick II., of Sicily, A.D. 1191-1250. This intelligent monarch made a law prohibiting the practice of surgery without a previous knowledge of anatomy. In the 16th century we have such names as Lacuna, Sylvius and the great Vesalius, who has been denominated the founder of human anatomy. After many troubles and persecutions on account of his advanced opinions and active investigations, he was recalled to Italy and succeeded his friend and former pupil Fallopius in the Chair of Anatomy at Padua. One of his achievements was the description of the sphenoid bone, and his name is curiously perpetuated by a minute foramen in the great wing. Is not this an irony? It reminds one of Hamlet's sarcastic remark:

"To what base uses we may return, Horatio!"

"Imperious Cæsar, dead and turned to clay,

"Might stop a hole to keep the wind away."

A contemporary of Vesalius was the eminent Eustachius.

In the 17th century progress was rapid. Harvey, in 1619, discovered the circulation of the blood. Shakespeare, who died in 1616, wrote in his play *Julius Cæsar*, as if it were a prophecy of this discovery: (*Brutus to his wife Portia*).

"You are my true and honourable wife,

As dear to me, as are the ruddy drops

That visit my sad heart."

The microscope was employed to detect the small vessels. The



lymph vessels were demonstrated by Aselli, and in the same period Wharton, Malpighi and Ruysch were distinguished by their work.

In the next century we have records from every nation in Europe, Italy still maintaining its preeminence, Pacchioni, Valsalva, Morgagni, Santorini, etc. In France, Winslow, Vicq d'Azyr, Bichat. In Germany, Haller and Meckel. In Great Britain, Hunter, Cruickshank, Monro, Sir Charles Bell. In Holland, Boerhave and Bohm. I only select a few representative names, but there are many others hardly less illustrious. These I mention, you will constantly hear of, and my object is to impress on you the work which has been accomplished in this science, through so long a period under such arduous circumstances, and to ask you to think what devoted labour and careful observation these mighty predecessors gave for the benefit of their posterity and to accept and revere them as noble examples, stimulating and encouraging your own studies and investigations. I will ask you to forgive me if I have been prolix. I have spoken as I have thought, and my experience as a student has dictated:

*“Neque vera laus ei detracta  
Oratione nostrâ, neque falsa  
Afficta esse videatur.”*

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The original communication, by Dr. Wesley Mills, Professor of Physiology in McGill University, upon the Neurone Concept, is a masterly exposition of that important doctrine in all its bearings. The facts have been brought together into a form easily accessible, and the subject has been sufficiently well illustrated to make it very clear. The fasciculus, in a separate cover, may be had from the publishers upon application.

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The thirty-third annual volume of the Montreal Medical Journal will begin with the issue for January, 1904. That number will contain four important papers published for the first time: Aneurism of the Abdominal Aorta [abstract], by Dr. William Osler; An Analysis of 486 cases of Pneumonia and 100 Autopsies, by Dr. John McCrae; The Ill-Health of Friederich Nietzsche, by Dr. George M. Gould, and Poisoning by Wood Alcohol, by Dr. Frank Buller. Dr. Osler's paper will be read before the Montreal Medico-Chirurgical Society on the 29th December, and will appear as an abstract.

# Montreal Medical Journal.

*A Monthly Record of the Progress of Medical and Surgical Sciences.*

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Remittances, advertisements or business communications are to be addressed to the Montreal Medical Journal Co., Box 273; all others to the Managing Editor, 216 Peel Street, Montreal.

VOL. XXXII.

DECEMBER, 1903.

No. 12.

## THE CURSE OF EVE.

It was a favourite view of Sir Thomas Browne—a name well known to all who have been in the habit of hearing Dr. Osler's addresses—that the stork only chose to inhabit those countries which were free. Strangely enough, in these days, it is to countries which are free—if freedom be indicated by a republican form of government—that this bird of good omen comes the least frequently.

Previous to the year 1840, in the United States, the increase in population by native reproduction was seven times greater than the growth of immigration, and both Washington and Jefferson estimated that in the year 1875 their country would contain eighty millions of native born Americans. As a matter of fact, according to the census of 1900, the numbers were not more than forty-two millions, the rest of the population being made up of immigrants, the children of immigrants, and negroes. Massachusetts, at the time of the census had, in its population of 2,805,346, as many as 843,324 persons of foreign birth.

The Massachusetts Bureau of Labor Statistics has compiled a more recent report on the nationalities of the people engaged in the industries of the state. It deals with industries and professions employing 1,079,000 persons, and of these 62.46 per cent. were not natives of the United States. Of the natives only 19.73 per cent. were born in Massachusetts; in New York, 76.6 per cent. of the citizens are aliens or children of aliens.

The Government statistician of New South Wales has issued an essay on statistics, which shows, according to the *Australasian Medical Gazette*, that whilst the population of the state has increased considerably in recent years, the proportion of childless marriages has increased out of all proportion, so that the birth-rate has fallen to 25 per 1000.

In France, during the past year, according to the returns of the Bureau of Vital Statistics, there were 25,988 more deaths than births, and 20,000 fewer births than during the previous year, while the increase in the number of deaths was 37,052. The record shows only 827,297 births for a population of more than 39,000,000, though there was a slight increase in the number of marriages, and a slight decrease in the number of divorces, which fell off from 7,179 to 7,157. In all the other European states the natural increase of the population is considerable, free France alone shows a diminution in numbers.

From this gloomy outlook one can turn with satisfaction to the condition of affairs in Montreal and in the Province of Quebec generally. In this city, during the year 1901, the birth rate per thousand of population was 32.44; last year it ran up to 38.65. Amongst French Canadians the rate was 43.56; amongst other Catholics, 22.41; and amongst Protestants, 23.75. Other and equally remarkable testimony to the fruitfulness of the French Canadian population is afforded by the Provincial Board of Health which obtained access to the records of the Société des Artisans Canadiens Français. The officials investigated the medical examination reports of the members who applied for admission into the society, and were enabled, by counting the applicant and the number of his brothers and sisters, to establish the fecundity of 1,000 French Canadian families taken at random, 500 from the urban districts and 500 from the rural districts. The figures show an average of 9.06 per family for the urban districts, and 9.33 for rural districts, or 9.19 for the two districts combined together. In Norway the number of children per marriage is 5.8, and amongst the Russian peasantry 7.2 only.

These figures are for prolific marriages only, as no sterile marriages figure in the records, but this deficiency, the officials think, is probably more than compensated by the fact that after the date of the medical

examination quite a number of members continue to have brothers and sisters.

Another valuable fact is that the birth rate in Quebec has not perceptibly decreased since 1884; the average for the past nineteen years has been 39.4; last year it was only .75 less than that, and 6.21 above the rate for the previous year. If France could obtain such a birth rate that country would be enriched by 1,481,500 citizens every year.

This diminution of the birth rate is no new thing. The Greeks foresaw and feared it; to them, the Amazon was the woman broken away from her natural obligations, always a peril to the race, and amongst the Romans, Juvenal made his grim jests at her expense. A false education, which stimulated false energies and excited abnormal ambitions, made her contemptuous of her femininity, and encouraged her to substitute for it an ideal which was, then as now, hybrid and grotesque.

The fall of the Race always comes through the Woman. Tempted by the "subtle beast" towards a false ambition and away from her appointed task, she puts forth her hand to attain to a knowledge which was never intended for her, and brings the disaster of obliteration upon her race. That is the Curse of Eve.

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#### PRIORITY OF OPERATION.

A very pretty contention arose at the meeting of the Medico-Chirurgical Society, held on the 6th November, over the evolution of the operation for umbilical hernia by overlapping the recti muscles. It was precipitated by Dr. Elder's communication published in this issue, in which he credited it to Mayo. Other claimants arose for Lucas-Championnière, and some protested that the operation just grew.

The results in the radical cure of large umbilical and median ventral herniæ have been notoriously unfavourable. Coley found that nearly 50% recurred. Any procedure, therefore, which bids fair to improve this condition of things should command attention, and the operation with case-reports, brought before the Medical Society, attracted considerable interest. The present remarks have to deal with the question of priority. Was W. J. Mayo, of Rochester, Minn., the first to recommend the overlapping of the linea alba and the recti muscles in the cure of umbilical herniæ? First, it may be premised that Lucas-Championnière's method is something quite different; it consists in an inturning of the edges of the linea alba, after the manner of Lembert's intestinal suture. In the inguinal region his method, which has been cited as analogous to muscle-overlapping in umbilical hernia, consists in bringing the

muscle and external oblique aponeurosis of the upper lip of the wound down over the aponeurosis of the lower lip, thus producing an overlap. This method was published, as far as we can learn, in the early nineties. But the application of the principle to umbilical herniæ seems not to have been thought of even by Championnière himself or at any rate, carried out until 1895, when W. J. Mayo first employed this operation. It was not, however, until 1899 that Mayo published his cases and described the operation as a new one (*Annals of Surgery*, January, 1899). At that time he reported five cases, in three of which he had produced overlapping from side to side, in two from above, downward, that is, transversely. This article seems to have been the first upon the subject; and certainly to Mayo belongs the credit of priority. In a later publication (*Annals of Surgery*, August, 1901), he describes the operation again fully, and reports upon 19 cases, with good results, a number far in excess of those of any other operator who has put himself on record.

Independently of Mayo, and without knowledge of his work, three other surgeons have lately devised exactly, or almost exactly, the same operation. Sapiejko, of Kiew, operated on a woman on December 15, 1898, by this method, and published his description of it as a new thing in the *Revue de Chirurgie*, 1900, page 240. It may be said, in passing, that the great value of the method was well demonstrated in his cases, that of a 9-para, with an enormous hernia, allowing a diastasis of the recti of 22 cm., and 4 months pregnant. He overlapped the recti in their sheaths over a width of 15 cm., and immediate cure was perfect, the woman going on through a normal pregnancy; and the abdomen later "resembled that of a primipara."

Piccoli published in the *Centralbl.f-Chir.*, January, 1900, the same operation, under the impression that he was bringing forward something new. He had first done the operation in August, 1899. He refers to Bonome, of Rome, as having independently done an almost identical operation in December, 1899. Finally, Blake (*Med. Rec.*, May 25, 1901), of New York, publishes a description of the same operation, saying that he first thought of it independently in September, 1900.

Dr. Garrow informs us that he has carried out this method in umbilical herniæ for the past six or seven years, under the impression that he was not doing anything especially new, but simply applying Championnière's principle of the inguinal cure to that of the umbilical conditions. There remains yet one point. In the operation described by Dr. Elder at the recent meeting of the society, the sheaths of the

recti are opened, and the bare muscle is pulled over and sutured upon the bare muscle of the opposite sides, the two being then covered by simple edge to edge opposition of the anterior sheaths. In all the articles above quoted the sheaths were left unopened. This seems therefore to be a new point, a decided modification of the operation, not yet put in print. Dr. Elder saw it done by Blake in New York, who professed to have seen Mayo do it; and Dr. Keenan informs us that he carried it out, without knowing the origin of the idea, in a case at the Royal Victoria Hospital during the past few months.

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### AN OLD RIDDLE SOLVED.

Ever since the digestive power of the gastric, intestinal and pancreatic juices was known, one of the questions which has puzzled students of the digestive physiology was, "Why does not the stomach digest itself?" Probably all medical men, be they old or recent graduates, remember the discussions of this question in their text-books or by their teachers, and remember that neither authority was able to give a satisfactory answer to the riddle.

That the protection of the alimentary mucous membrane from digestion was not due to some mysterious power inherent in living tissue, as such, was shown by the experiments in which a living leg of a frog or a living ear of a rabbit was digested when placed in the stomach of a second living animal. One of the earlier physiologists thought he had found the answer for this riddle in the alkalinity of the blood, claiming that the acid gastric juices did not attack the lining cells of the stomach because the constant fresh supply of alkaline blood fluids prevented it from exercising its power. This explanation was quickly shown to be faulty, for immediately another physiologist pointed out that the alkaline pancreatic juice would be favoured in its digestive activity by the alkaline blood fluids. In most recent text-books on the physiology of digestion, to which we have had access, we find this question dealt with at greater or less length, but in none do we find any satisfactory answer.

Within the past year a young physiologist,\* Weinland by name, working in Munich, has succeeded, as we believe, in solving this famous riddle. He has shown that there are present in the cells of the alimentary mucous membranes certain anti-substances, apparently strictly comparable to such anti-substances as antilysins, antitoxins, and so on, with which the modern immunity investigations have made us familiar. These antipepsins and antitrypsins prevent the action

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\* Zeitschrift für Biologie, Vol. 43 and 44.

of the peptic and tryptic ferments, and by their presence in the cells of the stomach and intestine shield the same from the destructive action of the digestive secretions.

It is interesting to follow the course which Weinland pursued in the investigations which led him to the successful solving of the riddle which had perplexed so many any such eminent students. He started with an investigation of so uninteresting and humble an organism as the tape-worm, and succeeded in isolating from its tissues an anti-trypsin which added to a mixture of fibrin and pancreatic juice prevented the digestion of the fibrin. He next isolated successively and successfully an antipepsin from the mucous membrane of the stomach and an antitrypsin from the mucous membrane of the intestine, which exhibited specific inhibitory action on their respective ferments. These antisubstances can be extracted with ease from the gastric and intestinal mucous membranes and can be precipitated from these solutions by various reagents. Thus far they have not been separated from proteids, and the presumption is that they are of a proteid nature.

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#### NEITHER LAWFUL NOR EXPEDIENT.

Even in a palace life may be well lived; even in medical journalism there is room for reticence and decency. These qualities disappeared long ago from many of the text-books upon obstetrics and gynecology, and in respect of the illustrations they are worthy of a high place in the category of obscene literature. In science there is nothing common or unclean. Its pale light casts no shadow, and in the austerity of its spirit one can sound the depths of human depravity without danger of defilement. But most writing upon subjects in which the moral element enters, is done merely in a pseudo-scientific spirit of lascivious curiosity, not far removed from pruriency and sensuality.

The change has come about in the past ten years, to be more precise since 1894, the year in which Dr. R. von Krafft-Ebbing's notable work upon contrary sexual instinct appeared. Whatever may be the merits of that book, it produced a filthy brood like unto itself in all respects, save in the scientific spirit which animated it. Those whose memories go back to the publication of that book, will remember the polite reserve with which it was received, and one journal, at least, declined even to mention it, till it should have been written in Latin or in some other terms suitable for such a subject.

*Naturalia nunquam turpida:* It is quite true that nature is never unclean, but many writers in medical journals are, and they deal with unclean subjects in an unclean way. It is no spirit of prudery we

protest that the limitation between candour and pruriency should be observed, that a certain reserve should be exercised in dealing with those perversions of the moral nature which make the human mind hateful to itself. There are certain subjects which are not a legitimate subject of conversation between decent and civilized men, which might be freely considered by a monkey and a dog, and we affirm that a like degree of reticence should be observed in writing. If a man have a great thing to say, let him say it, but let him hold his hand from writing lightly upon subjects which are not discussed by gentlemen when they meet together. These observations are directed against four journals, which in the past month have printed thirteen editorial articles and three "original communications" upon the subjects referred to.

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The Ottawa Medico-Chirurgical Society, which is a union of the Ottawa Medical and Clinical Societies, has begun its corporate existence. Readers of this JOURNAL need not be surprised to receive accounts of the excellent work done in Ottawa.

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Dr. Tunstall, of Vancouver, President-elect of the Canadian Medical Association, is making a journey through the eastern cities to develop the work of next year's meeting. He is receiving a cordial reception and general assurance of support in his efforts to make the meeting worthy of the West.

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There is promise of trouble in the Kingston General Hospital. Dr. Haig, the superintendent, has resigned, and the committee propose placing a head nurse in charge. There is something anomalous about a staff of graduate physicians and surgeons serving under a lady-superintendent; indeed, the situation is not tolerable.

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Another sign that the year is nearing its end is the appearance of visiting lists for 1904. Messrs. William Wood & Co. have issued their familiar book which will be a companion to many a physician on his daily rounds. Messrs. P. Blackiston's Son & Co. have also sent their list, which is now in the 53rd year of its publication.

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Following out the policy endorsed by the members, the Council of the Medico-Chirurgical Society has the pleasant announcement to make that Dr. Osler will address the meeting at the end of December upon one of those subjects which are amenable to his broad handling. The meeting will hear him gladly. Dr. Harvey Cushing will read a



paper at a later date upon his experience of operation upon the Gasserian ganglion.

At the last examination for the "triple qualification" in Edinburgh, five graduates of McGill presented themselves, and all five were successful. Their names are T. F. Bayfield, '01; Herbert C. Featherston, '02; William Ness, '02; J. Howard Munroe, '03; H. E. Munroe, '03. Dr. Howard Munroe won "distinction," a term which signifies honours. It is not common for all the candidates from one school to attain the qualification.

The difference which has existed for a long time between McGill University and the Educational Committee of the Province of Ontario, is in a fair way of being adjusted. The contention turned upon the question as to the level of efficiency reached by McGill honour students at the end of their academic course, and their qualification for posts in the Ontario schools. Many of the students come from that province and upon their return, find themselves debarred from employment. Whatever may have been the grounds for their exclusion in the past, whether it lay in an inferior qualification or as some have thought in a provincialism of spirit, to-day there is none, and another meeting will probably see the matter adjusted. We in Quebec have gone a long way in removing the differences between French and English, and this coming together with Ontario is another advance towards educational harmony in Canada.

### Reviews and Notices of Books.

A DICTIONARY OF MEDICAL SCIENCE. By ROBERT DUNGLISON, M.D., LL.D. Twenty-Third Edition; Revised by Thomas L. Stedman. Lea Brothers & Co., Philadelphia and New York, 1903.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. NEWMAN DORLAND, A.M., M.D. Third Edition, 800 pages, flexible leather. Price, \$4.50. W. B. Saunders & Co., 1903. Canadian Agents, J. A. Carveth & Co., Toronto.

THE AMERICAN POCKET MEDICAL DICTIONARY. By W. A. NEWMAN DORLAND, A.M., M.D. Fourth Edition, 556 pages, flexible leather, \$1.00. W. B. Saunders & Co.

A medical dictionary, if properly used, is of the greatest value to a writer upon medical subjects. It serves to define his thought and to

keep his words close to it, so that his idea may reveal itself in all its richness or in its poverty. If improperly used, a dictionary serves to supply hard words to make obscure ideas more obscure, but that is not the fault of the book. Dunglison's dictionary is now in its twenty-third edition, and has held its own from a time far beyond the memory of any man now living. The present revision is by Dr. Thomas L. Stedman; he has maintained the traditions of the book, and at the same time has brought it into harmony with the actual condition of the medical and allied sciences in these later days.

The American Illustrated Dictionary is in the third edition and fulfils every condition demanded by such a work of reference. The definition is close and accurate, the words are easily found and the illustrations are helpful.

The American Pocket Medical Dictionary is also by Dr. Dorland, and quite ample for any ordinary purpose. If it were not for the two larger works before mentioned, one could not imagine a more complete dictionary.

**NERVOUS AND MENTAL DISEASES.** By ARCHIBALD CHURCH, M.D., Chicago, and Frederick Peterson, M.D., President of the State Commission in Lunacy, New York. 4th Ed. W. B. Saunders & Company, Philadelphia, 1903. Canadian Agents; J. A. Carveth & Co., Toronto.

This work, the fourth edition of which is now before the public, is one that can be read from cover to cover with pleasure and profit. While purporting to be only a text-book written for medical students and general practitioners, to all of whom we most cordially commend it, a perusal of its pages will not come amiss to those of wider knowledge. One of the prominent features of the volume is its directness and definiteness of statement, the clinical descriptions, while brief, being strikingly graphic and life-like pen-pictures. The illustrations are clear and the letter-press is excellent.

In Dr. Church's portion of the work there are several additions to previous editions, the chief of which are; the most recent views with regard to the question of the healing of nerves; the introduction of sections on Intermittent limping and on Herpes zoster, which is now definitely known to depend upon a lesion of the posterior root ganglia, and hence may be considered essentially a nervous disorder; a description of that form of epilepsy marked by myoclonus and supplying the so-called Association or Combination Disease; and an elaboration of the value of astereognosis and of Kernig's sign in their diagnostic relations.

In a text-book, of course, one cannot expect a full discussion of disorders which, when dealt with at length, require monographs for each, but in treating of "Disorders of the Brain Proper," Dr. Church lays us under special obligations in having avoided superfluous details while conveying a vivid impression of his experience. We must also refer in terms of grateful appreciation to the practical and scientific spirit which is made manifest in his remarks on treatment.

To the specialist it will be a matter of rejoicing that Dr. Peterson has seen fit to introduce such an excellent review of the recent problems of psychiatry as voiced by Kraepelin, Ziehen, Warnicke, and others of the German schools, nor could the task have been performed by an abler pen than that of Dr. Adolf Meyer, director of the Pathological Institute of the New York State hospitals. It is questionable, however, to our mind, whether such a review is not out of place in what purports to be a text-book for students, who are already overburdened with the multitude of subjects demanded by this latter-day medical curriculum, and it is to be hoped that examiners will not deem it absolutely necessary to test them too severely on a knowledge of so abstruse a subject.

The sections dealing with the treatment of insanity are exceedingly valuable and possess the merit of being thoroughly practicable. Much stress is laid, and rightly so, on the need of increasing and extending the facilities for the early treatment of those mentally afflicted, and the author indicates the lines of progress in this direction as: (1) the opening for the insane of special reception wards or pavilions in general hospitals; (2) the establishment of psychopathic hospitals in large cities; (3) the creation of outdoor departments in connection with asylums situated in densely populous districts.

Perhaps the best chapters in the second half of the work are to be found in Dr. Peterson's especial field, epilepsy, idiocy and imbecility. These are full and extremely valuable, as are also his remarks on the stigmata of degeneration.

Taken as a whole, the work should meet with a reception no less favourable than the preceding editions which have been so soon exhausted. Bearing on each page, as it does, the impress of practical knowledge and experience, its teachings have all the merit of lucidity of style and fulness in the treatment of the whole field of neurology. We know of no work in the English language that we can more strongly recommend both to the student and the general practitioner.

T. J. W. B.

A TREATISE ON ORTHOPÆDIC SURGERY. By ROYAL WHITMAN, M.D.  
Second edition, 847 pages, 507 engravings; Lea Brothers & Co.

The second edition of Whitman's Orthopædic Surgery which is now published, is an enlarged and revised edition of the original work which was published in 1901. Like the former edition it is most meritorious; it is rich with valuable statistics prepared from the records of the cases treated at the New York Hospital for the relief of the ruptured and crippled, and yet with all its merits it is a little disappointing. Orthopædic-surgeons have already so excellent a text-book in the work of Bradford and Lovett, of Boston, that the writing of another book on this branch of surgery may seem to have been almost unnecessary, unless the writer were prepared to treat the work of his American confreres from a critical standpoint, examining and proving it from an impartial point of view, and with those rare opportunities for experience which are, perhaps, offered to the surgeons of the Ruptured and Crippled Hospital alone.

Although the frequent use of the ego in a literary production has its disadvantages, the treatment of any subject from a personal point of view increases the interest taken in such dissertation, as, for instance, with what interest would the practitioner of orthopædic surgery have read a criticism by Whitman on the treatment of Pott's disease, and its most annoying resultant paraplegia, by hyper-extension directed to the gradual reduction of the deformity. Whitman felt the necessity of straightening or extending the spine so far back as 1892, when he wrote, "our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of the disease"; and again in 1893 he wrote, "the object of treatment is the prevention of deformity not only because the effect of treatment is estimated by the degree of ultimate deformity rather than by the survival of the patient, but because deformity itself, after complete recovery from constitutional and local disease, by its distortion and compression of vital organs, is a constant source of weakness and danger." Yet in this, the second edition of his work, published, indeed, over ten years after these statements were made, the author does not furnish his readers with any clear or definite estimate of the advantages of the methods for the gradual reduction of deformity, which methods have been in use for over five years, although on several occasions he refers to the efficacy of such forms of treatment, and although as late as 1901, he wrote, "the importance of checking the destructive process has been emphasized and the routine of treatment is likely to be more or less modified in the future to meet this

requirement." With what interest also would the surgeon, taught by these words to look forward to a modification of the older methods of treatment, have studied statistics comparing, we shall say, cases of Pott's disease of the lower dorsal vertebræ treated after the methods of Goldthwait with those treated by Sayer's method.

Again in the treatment of Gonorrhœal Arthritis, whilst Whitman refers to the most advanced treatment of certain forms of these arthritides, such as has been outlined by O'Connor, of Buenos Ayres, he omits even to mention that the treatment of the arthritis should be primarily the treatment of the initial focus of infection. His dissertation on Osteo-Arthritis of the spine may also be accused of being too brief for the importance with which these affections are considered by surgeons interested in affections of the spine.

The chapter on Congenital Dislocation at the Hip is well worth reading. It is a longer, clearer and better illustrated study of this deformity than was seen in the previous edition, and whilst it reminds one of the able work already performed by this surgeon on the study and reduction of such deformities, it also demonstrated the increased interest taken in this condition since the visit of Lorenz to this continent. On Coxa Vara the work is again most interesting. The ability to interest one in this subject might, of course, be expected from Whitman who, perhaps, of all American surgeons has devoted the most time to the consideration of this condition. Ten lines are devoted to the discussion of the ætiology of anterior poliomyelitis; that disease which causes so many deformities due to paralyses.

The four last chapters are devoted to the study of the foot and its deformities. Again, these studies are beyond reproach as could only be expected of a review by him who has devoted such great labour to the study and treatment of the deformities of this member; but this statement only bears out our original regret that the writer has not treated orthopædic-surgery as he has found it,—from a personal point of view.

A. M. F.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. CHALMERS DA COSTA, M.D. 4th Edition, W. B. Saunders & Co., Philadelphia, 1903. Canadian Agents, J. A. Carveth & Co., Toronto.

The fact that this work has reached its fourth edition is sufficient recommendation as to its utility. It has now become a large work on surgery, running to over 1,000 pages. Although used chiefly as a textbook, it is not recommended to students and general practitioners especially, but has the simple title given above. The poor student

now has few hand-books. The science of medicine has so extended, and so much is deemed necessary he should know, that the books in surgery especially, cannot be held in the hand on account of their weight and size and need the support of a strong table. Dr. DaCosta has succeeded in keeping his surgery well up to date, and diseases of the pancreas and spleen occupy well deserved space. Many operations of many men are described, but none very fully except the newer ones, and unless the operator has had considerable experience he would be unable to satisfactorily perform from the description given some of the operations, *e.g.* Kraske's excision of the rectum, closure of cleft palate, nephrorrhaphy, etc. Operations on the intestines and stomach are very fully described; no one is specially recommended, and no results or after treatment are given. The text bristles with names of authorities and others, and students will be pleased to know how many celebrated men there are who have stamped themselves by name on the tablets of surgical science. We are always glad to know who recommends certain instruments in certain operations, and also how they modify certain operations. We are surprised to see that amongst this array of names, Mr. Butlin, who has written much and is especially known by his work on "The Tongue" and "The Operative Treatment of Malignant Diseases," is entirely ignored. American surgeons naturally receive much attention.

The sections on the nerves and brain are very full, up to date, and well illustrated. It is easy to find fault, and no one man now can be expected to write a book on surgery which will not be open to criticism. On the whole, however, the work has much to recommend it, is well written and will be valuable as a text-book for students, but it might be much more impressive if the author were not so fond of quoting authorities and gave his own opinion more often as to the value of many of the operations and procedures described.

**A TEXT-BOOK OF OPERATIVE SURGERY.** Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery, Written for Students and Practitioners, by WARREN STONE BICKHAM, Phar. M., M.D. W. B. Saunders & Co., Philadelphia, New York and London, 1903, pp. 984. Canadian Agents, J. A. Carveth & Co., Toronto.

Although this book is said to be written for practitioners, it cannot be said to fill a long felt want. It is rather a disappointment, because too much has been attempted. It is neither a good work on Surgical Anatomy, nor is it a very useful treatise on Operative Surgery. Surface anatomy is also dealt with, but in such a way as to interest the

reader but little, being a bare recital of facts given in the baldest manner; no life is put into the dry bones. In the surgical anatomy there is too much cataloguing, too many sections with words in large capitals, and long lists of names which confuse and give little information to the reader. In describing operations, such as removal of breast, excision of jaw, etc., it is like reading the answer to a dissection question. In all the operations on the jaws, mouth, etc., no mention is made of operating with head in the dependent position; even in excision of the upper jaw preliminary tracheotomy is advised. The best part of the book is that on the surgery of the intestines and the illustrations of the various intestinal operations are excellent and easily understood.

All the modern operations are described and many that have been suggested. Many operations are described fairly well, and reference to such description will tend to refresh the memory. Some operations seldom performed are described at great length, and others quite common are given but little space; eight pages are devoted to anterior and posterior mediastinal thoracotomy, and only two to thyroidectomy and two to excision of the knee joint, including illustrations. Ligature of arteries is described in one hundred and fifteen pages, and the treatment of aneurysm takes up  $4\frac{1}{2}$  pages, of which  $3\frac{1}{2}$  are devoted to a description of Mata's method, with illustrations. Nerve surgery is well illustrated and so is the surgery of the tendons.

The book is not made attractive by the style; it is difficult to read and with its 1,000 pages is bulky and heavy. The description of surgical operations is not full enough for the surgeon and for the practitioner the work is too academic. The student will find this work useful for examination purposes.

THE PRACTICAL MEDICINE SERIES. Vol. IX. Physiology, Bacteriology, Pathology, Anatomy, Dictionary. Edited by W. A. EVANS, M.D., ADOLPH GEHRMAN, M.D., and WILLIAM HEALY, M.D. Chicago Year Book, Published August, 1903. Price of this volume, \$1.50 (of the series, \$7.50).

If the other ten volumes of this series are as sound and interesting as that under review, then most certainly this new year-book is to be highly commended. The idea is novel and appears to us eminently practical, namely, to supply for the use of the general practitioner who wishes to keep abreast of medical progress, an account of the best recent work likely to appeal to him in the different branches of medicine, and this in a form not so epitomized as to be indigestible nor, on the other hand, so full and exhaustive as to be beyond the limits of his leisure moments to master; not in one or two bulky volumes so large that they can only

repose comfortably upon the book shelf, but small enough to be slipped into the coat pocket as each of the ten monthly instalments makes its appearance, and then used to beguile odd moments on the rounds, the print being of such a size that reading is easy.

In this volume an account of the year's physiology, for instance, is far from being as full as would satisfy the physiologist, whilst the notes upon hygiene would be found painfully meagre by the Board of Health official, yet it seems to us that the authors have in both cases managed to record those advances which are of special interest from the point of view of the practitioner. Nor, taking all things into consideration, is it to be regarded as other than a wise policy that American researches are given special prominence; these are better calculated to interest the American practitioner who, further, if interested in them, can with less difficulty consult the originals. We use the term American in the larger sense observing with pleasure that more than one Montreal investigation receives adequate notice. The work is issued from Chicago but, even granting that such work obtains more special notice, we are particularly struck by the number of sound contributions to pathology, bacteriology and hygiene which have emanated from the laboratories there during the last eighteen months.

THE PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. X., Skin and Venereal Diseases. Nervous and Mental Diseases. Edited by W. L. BAUM, M.D., and HUGH T. PATRICK, M.D., September, 1903, Year Book Publishers, Chicago.

This is the concluding volume of the series for the present year. It contains a fair representation of the work done during the latter half of the past and the first half of the present year in these departments. The space devoted to each of the articles reviewed is necessarily very much condensed, but the editors have endeavoured to cull the important parts. There are a few illustrations.

A TEXT-BOOK OF CLINICAL ANATOMY. For Students and Practitioners. By DANIEL N. EISENDRATH, A.B., M.D., Clinical Professor of Anatomy in the Medical Department of the University of Illinois; attending surgeon to the Cook County Hospital, Chicago, etc. Handsome octavo of 515 pages, beautifully illustrated with 153 illustrations, a number in colors. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth, \$5.00 net; sheep or half morocco, \$6.00 net.

The phrase "beautifully illustrated" upon the title page of this book invites attention to this important part of any work on anatomy. The illustrations are nearly all photographs, more or less



retouched, and many of them covered by the lines of diagrams. This union of the photograph with the diagrams, produces a hybrid that has the merits of neither and the faults of both methods of illustration; the photograph confuses the clearness and simplicity that makes a diagram valuable, and the superimposed lines take away from the reality and accuracy that is supposed to characterize an actual photograph. It has the additional disadvantage of requiring for clear reproduction a highly finished glossy paper very trying to the eyes.

THE AFTER TREATMENT OF OPERATIONS. By P. LOCKHART MUMMERY, F.R.C.S., Eng. London, Ballière, Tindall & Cox, 1903; pp. 221, 29 illustrations; price, 5s.

The appearance of this volume is an indication of the need for a more detailed account of the treatment required after operations than can be admitted in a work of general surgery. The book is full of good material, to which the surgeon himself may go as well as those who have the more immediate care of the case. There is many a warning in the record of unexpected conditions that may arise.

ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL OF THE MARINE HOSPITAL SERVICE OF THE UNITED STATES, for the year 1900 and 1901.

TRANSACTIONS OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, Vol. VI., 1903.

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### Correspondence.

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#### *The Montreal Medical Journal.*

A recent editorial in this journal on clinical teaching, discussed the desirability and practicability of the plan, so strongly advocated by Professor Barker, of putting the clinical chairs of medicine on a basis comparable with that on which the theoretical chairs, such as those of physiology, pathology, etc., now stand in most of the leading medical faculties. Professor Barker "urges the need of a hospital primarily devoted to teaching, whose departmental chiefs engage in no work outside such institution, whose emoluments therefrom, adequately secure them a comfortable existence obviating the necessity of any kind of private practice."

The writer of your editorial, while granting the desirability of such an arrangement, were it possible to secure the necessary endowments and "the co-operation of departmental chiefs whose *genius*, wide-knowledge, zeal and personality, would carry on efficiently the required labour," doubts that it would be possible in Montreal to do so. In his

opinion there would be necessary for the development of such a scheme at least one million dollars as endowment for six clinical chairs, a hospital costing one or two million dollars with an endowment of two million dollars.

It has seemed to one who has read this editorial with interest, that the difficulties of carrying out such a plan as Professor Barker advocates, are considerably exaggerated by your editorial writer. At the start he considers that less than six endowed clinical chairs would be inadequate and calls for one million dollars endowment for the same. Such an endowment should bring in an income of about fifty thousand dollars per annum, therefore, eighty-five hundred would be the figure of each yearly stipend. I do not consider that such a sum is a greater compensation than fit occupants of such positions should receive, but remember that the incumbents of theoretical chairs in the medical faculties of this continent are receiving, in the vast majority of instances, stipends which do not represent one-half of eighty-five hundred dollars, and I believe that the majority of the professors of anatomy, physiology and other theoretical subjects, possess the "wide knowledge, zeal and personality" necessary "to carry on efficiently the required labour." But few of them lay claim to the possession of genius, though the greater number possess something which is but little less valuable to the teacher, that is, an interest in and love for their work which has led them to follow careers which shut to them the avenues wherein large pecuniary rewards are found.

Is the material which goes to make our foremost clinical men so different from that of which physiologists and pathologists are made that they would always choose the careers which promise the greater material rewards? Is it not rather true that the man with the clinical bent has in the past had no choice? In order to follow his chosen calling, has he not been forced to follow it along the lines which lead perforce, in the struggle for existence, to the devotion of a too large portion of his time and energies to the work which provides the necessary means of subsistence? Who that has seen the devotion of our surgeons and physicians, to study, to teaching, to hospital work, to private patients who cannot or will not pay for services rendered, can doubt that many of them would have made and still would make their choice of such careers as endowed clinical chairs would open to them, even though these chairs would give them incomes of not more than five thousand per annum?

I would question, too, the statement in your editorial that less than six such chairs would prove inadequate. In our medical curriculum four-fifths of the clinical teaching is devoted to giving our students an opportunity to learn the essentials of the practice of medicine, of

surgery, and of gynæcology and obstetrics. Ophthalmology, laryngology, psychiatry and other clinical branches, important though they be, play a comparatively small role in the undergraduate curriculum, and therefore endowed chairs in these branches do not seem to me to be so imperative.

A hospital, large enough to carry on the work as is proposed in the plan we are considering, would certainly cost between one and two million dollars and would require an endowment of very considerable size, but not so large a one as may at first glance appear. Such an institution would have a source of income not generally possessed by our hospitals, in the fees from private patients, for private patients would still pay their fees, not to the surgeons or physicians but to the hospital. Montreal is already, in the opinion of most well informed individuals, sufficiently well supplied with general hospitals. The building of another large general hospital in the near future could hardly be of advantage to the community, nor would it be necessary for the development of such an institution as we have been considering.

The institutions exist, and one at least is sufficiently endowed. If the university authorities and the governors of the hospitals should become persuaded of the desirability of adopting some such plan of development, I believe that the financial obstacles claimed to be so momentous in the editorial which has occasioned this letter, would be found to be always disappearing ones. The difficulties would be found to arise almost entirely from considerations of an individual nature. No institution would feel inclined to turn off suddenly, attending physicians and surgeons who had for years given to it their very best efforts, nor could it expect a physician or surgeon, already enjoying a large income from the practice of his profession, to joyfully relinquish this for a stipend one-quarter or one-half as large. Such a change of policy, if it is to come, must come slowly and gradually. I believe, however, that a beginning could be made in the near future. Such an institution, in deference to local conditions, would necessarily be evolved slowly and could not be created in a day or a year.

That men, eminently fitted to fill successfully the chairs proposed, and willing, nay desirous, of entering into such careers, could be found without difficulty, is my belief. The chief embarrassment in this phase of the question would, I think, come from difficulty in choosing among the eligible candidates. I am not blind to the fact that the successful development of so radical a change in the policy of a teaching institution would meet with many difficulties not easily foreseen, and which would meet with many difficulties not easily foreseen, which when met could be overcome only by exercise of the greatest care and wisdom.

KLINOS.

# Medical News.

## MONTREAL GENERAL HOSPITAL.

The report of the Montreal General Hospital for the month of October is as follows: Admissions to the wards, 250; discharged, 229; deaths, 12. The average daily sick was 190, including a number of emergency cases. There were 2,532 consultations in the outdoor department. The largest number for any one day was 200. The number of ambulance calls for the month was 124. The average visitors to patients was 180. The typhoid fever cases have decreased to 24.

The regular quarterly meeting of the Board of Governors of the Montreal General Hospital was held on the 17th November. The revenue for the quarter ending September 30th, amounted to \$16,204, and the expenditure to \$27,556. The revenue for the nine months ending September 30th, including unappropriated legacies, amounted to \$90,839, and the expenditure for the nine months to \$77,724, an increase in expenditure over the same period of 1902 of \$3,758.

The medical superintendent's report showed that during the quarter 973 patients were treated to a conclusion, as against 743 in the corresponding quarter of 1902. There were 55 deaths, of which 24 occurred within three days of admission, making the mortality rate for ordinary hospital cases 3.1 per cent. The aggregate number of hospital days was 17,428. The average detention per patient was 21.9 days, as against 17,771 hospital days, and an average detention of 23.8 days for the corresponding quarter of 1902. The ambulance responded to 379 calls, as compared with 320 in the corresponding quarter of 1902.

## NOTRE DAME HOSPITAL.

The new Notre Dame Hospital, on Sherbrooke street, between Champlain and Maisonneuve streets, in front of Lafontaine Park, is to be an imposing structure, four storeys high, built in the shape of a cross, with the main entrance on Sherbrooke street.

On the ground floor will be placed the dynamos, steam apparatus, coal bins, with engineers, electricians' rooms, also those of the servants. Here will be situated the kitchen, bakery and other workshops, hall of instruction, laundry, etc.

The first floor will be occupied by the sterilization, anæsthetic, ophthalmological and gynæcological halls; besides an amphitheatre and a room for patients after operations. In addition there will be baths, private rooms and a pharmacy.

The second and third flats are similar to the first, each containing

operating rooms for men, women and children, and quarters for the sisters and nurses. The chapel is to be situated on the third floor near the private rooms. On Sherbrooke street is to be constructed a handsome terrace and a roof garden for the use of convalescents.

The contagious diseases section will be built first, on the Maison-neuve side of the street. It will be connected with the other portion by a tunnel. The sisters' and attendants' pavilions will be attached to the contagious section by large covered corridors.

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### ROYAL VICTORIA HOSPITAL.

The following is the monthly report ending October 31st, 1903:—Patients in hospital at last report, 215; admitted during month, 252; discharged, 266; died, 8; patients in hospital at this date, 193; medical, 76; surgical, 111; ophthalmological, 28; gynæcological, 22; laryngological, 15; out-door department, 2,082; ambulance calls, 64; daily average, 207.

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### WESTERN HOSPITAL.

Report for October:—Patients admitted, 50; discharged, 55; died, 0. Out-door Department:—Total number of consultations, 678; medical, 210; surgical, 87; gynæcological, 145; eye and ear, 47; nose and throat, 107; skin, 25; genito-urinary, 57.

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The National Sanitarium Association has enlarged its work in Muskoka by the establishment of the Muskoka Cottage Sanitarium for paying patients. The sanitarium has accommodation for 75 patients, and the Free Hospital for Consumptives, established within a couple of miles of the sanitarium, has also accommodation for 75 patients. To still further extend the work of the association, another free hospital, providing accommodation for 50 patients, is now nearing completion about five miles from Toronto. In connection with this hospital there are some forty acres of land, and when completed this will represent an expenditure of over \$25,000. Within the year the intention is to spend another \$25,000—\$50,000 altogether—on the Toronto institution.

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The Directors of the Guelph General Hospital report for the year ending Sept. 30th, 1903, that the number of patients in the hospital October 1st, 1902, was 57; admitted during the year, 671; births, 42; total number of patients for the year, 770; number of patients discharged during the year, 675; deaths 29; remaining in hospital, 66; total number of days of all patients in the hospital, 23,943; those paying

over \$3 per week, 48.39; number of days of all patients, free and under \$3 per week, 19.104; number of males, 373; females, 397; total cash receipts from all sources, \$17,221.47; total expenditure, \$18,064, leaving an overdraft on the bank of \$842.93.

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At a meeting of the Faculty of Medicine of McGill University, Dr. Klotz, of Ottawa, was recommended to the governors for appointment as Governors' Fellow in Pathology at McGill. Dr. Klotz is a graduate of Toronto University, and for some time past has been conducting researches in bacteriology at the Ottawa Isolation Hospital. The appointment will officially be made at the next meeting of the board of governors.

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The new hospital in Moncton was opened on the 11th November, with due formality. The total cost of the building was in the vicinity of \$25,000, and of this sum \$2,500 remains to be paid. There is about \$1,100 in uncollected subscriptions and the county council have promised a grant of \$1,000. The hospital is one of the finest in the Maritime provinces, and contains all the essentials of a first class institution.

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The returns received at the Ontario Health Office, show a largely decreased number of deaths from consumption for last year compared with some years past. The deaths from consumption last year, 2,694, show a decrease of 549, compared with 1901, and 890, compared with 1900, when the deaths totalled 3,484. The figures for the past six years are as follows: 1897, 3,154; 1898, 3,291; 1899, 3,405; 1900, 3,484; 1901, 2,243; 1902, 2,694; total, 19,371.

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The annual report of the Ross Memorial Hospital, Lindsay, shows that there were admitted during the ten months, 148 patients, of whom 130 were discharged, and five were removed by death, leaving 13 in the hospital on September 30th. The collective days' stay of adult patients was 3,451, showing the average days' stay of patients to be 23 days per patient. Taking the number of days' stay of patients, 3,451, and the total cost for maintenance, \$5,044.60, the average cost per day was \$1.46.

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Dr. John C. Mitchell, of the Toronto Asylum staff, has been appointed by the Ontario Government medical superintendent of the new Provincial Epileptic Hospital now under course of erection at Woodstock. Dr. Mitchell has been connected with the Toronto Asylum for over two years, and is a Past President of the Ontario Medical Association.

At the annual meeting of the Galt Board of Health, held 18th November, the Local Health Officer reported the town to be in a healthy condition. During the year there were six cases of scarlet fever and three cases of diphtheria, with no deaths. Out of the 28 cases of typhoid there were only two deaths. There were 86 cases of small-pox with six deaths. The death rate per thousand was 14.5.

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E. Muir, of the Pharmaceutical Association, has laid charges in the Police Court against a number of Québec physicians who are accused of giving prescriptions to be filled by unlicensed druggists or unregistered drug clerks, and also against several druggists for selling poisons to the public contrary to the provisions of the Pharmacy Act, and for permitting unqualified clerks to fill prescriptions.

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The organization meeting of the new Board of Governors of the Brockville General Hospital was held on the 10th November, with a large attendance. The following officers were elected: President, Judge Reynolds; Vice-President, L. Patton; Treasurer, D. B. Jones; Secretary, J. A. Hutcheson; Committee of Management, Judge McDonald, F. E. Fairbairn, A. D. McDougall, D. B. Jones.

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Smiths Falls is to have a hospital. The Archbishop of Kingston has purchased suitable property, and a new building will be erected next year. The Sisters of Providence will be placed in charge, but the hospital will be open to all creeds and nationalities.

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The total number of patients treated in the Winnipeg General Hospital during the week ending October 31, was 239, of whom 140 were men, 72 women and 27 children. Seventy-one out patients were also treated.

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The next examination for sanitary inspectors, held by the Canadian branch of the Sanitary Institute, of London, takes place on December 1.

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The new annex to the Brandon General Hospital was completely wrecked by a storm of wind. The damage was very great, but fortunately no lives were lost.

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Dr. D. A. Shirres has been appointed neurologist at the Montreal General Hospital.

Dr. R. Logan, formerly of London, died in Detroit after a surgical operation; he was 70 years old.

Dr. James A. E. Steeves, of St. John, N.B., died in Arizona, where he had gone for his health. Dr. Steeves had been married only a few weeks.

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## Retrospect of Current Literature.

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### SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

#### Hallux Valgus.

JOHN G. SHELDON, M.D., "Hallux Valgus." *Medical Record*, Oct. 31, 1903.

The remarks are based upon some thirty cases. The operation depends upon the degree of deformity. In mild cases splitting and division of the extensor proprius hallucis and extensor brevis digitorum tendons, as for lengthening, without suturing of the tendons so divided is recommended. Excision of the head of the first metatarsal gave good results, but the procedure advocated in all well marked cases is excision of the inner half or two-thirds of the head of the first metatarsal, with division of tendons, as for mild cases. The toe is held in position by a plantar splint and adhesive plaster. The advantages claimed are: "A movable joint is assured; there is no shortening of the great toe; the deformity is completely corrected; if the bone is affected the abnormal part is removed; the space resulting from the removal of the bone heals by the blood-clot process; the extensor tendons are so lengthened that they do not tend to reproduce the deformity."

#### Traumatic Separation of the Lower Epiphysis of the Humerus.

GILBERT GEOFFREY COTTAM, M.D., "Traumatic Separation of the Lower Epiphysis of the Humerus and their Treatment by the Extended Position, with Report of Two Cases." *Medical Record*, November 14, 1903.

This brings up for discussion a very live question as to what is the best position for the arm in the injury. A short review, giving the opinion of nine authorities, is added; seven are advocates of the flexed position, though they do not agree regarding the angle, the majority preferring it to be a right angle, while two favor the obtuse. In the two cases reported the extended position gave a perfect result, and any form of treatment that can give a perfect result in this injury is well



worth serious consideration. It would appear, however, that no set rule can be laid down for the treatment of this condition, but that better results are to be obtained by treating every case on its own merits, and that position selected which accomplishes perfect reduction and fixation of the fragments.

**Acute Intestinal Obstruction and Necrosis of the Bowel caused by a Gall Stone.**

F. I. STRAUSS, M.D., "Acute Intestinal Obstruction and Necrosis of the Bowel caused by a Gall Stone." *New York and Philadelphia Medical Record*, November 14, 1903.

The report of the case is of interest on account of the absence of any previous history pointing to gall-stones. The *post-mortem* showed several stones in the gall-bladder, one obstructing (?) the common duct, one in the head of the pancreas, and the one in the jejunum causing the obstruction.

**Surgical Treatment of Intestinal Perforation in Typhoid Fever.**

DONALD AMOUR, M.B., M.R.C.P., Lond. F.R.C.S., Eng., "The Surgical Treatment of Intestinal Perforation in Typhoid Fever." *The Lancet*, October 3, 1903.

Inasmuch as perforation is the most fatal of all complications in typhoid fever the subject is one of very great interest, and the writer has put before us in a concise paper the careful analysis of the most important communications on this subject which have been written during the past five or six years.

He puts the percentage of perforation at from 1-5. As regards sex it is three times more frequent in men than in women; it is very rare in children, and reaches its highest between 20-30 (39.8 per cent.). The great majority of cases perforate during the third week, and the seat of perforation may be said to be in the ileum in about 81.4 per cent. In speaking of the symptoms of perforation, in most cases it was found that the actual perforation was antedated by symptoms which should serve to warn the attending physician and suggest the probability of a pre-perforative stage. "The symptoms most often complained of by the patients are various degrees of abdominal pain and tenderness, either local or general." Another point emphasized is that abdominal pain, especially if localized, is not a frequent complaint in typhoid fever, and hence its importance when present. "Hæmorrhage should also put us on our guard." As for the symptoms of perforation itself the most constant are "sudden abdominal pain, increasing in intensity and recurring in paroxysms, localized muscular spasm and tenderness accompanying the pain and becoming general, distension, a rapid,

feeble pulse, with signs of collapse, and the appearance of leucocytosis." The blood must be examined frequently for leucocytosis to be of much value. Attention is drawn to perforation of the appendix which occurred in 3 per cent. of Fitz's cases. Statistics show a most encouraging gain in the number of recoveries, Keen's 150 cases giving 22.7 per cent. It would appear that between 15-25 years is the most unfavourable time at which to operate, and males give a much higher mortality rate than females. The writer prefers invagination by suturing without paring the edges and includes all the thinned area in his sutures. "Early operation and rapidity of operation, without, however, sacrificing thoroughness, are the two main essentials for success."

#### **Timely Operation in Primary Appendicitis.**

WILLIAM H. WALTHEN, A.M., M.D., LL.D. "Timely Operation in Primary Appendicitis." *Medical News*, October 24, 1903.

By timely operation is meant before the disease has extended beyond the appendix, or complications have arisen, and the writer strongly believes it should be performed in every primary case. This plan gives best results, and it is also claimed that operation at this time is as safe as in the interval. It is considered unwise to wait for the attack to subside, as one can never foretell the course the disease may run, and "it can no longer be claimed that amelioration of symptoms in acute appendicitis usually contra-indicates surgical interference, for dangerous pathologic conditions may progress rapidly under apparently favourable conditions." In cases which have gone beyond the timely stage the writer believes we would obtain better results in many cases if we waited for the abscess to be walled off. This position seems untenable after the radical measure advocated above, and the reasons given appear inadequate and inconsistent. With reference to the connection between appendicitis in the female and pelvic abscess, it has been the writer's experience that when the appendix was involved secondarily to the pyosalpinx there was usually no necrosis, gangrene perforations or pus formation. A pyosalpinx or tube-ovarian abscess may be caused by a suppurative appendicitis, though this is not frequent.

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#### **MEDICINE.**

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY H. A. LAFLEUR AND  
W. F. HAMILTON.

EDWARD W. ADAMS, M.D. "The Results of Organotherapy in Addison's Disease." *Pract.*, October, 1903.

This study is based on a record of 97 cases collected from the literature, and in addition 6 unpublished cases.

The cases are classified in four groups.

*Class I.* Cases in which alarming or fatal results were presumably or possibly due to the treatment.

*Class II.* Cases uninfluenced by, or deriving but doubtful benefit from the organotherapy.

*Class III.* Cases in which marked improvement coincided with the treatment.

*Class IV.* Cases in which permanent benefit (? cures), accrued apparently as a result of treatment, no case being included which had not been under observation for at least a year.

*Class I* (seven cases). The experience with suprarenal grafts is unfavourable, and in three cases this treatment was probably responsible for a fatal issue. Sudden deaths occurred during the administration of the remedy in other cases, but this mode of termination is frequent in the disease under any circumstances, and is not always to be attributed to the suprarenal retract. Severe cardiac symptoms may, however, supervene and demand the cessation of the remedy.

*Class II.* (43 cases). This class forms a large and discouraging group. Omitting cases where it was employed for a very brief period or with the patient practically moribund, it probably represents the usual experience of organotherapy. The number of cases ought doubtless to be greatly increased by a large number of cases regarded as being unworthy of publication.

*Class III.* (31 cases), and *class IV.*, 16 cases, form the encouraging portions of the treatment. The writer points out the necessity of caution in drawing conclusions from these results. Isolated instances of recovery are recorded before the introduction of organotherapy. Again remarkable remissions of the disease are not infrequent, and rest in bed is sometimes accompanied by marked benefit.

Of the forty-seven cases in classes III. and IV., 29 showed marked improvement, and 14 permanent benefit. Improvement was shown in waning of pigmentation, and sometimes in its almost complete disappearance. Asthenia and circulatory feebleness were also relieved.

In spite of the long list of failures, it must be admitted that organotherapy has been of real service in Addison's disease. It is impossible to fully classify cases in which benefit has resulted, but the result of post-mortem examination suggest that improvement is more likely to occur where the tubercular process is a chronic sclerosing one, and where the other organs are fairly healthy.

The *Practitioner* devotes its July number to a discussion on gout.

Dr. Fletcher, of Baltimore, contributes an interesting article on the "Occurrence of Gout in the United States." The disease is much

more prevalent here than is generally admitted, and a failure to recognize the malady is responsible for its reputed rarity. Comparing the frequency of admissions for gout at the Johns Hopkins, and at St. Bartholomew's Hospital for a period of 14 years, it is found that in London, cases are a little less than one-third more frequent. In Baltimore there were 41 cases of gout in 15,697 medical cases, or .26% whilst at St. Bartholomew's there were 124 cases out of 33,356, and medical admissions, or .37%.

All the Baltimore cases were in males, and only one negro. This race enjoy a relative immunity against the disease. The majority of the cases appear to have earned rather than inherited their disease, and alcohol and lead seemed to be the most potent ætiological factors.

Most cases had reached the chronic stage before coming under observation, and a majority of the cases presented evidence of renal disease. The difficulty of distinguishing the disease from rheumatism was illustrated by four cases, in which it was only on later admissions to hospital and after the development of tophi, that the true nature of the malady was recognized.

Dr. Fitcher's remarks about the relative frequency of gout might doubtless be applied to Canada. Admissions for gout are by no means rare in Montreal.

Dr. Toogood in an article on "Gout Amongst the Poor," lays stress on the abuse of alcohol, especially beer. Laundresses form the bulk of female sufferers, due doubtless to the custom of quenching a consuming thirst with frequent half-pints.

The Pathology of Gout is dealt with by West, Haig and Hall.

Dr. West discusses the relation of gout to granular kidney. He concludes that although both lead and gout may produce chronic changes in the kidney, neither causes granular kidney. The presence of granular kidney greatly increases the liability of the patient to gout on the one hand, and lead-poisoning on the other, and in each affection greatly increases the gravity and risk.

During an attack of acute gout, the urine may temporarily contain albumen, usually only in traces. Exceptionally it may occur in large quantities, disappearing completely after a few days. It is often assumed that repeated irritation of the kidney in gout eventually results in granular kidney. That the association between the two diseases is a close one, is universally conceded, but judging from the clinical histories of cases of gout and of granular kidney it is not so clear that gout is the primary disease.

Gout is a disease of the later half of life, lasts many years, and is rarely fatal of itself. Granular kidney is a disease of earlier life, and terminates at a much earlier average age, and the general clinical history of gout is not that of granular kidney.

Both lead poisoning and gout probably arise more readily in the presence of granular kidney, elimination of lead or of uric acid being interfered with.

Dr. Haig's doctrine of gout is extremely simple and dogmatic. He regards both gout and rheumatism as due to uric acid, introduced as a poison in food. Flesh and tea are the chief offending articles, and gout is simply a symptom of poisoning by these articles.

Dr. J. Walker Hall's article on Metabolism in Gout will repay careful perusal, and does not readily lend itself to intelligent presentation in a short abstract.

The treatment of the disease is very fully considered by Sir Dyce Duckworth, A. P. Luff and Gilbert A. Bannatyne. F. G. F.

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### Society Proceedings.

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#### OTTAWA MEDICO-CHIRURGICAL SOCIETY.

The first annual dinner of the Ottawa Medico-Chirurgical Society was held on Thursday, November 19th, at the Russell House. Dr. H. B. Small, the President, occupied the chair, with Drs. Dewar and Webster in the vice-chairs.

Dr. S. J. Tunstall, of Vancouver, President-elect of the Canadian Medical Association; Dr. H. S. Birkett, of Montreal, President of the Montreal Medico-Chirurgical Society, and Mr. Geo. F. Henderson, of Ottawa, were the guests of the Society.

There were also present: Sir James Grant, Sheriff Sweetland, Drs. Argue, Bradley, Brown, Chabot, Cooke, Courtenay, Craig, Dewar, Foster, Foxton, Gibson, J. A. Grant, jr., Kirby, M. O. Klotz, J. E. Klotz, Lambert, Law, McDougall, McElroy, Mayburry, Minnes, O'Brien, Parent, R. W. Powell, Preston (Carleton Place), F. W. Powell, Rogers, Robinson, Royce, Seager, A. T. Shillington, Smith, Spence, Valade, Webster, Whitton, Campbell, Ells, Fortin, Higgins, Aubry (Hull), and Archambault (Hull).

Letters of regret were read from Sir F. W. Borden, and Drs. T. G. Roddick, G. E. Armstrong and H. A. Lafleur, of Montreal. All expressed best wishes for the future welfare of the society. The toast list opened with the usual toasts to the King and Governor-General. The toast to the Parliament of Canada was proposed by Dr. R. M. Coulter, Deputy Postmaster-General, and responded to by Sir James Grant.

The toast of the Militia Medical Services was proposed by the President and responded to by Drs. Shillington and Whitton.

The Ontario College of Physicians and Surgeons, proposed by Dr. Dewar, was responded to by Dr. M. O. Klotz. He gave an account of the work of the past year in the council, and outlined changes in the matriculation which had been made this year towards increase of requirements.

Our Guests were proposed by the President. Dr. S. J. Tunstall in reply, expressed his gratification in his good fortune at being present. He complimented the society on its good showing at its first dinner. He appreciated the opportunity of being present and extended to the members a most cordial invitation to visit Vancouver in September, 1904, when the Canadian Medical Association meets on the Pacific slopes for the first time. He looked for a goodly representation from Ottawa.

Dr. Birkett, of Montreal, spoke in appreciation of the good fellowship shown by the Ottawa Society in asking for representation from the sister society of Montreal. He hoped this might only be the first of many similar occasions on which the two societies might meet on common ground. He invited the members of the Ottawa society to attend any meetings of the Montreal society and expressed on his own part a desire to reciprocate.

Mr. Henderson and Dr. Preston (Carleton Place), also spoke to this toast.

The Profession was proposed by Sheriff Sweetland and responded to by Drs. R. W. Powell, Cooke and Valade.

The Hospitals were proposed by Dr. Webster and responded to on behalf of their respective institutions by Dr. J. L. Chabot, Dr. R. S. Minnes, Dr. J. A. Grant, jr., and Dr. Law.

*Third Regular Meeting, November 5th, 1903.*

Those present were Drs. Grant, Small, Horsey, Cooke, Minnes, Troy, Gibson, Bradley, Argue, Foster, Kirby, Law, Kennedy, Dewar, Spence, Leggett, Lambert, Mayburry, Parent, Whitton, Ballantyne, J. E. Klotz, Royce, McArthur, Rogers, Echlin, Foxton, Basken, Graham, Robinson and Brown; visitors: Drs. Higgins and Campbell. The Honorary President, Sir James Grant, introducing the speaker for the evening, congratulated the society upon the enthusiasm of its members and upon their choice of president. He was gratified to know that the days of more than one society in Ottawa, were numbered. He called upon Dr. Small for his inaugural address.

The subject chosen was "Medical Memoirs of Bytown." Dr. Small carried his hearers back to the early days in Bytown—from its first

settlement to 1854, when the oldest living practitioner, Sir James Grant first opened his office. He outlined in a brief but comprehensive and interesting manner, the points of historical interest from a medical standpoint in the development of Bytown. He spoke of the ravages of the epidemics of malaria, cholera and emigrant fever, of the beginnings of the Catholic General Hospital and of the County of Carleton General Protestant Hospital.

He gave brief biographical and character sketches of the physicians of that period, including Drs. Christie, Stewart, Hill, Van Courtland, MacQueen, Tuthill, Stratford, Gellie, Morson, Rankin and Sewell. He also exhibited photographs of several of these gentlemen and of the first hospital buildings in Bytown. A hearty vote of thanks was voted to Dr. Small, and it was decided to print the paper together with photogravures.

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## SOCIETE MEDICALE DE MONTREAL.

*October 27th, 1903.*

DR. O. F. MERCIER, VICE-PRESIDENT, IN THE CHAIR.

Dr. ST. DENIS presented a large polypus of the nose, and gave the history of the case.

Dr. A. MERCIER showed a specimen of the fourth lumbar vertebra completely fractured. The patient presented no symptom of fracture of the spine.

Dr. ST. JACQUES reported a case of fractured spine through flexion, followed by an enormous hæmatoma. Operation: opened hæmatoma and removed a small piece of loose bone. Patient recovered without manifesting any unfavourable symptoms. He would not have performed operation, were it not for the large hæmatoma; but would have preferred extension and a plaster jacket.

Dr. O. F. MERCIER remarked that both operation and immobilisation were indicated as both modes of treatment gave good results.

Dr. ALPH. MERCIER reported a case with specimen of traumatic intestinal perforation, discovered at the autopsy. The patient was violently struck by a board in the abdomen, whilst working in a planing mill, and was taken to the hospital in the ambulance. No trace of external violence was noticed about the abdomen; facies good; temperature normal; pulse rapid; muscular tension pronounced: Patient was placed under observation, with hypodermic injections of morphia and ice bag. The same evening there was slight tympanites with still pronounced muscular tension. The following morning the patient had a motion of the bowels and passed gas without enema or purgatives.

Tympanites increased. At 5.30 p.m. he was very weak, and at 10 p.m. he died.

Dr. FRANCOIS DE MARTIGNY congratulated Dr. Mercier for his communication and demonstration of the pathological specimen. The clinical report he thought very interesting and recalled those found in pre-aseptic days. Dr. de Martigny was of opinion that an exploratory laparotomy should have been performed and that the advantage of seeing the present specimen would not have been afforded the meeting. The patient left to himself, struggled for twenty hours against the intestinal perforation, even then he passed gas. It was probable therefore that he would have successfully undergone an operation. "I am sorry to differ from Dr. Mercier, as to treatment in such cases of abdominal contusion sustained by a blunt body. I firmly believe that a man having been violently struck in the abdomen by a hard body, should be operated upon as soon as possible after the accident; an exploratory incision entailing little or no danger should be made, and if a tear of the bowel is found, it should be closed, thus saving the life of the patient. As a general rule in such cases, no trace of external violence is found." Dr. de Martigny then recalled the case of a labourer who was struck in the abdomen by the shaft of a cart. The patient though suffering considerably, was strong enough to walk to the hospital, where upon examination no external abdominal ecchymosis was found, only slight muscular tension. An incision was made and a large tear of the bowel was discovered and sutured: the patient recovered.

Dr. St. JACQUES recalled the case of a carter, who had been run over by his waggon in the region of the iliac fossæ. He was called in 6 hours after, to examine the patient; the pulse was good also the facies, and no temperature; no fracture of the pelvis was found, but slight muscular tension in the right iliac region was observed. No blood in the urine. Treatment: ice and morphia. Patient recovered.

Dr. DUBÉ asked how such perforations were produced and Dr. Mercier replied: generally through compression of a portion of the intestines against the spinal column.

Dr. DUGAS said such lesions were rare at the morgue; the patients generally died in the hospitals several hours after the accident. He related the case of a child who died 26 hours after receiving a kick in the abdomen; at the autopsy a large tear was found.

Dr. MERCIER did not find the treatment of abdominal contusions as simple as Dr. de Martigny alleged. They were difficult cases to handle and the diagnosis was not easily made. He did not oppose the operation, but was of opinion that they should intervene only when they were sure of a perforation. The question of treatment was also subject



to discussion and he believed that those like Michaud and his imitators had no better results than those who refrained from operation. Statistics showed that out of 289 cases, 178 recovered without operation. He also recalled the case of a patient who died after receiving a blow of a whip.

Dr. DE MARTIGNY said in reply that Dr. Mercier based his opinion on statistics which gave about 50% of deaths, and did not think that Dr. Mercier could quote statistics with so high a percentage of deaths from operation. As to the patient who died through a blow of a whip, he certainly would not have been any worse had he been operated on. He confessed with Dr. Mercier that such cases were difficult to handle, but were the profession without difficulties, continual study would not be required. The case reported by Dr. St. Jacques was not at all alike the others; the bones of the pelvis protected the internal organs from injury, and he believed that had his confrère been called to attend a man who had received a similar injury in the umbilical region, he would not have waited an instant, but would have operated.

Dr. DECARY recalled a case operated upon by Michaud for intestinal perforation following external violence. Patient died and M. Brouardel performed the autopsy; three tears were found of which two only had been sutured.

Dr. DE MARTIGNY finally cited a case of death, notwithstanding the operation. Brouardel in making the autopsy of a patient operated on by Michaud found a perforation of the bowel which had not been sutured; but it was likely, that had it been, the patient would have recovered. It was well understood that all perforations must be closed. M. Gosset sutured 19 perforations on the same patient and the operation was successful.

Dr. VALLIN presented two children, brothers, suffering from classical *trychophytosis*. These children played with a dog that had the same disease, and thus were infected. This tended to show that Dr. Sabourand's theory (animal infection) was correct.

Dr. ALPH. MERCIER presented a patient suffering from a syphiloma of the nose.

*November 10th, 1903.*

Dr. C. N. VALIN, Fellow-Professor of Hygiene, Laval University, delivered a lecture on purification of potable water by large filters.

After defining what was understood by filtration in general, both central and domestic, the lecturer spoke of the four large systems of filtration, the European filter, the American filter, Anderson's filter and the electrical filter. Each of those four methods of filtration were practicable and had been sanctioned by experience. Then followed

statistics showing the decrease in the percentage of death rate and contagious diseases in the cities where filtration of drinking water has been established.

Dr. Valin believed that the city of Montreal would profit by the establishment of a system of filtration and would likely be able to show a decrease, at least similar to that of St. Hyacinthe, where filtration was practiced, resulting in a decrease of 80% in the percentage of contagious diseases.

Dr. Valin favoured the electrical filtration or the process of ozonation.

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## MONTREAL MEDICO-CHIRURGICAL SOCIETY.

*23rd October, 1903.*

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

DR. C. F. MARTIN : Some Pathological Specimens of Kidneys with Remarks : The specimens shown to-night represent a form of nephritis which is very interesting—a case in which both kidneys are extremely small; they belonged to a boy of 18 years, who came to hospital about six weeks ago with ordinary signs of what I thought was chronic parenchymatous and interstitial nephritis. He was a very pale, pasty boy with slight general œdema, a very large quantity of albumen in urine, and in addition, one found on examination that he had quite marked hypertrophy of the heart and a very high tension pulse. He had been ill only since last May, that is about six months' illness altogether previous to his death, though on further enquiry into the history, one finds that he had really been slightly ailing for a number of years and the condition which he had seems to have arisen from a severe attack of measles when seven years of age; at all events that is what one might surmise from the history of the case and the condition of the kidneys on examination. One point which suggested this was that he was thought when young to have had diabetes; evidently the polyuria suggested that diagnosis. The examination of the urine was quite interesting; moderate in amount, 40 oz., with the specific gravity quite low, an average of 1008; the amount of albumen very large, 4 or 5 grms. to the litre, and at one estimation about 1½% albumen was present. In only one specimen was there anything that looked like casts, the other examinations showed a great deal of mucus and a slight amount of pus.

The condition in a few weeks went from bad to worse and he developed definite signs of uræmia, had convulsions and finally died after

a week, with almost complete suppression of urine and so on diminishing until death took place. The diagnosis made was chronic mixed nephritis, parenchymatous and interstitial nephritis. In addition to this cystitis was suspected from the large amount of mucus and pus present and the symptom of occasional frequency and difficulty in micturition. The autopsy was only partial, but the kidneys showed something quite surprising. In addition to this condition of the kidneys the calices were very much dilated as also the pelves; the ureters were quite normal, bladder large, wall hypertrophied and showed great thickening and interstitial change; in other words a chronic cystitis.

The interesting points in connection with the case are, first of all the insidious onset. In this case the condition of the kidneys indicates many years of disease, and yet only a few months of marked evidence of a serious condition was present. The second point is the relation of the urine to the diagnosis of the renal condition, which was very hard to make out—a large amount of albumen but no casts, yet there was very advanced nephritis. A good example of how difficult this is in a similar case I saw some time ago where the patient passed blood casts for many months, and the condition of the kidneys showed only chronic interstitial nephritis.

DR. G. E. ARMSTRONG : [1] A living case of Undescended Testicle: This case of a boy 15 years old is shown 10 months after operation. Before operation the testicle could just be brought to the external ring. At the time of operation the cord was separated and drawn well down and a space made in the scrotum to receive the testicle. At the present time the testicle lies comfortably in the scrotum well down, freely movable and seems to be in a fair state of nutrition.

[II.] Living case of chronic Intestinal Obstruction, with the following history :

A very small woman, admitted to hospital in August, 1903, with distended abdomen, pain, swelling in left side, vomiting, constipation and loss of appetite; there was also much loss of flesh. Seven months before admission, patient fell downstairs and sustained a severe blow on the left side of the abdomen. That night there was constant pain, nausea and vomiting, constant pain since of a dull aching character running up and girdling the abdomen, worse on eating; the sight of food causes severe retching and vomiting. Has a constant desire to go to stool, but at the same time there was no complete constipation. Chief diet was raw eggs and brandy. The patient kept at her work. On entering the hospital feels easier lying on back with thighs flexed. There was considerable distension of the abdomen, very marked

especially in the lower half, equal on both sides. On palpation there was a moderate degree of rigidity, also slight dilatation; no bleeding during the passage of the stomach tube. On admission, patient was very sick and feeble. I tried to reduce the abdomen by enemata and purgatives, which were continued for 13 days after admission, these bringing away a considerable quantity of fluid, and on one or two occasions purgatives acted well by the mouth; but at no time was there any reduction so that the abdomen could be palpated. The condition was now getting worse, the patient failing in strength and something needed to be done. Another symptom was visible peristalsis and an examination per rectum was negative. Notwithstanding these results from the enemata and from the medicine, I thought that there was a condition of incomplete chronic obstruction, basing my opinion upon the presence of pain, the continuance of the distension, the presence of vomiting and the visible peristalsis over the small intestinal area. Just where the partial obstruction was I could not say, it was evidently complete and clearly chronic and considering her age, her more or less anæmic condition, one might say it was malignant in character.

Having consulted with several of my colleagues, it was decided that an exploratory incision be advised, and being uncertain as to the exact location I made an incision in the median line and found on opening the abdomen that the ileum was full, the cæcum was full, and on going to the sigmoid I immediately came upon this hard tumour. [Tumour was shown]. It was clearly malignant, and two or three large discrete glands were seen in the mesentery. One of these, the hardest of the lot, I slipped out and had reported on, whilst I was in the room, and it was found to be only lymph tissue. Now was the time in these cases when one might hope to obtain a good result. The condition was extremely bad; it was bad on admission to hospital and had not improved any during the 13 days she was under observation and the ether did not make it very much better, so that I felt that to excise this growth would probably court disaster. I therefore did a short circuit operation, and watched her pretty closely after this and it was clear to all of us who were interested in the case that she just got through. A very profuse watery diarrhoea supervened which was with great difficulty controlled, and it left her extremely prostrated. However, after removal of the growth three weeks later, she made a very nice recovery and in a week the abdomen was soft and flat and she was taking her food well. As she was prostrated to a very low degree we resorted to what might be termed forced feeding. I should have liked to simply remove the

growth, but I felt that I was not far enough away from it, and it seemed that here was an early case of malignant disease and that to do the operation which would give promise of anything like a fair success I should remove it a little more widely than I otherwise would have done. I therefore removed the lateral anastomosis, closed both ends and did another lateral anastomosis side by side.

I am sure we may often make a mistake in trying to do too much in these cases and I think we would have better success by doing as little as possible at first and after recovery from the toxæmia, shock, etc., to complete the operation. If I could have got a little farther away from the tumour and done a lateral anastomosis it would have been better.

A colleague to whom I was speaking had had a somewhat similar case in the hepatic flexure, but he was able to palpate and so cut right down on the tumour at once. He too removed the growth and brought both ends out of the wound and allowed them to remain there until she had perfectly recovered from the operation when he reunited them. Unfortunately a thrombosis and phlebitis developed with gangrene, necessitating amputation from the thigh. I think the method I adopted here was the quickest and accompanied by the least shock and the least loss of blood and called for a less strain on the recuperative powers of the patient afterwards.

DR. F. J. SHEPHERD commended Dr. Armstrong's procedure and mentioned a quicker way of using Paul's tubes, tying them in for a few days and then after the patient recovers sufficiently to remove the growth. He thought the case an interesting one, especially from the fact of the glands not being enlarged, and stated that one should never be sure as the microscope may only show a small part of a gland while one cell may infiltrate and proceed to malignancy.

DR. H. S. BIRKETT, the president, showed a living case of Lupus of the Pharynx and Naso-Pharynx, which was presented to the Society last June whilst undergoing treatment by X-rays. The patient now showed complete arrest of the disease.

The President also showed a Salivary Calculus, taken from a man 52 years old, who came complaining of recurrent attacks of pain in the lower jaw on the left side and in the region of the submaxillary gland. Each attack of pain was accompanied by a palpable swelling in the floor of the mouth on the left side, and the pain was always relieved by an escape of milky coloured fluid from a point near the tip of the tongue on the same side of the mouth. The last attack was of two days duration and upon examination, Wharton's duct on the left side was distinctly swollen and very tender. From the mouth of the

duct a milky fluid was seen escaping and upon passing a fine probe along the course of the duct it was arrested at a distance of one inch by something which conveyed a grating sound. Palpation at this point revealed a distinct hard mass. Satisfied that it was a calculus, an incision was made directly over it, which allowed the specimen shown to escape. The subsequent results were satisfactory.

**DRS. F. M. FRY AND MAUDE E. ABBOTT :** Dr. Abbott exhibited a specimen of cleft palate in a child three days old, and Dr. Fry reported that the child was admitted from the country to the Foundling Hospital, and inasmuch as from the first it refused to touch any nourishment, an examination was made and the superintendent diagnosed the condition. The child was admitted 1 day old, weighed 3 lbs. 13 oz. Apart from these defects this case had thrush; owing to the anatomical condition of the parts there was also an ideal nidus for the thrush. In the second place the large cleft prevented the child from sucking. It only remained to enquire into the etiology, and as far as the history of the parents of the child went, the father was a criminal of the basest type and an aunt of the child had a cleft palate as well, and on enquiry, one found there was probably an extreme type of consanguinity of the parents, so evidently these factors all contribute to the condition. Dr. Abbott also reported that there was also a very large patent foramen ovale, but that there was no other deformity.

The specimen which was demonstrated by Dr. Abbott had been presented to the McGill Medical Museum. A dissection of the remains of the foetal circulation in the same infant was shown.

**DR. W. F. HAMILTON** exhibited a living case of distended abdomen for diagnosis. Dr. Hamilton mentioned that all abdominal cases were more or less obscure and especially those in children with chronic ascites, and he had presented this, thinking possibly to get some clue to the diagnosis. The examination of the testicle or left part of the scrotum was of interest, inasmuch as there seemed to be some development of a hardened nodule apart from that which was noticed some six weeks ago when the patient first came under observation. At first the organs in the scrotum were carefully looked over with the hope that some suggestions of the condition would be found there—tuberculosis, etc., but that had not been confirmed. Dr. Hamilton was of opinion that it was a case of cirrhosis of the liver with enlargement of that organ.

**DR. M. MACKAY :** "Gas Cysts in Brain and their Causation," with specimen, reported in the November number of this Journal.

DR. ADAMI : Paper on "Appetite Juice," printed in November number of this Journal.

DR. EVANS in congratulating Dr. Adami on his paper said that he had read the book referred to, and would recommend it to all present. Dr. Evans was of opinion that the results of wine cocktails at dinner, as mentioned by the author [Pawlow], and Beaumont's passing of a gum elastic tube into the stomach and setting up a flow of gastric juice, were one and the same; in certain forms of indigestion there was a craving for large amounts of food, and it seems to him that it was probably due to an irritation of the gastric mucosa and as such was interpreted by the higher centres. If Beaumont's man had been asked how he felt during the experiment he would probably have replied that he was hungry.

DR. WESLEY MILLS : In drawing some indirect conclusions from the reading of the paper, Dr. Mills noted the fact of the author's long experimentation before any publication of the results, an example not much followed at the present day. He was, however, of the opinion that the difference between Pawlow's work and Beaumont's, was more apparent than real; that Beaumont's experiment was on one individual, and that even among the lower animals we recognize individuality. Another observation was, that the most striking results of Pawlow's observations were simply a confirmation of ordinary experience. With regard to digestion, physiologists seemed to think that one must expect no more of the alimentary tract than could be demonstrated in vitro in the laboratory. But it was seen that even low down in the invertebrates, where in their crude cavity even sea water entered, digestion must be very imperfect, and that the principal part of the work must be done by the cells which line the cavity after material had been stored in it. And it looked as if recent researches were bringing them to the idea that the finer work of digestion was in this intercellular matter, for instance the digestion of fat; and how he asked were we to bridge over the gap between what was ordinarily called digestion and the plasma of the blood; there must be some very important process, between the peptone and the proteids of the plasma of the blood. There they had something taking place within structures not outside them. He therefore concluded, even in the presence of those extended researches, that they were still just on the threshold of the subject. The various forces which brought about secretion of the juice were only one part. Indigestion was evidently a disease of the times, for it was a very prevalent condition, and it might be looked upon in the light of an influence of the nervous system upon the whole process.

They were leaving behind the old crude view that the process was chemical. Of course everything biological came to be chemistry in the end, but they used to be satisfied with the view of simply bringing the food into a condition which was a long way from the final result—what they call digestion. Then they had vague notions about absorption and now they come to the finer view of the whole process being controlled through the nervous system, and intercellular digestion was not always to be distinguished from what was called absorption.

DR. SHEPHERD mentioned that he visited Pawlow's institution in Russia, and saw the various animals under experimentation and was struck with the extent of the place and the equipment and facilities for research.

*Third Meeting, November 6th, 1903.*

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

The following persons were elected to resident membership: Drs. E. Hamilton White, A. R. Pennoyer, A. H. Gordon, T. A. Starkey, Charles K. P. Henry; and to temporary membership the Resident Staff of the Montreal General Hospital, namely, Drs. R. C. Paterson, E. M. McLaughlin, F. S. Patch, N. D. Paris, W. E. McKee, C. Anderson, H. E. Nelson, L. C. Bishop, H. Cowperthwait; and also Dr. Franckum of the Women's Hospital.

DR. LAPHORN SMITH:—The woman from whom the tumour was removed, suffered from a severe reflex nervous disturbance, such as might come from a lacerated cervix or from any other irritation of the parts in the region of the sympathetic. On examination it was found she had a lacerated cervix and on repairing this, I told her she had probably some tumour of the kidney, and advised operation. While in hospital I opened the abdomen in the middle line between the ensiform cartilage and the umbilicus and came upon a tumour the size of a cocoanut. This I found impossible to enucleate on account of the covering of thick fibrous capsule. I simply tied off this in segments all the way round and then enucleated the tumour. With it came the kidney, which I had to remove, as otherwise, in tying the adhesions the ureter and vein had to be sacrificed. At the time of operation the tumour was densely filled with clear limpid fluid. The ureter runs through the wall of the tumour and not through the tumour itself. The kidney has no capsule on the abdominal side, that having been left in; the other half of the kidney capsule was on the tumour. Marked improvement in general health followed the operation; the appetite and digestion improved rapidly. Here I would urge the advantage of operating through the abdomen for tumours of the



kidney, as it is safer and you have a better view of the condition. This tumour was right on the vena cava and if operated on from behind there was every possibility of injuring it.

DR. E. W. ARCHIBALD:—A living case of giant-celled sarcoma of the lower jaw; resection with prosthetic use of silver wire.

The patient, E. F., aet. 12, was admitted to the hospital on May 7th, 1903, with this condition extending from the first bicuspid on the right to the first molar on the left. The present growth, a recurrence, was noted first, three weeks before admission; growth rapid. First operation, a scraping one, done two years ago. On May 15th, resection was done leaving one molar on either side. Strong silver wire was inserted in double strand, bent to contour of chin, free ends clamped into bone of the right side, on the left side forming a loop. There was persistent sinus for several weeks, cured by small secondary operation.

DR. GARROW:—A point of importance to me, is the fact that silver wire can heal in a suppurating cavity. It is well-known that such sutures are used for closing deep fascial layers and that they are very often followed by suppuration, months and even years after the wound has healed, the silver wire becoming imbedded in fibrous tissue. I myself have had the annoyance of having to remove my sutures after a joint has united. I can remember three instances of this, and I have thought that very possibly their successful retention in the jaw may be due to the action on the wire of the mucus in the mouth.

DR. ELDER:—From an æsthetic point of view the case is an excellent one. Many of us have seen such operations, but the result here is a long way better, as far as looks and function go, and is a great advance on what has been done before. With regard to the use of silver wire, I have used it frequently in excisions of the knee and never had any trouble with it, and also have used it in ununited fractures, and I think the whole trouble lies, not in the silver wire itself, but in its insertion, a twisted end causing irritation. In a case such as Dr. Archibald's, one need not look for any such irritation.

DR. GIRDWOOD:—It is well to insist, in the use of silver wire, that it is pure and does not contain any copper; for if it contain copper, you will have a galvanic action, and therefore an irritation.

DR. J. M. ELDER:—An operation for radical cure of umbilical hernia. Page. 875.

DR. LAPHORN SMITH:—So far I have not had occasion to use this method. In small umbilical herniæ I employ silk-worm gut suture underneath the fascia behind the edge of the ring, tighten like a purse string and leave the stitches permanently. In the case of very large ventral herniæ where the intestine was adherent to the back of the sac

the whole way, I have left the whole hernial sac on in front of the bowel, and turned it into the abdomen, as it would have been a serious matter to take all this off the bowel. In all cases I look for the rectus muscle, insert a pair of probe pointed scissors, and then run around excising the rectus muscles without hæmorrhage. We see the rectus quite plainly with the external oblique fascia in front and the transverse fascia behind. I now close this with about 30 buried silk sutures, pulling the muscle well out, and when now brought together one has the two muscles well approximated. By this means you get quite a thick edge, the external fascia, the rectus muscle and the internal fascia. There are no chances of the hernia relapsing, though there may be some suppuration. Long ago it was the custom to take out the stitches in five days, but now I leave them in 21 days for better union. As I understood Dr. Elder's description of the operation, it is an overlapping of the layers and we get a valvular closure, it is a fairly easy, reasonable operation and has strong claims in its favour.

DR. KEENAN:—It seems to me this is not a new operation; I have not read Mayo's paper, but I myself did the operation in 1900.

DR. GARROW:—With reference to this method, I think its description may date back ten years ago, and it seems to me was first described by Champannière in Denis's System of Surgery. Denis recommends it as one of the methods of closing inguinal hernia and describes it accurately. I also think that Dr. Clarence Webster brought up this method some five or six years ago. While the method is comparatively simple and I have done the operation by this method myself, so far as ventral hernia is concerned, I have found it exceedingly difficult. In umbilical hernia the condition is different where you have simply a separation of the muscles. In old umbilical hernia it is not only unwise but very unsafe to attempt the reduction of the contents *en masse*. Here there are bands of fibrous tissue and there may not only be large intestine but omentum as well.

With regard to the purse-string suture in small umbilical herniæ, I have tried this and failed miserably, as it was impossible to approximate the edges of the opening. This may be due to the fact that most of these cases I operated on were in very stout women with thick walls and greatly thickened omentum. The difficulty was not only in approximating the tissues of the wound, but the tissues seemed to have undergone alteration and tore easily, I had to overlap and make a rather tight scar. The last two strangulated hernia I operated on, I followed a different procedure. After opening up the fibrous tissue constituting the wall of the opening and looking for the recti muscle, I found it so friable that it would not hold a suture. I, therefore, overlapped it, left the muscular tissue where it was, overlapped the

anterior layer—I simply overlapped the posterior layers and fascia in one direction, and the anterior layers and fascia in the other. So far as the operation as described by Dr. Elder, is practised in the lower zone, I think it is by long odds the best operation for the purpose, but for umbilical hernia I found it not possible to carry out.

DR. MONOD:—In this connection I have been taught to do two things, *viz.*, to increase largely the fibroid orifice through the linea alba and to open the sheath of the two muscles and bring them together, taking as much muscle as possible.

DR. ARCHIBALD:—The objection to reducing the hernia *en masse* is a very serious one; it seems to me that reducing a hernial sac with the contents inside would give opportunity for strangulation by loops of intestine. For that reason it is unwise not to open the sac.

DR. ELDER:—I think this purse string suture round small umbilical herniæ would only likely be beneficial in the infant variety; I do not think in the adult it could be depended upon. The method of curing ventral hernia by opening the edge of the sheath of the rectus is my idea of the Champannière method, which is a very old method indeed, and is a different idea from dissecting and overlapping of the two recti. With regard to the question of returning the sac, what I meant to say was in large ventral hernia due to separation of the two recti muscles, there is no particular objection to opening up this sac. But in umbilical hernia with a definite sac with a narrow neck, it would be well to see what the condition of the inside is.

DR. GARROW:—A case of congenital dislocation of the hip, reduction by manipulation. Illustrated by living case. Page 881.

DR. MONOD:—During two years in the Children's Hospital in Paris, I saw a good deal of this work and have myself done a little. I saw the first case operated on there by the Lorenz method. There is in all these cases a very slight shortening of the limb, and it seems to me that it is due to the fact that the natural cavity is not deep enough to keep the head. With regard to the other operation I should like to have seen the case, and to know why the bloody method was followed. Hoffa, who has done a great many of these operations, now employs the Lorenz method almost entirely as having more advantages.

DR. ELDER:—The lessons to be drawn from the case are more especially noted in the skiagraphs. From these may be shown the conditions which would favour the one operation, while others would show conditions favouring the other. In the first case the skiagraph shows a fairly good acetabulum, and with this one might easily hope to get the head into the cavity with a good result; but where there is no acetabulum, little is to be hoped for by the Lorenz method, but much more by the open method, and the skiagraph will, it seems to me,

determine which is the best to pursue. A great deal can be learned from a good previous skiagraph of the case. With regard to the shortening, I do not agree that the reason for the shortening is that you do not get the head into the proper acetabulum. I think that it is an anatomical difference; the femur for instance not developing normally.

DR. GARROW:—Notes on a case of congenital absence of the Fibula with deformity of the femur in a child of three weeks. Page 880.

DR. CHIPMAN:— With regard to this case one might consider the etiology from an embryological standpoint, and I am rather surprised by the way in which the etiology has been given as to the causation of this deformity, that is, due to the pressure of the amnion upon the embryo as it lies in the amniotic sac. Deformities caused by the pressure of amnion are invariably extrinsic, that is they are invariably associated with the skin surface of the fœtus and give rise to forms of skin adhesions. Here the absence of the fibula and some deformity of the ankle joint show we are dealing not with the skin surface of the embryo but with the mesodermic core, and it is rather difficult to see how the mere pressure of a membrane such as the amnion on the skin surface, will account for the maldevelopment in the mesodermic core. This is rather due to an intrinsic cause than to an extrinsic one, or pressure.

DR. GARROW:—In reply to Dr. Monod's remarks about the shortening, and the possible explanation of its being due to the head of the bone not having its proper acetabulum; that I cannot be sure of, except that the skiagraph shows a very well placed head, but I have recently seen cases where the head of the bone actually took a position in front of the acetabulum. I agree with Dr. Elder, and from my experience in the open method, that the shape of the head of the bone itself is a factor. With respect to my reason for not doing the bloodless or Lorenz method in both cases, I would say that the skiagraph showed a very distinct hour-glass narrowing, the lower part of the capsule was stretched tightly across and the acetabulum itself was filled up with cartilaginous substance, and the head was only put in proper position after I had gouged out enough of this material to form a cup-shaped depression.

*Fourth Meeting, November 20th, 1903.*

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

DR. WESLEY MILLS : Paper : The Neurone Doctrine considered Anatomically, physiologically and Pathologically, together with the objections to be urged against the Concept in its original form—illustrated by lantern slides.

## CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

## AN URGENT APPEAL FOR MEMBERSHIP.

DEAR DOCTOR:—Our annual statement to the meeting held at London, Ont., during the recent session of the Canada Medical Association showed that while the membership increased slightly last year, yet we are far short of our expectations of success as a vigorous society, and we have determined once more to make an effort to arouse our brethren to a sense of the importance of our undertaking.

In every instance that we have undertaken to defend one of our members in the Courts we have succeeded, but as it has been pointed out again and again, the legal expenses are heavy and though we have won, the costs have had to be met inasmuch as the Plaintiffs were Sheriff proof and worth nothing. Since our organization we have paid out in this way \$1,026. Our Exchequer is now practically empty as we owe our bank balance to our Solicitors. Our recent successful suit in defending Dr. Watts at the Cornwall Assizes has brought us in a further bill of costs of 250 dollars which must be met in all fairness to Dr. Watts, and while we are appealing for assistance to the profession at large we are notified of another writ at Gananoque where one of our members is sued for a case of death from Tetanus following a vaccination. If our good work of assisting a brother attacked for malpractice is to go on we must look to the general profession to join us and by their annual fee put the Executive in a position to defend. This appeal is urgent and while Jan. 1st is the date upon which we expect men to join, we are compelled to ask for the 1904 fees now. Everywhere an occasion offers we are encouraged by promises of support to go on, and we realize that it is thoughtlessness only that keeps our list so small.

We confidently look for a greatly increased list of members this year, otherwise we will be obliged to cease our existence as the Executive cannot be expected to make themselves personally liable for legal expenses.