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THE PRESENT LIMITATIONS OF
SPINAL SURGERY.*

ROBERT ABBE, M.D., NEW YORK.

I venture to present to your attention a subject not too old to be hackneyed, nor too new, as yet, to have been anywhere nearly exhausted. The surgeons of the past have uniformly insisted upon the most rigid respect for interference with the spinal cord in pathological conditions. Occasional attempts have been made to restore its integrity when it was supposed to be pressed upon in fractures; but so much disaster has followed upon attempted interference, that no progress can be said to have been made until the last five years. At present we find ourselves in a position to endorse surgical approach to the spinal cord under very many circumstances. What amount of benefit will ensue from such interference, it remains for additional experience yet to prove. We shall not enter into a rigid survey of the history of the surgery of the spine; for this has already been well done by Dr. White, whose account can be read in the *Annals of Surgery* for July, 1889. Since that date, somewhat more has been added that gives additional interest to the subject, and outlines, in a measure, the direction of future investigation. At present I only go so far as to call your attention to the now exist-

ing limitations of the work, and to illustrate the subject by histories of typical cases.

The general surgeon has dismissed from his mind the question of suspension in order to relieve certain "medical" lesions of the spine, as in locomotor ataxia. This mode of procedure has had a fair and extensive trial, which has gone to show that its utility is too slight to be taken seriously into account; and it is now practically abandoned. The more truly surgical operations upon the spine include such interference as will deal with cases of spina bifida, with caries from Potts' disease, with tumors of the spinal cord, with intra-dural adhesions from myelitis, and with fractures of the spine. We are also in a position to take up the question of the section of the spinal nerve-roots.

Under these six headings let us consider the last views sustained by recent practice. It will be seen that in dealing with the condition of spina bifida, we have at once to attack one of the most delicate forms of spinal work. We have immediately to invade the serous cavity of the spine; to subject the patient to the great bugbear of the past surgery of the cord, spinal meningitis. But it is now evident that with the modern precaution of exclusion of infection, we practically exclude this risk. The purely surgical method of dealing with spina bifida cases, which has been outlined and defended so well by Mr. Mayo Robson, presents the best possible resort of the surgeon of to-day. The bold and complete excision of the sac. with suturing

*A paper read at the Post-Graduate Course of the University of Toronto, Dec. 19th, 1890.

of the membranes composing it, has given results superior to anything yet known. In spite of the fact that the special committee of the Clinical Society of London some years ago announced, as the results of their laborious research, that by far the best and safest method of curing the condition was by the injection of Morton's iodo-glycerin solution—by which sixty per cent. of the patients operated on were "cured"—there comes to those who use it a far poorer record! Cases of spina bifida differ so much in their interior structure, as regards the distribution of the spinal nerves, that it becomes difficult to know, before injection, whether the nerves themselves are not in the sac, where they will be bathed by the irritating fluid. On the other hand, the method of Mayo Robson enables one at once to inspect the interior and to make such disposition of the nerve-ends as may seem surgically best. After having twice used the injection method, with results I was forced to regret—convulsions having ensued, and death—I have lately had an opportunity of removing a very large spina bifida, in which about one-third of the cauda equina traversed the sac, passing in the median plane to the opposite wall. This I severed and laid back in the groove of the divided spine; then I excised the entire sac. This case had been subjected to repeated aspirations by the physician in charge before I saw it, and had an inflamed condition of the sac, with general fever; temperature 105; and death seemed impending when I operated. The temperature declined immediately after operation, and the spina bifida was cured. At the end of three weeks the child, being out of my care, fell into some disorders of nutrition and died suddenly. An autopsy was obtained, and the site of the tumor found to be perfectly healed. The ease, the satisfaction, and the safety of the operation, renders it, to my mind, the only rational treatment. As regards the loss of spinal fluid involved by entering the sac, it entails no danger to the child, provided the patient be kept in a horizontal posture or with the hips elevated. No drainage can then take place from the cranial cavity or the upper spine. The child does not suffer convulsions; and the operation is quite as simple as when we operate elsewhere on serous cavities. Fine cat-

gut suturing of the serous lining, not quite underlying the line of skin incision, renders good primary union, with a strong covering, quite certain.

Robson reported, among others, one recovery in a case where the sac was inflamed, and its contents slightly turbid.

The question of interference in caries from Potts' disease hinges upon two conditions: First, in the early stage, before extensive destruction of bone has occurred, an endeavor may be made to abbreviate the course of the disease by curetting, and treating the lesion precisely as we deal with tubercular lesions elsewhere. Second, there are cases where paraplegia has followed upon angular curvature from destruction of the bones, or from inter-spinal pressure from neoplasms incident to the disease. Surgical museums everywhere attest the power of Nature, by building up ample osteoplastic involucra for the carious vertebrae, to handle the question of surgical repair quite as well as the doctor. What she wants in the way of help, however, is that we should rid her of the burden of the tubercular infection. It seems as if we had almost in view that relief, from Koch's fluid. But as the use of this is not yet established, we can fairly say that our best method of relieving these carious conditions is through the free use of the curette, the injection of iodoform; and if there be bad sinuses, the use of peroxide of hydrogen. It is not often that cases of caries of the spine are early operated on; but I conceive that the course of the disease will, in some cases, be rendered more brief by direct local treatment. This was one of the earliest dreams of Lister, after initiating antiseptic surgery, but a disappointing one. The use of iodoform, however, has assisted materially in justifying this expectation. The disease rarely begins in the arches of the vertebrae; more often in the vertebral bodies. Kraske, of Freiburg, regards this portion as too inaccessible to be operated on successfully. I have myself operated in one case which well illustrated the ease with which the bodies of the vertebrae may be approached. My method was illustrated briefly as follows: The patient, a young man of twenty, had a history of pleurisy, *fistula in ano*, and slight phthisical changes in the apex of one lung, a history

extending through two years prior to the development of a lumbar abscess over the iliac crest. This last was being freely discharged through three sinuses along the iliac crest. A probe passed far up the spine to the last dorsal vertebra. There was no deformity, and little pain. An incision was made alongside the twelfth dorsal vertebra. The transverse process was carious as well as the body of the bone adjacent; and a curette was readily passed into the body of the vertebra, alongside the spinal dura mater, which was readily pushed aside without injury, and an extensive excavation of diseased bone made, one-half of one vertebral body being thus removed. Apparently healthy bone was left on all sides. The entire pus channel was curetted, and douched with sublimate solution, then with iodoform in ether. In six weeks the patient left the hospital, having, at the time, a very slight discharge from one small sinus. Prior to operation he had had three sinuses, an infected tubercular pus-tract, a foot long altogether, leading to the carious cavity. His condition had been one of severe drain, with hectic. His improvement was rapid and satisfactory, the *rationalé* being that he had ceased to auto-infect his system from an extensive suppurating tubercular pus-channel. I believe the greater part of the discharge in these cases comes from the granulation lining the sinuses.

The second class of Potts' disease lesions that we are called on to interfere with is that of paraplegia, the sequel to chronic caries. While these cases are sometimes due to secondary myelitic changes, they are usually produced by, and due to, extra-dural pressure of tubercular neoplastic tissue. The simplicity of the surgical procedure needed to effect the relief of this extra-dural pressure would make it seem desirable that every such case should be speedily operated upon, fearing permanent destruction of the cord if the condition was allowed to run on. But it has been shown, notably by a review of cases by Dr. V. P. Gibney, of New York, that the majority of pressure-paraplegia cases from Potts' disease recover in due time by natural processes. Therefore the surgeon's hand is stayed oftentimes. Such authorities as Israel, Bergmann, and Kraske, discourage interference, concluding that, because the disease

cannot be eradicated, it is useless to interfere. My own feeling would be in favor of interference in the majority of cases, believing, as I do, that thereby the cord may be oftentimes preserved; and the course of the disease simplified.

The orthopedic surgeon is generally rather conservative, and regards the operating surgeon as a man suffering from a continuous and severe surgical fever.

My friend Dr. Gerster operated last year on an old vertebral Potts' paraplegia, and found a subdural abscess with caseous masses, which he curetted away. The patient made a comparatively rapid and entire recovery.

Dr. Wyeth had a somewhat similar experience. The treatment of cold abscesses from carious spines, as well as of the parts about the bone immediately diseased, by the method of Brun (injecting one drachm of twenty per cent. solution of iodoform in olive oil every two or three weeks) deserves attention. It is endorsed by the experience of Krause and Trendellenberg. My own high esteem for iodoform in these cases leads me to endorse it also.

One of the most terrible accidents that man is liable to is a fractured spine—an accident reducing the human body, in the twinkling of an eye, to a state of absolute inaction, indifference, and paralysis. The incidents of the fracture are: the shock; the absolute loss of motion and sensation; and the occasional onset of great pain. The associated train of symptoms will perhaps be as well illustrated by a narration of two or three interesting cases in which I have operated within the last two years as by any general considerations that I might offer. An extensive study of injuries to the spinal cord, made by Dr. William Thorburn, of Manchester, England, has led to the observation that out of twenty-one cases of injury to the cervical region, without fracture of the bone, at least five or six were cases of hemorrhage within the vertebral canal; and that the symptoms, referable as they are to a considerable portion of the spine rather than to one or two nerve-roots, have caused these cases to be usually regarded as fractures, and, later, classified under "concussion." They are not nearly so fatal as fractures and dislocations. Nearly all of the fracture-dislocations of the cervical

spine are fatal, whereas the hemorrhages into this portion of the spinal canal end in recovery, though the patients suffer temporarily from paralysis in the limbs and trunk, lasting for from two to three weeks. The hemorrhage usually occurs within the substance of the cord, a so-called hæmatomyelia. The symptoms produced by this intra-medullary hemorrhage are either such as arise from a destructive or such as are due to a compressing lesion; just as in the case of hemorrhage into the cerebral tissue. Resulting from a destructive lesion we find atrophic paralysis, and perhaps persistent anæsthesia in some parts of the nerve-supply to the body. The hemorrhage compressing the cord, either from within or without, may cause more or less complete paralysis and anæsthesia in parts below its level, together with retention of urine and fæces, priapism, contraction of the pupil, and other symptoms. These subside, however, leaving only some spastic disturbances in the limbs. The intra-medullary hemorrhages are the result either of concussion or of fracture-dislocation. Below the cervical vertebræ, traumatic hemorrhage alone into the substance of the cord is rare. The fractures about the roots of the brachial plexus, the roots namely of the sixth, seventh, and eighth cervical nerves, have been of special interest for study. Mr. Thorburn found that it was possible to locate exactly the seat of the fractures in this region by a study of the anæsthetic areas in the arm, which indicate with precision that particular root of the brachial plexus which is involved in the damage to a vertebra. The brachial plexus being composed of the fifth, sixth, seventh, and eighth cervical, and the first dorsal, nerves, it has been possible to define the sensory supply of the fifth root as covering the deltoid muscle, and the outer side of the arm and forearm; and that of the eighth cervical and first dorsal as including the little finger and the inner side of the hand, forearm, and arm the remaining roots providing for the intermediate parts of the limb. The fifth cervical root has a definite muscular distribution, constituting the so-called "fifth root group," and consisting of the deltoid, supra and infra spinatus, and teres minor. Consequently, we have only to observe the exact areas of anæsthesia and motor paralysis to know the precise

vertebra that is fractured. The completeness of the anæsthesia and paralysis gives us no absolute information at first as to whether the cord itself is irreparably damaged, or whether simply hemorrhage has occurred.

Injuries of the cord from fracture in the dorsal region are easily defined by the anæsthetic area resulting. The fractured vertebra lies about three inches higher than the line of well-marked anæsthesia, owing to the roots leaving the cord within the vertebral canal at a point two inches above where they make their exit from the canal. Lying beside the cord, therefore, in the canal, there are roots that have left it some distance above, and are descending to their foramina of exit. A crushing wound, consequently, will sometimes involve these strands also, as well as the cord itself; though, as a rule, the relative firmness of the nerve-tissue is so much greater than that of the white substance of the cord that the former is apt to escape injury, quite. (Specimen shown.) Owing to the fact that the medullary substance terminates at the first lumbar vertebra in the firm cauda equina, an injury to the spine below this point is less likely than anywhere else to destroy the nerve-tissue. And it is in just these cases that more may be hoped for from operations to remove pressure than in lesions higher up. I have lately seen, with Dr. Lloyd, of New York, such a case, in which I assisted him to operate, and with great relief to the man. A heavy gas-generator had fallen upon the back of this patient while he was down on his hands and knees. His third lumbar spine was crushed in. He immediately suffered complete paralysis of his right leg. He was left, after some time had passed, with a pain in his back and retention of urine, the paralysis slightly improving. But subsequently, six months after the accident, that is, he was still paralysed in his right leg, and anæsthetic over a limited area of the buttocks and thighs, and in the right lower leg and foot. (Blackboard illustration.) We operated in July last, removing the second, third, and fourth lumbar spines, and removing the bones of the three corresponding arches. We found the dura apparently uninjured, and satisfied ourselves with the relief of the pressure made by the crushed-in arch. The patient gained, from the day of the operation onward. His

anæsthesia has steadily diminished, until now he lacks sensation in but a small area about the buttock, and along what is merely a line down the leg. He walks with one cane; has little or no pain; and has resumed his work. Thorburn mentions several corresponding cases—though they were not operated on.

It has been more and more clearly demonstrated, year by year, that cases of fracture-paraplegia in the course of the dorsal vertebræ are, in the great majority of cases, associated with extensive damage, and usually with complete severance of the cord itself. The mechanism by which this is effected is the violence sustained in the so-called fracture-dislocation, *i.e.*, dislocation of one vertebral body from its neighbor, together with fracture of some resisting portion of the arch. It is a singular fact that, in the larger number of such accidents, the bodies of the vertebræ are spontaneously replaced, so that the patency of the vertebral canal is preserved! It is not usual to find much permanent encroachment of the broken arch inward upon the damaged cord. The cord is pulpified, and undergoes subsequent degeneration. The portion cut off below continues to exercise its proper reflex acts and functions; hence the response of muscles getting their nerve-supply from it to electric stimulation and to reflex irritation at times; and hence, too, the comparatively plump and persistent condition of the lower extremities. Thus it will be seen that we have two conditions in fracture of the spine producing paraplegia and anæsthesia: one hemorrhage into and about the cord, the other the total transverse destruction of it; and it becomes a matter of importance to determine, if possible, which has been the lesion. If it be hemorrhage only, there will be an early restoration of function in from a few days to a few weeks, which will settle the question. These cases are usually called "shock." If the cord be pulpified, it will never serve its purpose again. Bastian maintains, and his views have corroboration from such cases as I have seen, that there is loss of all tendon reflexes in the paralyzed parts where the cord is severed. This gives us a satisfactory symptom. Let me illustrate these conditions by referring to a case about which I was consulted last week.

Miss N., ten years of age, fell from an apple tree in July, 1889, while breaking a stick over her knee. She was picked up paralysed from the neck downwards, and in pain. The skin over the upper part of her body was exquisitely sensitive to the touch. There was paralysis of the rectum and bladder. The striking features of the case were: (1) A return of power and sensation in both arms and down to the line of the nipples, while the lower extremities remained paralysed. This condition can be explained only by there having occurred a hemorrhage into the cord in the cervical region, and a severance of the cord by a fracture-dislocation at the fifth dorsal vertebra. (2) There continued for some weeks a sweating of the upper part of the body with hyperæsthesia, both due to irritation of the clot in the cord. (3) There remains a persistent objective sense of prickling in the lower extremities. This, unfortunately, cannot be construed as a return of sensory conduction, but merely of irritation at the severed end of the cord. (4) There is an absence of all the tendon reflexes, which is a proof of cord section. (5) There is a notable vaso-motor conduction independent of the cord, manifesting itself as follows: if the rectum or bladder is full, or if the rectum is irritated, or if alcohol is applied to a sore spot over the sacrum, she is at once warned by a feeling of headache and cerebral hyperæmia. (6) There is a peristaltic intestinal reflex if the finger be placed in the rectum, and a stool is regularly induced thereby. From our present knowledge, an operation on her spine would be futile.

The condition of the spinal cord found at operation in fracture paraplegia may be well illustrated by the following cases:

A young man of twenty-seven years had his back broken by falling from a platform twenty feet above the ground, suffering the usual paraisis and accompanying incidents. Complete anæsthesia remained below a line two inches above the crest of the ilium. I operated by my method (to be described further on), and found that the twelfth dorsal vertebræ had been displaced backward, so that the cord was compressed between the arch of the eleventh dorsal above and the upper lip of the body of the twelfth below.

When the arch was removed, the cord was

seen to pulsate above but not below the point of pressure. However, it quickly filled out, and there was no surface appearance by which one might say from looking at the unopened dura that the cord was not normal within. I emphasize this because surgeons occasionally report that the "cord appeared normal" and "they therefore did not open the dura." On slitting up the dura mater for two inches, adhesions of various density were found within, attaching the meninges to the dura, and forming a complete circular dam, shutting off the upper from the lower part of the canal. An ounce of spinal fluid flowed out when the adhesions were broken up. The normal cord ended at the point of injury by a sloping rather than an abrupt edge. A gap of three quarters of an inch intervened, below which the cord again seemed sound. The intervening portion was a mere flattened band of atrophied tissue, with very few white bundles.

The patient had expressed willingness to have resection of the injured portion performed, and suturing of the fresh ends, if that should prove practicable. I found it entirely impossible to approximate the sound cord on either side of the damaged part more than a quarter of an inch, by making traction with tenacula. This patient had primary union of the wound, but gained nothing with respect to the paralysis. Being heard from a year later, he was enjoying the best of health and weighed more than ever, but was obliged to live in a perambulator.

In another case a man of twenty-seven attempted to alight from the rear platform of a rapidly moving car. He was struck and thrown forward, and immediately suffered paralysis at the waist. At operation I removed the arches of the last three dorsal and first lumbar vertebræ. The eleventh dorsal had evidently been fractured, but there was no displacement or pressure. The dura mater was round and full, and as far as its surface showed, nothing wrong would be suspected within it. I slit it up for three inches, letting out some little fluid. Underneath the injured arch a circular dam of lymph was found, cutting off the upper from the lower part of the canal. The white substance of the cord ended abruptly, and was replaced for half an inch by a pinkish-gray substance, the remnant of the membranes.

Just below the lymph dam a congeries of distended vessels occupied the surface of the cord. These emptied themselves perfectly when the lymph adhesions were broken up. Convalescence without fever followed. On the following day his paralysed parts were acutely hyperæsthetic. A touch, or pulling of the hair, of the foot, legs, and thighs, gave acute pain, and caused the legs to jump. There was absolutely no voluntary motion, however. The hyperæsthesia proved to be transient, and up to three months afterward no gain had taken place in muscular action.

To illustrate the hardships of paraplegia cases, the following one is notable. A well-to-do merchant of twenty-seven was thrown from his horse while out riding on his ranch in Montana. His back struck across a stick of wood on the ground, and his body was instantly paralysed below the waist. He endured a sleet and snow storm for a day and a half, lying where he fell. When found he had over-distended bladder. The nearest physician being ninety miles away, he relieved his bladder by straws, the ends of which were rendered smooth by dipping in hot candle-wax. His second mishap was in having both feet burned by the over-zealous use of hot bottles. One month later it was necessary to amputate both legs below the knees. Bed sores subsequently occurred. He afterwards convalesced so far as to enjoy his pastime of riding in a buggy, to the leathern seat of which he was accustomed to be strapped. After unwisely remaining seated thus one day for seven hours, a slough from pressure-gangrene occurred under his buttocks, exposing the tuber ischii. An operation was done to explore the seat of fracture, and offer him some novel methods of relief, but in his bad state it proved too grave for him to rally from, and death saved him from suicide, which he had threatened.

Such cases represent the types of fractured spines. Let us now for a moment examine some typical tumor cases. The famous case of Mr. Horsley, of nearly four years since, is familiar to you all. Its diagnosis rested upon neuralgia of the fifth intercostal nerve. A small oval tumor was found somewhat higher than the apparent exit of the fifth dorsal pair of nerves within the dura, and was removed. The man made a perfect recovery. I have operated on

two patients—whose cases have already been put upon record, the first being a tubercular tumor within the vertebral canal but outside the dura, making complete pressure upon the cord for two inches and a half, developing with great rapidity, and including complete paraplegia and exhausting hectic. The man made an absolute recovery after operation for removal of the growth, and is now, at the end of two years, in excellent health.

The second case was that of your townsman, Professor McGregor, whose history in brief was that of strained back two years or more before the onset of his trouble. In July, 1889, he first felt a decided pain in his back, his health began to decline, intestinal action became torpid, urinary retention succeeded, and pain, mostly in his right side, centered in his back. He was at first thought to have muscular rheumatism, and accordingly he endeavored to exercise and work it off. In two weeks he found it difficult to rise and dress; in five weeks he lost his ability to guide his limbs; he walked, pushing a chair. Further efforts to exercise were succeeded by complete paralysis. He pushed a chair before him, but fell upon his side. With indomitable will he made another effort, and fell upon his back then crawled to a sofa, where he lay all night, and subsequently was completely paraplegic and anæsthetic below his waist. His physicians, and Dr. Seguin, of New York, diagnosed pressure-paraplegia either from caries or from tumor. A temporary resort to mechanical support resulted in no gain. As a *dernier resort* he was put under my care for operation. At the time the patient was suffering from albuminuria and fever. Prior to the operation he passed through several attacks of an evidently septic nature, with chills, high temperature, and acute albuminuria. Operation was postponed from time to time from necessity, owing to the condition of the patient. An operation was finally done on April 16th, 1890. It resulted in my finding a sarcoma infiltrating the bone from the base of the spine of the eighth through the arches of the eighth and ninth dorsal, and the body of one vertebra. It also grew between the transverse processes of these vertebræ, and forward between the ribs, beneath the pleura. It occupied the vertebral canal and squeezed the cord flat over the length of an inch. It was

entirely curretted away. He improved and bid fair to recover for four days, when obstinate hiccough set in, which grew worse and worse in spite of all measures to check it. It transpired that he had previously been subject to such attacks of vomiting and hiccough. From the fourth to the ninth day, when he died, his stomach was his worst trouble, and from its upset condition his exhaustion resulted.

A letter from Dr. Seguin mentions the ground of his differential diagnosis between myelitis and pressure-paraplegia, "the diagnosis turning upon the presence of fixed pain in one side, and also, with less logical force, upon the comparatively slight anæsthesia at a time when the volitional motor impulses were wholly arrested. A focus of central myelitis in the dorsal region would give rise to a paraplegia with equal sensory and motor symptoms, but with probably greater sensory symptoms, and the side pain would be absent."

We will now speak briefly of an entirely new operation, relieving occasional cases of intractable neuralgia by intradural resection of the posterior roots of the corresponding nerves. It is based upon the fact that this root of each spinal nerve is a purely sensory one. Within the dura it is free for an inch or more, but just outside it enters its ganglion, and unites with the motor root. The possibility of dividing the sensory root on the proximal side of the ganglion was proposed by Dr. Dana, who referred to me for operation the following case:

A middle-aged man, having had exposure to cold two years ago, immediately became the victim of intense neuralgia of his right fore-arm and hand, which subsequently extended to the brachial plexus. He had had his nerve stretched, and finally his arm amputated at the middle of the humerus, by Dr. Bull, of New York. His pain, however, had not abated. He acquired a morphine habit, taking half a grain hourly to subdue his pain. Some months after he came to me for operation. I exposed more than two inches of the cord in the cervical region, the portion corresponding to the roots of origin of the nerves involved. It appeared normal. On the following day, I removed the packing from the wound, and had the man placed in an excellent light with the head lower than the spine. Without anæsthesia I split up the dura mater

the full length of the wound, which was a painless procedure, then picked up the roots of three of the brachial nerves, divided them close to the posterior column, and cut out one-fourth of an inch of each root. The dura was then sutured with fine catgut, and primary union resulted. Two ounces of cerebro-spinal fluid escaped without appreciable effect on the patient. His pain entirely changed in character. After eleven days, he sat up and stopped his morphine. The skin of the shoulder and arm remained completely anæsthetic; his morphine habit never returned; his pain somewhat returned, but was never as bad as before. Inasmuch as I did not cut all the roots of the brachial plexus, it is possible that the operation would have been entirely successful had it been a little more thorough.

A second case soon presented itself in a man of forty-five, who, after exposing his arm, when perspiring, at the window of a street-car during a long ride, began to experience neuralgia of his hand. Severe pain persisted, and in the following year Prof. Stinson, of New York, stretched his ulnar nerve, which was subsequently excised by Dr. Flührer, both operations failing to afford the patient relief. Subsequently, Dr. Gerster stretched his brachial plexus at the axilla. However, his pain still continued in a most aggravated form. He acquired a heavy morphine habit. I operated in February, 1886, resecting four of the five sensory roots of the cords of the brachial plexus. For five days he seemed to be much freed from pain. The paroxysms, however, afterward came on, only to a moderate degree, and have up to date never been as severe as before.

The pathologists' report upon the condition of these resected nerve-roots was that they were in a state of inflammation. The future of this operation may be an important one. In a case in which the patient was operated on by Mr. Bennett, of London, four days prior to my first operation, for the relief of obstinate sciatica, and the posterior roots were divided within the dura, a perfect cure resulted up to the twelfth day, when the man died of other causes. This and my two cases are the only ones in which the operation has ever been done.

A most interesting case has lately been published by Drs. Dercum and White, of Philadelphia (*Annals of Surgery*, July, 1890). A man

of fifty-five had an attack of what was supposed to be rheumatism, which commenced with shooting pains in arms and shoulders. In three or four days he began to notice a weakness in his extremities, which progressed and ended in complete paralysis a few days later. The reflexes were exaggerated. There was pain over the dorsal vertebræ. Jarring the spine was exquisitely painful.

Dr. White operated, opening the dura and finding an apparently normal cord, adherent by the meshes of the membranes to the dura mater by many fine bands. These were simply broken down and the wound was closed. The patient's acute pain present before the operation entirely disappeared, and never returned. Sensation and power did return, and before one year had elapsed he was walking, and had made an excellent recovery. Whether removal of the irritation due to the presence of lymph bands in connection with the posterior column of the cord, or whether the altered circulation in the operated part resulted in recovery, I cannot say. At all events the case stands unique in its successful issue.

METHOD OF OPERATING.—I believe the future of successful spinal work depends somewhat upon the technique of our operative method. Heretofore the surgeon has stripped the spines of the attached muscles, severed the interspinous ligaments, and cut away the spines themselves, before dividing the laminæ. This is tedious, and may be bloody. Dawbarn and others have used an H-shaped incision, cutting through one interspinous ligament, and turning up a huge flap of skin and bone and muscle from over the operated part. Compared with the method which I will now detail, these modes of procedure are both crude:

A bold incision a half inch to one side of the spines is to be made, clean and quickly, through the soft parts to the laminæ, parallel with a block of at least five spines. A heavy bent bone-cutting forceps is used to sever the spines at their bases. The interspinous ligament is not cut. A periosteal elevator is now used to scrape the laminæ clean of the adjacent muscles, and the entire block of severed spines is drawn to the opposite side by the aid of broad retractors and periosteum elevators. Thus, without sacrificing any tissue, the entire breadth of the laminæ is thoroughly exposed in a clean wound. To re-

move the laminae, bone-cutting rongeurs, a straight and a curved pair, are the only instruments necessary. Their cutting edges should meet at a slight angle, like a flat Gothic arch. In a very few moments an ample display of the spinal cord can be effected, and after the operative work upon it is over, the block of spines, with their muscular attachments intact on one side, falls back into place, and is sutured. Thus there is no weakness of the spinal column remaining from destruction of the interspinous ligament, and no gap to be filled through removal of the spines.

With regard to the possibility of ever replacing a section of damaged cord by sound cord grafted in, fresh from another animal, it would seem as yet a quixotic dream not likely to be realized. Though it is conceivable to my mind that if a liberal substitution of sound cord can be stitched in, in place of a clean cut-out damaged segment of cord, a fair sensory and motor conduction may yet be attainable. The possibility of the successful grafting of a portion of a cat's brain into a dog's brain, as shown by Professor W. G. Thompson, and the recent successful employment of a two-inch piece of the spinal cord of a rabbit to fill a corresponding gap in the median nerve of a man, did away with the theoretical objection that the white medullary substance of the cord and brain would not survive this substitution as successfully as transplanted nerves of the ordinary motor type. The technique of this experiment has yet to be worked out.

CONCLUSIONS: 1. For spina bifida, excision of the sac, after the method of Mayo Robson, is to be advocated.

2. For spinal caries one should only operate where the sinus drainage is exhausting the patient. Then even the bodies of the vertebrae may be curetted, and the sinuses should be abbreviated. Tubercular sinuses should be cleaned up with peroxide of hydrogen and iodoform injections. On cold abscesses Brun's method should be tried.

3. In fracture paraplegia operation should be deferred until the bones have united and hemorrhage has been absorbed. A subjective sense of tingling and pain in the paralysed and anæsthetic limbs is not an evidence of conduction to the cerebrum along the cord, but rather of

irritation of the divided stump by the cicatrix, or by bone-spiculæ, and thence a delusive reference to the parts supplied. The only satisfactory proof of total transverse lesion is based on observation of absence of tendon reflexes. Involuntary twitching and jumping is a reflected action having its nervous origin in the distal part of the divided cord. It may exist even years after the injury, and is not to be construed as favorable to ultimate recovery.

4. Little is to be hoped for from operation in cases of total transverse section. If there is pain in the hyperæsthetic zone, it will probably be relieved by breaking up intradural adhesions, and relieving the engorgement of the cicatrix. Nothing more can be expected. Paresis and limited anæsthesia of the lumbar root supplies calls for operation, and this will probably be followed by recovery.

6. Cases of paraplegia and persistent acute pain, warranting a diagnosis of myelitis with local meningitis, should be given a chance of relief, such as that which followed White's operation described above.

7. Simplification of operative methods makes the surgery of the spine a comparatively simple affair.

8. Intradural division of the posterior roots of the brachial or sciatic plexuses for the relief of intractable neuralgias is an operation seemingly justified by the three reported cases. Further experience is needed to prove its title to a place in the list of justifiable operations.

PRESIDENTIAL ADDRESS,

Delivered before the Pathological Society of Toronto.

BY J. E. GRAHAM, M.D., L.R.C.P. LOND.,
Professor of Clinical Medicine in Toronto University.

GENTLEMEN: I desire to express my thanks for the honor you have conferred by electing me president of this young and vigorous society. Had I been aware during the summer of the honor conferred upon me, and that an opening address would have been expected, I would have taken some subject in pathology which is at present uppermost and endeavored to make observations upon it. Under the circumstances, I will not attempt anything of that kind, but rather confine my remarks to some general topics in connection with the study of pathology in this city.

We are now entering upon the second full year in our history, and we have every reason to feel encouraged on account of the progress already made. The number and variety of the specimens presented at our monthly meetings would compare favorably with older societies in much larger cities.

It is also a subject for congratulation that some of our members have had the time and energy to devote themselves to original research, and that they have freely given us the result of their labors. It is felt, however, that in this department only a beginning has been made, and that nothing short of a continuous rate of progress will satisfy us. In this comparatively young country, and in a city which only a few years ago completed the fiftieth year of its existence, we must naturally expect many obstacles and discouragements in prosecuting the study of pathology, a science which cannot be regarded as popular. I wish very briefly to take into consideration some of these difficulties, and make a few suggestions as to their removal.

It will be impossible for us to make much progress as a society, especially in the domain of original investigation, unless we can in some way or other have two or three professional men in our membership who can devote their whole time to this branch.

So far we are indebted to two of our members, Dr. A. B. McCallum and Dr. Caven. Dr. McCallum has been kind enough to examine specimens and make reports when the work required was not quite in his line. We sincerely hope that he will continue to give us this advantage of his rare gifts and attainments. If, however, at any time he should engage in a course of study more intimately associated with his work as a lecturer, we might be to a great extent deprived of his valuable assistance.

Dr. Caven has not yet received a reward commensurate with his work, and we cannot expect to always continue under such disadvantages.

Some members of our society who have recently commenced practice have done excellent work—with them, however, as with others before them, when patients become more numerous, their time will be so taken up with clinical work that they will not have much leisure to devote to original investigation.

It is, therefore, in my opinion, necessary in order to advance the science of pathology that we should have at least two men who are sufficiently well paid to devote their whole time and energy to this subject—one to take up general pathology, including pathological histology, and the other to confine himself to bacteriology.

I do not think it would be difficult to convince our Provincial Government of the great necessity of establishing a bacteriological laboratory in connection with the Provincial Board of Health, which should be superintended by a thoroughly competent man, whose salary should be paid out of provincial funds.

Really, a board of health is very much cramped in its operations without such a laboratory. The testing of drinking-water cannot now be properly made without examination for germs. Enquiries into the origin and progress of epidemics cannot be properly made without the aid of a competent bacteriologist. Then, it must be remembered that these minute beings attack and destroy the lives of domestic animals, trees, and plants, and that their discovery might lead to the adoption of measures which would result in the saving of thousands of dollars to our country.

If these and similar arguments were used, our legislators would see the great advantage to the country of such an institution. They would only have to refer to countries in Europe to find out that every large health board has such a laboratory connected with it.

If these views should meet with your approval, it might be well for us as a society, or as individual members, to lend our assistance to the Provincial Board of Health in their endeavors to carry on this work.

The presence in this city of a thoroughly competent bacteriologist, who could devote his whole time to that science, would be of immense benefit to us. So many pathological processes are in some way connected with the presence of bacteria that we ought always to have some authority to whom we could refer.

I propose to separate it from pathology, as there is in it sufficient scope for the abilities, energies, and the whole time of any one engaged in it.

There are two or three different ways in which we can assist the professor of pathology in his work.

The medical college which properly endows a chair in pathology will, other things being equal, be the most successful in securing students. We are inclined to put too much money in buildings. It would be better, in my opinion, to retain a first-rate man, by paying him a proper salary, than at once to build a pathological laboratory. A really good man will be sure to find room and apparatus for his work.

In reading the accounts of coroners' inquests, we are often astonished that general practitioners are required to give opinions on *post mortem* appearances, sometimes of a very obscure character. How can it be expected that one who does not perhaps see more than two or three *post mortems* a year can make a proper report in any case for a coroner's jury? Under present circumstances, *post mortems* cannot be made in any other way. If a pathologist were appointed for each district, whose business it would be to make such examinations, the result of coroners' inquests would be more valuable than is at present the case. We would then have a class of men who would have an excellent practical knowledge, and who would become good members of our society. The specialist in pathology might be better supported than he is at present by the general profession. How frequently some of us send specimens without enclosing any fee. It is true that, in many cases, no money is obtainable, but in others a fee could be secured if asked for.

These are matters which may perhaps seem scarcely what might be expected in an address before such a society as this, but they are of a practical character, and of great importance to the development in this city of the science in which we take so much interest.

The majority of our members are not pathological histologists, but rather students of clinical work. We must not forget that the study of pathological processes, as they take place in the living subject, are really more important than the study of the results as they are found on our *post mortem* tables, and that the careful observation of these processes are equally the work of members of this society. It is probable that enquiry for the future will be made in the direction of the chemical and microscopical examination of the fluid secretion and excretion of the human body when the subject of disease, rather

than into the microscopical examination of dead tissue.

It is therefore pleasing to know that we have all work to do, whether in the microscopical, chemical, or purely clinical field. During the past year our indefatigable secretary undertook to receive descriptions of specimens to be presented, had a number of copies printed, and distributed to the members. In this way each one obtained beforehand a good idea of the programme, and was able to direct his reading accordingly. It is to be hoped this year, when the secretary takes so much trouble to provide us with the programme, we shall not only hand in reports of specimens, but also to some extent read the literature, so as to enter into the discussion with more profit.

[It will be gratifying to our readers to know that since the delivery of this address, a Bacteriological Laboratory has been established in connection with the Ontario Board of Health, and that a competent man, Dr. McKenzie, has been appointed to manage it.—ED. C. P.]

KOCH'S TREATMENT OF TUBERCULOSIS.

BY PROF. R. RAMSAY WRIGHT.

Communicated from Berlin to the University of Toronto.

Now that you are in a position to observe for yourselves in Toronto the results of the Koch treatment, I shall confine myself in my future letters to giving you an account of such lectures or essays as seem of special significance.

I referred in my last letter to the meeting of the Berlin Medical Society of the 14th inst., in the course of which Prof. A. Frankel and Dr. Korte, of the Urban Hospital, had both of them somewhat depressing cases to record in contrast to the cheerful views of Dr. P. Guttman, of the Moabit.

The discussion was continued on Wednesday night (21st), when Virchow exhibited, without much comment, preparations from an autopsy conducted that morning at the Charité. The patient, a workman of fifty-four years, had been admitted into the hospital in October, suffering from difficulty of breathing, the result of pleurisy of the right side. His condition remained satisfactory until November 26th, when he was subjected to the Koch treatment for the first

time. From that date until January 9th, he had five injections of five mg. each, to which he reacted strongly. Since the last injection there had been continued fever till death, on the morning of the 21st. The autopsy showed old consolidation of the apices, with small caseous spots in the right apex, and the remains of pleurisy, but *extensive miliary tuberculosis of the lungs, spleen, liver, and kidneys, of quite recent origin.*

The inference one is obliged to draw from Virchow's statement of the case is that the treatment attacked the latent tubercular deposit in the right apex, broke down the protective wall which had been built up by a natural healing process in the lung, and admitted the imprisoned bacilli to the circulation in such a way as to produce the innumerable new centres of development throughout the body referred to.

Ewald continued the discussion, claiming that Guttman's views were too optimistic. He did not deny the numerous improvements recorded, but the reverse side of the medal shows an undoubted tendency to hyperæmia, and a possible metastis. In regard to the latter, he cited one case of miliary tuberculosis of the pleuræ, which he did not venture to attribute to the treatment till after Virchow's utterances. Personally, he did not yet care to decide between "post" and "propter hoc," but he obviously leaned to the latter view; in certain cases where there had previously been no fever, the injection had given rise to a hectic condition which was undoubtedly unfavorable. He therefore felt in relation to a patient desiring the Koch treatment as a surgeon does before a serious operation—the issue may be *very* favorable, but it is *uncertain*, even in incipient cases. For the latter, therefore, he would be inclined to prefer other methods of treatment, such as the creasote treatment advocated by Frantzel, from which favorable results, without any disagreeable consequences, have been obtained.

Since Virchow's statement, a certain Dr. Liebman, of Triest, claims, in to-day's *Berliner Klin. Wochenschrift*, to have found tubercle bacilli in the blood after the Koch treatment. Ewald, who is the editor of the journal, has failed to do so; and I can hardly believe that this would have escaped the observation of numerous workers who have been studying the

condition of the blood during the treatment in Berlin.

At the same meeting Dr. Israel, surgeon to the Jewish Hospital, stated that he had found that the injection did not invariably attack tubercular issue; that when it did it sometimes occasioned surrounding inflammation instead of necrosis of the tubercular tissue, and that the therapeutical value in surgical cases remains yet to be determined.

After such a meeting it is not surprising that there should be a strong revulsion against the Koch treatment—yet that it is not entirely justified is evident from utterances of distinguished surgeons like Bardeleben and v. Es-march, and physicians like Baumler and Fur-bringer.

It is not surprising also that Koch should, under the circumstances, be nervous and upset, and yet he has reason to be satisfied with the progress of the cases treated under his own immediate care. The antagonistic views of a part of the profession have undoubtedly caused the Government to hesitate about making the remedy a State monopoly; but the preparations for the new institute for infectious diseases go on apace. I shall shortly send you a description both of the clinical and scientific departments of the same.

Koch's disclosure of the other day was perhaps hastened by Virchow's address; he may be more explicit after a paper by Hueppe, of Prag, which appears to-day, on "The Nature of Koch's Lymph," and which declares that the lymph is a mixture of metabolic products of the tubercle bacilli, with the remains of the unaltered nutritive solution in which the culture was grown. He says that every one acquainted with the use of technical language would take it for granted, from what Koch said, that he had used a solid nutritive medium, and had extracted with forty per cent. glycerine the bacilli scraped off from it; but he urges that such an extract could never contain the thirty per cent. pepton present in Koch's lymph, and states that he has been able by evaporating a six weeks' culture in glycerin Pepton Bouillon to arrive at a lymph similar in external appearance and chemical reactions to Koch's, and giving similar effects with the same doses on tuberculous guinea-pigs. He has, however, not experimented with his lymph on man.

It is to be hoped that before further clinical experiments with new lymphs are made, Koch will have published his methods in detail, and that improvements will be arrived at scientifically and not empirically. In the meantime it is easy enough to follow Hueppe's receipt by devoting to it the necessary time, and I hope to be able to compare in the laboratory the results of the two products.

I referred in one of my letters to the gulf between laboratory experiments and clinical observations, which does not always appear easy to bridge. Here is an illustration of that: Koch, in his recent paper, states that he observed that a second inoculation of tuberculous material in an already tuberculous guinea-pig produced no *local* tuberculosis. An interesting case has now been recorded of a patient with pulmonary consumption, who infected himself with lupus by scratching and moistening with saliva a great bite on his hand. The case is also interesting as indicating how carefully phthisical patients ought to be instructed as to the infective nature of their sputum.

This letter may be taken as reflecting the present anti-Koch feeling in Berlin; my next may possibly show that the pendulum has again swung the other way; the circumstance that the proper clinical application of the remedy has not yet been arrived at does not diminish the importance of the discovery from a scientific standpoint, and the hopes are still bright that it ushers in a new era in the treatment of infectious diseases.

Selections.

EXTIRPATION OF THE VESICULÆ SEMINALES FOR TUBERCULOSIS (by Dr. E. Ullmann of Vienna).—"The prostate was exposed by a semi-circular incision in the perineum, midway between the anus and scrotum, according to the method recommended by Prof. Zuckerkandl. After dissecting away the rectum, a sound was introduced into the bladder, so as to cause protrusion of its posterior wall, and in this manner the seminal vesicles and vasa deferentia were brought distinctly into view. Both organs were found to be markedly infiltrated, the right being the seat of a caseous degeneration. After a careful dissection, the seminal vesicles were re-

moved, together with the right vas deferens, and a portion of the upper surface of the prostate, which was the seat of a small abscess. Notwithstanding a severe secondary hemorrhage, which necessitated a reopening of the wound and tamponing with iodoform gauze, the patient made a rapid and excellent recovery, and his health, which before the operation had been much impaired, was completely restored. The author thinks that the obscure symptoms of tuberculosis of the seminal vesicles are responsible for the fact that the operation has not been previously attempted. He regards himself justified in recommending it in cases of primary tuberculous orchitis, or epididymitis, in which one or both seminal vesicles are affected, and also in primary tuberculosis of the seminal vesicles. He does not consider the resulting impotence as a contra-indication to the operation, since it is a well-known fact that patients, suffering from tuberculosis of the seminal vesicles, always lose their sexual power within a short time; and indeed this impotence may be regarded as one of the chief symptoms which characterize the disease."—(*International Journal of Surgery*, May 24, 1890.)—*Edin. Med. Jour.*

CONCEALED ACCIDENTAL HEMORRHAGE.—Dr. Henry C. Coe, of New York (*Amer. Jour. of Obstetrics*, February), reported a case of concealed accidental hemorrhage during labor, in which the patient died about an hour after the delivery of a dead child. He is preparing a paper on this subject, and asks the profession to favor him with reports of cases of serious hemorrhage from premature detachment of the placenta, especially such as occur during labor. Reports sent to the editor of THE PRACTITIONER will be forwarded to Dr. Coe.

FOR LOCAL ANÆSTHESIA.—At the Philadelphia Hospital, local anæsthesia for minor operations is obtained by combining ten parts of chloroform, fifteen of ether, and one part of menthol, and using a mixture in a hand atomizer. After one minute's application of the spray, such a degree of anæsthesia is produced that incisions can be made for the removal of growths, opening a felon or an abscess, without causing pain.

THE
Canadian Practitioner

A SEMI-MONTHLY REVIEW OF THE PROGRESS
OF THE MEDICAL SCIENCES.

Contributions of various descriptions are invited. We shall be glad to receive from our friends everywhere current medical news of general interest.

When a change of address occurs please promptly notify the Publishers, THE J. E. BRYANT COMPANY (Limited), 58 Bay Street.

TORONTO, MARCH 2, 1891.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA.

We have received the admirable report on medical education in the different medical colleges of the United States and Canada for the session 1889-90, published by Dr. John H. Rauch, secretary of the Illinois State Board of Health. It contains a vast amount of information about all the colleges, including their requirements, number in attendance for the last ten years, number of graduates, etc.

There are still grand opportunities for raising the standard in some parts of the Union; for instance, we find such records as the following from certain medical schools: "Requirements for admission, *none*; for graduation, (1) twenty-one years of age; (2) good moral character; (3) two full courses of lectures; (4) satisfactory examination." We believe that in such the examinations are generally *satisfactory*. The great republic surely makes a farce of its boasted freedom when it allows such atrocities as these two-year mills to grind out ignorant incompetents to prey on its credulous and gullible citizens.

North America surpasses the world in its machinery for manufacturing doctors. Whence come they and whither do they go? Will the supply soon meet the demand? In Canada there were, last year, 1,564 medical students, with 361 graduates. In the United States there were 14,884 students and 4,492 graduates. These figures should be encouraging to those who feel nervous about the supply.

Our medical schools are certainly doing good work as far as quantity goes. They are working with heroic patriotism to meet the demand before mentioned. Some of them have still vacant

seats, especially for those who wish to take full courses of didactic lectures, frequently repeated. There is a positive charm about lecturing to large classes and raking in proportionate heaps of shekels. Laboratory and bedside work is somewhat slow, difficult, and expensive. Modern ideas on these points should be repressed. Those schools which are trying to keep abreast of the times are likely to interfere with vested rights. We are told that such interference would be a monstrous injustice, and will not be tolerated in this province at all events.

Some of these matters will shortly be considered by the Ontario Medical Council in revising the curriculum. The divine right of lecturing *ad infinitum et ad nauseam* is being endangered. Medical students are begging for short intervals between daylight and dark for work in the laboratory, dissecting-room, mortuary, hospital, and dispensary. But some of our most experienced teachers say that such radicalism should not be encouraged; they have their didactic lectures, carefully prepared many long years ago; let the students attend these courses twice—and thrice, if they wish. A little dissecting and hospital work will be thrown in, but not enough to interfere with the crowning glories of didactic lecturing.

Why bother about new-fangled and useless notions respecting biology, chemistry, pathology, and bacteriology? Recent advances in these branches necessitate an amount of study, a division of labor, and a vast expenditure, which are highly objectionable. If, perchance, the costly appliances for the demonstration of these subjects be brought into the country, and if suitable and well-equipped laboratories be erected, there is a feeling in certain quarters that medical students should be prevented from participating in the benefits to be derived therefrom. We may say, however, that such views do not meet with the enthusiastic approval of the profession of Ontario.

VOMITING OF PREGNANCY.

Obstinate vomiting of pregnancy occasionally leads to fatal results, even when all known methods of treatment have been tried. Dr. Angus Mackinnon, of Guelph, published a short paper in the *American Journal of Obstetrics* in which he adopts the idea of Dr. Graily Hewitt,

that displacement of the uterus is generally, if not universally, the cause. He thinks the vomiting and straining increase the flexion of the uterus and force it lower down in the pelvis, thereby aggravating the symptoms; and proposes for the relief of such condition that a speculum should be introduced, and the vagina packed with absorbent cotton in such a way as to raise and support the uterus.

He reports two cases where this method was successful after other means had failed. The vagina was carefully packed, and the packing was renewed every day for a week. In each case the vomiting ceased after the first day. After the week of packing a pessary was introduced, and worn for six weeks by one patient.

This plan is well worthy of a trial after constitutional remedies, local applications of cocaine, etc., to the os, and dilatation by Copeman's method have failed. We believe, however, that in certain cases nothing but the induction of abortion or premature labor will save the patient's life, and in such this procedure should not be too long delayed.

ONTARIO MEDICAL ASSOCIATION.

The time is drawing near again for the annual meeting of our Provincial Association, as we are reminded by the card in our advertising columns. We are glad to be able to announce the subjects for the special discussions, which have more than usual interest.

In medicine, Dr. McPhedran will read a paper on the "Cardiac Complications of Rheumatism," on which subject his investigations give him great weight.

In surgery, Dr. Teskey will speak on the "Cause and Treatment of Carcinoma," dwelling chiefly on the pathological conditions.

In Gynecology, Dr. Eccles, of London, will discuss the treatment of "Uterine Fibroids."

Dr. R. A. Reeve, in otology, will discuss "The Points of Interest to the General Practitioner," a subject in which his observations cannot fail to prove of great value.

Our American visitors will include, as we announced last issue, Howard Kelly, of Baltimore, who will speak on "Gynecology from the Standpoint of the General Practitioner," and N. Senn, of Milwaukee, who will take up the "Surgical Treatment of Intussusception."

Dr. Kelly is one of those men who has risen speedily into notice by dint of great energy and a brilliant method; while Dr. Senn is not only a clever surgeon but an orator. In addition, we hope to be favored by a paper from Dr. F. Shepherd, of Montreal, probably the ablest of the surgeons of that city.

It behoves the members of the Association, by their personal presence and contribution, to make the eleventh meeting the best in the annals of the Ontario Medical Association.

Meeting of Medical Societies.

PATHOLOGICAL SOCIETY OF TORONTO.

October 25, 1890.

The President, Dr. J. E. Graham, in the chair.

MALIGNANT GROWTH OF THE PERITONEUM.

Dr. H. C. Scadding presented a specimen from a book-keeper, aged 68, a ruddy, stout, healthy man, who was, in January last, seized with acute pain of a "bursting" nature, referred to the region of the left nipple. This, which was thought to be angina pectoris, was relieved by the use of nitro-glycerine. In May he again sought advice, complaining of pain in the same region, and in the stomach, no hæmatemesis or melæna; for this pepsin was given. He again appeared during August, and was found to have rapidly run down and to have lost a great deal of flesh. There was now found a tumor in the left anterior axillary line. Death ensued after two weeks of severe pain. *Post mortem* examination revealed the fact that the omentum, the surface of the liver, under surface of the diaphragm, and the mesentery, were studded with nodules of new growth. The tumor found in the axillary line had involved the fourth, fifth, and sixth ribs, and projected, pushing the pleura before it. This tumor, which was found only two weeks before death, was no doubt secondary.

Dr. McPhedran regarded the case as one of primary malignant growth of the peritoneum, for the peritoneal surface of the liver and of the diaphragm were covered by innumerable small growths, like a lot of cherries scattered over it. These growths did not in any way implicate the substance of the liver or of the diaphragm.

Drs. A. B. Macallum, J. Caven, and Acheson, took part in the discussion.

The specimen was referred to the microscopical committee for further examination, to report at the next meeting.

CALCULI IN URETER.

Dr. John Caven presented a kidney, in the ureter of which were lodged, about half an inch apart, two calculi, the nearer being an inch from the pelvis of the kidney. The specimen had been obtained from a child eight years of age, who had hip-joint disease. The liver, spleen, and kidneys had, to the naked eye, the amyloid appearance, but no reaction could be obtained from the use of iodine in either alcoholic or aqueous solution. The kidney was really of the large white variety. There was no hydronephrosis, so that the ureter had not been occluded. It had been suggested that during the examination of the kidney the calculi had been forced into the ureter. The fact that there was not any destruction of the kidney substance showed this to be impossible. Urine was seen to pass from the end of the cut ureter, making its way past the calculi, which were angular. This explained the escape of the kidney. The bladder was normal.

Dr. Thistle said that on four occasions during the life of this patient there had been almost complete suppression of urine, with symptoms of uræmia, followed in a few days by the passage of blood in the urine and the relief of the symptoms. There had, however, never been any complaint of pain such as occurs in renal colic.

Dr. McPhedran was of the opinion that the uræmic attacks, which had been occurring for the last three or four years, were dependent not upon the calculi, but rather upon the kidney condition. There had never been any pain complained of which would give rise to a suspicion of renal calculus.

INTESTINE OF CHRONIC DYSENTERY.

Dr. W. P. Caven presented the intestine of a woman, aged 48, who had been twelve weeks in bed with symptoms showing great irritation of the bowel. When the patient was seen by him she was in a moribund condition, having, during the night, some twenty-four profuse watery evacuations—foul smelling, and containing pus cells. Palpation discovered some tumor of the transverse and descending colon, painful on pressure. Pulse, 140; temperature, subnormal.

Post mortem examination showed all the organs anæmic, especially the lungs, but otherwise normal. The large intestine was found greatly thickened throughout, studded with numerous small ulcers, which extended into the muscular coat. Just above the sigmoid flexure was a stricture. He regarded the case as one of chronic dysentery. Is the stricture the result of this or of previous attacks? He did not think it malignant. Dr. Cameron had seen the patient in consultation with another physician, who told him that she had had typhoid fever. At the time of consultation defervescence had existed for a month or more. At that time she was evidently suffering from ulceration of the intestine.

Dr. Ferguson suggested that the stricture was an old one.

Dr. Graham thought that the ulceration was not due to the stricture.

ULCER OF PYLORUS.

Dr. H. W. Aikins presented a specimen of ulcer of the pylorus from a middle-aged man, who had been seized with sudden, intense pain in the stomach, and had died twenty-four hours later. There was no history of previous illness, burn, or trauma. The pylorus was not stenosed. There had not been found any extravasation of blood, nor any ecchymosis in the stomach around the ulcer.

Dr. McPhedran thought that the peculiar position of the ulcer in the pylorus indicated that the ulcer was of malignant origin, yet there was nothing in the appearance of the specimen to corroborate the idea.

Dr. Cameron thought the position of the ulcer pointed to a foreign body as the cause.

Dr. John Caven exhibited a number of microscopic specimens.

The first was from the small intestine of a horse, and had been sent to the exhibitor as showing the enteric lesions of typhoid fever. The history was said to be that of typhoid. Examination showed dense small cell infiltration of all coats of the gut, in minute spherical-shaped patches, visible to the naked eye. In most of these patches a mass of micrococci were to be seen, centrally located. There was no ulceration nor abscess formation, although the appearances were those of pyæmia. No cultivation or inoculation experiments were possible, since the material was received in alcohol.

The second exhibit was of specimens showing a supposed phagocytic operation of giant cells. The exhibitor has come to the conclusion that there are two distinct forms of giant cell, both of which can be seen in tuberculosis. There appears to be (1) a giant cell which fills the office of a phagocyte. This cell has no processes connecting it with the surrounding connective tissue. It is multi-nuclear, and frequently contains pigment in large quantities. The general tendency of this cell is to roundness in shape; this was illustrated by a specimen of an epithelium in one of the cell masses, of which a number of giant cells were found which had apparently removed a considerable part of the mass, and were engaged on the corneous tissue in its centre.

Another illustration of the phagocytic type was shown in specimens of tubercle in which were giant cells laden with pigment.

In connection with the phagocytic role of giant cells in cancer, the experiments of Podwisotsky's on hepatophages are interesting. He induced necrosis of liver tissue by injections of pure alcohol, and found that the necrosed mass was removed by giant cells. These giant cells he has named hepatophages.

The second form of giant cells is one which is fibro-blastic in its function. This form has distinct and numerous processes connecting it with the surrounding connective tissues. It carries no pigment. It has a tendency to become oblong or oval in shape, is frequently found on the outskirts of a tubercle nodule, and appears, in some cases at least, to spring from the wall of an alveolus in the lung. No bacilli have been seen in this form.

Dr. Acheson exhibited microscopic specimens of pus containing gonococci from the vaginal discharge of a young girl, 7 years of age, and from a case of ophthalmia monatorum.

Dr. Graham asked if the case was to be regarded as one of gonorrhœa, because the gonococci were found. Such discharges were often found in children.

Dr. Acheson replied that for a diagnosis of gonorrhœa it was necessary that the cocci should be found in pairs and chains in pus cells, and surrounded by a capsule. In this specimen the clear spaces surrounding the pairs could be easily made out.

Dr. Primrose presented a card specimen of necrosis of tibia, which had been prepared by standing for five months in a weak solution of liquor potassæ.

The society then adjourned.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPÆDIC SURGERY.

Stated meeting December 19th, 1890. V. P. Gibney, M.D., Chairman.

THE NON-OPERATIVE TREATMENT OF DELAYED UNION IN FRACTURE OF THE LEG.

Dr. John Ridlon presented a paper upon this subject, illustrated by two cases.

The first patient, Thomas C.B., thirty years old, unmarried, gave no history of any constitutional disease. On March 22nd, 1888, while endeavoring to escape a passing team, he sustained a compound fracture of the right tibia in the lower third. The fracture was treated by a plaster of Paris dressing, under the direction of a very well-known and skilful surgeon. The plaster splint was renewed from time to time, yet on September 17th, when he was admitted to the Roosevelt Hospital, there was still slight motion at the seat of fracture, and Dr. Frank Hartley found, on exposing the parts at the time of operation, that there was an oblique fracture of the tibia, passing from below upward. The space between the fragments was filled with a thin wedge-shaped piece of fibrous tissue. At the inner edge of the fracture, there was a thin line of bony union. The fragments were freshened, and then wired together, and the plaster dressing applied. He remained in bed for thirty-one days, but at the time of his leaving the hospital, on October 22nd, the union was not solid.

December 27th. He was transferred to Dr. Ridlon's care.

January 10th, 1889. The plaster was removed. There was distinct antero-posterior motion and soft union, but no callus could be felt. There was some tenderness on motion and pressure at the point of fracture. Only moderate constriction was made, as the dependent position after the removal of the plaster caused abundant œdema. The patient was allowed to go out of doors at once. At the end of nine weeks union was solid, and there was abundant

callus. The patient said then that he had continued the use of the crutches for some time, but had removed the upper supporting part of the splint at the end of the third week, as it was uncomfortable. The lower portion of the splint, which acted only as a lateral support, he continued to wear for about five months.

The other patient, Wm. D., twenty-two years old, was admitted to the New York Hospital on May 26th, 1890, with a compound comminuted fracture of the right leg at the middle and lower thirds. The bones projected anteriorly through a large lacerated wound; there was much displacement and much contusion. Dr. W. T. Bull removed the loose fragments, and secured apposition and good drainage. A rise of temperature necessitated a change of dressing, and Volkmann's splint was applied for three weeks, and after this, plaster of Paris splint with a fenestrum. Union was delayed. He was allowed to walk about on crutches and partly on the leg for two or three weeks prior to his discharge on August 5th, for insubordination. At this time there was some deformity and he was still wearing the plaster splint. When the patient came under Dr. Ridlon's care, on Sept. 22nd, no callus could be felt, but there must have been soft union, as the fragments could not be displaced. The plaster splint was discontinued, and in its place the caliper splint of Thomas, of Liverpool, was applied, being so modified as to prevent motion at the ankle. A laced leather sleeve was also added. A band buckled across the front just above the patella prevents forward bending of the knee, and another band below the knee surrounds the leg and outer bar, and furnishes the means of obstructing the circulation to any desired extent. The leather sleeve adds to the patient's comfort, but care should be taken that it is not sufficiently tight to check the desired œdema. As a result of this treatment, solidification slowly but steadily took place, and an abundant callus was thrown out. At the end of nine weeks no motion could be detected, and he could walk across the room without the splint or any support. After the application of the splint, the crutch was used for only a short time, and he was soon able to walk three or four miles without discomfort; and after eight weeks, he returned to his laborious occupation of unloading vessels.

These cases served to illustrate the treatment advocated by the author in cases of delayed union, which he was careful to distinguish from non-union or pseudo-arthritis. The normal union of a fractured bone occupied a pretty definite period, and when delayed beyond this time, it was properly a case for non-operative treatment; whereas such treatment was entirely inapplicable to cases of non-union. For delayed union, no cutting operation should be thought of until every other known means and an abundance of time have been expended.

The present fashion of treating fractures by plaster of Paris bandages led to deficient immobilization, or else to constriction at the seat of fracture. The author thought no dressing had ever been devised for the treatment of fractures which so poorly accomplished the end in view, *i.e.*, immobilization without undue compression. Good results were obtained with these dressings, but their proper use required greater skill and experience than any other dressing. If plaster were applied before swelling occurred, it prevented the formation of the normal amount of callus, and in a certain number of cases resulted in delayed union. If applied after the occurrence of swelling, the dressing soon ceased to immobilize the part, and so not infrequently caused delayed union.

The treatment advocated by Dr. Ridlon was that employed by Hugh Owen Thomas, and in the words of that surgeon consisted in "hammering, damming, depending, and fixing," the bones involved in the fracture.

The hammering may be done with or without an anæsthetic, and should not be repeated oftener than once in two weeks. Dr. Thomas at first made use of intermittent constriction, but in 1881 he employed continuous "damming," and resorted less to hammering. The constriction should be sufficient to cause abundant œdema, but not enough to cause pain or interfere with the nutrition of the limb. The proper immobilization of the fracture is the most important element of treatment, and to do this the bones must be held without producing constriction at the seat of fracture; the muscles covering the part must be kept at rest by continuous fixed traction, and not nagged by elastic or intermittent traction; and the joints which are moved by these muscles must be absolutely

locked. When there is a fracture of the bones of the leg, the knee and ankle must both be locked, and it was on this account that he had modified the caliper splint of Thomas in the way already described. This objection applied with even greater force to the well-known splint of Dr. H. H. Smith, of Philadelphia.

Dr. N. M. Shaffer said that his experience with ununited fracture dated back to 1876, when he saw in consultation an ununited fracture at the junction of the upper with the middle third of the femur. The injury had been received about three months previous, and there was much overlapping. He applied pressure by means of a felt coaptation splint and a traction apparatus, which allowed of the patient walking about with crutches. After a few weeks, he walked on the limb, with the traction splint, and in about three months the parts were united. He had had since then three other cases of fracture of the shaft of the femur, which he had treated in the same manner, and with equally good results. He thought that the method advocated in the paper was not necessary, and that as much could be done by securing apposition of the fragments, direct pressure at the point of fracture by means of a coaptation splint, and the maintenance of the good position by the use of some traction apparatus. Change of climate also exerted a strong influence.

Dr. A. B. Judson thought that cases of this kind, which had been treated by Dr. H. H. Smith, as well as some treated by the late Dr. E. D. Hudson, of New York, showed that the desired result could be obtained by the use of an apparatus which would permit the patient to walk around. Union was brought about under these circumstances, probably by the friction, irritation, and congestion of the parts caused by the walking. Dr. Thomas' experience seemed to confirm this view, but the treatment by hammering he considered cruel. He was reminded of a suit for malpractice which was brought against Dr. Garcelon, of Maine, on account of an ununited fracture. In order to excite sympathy in his behalf, the patient had applied a rough home-made apparatus, and had gone about the country in this way for some time previous to the trial; but when the case came to trial it was found that union had taken place.

Dr. S. Ketch spoke of a boy who had received

a compound fracture of the femur, which by injudicious treatment had failed to unite. When he saw the case in consultation, the boy was suffering great pain; and partly with a view to relieving this, he applied a long traction splint without any coaptation splint. The pain was almost immediately relieved, and the local condition also improved, so that within a month he was walking about on a hip-splint.

Dr. R. H. Sayre related his experience with a case of delayed union in a fracture of the leg, occurring in a syphilitic subject, who was also in the early stages of locomotor ataxia. He was a very heavy man, and there was a marked angular deformity. After irritating the ends of the bones by rather severe manipulation with the hands, he applied plaster of Paris, and renewed it from time to time for six or eight months. During the first month he used crutches, but after this he was able to put the foot to the ground. At present there is firm union of both bones. In this case there was much œdema without the use of a constricting band, for the patient's heart and kidneys were in bad condition. Dr. Sayre thought that the hammering which the weight of the body produced upon the parts after they have been placed in position was more efficacious than a hammering of the sides of the fragments by means of a mallet. He thought it quite possible that too prolonged traction in cases of fracture of the femur might be responsible for some of these cases of non-union, for it was not improbable that more traction was often exerted than was sufficient to overcome the already tired muscles, and as a result the bones were drawn too far apart to secure good union. He could not accept Dr. Ridlon's criticisms upon the use of plaster of Paris as a surgical dressing for fractures in general. If properly applied immediately after an injury, and after the parts were in proper position, they could be immobilized, and there would be very little swelling. The swelling was often due to obstruction of the circulation by the abnormal position of the bones.

Dr. W. R. Townsend spoke of a case which he had presented to the Surgical Section last year. The boy had fractured his femur at Seabright, and notwithstanding skilful surgical treatment, there was no union after three months. He was brought to the Hospital for Ruptured

and Crippled in this city, and a long traction splint was applied, which enabled him to go about. Walking around, together with the change of air, brought about speedy improvement, and after eight weeks there was good union and the apparatus was removed.

Dr. C. A. Powers said that a considerable number of cases of delayed union in fractured legs were yearly referred to him at the Out-Patient Department of the New York Hospital after their discharge from the wards. It was his invariable custom to have them walk about with a light plaster of Paris splint, and his results had been uniformly good. He had certainly treated during the last year six or eight such cases, and in no instance had it been necessary for them to return to the In-Door Department on account of failure to secure good union. He was familiar with the history of Dr. Ridlon's second case, who was originally a patient in the New York Hospital. He believed that had this patient walked about without the application of a brace he would most probably have obtained good union in about the same length of time. The delayed union in this case was distinctively due to the severe nature of the compound fracture, this being followed by suppuration and some necrosis. He thought the means advised by Dr. Ridlon excellent, yet braces of this kind were not easily within the reach of many country practitioners, and more convenient means would accomplish the same results. He could not understand Dr. Ridlon's strictures upon the use of plaster of Paris, and he heartily endorsed what Dr. Sayer had said on this subject. If deprived of the use of plaster of Paris, he would feel that he had lost the most valuable means of all means at his command for treating fractures of the leg or arm. Out of five or six hundred cases of fracture of the upper extremity, which had been under his care, there had been very few cases of delayed union which had not yielded to rubbing of the ends of the bone, blistering, or very light hammering, the latter not sufficient to cause pain. In two or three obstinate cases, the ends or the bones had been drilled; the patients were treated as out-patients, and with invariably good results.*

*He did not remember that he had ever been obliged to refer a patient to the hospital for operative treatment. He thought that similarly good results would follow this plan of treatment in most cases of delayed union in fractures of the leg.

Dr. Ridlon, in closing the discussion, said that he thought the application of a snug plaster or other bandage lessened the amount of swelling, and that the less swelling, the less the callus, and *vice versa*. There was no question about the efficiency of plaster of Paris when skilfully applied, but it was not always so applied, and he had seen very unpleasant results from its use. As regards the effect upon these cases of walking about, he would say that his first patient walked around his room with a well-adapted plaster splint for two-and-a-half months after the operation, without any gain in solidification; whereas, three days after beginning the treatment which he had described, the patient was able to walk some distance. The second patient had been walking around in the hospital with crutches, and after leaving there continued to do so for about three months more before coming under his care. Under the new treatment he was able to dispense with one crutch at once and with the other very soon afterward, and at the end of eight weeks returned to his work. These two cases were, of course, not sufficient basis for any definite conclusions, but they were presented for the purpose of illustrating a plan of treatment not very commonly known or employed here.

Dr. Royal Whitman presented a case of fracture of the neck of the femur in a child aged seven years.

UNIFORM NOMENCLATURE IN ORTHOPEDIC SURGERY.

Dr. W. R. Townsend took this for the theme of his paper, which was as follows: The object of writing this short paper is to elicit a discussion from the members of the Orthopedic Section of the Academy of Medicine upon a subject to which, of late, little attention seems to have been paid, yet to which much attention and time must be given, unless one is continually provided with a dictionary when reading; for, to read intelligently the medical literature of today, a study of etymology and synonyms is all-important; and even with this knowledge, we may still often be in doubt as to what disease is referred to, as some authors describe somewhat different affections under the same name. The spondylitis of medicine is essentially different from the spondylitis of surgery. The former is a rheumatoid peri-arthritis, affecting chiefly the

spinous processes and lateral masses, the inflammation encroaching on the foramina of exit, and producing various painful neuralgias; the latter is Pott's disease or tubercular osteitis of the vertebræ, etc.

Many reasons exist for this confusion and multiplication of terms. Many diseases were so inaccurately described at first that the name suggested, could easily be improved upon, and later writers have done so with a view of simplifying matters, and have thus increased our list of synonyms; again, popular terms or names that could be easily understood by the laity have been introduced from time to time, until in some cases such terms have almost entirely superseded the more exact and scientific ones. Increased knowledge, such as the discovery of the tubercle bacillus, has caused us to classify some diseases as tubercular, just as we classify others as syphilitic, or malarial, and this list will probably be still further increased.

It is not my purpose to take any disease and weary you with a list of the different names it has gone by from the earliest times to date, but will simply give several examples.

In a recent work on Orthopedic Surgery, the same morbid process or disease, when it affects the spine, is known as Pott's disease; when affecting the hip or sacro-iliac joints, as hip-disease, or sacro-iliac disease; when affecting the knee, as tumor albus; and in the case of the other joints, simply as ankle-joint or tarsal disease, etc. Of course all or nearly all the other terms in common use are referred to, but it is under the above headings that the disease is described.

The hospital reports of the Roosevelt, New York; St. Luke's, Mt. Sinai; The Children's Hospital, Boston; The New York Orthopedic, and the Hospital for the Relief of the Ruptured and Crippled, show this same variety of expression. In them we read of hip-disease, hip-joint disease, tuberculosis of the hip, tuberculosis of the hip-joint, morbus coxæ, chronic disease of the hip-joint, and osteitis of the femur. In other words, in seven different reports we have seven different names for the same disease. Other examples could easily be cited.

This multiplication of terms leads to confusion and much difficulty in actually arriving at a true idea of the relative frequency of any one disease, unless we thoroughly appreciate these

facts; for, who can say that the disease was of the same nature, when on one page we read of tuberculosis, on the next of caries, and the next of osteitis of the tarsus?

Much of this variety and confusion of terms could easily be avoided.

This problem, although presenting difficulties, it seems to me, ought to be discussed. Its solution depends simply upon the profession agreeing upon certain terms to describe certain diseases, and then strictly adhering to them. More care in diagnosis will result; a synovitis or arthritis will not be classified as an osteitis; and all the different diseases of the knee, for instance, will not be included under the terms, white swelling, or knee disease.

Dr. Ketch offered his congratulations to the author for the novel and interesting subject upon which he had written. He thought, however, that it would be very difficult to find one name which would cover the various conditions of disease found at the hip-joint. He agreed with the author of the paper that such terms as "tumor albus," and similar expressions, should be discarded.

Dr. H. W. Berg thought pathology was at present too vague to admit of the use of a more exact nomenclature.

Dr. R. H. Sayre reminded the members that Dr. J. W. S. Gouley had devoted much time and labor in the preparation of an exhaustive work on medical nomenclature and classification of diseases. In it were mentioned terms which were very curious, although etymologically correct, and the profession would be slow to adopt such expressions. For instance, castration is spoken of as orchietomy.

Dr. Judson was of the opinion that there was no likelihood of anyone being led astray by the present nomenclature, and other authors besides Dr. Gouley had expended much labor upon similar works, which were of doubtful utility.

Dr. Townsend, in closing, said that his paper had been misunderstood, for no question of pathology was involved. He had simply deprecated the use of so many terms to express one and the same condition.

TUBERCULOUS JOINT DISEASE TREATED WITH KOCH'S LYMPH.

Dr. N. M. Shaffer presented on behalf of Dr. T. Halsted Myers a report of the following cases:

Case 1.—Girl, thirteen years. Hip-joint disease had existed for three years, abscesses discharging more or less for two years and ten months. Moderate glandular enlargements existed all over the body. December 15th, 1890: examination showed no deformity except shortening and muscular atrophy. The motion at the joint was very considerable, and no pain had been felt for months. Abscesses below the great trochanter discharged through six sinuses, several of them near together, surrounded by a dark purple areola, covering an area of about two by three inches. This patient received half a milligramme of the lymph at 3:30 p.m. No reaction was observed. December 17th: a second inoculation of half a milligramme was followed by a slight reaction, the temperature rising to 101. No change was noticed in the condition of the joint. Two of the sinuses were closed, and the discharge from the other was unchanged. December 19th: the purple areola has disappeared, leaving only little red islands about each sinus. The skin had become dry and scaling where it was previously necrotic.

Case 2.—Boy, six years. Has had hip-disease twenty-six months; abscess discharging intermittently for four months. December 15th: half a milligramme of the lymph was injected at 3:30 p.m. Examination at that time showed the limb to be flexed at 155 degrees, abducted 15 degrees, and rotated outward 30 degrees. There was shortening and atrophy, and a sinus was about to open again. The limb was moderately sensitive, and there was less than ten degrees of flexion. Reaction came on in ten hours. Temperature at that time 101.4; night-cries began anew, and the joint became very painful. On the following morning this was very evident, and there was almost no motion in the joint. Flexion and abduction were also increased, and the inguinal and cervical glands seemed larger. With the fall in temperature, the pain and deformity also diminished markedly, but not entirely, and the original amount of motion was restored. December 18th: a second inoculation of half a milligramme was given and again the temperature rose, the joint became actively sensitive and more deformed, and motion was practically *nil*. This was the condition at noon. The site of the sinus was no longer purple, and was covered by dry, scaly skin.

Dr. Shaffer also presented a report of some of his cases which had been treated according to this method. (See *Medical News*, December 27th, 1890.)

Dr. R. H. Sayre asked if much of the increase of pain noticed in one of the cases might not be due to the removal of the apparatus.

Dr. Shaffer replied that this patient had previously been in bed for days at a time without the apparatus, and yet had not experienced any such pain as was present after the inoculation.

Dr. Berg thought that some of the phenomena observed might be referable to the fever which was present, just as an increase in the joint symptoms was sometimes noticed during the progress of the acute exanthemata.

Dr. Shaffer said that he had seen cases of joint disease suffer no exacerbation during the course of a typhoid fever, in which the temperature frequently reached 105 degrees, and scarlatina also often failed to affect the condition of a diseased joint. Measles, on the contrary, was particularly prone to increase the severity of the joint symptoms. Hence, there was something more than fever necessary to account for the influence of certain diseases on the condition of a joint; and in one of Dr. Myers' cases, there was no fever, and yet marked improvement followed the inoculation.

HURON MEDICAL ASSOCIATION.

The annual meeting of the Huron Medical Association was held in Seaforth on January 13. The president, Dr. Irving, occupied the chair.

Dr. Armstrong reported a case of an anencephalic monster, and presented the specimen. In the discussion that followed, the chief points alluded to were the influence maternal impressions had in producing monstrosities, and the difficulties in diagnosing the presentation in some of those cases.

Dr. Wood mentioned a case of an anencephalic monster with spina bifida in the cervical region, which he mistook for a breach presentation.

Dr. Holmes (Brussels) presented a boy eighteen years of age, who three years previously began to experience weakness and slight pains in the arms. At present there is atrophy of the pectoral muscles, deltoid, and those of the

scapular region, and complete immobility of the shoulder-joint.

The points discussed were whether it was myopathic, neuropathic, or myelopathic in origin. Drs. Bethune, Wood, and Irving thought that the shoulder was dislocated. The rest of the members did not concur in this view.

Dr. Elliot (Brucefield) showed a specimen of ovarian cyst that he removed from a woman four months pregnant, who recovered without a bad symptom. Two years before any cyst could be detected she had a phantom tumor, that disappeared completely under chloroform. It was pointed out that the last twelve abdominal sections performed in the county were successful. These included two removals of diseased tubes, eight ovariectomies, one hysterectomy, and one nephrectomy.

Dr. Bethune (Seaforth) presented a boy with Potts' curvature in the dorsal region, who recently had a pleurisy with effusion. He thought the chest deformity was largely due to the pleurisy.

Dr. Worthington read the history of a case he has now under observation. A man, sixty years of age, had prominent symptoms of articular rheumatism and sciatica. A few weeks later he showed signs of a small pulmonary abscess, which broke and was expectorated.

Drs. Graham, Campbell, and Gunn, thought that the lung trouble was the primary disease, and the joint symptoms were septic in origin.

Dr. Campbell read the report of a *post mortem* on a patient whom he presented before the association at a previous meeting.

The following officers were elected for the ensuing year: Dr. Smith (Seaforth), president; Dr. Armstrong, vice-president; Dr. Gunn, secretary; Drs. Elliot, Graham, and Wood, pathologists.

The next regular quarterly meeting will be held at Clinton.

Reviews.

The Physicians' All-requisite Time and Labor-saving Account Book. Designed by William A. Seibert, M.D., of Easton, Pa; F. A. Davis, Publisher, Philadelphia and London.

This may be described as a combination of a day book, journal, and ledger. It is so arranged that very little time and space is

required for posting, and yet, after the entries of particulars are made, a reference to each account at any time will furnish ample information as to names of members of family who were ill, nature of illness in each case, dates and number of visits, and payments made.

As the title would indicate, it will save much time and labor when compared with any system of book-keeping for physicians with which we are acquainted. Some of our doctors in Toronto who have tried it have expressed themselves as being thoroughly satisfied with it.

Pamphlets Received.

Cephalotoma Verum Externum. By Howard A. Kelly, M.D., Professor of Gynaecology in the Johns Hopkins University, Baltimore. Reprinted from the Transactions of the American Gynaecological Society, September, 1890.

Personal.

DR. G. A. PETERS, who recently returned from England, has resumed practice in Toronto, and is located at 171 College Street.

MR. VICTOR HORSLEY, of London, England, has resigned his position as Professor-Superintendent of the Brown Institution.

PROFESSOR RUDOLF VIRCHOW will be seventy years old on the 13th of October. He will, on that date, be presented with a golden portrait medal by his professional brethren.

THE *Medical Record* announces that Professor T. G. Thomas will deliver four lectures on "The Pathology of Uterine and Ovarian Diseases," at eleven o'clock on the mornings of February 27th, March 2nd, 6th, and 7th, at the College of Physicians and Surgeons of New York.

DR. FRANK P. FOSTER, editor of the *New York Medical Journal*, has been appointed Librarian of the New York Hospital Library.

DR. A. T. CARSON, of Toronto, was in Mentone at last accounts, much improved in health.

Obituary.

DR. D. C. LEITCH.—The circumstances connected with the death of Dr. Leitch are extremely sad. He had been for some time subject to insomnia, for which he occasionally inhaled a little chloroform. On the night of February 17 he was found dead in his bed, about an hour after he retired to his room. He held a handkerchief with both hands against his face. This had probably been saturated with chloroform. The deceased was at one time editor of the *St. Marys Argus*. He graduated in Trinity College in 1874, and was for a time in partnership with Dr. Vanbuskirk, of St. Thomas. Recently he had been practising in Dutton. He leaves a widow, two daughters, and one son, who is a second year's student in the Medical Faculty of the University of Toronto.

DR. JOHN MADILL, of Alliston, died suddenly on February 15th. He graduated at McGill in 1867.

DR. D. M. DAVISON, whose death notice appears in this issue, was a brother of Dr. John M. Davison, of Toronto.

Births, Marriages, and Deaths.

BIRTHS.

HUNT.—At New Lowell, on Monday, 2nd inst., the wife of Dr. Hunt of a son.

MARRIAGES.

LANGSTAFF-DONAGHY.—At the Church of the Redeemer, on February 3rd, by Rev. Septimus Jones, M.A., Miss Annie Langstaff, daughter of the late Dr. Lewis Langstaff, to John Donaghy of Quebec.

DEATHS.

DAVISON.—At Florence, Ont., February 10th, D. M. Davison, M.D., aged 51.

HUNT.—At New Lowell, on Thursday, 12th inst., Emma, wife of Dr. Hunt, in her twenty-third year.

Miscellaneous.

THE ONTARIO MEDICAL ASSOCIATION.—The following are the Committees for the Eleventh Annual Meeting:

Medicine: Dr. A. McPhedran (chairman), Toronto; Dr. Mullin, Hamilton; Dr. Henderson, Kingston; Dr. Gillies, Teeswater.

Surgery: Dr. Teskey (chairman), Toronto; Dr. Wishart, London; Dr. Groves, Fergus.

Obstetrics: Dr. Eccles (chairman), London; Dr. A. A. Macdonald, Toronto; Dr. K. N. Fenwick, Kingston; Dr. Mathieson, St. Marys.

Otology: Dr. R. A. Reeve (chairman), Toronto; Dr. Osborne, Hamilton; Dr. Hodge, London.

Therapeutics: Dr. Saunders (chairman), Kingston.

Papers and Business: Dr. A. A. Macdonald (chairman), Toronto; Dr. N. A. Powell, Toronto; Dr. R. A. Reeve, Toronto; Dr. Arnot, London; Dr. Moore, Brockville.

Audit: Dr. Gullen (chairman), Toronto; Dr. Caldwell, Peterborough; Dr. Harris, Brantford; Dr. Meldrum, Ayr; Dr. Irving, Kirkton.

Necrology: Dr. Lett (chairman), Guelph; Dr. Bascom, Uxbridge; Dr. Kain, St. Thomas; Dr. Powell, Ottawa; Dr. Taylor, Goderich.

Advisory: Dr. Henderson (chairman), Kingston; Dr. Gibson, Belleville; Dr. W. T. Aikins, Toronto; Dr. Leslie, Hamilton; Dr. Lundy, Preston; Dr. Burt, Paris.

Arrangements: Dr. Machell (chairman), Toronto; Dr. J. A. Temple, Toronto; Dr. James Ross, Toronto; Dr. J. E. Graham, Toronto; Dr. Atherton, Toronto; Dr. Britton, Toronto; Dr. R. A. Pyne, Toronto; Dr. Strathy, Toronto; Dr. Sweetnam, Toronto; Dr. Cane, Toronto; Dr. Macallum, Toronto; Dr. Riordan, Toronto.

The chairmen of the standing committees for 1891 are:

Credentials: Dr. Anglin, Kingston.

Public Health: Dr. Kitchen, St. George.

Ethics: Dr. Tucker, Orono.

Publication: Dr. W. P. Caven, Toronto.

Legislation: Dr. W. B. Geikie, Toronto.

By-Laws: Dr. P. Brown, Toronto.

STATISTICS show that more than 3,000 sudden deaths occur annually in England from causes not ascertained.