

## Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /  
Couverture de couleur
- Covers damaged /  
Couverture endommagée
- Covers restored and/or laminated /  
Couverture restaurée et/ou pelliculée
- Cover title missing /  
Le titre de couverture manque
- Coloured maps /  
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /  
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /  
Planches et/ou illustrations en couleur
- Bound with other material /  
Relié avec d'autres documents
- Only edition available /  
Seule édition disponible
- Tight binding may cause shadows or distortion  
along interior margin / La reliure serrée peut  
causer de l'ombre ou de la distorsion le long de la  
marge intérieure.
- Additional comments /  
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /  
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /  
Qualité inégale de l'impression
- Includes supplementary materials /  
Comprend du matériel supplémentaire
- Blank leaves added during restorations may  
appear within the text. Whenever possible, these  
have been omitted from scanning / Il se peut que  
certaines pages blanches ajoutées lors d'une  
restauration apparaissent dans le texte, mais,  
lorsque cela était possible, ces pages n'ont pas  
été numérisées.

THE  
MONTREAL MEDICAL JOURNAL.

---

---

VOL. XXXIX.

MARCH, 1910.

No. 3.

---

---

DEMONSTRATION OF THE TRACHOMA BODIES.

BY

S. HANFORD MCKEE, B.A., M.D.

From time immemorial, trachoma has existed in Europe as an endemic disease (Fuchs). When the armies came in contact with each other or with the civil population, the disease occurred in epidemics and became widely disseminated. Its contagiousness, placed beyond doubt by the positive inoculations in blind eyes, has been well understood for years, but the cause of this dread disease has, up to the present, remained a mystery, not from want of searching, because during the last fifteen years research in this department of ophthalmology has been most active.

From time to time, numerous micro-organisms have been put forward as the cause of trachoma, without definite proof, until workers in this subject had become convinced that without newer methods, the cause would not be found.

It remained for Halberstedter and Prowazek to make the first great advance in our knowledge of trachoma. These men while working in Java on syphilis found in the epithelial cells in cases of trachoma inclusions which were constantly present. In many of the cells these granules coalesced and formed bodies which covered the nucleus like a cap. Prowazek believed them parasitic and called them chlamydozoa. They inoculated orang-outangs and presumed contagiousness from the appearance of follicles in the epithelium. This report was published in 1907, and since that time their findings have been corroborated by several workers. Sceptics were not wanting, however, and many said that they had seen similar bodies in other forms of conjunctivitis. It was difficult at first, without good photographs, to know just what Halberstedter and Prowazek described as the trachoma bodies, especially as they noted dark blue spots close to the nucleus, the plastin clots of Prowazek, who believed they represented the reaction of the cell to the intruding microbe. It is possible that these plastin clots have been confused with the real trachoma bodies.

---

Read before the Montreal Medico-Chirurgical Society, February 4th.

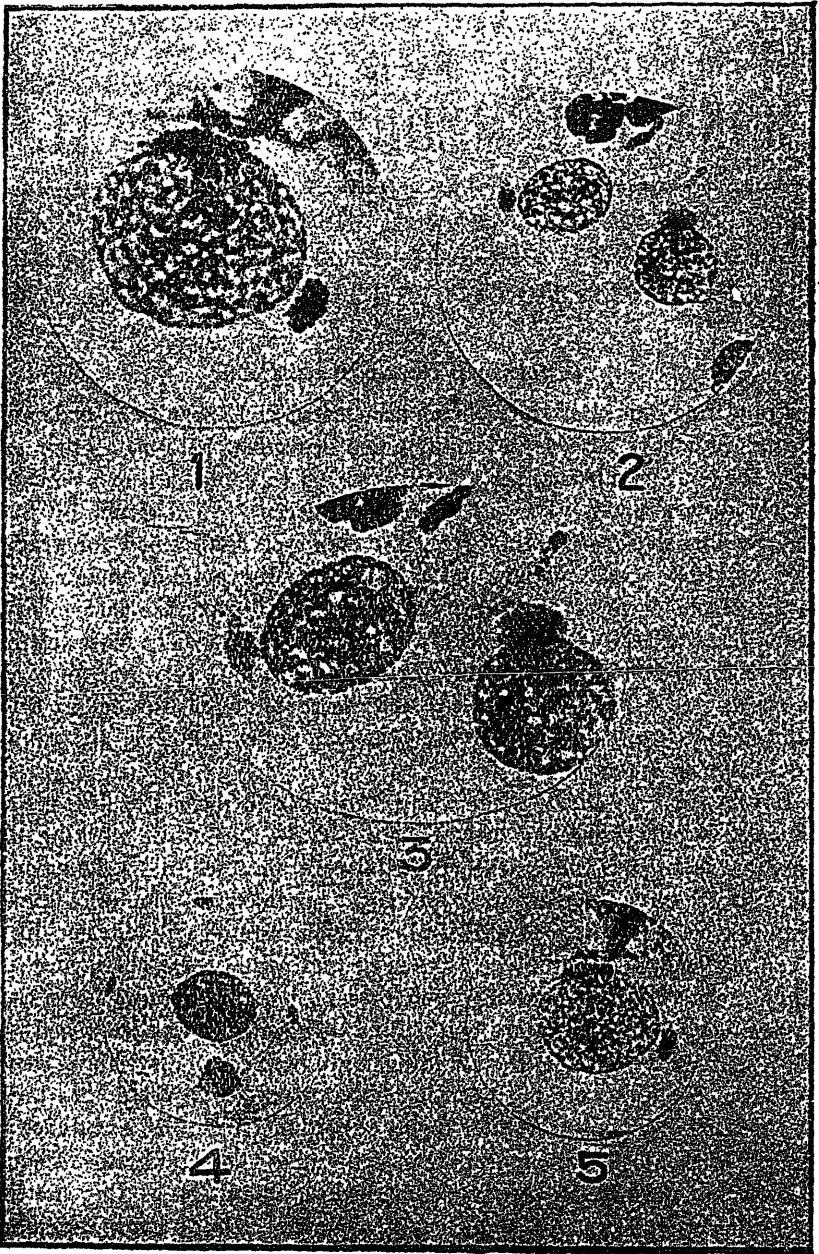


Fig. 1. Smear from case 3, Giemsa stain, magnification 2,000 diameters. Two bodies are seen, one attached to the nucleus of the cell, while the other has a definite space between it and the cell.

Fig. 2. Smear from case 4, Giemsa stain, magnification 1,000 diameters. Two bodies are seen associated with two nuclei.

Fig. 3. This is the same as Fig. 2, except the magnification, which is 2,000 diameters.

Fig. 4. Smear from case 5, Giemsa stain, magnification 1,000 diameters. The trachoma body here is very small, and situated some distance from the nucleus of the cell.

Fig. 5. Same as Fig. 1, except magnification, which is 1,000 diameters.

Fuchs, from the work of his assistant who has found these bodies in large numbers of fresh and old cases, believes their presence of value from a diagnostic point of view.

Others, as Addario, believed them artefacts composed of sedimented staining matter mixed with degenerated cells in the course of histological preparation. Lodato, who claimed to have seen them in Spring Catarrh, was of similar opinion, but as Clausen at the last International Congress stated, Addario and Lodato had not submitted any microscopic proof in support of their contentions. The bodies which they described were not identical with trachoma corpuscles, had been seen by him in various forms of conjunctivitis, and could be distinguished readily, after some practice, from the Prowazek bodies.

We have been naturally greatly interested in the subject, in Montreal, because we sometimes see fairly active trachoma here. While waiting for a suitable case to present itself, and to master the technique, about fifty cases of other conjunctival inflammations were examined. In none of these were we able to find the trachoma bodies. About three weeks ago an adult male, a Roumanian who had been in Canada one year, presented himself at the Outdoor-Clinics of the Montreal General Hospital with acute mild trachoma. The conjunctiva was scraped with a dull scalpel and the material smeared well over glass slides. These were dried in the air, fixed in absolute alcohol for ten minutes, and stained for twenty minutes with the new Giemsa stain, to one drop of which fifteen of distilled water were added. The results were very satisfactory. In every slide prepared during a period of eight days, the so-called trachoma bodies of Prowazek were found. They are round bodies, smaller than cocci, and within the protoplasm of the epithelial cells. They are sometimes grouped in masses which as a rule are close to the nucleus of the cell. Naturally these masses vary considerably in size. Sometimes these bodies are seen surrounded by a halo or mantle. This form is supposed to represent a stage in the development of these bodies. A piece of the palpebral conjunctiva was taken and fixed in Zenker's solution. Some very beautiful slides stained with eosin and methylene blue by Dr. Wolbach were obtained. Numerous trachoma bodies were found within the epithelial cells. All these points are well illustrated by the specimens under the microscopes. Regarding the variation in size, a point which may be of interest is that, in the slides prepared on the seventh day, the bodies were much larger than those in the slides prepared during the last few days, also in two of the positive cases which we have had, the halo forms were found in the initial slides. Previous to examining these cases, I had a case of trachoma where I thought the bodies should be easily demonstrated, but from faulty

methods, or some other reason, they were not seen. So that in the six cases of active trachoma examined, we have found the Prowazek bodies in five. Whether these inclusions are parasitic or not, or whether the causative agent of trachoma has not yet been determined; but their specific nature is now fairly well established and this means a big step forward. Diagnosis is made easy and certain. We see a number of cases at the Montreal General Hospital, where clinically a diagnosis would be difficult, but by excluding diplobacillary conjunctivitis by means of bacteriological methods, the task is greatly lessened. Now with the aid of the trachoma bodies, diagnosis will be put on a very definite basis. With that, the disease will be defined with exactness, and the old question of follicular conjunctivitis and trachoma settled.

For the accompanying micro-photographs I am indebted to Dr. S. B. Wolbach.

---

### TABES DORSALIS AND THE "ERSATZ-THEORIE."

*Illustrated by Four Cases from the Neurological Clinic, of the Royal Victoria Hospital, Montreal.*

BY

COLIN K. RUSSEL, M.D.

Neurologist to the Royal Victoria Hospital.

Edinger's original paper on what he called the "Ersatz-theorie" of Tabes Dorsalis, was published in 1894-5, in a German journal to which few of us here have access; and the excellent paper on the same subject by his assistant Holmes, published in the Dublin Journal of Medical Science, in 1901, has also to a large extent escaped notice. Feeling, therefore, that this explanation of the ætiology of Tabes deserves your attention, I have pleasure in presenting these cases, which illustrate the truth of the theory so well.

*Case I*—S. C., male, aged 35, by occupation *chef* on a dining car, came to the out-door Neurological clinic on August 3rd, 1908, complaining of failing vision, sudden sharp shooting pains in the legs and back, and some difficulty in walking in the dark.

*His history was as follows*:—He contracted Lues 12 years ago and was treated for 5 months by hypodermic injections of mercury, Fourteen months ago, i.e., before admission to the clinic, he first noticed failure of vision which progressed, till on admission, he could read only the heading of the newspapers with the left eye, and he was blind in the right eye. For four months before admission he had noticed some impaired sensibility of the bladder, being able to go for 24 hours without desire to empty it; he has now some difficulty in starting

the stream. There has been some difficulty in walking in the dark, and there have been definite lightning pains.

*On Examination:*—There is bilateral optic atrophy, causing blindness in the right eye and very defective vision in the left, he can count fingers at about two yards; the pupils are inactive to light but react to accommodation. There is a scarcely perceptible ataxia of the lower extremities evidenced in touching the heel to the opposite knee, and a slight impairment of the sense of position of the muscles, which is shown by his not knowing in which direction one moves his toes if his eyes are closed when one is doing it. The knee and ankle jerks are absent. Romberg's sign is present. This patient's condition has not altered perceptibly since his first admission, save that for a time, at the end of last winter, it was noticed that there was an increase in the loss of the sense of position in the lower extremities. This was accounted for by the fact that he used to walk into the clinic from one of the suburbs every week or two, and the walking was very heavy.

It is evidently a typical case of Tabes with optic atrophy.

Now, on going into his history more carefully, it is found that while employed on the dining car he was in the habit of reading for two hours every afternoon and again from 9 to 12 at night, usually lying down in his bunk, by the light of a coal oil lamp, while the train was running along. The strain on his eyesight can be imagined. It is interesting to note that impairment of vision was for a long time his only complaint, and especially that since he has given up all occupation that would cause any strain on his sight, this has not become any worse.

*Case II*—G. P., male, aged 33, by occupation a tailor, came to the clinic on October 18th, 1909, complaining of disturbance of vision, weakness in the arms and "electric shocks" in the arms and legs, occasional vomiting. He gives a history of a primary luetic infection eleven years ago, for which he was treated at the Montreal General Hospital for four months by inunctions of mercury. His present trouble began three years ago with disturbance of vision, and the eyes became crooked as they are at present; about the same time he began to suffer from pins and needles sensation in the arms, and he had increasing difficulty in carrying on his occupation of sewing. Some time later he developed these sensations in the legs also. He states that he empties his bladder about once a day as a rule.

*On Examination:*—The fundi are normal, there is marked bilateral ptosis with compensatory contraction of the occipito-frontalis in the endeavour to hold up the eyelids, there is an outward deviation of the eyes due to a weakness of both internal recti; he can fix either eye on an object to the nasal side, but there is marked secondary outward devi-

ation of the other eye on the attempt. There is a slight impairment of upward movement of the right eye.

The right pupil is larger than the left, and neither react either to light or to accommodation. There is very marked loss of tone in the upper extremities but no actual loss of power, the use of the arms, however, is interfered with by an extreme ataxia, especially on the right side (it might here be noted that he is a right handed man); the loss of tone in the lower extremities is scarcely perceptible, and as you see there is little or no ataxia in walking. There is an extreme loss of the sense of position in the upper extremities, if with his eyes closed he is told to touch one thumb with the finger of the other hand, he can only do so by finding first the elbow and following up the limb from that. There is delayed sensibility to pain in the lower extremities, and to a lesser degree in the upper. The knee and ankle jerks are absent.

On inquiring into this man's occupation we find it was to sit and sew all day, threading his own needle. We have, then, immediately the explanation of the location of the disease in this case. "Function creates the symptom complex." We have then here, not the usual and simple loss of the reaction of the pupils to light, but owing to the patient's occupation necessitating the frequent use of the reflex of accommodation in order to thread his needle, the neurones governing this movement have also become affected, and we have the loss of reaction of the pupil to accommodation, and paresis of the internal recti. In the same way the reason for the affection of the arms is obvious, and the escape of the lower extremities.

*Case III*—A. C., male, aged 44 years, by occupation a cigar roller, came to the clinic on July 32nd, 1909, complaining of blurred vision for the last two years, and some difficulty in walking in the dark for six months past; he has had shooting pains in the legs for the last 13 years, and girdle sensation. He frequently passes a day without the desire for micturition and has difficulty in starting the stream.

*On Examination*:—There is bilateral partial optic atrophy, the pupils have lost the reaction to light, but react to accommodation. There is a slight but definite ataxia in the upper extremities, especially marked in the right arm, and a very definite loss of tone in the muscles; the ataxia is also present but to a less extent in the lower extremities. The knee and ankle jerks are absent. Romberg's sign is present.

On looking into his history more carefully, we find that previous to two years ago his place at work was in a very dark part of the room, and he says it was a great strain on his eyes to see well enough to finish off the ends of the cigars; since that time he has his seat in a better lighted part of the room near the window.

*Case IV.*—A. S., male, aged 36, a shoemaker, admitted to the hospital under Dr. Martin, December 30, 1909, complaining of inability to walk, and lightning pains.

For three or four years the patient has been in the habit of congratulating himself on his ability to hold his water, even making it a matter of boasting that he could go from the time he got up until he went to bed again, without emptying his bladder. In April, 1908, after selling his place of business, he started out with what was left to him in a bullock waggon, and walked for eight days and nights across country, in cold and rainy weather, becoming terribly fatigued and was "snow blind" for weeks after this; from that time he has been unable to walk without support, not being able to control the movements of the legs; he cannot attempt to walk in the dark. In May, 1908, he found that he could not urinate when he wanted to, and he began to have incontinence. He has had the lightning pains for the past seven months. There is a history of a chancroid 10 years ago, but there were no secondary symptoms.

*On Examination:*—The fundi are pale and atrophic looking, there is the typical Argyll-Robertson pupil, and internal strabismus due to a paresis of the left external rectus. There is marked loss of tone and extreme ataxia of the lower extremities, so much so, that the patient cannot walk; he has impairment of sensibility over the feet and about the mammary regions. The knee and ankle jerks are absent.

Following the other cases, the explanation of this one is obvious. Of course the snow blindness was simply a conjunctivitis, but the glare of the snow on the eyes was quite sufficient to cause a partial optic atrophy,<sup>1</sup> and the journey, exposed as he was to wet, cold and extreme fatigue, sufficient to produce exhaustion and determine the symptoms in the lower limbs.

We know that there are certain changes which take place in the functioning nerve cell; these may be demonstrated under the microscope; they consist in a breaking up of the Nissl bodies, and further a swelling of the ganglion cell with an emigration of the nucleus towards the periphery, and finally, if the hyperactivity of the cell be continued, and extrusion of the nucleus and the death of the cell. If, however, the activity of the cell cease before the extrusion of the nucleus we know that the cell will recover, under normal conditions, its original appearance.

Now, in Tabes, "function determines the symptom complex." There is, in this disease, the presence of a toxine, usually syphilitic, which renders the nutritional papulum served to the nerve cell not sufficient

<sup>1</sup> Edinger reports a similar case of a naval officer who developed optic atrophy from being exposed to the glare of the sun off the water while superintending target practice at sea.



for its needs. This power of recuperation of the cell must be limited or even in abeyance. There results a loss of compensation as it were, with a gradual and progressive impairment of vitality of the neurones in question, and finally their death, their place being taken by connective tissue. Which are these neurones in question? Undoubtedly the sensory neurones function more than any others. They are always active. We are continually getting information as to the position of our limbs in space, and the amount of contraction in an acting muscle, and it is the neurones which subserve this function that are first affected, causing the ataxia and the loss of tone. Usually it is first in the lower extremities, but that is simply because most people use their legs more than their arms or other parts.

In the same way the Argyll-Robertson pupil is accounted for, as undoubtedly our pupils react much more frequently to light than to accommodation.

The same theory accounts for the involvement of the bladder so frequently seen in Tabes,—first an impairment of sensation owing to the exhaustion of the sensory neurones supplying the bladder, and a consequent lack of sensitiveness so that the patient can hold his water for 12-24 hours without a desire to pass it, and this causes a loss of tone in the bladder, and the complaint that he must wait a minute before he can start the stream. It accounts also for men being so much more commonly affected than women, for, as a rule, they must lead so much more strenuous a life. Mendel, in Berlin, showed this very well. In his private clinic among the upper classes, the proportion of tabetics in men and women was 25 to 1, while in his policlinic in the slums of the city, where the women lived equally hard lives with the men, the proportion was 6 to 2.

It accounts for why when optic atrophy comes on ataxia of the limbs does not develop, or if already present it improves, because when a man is blind he cannot exert himself overmuch, cannot over fatigue himself.

It accounts for why the natives of the Southern Continents are so immune to Tabes, their climate and natural lack of energy preclude over fatigue. It does not account for the lightning pains or the various visceral crises, but as Gowers has suggested, these are probably due to some chemical irritation of the nerves produced by the degenerative changes.

It may be asked why are not the motor neurones affected, why do we not get muscular atrophy, and so on. If you will remember, the anterior horn cell is naturally adapted to respond to two sets of stimuli; first those from the cerebrum by way of the upper motor neurone, and second, those reflex stimuli from the sensory cells at the same level

in the cord. While the cerebrum is at rest during sleep, or when we are not moving, the anterior horn cells have an opportunity of resting and recuperating, and when the stimuli from the spinal sensory cells are cut off owing to their degeneration in this disease, the anterior horn cells have still further opportunity for resting.

This theory also accounts for the exacerbation of symptoms after any acute infection, accident or shock, the additional toxins in the system impairing still further the recuperative power of the cells. It accounts for the number of cases of tabes that develop in soldiers newly sent on active service. The 4th case referred to is an example of this. It accounts, also, for those few cases where there is even on careful and exacting investigation no evidence of primary syphilitic infection, some other slowly acting toxin may be present impairing the recuperation of the cells.

Will this theory account for the pathological picture we find in Tabes? We think it will. There is the degeneration and sclerosis of the posterior columns, usually most marked in the lumbar region, but in cases of cervical Tabes, such as the three first cases shown to-night, the sclerosis is most marked in the cervical region. At the same time there are relatively few changes to be found in the posterior ganglia from which these degenerated axis cylinders arise. Just as in a plant that has not had sufficient nourishment it is the leaves and branches which die first, the roots still retaining their vitality, so it is with the nerve cell when its nutrient pabulum is insufficient, the parts farthest away from the nutritional centre are the first to die and their place is taken by connective tissue, giving rise to the sclerosis of the posterior columns of the cord. None of the other theories of Tabes based on the pathological picture of the disease will account for the clinical findings in so satisfactory a manner, they do not account for the preponderance of male tabetics over women, nor for the improvement of the ataxia when optic atrophy develops, nor for the development of the optic atrophy itself, nor for the Argyll-Robertson pupil, nor do they account for the cervical region being affected in one case and the lumbar region in another. Again, if we accept this theory as the true one, it immediately puts into our hands most obvious and definite indications for treatment at least prophylactic, and the results of this treatment bear out the truth of this theory. This is especially seen in the re-educational treatment of the ataxia. The patient must avoid fatigue of any part.

A CRITICAL ESTIMATE OF THE MEDICAL EDUCATION OF  
THE DAY WITH SUGGESTIONS FOR THE RE-  
ORGANIZATION OF THE PHYSIOLOGICAL  
DEPARTMENT OF MCGILL UNIVERSITY.

BY

WESLEY MILLS, M.A., M.D., Professor of Physiology.

As the suggestions I have to offer in regard to the reorganization of the Physiological Department rest on my present views as to Medical Education, I will ask your patient attention to these views expressed somewhat briefly. They might be summed up in two statements:

1. Our present methods of education or dealing with students are a great improvement in many respects on those in existence when even the youngest member of the Faculty was an undergraduate.

2. The methods we now employ, and those we omit to use, cause a condition of mind in students which is highly unsatisfactory. This probably applies more fully during the first three years of the course than during the last year or two.

The improvement in our methods consists in the following:

1. The greater opportunities students have to observe by demonstrations, etc.

2. The improvement from laboratory work, and clinical observations carried out by the students themselves.

3. The time was when students at McGill could boast that they had passed examinations in certain subjects—and not in one but several—without having opened a text-book.

That is scarcely possible now though some students come near to it, anatomy always being an exception. Students once did practically no reading except of the notes of lectures. Now they do some—at least a little—and a few students, a good deal.

A student is not now supplied with information in purely abstract form. His demonstrations and laboratory work help, at least to some extent, in the comprehension of what he hears and reads. We have made an advance and we are likely in a condition not either much worse or much better than, on the whole, other first-class Medical Schools; and though we might in some directions, imitate these institutions, I maintain that we are in a transition stage as regards medical education, and far from what might be, and should be, at the present time.

We give information in better form than ever before; but we ourselves supply too much and require the student to seek too little for himself; and this imparting of information, with even the best *exposition*, is not to any considerable extent educative.

In education there are two broad factors: (1) The person or subject and (2) the environment. There must be a reaction between the subject and the environment.

All that influences the subject falls under "Environment," and in this the so-called means, and especially the teacher, used only to produce one result in the student—development in all directions.

Unless the distinction is clearly made between giving information, and educating or developing, we shall continue to make serious mistakes.

He is the best teacher who stimulates the student to make the most out of himself, while the pair is associated, and who leads him to continue his development, after they separate. It follows that a teacher may impart excellent information and even be an expert in the art of exposition, yet fail according to the standard indicated above; yet ever since I have known medical teachers they have been judged almost wholly by this narrow and false standard. Judged by the higher standard of development and power to go on developing, is the medical education of to-day anywhere a complete success?

Have our students a desire for knowledge for its own sake? Have they the power to observe independently and to draw conclusions? Have they any originality or even individuality? Can they get knowledge for themselves—real knowledge to be attained only by the use of certain means? Do they ever desire to acquire knowledge in this way?

Speaking more especially for the earlier three years and for the great majority of the students, I must, after a long period of observation, answer these questions, on the whole, in the negative.

I therefore conclude that our methods are not a genuine success, and that the sooner this is realized the better. Why are they a failure? In a word, because the methods are not adapted to the subjects (the students).

What course do we now follow? We subject all students independently of their general capacity, special aptitudes, or the reverse, to substantially the same methods of treatment. We do not believe in shotgun prescriptions, and the one prescription for everyone who has a cough, but in our medical education this is the plan followed. So many lectures for all men and the same lectures; so many hours of laboratory work and the same work, with no special exercises for special men or groups of men; no special helps for the weak; no special problems for the strong to solve. Consider, too, that we take men who who have been quite unused to scientific observation and who have known little else than learning, so-called, from books, and we give them all alike a great deal to observe, and we require or give little or no attention to the use of what alone they previously understood

to some extent, the use of textbooks and other reading matter. We encourage but little, if at all, the spirit of finding real knowledge; or otherwise put, we encourage little the spirit of investigation. How is it possible—to go no further—to educate men who are kept occupied almost wholly in the mere getting of information or absorbing from 8 a.m. to 6 p.m., as is the case with the present third year class? There can be no healthy mental state under these conditions.

We should look the facts fairly in the face and reform our ways greatly, if not altogether. We should substitute education or development for the gathering of information with a minimum of development. This will imply our seeming—to superficial observation—to do less, but in reality to our accomplishing much more.

McGill may be hampered by the condition of things existing elsewhere, but unless we are blind to our failures reforms should begin at once. I have had the opportunity to test these principles on several occasions among our students and with the best results. But I have been helpless as regards any radical changes such as I believe are called for, though I have long profoundly distrusted that treatment of students, which, unfortunately, as I think, seems so satisfactory to many teachers.

You will now, if I have succeeded in making myself clear, understand the better the recommendations I am about to make. Physiology, though it is one of the great essentials in all sound medical education, is a sort of shifting sand heap. There is scarcely a single principle, perhaps not one, that is not liable to be changed any day by new investigations. This state of things is partly due to the inherent difficulty of the subject, and partly to the fact that confirmations of original researches are not encouraged and are rarely mentioned except incidentally. It results that most teachers must present to their students facts and principles on trust, for the field that any one man can cover with really valuable and wholly new investigation must be very limited. For six or eight years I have myself largely confined my investigations to the experimental examination of what I had to teach. This has not led to publication that brings reputation, but it has enabled me to be a much more helpful guide to my students especially in those departments of the subject which I have been able to work out by experimental investigation.

It seems to me that the time has come for a further evolution in University teachers. We can no longer expect the one man to be at the same time the highest kind of teacher in the sense in which I use the term in this communication, and also a first-class investigator making really important original discoveries. I would remind you that here in McGill we have had a department in which this differentiation led

to the happiest results. In the Physics Department we had in Professor Cox an admirable, if not even an ideal, teacher; and in Professors Callendor and Rutherford two rare investigators. It would have been a hardship to have expected frequent original results from Professor Cox, and it would have been wasteful and almost educationally criminal to have consigned such men as Professors Callendor and Rutherford to teaching.

My recommendations for the reorganization of the Physiological Department then take the following form:

1. I would have a complete reorganization, and would not seek to retain any teacher now employed who may indicate that he would prefer to resign. This is said with all respect for the present members of the staff. Little reliance is to be placed on teachers engaged in medical practice, especially as regards laboratory work or investigation.

2. There should be a head for the Department who shall be a natural organizer and teacher; one who believes strongly in the importance of doing the best possible for undergraduate students; one who has had experience in various kinds of teaching; a man especially of broad views; one who believes that medicine is biology, who is dissatisfied with the present condition of medical education and desirous of improving it, and who believes in constant research with a view to know what to teach, as well as—to a much less extent—with a view to publication.

Such a man may be hard to find, and I don't think that money alone will discover him.

3. In addition, a man who shall have practically nothing to do with the ordinary teaching courses, but who shall devote his whole time and energy to original research of a high class and worthy of publication.

The researches should be of a broad character in the physiological laboratory, because I think the sooner laboratories can be established in connexion with each hospital in which the problems of the clinician can be worked out, the better. I would have the hospital laboratories separate from the general physiological laboratory, though in friendly association, for purposes of reference, etc., but not necessarily further connected. The purpose of the one is to keep physiology broad; of the other—the clinical—to work on narrower, practical problems such as arise in connexion with clinical medicine; in which, of course, questions of chemistry, pathology, etc., would be considered as well as those of physiology. Many problems require investigation from several points of view.

The investigator of the physiological laboratory should be an independent research worker requiring neither assistance nor supervision.

He might be engaged for a limited period, as it is always difficult to judge how a man may turn out in a new environment.

4. There should be a third man (who would not have the title of professor) to give himself chiefly to teaching, to act as an assistant to the head of the Department, and who might also assist the chief investigator or carry on independent research work, though he would likely not have much time for either during the regular college year. The division of the work into chiefly teaching and wholly research seems to me of the greatest importance.

If the above scheme could be carried out with what it implies, such as the utilization of some of our own graduates or those of other universities in research, etc., I am satisfied that a department of physiology could be established at McGill, such as scarcely exists anywhere else in America at least—always provided that the right men are secured.

Such a scheme would be expensive; but if it could become a reality. I would feel that it had been worth, while for me, as a pioneer, to have held on to the department of physiology through evil and through good report, as I have tried to do, up to the present.

I would again reiterate my belief that it is our duty to present to the Governors of the University plans for high achievement. It is for others to provide the money required to make them effective.

---

## LOUISE BOURGEOIS AND SOME OTHERS.

BY

HERBERT M. LITTLE, M.D.

Lecturer in Obstetrics, McGill University, and Assistant Accoucheur to the Montreal Maternity.

While in Canada and the United States the midwife is but little known outside of those sections of the larger cities populated by the most recent arrivals from Central Europe, anyone who has visited the large obstetric clinics on the Continent, or even in Great Britain, has realized the important place taken by the midwives in those institutions. On that account a short review of the most remarkable of the women known to obstetric history may be of interest; and since to enter fully into details respecting each of these would take too much time, I have confined my particular attention to one, Louise Bourgeois, possibly the best known, and shall give but a few words to most of the others.

---

NOTE.—This paper contains extracts from Fasbender's "Geschichte der Geburtshülfe," and Witkowski's "Accoucheurs et sages femmes célèbres," "Les Accouchements a la Cour," and "Accouchements chez tous les peuples," made and arranged for the McGill Reporting Club, February 13th, 1910.

Among the earliest theological controversies were heated arguments as to Adam's course with regard to the umbilical cord of Cain and Abel, and again over the Scriptural record that "God created man in His own image, *male and female* created He them." The latter was the starting point for a very warm controversy upon the question of reproduction. Many writers conceived the earliest of our parents as hermaphrodites, and St. Thomas went so far as to say that in the state of innocence man was reproduced by faith alone, that the organs of generation were the indelible mark of his sin and folly. The necessity for the female in reproduction gave rise to the idea of the Ancients that Lilith was the first wife of Adam.

The first mention of a midwife, of which we have any record, is in Exodus i, xv. where we are told of Puah and Shiphrah who received the command of Herod to kill off the male children born to the Hebrew women. It is suggested that this was to be accomplished by leaving the umbilical cord without ligature, but the origin of this belief I have been unable to find. It is interesting to know, in view of our experience now with Hebrew women, that the explanation given by these midwives for their failure to destroy the male children born, was, "that the Hebrews are not as the Egyptians, but are lively, and are delivered before the midwife comes to them."

In the Greek era we find four famous midwives, Elephantis, Olympia, Aspasia, and Laïs, the last named a celebrated courtizan, famous for her skill in inducing abortion. Also, we read of one Agnodice, who defied certain Athenian laws relating to the employment of midwives. She studied under Herophilus, then disguised herself as a man, and went about revealing her identity to those in labour. There was a consequent falling off in the practice of many of the accoucheurs, who thereupon accused Agnodice of being a "debauché and a corrupter," and said in fact that many women simulated illness in order to have her (him) called. Summoned before the Areopagus, Agnodice saved herself by revealing her identity, only to be met with more serious charges. This time, the suffragettes of Athens, interested in her behalf, rose in their might, and the obnoxious regulation of the Athenian court was withdrawn. This is a very good story, but is probably untrue, as we know that Phenarète, the mother of Socrates, was a midwife, that Cleopatra wrote a treatise on the diseases of women and described a pessary, and that Artemesia, Queen of Caria (B.C. 350) was also renowned as a midwife. It is questionable, therefore, whether the confinements of ancient Greece were not wholly supervised by midwives.

Certain beliefs and practices dating from a still earlier time lent much to the mystery and superstition surrounding conception, impreg-



nation and delivery, and made it possible for these matters to be left for centuries under the supervision of the Church, which in turn controlled the midwives. For example, the question of sterility was determined by wrapping the standing patient in a mantle, then fumigating from below. If the fumes emanated from the mouth or nostrils of the patient so wrapped up, it was a sign of fecundity. Again, the Rabb Kahana recognised virginity by the odor of wine that could be detected at the vulva. The questions of virginity and fecundity were extremely important and we find in the Talmud, and indeed all down through the earliest literature, various means for their investigation and determination. For example, the diagnosis of virginity by loss of blood at copulation might be unsatisfactory, and when in doubt a further test was made much in the same way as already described for fecundity, that is, fumigating below and ascertaining whether the odor of the fumes could be determined by the nostrils of the patient herself. Examination was considered necessary if this test was likewise unsatisfactory. In a very early treatise, the Haghigah, we find reference to the so-called "aura seminalis." It was suggested that a woman might be impregnated by bathing in water in which males were wont to bathe. A corollary to this was found in the belief that in the Fountain of Conato, which ran at the foot of Mount Argos, one might bathe and reacquire virginity. We are not told if the bathers were masked. Other precepts, from the same source, were that impregnation could not occur from a single cohabitation, and that pregnancy dated from the intercourse nearest to the menstrual period. Hence too the belief, which has come down to us, that a seven months' child would live and an eight months' child would die; and that further if the mother and child died, the child invariably perished first. An observation of movement after maternal death, which might have been taken as contrary to this precept, was explained by a comparison of these movements to those of the severed tail of a lizard.

One, Trotula, of the School of Salerno, in the middle of the eleventh century, obtained much renown. She believed that fumigation, sneezing, coral about the neck, or the placing of a large magnet in the right hand would aid difficult labour. She was the first to teach the reposition of prolapsed members, and rehabilitated the teaching of Soranus with reference to supporting the distending perineum with cloths. She too was the first to mention a complete tear of the perineum and its repair. Still another interesting character was one Marguerite Cobbe, who attended Elizabeth Woodville, the wife of Edward IV. at the birth of the two princes, later murdered in the Tower. She obtained for her services, by letters patent, April 15th, 1470, an annuity of ten pounds sterling.

As evidence of the social standing of the Art it may be mentioned that Yolande d'Aragon, the mother-in-law of Charles VII., assisted Mesdames de Gaucourt and DeFienes in deciding upon the question of the virginity of Joan of Arc.

In France, up to the year 1200, the Church controlled the midwives. In this year the Faculty of Medicine was created and from this time it became customary in the more difficult confinements to call the aid of a surgeon. The earliest official record for Paris, that for the year 1290, gives the name of but two midwives or "ventrières." These ventrières were charged at the Chatelet with the decision of all medico-legal questions, in addition to their duties as midwives. In 1378 they were attached to the Hotel Dieu, and in 1385 we find them for the first time mentioned as "Jures du Roi." The origin of the name ventrière seems to be in the custom of stroking the abdomen with ointments to facilitate the birth and lessen the pain. The first legal regulation of the ventrières dates from 1560 when we find it enacted that applicants for the position must bring a witness of their moral character, must pass an examination before a physician, two surgeons and two senior midwives, then take the oath and obtain a diploma with the seal of the Provost. They were allowed a special emblem of office. It was their duty to report any practise by non-licences, and to call to any difficult case a physician, a surgeon or one of the senior midwives. It was expressly stipulated that one of the surgeons was to give an anatomical demonstration yearly for their benefit. The register of the year 1601 contains 60 names.

Pre-eminent among all the French midwives of the period is one Louise Bourgeois. Unlike most of the others she was not attached to the Hotel Dieu, though those in attendance at the Hotel Dieu obtained greater experience and were, ex-officio, examiners of new candidates. Two midwives, La Dupuis, and Peronne Boyadon, both of the Hotel Dieu, were the examiners of Bourgeois, and the former objected to the candidate on the grounds that "being the wife of a surgeon, she will foregather with those cut-purses and we should receive rather artizans who know nothing of our affairs." All of which was probably true, but La Dupuis paid dearly for her candour.

Louise Bourgeois was the wife of a surgeon who, by her account, had studied for twenty years under Ambroise Paré, but whose later life had not been a success. Louise was led into the study and practice of midwifery, according to her own quaint story, by the advice of one who was struck by the remarkable way in which she herself had given birth to her children. Being able to read and write, she obtained much preliminary instruction from her husband and finally completed her studies

in Paris, where her first case was the confinement of the wife of a street porter. The report of this labour is amusing. "Struck by the large quantity of liquid that came with the child, and knowing how dangerous it was to allow a woman who had just been confined, to go to sleep, I addressed many questions to the patient during the time that I was occupied with the baby." Once she received no reply, and hurriedly placing the child on a pillow, she hastened to the patient, to find her in a swoon. With the aid of vinegar and water, recovery was prompt and complete. This successful case was the occasion for much gossip and she enjoyed great reputation among the poor. After five years of practice she was sworn in at Paris on the 12th of November, 1598, one of her examiners being, as noted previously, La Dupuis. From the time of the examination her one object was to pay back the obnoxious Dupuis, who had about this time been engaged by Henry IV. to attend the approaching confinement of Marie de Medici. Through the influence of the husband of one of her former patients, Bourgeois was brought to the notice of the Court Physicians, and was made the second choice (after La Dupuis, who, as said, had already been selected) to conduct the confinement. By circulating judiciously a slander of Dupuis, who was accused of causing the death of Gabrielle d'Estroées, a mistress of the King (who really died of eclampsia in her fourth confinement), she gave a deadly blow to her enemy, and after considerable further wire-pulling was finally selected, by the Queen herself, to take charge of the approaching labour.

Witkowski's book, "Les Accouchements à la Cour," gives an interesting account of the intrigue leading up to the employment of Bourgeois and of the confinement itself. A disinclination of some of her most powerful friends to introduce the midwife to the Queen, on the grounds that they themselves were most recently married; a very natural desire of the King that the attending midwife should be of great experience; and his anxiety during the actual course of the labour lest the Royal Household should fail to be present on time; the numerous suggestions by bystanders, during the labour, of methods to relieve pain; Bourgeois' politic manner of ingratiating herself with various members of the Court by means of ingenious covert signals of the sex of the new arrival (already promised as a boy in virtue of the King's conversion to Catholicism); her indignant resentment of attempts at familiarity by Henry, who was reported to have been on terms of great intimacy with Dupuis who acted for his many mistresses; and finally the commendations of the Court upon the successful termination of the labour,—all make most amusing reading.

The great success of the new midwife in this, the first confinement of

the Queen, naturally led to further engagements and success. Thus, in the Queen's second confinement, it is detailed how the efforts of Bourgeois were successful in preventing the engagement of a wet nurse, the wife of a patient of her husband, one who had undergone treatment for lues. At the birth of the third child, Christienné, the result was so satisfactory that the midwife was presented with a gold collar and chain as a badge of office. In the Queen's fourth confinement, when the Duke d'Orleans was born, the presentation was rightly recognized as a breech, and at the request of the King, Honoré, a well known surgeon in Paris at the time, was present but did not participate. At the fifth confinement, the birth of the Duke d'Anjou, which took place in the absence of the King, the child was born "face to pubes," or, as Bourgeois, says, "looking up to heaven." The midwife naïvely says that: "Not one in 100 is born so, and in all my experience I have not seen 30." She quaintly adds, "Seeing this, I considered it a good omen for France, and for himself, and was accordingly delighted." The midwife's delight seems to have infected the Court, and we are told that "one Mademoiselle de Renouillier, the first maid of honour to the Queen, was so violently embraced by one of the King's guards that though she had but one tooth he swallowed that." The sixth confinement, when Henrietta, afterwards the wife of Charles I. of England, was born, was made the occasion for the demand by Bourgeois for recognition of so much time lost in attendance upon the Queen. Through the intercession of the latter, a pension was proposed—600 crowns per annum,—and the King finally gave assent, though not on the terms demanded. He offered 300 crowns annually and for each male child a further 500 crowns, and for each female, 300 crowns. Unfortunately this pension ran for but a short time, as the following year the King died.

The association of the midwife and the Queen, however, did not end here, for the intimacy of the Queen with the Maréchal d'Ancre is well known, and was well known at the time. Two comments on this intimacy are worthy of repetition. On one occasion the Queen is said to have turned to a courtier with the demand,—*"Apportez moi mon voile,"*—to be met with the smiling reply,—*"Madame, un navire qui est, à l'Ancre n'a pas autrement besoin de voiles,"* while at Paris a popular song of the time was,

" Si la reine alloit avoir  
 Un enfant dans le ventre  
 Il seroit bien noir  
 Car il seroit d'Ancre."

Whether on account of her influence with the Queen or no, Bourgeois was engaged to attend Madame de Montpensier, the wife of Gaston d'Orleans, who died in child-bed after the birth of the child later known as La Grande Mademoiselle. An autopsy was demanded by Marie de Medici and the findings are worthy of report in detail:—"We (here follow the names of seven surgeons among whom Guillemeau is probably the best known), have opened the body and carefully examined its interior; we found the cavity of the abdomen to contain bloody fluid, the intestines full of air, the liver dry and small, the gall bladder very large, the spleen increased in all its dimensions, the kidneys small and well formed and the bladder small. The uterus was bathed in the bloody fluid found in the hypogastrium, and was gangrenous from its neck to the fundus, particularly on the left side and that part touching on the rectum. On its right wall was found a small portion of the placenta that could be with difficulty separated by the fingers. We have found the lungs healthy and without any adhesion to the ribs, the heart very small, the pericardium almost without fluid. The brain was without any abnormality."

Could there be a truer picture of an acute puerperal infection?

Though Bourgeois was not specially mentioned in this report she believed herself attacked, and published a few days later a tirade entitled "The Apology of Louise Bourgeois, born Boursier, against the Report of the Physicians." "By your report," says she, "you make it well known that you understand nothing at all of the placenta and of the uterus of a woman, either before or after her confinement; no more than your master, Galen, who, having never married and having been but little concerned with women in labour, undertook to advise the midwives in a book, where he has distinctly shown that he never knew the pregnant uterus of a woman nor even the after-birth."

To this direct attack Guillemeau replied, and fixed the blame for the unfortunate result on the midwife's maladroit attempts to remove an adherent placenta. "The Princess was in labour from four in the morning till six in the afternoon. In order to deliver the after-birth, this good woman pressed for three quarters of an hour, but her difficulty was too great. The patient was made to eat fresh eggs, to place her fingers in her mouth, and to make much effort, exactly as if the treatment had been for the wife of a poor labourer. Her belly was pressed upon, as was also the uterus, without any consideration of what might occur after so much violence to a princess so susceptible and delicate. She complained of great pain on the left side where the compression and contusion had been the greatest; to this spot the patient, yet suffering princess carried her hand continually. She showed great

distress and told how much she suffered, yet there was no cessation to the bandaging and pulling to which her abdomen was subjected, and compression was made without any consideration of the pain it induced. What followed?—injury, inflammation and then gangrene.”

Witkowski says: “The Bourgeois paid dear for her susceptibility; she lost the confidence of the Court and the aristocracy and she was then 64 years of age.”

Bourgeois' chief contribution to the literature of obstetrics, is contained in her well known “Instruction à ma fille,” where she lays down many principles which are not without interest even at the present day. It is impossible to translate this lengthy article in detail; suffice it to say, that she starts in by exhorting her daughter to understand fully all the details of her chosen profession. Her own success is ascribed to the intercession of Phenarète, the mother of Socrates, who has been ever her guiding star. The daughter starts out under particularly favourable auspices for “a physician is the husband of your sister, your husband will be a physician, one of your brothers is a graduate in pharmacy, your father is a surgeon, and I am a midwife. The medical body is intact in our house.”

“When those of experience instruct others concerning the difficulties they have met, and how they have escaped perils, it is possible for those so guided to move more smoothly along their chosen road.”

“Hide nothing of the remedies that you find good, from physicians and wise men, otherwise you are no better than a charlatan.”

“For no gain under Heaven give yourself to practises as do those damned ones who give remedies to induce abortion; even those who come for the remedies do you cruel wrong.”

“Avoid those who look to you to innocently aid them in their damnable design, and send them to the physicians, which you can readily do, by saying that is an affair for them.”

“Never ascribe occult powers to the membranes which sometimes cover the breech or shoulders of a child, and which the sorcerers are accustomed to use. Several, who otherwise I would have believed to be perfectly righteous people, have asked me for these things, and others have offered me money, but I have sent them away.”

“There are enough midwives sufficiently foolish to be willing to enter into dishonest houses, and good ones should not destroy their honour by going with such people.”

“Never take into your house for confinement either girl or woman.” For this counsel Bourgeois gives in detail instances that have come under her notice where the result of the practice has been extremely disastrous. Among these is the following:—“I would tell you apropos of this, of a

woman well known in the Fauburg Ste. Germain, a midwife upright and renowned, who secretly delivered a courtizan, a whitened sepulchre, who appeared to be without any blemish. This unfortunate woman was attainted with lues, and gave the disease to the unfortunate midwife, at that time about 60 years of age, and ignorant of her condition. As a result of this contamination she infected some 35 families, not only the wives, but the husbands, and also the children through their mothers. There of course resulted serious domestic strife, and it was difficult to know what to do. It was found out that each woman had been delivered by the midwife, who was sent for to be examined. She came with her hand wrapped up, and it was found that there had been an injury to the hand, but that the trouble had nearly disappeared. Further examination was demanded which the midwife refused. The matter was finally arranged in an ingenious way. Two young women recently married, who were very anxious for care by this midwife, addressed themselves to an elderly surgeon, a widower, in the neighbourhood of the Abbey Ste. Germaine, and demanded whether it was possible to cure the woman without an examination. This being decided in the negative, they induced the surgeon by the promise of material advancement, to marry the midwife and then to treat her. In Bourgeois' words, "He married her and then he treated her. I knew them both."

Her comments on the difference between the young women of her own time and those of a later date are astonishingly modern:—"Formerly," she says, "in times gone by, children remained children for a long time. Now they resemble trees which flourish early and for a little time, but which the slightest wind prevents carrying fruit. All these evils come from the unusual liberty of the young women."

Her many comments on the inner life of the Court are from a more intimate standpoint than those to be obtained from other writers of the same period.

She notes the ill effect of the conversation of friends of the pregnant woman, and condemns the popular practice of visiting by friends who undertake to tell the pregnant woman of all the ills which may befall her. She points out the necessity for the presence of the midwife even though labour may terminate naturally, and how a very slight deviation from the normal may result in the death of mother and child.

She compares a woman in labour to a ship, or to again use her own words, "There is no comparison more apt in representing the pregnant woman and her confinement than to compare the process with navigation. The woman, a vessel of importance, carries a passenger, also of importance; the midwife is a pilot, the director of the vessel. I will say then that when such persons make a voyage, the first thing they

should do is to choose the wisest one they are able, one who knows how to raise or lower the sails, who knows a land where it is possible to anchor in order that the storm may pass, and who knows perfectly the mariner's chart and the compass, to the end that they may know at all hours of the day or night into what land the storm had thrown the vessel. This is more important since one may strike an island of savages or the land of the Turks, and there is nothing less to be desired than a cruel death or perpetual slavery. There is little similarity between a small ramification of a vein and the vena cava, or between the sea and a small river, (sic?) and yet sailors, either inexperienced or drunk may even in times of calm cause the loss of passengers or merchandise. How could a merchant place his life or his goods in such hands? There are those who have neither weight nor measure and do not understand how to guide a vessel with which they are charged. They make a noise as if they were going faster than the others, but they cost more than their weight in gold."

"Never show astonishment if things do not go as you expect, for surprise troubles your susceptibilities, and one who remains in command of herself is capable of surmounting all."

"Few women appreciate their midwives as they did in times past; these when the midwife died, took on mourning and prayed to God that they may have no more children. Now many engage midwives as an ordinary servant, changing each year, paying so much for so much done. Such are these young women who with their first children select a man to confine them. I blush for them. I assure you that neither their mother nor their grandmother were so cared for." She retails further an instance where, though she knew all was going well, the friends of the patient insisted on a consultation, and how it was possible for a surgeon to be admitted to the room and even to examine the patient without the patient's cognizance.

A suggestion with reference to the diagnosis of pregnancy is that the midwife should not meddle in these things, because reputation is a very delicate thing and she should wait until the confinement when she may be doubly sure.

To Bourgeois has often been accredited the rehabilitation of the operation of version which for about a thousand years had fallen into disuse. Later, and more careful investigation, showed that this rehabilitation of version should be attributed, not to Bourgeois, but to Ambroise Paré. For this we have the evidence of Guillemeau, who, after successfully treating a central placenta prævia in the daughter of his master Paré, noted that the success was not entirely his but should be rather attributed to his master from whom he learned the operation. Moreover Bourgeois in reporting the result of version in a similar case, says



that in earlier cases her results might have been more satisfactory had she, at that time, heard of the operation having been successfully practised some years before.

In addition to the account of the labours of the Queen, and her instructions to her daughter, Bourgeois' contributions to obstetrics are given in a book, "Diverse Observations on Sterility, Abortion, Fecundity, Delivery, and on the Diseases of Women and the New-born Child," 1690, which contains much of interest and value. Among the many interesting features may be noted the advice to use styptics in case of bleeding in pregnancy, and further the value of turning and extracting by means of the foot. She notes that the cervix in the cases where the placenta comes first, "is as soft as if labour had already well started." She refers to twelve different presentations of the child, and notes an abdominal presentation,—where the child's arms and legs are extended; she speaks of the danger of prolapse of the cord, making, so far as known in the history of obstetrics, the first reference to this accident. She believed that the cord must be immediately replaced or the blood would coagulate in the vessels and so cause the child to breathe in utero and die. After replacing the cord version should be undertaken in the intervals of the pains, and the child should be extracted by both feet. In transverse presentations one or other side might present, and here again version and extraction was the only treatment. In shoulder presentations she advises introducing the hand into the uterus, turning the child, and making the head present.

To replace a prolapsed arm, the hand of the child should be immersed in very cold water, or cold compresses should be applied about the arm. If these methods failed, replace the arm manually, then turn and extract. If both hands were prolapsed these would frequently draw back spontaneously if the patient was placed with the head low and the feet elevated. If this was unsuccessful cold water should be tried, and if this in turn failed, replace manually and then turn, either to make the head or the feet present.

In complete breech presentations, extraction should be made during pains; but in the incomplete breech, the foot should be secured in the interval, and extraction should be made during the pains. If the pains were weak the foot should be replaced, and then, when the pains are more severe, extraction could be accomplished by traction on both feet. In the complete variety, the foot should be secured before the breech fixed in the pelvis, for, if it was allowed to engage, the child came so doubled up that it was born only with great difficulty and with great danger to the mother.

Prolapse of the cord in head presentations might occur where there

was much liquor amnii, or if the waters escaped at a time when the cervix was not tight about the child's head. If this did occur the cord should be shoved up over the head, and, if it came down again, it should be replaced and a tampon applied, at the same time the patient should be postured with the pelvis elevated. Where there was prolapse of an arm in a head presentation, this posturing of the patient would generally suffice.

Bourgeois was the first to give an adequate description of face presentations. She notes the importance of not confusing face with breech presentations and gives a rational therapy, in the advice that in the majority of cases the child will be born spontaneously. Improper flexion of the head could be corrected by posturing of the patient; or, if not, the hand should be introduced and the correction made.

In all cases where a midwife was unsuccessful in her attempts to correct abnormalities, either a surgeon or another midwife should be called rather than allow the mother or child to perish.

The twelfth presentation of which she speaks is the normal head presentation. She notes the necessity of being careful in the delivery of the head, to note whether the cord is about the neck or no, and she says that there may be coils about the neck to the number of four. If it is impossible to draw the cord down over the head cut the cord and tie both ends. Here again is a new suggestion.

If the body of the child has been delayed after the delivery of the head, the finger should be introduced into either the anterior or posterior axilla, and the child so extracted. This again is a new idea. She says nothing of the care of the perineum,—was she sufficiently wise to know of the futility?

In one of her chapters she speaks of the delivery of the placenta, and of the necessity of placing the hand on the abdomen in order to determine its situation. Manual removal of the placenta she had never known to be necessary, and she would prefer to leave this operation to the surgeons—the first definite recognition of the danger of this proceeding. In still another chapter, she speaks of post partum hæmorrhage, advises bandaging the abdomen, and notes the value of cold compresses; particularly was it important that the patient should not be allowed to sleep. Further on, she notes the necessity of a true anatomical knowledge of the uterus and placenta in order to know how the latter may be properly expressed, and speaks of the value of attending post mortem examinations in order that such true knowledge may be obtained. Sad, that insufficient knowledge on these very points, and a post mortem examination, should be her undoing.

We have noted how Guillemeau saved the life of Paré's daughter by

version. In association with him at this time was one La Charonne, for whom he notes that he "had a high esteem." To even up, we now "blame it on the nurse."

Another prominent midwife in the 16th Century was Alice Massey, the midwife of Elizabeth, wife of Henry VII., who we are told received ten pounds a year for her services. An interesting detail too is recorded of one Elizabeth Gonsford, who baptised infants who were slow in being delivered, "In the name of the Father," etc., "I name thee Denis"—Is this the origin of the popular slang phrase?

About the year 1665, one Miss Willoughby, obtained great renown on account of her delivery of the daughter of a clock maker, "who knew nothing of her labour until she saw the child." This was made widely known by Dr. Willoughby, the father of the midwife, who also related how his daughter had recognized a breech presentation, and had brought him to confirm her diagnosis, how he had entered on his hands and knees at her suggestion, and made an examination, though of necessity so rapid, and under such excitement, that he was unable to confirm her opinion, which nevertheless proved to be a correct one.

Towards the end of the 17th Century one Lebany helped into the world James Francis Edward, the son of James II. Hugh Chamberlain, who was to have been present at the confinement, arrived too late, and accused the midwife of having substituted another child for the one expected. An action for damages resulted and the midwife received 500 guineas damages.

Up to this time, both in England and in Germany, the practice of obstetrics was prohibited to the men, and some of the midwives gained great fame. Marguerite Fuss, one of the most celebrated, was the daughter of one Katherine, a well-born, registered midwife. Married at 22 years, she herself had no children, and as her husband led a dissipated life she separated from him and began the practice of obstetrics, acting first as assistant to her mother, who later died and left her a small legacy. She studied at Strassburg, then, after two years, went to Cologne. On account of her recognized ability she was engaged by the Courts of Holland and Denmark where she had great success and obtained considerable remuneration. At an advanced age she accepted the position of midwife to the Princess Sybilla, of Brieg. Mother Marguerite, as she was known in Brieg, was a notable character and was one of the first to adopt the large bonnet and cloak which we are accustomed to see depicted as the characteristic garb of the midwife. Her attentions were not entirely occupied with obstetrics for we are told that she maintained order among the young women of the Court; also that during the serious illness of her patron she had a disagreement with the physicians

in charge, over the treatment employed. She promised that if she was allowed to treat the case in her own way recovery would be certain. Unfortunately death ensued, and Marguerite herself died of chagrin. Her funeral was conducted with great pomp and she was given a special tomb by the side of her mistress. Her obstetric instruments were divided among the midwives of the Duchy and we are told that greatest among the services for which she was honored, was the introduction of the syringe into the Duchy of Brieg.

Of the midwives attached to the Hotel Dieu in the 18th Century was one Marie Duges, born in 1730, died 1797. She too was the daughter of a midwife, one Jonet, and in turn, her daughter was the famous Madame Lachapelle. Duges' services to the Court of Louis XVI. were made the object of special mark and reward, and when, in spite of her great skill, the results at the Hotel Dieu were found to be not at all satisfactory, the Convention of 1795, at her request, transferred the Maternity to the Convent of Port Royal, which from this time on became known as the Hospital of the Maternity.

The most famous character in the 18th Century is probably an English woman, one Elizabeth Nihell. This woman was admitted to the Hotel Dieu, at Paris, in 1747, thanks to the protection of the Duke of Orleans, and in spite of the fact that she was a Protestant. After her return to England, she waged vigorous warfare against the accoucheurs of London, who were attempting to supplant the midwives, and she attacked Smellie with special vehemence. Among her tirades against him occurs the following: "He accuses us of being particularly interested. I am able to prove that I have delivered more than 900 women, free and for charity. I doubt that our worthy doctor has done as much, at least if he does not count as charity cases the deliveries he has made on the manufactory which serves him as a model for the students. This, is a wooden effigy, representing a pregnant woman, the belly of leather, and a small bladder, filled with beer, taking the place of the uterus. This bladder is closed with a noose, to which is attached a cord, which can be pulled at any moment and so demonstrate the rupture of the membranes. Lastly within the bladder is a wax doll with which is demonstrated the different positions. This admirable mechanism is of great renown among the accoucheurs scattered through London and the country. According to Smellie's own admission he has within the past ten years, instructed 900 pupils, not to speak of the midwives, in the same miraculous manner. These worthy pupils, instructed in such a manner, are they not particularly capable of judging the condition of pregnant women and of the infant they bear? Are they not truly 'au fait' with the subject of anatomy which is especially insisted

upon for the midwives? And should they not have a fine tact, subtilty and knowledge, and be able to recognize at once the analogy between such a machine and a body, sensitive, delicate, and well organized." She waged particular war against the use of instruments, a grave problem at this time, and here she undoubtedly did a great deal of good. She says that in spite of the smiling way in which the instruments are recommended to the suffering patient, the assurance that they will do no harm, that the child will not be at all marked, or if at all very little, all the time the operator "lies like an ordinary tooth-puller."

The 19th Century brings to our notice Madame Lachapelle (b. 1769, d. 1829). It is noted of her that she rarely employed a forceps but when obliged to do so took care to show it to the patient, to explain its use, and to demonstrate its necessity, and advantages; so assured the patient had no hesitation in leaving herself, with confidence, to her dexterity. She was well known as the "Good Madame Lachapelle." It is noted that her conversation was agreeable and not without originality; when a serious tear was produced during the course of a labour, she simply smiled and said "Bah, the rascal will now come all the easier." Later again was one Marie Boivin, born in 1773, died 1841. Mmc. Boivin was a Doctor of Medicine of the University of Marburg, and was decorated by the King of Prussia. At one time she had hopes of being received as associate of the Academy of Medicine, at Paris, but having failed in her candidacy took the matter quite calmly, saying "the midwives of the Academy had no use for me." She wrote a book on obstetrics noted for its excellent illustrations. The success of her work aroused the jealousy of Madame Lachapelle, the Directress of the Maternity, who did her best to undermine Boivin. Dupuytren is said to have remarked of Boivin, "she has an eye at the end of her finger." Her chief contribution to obstetrics was the modification of the speculum, a rounding of the edges which permitted the introduction without pain.

Marie Louise Rondet, born at Sudan, 1800, is noted for the invention of the laryngeal tube for the resuscitation of asphyxiated infants. The instrument was undoubtedly invented by Rondet, but the Academy attributed the basal idea to one of its members, Chaussier, "for, the idea of filling the lungs of asphyxiated infants with air, was common to all physicians possessing even the slightest notions of physiology."

For Americans a name of importance is Elizabeth Blackwell. This woman, a teacher in one of the common schools of Kentucky, took up the study of medicine as a pastime and was accustomed for a long time to practice the art among the poor women of her district. This irregular practice was not satisfactory, inasmuch as it seemed often more danger-

ous than advantageous for the sick, and moreover she wished to have the legal right to practice medicine. In May, 1840, she went to Philadelphia and vainly demanded to be admitted as a student in one of the schools of medicine. Permission was refused, but finally, after having specially studied anatomy and physiology, she was admitted to the school at Geneva, New York. It is worthy of note that the Faculty on this occasion left the decision regarding the admission of Miss Blackwell to the students, and they, after serious discussion, decided that it was only right that she should be admitted. She entered in November, 1842, and from the time of her admission till graduation it is noted that she stood always at the head of the various classes. After obtaining her diploma, in 1874, she continued her study in England, Germany, and at last in Paris. After considerable difficulty she entered the Maternity, thanks to special dispensation, and later settled in New York as professor of hygiene in one of the medical schools there.

## FIVE CASES OF TUBERCULOSIS OF, AND ABOUT, THE EYES.

BY

RICHARD KERRY, M.D.

Oculist to the Western Hospital, the Children's Memorial Hospital, and the Montreal Dispensary, Montreal.

The following series of five cases of tuberculosis of the eyes, rather a rare affection in this part of the world, occurring at short intervals, together with one of the ear drum, which was treated in the same manner and with similar result, form a group, interesting both from a statistical point of view and from the results obtained, the latter seeming to indicate that the method of treatment followed is well worth extended and careful trial.

I am indebted to Dr. G. A. Brown, who is in charge of the clinic for tuberculosis at the Montreal Dispensary, for suggesting the remedy used, and for carrying out the detail of most of these cases. The treatment followed consisted in injecting hypodermically four grains of iodoform once or twice a week, according to the severity of the case; the preparation used being a mixture of twenty per cent. of powdered iodoform with paraffin oil containing one per cent. of carbolic acid.

Details of pulse and temperature, and the routine use of mydriatics, analgesics, etc., have not been included in the report, since they furnish no points of special interest.

*Case I.*—R. U., a little girl aged seven, who was brought to the Montreal Dispensary for advice as to her eyes was, on examination, found to have a sinus leading into each of the lacrymal sacs; that on the

right being quite small, piercing the tissues just above the internal palpebral ligament; and surrounded by a strawberry-coloured area about the size of a split pea. On the left side a larger sinus opened into the lower part of the sac, around which was a mass of reddened and infiltrated tissue about the size of a currant.

From the unusual position of the perforation on the right side, and the infiltrated tissue, a provisional diagnosis of tuberculosis of the lacrymal sacs was made.

Both sacs were treated by probing once, and syringing every second day with a mild alkaline solution, after which a few drops of solution of bichloride of mercury were injected.

Under this treatment the fistulæ closed promptly, but the infiltrated areas did not diminish in size, and after a few weeks the sinuses reopened and the discharge was re-established. The tumour on the left side had increased both in extent and prominence, and involved the under-lying bone. The appearance of the altered tissue was now quite characteristic of tuberculosis, and the presence of great numbers of tubercle bacilli in the abundant discharge confirmed the diagnosis of tuberculosis of the lacrymal sacs.

The child was referred to the clinic for tuberculosis for treatment with iodoform injections, and as we were anxious to test the effect of the drug in this case, all local treatment was for the time withheld.

The sinus on the right side closed almost immediately, and the tissues about it began to blanch; once only was there a recrudescence of the inflammation, but this lasted only a day or two and was not accompanied by reopening of the sinus. On the left side the discharge lessened but slowly; the tuberculoma, however, diminished fairly rapidly and steadily until, after about three months, it had practically disappeared. Local treatment was now again employed to check the discharge and to close the opening, resulting in a short time in healing of the sinus and apparent reestablishment of function.

The child was seen about a year after treatment had been discontinued; there was no sign of recurrence, and a year later the mother reported all well.

*Case II.*—I. R., a girl aged 18 years, came to the Montreal Dispensary for treatment, the right eye being inflamed.

Examination showed a condition quite similar to that caused by a mild attack of interstitial keratitis, with uniform grayish infiltration extending from the limbus of the upper and inner quadrant to the centre of the cornea.

After a few days the infiltration became patchy in appearance, the intervening cornea becoming clearer and the opacities more dense;

and a little later still, there was loss of substance over the denser spots and general roughening of the surface.

She was treated in a routine manner for a couple of weeks, the condition of the eye becoming steadily worse. There was now some intensification of the inflammatory symptoms, the iris being involved in the process, becoming incarcerated by posterior synechiæ, and showing several tubercles on the anterior surface.

Further investigation of the case furnished no evidence of syphilis, nor was any tubercular focus found elsewhere on thorough examination of the patient; there was, however, some enlargement of the preauricular gland. One sister had a cervical adenitis, the immediate family history being otherwise negative.

The patient was sent to the Western Hospital, where the eye was opened and some powdered iodoform was introduced into the anterior chamber. There was almost no increase in the inflammatory symptoms after the operation, and she was in a few days referred back to the Dispensary for treatment.

Under a course of iodoform injections the eye steadily improved, and in three months' time she was discharged. There had, at this time, been no sign of inflammation for several weeks, the cornea showing a few lessening opacities, the vision being normal.

After an interval of about six weeks she again came to the clinic, the eye showing slight ciliary injection, and causing occasional pain and discomfort. Owing to the difference in the appearance of the eye from that presented at the beginning of the previous attack, it was at first thought that the condition was not due to the same cause, and some valuable time was lost before commencing treatment. Iodoform was again introduced into the anterior chamber, causing rather more reaction than previously, but before the hypodermic injections could be begun a second time the patient ceased attendance. After a period of more than a month she reappeared with the eye hopelessly disorganized, and requested me to remove it, since it was necessary that she should work for her living. In view of the possibility of general infection, and as the eye could at best be of but little use, this was accordingly done. Sections of the eye, kindly prepared for us by Dr. Tooke, furnished abundant evidence of tubercle.

Had this case been treated without interruption, from the time of the reappearance of the inflammation, I have little doubt that the eye would have been saved, an opinion which finds confirmation in the course of the subsequent cases.

*Case III.*—D. P., a girl aged eight years, who was referred to me by Dr. D. F. Gurd, at the end of December, for phlyctenule in the left eye,



which resisted treatment, presented appearances similar to the last case, though the corneal involvement was neither so uniform nor extensive. She was treated expectantly till the fifteenth of January, when the appearance of tubercle on the iris and loss of substance of the cornea justified a diagnosis of tuberculosis of the eye.

Examination by the patient's physician gave no evidence of tuberculosis elsewhere, excepting enlargement of the cervical glands of same side. Calmett reaction: two trials negative.

Excepting that the eye was not opened, the course, and, up to a certain point the treatment, were quite similar to those of the last case. Injections were begun in the middle of January and continued till the end of March. By this time the tubercles had disappeared, the inflammation had subsided, and the opacities had lessened in extent. The surface of the cornea, however, remained rough, and about the middle of May the eye became inflamed and treatment was again begun. On the twentieth of May two tubercles were seen in the cornea, which in another week had disappeared and the eye gave no further sign of active trouble.

At the end of June she left for the Laurentian Mountains, coming down once or twice during the summer for examination, the last injection being given on the tenth of July.

Late in September examination of the eye showed an elongated nebula across the cornea, no sign of involvement of the uvea was present, and with suitable correction normal vision was obtained. Up to the present time, more than a year afterwards, there has been no sign of recurrence.

*Case IV.*—J. McC., a woman aged twenty-six, came to the Montreal Dispensary with the right eye in a condition similar to that described in the last two cases, and was treated expectantly for a couple of weeks, though little doubt was entertained as to the diagnosis.

Some years previously she was in hospital for an intractable inflammatory affection of the eyes, no diagnosis being made, the subsidence of the symptoms being subsequent to the insertion of a seton in the right temple. She left the hospital with leucomata and synechiæ in both eyes, the visual acuity being much lowered. On the appearance of tubercle on the iris she was referred to the clinic for tuberculosis for treatment.

Examination revealed infiltration of the left apex with enlargement of the cervical glands of the same side. One sister had died from pulmonary tuberculosis.

The points of interest in this case were the protracted course, lasting from August till the following June before active processes could be

said to have ceased, and the numerous crops of tubercle appearing in the iris, there being six or seven at least. The patient would come to the clinic, after a period during which the eye had shown no sign of active trouble, with ciliary injection and some increase of subjective symptoms.

This, as we soon learned, heralded the appearance of tubercles on the iris, which would form in a few day's time and by another week would have disappeared. The inflammatory signs would then subside, the only apparent difference being a lessening of the exudate, the absorption of which seemed to be facilitated by the exacerbation, which each time left the eye in better condition than before. The apparent beneficial effect of tubercle formation was strikingly illustrated in this case, being evidence of heightened resistance to, and not of extension of the disease.

In spite of former scarring, the patient, when tested about the end of September, could read 6/9 with correction, vision in right being better than that in the other eye. There was no dense opacity of the cornea although posterior synechiæ were fairly extensive.

I am not without hope that continued treatment may result in further freeing the iris as the use of iodoform seems to favour absorption of exudate. The eye, when last seen, had shown no sign of active trouble, and had been free from irritation for three months.

*Case V.*—R. B., aged 17, French-Canadian girl. This case was diagnosed from the appearance of the cornea, the patchy opacities subsequent to uniform infiltration being marked, while the subacute persistent type of inflammation was also characteristic. There was at no time definite tubercle formation which could be observed microscopically, although certain of the denser spots in the cornea were, in all probability, tubercles. The presence of a lesion in the right lung and of enlarged cervical glands on the same side, leaves, however, little doubt as to the correctness of the diagnosis. The absence of tubercle on the iris in this case is possibly due to the injections having been begun early, there being no period of expectant treatment as in the other cases.

In about four months' time the eye became quiescent, there being only a slight nebula on the cornea. Shortly afterwards the patient ceased attendance, although she had been told that further treatment would be necessary to eradicate the disease.

Recently she came again to the clinic after an absence of about three months, with a similar condition in the opposite eye, which, under treatment, is improving rapidly and should, in a few weeks time, be normal. The right eye shows no sign of recurrence.

While there is, of course, no justification for sweeping generalizations based upon such a limited series or results, still the fact that all cases improved while under treatment and retrogressed when it was withdrawn too soon is significant. The comparison, too, of the results with those usually obtained in this disease, i.e., commonly loss of the eye, is also striking.

While there is no guarantee that the disease will not recur in any of these cases, still I feel confident that should it do so, a short course of treatment will eradicate the trouble.

As iodoform seems to favour tubercle formation, which, so far as our observation goes, is always followed by dispersion and absorption, there is no tendency toward encapsulation, and the danger of the disease becoming dormant is practically nil, which lessens considerably the chance of recurrence. In those cases in which the disease has again shown activity it has always done so within six weeks and in all these patients the arrest of the process has lasted for a longer time, six months to over two years being the range, the fifth case which is still under treatment being, of course, excepted.

Although the employment of iodoform in tuberculosis is not of recent institution, yet the systematic use of hypodermic injections of it has not been at all general.

Some thirty years ago Bilroth deputed one of his assistants to test the use of iodoform in tuberculosis, and it was then noticed that when injected into the tissues around a sinus the drug was more efficacious than when injected into the sinus, as in the latter case it often remained for a considerable time almost unchanged in the cavity. These observations, however, do not seem to have been followed to their logical conclusion. Seeing that in one instance the remedy is employed outside the inflammatory barrier which nature has set up to oppose the progress of the pathological process, and that in the other it is available where most required, at the advancing point of the disease in the newly invaded tissues, there seems to be good reason for resorting to this method of using the drug.

The patients in this series, with one exception, belonged to the poorer class, and were without the beneficial effects of good hygienic surroundings and special diet; so that adventitious circumstances had no marked effect on the result.

The diagnosis has been confirmed in each case excepting the fifth, and although it may be urged that this case is one of ordinary interstitial keratitis, still the complete difference in course, appearance, and subjective symptoms, from the typical form of parenchymatous keratitis, the identity, in the same respects with the former cases of the series,

and the presence of tuberculosis elsewhere, leave, I think, no reasonable doubt as to the character of the trouble.

The history and course of the other tubercular lesions in these patients has not been given, but they will be published in the report of the Tuberculosis Clinic of the Montreal Dispensary. The patients are, at present, all doing well so far as is known.

Experience has shown though, that treatment should be kept up for some time after apparent cure, but as seen from the foregoing reports, the patients frequently fail to attend so soon as they think themselves cured.

While avoiding the vexed questions of "Cures for Tuberculosis," I think that the facts here reported, which I have endeavoured to give without embellishment of any kind, fully justify a careful and systematic investigation of the treatment; the only counter indication which I have met with as yet, being its use in cases of advanced tuberculosis, in which it is not well borne, and must, if used at all, be employed in very small doses. In these cases secondary infection always plays an important role, and upon this iodoform seems to exert no beneficial effect.

NOTE.—Since writing the above the symptoms in case V have quieted down and blazed again into activity. The patient has now been free from inflammation for three months.

---

---

THE  
**Montreal Medical Journal.**

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

EDITED BY

J. GEORGE ADAMI,  
GEO. E. ARMSTRONG,  
A. D. BLACKADER,  
G. GORDON CAMPBELL,  
F. G. FINLEY,

WILLIAM GARDNER,  
H. A. LAFLEUR,  
JOHN McCRAE,  
F. J. SHEPHERD,  
J. W. STIRLING.

ANDREW MACPHAIL, MANAGING EDITOR.

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. All communications intended for insertion in this Journal are received with the understanding that they are contributed exclusively to this Journal. A limited number of reprints of articles will be furnished to authors at cost price, if a request to that effect accompany the manuscript.

---

---

VOL. XXXIX.

MARCH, 1910.

No. 3

---

---

### TYPHOID FEVER

We make no apology for publishing a report which has been made to the City Council of Montreal, through the Emergency Hospital Committee, upon the recent epidemic of typhoid fever. The report carries with it the authority of those who have made it, and should be regarded as final. The result of this investigation is summed up in the words: We find the evidence overwhelming that the chief cause of the disease is the water supply of the city and its suburbs. The remedy is proposed in equally plain terms: The future water supply of the city must be provided by a thorough system of filtration before distribution to the public.

The Finance Committee of the guarantors of the fund for the Typhoid Emergency Hospital, consisting of Sir Edward Clouston, Bart., Sir Hugh Graham, H. V. Meredith, F. W. Thompson, Lieut.-Col. Burland, H. S. Holt, and Hugh Paton, decided that it was necessary to go further than merely dealing with the existing situation, and that they should try to determine the cause of the outbreak and then make an effort to secure remedies. To this end a letter was sent to the authorities of McGill and Laval Universities inviting them to co-operate in the belief that such action would prove of lasting benefit to the community.

This invitation was promptly accepted by the English and French universities, and their leading experts were named a committee, which took up an investigation into the cause of the frequent recurrence of

typhoid outbreaks. After a full investigation, so far as was necessary, this joint committee has sent the following report to the Emergency Hospital committee:

Your letters of January 18th, 1910, regarding the cause of typhoid fever in Montreal, were, as you have been informed, duly received by the university authorities of Laval and McGill. These letters were referred to the Medical Faculties of the respective universities and a joint committee was appointed consisting of: J. G. Adami, professor of bacteriology and pathology; G. E. Armstrong, professor of clinical surgery; R. F. Ruttan, professor of chemistry; T. A. Starkey, professor of hygiene, representing McGill University, and A. Bernier, professor of bacteriology; J. J. Guerin, professor of clinical medicine; Henri Hervey, professor of practice of medicine; E. P. Lachapelle, dean and professor of hygiene, representing the University of Laval.

To carry out the suggestion of the Finance Committee of the guarantors of the Typhoid Emergency Fund and make once more an exhaustive enquiry into the causes of typhoid in Montreal and its eradication would require a lengthy period of investigation, which might extend into years rather than months. The public interests seemed to demand that the universities if possible make an immediate pronouncement; thus instructions were given to their respective committees to consider and report upon the investigations made thus far.

In accordance with the above instructions this committee begs leave to submit the following conclusions and suggestions regarding the cause of typhoid fever in Montreal and the means of reducing or eradicating it:

We find the evidence overwhelming that the chief cause of the disease is the water supply of the city and its suburbs.

A study of the topography and spread of the disease and of the abundant analyses of the water supplies by such authorities in the universities as Professors Adami, Bernier, Brucre, Ruttan, Starkey, and the late Wyatt Johnston, all point in the one direction.

Many of the published analyses of the Provincial Board of Health; Dr. Anthony McGill, Government chief analyst; Dr. Milton Hersey, city official analyst; Dr. J. E. Laberge, and others, add to the evidence against the water supply.

The exhaustive investigations into the condition of the water supply of the city indicate that while the water may give favourable analyses for some months of the year, none of them are at all times safe. At certain times of the year the waters are actually bad and capable of giving rise to water borne diseases.

We do not consider that any further analyses or examination of the waters are necessary to establish the above conclusions.

It follows then that the future water supply of the city, whether it consists of unmixed St. Lawrence from south of Nun's Island or not, must be purified by a thorough system of filtration before distribution to the public.

To ensure the proper working of the plant, constant supervision of this filtered water by an expert water analyst, devoting his entire time to the work, is an essential part of such a system.

### THE RETIREMENT OF WESLEY MILLS.

It becomes our duty to convey to the graduates of McGill University the information that Dr. Wesley Mills has resigned his position as Professor of Physiology in McGill University; and that, at length, his name has been enrolled amongst the Professors Emeriti of the University. As appropriate comment upon the event we cannot do better than to publish the following transcript of a minute which was adopted by the Board of Governors: "In accepting the resignation of Professor Wesley Mills, as tendered in his letter of 10th February, 1910, the Board of Governors desires to express its great appreciation of Dr. Mills' services during the long period in which he has been connected with the University. The Board is aware that Dr. Mills' record of teaching and research in the Departments of Physiology and Comparative Psychology has given him a distinguished place in the ranks of scientific workers; whilst his unselfish devotion to the interests of his subject, and the high ideals which he has always cherished, have extended the sphere of his influence even beyond the limits of the class room and the laboratory. The Board has pleasure in resolving to enrol the name of Dr. T. Wesley Mills in the lists of Professors Emeriti of the University." And so after more than twenty-five years' service Dr. Mills has entered into retirement, enjoying, we are glad to learn, the benefits of the Carnegie Foundation for the Advancement of Teaching.

Dr. T. Wesley Mills was born in Ontario, where he received such education as was given in the Ontario schools in those days. He entered the University of Toronto, where he graduated with the degree of Bachelor of Arts, and afterwards obtained the Master's degree. In very early life he acquired a bent towards physiology and hygiene under the hands of Mr. William Carlyle who, in physique and character, was an example of what his own teaching aimed to do. Mr. Carlyle was a nephew of Thomas Carlyle and is now a School Inspector, residing in Brantford. As an Arts student, Dr. Mills attended occasional lectures in the Medical

Faculty and was greatly inspired by the Professor of Physiology, Dr. James Bovell, under whom Dr. Osler had studied privately, and to whom he has dedicated his "Practice of Medicine."

Dr. Mills then came to Montreal with the intention of continuing the study of music, especially the violin which has been his constant companion ever since. It was due to Osler's advice and to the influence of the late R.P. Howard, that he resumed the study of medicine in McGill University.

After graduating at McGill he served two years as resident official and medical superintendent of the Hamilton Hospital. Then he went to England for study in clinical medicine, and in physiology and histology under Schaefer and Burdon-Sanderson. Next he proceeded to Germany, where he studied the nervous system under Goltz, of Strassburg, and physiological chemistry with that great pioneer and enthusiastic teacher, Hoppe-Seyler.

He began his career at McGill as assistant to Dr. Osler in teaching physiology and histology when he introduced courses of demonstrations and practical work. For three years Dr. Mills practiced in Montreal as laryngologist, in preparation for which he studied in London under Dr., later, Sir Morrell Mackenzie, to whom he had been introduced by his brother, Dr., afterwards Sir Stephen Mackenzie.

At McGill Dr. Mills succeeded Dr. Osler who had taught not only physiology and histology, but also pathology and clinical medicine. Before Osler left, Dr. Mills had introduced an extensive course in practical physiology which consisted in part of experiments on living animals. These were rather tolerated than welcomed by the majority of the students who had not yet begun to look upon higher physiology as anything more than a necessary evil. Amongst his student assistants was the late Wyatt Johnston. If one remembers aright, these new ideas were not received with much enthusiasm, although the late James Stewart gave much encouragement to the new teaching.

At that time Dr. Mills lived in Westmount, which was then composed largely of open fields and there he kept, and bred, a variety of animals, chiefly, dogs, fowls, and pigeons, but also many other small animals. Here he made extensive researches on the physical and psychic development of young animals. These were originally published in the "Transactions of the Royal Society of Canada," of which he was a fellow. Most of them, and several others on psychological subjects with a part of the Proceedings of the Society for the study of animal intelligence etc., were published in book form as "The Nature and Development of Animal Intelligence" (London, Fisher Unwin; New York, Macmillans.) This was a pioneer work on the subject.



About the same time was published "Animal Physiology," which included chapters on general biology, evolution, and a full treatment of embryology. This doomed the book commercially, though it was favourably reviewed on all hands. This also was a pioneer work and anticipated what has since come about: the teaching of biology and embryology as separate departments. A work on the Dog has been for many years in considerable demand.

He also taught physiology to Veterinary students in the Montreal Veterinary College, later the Faculty of Comparative Medicine, and conducted classes in Cynology, and founded the Society for the Study of Animal Intelligence, which met in the College and whose proceedings were published from time to time.

Dr. Mills has always spoken in high terms of the encouragement given to all good things by Dr. Duncan McEachran; and the students of this Faculty, though less favoured by previous educational opportunities, so far as book knowledge went, always gave him warm support.

Dr. Mills has always had a sensitive ear and a strong literary and aesthetic bent. This was the prime cause of his taking to laryngology, as he wished to benefit speakers and singers. In his work of three years ago, his latest book, "Voice Production, based on Scientific principles," he endeavoured to give to singers and speakers, especially teachers of these departments, a better foundation on which to build their practice. The work was published by J. B. Lippincott and Co. of Philadelphia, and by J. Curwen and Sons, London, and has gone into a third American and a second English edition.

He has published some six books in all, and many researches on physiology and kindred subjects. In physiology most of his original work was done on the heart, the nervous system and the voice. Dr. Mills lost nearly all his effects in the recent McGill fire, including almost his entire library and a large collection of microscopic and other preparations on the nervous system, which in part represented the results of original research. As a consequence the contemplated original monograph had to be abandoned.

Neither at home nor abroad has Dr. Mills ever been a purely academic physiologist, though always a keen advocate for scientific medicine.

From the first Dr. Mills identified himself with the Montreal Medico-Chirurgical Society, was always a regular attendant at its meetings and a frequent contributor to its proceedings.

Three years ago he occupied the presidential chair.

He founded the Society for reporting original researches, now flourishing, about eight years ago. Dr. Mills always regarded his greatest work as teaching. He taught a country school at 17 years of age and

walked five miles twice a day in doing it. He was the professional pioneer of physiology and comparative psychology in Canada, 28 years ago, and has been at the head of the physiological department for 25 years. He was President of, and had much to do with, the Natural History Society of Montreal, and is a member of many American Scientific Societies. The fundamental principles of his teaching have been somewhat as follows:—1. Physiology and medicine are biology; 2. Physiology should rest on a comparative basis, and be taught to a greater or less extent accordingly in the first instance; 3. Medicine is to a large extent scientific physiology, or in a wider sense biology, and this should be recognized in the teaching of all its departments. The practice of medicine is applied biology.

Dr. Mills always contended that the student is in a medical school to be educated, not to be filled up with a mass of details. He should be taught to get knowledge for himself, and in his case, as with all men, the object of his life should be the highest possible development of the individual.

Dr. Mills enters into retirement for two reasons: (1) That the Department of Physiology may have a fuller and more rapid development than he could bring about in view of his failure of health last year, and feeling the need of a year or two to get back to his former self physically. (2) He has always given the best that was in him to his students and to McGill, and now feels that there are parts of his nature which can be fully developed and ends he would attain only if he be free from the arduous work of teaching, etc.

In a private letter to a friend who had written to him upon the occasion of his retirement Dr. Mills says: "Much of the time in the early years I was everything down to laboratory servant. I should say, however, that during the whole period I have had assistants they have proved both good colleagues and gentlemen. They have always been most loyal to me. Dr. W. S. Morrow has for 16 years been my chief lieutenant, and to him, most of all, I am indebted for unwavering support. The upbuilding of the laboratory and the organization and carrying out of practical work have been in a large measure in his hands, though we have all worked together as one man to attain the end in view.

## Letter to the Editor.

Sherbrooke, Que, March 10, 1910.

The Editor Montreal Medical Journal.

In regard to the patient J., shown as a living case at the Montreal Medico-Chirurgical Society by Dr. Shirres, and reported in the February number of the Montreal Medical Journal, I thought that a summary of the early history of the case would be of interest to the Montreal medical men, as the history given in the Journal is hardly correct.

My partner, Dr. Williams, was asked to examine the patient some four weeks after the accident, in order that his opinion might be obtained in regard to operative interference. He considered the condition purely functional and stated that an operation was contraindicated, at the same time expressing a wish that I should examine the case.

When I saw the patient he was up and about the ward, and he stated that while confined to bed he was able to use his legs and arms freely, and did not know that he would have any difficulty in walking until he attempted to get up. He also said that he had been catheterized for retention of urine for a short time, but that he had been able to pass it fairly comfortably for several days.

*Examination:*—Patient is a slight, small man, rather poor musculature, with an anxious, staring expression.

General organs, healthy.

*Cranial Nerves.*—I. Smell, R-L; ol. menth. pip. and turpentine tests.

II. Sight, somewhat deficient, has worn glasses for some years. No hemianopsia, no changes in the colour fields, fundus normal, although centre of optic disk is a little paler than usual.

III., IV., VI. Eye movements free in all directions, marked nystagmus present. No double vision, or ptosis, although he gives history of seeing double some years ago. Pupils equal and active to light and accommodation.

V. Trigeminal sensory area, normal; motor power, masseters normal; corneal, palpebral and conjunctival reflex is present, R-L. Supraorbital infraorbital and mental points, negative.

VII. Motor functions, R-L; all movements of facial muscles, wrinkling of forehead, closing of eyes, whistling, puffing cheeks, etc., symmetrical; emotional movements also equal. Speech apt to be a little hesitating and jerky. Tongue is protruded in middle line and has a rather coarse tremour. Slight tic of facial muscles.

VIII. Hearing, R-L., watch  $1\frac{1}{2}$  ft. Says his hearing has not been very good of late.

IX., X., XII. Negative. Pharyngeal reflex present.

## XI. Negative.

*Upper Extremities.*—No atrophy or hypertrophy, muscular force equal and fairly good. No paresis or paralysis. All reflexes markedly increased. Tremor not present at rest, but marked on exertion,—intention type. Finger nose test, and finger finger test, imperfectly performed but co-ordination is fair.

*Sensory Perceptions.*—Muscle position, stereognosis, touch, pain, sharp and dull point, heat and cold, localization, all normal.

Subjectively patient complained of periodic numbness of hands.

*Trunk.*—No paralysis or atrophy. Slight dermo-graphia. Points of tenderness over 6th dorsal spine, and from 12th dorsal to 3rd lumbar spines. The four latter spines showed decided prominence. Abdominal and cremasteric reflexes normal.

*Sensory Disturbances.*—None, except in an area on back bounded by ribs above, and roughly by pelvis below, where there was moderate hyperæsthesia, and thermo-anæsthesia so marked that differences of 32° F. to 120° F. could not be differentiated. There was no disturbance of tactile sensation in this area, and sharp point could be differentiated from blunt point. The skin over sacrum was somewhat hyperæsthetic.

*Bladder.*—No retention but some slowness in voiding, following previous retention.

*Rectum.*—Evacuation normal. Enemas have been used.

*Lower Extremities.*—No atrophy or hypertrophy R-L. Marked tremor and spasm of muscles on attempted exertion, none while at rest. This condition is most marked when patient attempts to walk. Spurious ankle clonus may be elicited at times. Muscular power fairly good. Knee jerk much increased: R-L. Achilles also increased, R-L.

Plantar reflex varies. At times no response; at other times slight plantar reflexion. Babinski's sign not present, paradoxical reflex not present. Oppenheim's not present. Slight Romberg's.

The walk is spastic, with tendency for patient to trip over his toes, and a tremor is present which shakes the patient all over. He can walk alone, but with difficulty.

*Sensory.*—Heel-knee test; slight ataxia, complicated by the intention tremor R-L. Sensation to touch, pain, heat and cold normal.

*Mental Condition.*—Patient shows much interest in the examination. Answers all questions intelligently and accurately. Memory for dates and facts excellent. Assists in all examinations to the best of his ability and seems to appreciate being the centre of interest.

Subsequent to this examination he developed a peculiar tic in which his head was thrown backward at the rate of 60 to 70 per minute when not under direct observation, but when he knew that he was watched it

would increase to 100 or more. Very soon he began to have typical hysterical convulsions in which he writhed and groaned with muscles in tonic and clonic contraction. He did not bite his tongue or have involuntary micturition nor injure himself in any way, and, in fact, was a text-book case of hysteria major, even selecting the hour of 7 p.m. when night and day nurses were assembled in the ward, for his exhibition. The patient gradually became bedridden.

In regard to the diagnosis, it was evident that the main condition was functional, although retention of urine, loss of thermo-sensation and nystagmus were all suggestive of organic trouble. The nystagmus I put down as a relic of his old trouble, for which he received some eight months' treatment at Queen's Square, or to some congenital condition; for patient stated that it had been present all his life as far as he knew. To account for the thermo-anæsthesia, I made a provisional diagnosis of small hemorrhages in the posterior part of the spinal grey matter. On account of the functional character of the other elements, I was inclined to "hedge" a little here and wait for developments, but as the condition has not yet cleared up (March 8th), I still think the diagnosis justified. The temporary retention, I put down to a temporary derangement of the cord such as is not infrequently found after a profound shock of any kind. The question of spinal compression due to fracture was, of course, never considered except to emphatically state that it was not present, and that operative interference was not to be thought of.

In regard to an X-Ray examination, I made one in our office, on special request, and could find no indication of trouble with the fluoroscope, although, naturally, this examination was not very satisfactory. To take an X-Ray photograph meant anæsthetising the patient in order to keep him still, and this I considered unjustifiable, as there were absolutely no grounds for supposing there was any compression of the cord.

Here, it might not be out of place to say that the Montreal Medical Journal has been misinformed in regard to the absence of X-Ray machines in Sherbrooke. Dr. Williams has in his office a large induction coil, specially constructed for X-Ray work, (Clapp & Eastman). Also a high frequency apparatus which can be used as a portable X-Ray machine and be taken to the hospital or elsewhere for such examinations. Dr. Bachand has had one for several years. There is a 20 Plate Static Machine at St. Vincent de Paul Hospital as well as a special coil for X-Ray; also a 20 Plate Machine in St. Charles Seminary, (Waite & Bartlett). Any of these can be used at any time by the Medical profession, and most of these have been in use daily, for several years.

I had the opportunity of seeing the patient again on March 8th, and found him in fairly good condition. His reflexes are still much increased, and the tremor on exertion has not quite gone. He cannot walk outside, but can get about his room fairly well. The tic is gone except upon excitement. The nystagmus is the same as before, and the thermo-anæsthesia is still present, though less marked than it was, as he is now able to distinguish between 40° F. and 120° F. in the lower part of the area previously involved. He still micturates slowly, but has no retention.

Trusting that this history may throw some light on the case, I am,

Yours truly,

MALCOLM MACKAY,

Late Clinical Assistant in Neurology, Royal Victoria Hospital.

### Reviews and Notices of Books.

AIDS TO MICROSCOPIC DIAGNOSIS, (BACTERIAL AND PARASITIC DISEASES). By ERNEST BLAKE KNOX, B.A., M.D. Captain, Royal Army Medical Corps, Students' Aids Series, London. Baillière, Tindall & Cox, 1909.

We have no love for the ordinary cram book; but, looking through this, find that it is so thoroughly well up to date that we cannot but commend it, the only serious objection we can find with it being in the arrangement in which, taking first the blood, then pus, then nasal secretions, sputum, and septicæmias, the reader jumps from bacteria to animal parasites and spirochaetes and back to other specific bacteria in a bewildering manner. What is said under each special heading, if condensed, is in general thoroughly sound and up-to-date, even down to the methods of vaccine therapy.

A TEXT BOOK OF GENERAL BACTERIOLOGY. By EDWIN O. JORDAN, Ph.D., Professor of Bacteriology in the University of Chicago, and in Rush Medical College.

The medical student is fortunate in having at his disposal the choice of a series of four or five manuals of Bacteriology all of a high order of excellence,—so good, indeed, that as a teacher the writer of this notice often wonders whether a general course of lectures upon bacteriology in relationship to disease is not after all a work of supererogation. Each of these textbooks has merits of its own; the last comer, this work of Professor Jordan, stands out preeminently for this—that it admirably fulfils the promise of its title, and that it is a manual of General Bacteriology with particular application to the needs of the medical student.

We know of none of its competitors that affords the reader a broader view of bacteriology in its relationship to man and his surroundings, and just as we believe that he is the better grounded, and the better medical man, whose knowledge of General Pathology is well established, so do we welcome a work which affords a proper basis of general bacteriology for the study of the special bacteriology of disease. Nor is it possible to read Professor Jordan's admirably written work without recognizing on every page the bearing of the observations he brings forward upon the infectious diseases and their specific causes.

The first six chapters are devoted to the properties and classification of bacteria in general, the next two to bacteria and their relationship to disease, and to immunity. Then follow eighteen chapters upon the pathogenic bacteria by others upon the Trichomycetes, Blastomycetes, Hyphomycetes and Pathogenic Protozoa. This work concludes by five well written and illuminating chapters upon the bacteriology of milk and milk products, bacteria and the nitrogen cycle, bacteria in the arts and industries, the bacteria of the air and soil and water, and the bacterial diseases of plants, with a useful appendix on a subject too often passed over in silence, namely, upon infectious diseases of unknown causation.

The work, in short, is all that might be expected from an investigator of such wide scope in bacteriology as Professor Jordan, and we most heartily welcome it.

J. G. A.

DISEASES OF THE BONES AND JOINTS. GOLDTHWAIT, PAINTER AND OSGOOD. D. C. Heath & Co., Boston, 1909.

This book is not, and apparently was never meant to be, a text-book of what is known as orthopædic surgery, but, rather, a text-book dealing with one group only of the afflictions included amongst those of special interest to orthopædic surgeons.

It is divided into three sections, the first treating the subject of tuberculosis of bones and joints; the second treating the non-tuberculous diseases of joints, and the third dealing with many other various lesions of bones and joints.

The first two sections are prefaced by able chapters devoted to the general consideration of the diseases discussed in these sections.

The section devoted to tuberculosis begins with a chapter describing the methods of physical examination in disease of a joint. This will be of great service to both students and others.

Following this chapter are several devoted to tuberculosis of the different joints. That devoted to the consideration of Potts' Disease is

of particular interest. Great thought is expressed on the general treatment of this affection, the importance of which seems to be fully appreciated by the authors. The principle of hyper-extension is brought prominently before the reader as not separating the diseased surfaces of the bodies but changing the centre of gravity and thus protecting diseased parts and permitting greater expansion of the lungs, and, consequently, general improvement in the health of the patient. This suggestion, whilst containing much truth, may not contain all the truth. Hyper-extension tends to separate vertebræ as well as tending to change the centre of gravity. Separation lessens attrition; it gives rest. Rest is the generally recognized treatment of tuberculosis.

A section has been devoted to illustrative cases.

These have been chosen wisely and illustrate the facts not generally recognized that lordosis may be the sole deformity of Potts' disease; that Potts' may be secondary to diseased glands, and further agrees in the theory believed in amongst us that lordosis with muscular spasm may be symptomatic of diseased glands. One case is of particular interest, viz., that of a man, suffering from paraplegia, who was under observation for three years, and whose death was followed by an autopsy with a special examination of the spinal cord. In this case the canal was definitely constricted opposite the 11th dorsal vertebræ and the cord deformed through bony constriction. This is of great interest, but must be most rare, because over 25 specimens of spinal columns affected with Potts' disease were examined recently and the majority of these were vertebral columns most severely affected, and yet not one case was found in which the cord was compressed by bone. In fact, it is generally conceded that when the symptoms of compression exist such may be attributed to a pachy-meningitis in the majority of cases, and that in others œdema may give rise to a tonic cause which may produce a destructive inflammation.

In discussing the subject of tuberculosis of the hip it is stated that in children, in the majority of instances, symptoms are referred to the knee-joint. This is not the experience in the clinics of the reviewer. It is rather the exception to have symptoms complained of as being or having been referred to the latter joint. For treatment, the authors have declared their adoption of the policy of the English and the Continental schools which do not favour traction but rather fixation.

Plaster is strongly advocated; great stress being laid on the position in which the extremity is held. Little or nothing is said of forms of treatment, other than that by plaster, and yet it is questionable if those who still use the time-honoured methods of Thomas do not secure just as good results as those obtained by the advocates of plaster.



In critically examining the article devoted to the consideration of the subject of hip disease one cannot help wondering whether sufficient consideration has been given to this affection which, of all forms of tuberculosis of the joints, has certainly shown the greatest mortality.

In the consideration of tuberculosis of the knee one is impressed with the significance of the fact that little special reference is made of Bliss' treatment. It is said, later in the article, to be "at times of distinct benefit," but surely if this form of treatment is worthy of any special consideration it is here, under the treatment for tuberculosis of the knee which joint is so easily accessible for the treatment prescribed by Bliss.

In the discussion devoted to tuberculosis of the elbow the suggestion is made that right-angled flexion is the most desirable position for treatment. This is contrary to Mr. Thomas' well known view that acute flexion should be preferred to all other positions. Certain it is that if there is any possibility of ankylosis resulting the position of acute flexion is to be preferred.

A chapter is devoted to the treatment of tuberculosis of bones and joints in sanatoria. Let me quote: "These words should be strong words for, when combined with effective mechanical protection of the joints, the results obtained seem unquestionably more favourable than those obtained by any other known method."

About a page is devoted to the use of bismuth in tuberculosis sinuses. The authors of the book being reviewed, do not seem enthusiastic about this method of treatment. Their conclusions evidently concur with ours.

The injection of iodoform is also considered, but this drug is not discussed as an aid to the cure of tuberculosis. This is a pity, as reports, perhaps only isolated reports, published during a period of at least two decades, have suggested that this may be useful as an adjunct to other treatment.

A chapter is devoted to the operative treatment of tuberculosis of the joints. It might have been better to describe the operative treatment under the treatment of each separate joint instead of publishing a brochure on operative surgery at the end of the consideration of all the tuberculous affections.

After this there is a section devoted to case reports of patients operated upon. How much better and less tedious it would have been if these reports had been used to illustrate the treatment of each lesion as it was discussed. Case reports are rarely considered interesting enough, *per se*, for any surgeon to spend a few hours reading them for his edification, and yet how valuable they are when used to illustrate

the description of the symptomatology, diagnosis or treatment of a disease.

The second section of this work is devoted to the Non-Tuberculous Diseases of the Joints. Its introduction speaks in no uncertain terms of the neglect that has been paid to this form of lesion, "We have denied sufferers from these diseases admission to hospitals, nominally because there were more urgent cases, but really because there were more interesting cases to be studied." We are all in accord with their creed that they are probably mostly due to an infection, and our first endeavour should be to locate the source of the infection and attempt its removal.

Messrs. Goldthwait, Painter and Osgood, are amongst the most prominent believers in the theory that both hypertrophic and atrophic arthritis are separate and complete entities. They say: "It is maintained by some observers that it is impossible to distinguish between the lesions of atrophic, hypertrophic or infectious types from pathological appearances. This is unquestionably true of the terminal lesions in some atypical cases, but it is not true of the acute case. The erosions which may be seen in some cases of the hypertrophic type are mechanical erosions."

The etiology and treatment of hysterical and functional joints are considered in a most interesting way. The different means of treatment at our command are dwelt upon. "The place of mechanical supports in the treatment of functional joint troubles is often a very important one. The muscles controlling the motions of a joint, or a series of joints, like the vertebral column, are fatigued by even a slight exercise of their functions and in the extraordinary receptive state of the nervous system of these patients the response to this peripheral fatigue is a deepening of mental inertia."

Lues of bones, osteomyelitis, rickets, and the rarer forms of bone and joint disease are all carefully described.

As might be expected a most careful article on sacro-iliac affections is afforded a prominent place in this book. The chronically strained foot also receives attention.

The fifteenth chapter is devoted to subdeltoid bursitis. The work of Codman is carefully reviewed. Two cases are reported which illustrate the symptomatology and treatment of this affection.

The work is concluded by a chapter on the use of plaster of Paris in orthopædic surgery.

Considered as a whole, this text-book is a valuable contribution to the literature published on the diseases of the bones and joints, and it

should be available to all who take any special interest in this branch of surgery.

A. M. F.

THE MALARIAL FEVERS, HÆMOGLOBINURIC FEVER, AND THE BLOOD PROTOZOA OF MAN. By CHARLES F. CRAIG, M.D., &c., 1909, pp. 477. William Wood & Company, New York. Price \$4.50 net.

In the preface the author states that no complete treatise in English upon the malarial fevers has been published in the last ten years, and that recent advances in the ætiology and prophylaxis of malarial disease justify the publication of the present volume. "The work is very largely the result of personal experience gained in the United States military hospitals in this country, Cuba, and the Philippines, and, as such, embodies the results of over ten years of investigation, and the study of thousands of cases of malarial fever." The addition of chapters on the other known blood protozoa of man, and on hæmoglobinuric fever, was considered advisable owing to the close relation of the latter to malarial diseases, and the importance of the former in connexion with examination of the blood, as they occur in regions in which malarial parasites abound. The chapters on the etiology of the malarial infections occupy 123 pages, and deal fully with the morphology and biology of the different species of plasmodia. In regard to classification of species the author adopts that of Blanchard, but subdivides his "*plasmodium falciparum* (æstivo-autumnal parasite) into "*plasmodium falciparum*" (tertian æstivo-autumnal parasite), and a "*plasmodium falciparum quotidianum* (quotidian æstivo-autumnal parasite). This is practically, after all, Schaudinn's classification, with "*falciparum*" suggested by Welsh as the specific name, instead of "*immaculatum*." The controversy concerning a proper nomenclature will probably not be ended with this latest effort. The photomicrographs illustrating the various species of plasmodia are quite good, and the plates seem better in coloring and drawing. The following chapters, dealing with the extracorporeal cycle of the plasmodium and the general ætiology of malaria, are sufficiently full and lucid. In part III, ninety-four pages, the symptomatology and clinical varieties of the malarial fevers are considered in detail, with illustrative histories and charts, chiefly of æstivo-autumnal infections, which seem to bear out the author's contention that there are a tertian and a quotidian type, corresponding to his morphological division above referred to. In the chapters on latent, masked, and recurrent malarial fevers, the subject of "*intracorpuseular conjugation*" is described and its relation to

latency and recurrence discussed. Sections on sequence, complications and prognosis follow, in Part IV. Diagnosis, prophylaxis and treatment occupy Part V, eighty pages. The examination of stained preparations of the blood is emphasized as the most reliable means of diagnosis, and adequate directions are given for this as well as for the examination of malarial mosquitoes. The chapters on prophylaxis and treatment contain in a clear form the latest experience on these important topics. Part VI deals briefly with hæmoglobinuric fever, and Part VIII consists of short chapters on the Leishman-Donovan Bodies, Trypanosoma Gambiense, Spirochaetes, and Histoplasma Capsulatum. A commendable feature is the insertion, at the end of sections or chapters, of a selected bibliography referring to the topics considered. The volume can be recommended as a good guide to the study of the malarial infections.

---

### Medical News.

---

#### OTTAWA MEDICO-CHIRURGICAL SOCIETY.

The regular meeting of the Ottawa Medico-Chirurgical Society was held at the Carnegie Library on Friday, the 18th of February. Dr. Charles E. Preston presented a paper upon the Surgical Treatment of Infantile Paralysis, and Dr. J. O'Brien a report of a case of extensive stellate fractures of both patellæ. Dr. Thomas Gibson reported a case of lymphatic leukæmia, and Dr. W. A. Graham one of aphonia in a child. Dr. Lyman showed pathological specimens of pulmonary infarct and endocarditis with microscopic sections.

---

#### THE CANADIAN HOSPITAL ASSOCIATION.

The Fourth Annual Meeting of the Canadian Hospital Association will be held in Montreal on Easter Monday and the following Tuesday, March 28th and 29th.

Dr. Christian Holmes, of Cincinnati, and other eminent hospital workers will be present.

One feature of the meeting will be a visit to the various Montreal Hospitals, with demonstrations on some special feature of their work.

All Hospital Superintendents and Hospital Trustees are eligible for active membership, and anyone else particularly interested in hospital work is eligible for associate membership.

For further information in regard to the meeting application may be made to the Secretary, Dr. Brown, Toronto General Hospital, Toronto, Ont.

Copies of last year's proceedings can be had from him on application.

# Retrospect of Current Literature.

## ORTHOPÆDICS.

UNDER THE CHARGE OF DRs. FORBES AND TURNER.

NICHOLS AND RICHARDSON, Boston. *Journal of Medical Research*, September, 1909.

The paper is based upon a pathological and clinical study of sixty-five cases of chronic, nontubercular, deforming arthritis, illustrated with numerous plates and microphotographs. In twenty-six cases there were complete autopsies, in one case a partial autopsy, and thirty-eight were from amputations and excisions. Material was collected from the Boston City Hospital,—private material and a few dissecting-room subjects. Observations have been carried on eight years. The preliminary report was published in the "Boston Medical and Surgical Journal," March 9th, 1905. As a preliminary note they state that they studied the actual lesions on the joints and in their detailed report cite clinical cases: the etiology has had to be casual. Certain types were first described by Heberden. Since then there has been much confusion from various clinical manifestations and the obscure etiology. X-ray work, while adding to knowledge, did not materially help the present confused classification.

*Pathological Types.*—The studies have divided these cases into two pathological groups.

I. Those which arise from primary proliferative changes in the joints, chiefly in the synovial membrane and in the perichondrium.

II. Those which arise primarily as a degeneration of the joint cartilage.

The groups correspond closely to the clinical groups of an article of four years ago. The two groups are characterized by distinct gross and pathological differences. The writers emphasize that these two pathological types do not correspond to two definite etiological factors, i.e., to two definite and distinct diseases.

The tissues which enter into joint structure are bone, articular cartilage, synovial membrane, capsule and ligaments. They are all of mesoblastic origin though differentiated into tissues of very different histological structure. The cells of these tissues may proliferate if stimulated by any one of various irritants or may degenerate from the effect of any one of various agents. Yet the actual cell and tissue changes which occur are limited in number, although the gross appearances vary with the special tissue which proliferates or degenerates. Hence the same end result may be produced in these joints by a variety of irritants or agents and a given agent or irritant may produce a variety of gross appearances.

The writers believe the original lesions arise either in the synovial membrane or in the cartilage. Different causes may bring about this primary change in one or other of these structures. Traumatism, acute suppurative infections, gonorrhœa, syphilis, probably faulty metabolism and probably also a variety of other causes may induce primary proliferation of the synovial membrane, while old age, traumatism, dislocations, pressure of tumours of bone, gout, diseases of the central nervous system and other causes lead to primary degeneration of the cartilage. From whatever origin, the process, once started, tends to continue. The primary cause may produce partial destruction of the joint, partial destruction may cause continued injury and thus a vicious circle is continued; or, on the other hand, the primary cause may continue to act indefinitely. Hence, as the disease is a progressive one, the joints of each type may present a great variety of gross appearances and symptoms depending upon the extent of the lesion, upon its duration and upon various incidental factors. Briefly stated, a given cause in either of the two pathological types may produce a considerable variety of different appearances, while a number of different causes may lead to the same end result in either type. Moreover, in these chronic joint lesions examination of the gross or histological changes in the joint may fail to determine which one of a number of possible causes was the active cause in the specific case; and on the other hand, a known active cause may produce any one of a variety of gross appearances in a given joint.

*Normal Joint Structure.*—The epiphyseal ends of two bones covered with cartilage lie in apposition. Below the articular cartilage is the marrow canal of the epiphysis with trabeculæ and marrow. The two articular ends are enclosed in a dense capsule (fibrous) lined by the specialized cells of the synovial membrane. The surface of the cartilage is covered with perichondrium. The marrow spaces are quite vascular. The trabeculæ show lamination from successive deposits of calcified bone, and the bone corpuscles are in the spaces between. Occasional bone giant cells are seen.

*Cartilage Arrangement.*—Two-fifths of the way towards the joint is hyaline with isolated cells in irregular nests, and as one goes deeper there are more cells. Beneath this zone is the hypertrophied cartilage zone. The cells are much increased in size and arrange themselves in columns at right angles to the joint surface and epiphyseal line. Beneath this zone is the transition line from cartilage into bone, which is at times called the zone of provisional calcification.

*Proliferative Calcification.*—In this type the primary change occurs as a proliferation of the synovial membrane and of the peri-

chondrium of the articular cavity, combined in many cases with a synchronous proliferation of the connective tissue and endosteum of the epiphyseal marrow directly below the joint cartilage. The most marked change is usually in the synovial membrane, while the extent to which the perichondrium proliferates is variable. In some joints it is very slight and almost negligible, in others it is very marked. As a result of this proliferation two sorts of changes occur. From the synovial side a layer of granulation tissue is produced, which sooner or later spreads over the joint cartilage as a thin pannus layer. Where this comes in contact with cartilage it usually produces a destruction and absorption of cartilage. On the other hand, when the proliferation of the perichondrium takes place a layer of specialized connective tissue is formed which readily transforms itself into cartilage or bone. Thus two processes are acting,—a destruction of the cartilage by the synovial pannus and a new formation of cartilage or bone from perichondrial proliferation. The relative amount in each may be variable, but the important fact is that they may go on simultaneously.

In addition, analogous changes may take place with the marrow of the epiphysis itself. There may be a proliferation of the connective tissue of the marrow spaces of the epiphysis just below the zone of provisional calcification. This is accompanied by the formation of numerous blood vessels. This vascular granulation tissue may extend upwards towards the joint through the zone of provisional calcification and thus destroy the overlying cartilage. Thus two processes may destroy the cartilage: from the pannus layer of the synovia, and from the action of the granulation tissue of the marrow. Usually there is proliferation of the endosteum of the epiphysis which causes new bone or cartilage along the epiphyseal margin of the articular surface.

*Etiology.*—Observations noted in end results of suppurating joints, gonorrhœal joints, Still's disease, in some mucous membrane of polyarticular cases, in syphilitic joints with gumma adjacent to the joint, in fractures in the joint. In no instance, except truly suppurating joints and in some gonorrhœal joints, have we recovered micro-organisms. In the vast majority of these joints there is no acute suppuration. Clinically they progress with remissions. The tissue changes are those of chronic irritation. The writers believe that the lesions are not bacterial in origin but due to some soluble irritant selective in character. Faulty metabolism is adduced as a cause. They do not enter into any lengthy discussion.

*General Process.*—There is synovial proliferation as above described, but in some cases the cartilage is not destroyed, but fibrous

adhesions are formed. In others the amount of destruction varies, at times going through to the bone, but the layer of granulation tissue always covers it. The destruction is not uniform, but usually in the early stages is more marked at the periphery, and in all cases for a long time considerable areas of unaltered joint cartilage remain. The synovial pannus may extend over the surfaces of each bone in the joint with adhesions forming, which is most common in the large joints, or it may form a thick layer which binds together adjacent bones in the joint. In the first pretty free movement is practised; in the second a diminution of mobility is found. Occasionally the joint cavity is divided into loculi by adhesions. At times there is marked destruction of cartilage from its epiphyseal surface.

The pannus ingrowth is a more marked feature than the epiphyseal granulation. Occasionally they go hand in hand.

Proliferation of the perichondrium causes fibrosis, new cartilage formation or bone. In the subjacent marrow spaces new trabeculæ are formed beneath the destroyed cartilage but later may extend up in the cartilage accompanying the ingrowth of granulation tissue. Thus two osteogenetic layers may unite, so that there are two layers of granulation tissue,—one from the synovia and one from the marrow. Accompanying these there are two layers producing new cartilage or bone, perichondrium and endosteum of epiphysis; and all four of these may proliferate together. When the original cartilage has been destroyed this can lead to fibrous or bony ankylosis. The cartilage as a result of the process becomes pitted and eroded and may extend right through to the bone.

*Changes in the Bones.*—To the X-ray there is early an increased permeability, but writers conclude that this is more from calcium salts resorption than from osteoclasia. In the radiograph also bone formation at the periphery is rare; when it does occur it is usually in the form of a spur extending into a ligament.

*Capsule.*—Infiltration and thickening is the early result which later may proceed to dense fibrosis. The development of synovial tags is frequent, but the formation of "joint mice" is not frequent in this form as compared with the degenerative. When luxation occurs it is usually accompanied by tendency to ankylosis and not due to the formation of peripheral bone.

*Degenerative Arthritis.*—The earliest and primary change is a degeneration of the hyaline cartilage of the articular surfaces. It early becomes eroded and the underlying bone becomes exposed, so that cartilage atrophy involves the whole articular area. Where erosion of bone or cartilage takes place there is always an increased growth of cartilage or bone in the opposite facet. Joint motion



continues and causes in many cases eburnation. Sub-luxations occur and come on gradually, but when fixation occurs it is due to locking of the irregular bony surfaces of the articulation. No true ankylosis occurs. There is an increase in the activity of the perichondrium at the periphery of the joint. Nodes are formed and the joint cavity may be partially filled up. The capsule as a rule shows no great increase of thickness, except in certain cases associated with organic disease of the central nervous system. In these last the destruction is comparatively rapid and the capsules may be enormously thickened. Synovia is thickened especially in the peripheral folds and papillary masses may form, which when set free cause "joint mice". This explains osteophytic production.

Fibrillation of the cartilage is the early stage. More rarely the degeneration is due to the deposition of uric acid crystals. When this occurs the fibrillation is irregular. There is no need to repeat the description of these joints. In the epiphysis the trabeculæ become markedly thickened as soon as the erosion has occurred at any point. There is a reaction in the connective tissue and the osteoblasts, so that the marrow cells become filled with spindle cells of cedematous connective tissue. Osteoid tissue develops and the end of the bone becomes dense and solid. They then describe the bone condition which is well known to all.

*Perichondrial New Bone.*—At the periphery of joint cartilage new bone is formed through cartilage. At first this new bone is covered by cartilage irregular in character. The entire peripheral mass becomes bony and then the cartilage gradually disappears and a spur or osteophyte is the result.

*Capsule.*—This has been already described, except that frequently fibrocartilage, cartilage or bone may appear, often of large size. At first they lie beneath the synovia or away from the joint. At times they exist as nodular masses in the joint,—"joint mice".

The authors go fully into the histological changes in the synovial membrane, showing how the deformities differ from the proliferative type.

The paper is of value from the mass of material examined combined with clinical histories. The causation remains as before in obscurity.

---

## Society Proceedings.

### MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The sixth regular meeting of the Society was held Friday evening, December 17th, 1909, Dr. W. Grant Stewart, President, in the Chair.

#### LIVING CASES: PARTIAL GASTRECTOMY AND PYLORECTOMY, TWO CASES

A. E. GARROW, M.D., read the report of these cases, and Dr. C. B. Keenan presented the specimens.

A. LAPHORN SMITH, M.D.—It is interesting to note that a few years ago one would have been severely criticised had operation been suggested in these cases. The view now is to operate and relieve the symptoms and not to consider the pathological findings. As far as the indication for the operation is concerned I believe that before many years it will be the recognised form of treatment for obstruction of the pylorus from ulceration to do this same operation, because, if there were no ulceration in the stomach, I am sure there would be no cancer.

#### LIVING CASE: OLD DISLOCATION OF THE SHOULDER.

A. R. PENNOYER, M.D.—I show this case firstly because it is one of the less common conditions with which we meet, and secondly from its medico-legal interest since more than one of our number have had legal complications arising from such cases. The patient, Mrs. C., is 56 years of age, was admitted to the General Hospital under Dr. Shephard's service on the 29th of June with a history that some six weeks previously she had fallen down stairs and in attempting to save her, her husband grasped her by the arm, and in that way inflicted this injury to her shoulder, and it was thought to be a strain. On examination it presented a classical picture of a dislocation of the shoulder, apparently a subglenoid dislocation. The arm was fixed in abduction; there was hardly any movement; she could not raise her hand to her mouth or do any household task; in other words her arm was practically useless. An X-Ray picture was taken and the findings showed fairly well the subglenoid dislocation and in addition a fracture through the great tuberosity. Profiting by the experience of others I did not attempt any violent reduction and on the 22nd of July operated on the shoulder. I made an incision from about one inch from the outer end of the clavicle down the arm to just below the insertion of the deltoid and having exposed this muscle cut through its anterior fibres and reflecting the muscle flaps, lay bare the former position of the joint showing the laceration of the capsule. With every assistance and every effort, I attempted to reduce it but could not move it at all from this situation. I cut through the

short head of the biceps and coraco-brachialis and in that way exposed the head in the subglenoid position very firmly fixed. Even then I was unable with very forcible extension and manipulation to bring that head out, it seemed to be held by firm adhesions and by the subcapularis. I chiselled off the small tuberosity and in that way was able to bring the head of the bone into position. I then fixed the small tuberosity with its attached subscapularis in place, sutured the ends of the coraco-brachialis and biceps and brought together the deltoid and closed the wound. The patient has now almost full use of her arm; there is still a little limitation in abduction. She went away from the hospital two weeks after the operation and I lost sight of her until two weeks ago. Since then I have been using passive movements and the limitation is lessening. It seemed best at the time to remove the fragment of the greater tuberosity, which I did; it did not apparently carry with it the insertion of the supra-infra spinous muscle so that she has still the use of them.

F. J. SHEPHERD, M.D.—One point is of interest here, the fact of fracture occurring in connexion with dislocation. Formerly, before the X-Rays and the opening of the joints, we did not think there were so many fractures in connexion with dislocations as now has been proved to be the case. I collected a good many years ago a number of humeri where there was an apparent slipping of the great tuberosity and they were no doubt due or produced by dislocation. I have seen several cases where I had to cut down on the head of the bone and even then found I could not reduce it and so had to resect it to get a useful arm. I think Dr. Pennoyer is to be congratulated on the result of his case. Of course the operation was a very serious one and one in which he expected to get better results, but with the fracture and the subsequent adhesions the procedure was much more difficult than was anticipated; but altogether the result is very good.

JAMES BELL, M.D.—I have been surprised in several of the cases I have operated on at the difficulty in replacing the bone after it has been fully exposed and it has led me to marvel at the courage of the older surgeons who used pulleys and other heroic devices to pull and jerk the bone into position and without an incision. In any case the lesson is that now-a-days one should not with such positive diagnostic means as the X-Rays, go on in these old dislocations to extreme measures without an open dissection.

W. GRANT STEWART, M.D.—I saw a rather interesting case this summer in the Royal Infirmary at Aberdeen, a dislocation of the hip joint and the surgeon trying to put it in place fractured the head of the bone. The history was that it was supposed to have been out for a month or

two, but afterwards he came to the conclusion that probably it was likely congenital and he simply tried to repair the fracture.

#### ACTINOMYCOSIS OF THE ASCENDING COLON.

J. ALEX. HUTCHISON, M.D., and S. B. WOLBACH, M.D.

S. B. WOLBACH, M.D.—Up to within a few years ago, or until Wright, of Boston, wrote his paper in 1905, it was supposed that pathogenic actinomycetes grew upon various kinds of grain, particularly rye. That has been fairly well disproved and it is now believed that the organism of actinomycosis is a normal inhabitant of the mouth cavity and possibly the intestinal tract. This is fairly well established by the fact that the organisms of actinomycosis from cattle and from man are identical and that the organism will not grow at room temperature and is fairly exacting in its requirements in the way of media. This case is interesting because the two pathological specimens that came from the earlier operations Dr. Hutchison referred to, show no indication of the process. Of course the pathology of actinomycosis is simply that of granulation tissue with abscesses and it is impossible to make a diagnosis in many cases unless the colonies are found in the tissues. After finding the colonies or little granules in the pus I immediately referred to the other (earlier) specimen and was again unable to find any indication of the disease. A few statistics that I have gathered might be of interest. Of 357 cases in man, between the ages of 5 and 9 years there were seven cases diagnosed; between 10 and 19 years, forty-four cases, between 20 and 29 years, 118 cases; between 30 and 39 years, 78 cases; between 40 and 49 years, 54 cases, and above 50, 56 cases. Sex and occupation had apparently little to do. In Wright's series of 14 cases occurring in man, eight occurred in the jaw, two in the thorax, one in the abdomen and three on other parts of the body. The routes of entrance seem to be the nose, the mouth, the respiratory tract, the intestinal tract, and finally, the skin through wounds and abrasions. In a small percentage of cases the source of infection could not be traced. Of those cases in the abdomen 50 per cent. and over start in the region of the appendix, so a case such as this where the only origin found was in the colon considerably above the appendix is rather rare. Regarding distribution, all countries seem to have it. It is interesting to find that on this Continent actinomycosis is most common in Canada and one set of statistics shows that about 2 per cent. of the slaughtered cattle show actinomycosis. In the other portions of the continent the general average is 2/10ths of 1 per cent. It is particularly prevalent in Russia. It is found in man, cattle, horse, swine, sheep, deer and even the elephant. The lesion, pathologically, is usually classified among the granulomata, but is more

properly a slow suppurating process with extensive granulation tissue formation. The colonies are always found in small collections of pus. It is questionable whether many cases are cases of pure infection with the actinomyces. That is, the experience in the laboratory shows that the material is almost invariably infected with pathogenic bacteria and that makes cultures very difficult to obtain. The diagnosis is extremely simple when pus is obtained containing the granules; the larger granules are quite visible to the naked eye.

JAMES BELL, M.D.—I have had a rather exceptional experience with this condition. Three or four years ago I presented a series of cases here; as far as I remember, I think there were 12 cases at that time and I have had more than as many more since. Four cases apparently originated in the appendix and there were two other abdominal cases which could not be traced to the appendix. One showed a history which would point to migration from the intestines and the first signs produced were signs of psoas infiltration. The man was supposed to be suffering from spinal tuberculosis. Another similar case of abdominal actinomycosis was fairly certain not to have originated in the appendix; four others clearly did and in three of these I removed the appendix. I did not think of the diagnosis at the time and shelled out the appendix from the infiltrated tissue. The objective signs were a sausage-like mass in the region of the appendix without any active symptoms and unsuspectingly I removed the appendix and infiltration went on from the tissue I left behind until radical operation was an impossibility. In one case a seed-like body was found in the appendix; at the time it was not carefully examined and I laid some stress on the fact that this man was a grain dealer. No other foreign bodies of any significance were found in the appendices which I removed. I regret Dr. Hutchison did not give the previous history of this case, he merely stated that she came into hospital with an acute gangrenous appendix. In one of my cases there was an acute condition of the neck where the man had a barley beard stick in his tonsil while threshing. I was surprised to hear Dr. Wolbach say that the theory of the infection from grains and the spores of the fungus which develop upon them is now becoming an obsolete theory! I thought there were a great many facts in favour of this theory. For example, I am told that it is very common in young cattle whose gums are tender and are injured from eating hard food. The greatest frequency in the human subject is in connexion with the mouth and the jaws. Another fact is that when originating in the appendix in this quiescent way it would look as if something carrying the infection, had entered and remained there. The cases I have seen have been entirely different from ordinary ap-

pendicitis. With regard to the results in these cases: Dr. Hutchison speaks of the result some months hence—my experience is that advanced visceral actinomycosis is an absolutely fatal disease and I gather that that has been the almost universal experience of surgeons. I would like to know if Dr. Hutchison is doing anything in the way of medication.

J. G. ADAMI, M.D.—I confess to a feeling with Dr. Bell that I am rather sorry to give up the old idea that actinomycosis is not associated with grain and that it is by wounds in the mouth, of lower portions of the intestinal tract whereby portions of infected grain get imbedded in the tissue. My experience here in Canada is that we get these cases from agricultural communities and not among city dwellers; the same has been experienced in Russia and Germany. Wright's theory is that to get pure development one must have anaërobic cultures. In my first experiments, in 1891, I was able to grow the fungus quite readily in deep tubes so long as they were present with pyogenic cocci. But the more I tried to get the ray fungus pure and isolate it, the greater my failure to obtain growth, with purification the organism died out. It deserves note that prior to Wright the anaërobic nature of actinomyces had been demonstrated by Wolff. I feel that more evidence as to the mode of infection is required and here in Canada with the large number of cases occurring in the rural districts it should be easy to follow this to a conclusion. Where a chronic suppurating condition is present, which is intractable we must look for these organisms. There is much about their characters and regarding the disease they induce that wants settling.

C. B. KEENAN, M.D.—This case is interesting and illustrates very well some facts concerning actinomycotic infections. Actinomycosis travels and travels widely leaving no trace in the place whence it started, as shown in one case from Dr. Bell's clinic where a patient was operated on for actinomycosis of the appendix and surrounding this was a mass of granulation tissue and pus specimens of which showed general actinomycosis. The patient recovered, wound having healed, but returned to the hospital with a condition simulating liver or lung abscess. The peritoneal cavity was opened and it was found to be free from any trace of disease and later the lung was explored, when a large actinomycotic abscess was found. Again, a patient had clinical signs of an abscess in the upper part of the abdomen which slowly disappeared only to reappear later in the groin, the abdominal cavity being now apparently free.

In regard to the view that actinomycosis is normally present in the mouth and in the intestinal tract I think that its frequent development in wounds in cattle would indicate otherwise, I used to think with Prof. Adami that actinomycosis was a rural disease, but I have had

lately four cases of this infection that apparently developed in the city of Montreal.

Actinomycosis is a much more common disease than is usually considered.

S. B. WOLBACH, M.D.—I agree with practically everything that has been said this evening, particularly about the fatality of the disease where most of the cases wind up with generalized metastases in the lungs and the brain. Dr. Keenan's statement regarding castrated cattle was known by me, but I do not see that it argues against Dr. Wright's belief that the microorganism multiplies only in the intestinal tract. Of course Bostwem did find in his serial sections foreign bodies and these consisted of husks of grain and he cultivated from these husks an actinomyces, but I think that Wright has shown that this was not the organism which produced the disease in man. Wright makes the statement that pathogenic actinomycetes will not grow at room temperature and in the presence of oxygen and that they do not produce spores. But assuming that they grow only in the intestinal tract; that would give, of course, with the discharge of dung a very wide distribution of actinomycetes in rural districts. I think the most probable hypothesis in Dr. Hutchinson's case, is that the acute appendicitis may have furnished a portal of entry for the organism. It seems to be necessary to have some definite injury for the actinomyces to take hold. In cattle, injuries about the mouth are common and I believe the same holds true in man.

**THE PLACE OF BRACES IN THE TREATMENT OF WEAK PRONATED AND  
FLAT FEET, WITH ESPECIAL REFERENCE TO A SIMPLE METHOD  
FOR THE PREPARATION OF THE PLASTER CAST  
ON WHICH THEY ARE FASHIONED.**

A. MACKENZIE FORBES, M.D.

Dr. Forbes illustrated this report with cases and material used in the preparation of the casts.

**REPORT ON THE METHOD OF SPINAL ANÆSTHESIA AS DEMONSTRATED  
IN NEW YORK BY PROFESSOR JONNESCO, OF BUCHAREST.**

W. W. CHIPMAN, M.D. read this report which appears in the January number of this JOURNAL.

G. E. ARMSTRONG, M.D.—We are all very much indebted to Dr. Chipman for this valuable, and at the same time, extremely interesting report of the clinic at Mount Sinai given by Professor Jonnesco. As Dr. Chipman says, spinal analgesia is no longer in its infancy, and, unless something new develops in technique or the selection of drugs, I think we are in a position to form a fairly judicial estimate and to give an opinion that can hardly be called premature or ill-founded.

I have been much interested in spinal analgesia and have seen a good deal of it in Paris, principally with Professor Tuffier, and with Professor Barker in the University College Hospital, London. In many cases, in fact, in nearly all cases, spinal analgesia given in the lower lumbar region, between the third and fourth vertebrae, as practised by Barker and Tuffier, is satisfactory as far as the analgesia goes. Barker has published three series of 100 cases each, 300 in all. He is now beginning his fourth series of 100 cases. In his first 300 cases there were no deaths attributable to the spinal analgesia, but he had to resort to general anaesthesia in 23 out of the 300 cases. Barker is extremely fair and impartial in the statement of his results and experience with spinal analgesia. When he reported his last 100 cases he went on to say that although there had been no deaths in his first 300 cases, yet, since he began his fourth series of 100, there had occurred two cases in which the spinal analgesia might be thought to have contributed to the death of the patient.

Dr. Chipman speaks favourably of the isotonic solution. That is a very important point. The isotonic solution naturally is more diffusible in the cerebro-spinal fluid and in that way might be expected to extend its influence over a larger section of the cord. It is, however, less controllable than the heavier solutions that would follow more nearly the laws of gravity. Barker's solution is heavier than the cerebro-spinal fluid, Chapat's solution is still heavier, and it can be demonstrated by the use of artificial tubes and coloured solutions that these heavier solutions are more controllable than the isotonic solutions, that is to say, they tend to remain in that part of the spinal canal where they are first placed, but by elevating the pelvis the solution may be made to ascend to a higher level and gain a higher level of analgesia. This can safely be extended to the lower border of the ribs; or by turning the patient on one side the nerves going to the right or left leg, as the case may be, may be influenced much more than those on the other side.

The only exception that I would take to Dr. Chipman's paper is when he says that lumbar anaesthesia is safe. Köhler reported at the last German Surgical Congress that he had collected 7784 cases of spinal analgesia with 12 deaths, or 1 in 648 cases. Now I do not think any anaesthetic can be called safe that is followed by that large percentage of mortality.

There is also the danger of permanent paraplegia. I am informed that there are three such cases in San Francisco, one in Brooklyn and one in London, England. In these cases the paraplegia is apparently permanent. Recently I had a fear that such a case would have to be reported from Montreal. A life saving operation was necessary for the



relief of a large collection of pus in the abdomen in a person with a sp. gr. of 1006, whose urine was full of casts, a woman who had suffered from puerperal convulsions on two occasions. The four physicians and surgeons who were interested in the case, after a careful consideration of all the conditions present, decided that spinal analgesia, in this case, would be accompanied by less danger than general anæsthesia. The needle was passed between the 3rd, and 4th lumbar vertebræ, the cerebro-spinal fluid flowed out freely, without a tinge of blood, and the stovaine was inserted. It was a complete failure and a general anæsthetic was resorted to in the end, ether being used. A condition of paraplegia followed which persisted long enough to cause a good deal of anxiety, but it is, fortunately, now passing rapidly away.

In the British Medical Journal for November 13, there is an interesting article of Jennesco's on spinal analgesia. Jennesco reports that in his 1015 cases he has never known any failure, and has never had to resort to ether to finish the operation.

In the ensuing number of the same journal there is a report of a man who was present at Jennesco's clinic at Woolwich, and the reporter states that Jennesco was successful in one case, partially successful in the next case, and, in the third case the spinal analgesia was a complete failure.

Now while I do not think that it can be said that spinal analgesia is as safe as general anæsthesia by any means, and certainly not as safe as local anæsthesia, yet there are certain conditions in which spinal analgesia may possess comparative safety. That is, it may under special circumstances be less dangerous than general anæsthesia. I assume that in these cases local anæsthesia is out of the question. Such cases, for instance, as a condition of fæcal vomiting. There is always a danger of aspiration pneumonia in such cases, and a pneumonia due to aspiration of intestinal contents is always dangerous. Again, in cases of marked renal insufficiency with a low sp.gr. of the urine, and a correspondingly high sp.gr. of the blood the administration of a general anæsthetic is highly dangerous.

WESLEY MILLS, M.D.—I hope in a few weeks to lay before the Society some considerations based on my experience of last year, especially on the subject of anæsthesia and pain and I hope the surgeons will come to hear what I have to say. If I were a surgeon I should make it one of my great ambitions in life to lessen the amount of pain that is now inflicted, I venture to say by every surgeon. One of the great advantages of going through such a variety of experience is to help him understand many things which were incomprehensible before. I think it is probable that if Professor Jonesco had had even a quarter of the painful experience I had last year, he would never have inflicted such torture

as that just described, I believe I have felt for that young man with the mastitis as probably no other member present could do unless he has had similar experience to his or mine.

C. K. P. HENRY, M.D.—During Dr. Elder's service last Spring a good many cases were injected by Dr. Bazin all in the lower lumbar region, a 5% solution of Stovaine being used. The cases covered a wide range, one case for removal of fragments of a fractured tibia and the plating of the bones with the necessary sawing off of the ends and insertion of the screws and plates. I think in this series two cases had to have a general anæsthetic. In one, though the fluid flowed very freely on the introduction of the needle which went in very easily, the fluid injected apparently went into the subarachnoid or arachnoid space, but still no anæsthesia was produced, and considering the case afterwards we decided that the needle had probably just passed into the sac and a slight movement displaced the eye outwards again. We did not resort to a second injection, but gave him an anæsthetic. In another case, an elderly man, the spines were clubbed, there was a good deal of rigidity and it was impossible to get the proper bowing, and to get into the spinal canal at all. The man who had the operation on his tibia and plates inserted, was a case which had been brought in with D.Ts., and in fact, was an inmate of Verdun, and for several reasons it was impossible to give him an anæsthetic. Internal and external urethrotomy were performed. The results in rectal work and the surgery in the lower regions was very satisfactory. I do not think in any of the cases there was headache, nor did paralysis last over two hours.

W. W. CHIPMAN, M.D.—I merely wish to thank the Society for the discussion because after all, this discussion gives to us the clinical experiences of spinal anæsthesia in the City of Montreal. With regard to the question raised by Dr. Garrow the feeling in New York seemed to be that in these cases of paralysis the needle had entered directly one of the nerves of the cauda equina, and the paralysis was the result. I do not think the introduction of the solution into the sub-arachnoid space at this level would ever cause such a lasting paralysis. The contention is, that it is only when the drug is injected directly into the tissue of the cord or its lumbar roots, that permanent paralysis, as a result of tissue necrosis, is produced.

The seventh regular meeting of the Society was held Friday evening January 7th, 1910, Dr. W. Grant Stewart, President, in the Chair.

LIVING CASES: THREE LIVING CASES ILLUSTRATING EDINGER'S  
"ERSATZ THEORY OF TABES DORSALIS."

C. K. RUSSEL, M.D.

D. A. SHIRRES, M.D.—Fourteen years ago, when working with

Ferrier, I remember very clearly one case, a cavalryman, who developed eye symptoms and a peculiar condition of his arms which was diagnosed as probably muscular dystrophy. On going into the history, however, and ascertaining his occupation and that in the care of his horses he was required to handle large bales of hay and straw every day, Dr. Ferrier came to the conclusion that it was one of the cases of *tabes dorsalis*. Dr. James Stewart exhibited two cases here of the same condition of cervical *tabes*, both were shoemakers, one of which returned to our clinic a few weeks ago, and he was in the same condition as seven years ago except that the atrophy had progressed somewhat. It is interesting, as Dr. Russel points out, that these cases occur most frequently in men from continued strain on one set of muscles.

W. F. HAMILTON, M.D.—I understood Dr. Russel to say that the exposure to the glare of the sun on the snow in one of his cases was sufficient to cause the optic atrophy. In this connexion I am reminded of the arctic explorers who complain bitterly of snow blindness, which affects them so seriously in their marches that narcotics have to be resorted to for relief. Those who experience this affection say that it is not the glare of the sun on the snow that induces it for on cloudy or misty days they suffered most, when there is no shadow.

C. K. RUSSEL, M.D.—In answer to Dr. Shirres I have already stated that Edinger published this series of articles in 1894-5, so that it is by no means recent, but I think it has escaped notice. With regard to the so-called snow blindness, when I was up north in the Hudson Bay district some years ago two of us had a slight touch of this snow blindness, and it certainly rendered vision painful and difficult, in any case I think it would be sufficient to cause fatigue of those optic nerves and induce neuritic atrophy in a patient who has had the syphilitic toxine.

#### DEMONSTRATION OF A NEW HUMAN TRYPANOSOME.

J. L. TODD, M.D.

#### DEMONSTRATION OF APPARATUS FOR THE ADMINISTRATION OF RECTAL ANÆSTHESIA.

E. M. VON EBERTS, M.D.

J. APPLETON NUTTER, M.D.—While in Boston in 1906, I saw Cheever trying rectal anæsthesia at the Children's Hospital. Although in some cases the method worked well, in others it had to be supplemented by ordinary inhalation narcosis. The success obtained was not sufficient to warrant its adoption as a measure of routine at the Children's Hospital.

E. M. VON EBERTS, M.D.—Doctor Cunningham gave a demonstration of this apparatus a few weeks ago. The patient, an old man with thickened vessels and a chronic alcoholic, had an extensive carcinoma of the lower lip. The apparatus worked very satisfactorily and the house-

man in charge assured me that in practised hands the method had been very successful. Cunningham employs rectal anæsthesia in all operations upon the head and neck.

#### AN ANALYSIS OF SEVENTY-ONE CASES OF FATAL SCARLET FEVER.

JOHN McCRAE, M.B., read the paper of the evening.

H. A. LAFLEUR, M.D.—I would like to ask Dr. McCrae about the condition of hepatitis, which seems rather a new thing. He spoke of it as being analogous to acute yellow atrophy of the liver, I would like to ask him if these cases were at all jaundiced, and whether the liver went on to atrophy after an apparent period of enlargement.

J. R. SPIER, M.D.—I must congratulate Dr. McCrae on the excellent series of cases he has presented to us to-night. I quite agree with him in all he has said in regard to the futility of any of our modern methods of treatment in our results in these cases. As regards the fulminant cases, of which he has not had very many, I have seen perhaps one or two dozen during the epidemic of 1893-95, death occurring in the 24 hours with a temperature of 108 and 109. All methods of reducing the temperature were tried, ice baths, spongings, even to bleeding, with apparently no result, the patient dying of paralysis of the respiratory centres. Dr. McCrae's picture of severe scarlet fever and the conditions of the mouth is an absolutely vivid one and in the treatment of this condition one cannot, I think, emphasize too much the usefulness of thorough cleansing. In my experience I have certainly found great benefit from the use of hydrogen peroxide, half and half, freely used to both nose and throat, and I think we got some advantage from the local application of fairly strong solutions of iron, not so strong but that it can be applied by giving it internally. That and the free use of strychnine I think comprises practically the only useful methods I have found in combating what the doctor terms severe scarlet fever. I am inclined to differ with him slightly in the value of antistreptococcic serum. When I had my large series of the severe form I did not have the opportunity of using this serum, but in the few I have used it on since I think I have got considerable benefit. Once the general septicæmia has set in I cannot see that there is any hope for the patient. I quite agree also with Dr. McCrae in his statement that the wards should be thoroughly disinfected and that frequently. I have not the faintest doubt that many of our cases that are sent in as mild cases and which take on the severe form have been reinfected from the ward contagion.

DR. HART.—In the course of a large country practice I have been through two epidemics of scarlet fever, and I would like to give an experience which occurred to me during the last one:—The case was that of a boy, nine years of age, who got up in the morning apparently per-

fectly well, breakfasted as usual and then went to school. Came back at noon, in his usual spirits, to dinner. While at table he suddenly vomited, removed to his room and undressed by his mother, who then noticed that his body was covered by an intensely red rash. I was at once sent for and saw the boy within half an hour, and pronounced the case as one of scarlet fever, of a decided virulent type. During the afternoon, delirium, with at times a sudden sharp screech, set in. Between 6 and 7 p.m. the delirium changed in character to one of a low muttering type. At 8 o'clock I had the late Dr. F. W. Campbell in consultation, and he agreed with me that the case was a hopeless one. Towards midnight the boy became comatose, and at 3 a.m. died. Here the whole course was run in less than 15 hours. I may further state that I had no opportunity of satisfactorily examining the fauces, that the pulse could not be counted at any time, and that the temperature, taken shortly after I was called was 104.2 and at 2 a.m. was 109 degrees in the rectum.

W. F. HAMILTON, M.D.—Two or three things have struck me in the reading of this paper; one is that Dr. McCrae's experience in the Alexandra Hospital bears out the teaching concerning nephritis in nearly all the text-books, namely that it is a rare thing and that it rarely has a fatal ending. In connexion with the remarks concerning the digestive disturbance does it not seem likely that this tract is infected secondarily, for the diarrhoea, etc., are expressions of a profound toxæmia? The third point was the sudden hæmorrhage. One such case I saw in a young woman admitted to the Montreal General Hospital during my service there, she died in 24 hours from violent hæmorrhage, some vessel in the throat having been eroded and a fatal termination had resulted just as in the case reported by Dr. McCrae.

A. LAPHORN SMITH, M.D.—I do not think Dr. McCrae has spoken of the injection of diphtheria antitoxine in scarlet fever: I understand it is used in the Alexandra Hospital and I would like to hear if it has had any good effect. I would also like to know if he has met with many heart troubles in connexion with the endocarditis of scarlet fever? With regard to nephritis I do not remember of any case dying from it; but I know of a few who were troubled for a good many years afterwards, although none of them died. One fatal case of scarlet fever I remember was a lady in whom a black eruption came out over the body. I used to use iron and chlorate of potash and glycerine a good deal, in the old days before there was any serum. I would like to ask if carbolic vaselin has been used much at the Alexandra with a view to disinfecting the skin and preventing the disease from spreading, especially in the desquamating period. I have often prevented any one else in the family from taking the disease by using it on the patient. Dr. McCrae does

not speak very favourably of hot baths, but my impression was that the hot baths were very valuable in carrying off the diseased detritus, and also getting rid of the infection. In those days we thought that the infection was carried by the desquamating skin, so that the sooner it was disinfected and carried away by the sewer the better.

JOHN McCRAE, M.B.—With regard to Dr. Lafleur's query about the hepatitis, I may say that this was entirely a microscopic resemblance and was very striking; the frequency with which huge focal necroses were found in the liver was startling, and where it was not focal, it was almost universal, and the fatal cases showed very frequently a liver in which the cells were so jumbled that they had lost entirely any semblance to the internal structure of the liver lobule.

Neither during the course of these cases, nor at any time subsequently have we had a case of fatal nephritis. I have often wondered in regard to the alimentary tract if there is not an actual mucosal infection of the tract. It has often seemed to me as if the suddenness with which those symptoms came on, and the high degree of decomposition in the contents of the bowel suggested it. Dr. Gardner's statement with regard to families is very true; two cases in my series belong to one family, where four were stricken and three died in one week; it is a question, however, whether it is the family or the infection. With regard to the diphtheria antitoxine, I have seen it used a great many times and the large doses certainly have a strong stimulant effect; farther than that, I have not seen any marked benefit. Heart troubles, in scarlet fever are extremely rare, considering how bad an infection it seems to be, and generally the cases get well; endocarditis is far more infrequent than myocarditis. This paper deals only with those cases that from the first are almost sure to be fatal, hence all the aspects of the disease have not been taken up.

#### AMOEBIC ABSCESS OF THE LIVER ORIGINATING IN MONTREAL.

F. G. FINLEY, M.D., G. E. ARMSTRONG, M.D., S. B. WOLBACH, M.D.

H. A. LAFLEUR, M.D.—This is a perfectly typical case. The appearance of the organs at autopsy was absolutely characteristic and particularly the character of the abscesses. The contents do not resemble ordinary pus. As a matter of fact pus cells are rather rare in such necrotic material and it seems to be just the broken-down liver tissue which forms the content of the abscess. As regards the limitation of the ulcers to the cæcum and ascending colon, though not very common still we used to find this sometimes in our cases at Baltimore; it certainly is the rule that the large bowel is not so universally infected as in the Shiga dysentery. In amœbic dysentery it seems to pick out spots where there is stasis of the intestinal contents like the pouch of the cæcum. The specimen being passed around is absolutely like the diagrams of the

ulcers from Councilman's monograph, drawn from the microscopical specimens. The chief interest I think is really the fact that in this case the disease seems to have originated in Montreal and is, as Dr. Finley points out, so far a unique occurrence. We did have an amoebic abscess some 8 or 9 years ago, but it was learned that the patient had been somewhere in the Middle States before coming to Montreal.

---