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THE  
MONTREAL MEDICAL JOURNAL.

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VOL. XXXIV.

DECEMBER, 1905.

No. 12.

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THE DOUBLE ALLEGIANCE OF THE MEDICAL OFFICER OF  
HEALTH.\*

BY

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Asked by our President, and asked as a Member of that University, which five years ago was the first on this continent to establish a post-graduate course and diploma in public health, to open a discussion upon the importance of the Diploma of Public Health in the development of the Public Health Service, I feel myself placed in a peculiarly delicate position.

In the President's communication I gathered—and therein I imagine I was mistaken—that conditions in the United States were especially under discussion, and my remarks are especially directed thereto. Fortunately most of what I have to say may be applied equally to Canada and Mexico. Notwithstanding my mistake I am largely impenitent, for the main bulk of my audience is surely of citizens of the United States, and inevitably you as a body are most interested in the consideration of conditions bearing upon the development of the Public Health Service in this country.

If he cannot indulge in whole-hearted appreciation but must probe into open sores, your alien critic is altogether uncomfortable, not to say boorish. It is quite right and proper that those of the family should discuss family failings freely between themselves, but when the neighbour from over the fence calls attention to them it is quite another matter, and he deserves to have things thrown at him.

Now unfortunately you across the line have been discussing this matter of the failings of your public health service quite loudly, and not least loudly at the meetings of this association; and, as I say, asked to take part in the conversation, I find myself in difficulties.

Let me therefore in propitiation say at the start that we in Canada,

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\* An address delivered as one of the papers opening a discussion upon "The Education of Medical Officers of Health" at the Meeting of the American Public Health Association, Boston, September 25th, 1905.

taken as a whole, are in a worse plight than are you. It is true that, as with your States, so with our Provinces, there exist certain admirably conducted provincial departments having upon their central staffs men of most liberal views, progressive tendencies, and capacity for organization. We have, however, nothing to compare with the more progressive of your Municipal Boards of Health. The rural services are in general singularly weak, and by your Act of 1902, which constituted a Federal Public Health and Marine Hospital Service you are far in advance of us, even if at present constituted that Service does not approach perfection.

I take it that in all institutions of Anglo-Saxon development advance is by compromise. The course offering the least resistance to advance is that which gains acceptance rather than that which is the more ideal and the more thorough. Having made this notable advance it will be possible by further compromise and successive modifications to the Act in question to obtain eventually that constitution of the Public Health Service most suitable to and most serviceable for the American people.

Rather therefore than pretending to criticize from a superior height I would place as an example both to the United States and to Canada the condition obtained in England a dozen years ago.

Previous to 1892 the conditions in England were far from satisfactory. By the act of 1875 the whole country, save the Metropolis, had been divided into sanitary districts, Urban and Rural. There was, it is true, a central authority—the Local Government Board—having supervision of health matters, but it had inadequate authority over the sanitary districts, and the Urban and Rural Boards of Health. These were too largely under the control of the Municipal Corporations and the local magistrates respectively, and in the country districts more particularly, as a matter of convenience to land owners, there was a too frequent tendency either to leave the appointment of the officers of health vacant over long periods of time or to appoint some local practitioner, not on account of his knowledge of the principles of public health, but on account of his "pull," or in expectation that he would cause less disturbance, and accept a lower salary, than the man who had fully qualified himself to hold such a post by an Act passed some years previously. On and after January 1st, 1892, this was markedly changed. In any country districts, or combination of districts, having a population of over 50,000, no one could be appointed Medical Officer of Health unless he was a full graduate of Medicine and was registered as the holder of a Diploma from some university body in sanitary science, public health, or state medicine. An adequate term of years had been given to prepare for

this change, and the Act establishing it had retroactive clauses so as to inflict the least possible injury on those already serving as Officers of Health. The law directed what should be demanded by the bodies affording the Diploma of Public Health. Before passing the examination the candidate should provide certificates of having taken special courses in such subjects as chemistry, with more particular reference to water and food analysis, bacteriology, the inspection of premises and sanitary works; and the examination itself must be practical as well as written, and include also a paper upon Public Health legislation and regulations. The act in short demanded special training, and that post-graduate; it created a trained body of Medical State Officials.

A subsequent Act, that of 1894, revolutionized the Local Government of England by the establishment of Urban and Rural District Councils, called County Councils, bodies elected distinct from the Municipal Corporation on the one hand and the Boards of Magistrates, which had held sway in the Rural Districts until then. Under these County Councils the control of the sanitary districts is placed. Under the new law each District Council has to appoint a Medical Officer of Health, or officers, who must not hold any other appointment, or engage in private practice without the written consent of the Council. The Rural County Council, however, may make terms with the District Urban Council for the services of its medical officer, and doing this need not appoint a special officer of its own. These medical officers of health are the officials of the County Councils, who have full powers of appointment. Their duties to the County Council are clearly defined by law. I do not know that it is necessary to go fully into these duties, but briefly note that they have to report on premises dangerous to health, to inspect and report upon premises and on the application of four or more householders; to inspect nuisances; may order the removal of accumulations of filth within 24 hours; may enter and inspect slaughter houses, etc.; are to inspect and examine all kinds of food exposed for sale, or in the course of preparation for sale; may enter premises where animals are kept, supposed to be injurious to health, and take steps to prevent overcrowding, etc. To superintend the ventilation of factories and workshops, the prevention of nuisances arising from noxious vapours in offensive trades, to take samples of milk in course of delivery—all come under their power, while they are empowered to ascertain the course of drains and to issue directions for cleansing and disinfection and the abatement of nuisances; as again they are entitled to be supplied with information of the registered deaths, and any cases of dangerous sickness of paupers—and upon these matters they have to make periodical reports to the County Council.

But in addition to these duties and these reports made to the district authority they have certain duties towards the central authority, the Local Government Board, which indeed contributes to their salaries. The Medical Officer of Health is required to inform himself as far as possible of all influences affecting the health of the district, and as to the cause, origin and distribution of disease in the district, and means of removal or modification of the same; he is required to make a systematic inspection of the district at certain periods for these purposes; he is to be prepared to advise the central authority with reference to the framing of by-laws and regulations to meet special conditions. On hearing of the outbreak of an epidemic of disease it is his duty to visit the spot and enquire into the circumstances. To go further into his duties, he has to report in writing to the central authority on the outbreak of epidemic diseases, and to prepare an annual report each December of the sanitary state of the district in general, with tables of sickness, mortality, etc., etc.

The point that I wish here to make is that the English law recognizes and has taken steps to meet the fact that the Medical Officer of Health owes a double allegiance: while he is the servant of the local sanitary authority he is at the same time an officer of the federal authority, and the only way to obtain a satisfactory Health Service in the United States is by recognition of the same fact.

The same necessity which has compelled matters of quarantine to be under the federal control compels the Government of the United States to have cognizance of epidemic outbreaks throughout the States for the protection of the people of the United States as a whole. Not only must immediate knowledge of such outbreaks be forwarded to Washington in order to ensure a direct common action, but the Federal Government must possess the ultimate (though not necessarily the immediate) power of stepping in and establishing regulations for the stamping out of an outbreak in any State. To the same end it follows that it must possess a general knowledge of the health conditions of each individual State and district in that State, and this it can only gain systematically by direct reports upon these matters from the several districts. Along the same lines similar direct reports are requisite bearing upon birth and marriage rates, mortality and morbidity.

Now the experts capable of affording this information, which should be demanded by the central federal authorities from each district, are the medical officers of health of those districts. For the public weal it would be absurd to have two different sets of experts each endowed with the right to make personal enquiries regarding epidemic disease from house to house, and armed with powers to enforce regulations

and to mitigate epidemics. In other words it is essential that one man in each district accomplishes the work both for the Federal authorities and for the local authorities. The main question now is what conditions can be laid down for the Federal and the State authorities respectively regarding the qualifications for such officers, and the jurisdiction of the same.

When we come to enquire into these matters we find that the difficulties are not so great as on the surface they would seem to be. Regarding the jurisdiction and the duties the matter is relatively simple. The Medical Officer of Health of any district must first and foremost be servant of the State. He must be appointed by the Health Department of the State and the power of appointment and dismissal must be in the hands of that department. As regards the duties, the main work in the way of inspection and the abatement of nuisances, etc., is a State matter. As regards infectious disease and its prevention or arrest, the State and the Federal authorities are equally interested, and the work done for one authority would be that accomplished for the other. As regards mortality and other statistics those also are matters that equally concern the Federal Government and the State. The report of the Officer of Health made for the one body has but to be duplicated for the other, and all that can be asked of the Medical Officer of Health is that the annual report of the general health of the district be so drawn up as to fulfil the requirements both of the State and of Washington. The Federal Government requires certain information from him, and this it must have; and further it must be assured that the information published be from an authoritative source.

The only practical way by which, short of possessing the power of appointment, the Federal authorities can assure themselves that the medical officers throughout the State are trained and competent is by their demanding that those appointed as medical officers shall have had the full special training requisite for the performance of their particular duties. And the only practical way by which they can assure themselves is by their laying down regulations as to what shall constitute a proper training. What is more the routine information required from one end of the country to the other being identical, the standard and the qualifications for all the States in the Union must be identical. In other words the matter of prescribing what shall be the training and what shall be the examination standard of future Medical Officers of Health is pre-eminently a Federal concern. It by no means follows that the central government should itself afford that training, or that there be one portal of entrance through an examination held at Washington.

That is unnecessary. There are numerous centres—centres in every State—at which by the co-operation of the Universities and the State Boards of Health the necessary teaching, didactic and more particularly practical, can be afforded. Each State, indeed, could train its own men. But when, as at the present, one State of this Union possesses no less than sixty-five separate bodies having the privilege of granting the degree of LL.D. it is obvious that the degrees granted by all the sixty-five are not of equal value—that some, indeed, are a trifle discreditable. Thus, under this scheme the Federal authorities should be empowered to select or to recognize the courses of training afforded by certain Universities only. Or what comes to the same thing, but involves less interference on the part of the Federal authorities with State prerogatives, the Act should lay down that the Health Department in each State shall itself select some one or two universities with which to co-operate in establishing a course for the training of its health officials.

I urge therefore that the next stage to be taken in the advance of the public health service in this country is the passage of an Act which shall render it obligatory throughout the Union that on and after a certain date no one shall be appointed Medical Officer of Health who cannot present a diploma from some recognised teaching body showing that he has passed a satisfactory examination, written and practical, in the subjects of Public Health and State Medicine—the course of training and the scope of the said examination to be laid down in the said Act. Following the lines of the English Act, this Act should contain retroactive clauses to the effect that those who had been Medical Officers of Health above a certain number of years should be confirmed in their positions—should not be required to present themselves for examination, and that those appointed within a certain number of years before passage of the Act might be required to present themselves for examination and to present the diploma before a certain date.

A further clause in such an Act should deal with the subject of stipend. In England the central and the local authorities contribute half and half. Here the conditions are very different. England, strictly speaking, is in the position of one of the constituent States, not in that of the whole Union, and the scheme here outlined demands that the Medical Officer of Health of a district affords to the Federal authorities at Washington what is little more than a reduplication of what he has to afford to the central health department of his State. Nevertheless in so doing he performs an essential service to the Federal authorities—a service which, failing him, could only be obtained by them at a very serious expense. Probably the simplest method whereby Washington could acknowledge its indebtedness to the public health

services of the different States would be by granting a subvention towards this end to the Public Health Department of each State.

As an alien, ignorant of the finer play of public feeling on such matters it may be, ladies and gentlemen, that like the alien St. Paul addressing the Corinthians, I speak as a fool; if so, judging from the way in which you have received these remarks, and remembering that we are in Massachusetts, again quoting that same authority I cannot but feel that you suffer fools gladly.

One objection I see to this scheme, namely, that it presupposes that the different States are already divided up into districts, having a population of 50,000 or more, each possessing a Medical Officer of Health. This cannot be the case everywhere. A clause therefore would be necessary directing that the State Board of Health should be responsible for notifications of outbreaks and annual reports regarding such areas of the State as are not provided with duly appointed Officers of Health.

Another objection is, that such a scheme wholly uproots the present method of appointing the Health Officers in the various States. If I understand matters aright there is at present in most States a multitude of health officers for small districts untrained and receiving nominal stipends. I think we will agree that qualified health officers, well paid, are everywhere requisite. The appointment of such officers for each county or combination of counties having a population of not less than 50,000 is of supreme importance, and for groups of this size the States can afford to appoint reasonable stipends. I will only say that this has come about in England—so sought after are good health officers that when a few years ago we thought of approaching certain promising men in England to offer them the position of professor of hygiene at McGill University we were informed by more than one of our advisers there that the stipend we could offer,—and it was respectable—was not sufficient: men could make more as district health officers. Such an Act in short would lead to competition to obtain the best men, and stipends would inevitably increase.

Yet another, and at first sight weighty objection, would be, I imagine, that as State officials, the medical officers of health are liable to be dispossessed at each change of administration. Instead of this being an objection it is the very reverse—that is, if we believe that it is to the advantage of the country to be possessed of an able and a stable body of medical health officials. This very demanding that the officer of health possess a diploma of public health cuts out from the service the mere political opportunist. If the post is to be a political nomination no one will trouble to give himself the better part of a year under-



going special training for the same on the chance of being turned out of office three or four years hence. In other words, demand a diploma of public health for and from the present possessors of these posts and there will be none to oust them. The creation of a special service will ensure stability of office.

In conclusion, I trust that nothing that I have said will have seemed to throw cold water upon the advance recently made in the establishment of the public health and marine hospital service. That was a great advance, and as an outsider I regard as its first feature the clause in the Act empowering yearly conferences between the Federal and State health officials provided always that those conferences be so conducted as to permit the freest interchange of opinion. The good spirit that has thus developed between the two bodies has already in Louisiana and elsewhere borne rich fruit. It is this advance, indeed, wise and timely, which permits that you in this country look forward to still greater progress, and, as I have said, that in my opinion is to be looked for along the lines here indicated of still further unification of Federal and State health authorities, and yet fuller recognition of the public health service as a distinct profession through the establishment of a diploma of public health.

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## RECENT WORK UPON TETANUS.

BY

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*Notes of a case following vaccination; intraneural and high cord injection of antitoxin; death.*

The history of experimental work with the toxine of tetanus is an extremely interesting one. Only within the last three or four years, however, have we come to very definite ideas concerning the exact action of tetano-toxine. This more exact knowledge we owe chiefly to the investigations of Marie and Morax in the Pasteur Institute in Paris, and of Meyer and Ransom in Marburg. Before going into detail in this direction it may prove of interest to review very briefly the history connected with our knowledge of the toxine of tetanus.

The bacillus itself was discovered by Nicolaier in 1884, but it was not until several years later (1890) that Kitasato was able to grow it in pure culture. It was found that the bacillus remained entirely at the seat of infection, where it manufactured the toxine, which, through its absorption, was the immediate cause of the various phen-

omena of tetanus. In the early nineties an antitoxic serum was manufactured by Tizzoni and Cattani in Italy, and by von Behring in Germany.

It has been known from the time of Hippocrates that the toxine of tetanus affected chiefly the central nervous system, but it is only within the last few years that we have got clear light upon the path which the toxine takes in order to reach the nervous system. Gumprecht showed first with some degree of certainty that the toxine attacks the spinal cord in particular, and not the peripheral parts of the nervous system; and that all the functional phenomena of the disease, both the reflex-hyperexcitability and the tonic muscular contractions, depend on this cord poisoning. No one any longer maintains that the muscle itself is functionally influenced. Bruschetti in 1892 demonstrated the presence of the toxine in the central and peripheral nervous system after subcutaneous inoculation; neighbouring organs were free from it, except the blood. Brunner in 1894 suggested that in head tetanus the toxine travelled by the facial nerve, but he let the theory fall. Gumprecht decided for the validity of this theory, but believed that the toxine travelled only by the lymphatics of the nerve-sheath. Marie in 1897 expressed the same belief, but gave no proof. Thus up to the year 1901, or thereabouts, the prevailing theory of the action of the tetanus toxine upon the central nervous system was that the toxine being manufactured at the point of infection was carried by the lymphatics and by the blood to the spinal cord, where it was sucked up, so to speak, from the blood or the lymph by the ganglionic cells of the cord.

It was in this idea that the antitoxine was given subcutaneously or intravenously in full expectation that its anti-toxic power, so perfectly demonstrated in the test-tube, would also be valid in the human blood. We all know how this expectation has been in large part disappointed, and the explanation for this we now find in the experiments of Meyer and Ransom. These men, whose results were published in 1903, have demonstrated that the only path of transport for the toxine to the central nervous system is by the nerve. Thus:

1. *After subcutaneous inoculation of the toxine it can be demonstrated in the nerve.* In four rabbits in which they injected toxine into the hind leg, the toxine was found both in the blood and in the sciatic nerve of the injected leg, but not in the cord or the brain. It will be remembered that Bruschetti had already demonstrated its absence in other organs.

At this point it may be opportune to resume the conclusions to which Marie and Morax arrived as the result of experiments carried out simultaneously but published in the previous year, 1902. They found that

(a) the injection of a tenfold fatal dose in the leg muscles of guineapigs was followed by the finding of the toxine in the blood and in the sciatic nerve of the same side; occasionally, if they waited for the development of general tetanus, in the other sciatic also. The muscle and fat from the neighbourhood of the injection contained no toxine. (b) *The sucking up of the toxine by the nerve is bound up with the integrity of the axis cylinders.* Thus, if in animals the sciatic was cut high up, it was found that after six days, when degeneration of the axis cylinders was well developed, the nerve would take up no toxine. Therefore the nerve sheath, or the lymphatics of the nerve sheath, do not materially share in the absorption of the toxine. (c) Again, if the main nerve be cut before the injection of toxine into the muscles of the foot, one can find the toxine later only in the distal portion, not in the proximal; therefore *the toxine gets into the nerve, not by the neural capillaries, but by the bare axis-cylinder endings in the muscle.* Even when all injury of nerves is avoided, as in injection into the *corpus vitreum* of the eye, the toxine can be found later in the sciatics and the brachials. The more concentrated the poison is at any spot the more of it is taken up by nearby nerve-endings. (d) *The poison travels only centripetally.* Thus a nerve already containing toxine from a previous injection. is cut and left *in situ*. It is found that the toxine soon disappears from the proximal end, which is protected by the division against the further inwandering of the toxine from the periphery; or, if the lumbar cord be injected, one finds toxine in the lumbar and dorsal cords, but not in the peripheral nerves. These were the experiments of Marie and Morax; the work of Meyer and Ransom not only confirmed these results, but brought our knowledge of the subject considerably further ahead, and gave it a strong practical application.

II. *The spinal centres can be protected from the toxine by blocking the afferent nerves with antitoxine.* (a) In local poisoning. Thus, a rabbit received the toxine in the right and left legs over the tibia subcutaneously; at the same time antitoxine was injected into the sciatic of the right leg. The latter remained perfectly free of tetanic stiffness, while the left became tetanic. On the third day the fore legs also became stiff and death occurred on the fifth day. It might be thought that the toxine had escaped outside the nerve, and being absorbed into the general circulation had caused death in that way. This difficulty was overcome in later experiments by sealing the injected nerve at the point of injection with collodion and embedding it in paraffin. The development of tetanus was still prevented, although in ten days the antitoxine disappeared from the nerve, after which the toxine, still being produced, was able to travel up and ultimately cause a light grade of tetanus. (b)

If the toxine be injected intravenously, the ordinary picture is that the animal becomes tetanic in the course of three or four days in all its limbs at once—general tetanus. That is, the toxine is travelling towards the cord along all the motor nerves, having been taken up by the motor nerve endings in the muscles generally. Even here one can prevent the development of the cord phenomena by blocking the nerves with antitoxine, provided one can find the right moment at which to inject the antitoxine. Thus a six-fold fatal dose was injected into the jugular vein of a cat. Six hours later both the crurals and the sciatics were injected with antitoxine. In one to two days tetanus developed everywhere save in the hind legs which remained free of tetanus till the death of the animal two and a half days after injection. This was not a paralysis of the hind legs due to the injection, for the cat pulled up its legs and sat on them, while the fore legs were in cramp-like contraction. Thus the conclusion is justified that the toxine reaches the central nervous system, not directly through the blood and lymph, but *only* by the axis cylinders of the nerves. If one blocks these in time the corresponding spinal ganglia remain free, at least until the toxine wanders in from other parts of the cord not protected.

III. *The ascent of the toxine in the cord can be prevented by cutting the cord.* The ordinary course of the disease in a cat which has received toxine into one sciatic nerve is that it develops first of all a local tetanus of that hind leg; then, as the toxine ascends, we get a tetanus of the trunk, then of the fore legs, then of the neck muscles, and finally death.

This picture can be entirely changed by cutting the lumbar cord and inserting paraffin between the two ends. In one cat toxine was injected into both sciatic nerves and antitoxine given at the same time subcutaneously to neutralise the possible outflow of toxine in the epineural lymphatics and so into the general system. In the cat in which the lumbar cord was cut the paralysed hind legs became strongly tetanic, showing constant jerking. The cat lived three weeks, during which time the rest of the body remained free of tetanus; death finally occurred from exhaustion with emaciation. At post-mortem nothing abnormal was found. In the control, where the lumbar cord was not cut, general tetanus developed as usual with death in  $4\frac{1}{2}$  days. Thus it is evident that the spread of the toxine is ascending and travels up the cord.

In correspondence with these facts we find that when toxine is injected into nerves we get much more acute and more severe consequences than when it is injected intravenously or subcutaneously, and that tetanus develops much quicker.

Their experiments concerning the incubation period are very interesting. When they exposed the lumbar cord and injected the toxine directly into it in laboratory animals, tetanus developed with extraordinary

rapidity; in these experiments it began in from two to four hours, while under ordinary circumstances, in which they injected the toxine into the hind legs, the incubation period was usually from two to three days. The conclusion is that the greatest part of the incubation period is used up in the transport of the toxine along the peripheral nerves from the nerve endings in the muscle to the sensitive cord centres. Confirmation of this is also found in the observation that the length of the peripheral nerve, varying as it does in different animals, seems to have a decided and direct influence upon the length of the incubation period. Thus in the mouse it is 8 to 12 hours; in guineapigs 13 to 18 hours; in rabbits 18 to 36 hours; in the cat 28 to 70 hours; in the dog 36 to 38 hours; in the mule 4 days, and in the horse 5 days.

It is a peculiar fact that in animals experimental tetanus is always shown first as a local tetanus, that limb being rendered stiff in which the toxine was injected. This has been said to occur very rarely in the human being, although such is not at all our experience at the Royal Victoria Hospital. The phenomenon is explained by Meyer and Ransom in this way, that the toxine, travelling as it does only by the nerves, reaches the spinal cord first in that segment which corresponds in nerve supply to the limb injected; only later, by the extension of the toxine up the cord and by the transport of the toxine along other nerves which have sucked it up from the circulating blood, does generalized tetanus develop. Certainly a large share of the toxine enters the lymphatics running in or near the nerves injected; yet this has no influence on the development of the local tetanus, because it can be rendered harmless by immunising the animal with antitoxine without the clinical picture of local tetanus being changed. Moreover, and this is the essential point, the normal period of incubation is never altered when the blood is flooded by antitoxine; therefore the antitoxine circulating in the lymph or blood has no effect upon the development of local tetanus, provided the toxine be injected into the nerve or cord.

If the toxine be injected underneath the dura, it does not affect directly the nervous tissue but must wander first into the lymph stream and so into the blood wherein it produces not a local but a general tetanus. This transport of the toxine exclusively along the axis cylinder suggests that there must be a current of protoplasm running constantly up the axis cylinder to its central cell, and that it is this current which carries the toxine.

It is well known that in the human the disease may develop without material pain, and that when pain does occur it is apparently due in the main to muscle fatigue. In other words there seems clinically to be no involvement of the sensory nerves of a neuralgic character. Meyer

and Ransom, however, found that one could produce in animals a tetanus which was not motor in type, but sensory; and to this they gave the name Tetanus Dolorosus. It appeared only when they injected toxine into the posterior root of any spinal nerve between the posterior ganglion and the cord itself; they could never cause it by injecting a mixed nerve. In other words, the posterior ganglion seemed to offer a definite barrier to the upward path of the toxine. This disease, Tetanus Dolorosus, was apparently characterized by enormously painful crises of lightning-like pain, felt in the sensory areas of distribution of the corresponding spinal segment, and brought on by the slightest touch, even by merely blowing upon the skin of the area involved. In many cases this dominated altogether the picture, and led to death from exhaustion before the ordinary motor symptoms had developed. Tetanus Dolorosus and motor tetanus are quite independent of each other, as shown by the fact that the symptoms develop separately in point of time. The injection of toxine into the blood, subcutaneously, or into the nerve trunk never causes Tetanus Dolorosus. It is probable that these quickly alternating crises of pain-fatigue and pain-recovery, have their seat in the cerebrum rather than the cord, because the reflex answer was always and exclusively a cerebral one, consisting in co-ordinated movements of defense; pure spinal cord reflexes were quite lacking. From these and other experiments, Meyer and Ransom arrived at the following conclusions:—

(1) The toxine travels to the cord only by the motor path; it never reaches the cord by the sensory nerves; (2) the pain apparatus of the cord is isolated from the motor, so that the poisoning of one does not spread to the other; (3) the effectual spread of the toxine in the nervous system cannot occur through its lymph paths but does so in the protoplasm of the neurone itself; for otherwise the occurrence of isolated sensory and motor poisonings, and also the fact that a fixed barrier is set by the posterior root ganglion to the advance of the toxine in the nerve, would be inexplicable, inasmuch as the lymphatics of the ganglion stand in free and open communication with the subarachnoid spaces and with the lymphatic spaces of the nerves. From the cerebrospinal fluid, or the blood, or the lymph, the poison never gets into the intact nerve cell substance. A further proof of this fact, to those interested, may be found in the work of Roux and Borrel<sup>2</sup>, who by injecting toxine directly into the brain substance, produced a form of tetanus characterized largely by psychical symptoms, to which they gave the name of Cerebral Tetanus. Now this type never appeared if the toxine were simply injected under the cranial dura without lesion of the brain cortex. The authors remark, in passing, that this protection against

blood-carried toxines is not a general one, *e.g.*, ether, cocaine, strychnine, all attack the nerve cells from the blood; on the other hand this property is not confined to the toxine of tetanus; probably all colloid substances and many substances which diffuse with difficulty, have the same property; this they found to be true at least for Sodium Ferrocyanide.

It must be remembered that the pathognomonic signs of tetanus are two, on the one hand permanent tonic contraction of muscle, on the other, reflex hyperexcitability: the one resulting in tonic, the other in clonic spasms.

This spinal hyperexcitability is present in Tetanus Dolorosus, only it is masked by cerebral inhibition. If one cuts the cord in a case of Tetanus Dolorosus there appears jactation of the hind legs, more or less constant, with movements corresponding to those which the animal would have assumed in order to bite at the painful area. As long as the pain impulses were carried to the brain there was no agitation of the limbs; on the contrary the animal kept as quiet as possible to avoid the pain of irritation, and only displayed agitation when the paroxysm became too strong. The paths to the brain once cut, the energy originated by the pain stimuli unloaded itself vicariously in continuous movements broken only by short pauses of fatigue. This therefore would be the spinal equivalent of the cerebral reflexes which are controlled by the higher centres in the intact animal.

The toxine can travel both by sensory and vaso-motor nerves, but in the sensory nerves its further advance is barred by sensory ganglia. Two experiments in which the toxine was injected into the vagus showed a distinct and long continued slowing of the pulse, and the conclusion therefore is justified that the cardio-inhibitory centre is sensitive to the toxine; yet apparently in these experiments only mere traces of the toxine could have reached it, to judge from the slight results developed.

It is unlikely that the toxine influences vaso-motor nerves generally for in tetanus the blood pressure remains unaltered.

To recapitulate the whole question Meyer and Ransom give at length their theory of experimental tetanus toxaemia. At the point of inoculation the toxine is sucked up largely by the motor nerves, in all probability by their bare axis cylinder endings from the lymph spaces; and is by this path transported to the motor ganglia of the cord. These are at first only put into a condition of hyperexcitability, so that they are aroused by the stimuli which are continually streaming in from the sensory periphery, and which ordinarily remain latent so far as exciting motor action is concerned. These stimuli are now sufficient to cause a continuous discharge of energy much greater than the ordinary, suffi-

cient, indeed, to bring the muscle into contraction. First the extensors and flexors both become slowly and moderately tense; but gradually the extensors overcome the others and extend the leg fully,—the so-called extension cramp. Local tetanus is thus the expression and the consequence of the normal muscle tone, but so increased that it overcomes all central inhibition.

The pathological substratum is an irritation of the motor apparatus in the cord, and therefore it remains at first localised. The extra toxine is carried on in the fibres of the cord, at first by way of the direct association fibre through the anterior commissure to the motor apparatus of the other side causing tetanus of the corresponding limb. Only after some time and with a sufficient import of toxine does the latter take hold of the tactile apparatus of the reflex arc, the nearest associated part of the nervous system, producing reflex hyperexcitability. Thus it comes to general tetanus of the reflexes. A stimulation of the involved limb or its nerve root will cause an abnormally severe motor explosion, which can spread by ascending and descending collaterals to the reflex apparatus of the whole cord; and conversely, upon stimulation elsewhere, the transmitted wave causes a reflex jerk only in the hyperexcitable district. If the toxine spreads, both motor hyper-tonus and hyperexcitability spread also and we get stiffness of almost all voluntary muscles together with general reflex hyperexcitability.

Thus there are two separate processes going on in the cord. The first is a local motor poisoning resulting in local tetanic muscle spasms; the other, secondary, is local sensory poisoning, a reflex tetanus spreading from the poisoned neurone. If the toxine has entered by the blood route it circulates to all the motor nerve endings and by this path to the cord, and the mischief is of course not localised to one area of the cord but is diffuse. That tetanus may then break out at certain areas of predilection we know both from animal experimentation (in cats, for instance, the fore foot first), and from human clinical observation. In this connection it is interesting to speculate as to the reason why in the human the first sign is usually trismus. It may be suggested that it is a mere matter of the time involved for the toxine to travel by the nerves; the central ganglia first affected are those belonging to the shortest nerves; therefore the toxine spreading rapidly in the general circulation is taken up by the 5th, a short nerve, and reaches the 5th ganglia quicker than it does the spinal ganglia corresponding to a comparatively distant point of infection such as the hand or foot. Recent experiments however of Marie and Morax<sup>2</sup> tend to show that certain nerves, of which the 5th is one, seem to have an increased affinity for tetanus toxine over other motor nerves. This part of the subject is still largely speculative.



## APPLICATION OF THESE PRINCIPLES TO THE ANTITOXINE QUESTION.

It may be seen how great an importance this experimental work has upon the question of the value of antitoxine injected subcutaneously or into the blood current. It is a well known fact that a fatal dose of toxine is usually not prevented by any amount of antitoxine, if the latter is not given, in the laboratory animals, till several hours after the injection of the toxine. This fact, together with the evidence that the peripheral nerves take up the toxine, suggested to Meyer and Ransom that the antitoxine does not follow the toxine in the nerves to the central nervous system, and therefore cannot protect the animal from toxine already absorbed by the nerves. Further, the time elapsing between the outbreak of tetanic symptoms and the contact of the toxine with the sensitive centre in the cord, a fact which was got at by direct inoculation of the toxine into the cord, was only two to four hours. Now antitoxine given even 20 hours before the expected tetanus outbreak is ineffectual, when the toxine is injected directly into nerves; therefore they concluded that the antitoxine does not reach the central nervous system even by way of the blood or lymph. Experiments showed that when the antitoxine in 2000-fold excess was given either before, during, or after the inoculation of toxine into the nerve, it did not materially interfere with the development of local tetanus.

In this connection the experiments of Roux and Borrel, in 1898, concerning the causation of cerebral tetanus in immunised animals, that is a tetanus caused by the injection of the toxine directly into the brain, showed that in these animals whose blood contained enormous quantities of anti-toxine, the latter was not present in the central nervous system and did not prevent the action of the toxine. In one experiment Meyer and Ransom took a very actively immunised rabbit and were able to kill it by the injection of toxine into the sciatic. In this experiment a 25-fold fatal dose of toxine subcutaneously produced no effect, but upon injecting a much smaller dose into the nerve general tetanus was caused in 12 to 16 hours; while the blood of the dying animal, on being tested, showed that two drops contained more antitoxine than would suffice to neutralise the fatal dose of toxine that had been given. Now it is evident that the toxine here was advancing slowly along the nerves in a diluted stream, and if antitoxine circulating in the blood stream could reach it at all, it would have been so reached and neutralized; therefore antitoxine injected subcutaneously or intravenously is never taken up from the blood or lymph by the substance of the nerve fibrils or the ganglionic cells. Even in an animal whose blood is antitoxic to the last degree, the neurones are free from antitoxine, that is unprotected. This again proves that the toxine in its transport along

the nerves cannot be carried by the lymphatics of the nerves, else it would be neutralised; therefore again the toxine must travel to the cord in the plasm of the axis cylinders. *That part only of the toxine which is circulating in the blood can be reached and rendered inert by antitoxine injected subcutaneously.*

All this agrees well with the clinical observation that the serum treatment of tetanus, usually given subcutaneously, has been extremely uncertain. That portion of toxine which after infection is already in the nerve substance or in the cord can no longer be overtaken by the antitoxine. An infection depending upon a certain amount of toxine already absorbed by nervous tissue will inevitably run its course, whether to spontaneous cure or to death. On the other hand toxine which is still in the tissue lymph or blood, or that coming steadily on from the focus of infection, can be neutralized by antitoxine, and the source of the toxine can be blocked, and in this way a toxæmia otherwise fatal can be arrested and the life of the patient saved. But we can go further, and say that it is conceivable, that even in cases in which presumably a fatal dose of poison is already taken up by the nerves, but has not yet travelled as far as the vital centres of the cord, a fatal ending might be avoided by the injection of antitoxine into the nerve substance. As is known Roux and Borrel in this idea recommend intra-cerebral injections of antitoxine, and in animal experiments have had apparently favourable results. "Whether," Meyer and Ransome conclude, "it will be possible by the injection of antitoxine into the nerves, or in extreme cases into the spinal cord, to succeed in overcoming the toxine, we are not yet in a position to state upon the basis of sufficient convincing experiment. In one case at Marburg, in which serum in large amounts was given one-quarter hour after infection, a local apparently progressive tetanus broke out. Kuester injected serum into the nerve roots of the arm and the tetanic symptoms soon disappeared."

Upon this theory it is evident that in order to reach the toxine with the antitoxine we must bring the two into direct contact by injection into nervous tissue. In addition it is evident that the element of time is of enormous importance. The toxine travels along the nerve plasm towards the vital centres in the medulla; death usually occurs by the involvement of these centres; therefore we must block the advance of the toxine early before it has time to reach these centres. This necessity of early use of the serum has always been emphasized by von Behring.

The question as to the comparative mortality under the old expectant treatment and the serum treatment of the last decade is an interesting but difficult one. Authorities agree fairly well that under the old plan the mortality was from 80 to 90% in all cases. The statistics concerning

sero-therapy which have been published by von Behring, and more lately in the year 1900 by Moschkovitz, seem to show a mortality of only 40 to 50%. We cannot however accept unreservedly these figures. The statistics of serum therapy are drawn from collections of isolated cases. Now it is notorious that one usually publishes the striking cases, and in tetanus the striking case is the one that recovers; one is apt not to report the fatal cases. Therefore reports upon the advantages of the serum are certain to be much too favourable. Even before serum therapy this method gave a mortality of around 50%. Such results are irrational! What we need is large hospital statistics in which all cases, both favourable and unfavourable, are accurately set down. Until we have these we cannot come to a decided opinion upon the value of serum therapy. Nevertheless, the difference is so great that we may believe that probably antitoxine has some good effect. It is plain that according to the experimental work it must have a neutralizing effect upon the toxine which is circulating in the blood current, although it can have none upon that which is already fixed by nervous tissue. In this sense the *mot* of Marchand is justified, "that a man with tetanic symptoms is not beginning to have tetanus; he is beginning to die of tetanus."

During the years from 1898 to 1902 or 1903 Roux's intra-cerebral injections of antitoxine were widely practised. Statistics of this operation also are to hand, but of course are also unreliable. Schaufli<sup>r</sup> collected 233 cases treated in this way with a mortality of 58%. Although the procedure seems illogical in view of the ascending nature of the infection and its almost exclusive action upon the cord and medulla, yet it may be that these figures are of favourable import; because those cases in which one uses intra-cerebral injections are usually the severe ones. Moschkovitz has given us extensive statistics embracing all cases treated by serum up to the year 1900; and we find that of 200 cases in which the serum was given subcutaneously there was a mortality of only 40.33%; in the intracerebral cases, 48 in number, there was a mortality of 52%.

While of late years the distrust of antitoxine used to cure, has become strong, experience has accumulated to show its value when used to prevent. The Journal of the American Medical Association has for several years past devoted much of its space to Fourth of July tetanus, and has given figures which indicate the very marked prophylactic value of the antitoxin, so far as figures can indicate anything in a question of prophylaxis. There can be no doubt but that purely laboratory evidence is very strongly in favour of such a procedure.

It was natural that these experimental results should soon find a clinical response. The laboratory operation, proven effectual, of injecting antitoxin into the nerves leading from the focus of infection,

might justifiably be imitated upon the human. And in fact in the last two years a few cases are reported of intraneural, and intramedullary injections of antitoxin. The cases are too few as yet to justify our basing any conclusion upon them; but I might briefly refer to an article by Rogers<sup>4</sup> in a late number of the *Jour. Amer. Med. Ass.* He, of those who have applied these laboratory principles to clinical cases, is the one who has gone farthest. In all his seven cases, he injected the serum subcutaneously, intravenously, intraneurally, and into the substance of the lumbar cord; but in three that were especially grave, he went further, and injected antitoxin into the substance of the lower cervical or upper dorsal cord, in the hope of preventing further ascent of the toxin towards the vital medullary centres. Of these three severe cases, one lived, and seemed to be saved by the procedure; another was greatly benefited, but relapsed and died, owing to a mistake whereby diphtheria antitoxin was given on the day following instead of antitetanic serum. The third died of what seemed to be an overwhelming infection. Of the remaining four, three lived and one died.

The case that I wish now to report occurred in the practice of Dr. Morrison, of Point St. Charles, was seen in consultation by Dr. Hamilton, who advised removal to hospital and asked me to take surgical charge of it. I am indebted to Dr. Hutchinson, the house surgeon in charge, and to Dr. Morrison, for notes.

Mary A., aged 5 yrs. Admitted Sept. 23, '05.

Present illness:—

On Aug. 30, '05, the patient was vaccinated, and everything went well until Sept. 18, '05, when the mother noticed a bad odour from the scab, which had a shield over it. She did not see a doctor about it until Sept. 20, '05, when he took it off and found a sloughing wound. About the 13th day the doctor had seen the arm; there was a hard scab with no evident suppuration underneath. The technique of vaccination had been thoroughly aseptic. For the first 4 or 5 days rubber protective was kept over the wound; following that, no dressing save a shield. After cleaning it thoroughly he gave the mother boracic dressings to apply; and this was done, she says, carefully. On Sept. 22, '05, in the morning the child complained of some stiffness in the left arm, and in the jaw while eating. This gradually increased, and by night the right side of the neck became stiff and slightly painful. She woke up screaming several times in the night and had apparently one convulsion. The condition became somewhat worse on Sept. 23, '05. Dr. Morrison was not called in till noon of the 23rd. He summoned Dr. Hamilton in consultation, who recommended her transference to hospital.

Admission, 5 p.m., Sept. 23, '05.

Condition:—

The patient is not suffering any pain when quiet, and lies with the head turned to the left and a little backward. She holds the left arm flexed and cries when attempts are made to extend it. The jaws are closed, and can only be opened wide enough to admit of half the tongue being protruded. Occasionally she has clonic contractions of the masseters. The right sterno-mastoid stands out somewhat rigid. The posterior neck muscles are also stiffened slightly and occasionally contract drawing the head back.

Sept. 23, '05. At 8 p.m., under chloroform, the ulcer was excised by an elliptical incision, and the wound closed with a rubber tube drain. Ten c.c. of antitetanic serum (P.D.) was injected into the subcutaneous tissue over the anterior part of the left shoulder.

9.15 p.m. General convulsion—opisthotonos.

9.30 p.m. Slight general convulsion. Chloral hydrate gr. v. q. 6 h.

Sept. 24, '05, 12 to 2 a.m. A number of slight spasms.

6.30 a.m. Slight general convulsion.

Up to 9.30 a.m. A few slight convulsions. One was observed carefully.

It was preceded by a cry—mouth tightly closed and remained so for 2 or 3 mins.—head retracted—limbs drawn up, and left arm became more spastic.

She complained of some occipital pain on the right side; probably due to the spasm of the right sterno-mastoid. As the condition was growing worse, she was put under chloroform at 11.15 a.m., and the left brachial plexus exposed; antitetanic serum, one drachm, was injected under the sheaths of the musculo-spiral, musculo-cutaneous, ulnar, and median at the junction of the two heads. Enough was injected to swell the nerve to three times its ordinary size. Silk ligatures were left on the nerves but not tied, for convenience of later injections. Intravenous of antitetanic serum, one drachm and a half, in right arm. Lumbar puncture between 2nd and 3rd; needle moved about in the intention to wound the cord, but did not cause spasm of the legs. Antitetanic serum, one drachm and a half, injected.

Subcutaneous injection over the shoulder, one drachm and a half.

Subcutaneous injection in abdomen, 10 c.c.

No improvement followed these procedures.

1 p.m. to 1.30 p.m. She had six convulsions, characterized by drawing up of the legs, especially the right, the left very little—flexing the arms—opisthotonos—clenching the teeth. Between the convulsions she can swallow.

1.30 p.m. to 4 p.m. The spasms occurred every few minutes but were not so severe and the left leg did not seem to take part in them. The right leg would flex and become markedly abducted, turning the patient onto her left side; at the same time there was marked opisthotonos. The abdomen was comparatively soft. The arm would extend at times and this was more marked in the right than the left. At times the "risus sardonius" appeared.

4.30 p.m. Pulse very weak. Spasms becoming very frequent, q. 2-3 min. Sod. brom. and chloral aa gr. v. given, which seemed to quiet the child to a slight extent. About 5 p.m. the child suddenly seemed about to die; became almost pulseless; probably a cardiac spasm. This soon passed off, and the pulse recovered its former strength.

6 p.m. Ten c.c. of antitetanic serum was given in the subcutaneous tissue of the abdomen. Marked cyanosis had appeared.

9.20 p.m. Pulse and spasms worse. Cyanosis now marked. I now resolved with hesitation to inject antitoxine into the spinal cord high up after Rogers's example.

This was done at 10.30 p.m. between the 6th and 7th cervical vertebrae. The needle was advanced till it was stopped by the posterior aspect of the body of the vertebra; it was then withdrawn about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch and a few drops injected, then it was pushed forward again to the vertebral body, and withdrawn  $\frac{1}{2}$  in. to  $\frac{1}{2}$  in. and about 45 minims of serum injected slowly, taking 9 or 10 min. in all for the injection. This seemed to influence in no way the cord physiologically. The remainder of the 10 c.c. injected into the subcutaneous tissues over the anterior aspect of the right shoulder. The spasms afterwards became less frequent but more severe, and cyanosis became quite marked.

Sept. 25, 1.20 a.m. Patient died. Condition as follows:—

The pulse gradually became weaker and more rapid. Cyanosis more marked—convulsions more severe and towards the end involved both legs. At 1.20 a.m. she had a very severe convulsion; then respiration ceased and the pulse became imperceptible at the wrist, but the heart continued to beat and was in delirium cordis. She then gave a couple of gasps and died. Appended is a synopsis of the chart:

Date and Hour	23rd	10	12	24th	4	8	12	4	6	8	11	25th	12
Temp.....	98.4	100		101	100.4	96.4	101.3	103.2	105	104.4		105	
Pulse.....	130	138		153	?	142	—	180	180	188		190?	
Resp.....	28	32		36	38	—	—	36	36	44		46	

The duration of this case from first symptoms to death was thus only about 64 hours—a very grave, acute case. She came under treatment about 36 hours after the outbreak of symptoms. She received in all about

45 c.c. of antitoxin subcutaneously,  $1\frac{1}{2}$  drachms intravenously,  $1\frac{1}{2}$  drachms into the lumbar canal, with attempt to wound the cord; and 3 drachms into the brachial plexus; finally about 45 minims into the cervical cord. The effect of all this seemed to be *nil*. Undoubtedly the case was one of those acute ones which are doomed from the first, whose nerve cells have absorbed an amount of toxin which is bound to be fatal. Nevertheless, it must be admitted as a mistake, that the serum was not injected into the brachial plexus and the lumbar cord as well as intravenously and subcutaneously at the very first opportunity. To wait till the following forenoon was losing valuable time. Naturally, it must remain a question, how soon one is justified in injecting the serum into the cervical cord. Further animal experimentation is needed before one can feel justified in doing so without very grave need; and by that time, it will usually be too late.

The vaccine used in this case was in tubes, supplied by one of the best firms. Five tubes of the usual package of ten were used in vaccinating five children. Of these, one was the sister of the patient, and was done at the same time. Two were inoculated three days previously, and the fifth a week later. Of the five, four "suppurated"; all took. The patient was the only one that showed any untoward symptom.

Those interested in vaccination tetanus may consult a comprehensive article by McFarland,<sup>5</sup> in the *Lancet*.

In conclusion, I wish to state my belief in the following principles:

1. Antitoxin is an efficient antidote when in contact with the toxin.
2. It must be brought into direct contact with the toxin in the nervous system of operative means. Therefore, tetanus is no longer a medical but a surgical disease.

3. The infection being an ascending one, we must block the nerves, the cord, and possibly also the lower neurones of the cerebrum by injections of antitoxin directly into these structures.

4. It must be admitted that in the case of cord injections this is partly a blind procedure, because we do not know how widely, or exactly where the antitoxin will diffuse once it is inserted, or to what extent it will come into contact with the toxin; but it is, on the other hand, a logical following of what light we have.

5. I would be inclined in cases which bid fair to be fatal to attack the nervous system from all sides—using the intracerebral as well as the intra-medullary and intra-neural injections. The dangers of such interference have been proved to be slight, and should not deter us, in view of the otherwise fatal nature of these cases.

6. It is of the utmost importance to inject *early* in any case which, in our judgment, is evolving acutely.

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## SPIROCHÆTA PALLIDA.

BY

C. B. KEENAN, M.D.

It is with a great deal of pleasure and satisfaction that I find myself enabled this evening to show you two typical specimens of the much searched for *Spirochæta pallida* and also another specimen so closely resembling the former as to occasion a very natural confusion, namely, the *Spirochæta refringens*.

Of these two specimens of the *Spirochæta pallida*—one I have taken from a mucous patch, and one from a primary sore. Through the kindness of Prof. Starkey I have been able to compare these organisms with some prepared by Prof. Metchnikoff, and find them similar in morphology, but less deeply stained.

The discovery of the *Spirochæta pallida* must be credited to Schaudinn and Hoffmann,<sup>1</sup> who published the first article on the subject in the spring of 1905, and since then, they and numerous other investigators have added largely to what is known of the organism.

Schaudinn<sup>2</sup> has reviewed and compiled all such data, limited as they still are, and finds that the *Spirochæta pallida* can most easily be separated from similar forms by examination when alive, owing to its greater fineness, its more limited capacity for refracting light, and its characteristic form of spiral, which is composed of narrow, regular and deep windings—10 to 26 in number, present even when the organism is immobile, while a similar spiral form, if present at all in other spirochæte, is visible only during movements of the organism.

This peculiar form of spiral still persists in the fixed preparation in which the organism is stained with difficulty, Giemsa's solution giving the best result and further aiding us in identifying the *spirochæta pallida* by staining it red whilst closely resembling forms take a blue tint.

Schaudinn now, in correction of his original statements finds that the organism ends in long tapering flagella, which at times may be double, and these tapering ends differentiate it from almost similar but bluntly ending spirochætes found in ulcerating carcinomata.

A nucleus and an undulatory membrane are said to be present, there-



fore, the organism is to be placed among the Protozoa, and Schaudinn feels justified in distinguishing it from the spirochæte, and classifying it as a spironema.

The spironema — to give it its new name — can be demonstrated in primary and secondary syphilitic lesions either in human beings or in artificially produced syphilis in monkeys. It is likewise to be found in blood taken from children dying from hereditary lues.

A few objections have been raised as to its pathogenicity, but its uniform occurrence in these sites which I have mentioned, goes far to prove it the causative agent of the disease.

In making smears great care must be taken to obtain material from the deep portions of the lesion and also not to confound it with an organism almost universally present — the *Spirochæta refringens*, which takes a stain more easily, and which is characterized by its greater thickness, and its windings which are broader, shallower and fewer in number.

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### MYXCEDEMA IN THE MALE.

BY

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Cases of myxœdema in the male are decidedly rare. Of 150 cases collected by Prudden there were 32 men and 113 women. Heinzheimer found only 10 males and 117 females in 150 cases, the sex being omitted in 23. Hun and Prudden point out that the great majority of women who suffer from the disease have borne children, and only a small proportion are unmarried.

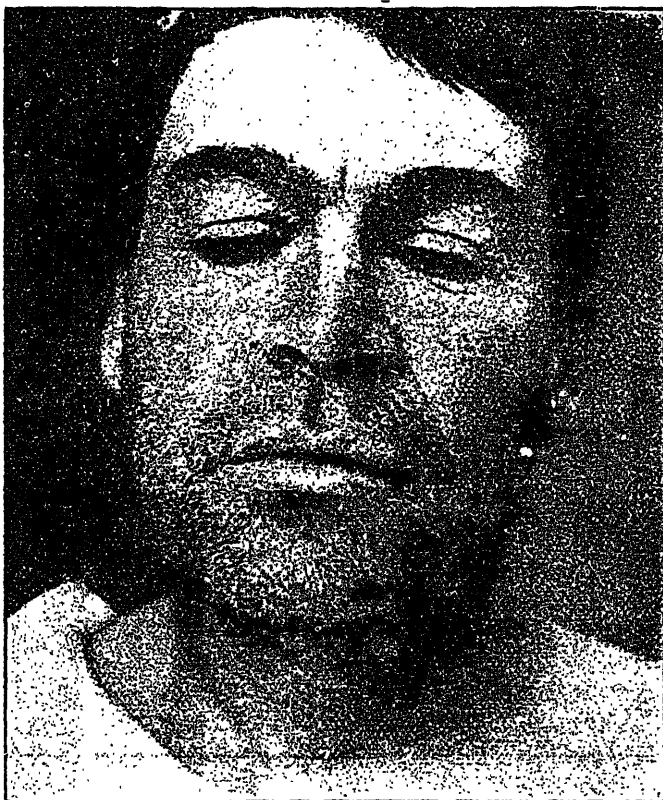
That there is a relationship between the thyroid gland and the occurrence of pregnancy is shown by the frequency with which the gland enlarges during this state. The great preponderance of the disease in the female sex, and particularly in married women, is probably due to subsequent atrophic changes in the gland.

Henry D., farm labourer, No. 871, 1904, was admitted to the Montreal General Hospital on November 5, 1904, complaining of diarrhœa, headache, weakness in the arms and legs, shortness of breath and swelling about the eyes.

In 1900 he first noticed swelling of the eye-lids, which has continued since. Two years later his hands became weak and he found it very difficult to perform his duty of milking cows, and a little later his legs.

(Read before the Montreal Medico-Chirurgical Society, 20th October, 1905.)

also became swollen and weak, so that he frequently tripped in walking. The symptoms were always aggravated by cold weather, and recently he has been quite unable to carry out any manual labour in cold weather, as the implements would slip out of his hands. Diarrhœa has been present for nine months, there being usually a very large loose stool daily, offensive in odour, and about the consistence of paint. His appetite has remained good. Shortness of breath has been noticed for a considerable time and has been increasing during the last few months.



Although he has kept at work he is very easily fatigued, and, owing to his incapacity for labour, has been discharged from one situation after another. The swelling has persisted in the eyes and legs.

Examination shows a fairly nourished man. In bed he lies huddled up on his side with the bedclothes drawn over his head, and when up he always sits close to the radiator. The skin is almost universally dry and harsh, there being only slight moisture in the axilla. The skin is quite elastic, and the subcutaneous tissues are not thickened.

There is a considerable degree of œdema of the upper and lower lids. The skin of the face and neck is of a brownish tinge, and there is a slight flush over the malar bones. The folds of the alae nasi are fairly well marked, the lips, especially the upper one, are slightly thickened. The hair of the scalp is rather thin, black, coarse and somewhat bristly, and less elastic than normal. There are no pads in the supra clavicular regions. The fingers are thick and the hands rather broad. The



colour of the finger nails and mucous membrane shows a moderate grade of pallor, and the blood count, taken by Dr. Anderson on November 8, gives a red cell count of 4,370,000 Hg. 65% ; white cells, 5,000 (a month later, a count by Dr. Gordon showed 4,040,000 r.b.c. 5,400 b.c. and 60 per cent Hg.).

The temperature during four days varied from 95.3-5 to 99, and the pulse from 48 to 72, being almost always below 60. No glands are felt, and the thyroid is not even palpable.

He walks with the head a little forward and rather heavily. The

muscles are well developed, but his grasp and the power of the muscles of his legs is somewhat impaired. The speech is distinct, but the voice harsh and leathery in quality, and the tongue is large. He is quiet and speaks very little, and sleeps a great part of the time. The knee jerks are increased, the plantar reflexes present, but slight, no ankle clonus or Babinski. The urine never shows any departure from the normal.

On November 13th he was given Thyroid extract gr. ii t.i.d., and four days later the note reads "seems less drowsy, has had several profuse sweats, more talkative and looks brighter."

Nov. 18. The skin is moist all over, he is brighter, and the pulse varies from 60 to 84.

Nov. 23. The tongue is smaller, the voice clearer, the eyes brighter and the œdema of the lids is much less; temperature 96 to 98 2-5; pulse 64 to 84.

Nov. 29. On the 28th thyroid was increased to gr. iv. t.i.d. He is much brighter and not so susceptible to cold.

Dec. 6. For the past week, taking thyroid gr. v. t.i.d. There is no œdema of the face and the hands are much smaller. The skin is soft and moist and he is not so sensitive to cold. He is much brighter and does not sleep so much.

He remained in hospital till March. About the last symptom to disappear was the sensitiveness to cold, which he used to complain of as felt chiefly in the testicles. He was discharged well, and warned to continue the thyroid treatment.

When seen a few weeks ago he appeared perfectly well and healthy, able to work, and continuing to take the thyroid extract. The diarrhoea was controlled by an astringent mixture.

A perusal of the history of this case shows a fairly typical case of myxœdema.

The condition of the skin, the œdema of the lids and the thickening of the features and hands, the mental dullness and drowsiness, the harsh voice, the slow pulse, the thickened tongue, and the extreme sensitiveness to cold, which always caused an exacerbation of the symptoms, are all very characteristic of the disease.

Anæmia is commonly present; Ewald states that the red cells are usually three to four millions, the hæmoglobin from 40 to 60 per cent., and that the white cells are occasionally increased.

The muscular weakness which was such a prominent feature of this case is probably to be attributed to infiltration of the muscles by mucinoid material. Scholz, quoted by Ewald, states that there is hyperplasia and hypertrophy in these structures, as well as a mucinoid and œdematous infiltration.

The weight changed comparatively little, varying between 145 lbs. on admission to between 147 and 140. On exit he weighed 142, and when first put on treatment lost a couple of pounds.

The pallor and swelling of the lids in myxœdema is somewhat suggestive of Bright's disease. As albuminuria is present in one-sixth of the cases, confusion may occasionally result to anyone unfamiliar with the leading characteristics of the disease.

The photographs illustrate the appearance before and after treatment.

### 'PARANEPHRIC CYST SIMULATING FLOATING KIDNEY.'

BY

J. M. ELDER, B.A., M.D.,

Surgeon to the Montreal General Hospital, Assistant-Professor of Surgery and Lecturer on Clinical Surgery, McGill University, Montreal.

Paranephric cysts, especially of some of the remains of the Wolffian body, are sufficiently rare, I think, to warrant the publication of the following case:—

Miss A. B., aged 30, was referred to me by Dr. Roddick. The history was that six years ago she began to have pain in the right side of the abdomen, accompanied by nausea and vomiting. These attacks would last for a few hours and were relieved by rest in bed. The attacks gradually subsided until two years ago when they again came on, and during the winter she had five or six very like the previous ones. Some time during this period she accidentally discovered a movable tumour in the right upper quadrant of the abdomen, which produced a sensation of faintness upon pressure. At times this tumour could not be palpated by the patient.

During the following winter she had several attacks which were diagnosed as appendicitis, and she was put to bed, with ice bags applied in the region of the appendix, for two weeks at one time. As a result she was practically confined to bed from December until March. There was severe pain in the lumbar region, more especially on the right side, during the last month that she was in bed. Upon getting up this pain was worse, especially on attempting to straighten the back. Convalescence was slow, and during the summer holidays she had frequent attacks of pain in the right side, always accompanied by nausea, and sometimes leading to actual vomiting. She became gradually worse until November when she took to bed. Any attempt at getting out of bed reproduced the pain with its concomitant symptoms, and now following these attacks of pain she would feel very drowsy and sleepy, one time sleeping for the greater part of two weeks, taking very little nourishment and losing a good deal of flesh.

By this time the tumour spoken of previously had become noticeably

larger, more easily palpable and movable. Diagnosis was made of floating kidney, and it was resolved to see what postural treatment might do for her. For six weeks she remained absolutely in bed with the foot of the bed raised and a pad worn over the right upper quadrant of the abdomen. While lying thus she was free from pain, but if she turned on the right side, or sat up, the same old pain returned worse than ever. An examination now showed that this kidney tumour, as it was thought to be, was as freely movable and palpable as ever, and it was determined that the proper treatment would be nephropexy, which it was hoped would relieve the symptoms and effect a permanent cure.

The following are the notes of her condition on admission to the General Hospital:—"Slightly anæmic, but fairly well nourished; thoracic organs normal. As a result of palio-myelitis in childhood, the legs are weak and she has to use crutches. A slight fullness was noticed on the right side of the abdomen on a line with the umbilicus and also extending up to the right hypochondriac region. Abdomen not distended. Palpation shows here a tumour, shape and size that of a kidney, easily mapped out, moving freely with respiration and movable into the different quadrants of the abdomen; not very tender, even on deep pressure, though a sensation of nausea is produced by this. Bowel note tympanitic over it. It readily slips back up into the right loin behind. There is no tenderness over McBurney's point, and nothing pointing to appendicitis. Urinalysis shows practically normal urine. The sigmoid flexure of the colon is distended with fæces. Diagnosis: Floating right kidney."

After the usual preparation the operation for nephropexy was done. Edebohls' vertical incision being the one used. Cutting through the perinephric fat a cystic tumour was reached, which was thought to be the right kidney. The cyst was about the size and shape of a kidney, with thin walls, fixed by weak adhesions which were easily separated without ligature. It was with considerable difficulty delivered on the back and enucleated from the remaining perinephric adhesions, which were elongated into a pedicle. This allowed it to move freely about in the abdominal cavity. It was, of course, entirely retroperitoneal.

After removing the cyst, further examination of the cavity showed that the right kidney was lying in the normal position, well up under shelter of the ribs, and it was not movable and apparently never had been; it felt seemingly normal. The wound was closed in the usual way, an intermuscular drain being inserted as oozing was rather profuse. The patient had an uninterrupted recovery, the wound healing by primary union, and since then the patient has had absolutely no return of her former symptoms and is in normal health.

*Pathologist's report*:—"Cyst from retroperitoneal region; 10 x 7 x 5 in.; divided into three loculi which communicate with each other. Sac itself consists of fine fibrous connective tissue over which course a few blood vessels. It contains thin, straw-coloured fluid, rich in albumin, containing definite traces of urea. A congenital cyst, probably in connection with the Wolffian body."

The presence of urea in the cyst in this position and bearing the relation it did to the kidney, makes this opinion fairly conclusive.

The case is interesting not only from the fact that here, as in the parovarium, it is possible to get cystic degeneration of these foetal structures, which may grow and increase to such a size as to simulate other pathological conditions. As they increase in size, by tension on their fibrous adhesions, a pedicle is formed, and it would appear that these cysts, if the pedicle becomes twisted, are capable of giving much the same set of symptoms as those usually described under the caption of "Dietel's Crisis," with which we are so familiar in cases of movable kidney. In a former paper\* we have noticed that these tumours by their mobility may mechanically induce other troubles; and in this case this happened to such an extent as to lead to a diagnosis of, and treatment for, appendicitis.

The literature of these paranephric cysts, if one excludes cysts of the suprarenal gland (which are fairly common), is rather scanty. Morris, in his "Surgical Diseases of the Kidney and Ureter," Vol. 2, p. 40, gives, possibly, the best account of them; and on p. 15 of the same volume he states how difficult it is to distinguish clinically between these tumours and true tumours of the kidney. He further says that less attention has been paid to these tumours by surgeons, and in surgical literature, than by pathologists. His contention is that the retroperitoneal remains of the Wolffian body, in the neighbourhood of the kidney, are undoubtedly accountable for certain paranephric tumours, and he cites certain cases which show the analogy between cystic degeneration here and that which takes place in the organ of Rosenmüller, which gives the much better known Parovarian Cyst.

## MESENTERIC CYST WITH ACUTE INTESTINAL OBSTRUCTION.

BY

MURRAY MACLAREN, M.D., St. John, N.B.

The condition of acute intestinal obstruction may be produced by numerous causes varying in their frequency. One of the rarer causes, which I will have occasion to refer to in this report, is that of Mesen-

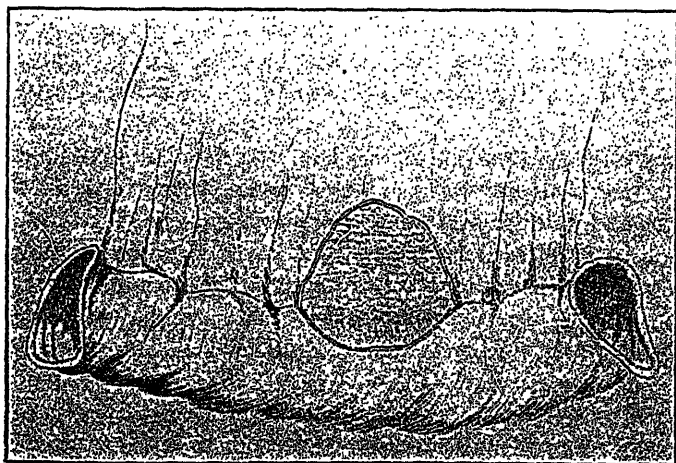
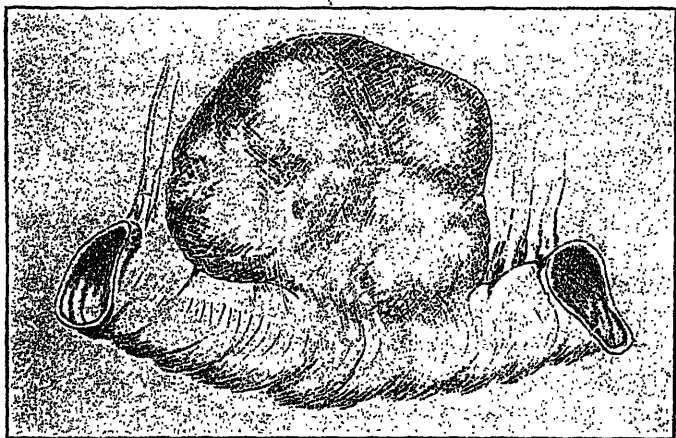
(Read before the Canadian Medical Association at Halifax, August, 1905.)

\* MONTREAL MEDICAL JOURNAL, May, 1904.

teric Cyst. This is naturally an unusual cause, for mesenteric cyst itself is a somewhat rare condition.

The subject of the mesenteric cyst was J. J., a man 65 years of age. Two years previously he had had some form of painful abdominal attack lasting for a few hours, otherwise he had been quite healthy.

On the 25th July, 1903, he had abdominal discomfort and was un-



able to pass flatus or fæces. Purgatives and enemata were given without result, and vomiting supervened. The vomiting became frequent and fæcal in character, and the case was referred to me on the 28th July, three days from the first symptoms, by Dr. G. G. Corbet, as one of acute intestinal obstruction.

On admission to the hospital the patient was given an enema without



effect. His condition was as follows: He was collapsed, his temperature was 97 F., pulse 80, respiration 20, urine normal. The abdomen was painful and moderately distended.

No hernia nor abdominal tumour was found. A rectal examination showed a fullness anteriorly, the prominence of the prostate however was subsequently found to be partly occasioned by the pressure of a cyst impacted in the pelvis. The cause of the intestinal obstruction was quite indefinite.

Laparotomy was immediately performed by a median incision below the umbilicus. Coils of small intestine, distended and reddened, presented at the incision, and there was a moderate amount of ascitic fluid.

The cæcum was collapsed and on following the small intestine upwards for about eight or ten feet it was found dipping abruptly into the pelvis. Here a fluctuating tumour was felt. Upon elevating the small intestine, the tumour was induced to rise with it out of the pelvis, and was brought out of the incision giving a sensation very similar to that experienced when lifting out a small ovarian cyst.

The cyst had for its base the upper surface of the mesentery and a quarter of the circumference of the adjoining small intestine. It was removed by enucleation without difficulty and without hæmorrhage, and the peritoneum was brought together over the bared area with catgut and the abdominal incision was closed.

The progress of the case was satisfactory and uneventful, the obstructive symptoms being relieved and recovery taking place without discomfort, so that the patient was able to return to his home in three weeks.

The cyst was rather less in size than the fist. By falling into the pelvis it produced obstruction in two ways: From its attachment to the upper and anterior surface of the mesentery, when it descended into the pelvis it produced a horizontal rotation of the loop of small intestine from before backwards—there was clearly partial volvulus; and, secondly, the cyst from its displacement into the pelvis dragged well upon the loop of intestine. The obstruction was caused therefore by both volvulus and traction.

The cyst was yellowish in colour, smooth, lobular and fluctuating. It had a certain resemblance to a fatty tumour. The contents were fluid and yellow, and microscopically showed *debris*, but no fat cells. On removal of the yellow fluid the cyst wall was found to be thin and white, lobulated and sacculated.

Dr. G. A. B. Addy, pathologist to the General Public Hospital, St. John, has kindly examined the cyst, and states that the cyst wall is made up of a somewhat cellular and highly vascular connective tissue.

There is no basement membrane and no evidence of epithelium or non-stripped muscular fibre.

Mesenteric cysts have been variously classified. Hahn, in 1887, described them as blood cysts, chylous cysts, serous cysts and echinococcus cysts. Moynihan's classification is somewhat similar: serous, chyle, hydatid, blood, dermoid and malignant cysts.

Braquehaye's division is sanguineous, lymphatic, hydatids, dermoids and cysts of adjoining organs, such as ovarian, parovarian and pancreas.

Dowd has carefully investigated the origin and nature of mesenteric cysts and groups them in three classes:—(1) Embryonic cysts, including dermoid, chylous and serous cysts; (2) hydatid; and (3) cystic malignant disease. He regards the chylous cyst as a cyst of embryonic origin, a pre-existing cyst into which an effusion of chyle has taken place. The serous cyst he also considers as probably embryonic. These views cannot be considered, however, at present, as established.

The cyst which is here shown may be placed under the group of serous cysts. The fluid was yellow and free from fat globules, it therefore had not the chylous characteristics.

It had as well, according to Dowd, a further characteristic, as he states that "most of the serous cysts occur in the omentum, intestinal edge of the mesentery mesocolon or retroperitoneal region, while the cysts which occur in the mesentery, excepting at the intestinal border, usually contain chyle.

I am indebted to Dr. W. L. Ellis for two sketches which have been excellently done. One shows the appearance of the cyst before removal and the other, the base of attachment after enucleation.

The clinical symptoms of mesenteric cyst are variable according to size, position and consistence of tumour.

These cysts have been diagnosed as ovarian cysts, floating kidney intersusception, intestinal obstructions and other conditions.

Vomiting, constipation, meteorism and pain are not infrequently present, and Nothnagel refers to those symptoms as having imitated on several occasions intestinal obstruction. I do not find any record, however, of complete obstruction due to the presence of mesenteric cyst.

Hoehenegg believes with good reason that the attacks of pain are due to the displacement of the tumour, and consequent kinking or twisting of the bowel.

It is worth mentioning, according to Nothnagel, that the majority of mesenteric cysts are situated well to the right of and a little below the umbilicus, corresponding to the most common situation of the cysts in the mesentery of the small intestine. This was very probably the position of the cyst referred to before its displacement into the pelvis.

THE

# Montreal Medical Journal.

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

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VOL. XXXIV.

DECEMBER, 1905.

No. 12.

## INSANITY AND POLITICS.

Dr. Charles E. Hickey has been appointed Superintendent of the Asylum for the Insane at Cobourg. Dr. Hickey is well qualified for the post, according to the standard prevalent amongst the politicians of Ontario. The *Toronto News* sets forth his qualifications with enthusiasm. He was elected to represent Dundas county in the Dominion House in 1882, and again in 1887. In 1891 he was appointed superintendent of the Williamsburg Canals, a position which he held until 1897. He was Inspector of Schools for Winchester township for two years, and an examiner of common school teachers for Dundas county for two years. He has been, for some time, the chairman of the Morrisburg Board of Education. He has also taken quite an interest in fraternal societies, and is a Past Master of Excelsior Lodge A. F. & A. M., and a Past Grand of Zeta Lodge, I. O. O. F.

If now we were informed what community of interest there is between a canal, a seat in the Dominion House, a school board, a fraternal soci-

city, and an Asylum for the Insane, our information would be complete. We are not blind to the many-sidedness of a character which shines in so various environments, yet we cannot regard with complacency the conclusion that these are the best *milieu* for the evolution of a superintendent of an asylum.

It is quite true that Dr. Hickey graduated from McGill near forty years ago, and we are not disposed to regard that qualification too lightly. Yet, considerable progress in the care of the insane has been made since that time, and Dr. Hickey should not lay too much stress upon his remembrance of those early lectures in psychiatry. The discharge of his multifarious duties as politician and legislator, as superintendent of the Williamsburg Canal, as inspector and examiner of schools, as Past Master of Excelsior Lodge, as Past Grand of Zeta Lodge, cannot have left much time for searching to the bottom of the profound subject of psychiatry. We put forward this opinion not as a dogma or an oracle, but with a full apprehension of the fallibility of all human judgment. At any rate, if Dr. Hickey is qualified for his post, such a miracle must be extremely rare.

Dr. Edward Ryan has been appointed to the Kingston Asylum in place of Dr. C. K. Clarke, who was transferred to Toronto. We are given to understand by *The Practitioner* that Dr. Clarke was brought in owing to the impossibility of deciding between all the local political aspirants for the place. Dr. Ryan is President of the Kingston Conservative Association, and contested an election in 1902 without success.

Dr. Joseph John Williams has been made Superintendent of the Asylum for Epileptics at Woodstock. He is also without especial experience, apart from that acquired as "one of the best supporters of the Conservative party during the last three or four elections."

The President of the Medico-Psychological Association in his last annual address did not attach any great importance to political experience as a qualification for superintendent of an asylum. Indeed, Dr. Burgess, upon that occasion, contended that the principle was wrong, that it was a flagrant injustice to the public and to the profession, for an untrained man to be appointed to such a place.

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#### PROPRIETARY PREPARATIONS.

We have received from the Etna Chemical Co. a letter enclosing copy of a communication from their solicitor to the Editor of the *Journal* of the American Medical Association, of which the following is an extract: "On behalf of the Etna Chemical Company, proprietors and manufacturers of 'Phenalgin,' I write to call your attention to an article by Dr. Frank Billings, entitled 'The Secret Nostrum Evil,' read before

the American Medical Association at its last meeting, at Portland, Oregon, referring to the said preparation 'Phenalgin' in a manner indicating that it was a quack remedy, and improper to be prescribed by physicians. The publication in your journal of such reference to 'Phenalgin,' I have advised my client would be libellous and not privileged."

We take pleasure in conveying this warning to our contemporaries against the publication of the article in question, as the Etna Company informs us that, "they understand that it is being sent out to a number of medical journals." We protest that, the article has not reached us, that we shall not publish it; yet we cannot refrain from saying that we should be disposed to place some reliance upon any judgment which Dr. Frank Billings might give upon a subject connected with medicine.

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### SUPERSTITION IN MEDICINE.

We have been favoured with several extracts from a forthcoming book entitled "Superstition in Medicine," by Dr. Hugo Magnus. If they were intended to create a favourable impression they have failed in their effect. We do not conclude from such evidence as is offered that the author is a man of sober and judicious mind. One-third of the extracts is made up of a quotation from "Dr. Salinger"—a name which up to the present was unfamiliar; and it deals with "Christian Science, an ancient delusion." The author quoted declares that "stupidity has at all times been a power superior to all the influences of culture and learning." Upon this head we take the liberty of contradicting him. He regards Christian Science as an example of those "extremes to which the sentiment of fanatical religion may lead men so soon as they shake off the steadying influence of physico-mechanical ideas in their theory of life." The author is free to propagate this doctrine of his, but he will not increase his following by railing at the beliefs of his fellow-men. Such terms as — absurd farrago — pitch of folly — confused and preposterous theories—the Eddy woman—are not fit for the mouth of a philosopher who seeks to destroy a belief which, according to his own showing prevails in "the best class of society," and according to their showing has proved to be a solace for their sorrow and an assuagement of their pain. We take the further liberty of informing those two authors, that there are yet, even in the medical profession, some perfectly sensible persons who believe in the efficacy of prayer. To such persons this book must be offensive; and also to those who are tolerant of any belief in which a fellow-man finds comfort. Scientific opinion is against the fool who declares: "there is no God."

## MEDICAL PROGRESS IN TORONTO.

The most remarkable fact in connexion with Medical Education in Canada is the activity of the profession in Toronto. The movement began with the amalgamation of Trinity with The University; it extended to the hospitals, and will be further increased by the meeting of the British Medical Association in 1906.

Most persons are agreed that one efficient medical school is enough for a city; and, right or wrong, that question has been settled so far as Toronto is concerned. The school begins the session with 600 students, of whom 160 are in the first year. The faculty is becoming consolidated; and, under the wise direction of the Dean, Dr. R. A. Reeve, it may be trusted to deal efficiently with the problems which continually arise in a school of the first class.

The activity in hospital circles is no less remarkable. A fund of \$977,000 has been accumulated, and it is expected that it will be increased to a million and a half of dollars. This will in time provide hospital facilities adequate for the school, and remove an element of weakness which now exists.

All this activity will reach a climax at the meeting of the British Medical Association next year. The arrangements, we understand, are well forward, and we in common with the whole profession in Canada feel assured that the high standard of excellence, which was set in Montreal in 1897, will be equalled if not surpassed.

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THE ALEXANDER MEMORIAL.

Charles Alexander was a good man. There is nothing by which the public mind is so easily led captive as by goodness. Therefore the response was instant to the proposal that some public recognition of his life should be made. After much discussion it was agreed that this memorial should be associated with the work of the Montreal General Hospital, which does in a corporate way what Charles Alexander was always doing—ministering to the poor and afflicted.

The form which this memorial will take has not finally been decided, but the main idea is embodied in the heading of the subscription lists: "We, the undersigned, hereby subscribe to the Alexander Memorial Fund, to be devoted to the work of the Montreal General Hospital in such way, or ways, as the Board of Management, in conference with the Citizens' Committee, and the subscribers, may determine as best calculated to form a permanent memorial to Charles Alexander; it being understood that the subscribers to this fund shall enjoy voting power in respect to the form of memorial in proportion to their subscriptions."

At a meeting of the Citizens Committee a strong committee was ap-

pointed, which stands to-day as follows: Hon. Sir George A. Drummond, Hon. Sir Alexander Lacoste, Sir Melbourne Tait, Sir William Macdonald, Sir Montagu Allan, W. I. Gear, F. W. Mathewson, The Rt. Rev. Bishop Carmichael, Rev. Dr. Barclay, Rev. Edgar Hill, Rev. Hugh Pedley, E. S. Clouston, Peter Lyall, John Torrance, James Williamson, George E. Drummond, James Crathern, H. Stikeman, J. Reid Wilson, David Morrice, S. H. Ewing, Abner Kingman, A. W. Hooper, F. W. Evans, Hugh Graham, H. Laporte, C. R. Hosmer, Jas. Ross, Robert Reford, Hon. A. Desjardins, Hon. J. P. B. Casgrain, Hon. R. Mackay, Hon. R. Dandurand, John R. Dougall, Richard White, J. S. Brierley, F. W. Thompson, Herbert B. Ames, Herbert Holt, Senator Forget, Senator Beique, Sir Wm. Hingston, A. Baumgarten, Mortimer Davis, Rev. Rabbi de Sola, Mark Workman, R. Wilson-Smith, H. A. A. Brault.

At this meeting Mr. James Crathern, the president, said that the necessity for a new wing for the hospital was imperative, but he pointed out the need for extra endowment for any enlarged premises, as the existing fund had been impaired to the extent of \$80,000.

As explaining the present situation of the hospital we cannot do better than to reproduce the remarks of Mr. Hugh Graham, the chairman of the finance committee of the fund:

"No ordinary man can adequately present the claims of the Montreal General Hospital, or do justice to the sweetly beautiful character of the late Mr. Alexander. I have no hesitation in saying that the public as a whole, have failed in appreciation of the work done and being done by the Montreal General Hospital.

"Probably through lack of knowledge the great bulk of the subscribers to the hospital are giving exactly the same yearly subscription they gave twenty, twenty-five, thirty years ago. In the meantime the cost of maintenance of an hospital has increased at about the same rate as has the cost of maintenance of our private home and business establishments, with the result that the management of the hospital has to resort to all sort of spasmodic appeals for help, and notwithstanding this the running expenses have impaired the endowment fund by \$80,000 in ten years. This is surely a reproach and should not be permitted to continue in a populous, prosperous, and I might say, wealthy community, like Montreal.

"In my humble opinion the friends of the hospital would do well to ponder most thoughtfully over this alarming condition of affairs, because, I venture to say that not in our time, not during the lives of those in this room may such an opportunity present itself as the present. But I repeat that to do the work we must have exceptional generosity on the part of those who know the needs and are able to supply them.

As a rule, the small subscriptions are usually the largest in a relative sense because they come from those who are not wealthy, but all the small subscriptions you can get from this to doomsday will not do for the Montreal General Hospital what the city of Montreal should do for it if it would escape the odium of being unappreciative of the great popular charity of all Canada. I may tell those who do not know it that recently there was initiated a new endowment fund for the General Hospital and considerable progress had been made with it, when Mr. Alexander died. It is now intended to turn that endowment fund into the 'Alexander Memorial Fund,' provided, of course, the people of Montreal rise to the opportunity to put the General Hospital in the position it should be in and to suitably perpetuate the name of the philanthropist whose whole life was a life of charity, the commemorating of whose name ought to be an incentive to good works in the generations that follow us."

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We acknowledge again the receipt of the Visiting List for 1906, issued by Messrs. Wood, of the *Medical Record*, and also of that prepared by Messrs. Blakiston's Son & Company.

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We are asked to announce that the Canadian Medical Association will meet in Toronto on the Monday afternoon and Tuesday morning preceding the meeting of the British Medical Association.

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#### BRITISH MEDICAL ASSOCIATION.

The 74th annual meeting of the British Medical Association will be held at Toronto, Canada, on Tuesday, Wednesday, Thursday, Friday and Saturday, August 21st, 22nd, 23rd, 24th and 25th, 1906.

*President*—George Cooper Franklin, F.R.C.S., Eng., L.R.C.P., Lond., Surgeon, Leicester Infirmary, Leicester.

*President-elect*—Richard Andrews Reeve, B.A., M.D., LL.D., Dean of University of Toronto Faculty of Medicine.

*Chairman of Council*—Henry Wm. Langley Browne, M.D., Ch.B., F.R.C.S.E., Consulting Surgeon, West Bromwich District Hospital.

*Treasurer*—Hy. Radcliffe Crocker, M.D., F.R.C.P., Physician Skin Department, University College Hospital, London.

An Address in Medicine will be delivered by James Barr, M.D., F.R.C.P., F.R.S.E.

An Address in Surgery will be delivered by Sir Victor Horsley, F.R.C.S., F.R.S.

An Address in Obstetrics will also be delivered.



The Scientific Business of the Meeting will be conducted in twelve sections, as follows, namely:—

*Anatomy and Physiology.*—*President*—Professor Bertram Coghill Alan Windle, M.D., F.R.S., Cork. *Vice-Presidents*—Dr. A. B. Macalium, Toronto; Dr. Alex. Primrose, Toronto; Dr. T. Wesley Mills, Montreal; William Frederick Haslam, F.R.C.S., Birmingham. *Hon. Secretaries*—Dr. C. B. Shuttleworth, Toronto; Dr. Gawnshaw Cleland, Toronto; William Barnet Warrington, M.D., 69 Rodney Street, Liverpool.

*Dermatology.*—*President*—Norman Walker, M.D., Edinburgh. *Vice-Presidents*—Dr. Graham Chambers, Toronto; Dr. Harry B. Anderson, Toronto; Dr. James Galloway, London; Ernest Solly, M.D., Harrogate. *Hon. Secretaries*—Dr. D. King Smith, Toronto; Dr. Donald MacGillivray, Toronto; John Campbell Rankin, M.D., 38 University Road, Belfast.

*Laryngology and Otology.*—*President*—J. Dundas Grant, M.D., London. *Vice-Presidents*—Dr. George R. McDonagh, Toronto; Dr. H. S. Birkett, Montreal; John Macintyre, M.D., Glasgow; Hugh Edward Jones, M.R.C.S., Liverpool. *Hon. Secretaries*—Dr. David J. Gibb Wishart, Toronto; Dr. Geoffrey Boyd, Toronto; Francis James Stewart, M.D., 133 Harley Street, London.

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*Obstetrics and Gynaecology.*—*President*—A. H. Freeland Barbour, M.D., Edinburgh. *Vice-Presidents*—Dr. James A. Temple, Toronto; Dr. Adam H. Wright, Toronto; Dr. Wm. Gardner, Montreal; T. Arthur Helme, M.D., Manchester. *Hon. Secretaries*—Dr. Frederick Fenton, Toronto; Dr. Kennedy C. McIlwraith, Toronto; Cuthbert Lockyer, M.D., 117a Harley Street, London, W.

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## Reviews and Notices of Books.

PSYCHIATRY. A Text-Book for Students and Physicians. By STEWART PATON, M.D., Associate in Psychiatry, Johns Hopkins University, Baltimore, Director of the Laboratory, Sheppard and Enoch Pratt Hospital, Towson, Md. Philadelphia and London: J. B. Lippincott Company, 1905.

Dr. Paton has done a real service to those truly interested in the study of mental diseases by the production of his book "Psychiatry." From such a well and favourably known scientist,—a pupil of Kraepelin, and a man of wide experience in his specialty, one would naturally expect something above the ordinary, and the volume before us comes fully up to the most sanguine expectations. No doubt the work requires careful and repeated perusal for the assimilation of facts and opinions regarding an intricate and specialized pursuit, and there are points open to debate in various directions, but, taken as a whole, it is a masterly digest of the most advanced knowledge on the subject of insanity.

The chapter on treatment is excellent, though more might with propriety have been said on the all-important matter of prevention, and that entitled "The modern Hospital for the Insane" sets forth very clearly the ideal style of institutions for which our foremost alienists are to-day contending.

Chapter XIV on the much debated disease-form dementia præcox is especially interesting, though in places we fear a student would find difficulty in grasping exactly what is meant. Dr. Paton on introducing the subject very wisely and cogently states: "The fact cannot be too strongly emphasized that in studying this psychosis too much stress should not be laid upon the individual symptoms presented by a patient at any one period of the disease. It is the study of the condition as a whole, including the onset, course, termination, and general symptomatology, which promises the best practical results.

No books evanesce so quickly as medical works; but no physician who has the honour of his calling at heart can afford to neglect the very latest pronouncements of science. It is on this ground that we urge that "Psychiatry" should be widely read and carefully studied. As a work for the specialist, or the student who purposes devoting special attention to the study of mental diseases, its merits cannot be too highly extolled.

T. J. W. B.

THE NATIONAL STANDARD DISPENSATORY, containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines; including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to other pharmacopœias. In accordance with the eighth decennial revision of the United States, Pharmacopœia, 1905. By H. A. Hare, B.Sc., M.D., Professor of Therapeutics, and Materia Medica, Jefferson Medical College, of Philadelphia; by Charles Caspari, Jr., Ph.G., Phar.D., Professor of Theoretical and Applied Pharmacy in the Maryland College of Pharmacy; and by Henry H. Rusby, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York. Lea Bros. & Co., Philadelphia and New York, 1905.

This encyclopedic work succeeds the well-known National Dispensatory of Stille and Maisch, which has long been regarded as a standard work of reference. Under its new editors it has been almost entirely rewritten, and owing to the many recent additions to our knowledge and to our materia medica contains much new material. The information given deals not only with drugs recognized in the pharmacopœias of the above named countries but also with numerous minor drugs which have

only as yet a local reputation and concerning which little is to be found in ordinary literature. In addition all the common names of drugs or medicinal plants, as well as the botanical synonyms are given. Numerous illustrations of typical drugs have been introduced, many of which have been newly executed for this edition. In the pharmaceutical section full information will be found regarding methods and products, with descriptions and explanations of the most approved apparatus and tests. In the section on action and uses a brief but precise presentation of our present knowledge will be found, and this is made available for clinical purposes by means of an extensive therapeutical index. Throughout the text all weights and measures are given in both the metric and apothecaries systems, and many new tables and lists have been inserted, which place before the reader a vast amount of information in a form most convenient for reference. To the druggist and pharmacist this volume must be well nigh indispensable; to the practising, and especially to the dispensing physician, it will not infrequently prove of great value.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. COHEN. Vol. VII. Mechanotherapy and Physical Education, including Massage and Exercise. By John K. Mitchell, M.D., and Physical Education by Muscular Exercise by Luther Habrey Gulick, M.D. Blakiston's.

This volume gives a very clear conception of the practical application of massage and methodical muscular exercise. The illustrations are excellent and add materially to the value of the book, giving to the reader a clearer idea of the methods employed than any amount of written instructions could possibly convey. The section on the Schott and Oertel treatment is full, and the limits of the usefulness of these methods are clearly defined. A large amount of space is devoted to orthopedic manipulations and in this chapter the Lorenz method for the reduction of congenital dislocations of the hip is fully described and illustrated. Several good skiagrams showing the change in position of the head of the bone during reduction are given. The book will prove of value not only to the specialist but also to the general practitioner, who has not infrequently the opportunity of seeing acquired deformities in their first stages when remedial measures are most effective.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. COHEN. Vol. VIII. Rest, Mental Therapeutics, Suggestion. By Francis Z. Dercum, M.D., Ph.D. Messrs. Blakiston's Son & Company.

This book maintains the high standard that has been set by the previous volumes which belong to this system. The author has very clearly set forth the value of rest in the treatment of functional nervous diseases. The chapter on Neurasthenia is especially interesting and instruc-

tive. This disease is too often treated on so-called general principles. In this volume the rational therapeutic procedures for its different stages are clearly described. Fewer cases of cures in conditions given up by medical men would be reported by quacks, osteopaths and "healers" if the instructions in this volume were carefully followed. The style throughout is pleasing and the methods employed in presenting the various statements is forcible and logical. An interesting chapter is the last one in the book, which is devoted to a short account of mystic and religious methods of suggestion. Here we find an account of mind cure, faith cure and Eddyism. A few paragraphs from Mrs. Eddy's book are quoted *in extenso*. They speak for themselves. The author recognizes the danger attendant on the hold that Christian Science has on the people and advocates its legal suppression. The volume as a whole, emphasizes the value of rest and suggestion in practical therapeutics; either may be used with great benefit to the patient in conditions where such treatment is indicated, but either of these valuable methods may be abused and distinct harm results.

ATLAS AND TEXT-BOOK OF TOPOGRAPHY AND APPLIED ANATOMY. By OSCAR SCHULTZE. Edited, with additions, by GEO. D. STEWART, M.D. 25 coloured illustrations, 22 lithographic plates, and 89 text cuts, 60 in colours; pp. 171. W. B. Saunders & Co., Philadelphia, 1905. J. A. Carveth & Co., Toronto.

This is the best illustrated book of the kind we have ever seen. It is a marvel of the illustrator's art. The book is written for the physician and surgeon, and not for the anatomist. It is a most useful book of reference for the practitioner of medicine. The illustrations are most beautiful, and yet sufficiently diagrammatic and not too full to be understandable of detail. In front of each plate is a transparent sheet of paper with the outline of the figure below, to which the physician can add details. The text is very short and simple, containing, however, quite sufficient to explain the pictures. To those who cannot consult the dead subject, this is a most useful work and one which we can thoroughly recommend.

TEXT-BOOK OF ANATOMY. Edited by D. J. CUNNINGHAM, F.R.S., M.D., LL.D., etc. Second Edition. Wm. Wood & Co., New York, 1905.

The first edition of this most excellent work was issued only three years ago, and now a second edition is demanded. This edition has been much improved, many omissions rectified and many new illustrations added. As is known, this work is the product of a number of authors, no less than ten, all of whom have done their work well — one

of the authors, Prof. Birmingham, has recently died, and the revision of his part has been undertaken by the editor, although as he remarks, "there was probably no part of the book which required less revision." The illustrations are particularly good and are, with few exceptions, original. Altogether this second edition is an improvement on the first, and will be sure to prove a popular text-book with students, and bids fair to outstrip in popularity Gray's Anatomy, which has been for years the favourite of students. The first section on Embryology is particularly clear and well illustrated. The section on the brain and nervous system, by the editor, of course, is extremely good, and we see amongst the new matter here, a notice of Prof. J. G. McCarthy's observations on the Hippocampus Major and its central core.

An excellent plan in this work is a short description of the Development and Morphology at the end of each section. We consider this is now the best students' text-book written in English.

**HANDBOOK OF ANATOMY.** By JAS. K. YOUNG, M.D. 2nd Ed. revised, enlarged. F. A. Davis Co., Philadelphia.

**DISSECTING MANUAL;** based on Cunningham's Anatomy. By W. H. ROCKWELL, JR., M.D. Wm. Wood & Co., New York.

These two books fall into a very different category from that of the first two. They are meant to be short cuts to knowledge and cannot therefore be recommended.

Young's Anatomy is full of old familiar illustrations, some of them rather the worse for wear. Why students and busy practitioners desire such works we are at a loss to imagine, when so much fuller and better works are always easily to be had. They can only be used as cram books and as compenda for rapid revision, which had much better be done from the student's own notes and his text-books.

Rockwell's Dissecting Manual, based on Cunningham's Anatomy seems to us to be a work of supererogation, and the student had much better content himself with a good dissector such as the one Cunningham has himself written. It is without illustrations and is merely a synopsis of Cunningham's Anatomy, and the first edition at that. We can recommend neither of these books.

**PRACTICAL MASSAGE IN TWENTY LESSONS.** By HARTVIG NISSEN, Instructor and Lecturer in Massage and Gymnastics at Harvard University Summer School. With 46 original illustrations, 168 pages, 12 mo. Price, Extra Cloth, \$1.00, net. F. A. Davis Company, 1914-16 Cherry Street, Philadelphia.

This little book describes as well as any book can the various processes which go by the name of massage. In the introductory history of this



important method of treatment there is a brave display of learning, and the author shows a familiarity with such names as Kong-Fu, Medea, Iccus, Herodicus, Diocles, Praxagoras, Mercurialis. Nor is he unfamiliar with important modern personages: "time and again I have been called in the middle of the night to apply such treatment to men of high standing and great mind. Fourteen and fifteen years ago I frequently had to shut off the light in the White House in Washington, telling the officers at the door, as I left, that the President was asleep."

LABORATORY MANUAL OF PHYSIOLOGY. By FREDERICK C. BUSCH, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo, New York. William Wood & Co.

This book contains a conscientious account of most of the experiments performed by students in the physiological laboratory, and also of many more elaborate experiments, such as are usually shown as demonstrations by the teaching staff. It contains more experiments than could well be overtaken in an ordinary medical course; but by a certain amount of judicious selection and omission an excellent course could be based on this book. There is nothing especially original or striking about it, but the experiments on the whole are very clearly presented. In some cases a little theory is given by way of introduction, but the results of the experiments are as a rule omitted, the object being not to prejudice the student before he makes his own observations. We do not think that the ideal practical book has yet been written. A necessary preliminary, we think, would be an agreement between the teachers of the principal medical schools as to some standard course in practical physiology for medical students. A book could then be written containing less than half the number of experiments contained in the volume before us, but explaining the theory and discussing the conclusions much more fully than has been done in any book on experimental physiology with which we are acquainted. W. S. M.

DISORDERS OF THE METABOLISM AND NUTRITION; A Series of Monographs. By PROF. DR. CARL VON NOORDEN, Physician-in-Chief to the City Hospital, Frankfort-on-Main. Authorized American Edition, translated under the direction of BOARDMAN REED, M.D. Part VII. Diabetes Mellitus. Small 8vo, 212 pages. Price, \$1.50. E. B. Treat Co., 241-243 West 23rd Street, New York.

Upon at least six occasions we have called attention to this admirable series of monographs, of which six have already appeared dealing with Obesity, Nephritis, Colitis, Acid Auto-intoxications, Saline Therapy, and Drink Restriction. The present volume deals with Diabetes in a manner

which is interesting and informing. The most advanced opinion upon the various aspects of this disease is clearly set forth. The experimental evidence is fully considered, and the author's criticism and conclusions appear to us to be remarkably just. The book may be read at a sitting, and it leaves behind a sense of refreshment.

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## Medical News.

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### ALEXANDRA HOSPITAL.

The Alexandra Hospital for Contagious Diseases is now built at Point St. Charles, but it will be a few months, before patients can be received, as quite a lot of work in connection with the "finishing off" is yet to be done. When equipped, it will certainly be one of the finest hospitals of its kind, on the continent.

It is a matter of some regret however, that it is situated so far from the centre of the city; but on the other hand, it is an ideal place for an hospital in summer time. Its proximity to the river ensures a cool breeze and the convalescent patients can enjoy plenty of fresh air so necessary in the recuperation from such diseases as scarlet fever and diphtheria.

The buildings are of red brick and are arranged somewhat in the form of a cross. In the centre is the kitchen building; behind this is the scarlet fever pavillion and in front the administration buildings, while on one side of the kitchen is the diphtheria building and on the other the building for measles.

All connect with the central kitchen building by means of bridges. There is, therefore, no direct connection between the different infectious portions of the hospital.

The buildings are three stories high; the upper storey for the nurses; the others, one each, for female and male wards. These wards are subdivided for acute and non-acute cases.

In the administration building besides offices, apartments for the medical staff, etc., are to be found the observation ward for doubtful cases, and the erysipelas ward.

There are separate buildings for the mortuary and chapel, acetylene gas plant and the laundry. The laundry is divided into two portions, one for the staff and the other for the patients, with a disinfecting plant in each.

All sewage will be thoroughly disinfected before leaving the hospital grounds. The ventilation of the hospital is as perfect and thorough as possible; there being a separate chute to each bed.

As little wood as possible has been used in the course of construction so that the hospital is as fireproof as it can be made.

### MONTREAL GENERAL HOSPITAL.

The quarterly meeting of the Montreal General Hospital was held on November 21st, 1905.

The report of the medical superintendent showed that during the quarter ended September 30th, 874 patients were treated to a conclusion. There were 64 deaths, of which 31 occurred within three days of admission, making the mortality rate for ordinary hospital cases 3.76 per cent. The aggregate number of hospital days was 18,088, an average detention per patient of 20.68 days, the average number of patients per day being 192. In the outdoor department there were 11,410 consultations during the quarter, as compared with 10,541 for the corresponding period of last year.

The president submitted the report of the committee of management, which stated that the receipts for the quarter had been \$15,818, an increase of \$800 over the corresponding quarter of 1904. The expenditure for the quarter had been \$24,021, a decrease of \$266, but the expenditure was \$8,203 in excess of the revenue.

The following were elected on the medical staff: Oculist and aurist—Dr. J. W. Stirling. Assistant oculists and aurists—Drs. Richard Kerry and S. H. McKee. Out-door physicians—Drs. C. A. Peters, A. W. Gordon, B. W. D. Gillies and A. C. P. Howard. Out-patient surgeons—Drs. A. T. Bazin, A. R. Pennoyer and E. M. von Eberts.

On motion of Dr. Shepherd, Dr. J. J. Gardner was placed on the consulting staff of the hospital.

### ORDER OF ST. JOHN.

Col. C. Bowdler, C.B., a member of the Executive Committee of the St. John Ambulance Association, recently appointed "Special Commissioner," who, with the sanction of H. R. H. the Prince of Wales, Grand Prior of the Order, is visiting Canada, delivered an address in the Victoria Rifles Armory, 16th Nov., 1905.

The object of Col. Bowdler's visit is the formation of Ambulance Brigades throughout Canada.

In England, the St. John Ambulance Association is well known. Certificates of instruction in "First Aid Work" have been given to about 11,000 men and 2,000 women. The holders of these certificates keep up their knowledge by an attendance upon at least 12 lectures a year as well as submission to re-examination.

In Australia, New Zealand, and South Africa, the association is well

started and it is now the wish of the executive to have a well equipped organization in this country.

The need for such an organization is quite well understood, as all know how important it is, that intelligent "first aid" should be rendered to an injured individual before the arrival of the surgeon.

There is ample evidence of the efficient manner in which the members of the St. John Ambulance Association did their work in South Africa during the war. Over 2,000 men enlisted as privates in the Royal Army Medical Corps and served their term of enlistment.

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### MONTREAL MATERNITY HOSPITAL.

The annual meeting of the Montreal Maternity Hospital was held in the new building on the 21st November. The annual report of the secretary showed that the hospital was in a good financial position. The demands upon it had increased to such an extent as to make it necessary to increase the number of permanent nurses by two, making a total of eight nurses, five of whom were from the Royal Victoria Hospital, and two from the Montreal General. The number of cases treated during the year was 401. The paying in-door patients numbered 207. Divided into religious denominations, the Protestants numbered 180; Catholics, 137, and Hebrews, 84.

The treasurer reported a balance of \$2,072 in the treasury. Dr. J. C. Cameron, the medical director, reported that only two deaths had occurred among the patients, and the death in each case had been due to a cause foreign to the work of the hospital. A total of 379 children had been born.

The new Maternity Hospital will be officially opened on Friday, December 1st, by Their Excellencies Earl and Lady Grey.

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### ROYAL VICTORIA HOSPITAL.

Monthly report for October: Patients admitted during month, 275; patients discharged, 273; Patients died, 10; medical 74; surgical, 130; ophthalmological, 28; gynæcological, 37; Laryngological, 6. Out-Door Department—medical, 724; surgical, 341; eye and ear, 643; diseases of women, 98; nose and throat, 333; total, 2,139. Ambulance calls, 74.

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Dr. William Gardner was elected an Honorary Fellow of the American Gynæcological Society at the last meeting held at Niagara Falls.

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The death is announced of Dr. W. E. Smith, of St. Thomas. Dr. Smith graduated from Victoria College, Toronto, in 1863. He commenced practise in Carlisle, where he remained ten years, and went to

St. Thomas in 1872. He was appointed surgeon of the Canada Southern Railway in 1872, when the road was being constructed. He was also chief physician of the Railroad Hospital Association and was consulting surgeon of the Toronto, Hamilton & Buffalo Railway.

Dr. James Herbert Austin died on November 5th, 1905. He was a graduate of Toronto Medical College in 1894, and until two years ago, when he gave up, owing to ill-health, practiced in Kansas City. He was 34 years of age.

Dr. A. H. Simpson, formerly of Winnipeg, died at Salmon Arm, B.C., on October 25th, 1905. Dr. Simpson was born in 1869, and was a graduate of Manitoba Medical College in 1893.

Dr. Thomas Clarke, of St. Catharines, died, November 5th, 1905, in the 76th year of his age.

Dr. Landry, of Eel Brook, Nova Scotia, died, November 6th, 1905, at an advanced age.

## Retrospect of Current Literature.

### SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

KROGIUS, PROF. ALI. "Treatment of Angioma Arteriale Racemosum of the Scalp." *Ctbl. f. Chir.*, 30th September, 1905.

The treatment of this condition is well known as one of the most difficult problems in surgery. Methodical compression, and ligation of the afferent vessels have been useless; cauterization may be followed by dangerous secondary hæmorrhage; injection of styptics has been shown to be dangerous and frequently inefficient. Excision is a difficult operation on account of extreme bleeding and leaves behind it a large defect which must be filled by plastic operation. Krogius has devised a method for the cure of these lesions which recommends itself by its simplicity, and, so far as can be judged from the one case in which he used it successfully, by its efficiency also. The method consists briefly in surrounding the whole pulsating area with subcutaneous ligatures, thus cutting off the blood supply from the periphery. A shrinkage follows, and a fresh circle of ligatures is applied at the periphery of the area still pulsating; and so on, repeating the operation if necessary several times. His case showed a pulsating tumour, 17 cm. x 11 cm. in its diameters, and the result was perfect. Technically, Krogius inserts a ligature which embraces all the tissues between the skull and the subcutaneous tissue, using two needles, one with a large curve and the other with a very slight one. The bleeding of the punctures is controlled by the tying of the ligature or by compression.

CRAIG AND ELLIS. "An Experimental and Histological Study of Cargile Membrane." *Annals of Surgery*, 1905, No. 6.

Cargile membrane is prepared from the peritoneum of the ox. It has been lately highly recommended by Robert Morris for the covering of raw areas of the peritoneum, in laparotomies, in order to prevent adhesions. Morris's experiments, published two or three years ago, were decidedly favourable in this respect. Craig and Ellis have repeated his experiments and came to the following conclusions. The longest time that the membrane lasted unchanged was 14 days, the shortest 3 days; implanted into muscles, tendon or nerves, it is re-absorbed in a decidedly shorter time; if chromicised it lasted longer than unchromicised. Upon peritoneal surfaces exposed to peristaltic movements the membrane remained adherent only if sutured in place. The membrane is not able to prevent adhesions in the abdominal cavity, on the contrary, it seemed to be irritative. The substance, however, may be used for the enclosure of tendons and nerves which lie exposed in wounds, with the object of preventing adhesion of these to the surrounding structures. In intracranial operations, in which the membrane has been recommended as a substitute for the dura, only the chromicised membrane is to be considered, inasmuch as the unchromicised is difficult of manipulation on account of its smoothness. Re-absorption of the membrane is accomplished by fibrillation, and the in-wandering of cells from the surrounding tissue.

LAUENSTEIN AND REVENSTORF. "Concerning Small Hæmorrhages in the Mucosa of Appendices removed by Operation." *Deutsch. Zeit. f. Chir.*, Bd. 77, p. 40.

Fraenkel, Prosector of the General Hospital at Eppendorf, gave utterance to the opinion, in a recent discussion, that in the majority of the resected appendices the mucosal hæmorrhages that are so frequently seen are fresh, and are to be considered as the result of ligature during removal. The authors dispute this idea and attempt to prove it erroneous by an examination of 150 operations for appendicitis performed by Lauenstein. First, Fraenkel's observation is improbable in that the appendix during operation for removal does not come in contact with forceps or with ligature. Lauenstein ties off first the mesentery of the appendix and afterwards the appendix at its base; that hæmorrhage should occur in a procedure of this sort is hardly likely. In the second place the hæmorrhages in question are found only in the mucosa, never in the serosa or subserosa, which would be hardly comprehensible if the tying off of the appendix were the real reason of the hæmorrhage. Finally, the frequency with which these hæmorr-

hages are found, and especially their pathological relation to the various diseased conditions of the appendix which call for its extirpation, speak against Fraenkel's observation. It is, therefore, to be concluded that the hæmorrhages are caused by an inflammatory condition alone. This inflammatory condition is found microscopically in the majority of cases extending throughout the appendix wall.

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MEYER WESTFELD. "Cardiolysis in Adhesive Mediastino-Pericarditis."  
*Munch. Med. Woch.*, October 3rd, 1905.

Several months ago we reviewed in these columns three cases of this operation, devised by Brauer in 1902, for the relief of a heart which is overworked by reason of pericardial adhesions to the anterior thoracic wall. The present case is an addition to the still rather small list of operations of this nature. The symptoms of adhesive pericardial mediastinitis in this case were characterized by an extreme systolic indrawing of the thorax wall at the apex, as well as by a diastolic collapse of the neck veins. There were also present evidences of failure of compensation, such as chronic bronchitis, pseudo-cirrhosis of the liver, due to stagnation, ascites, and "stauungs-spleen," cyanosis, dyspnoea and œdema. The operation consists in the removal of the 4th and 5th ribs from the costal cartilage to the anterior axillary line, and the loosening of the adhesions of the pericardium to this area. The operation was well borne and the result extremely good. Further details deserve reading in the original. The article contains a full bibliography.

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A. I. MACKINNON, M.D. [McGill, 1893], "Suprapubic prostatectomy."  
*Medical News*, August 19th, 1905.

The following points are insisted upon:—

1. Suprapubic cystostomy under local anesthesia instead of aspiration as an emergency measure in cases of complete retention from enlarged prostate.
2. The simplicity and freedom from complications and sequæ of the operation when performed by the suprapubic method.
3. The virtue of packing the bladder with iodoform gauze.

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## MEDICINE.

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

JAMES BARR. "Alcohol as a Therapeutic Agent." *British Med. Journal*,  
July 1, 1905.

In June last Dr. Barr, as president of the Lancashire and Cheshire

Branch of the British Medical Association, addressed the meeting in Liverpool on the subject of Alcohol as a Therapeutic Agent. Along with many others of wide clinical experience, Dr. Barr raises his voice against the too general use of alcohol as a drug. He admits in his opening remarks that the use of alcohol is a threadbare subject, difficult to present in any new light. He desired to approach the subject from the physiological standpoint—and to avoid all reference to the more definite toxic action of alcohol, confining his remarks to the effects of usual medicinal dose, say four to ten ounces of brandy containing 40 per cent. of absolute alcohol in twenty-four hours. Dr. Barr summarizes the effects of repeated medicinal doses of alcohol on the circulation as follows: It causes dilatation of the arterioles and of all the arteries well supplied with muscular fibres, owing to its parietic effect on the vaso-motor nervous system, and its direct action as a protoplasmic poison on muscular fibre. The systolic blood pressure is lowered, the systolic output from the heart is diminished, and the cardiac energy is wasted in pumping blood into relaxed vessels, the large bounding pulse with comparatively short systolic period, which gives a deceptive appearance of vigour and force in the circulation is due to a large wave in the dilated vessels. Long-continued use of the drug, even in moderate quantities, leads to fatty-degeneration of the cardiac muscle and chronic meso-arteritis with permanent loss in the elasticity of the arteries."

Alcohol is a sedative and not a stimulant to the nervous system. Reflex action is lessened, pain assuaged and thus alcohol may be used as a soporific in highly sensitive conditions of the nervous system.

The writer states that almost the only use for alcohol in pneumonia is as a soporific, and when given for that purpose he prefers a light draught of beer or stout, containing 4 to 5 per cent. of alcohol. As such it should be given about 9 or 10 o'clock at night and not during the day.

Alcohol in typhoid fever, Dr. Barr says, induces upon the heart an effect similar to that produced by the typhoid toxin. "The most severe case of typhoid fever can be better treated without alcohol than with it, and the conditions demanding its use in this disease are very few and far between." In convalescence a little port wine may be useful in relaxing or lessening peripheral resistance, and thus helping a heart weakened by fever.

In tuberculous diseases, acute specific diseases and in diseases of the nervous system, the writer sees no indications for alcohol. In shock and collapse it may give a temporary sense of relief, but from its marked effect in lowering blood pressure it must work mischief in both these



conditions. Dr. Barr maintains that alcohol is a very common cause of bronchitis.

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COLEMAN, WARREN and BUXTON, B.H. "On the Diagnosis of Typhoid Fever by Means of Cultures from the Blood." *Proceedings of the New York Path. Soc.*, N.S., 4. 1904, p. 10.

"In an address given by us in 1899,\* we called attention to the fact that the failure of bacteriologists in general to gain cultures from the blood of patients was due to neglect to take into account what should be a familiar fact, namely, the acquirement by blood of active bactericidal properties when it is shed, in consequence of the disintegration and dissolution of its leucocytes: that consequently such blood if but slightly diluted still destroys any bacteria present within it, so that the only satisfactory method of obtaining blood cultures is by taking a relatively small amount of blood and introducing it forthwith into a relatively large amount of sterile broth, thereby alternating the bactericidal substances to such a degree as to render them inoperative. We recommend that the blood be diluted from 100 to 200-fold. Whether this advice has been taken to heart, or as is probable, the same conclusion has been reached in several quarters simultaneously, certain it is that since 1900 various observers in different countries have taken up the method here indicated of making blood cultures from the living patient and in no case with more remarkable results than in connection with typhoid fever."

It is true that prior to 1900 isolated instances have been recorded in which the bacillus of typhoid had been gained from the blood, but these were the exceptions—the rare exceptions. The common feeling was that the bacilli were not present in the circulating blood although their presence in the spleen refuted that teaching. Since the technique above indicated has been followed, and more particularly from 1902 onward, observer after observer has published series of cases in which a large percentage of positive results has been gained until Busquet carrying the principle still further and adding a few drops of blood to 300 cc. of broth has gained 83 positive results in 83 consecutive cases. Coleman and Buxton, employing the dilution we indicated obtained 34 positive results in 60 cases. Castellani using apparently an intermediate dilution was successful 12 out of 14 times. The indications are that Busquet's method is to be followed. Altogether, bringing together the more recent statistics our authors show that 35 observers studying 644 cases of the disease obtained a positive result in 75 per cent. The table they give is open to the criticism that no less than sixteen observers record results

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\* On Latent Infection and subinfection. *Journal of the Am. Med. Assoc.*, Dec. 23rd, 1899.

in only one or two cases. These should, we think, have been left out, for some at least may be regarded as chance observations. In the first week 93 per cent. of the results were positive: in the second 76 per cent.: in the third 56.52 per cent.; in the fourth, 32.72. The indications are that employing proper methods the bacilli can surely be found in more than 95 per cent. of cases between the fourth and twenty-first day, and that this method is capable of affording a diagnosis when the serum reaction has not yet developed. That this is so was noted in 10 per cent. of the recorded cases.

Coleman and Buxton very advisedly lay stress on the fact that this is a method which cannot come into general use by the practitioner or the Board of Health. It needs a trained man to obtain the blood in the first place and that blood must be transferred immediately to the flasks and diluted. There is no reason, however, why in our larger hospitals this should not become a routine method of diagnosis. And on the side of the patient it may be noted that the use of ethyl chloride, makes the withdrawal of a few drops of blood from a vein absolutely painless.

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### Society Proceedings.

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#### MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The first meeting of this Society for the session 1905-06 was held in the Society's rooms, Friday, October 6th. After the routine business and the reading of the reports of the retiring officers a smoking concert was held. Over sixty members were present.

The second meeting of the society was held Friday, October 20th. Dr. F. R. England President, in the chair.

In proposing that a resolution of condolence be sent to the family of the late Dr. Buller, Dr. Birkett said: "The society has lost in Dr. Buller one of the ablest oculists which Montreal has seen, and I may say Canada at large. His loss is irreparable. As a man in his work he was unequalled, and he showed undoubted genius in whatever he did."

DR. GIRDWOOD: "I should be glad to second the motion. What Dr. Birkett has said is perfectly true, and, besides that, I feel the loss of an intimate friend, and a man I had learned to respect and love."

#### SPIROCHETA PALLIDA.

C. B. KEENAN, M.D., gave an account of the finding of this organism in a congenital syphilitic case, and presented stained slides of it. The report of this case appears at page 889.

## BOTHRIOCEPHALUS LATUS.

H. A. LAFLEUR, M.D. The specimen which I present to-night was obtained from a child between seven and eight years of age. It was at once obvious that it was not an ordinary tape worm, but resembled the *Bothriocephalus*. Closer examination in the laboratory showed this to be the case. As you will notice the segments are considerably shorter and broader than those of the *tænia*, and one can see in the centre of each segment the dark, brownish black body of the uterus, often called the uterine rosette. Under the microscope can be seen the ova of the parasite, which are of a brownish colour, and are covered with a very thin shell, the inside of the ovum being filled with a mass of yolk cells. Some of the ova showed the lid or operculum detached. The head of the ova showed the lid or operculum detached. The head of the worm was missing, and administration of Tanret's pelletierine with a view of bringing it away, failed to do so.

The case is particularly interesting as the child was born in this country and has never travelled outside of the Province of Quebec; moreover, I have questioned the mother carefully as regards the possibility of the child having eaten imported fish in any form, smoked, dried or salted, and she assured me that they never ate such imported food, that they did not use caviare, which was forbidden by their church. I think the inference is justified that this is a case of *Bothriocephalus latus* originating in this country. The patient spent the summer in the Laurentians, and was accustomed to eat a good deal of fresh fish, particularly pike, doré, perch and trout. Osler says no case has been reported hitherto which originated in America, there being always a suspicion that the patients had contracted the disease in other lands or had eaten imported fish. Dr. Hamilton, I think, reported a case a few years ago which originated in this Province. The common area of distribution of the *Bothriocephalus latus* is along the shores of the Baltic, in French Switzerland, northern Italy, and Russia; the parasite is also fairly common in Japan.

J. G. ADAMI, M.D. pointed out that with the great number of Finns arriving on this Continent each year from that Baltic coast, we must be prepared to find these cases more frequently. It is fresh water fish that form the intermediate host of the *Bothriocephalus*, and with the influx of these foreigners living around the shores of our great lakes and rivers it is at least likely that our fish will come to harbour the parasite.

W. F. HAMILTON, M.D. The case I had was that of a young man who came to me for treatment at the hospital and a week later brought the worm in a bottle. The appearance of the parasite attracted our

attention, and upon careful examination the dark uterine rosettes and other characteristics were observed, particularly the characteristic ova. The specimen is in the pathological museum of McGill College. The head was not found. One point of interest was that this young man was a fisherman, a French-Canadian, hunting and fishing throughout the summer on the lakes of northern New York. He prepared his own food, cooking it by the fire in the open, and partaking largely of fish.

F. J. FINLEY, M.D., reported a case of myxœdema in the male. The report appears at page 890.

#### MYXŒDEMA IN THE MALE.

RIDLEY MACKENZIE, M.D. I missed the diagnosis of this patient's condition in the Outpatient Department. I thought it was a case of Bright's disease and sent him into the ward, notwithstanding the fact that the urine was negative. As to albumen it was interesting to note the very rapid improvement after the thyroid extract.

W. F. HAMILTON, M.D. I would like to ask if there was any previous history of enlarged thyroid. We had a patient who gave a distinct history of thyroid enlargement with subsequent diminution, associated with periods of lassitude and œdema and intermittent albuminuria and glucosuria. It looked as if metabolism had been in some way interfered with and, thinking that an early type of myxœdema was present, thyroid treatment was recommended. There was some improvement.

#### TUMOUR OF THE TONGUE.

RIDLEY MACKENZIE, M.D. The patient from whom the tumour was removed came to me with a request to administer an anæsthetic for the removal of her few remaining teeth. She stated that she had had the tumour all her life, and at four years of age an unsuccessful attempt was made to remove it without an anæsthetic. It lodged in the back of the mouth, its short pedicle allowing it to fall backwards, and sprang from the dorsum of the tongue on the left side close to the raphe midway between the tip and the base. Its presence did not interfere with the giving of the anæsthetic and it was easily removed by tying the pedicle with catgut. There was but little bleeding. Its chief clinical interest is that it did not interfere very much with deglutition, and the speech was no more altered than one would expect in the absence of teeth.

J. G. ADAMI, M.D., had made a brief search and so far had not encountered any similar case of osteoma of the tongue. It was a remarkable specimen and puzzling also from all considerations. The first idea that came to one was that it was of the nature of an inclusion tumour. Its occurrence in the median line suggested that during

development and the coming together of parts, chondrogenic and osteogenic cells from some neighbouring region became nipped in and enclosed.

#### TETANUS THERAPY.

E. W. ARCHIBALD, M.D., read a paper upon the present status of Tetanus Therapy with some notes of a case. The paper appears at page 874.

JAMES BELL, M.D. This is a very interesting subject, and it is to be hoped that something will develop along these lines in the way of practical utility. Up to the present it seems that little has been accomplished. A great deal of experimentation has been done, on the human subject as well as in the laboratory, but, after all, when we analyze these cases we come back to what we have known for a great many years, namely, that the milder and more chronic cases frequently recover but those more acute die in spite of all that is done for them. One thing is clear,—that the bacilli remain at the site of infection, largely at any rate; and only their toxins are carried into the nervous system and lead to the spasms. This leads to one practical result, namely, the removal or excision of the infected area. As to the question of local tetanus, when one comes to consider the clinical picture one sees that in a good many cases this is corroborated. One case which was recently under my care was a little girl who had run a nail into the ball of her thumb. She had quite severe tetanus, although there were several days of incubation before full development, and it was really one of the comparatively chronic cases. She recovered, but a marked feature was that although she had general tetanus, from the very first and long after the general spasms had ceased there was still spasms of the arm, even after she got perfectly well. Injection into the nerve trunks, at least in Dr. Archibald's case, did not seem to have done anything towards saving the patient's life, and probably never would in such a severe case. Perhaps we are too prone to reason that if a patient recovers it is due to the treatment which we have carried out.

F. J. SHEPHERD, M.D. Dr. Archibald's paper shows what good work has been done in the laboratory. I have used injection of antitoxin in two cases of tetanus which were both mild. One occurred this summer, and was a man who was thrown from a cart and was considerably bruised and torn about the face. He developed acute trismus. At the time he entered hospital he had a purely local condition with some spasm of the sterno mastoids of one side, and partial paralysis of left facial. He was given injections (several daily) into the spinal canal of 10 cc. of antitoxin and also chloral. He commenced recovering

almost immediately, though very slowly, day after day his mouth could be opened more widely. He had a relapse for a time and was worse but eventually got perfectly well. The other case occurred last year; it was that of a boy who had marked trismus and had once or twice opisthotonus with partial convulsions. He was treated in the same way and got well, though I am not in a position to say that the antitoxine was responsible for the favourable termination. It seems to me that if you remove the source of the manufacture of the toxine some good might be done if it has not gone too far. Dr. Archibald is to be congratulated on the bold and logical way he treated his case and deserved to have a better result.

A. E. GARROW, M.D. During last month I had a case of subacute tetanus, a man who fell through a pane of glass and cut his arm. Eleven days after the injury, when the wound was perfectly healed, he entered the hospital with a well marked condition of tetanus. The most marked feature of the case was the local tetanus of the arm, which kept it constantly in a position of semi-flexion. Exposure of the wound showed a good deal of necrotic tissue underneath the healed flap. The wound was dealt with as an open wound and he was given for the first 15 days some 560 cc. of antitoxine subcutaneously, and during that time he had varying periods of improvement, but in spite of the wound continuing to granulate up he would have days of considerable spasm, not only local of the arm, but general tetanic symptoms. At this time I tried the effect of intra-spinal injections of 10 cc. introduced between the 4th and 5th lumbar spines. This was not followed by any escape of spinal fluid nor were there any sensations in the lower limbs. Within eight hours of the first injection the patient's tetanic symptoms had improved very much, in fact more so than at any period; all other treatment had been suspended in order to note the improvement. Although he had been getting 20 to 30 cc. each day up to this time, four intra-spinal injections were apparently successful in curing the disease; the local spasms disappeared within 36 hours from the first injection. No attempt was made to injure the cord or to bring on irritation in any way and the improvement was marked and I could not help feeling at the time that the intra-spinal injection was the means of arresting the disease.

RIDLEY MACKENZIE, M.D. I would like to ask what were the bacteriological findings in this case of Dr. Archibald's?

DR. MONOD. As regards the prophylactic treatment; every patient brought into my father's hospital in Paris, into the accident ward, receives 5 cc. of antitoxic serum, and if the patient has been wounded in a special manner, as for instance, at abbatoirs, etc., he receives a 5 cc.

dose every day for four days, and in some seven years there has not been one case of tetanus in my father's wards. I have myself been injected three times, and my brother twice, after accidents.

DR. ST. JACQUES. We have had three cases of tetanus in four years at the Hotel Dieu Hospital, the last one was brought in in a very bad state, comatose, and died within 24 hours. The second case was a man who had been wounded in the thumb and came to have it dressed on the third day after the accident. On the 12th day after the accident the first signs of contraction of the muscles occurred; on the 15th he entered the hospital with contraction of the muscles of the neck, pulse 80 to 85, temperature 100. Amputation of the thumb was decided and, on examination, was found staphylococci, streptococci and almost a pure culture of the tetanus bacillus. That afternoon the patient was given 20 cc. of serum subcutaneously, and for the next two days he had serum and chloral. On the third day, that is the 18th after the accident, an injection under the skin of one per cent. carbolic acid was given 25 minims of the solution every two hours. On the next day the symptoms gradually began to subside; the temperature on the third day of the carbolic acid treatment went up to 103, but the pulse was never higher than 116. At no time was there any albumin in the urine. Chloral,  $\bar{z}$ i was given by the rectum, at night time only. On the 10th day, the treatment by carbolic acid was set aside, as symptoms were improving, and three days later the temperature was down to 99. He entered on the 15th of December and was discharged cured on the 17th of January. The third case was a stable man hurt on the nose; symptoms developed on the 4th day after the accident and he came in the next day; no bacteriological examination was made of the wound, but he was put at once under the carbolic acid injection hypodermically. There was at that time contraction of the muscles and neck, but from the very day after the injection of the acid the symptoms subsided and within ten days the patient was altogether better of the tetanic symptoms.

As to lumbar puncture producing, at times, symptoms in the lower limbs, I can report the case of a man aged 40, whom I punctured in the lumbar region, injected 4 centig. of stovaine and got nothing else but analgesic symptoms in the lower limbs until, a few hours afterwards, when the man developed in the right limb very acute pain, which subsided within 24 hours. The second case which I treated similarly with lumbar puncture and stovaine was a man aged 21; there was here no other symptoms than a complete analgesia, going up as high as the floating ribs; which was the desired result. In a third case, a young girl, aged 19, I made a lumbar puncture, for a "stavungs papilla," with

no effect whatever on the lower limbs, nor any beneficial result to the eyes.

WESLEY MILLS, M.D. There is a theory in regard to the contraction of muscle to the effect that the change is really one of the interchange or movement of water and this has been extended to the nerve. That is to say, that those changes in the nerve associated with function are chiefly physical, for there has always been great difficulty in detecting chemical changes in connection with the functioning of the nervous system. It occurred to me that whatever there may be in this theory applied widely that possibly it makes the explanation of absorption in such a case as tetanus the clearer; and, indeed, the movement of water through protoplasm must play a very important part in both pathological and normal processes. What, after all, seems to be the most important outcome is, that while most of us do not live up to our light, medical or otherwise, Dr. Archibald has lived up to his light surgically to the full, so far as he understands it.

G. E. ARMSTRONG, M.D. If these experiments are confirmed and it is shown that the toxin travels only by the axis cylinders, we have gained a very important point in our understanding and treatment of the disease. There are two or three practical lessons which arise out of this experimental work which we should, perhaps, adopt more readily; one is that in accidents occurring on the streets of large cities and about stables and gardens the wounds should not be treated in anything like a perfunctory way, but one should have in mind that the bacillus of tetanus may be there and should be opened up and treated with germicides which will thoroughly destroy the bacilli in the part. This may be done without undue injury to the tissue and without unduly retarding the process of repair. It has been the rule in my ward in the General Hospital for the last three years that all injuries of this nature receive 10 cc. of the antitoxic serum on admission, after the thorough cleaning of the wound. During that period I have not had in this class of injuries a single case of tetanus and I attribute this to the use of the serum. The inhibitive dose of serum has always been given subcutaneously. Is it necessary to put this antitoxine into the nerve? From the experimental work which Dr. Archibald has put before us it seems evident that the subcutaneous injection has been efficient in the great majority of cases. Cutting down and exposing a nerve is a serious operation, and the prevention might not be greater. The use of the antitoxine as a therapeutic agent in the treatment of tetanus is another matter altogether. It would in that case, I think, be wise to inject the nerve or nerves above the seat of injury, thus blocking further entrance of the poison. Of the injection into the cord



itself, more experience is needed to determine its usefulness. I cannot see that an injection within the spinal meninge should pass any advantage over a subcutaneous injection.

A. E. GARROW, M.D. I would like to say that Dr. Keenan found the tetanus bacillus in the grey necrotic material in pure culture in the specimen of the case to which I referred.

W. F. HAMILTON, M.D. With respect to the occurrence of tetanus after vaccination, a brief *resumé* of the epidemic of 1901 might be of interest. The majority of the cases were in New Jersey and Pennsylvania; only two developed in Canada and two in England at the same time. There were 67 positive cases and the balance of a possible 95 were throughout the other parts of America. It was pretty clearly shown at that time that that variety of Vaccine, marked E, had a larger number of cases following its use than any other, and that subsequently, characteristic bacilli were found and demonstrated to be present in the vaccine, so the inference was fairly clear that the infection with tetanus was not a secondary infection, but one coming from the vaccine itself. As regards this patient, Dr. Morrison told me that her sister was also vaccinated with the same vaccine but no symptoms whatever developed.

E. W. ARCHIBALD, M.D. : In view of the large number of cases of tetanus which are apparently doomed from the very outset to a fatal issue in spite of all our efforts, Dr. Bell's remarks, tinged with pessimism as they are, seem in a sense justified. Nevertheless, when animal experimentation brings us as far on in accurate knowledge as is the case in the present instance, are we not justified in these severe cases in following the lead that is offered, even if it involve procedures which appear more or less severe, such as that of puncturing the cord high up? The more so, inasmuch as, in the few cases in which this last has been done, no ill-results seem to have been caused by it. The absolute proof of the value of any new treatment can only be brought upon the basis of a large number of unselected cases. This, as yet, is impossible for the intraneural and intramedullary injection of antitoxin, which must base its claims largely upon animal work. Yet the latter is so convincing that, in my opinion, we are compelled logically to apply the principles gained by it to the human, of course within reasonable limits, and with due judgment as to the severity of the case and the necessity of radical procedures.

Local tetanus, as Dr. Bell remarked, does not seem to be so infrequent as the general impression would have it. It has appeared, in our experience, in the arm, and not in the leg; perhaps because the former has the shorter neurone. In the last three cases at the Royal Victoria Hospital.

the spasm has appeared first in the arm showing the lesion; in the last case coincident with trismus.

Dr. Monod's experience as to the prophylactic value of the serum corresponds entirely with reports from other quarters. Yet it must be remembered that, occasionally, tetanus develops in spite of the serum.

As to the bacteriological findings in this case, cultures yielded no growth, but smears showed the presence of one or two suspicious-looking bacilli. Mice ought to have been inoculated, but were not.

Dr. St. Jacques has called attention to the Baccelli treatment with carbolic acid injections. I disregarded this part of the subject in the paper for lack of time; but some investigation of the method has left me with the impression that it has failed to prove its claims, although it may attain possibly some slight reduction of the general mortality. One critic has remarked the curious fact that outside of Italy no one can get the results with the Baccelli treatment that the Italians get. Italian observers claim the astounding mortality of only 20 per cent. Indeed, I notice in a very recent report that Bacelli himself claims a mortality of only 10 per cent. in 200 cases. Of Dr. St. Jacques' cases, only one can be said to have been at all severe.

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The third regular meeting of the Society was held November 3rd, Dr. F. G. Finley, Vice-President, in the Chair.

#### RUPTURE OF THE EYEBALL.

W. G. M. BYERS, M.D., exhibited four patients who had been treated for rupture of the eyeball, and gave notes of each case.

#### SILVER SUTURE IN PRACTICE.

A. E. GARROW, M.D., read a report upon fracture below a former fracture treated by silver wire suture.

#### PARANEPHRIC CYST.

J. M. ELDER, M.D., read a case report of paranephric cyst simulating floating kidney. This case is reported at page 894.

#### COLLES' FRACTURE.

G. P. GIRDWOOD, M.D., gave a demonstration of Colles' fracture as seen by X-Rays.

#### BACTERIOLOGY OF CONJUNCTIVITIS.

S. H. MCKEE, M.D., read a paper upon the bacteriology of conjunctivitis. This paper will appear in the next issue of the JOURNAL.

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