DOMINION MEDICAL MONTHLY

AND ONTARIO MEDICAL JOURNAL

VOL. XVII. TORONTO, OCTOBER, 1901. No. 4.

Original Articles

A CASE OF TRANSPLANTATION OF THE URETER FOR CURE OF URETERO-VAGINAL FISTULA.*

BY A. LAPTHORN-SMITH, M.D., M.R.C.S. (ENG.), MONTREAL.

Fellow of the American and British Gynecological Societies, and of the London Obstetrical Society, Professor of Clinical Gynecology in Bishop's University, Montreal, and Professor of Surgical Diseases of Women in the University of Vermont, Burlington; Surgeon-in-Chief of the Samaritan Hospital for Women; Gynecologist to the Montreal Dispensary and to the Western General Hospital; and Consulting Gynecologist to the Women's Hospital, Montreal.

History.—Mrs. J. B., 34 years of age, married, came to me at the Montreal Dispensary on July 1st, 1901, giving the following history: She began to menstruate at 14, was always regular, and flow was painless. She was married at 31, and had one child at 32, while living in Vancouver, B.C., the labor being very difficult and requiring the use of forceps. So much force was employed that the vagina was terribly lacerated, and ever since then—two years and seven months ago—there has been a constant flow of urine by the vagina, which burned and excoriated it and the vulva so much that she has been in constant pain as well as misery from being always wet, and in spite of scrupulous cleanliness, always smelling of urine. About eighteen months ago patient went to London, England, to be treated, and entered St. Bartholomew's Hospital, where she remained for three months, and where a thorough examination of the urine was made, and the quantity coming from each ureter and from the bladder and fistula

* Read before the Canadian Medical Association at Winnipeg, August 28th-31st.

respectively was measured carefully. While there she was anesthetized three times: once to make a diagnosis, and twice for vaginal plastic operations, with a view to close up the fistula, neither of which, however, was successful. These plastic operations explain why the vagina had assumed such a conical shape, and why the tissues were so brittle that my stitches would not hold in them. The English surgeons, she said, had spoken of ureteral transplantation, but she was so exhausted and discouraged that she would not remain in the hospital any longer than three months. She came back to Canada a year ago, and continued to suffer, until she was advised to come to the Montreal Dispensary. On attempting to examine her there, it was found impossible to do so without an anesthetic, owing to the extreme sensitiveness of both vulva and vagina, both of which were covered with excoriations and ulcers. Steps were at once taken to render the urine less irritating, and as soon as a bed was vacant she was admitted to the Western General Hospital. With regard to her family history there was nothing of interest, except that her mother died from difficult childbirth, showing that a small pelvis is inherited.

Diagnosis.—Before deciding upon any operation, it was essential to make an accurate diagnosis. The urine was running away from the vagina, but where was it coming from? The bladder or ureter? and if the latter, which ureter? As the patient was extremely sensitive, she was anesthetized, and the bladder having been emptied with a catheter, it was then filled with sterilized milk, while the vaginal vault was carefully dried; only a small part of a drop of milk was seen to come from the apex of the funnel forming the vaginal vault on the patient's right. An effort was then made to pass a probe into this tiny opening and thence into the bladder, but at first this could not be done. Finally, however, the probe passed into the right ureter a distance of six inches. While the probe was in the ureter a ureteral sound was passed into the bladder, and seemed to enter a short distance into the ureter, because a little jet of urine came from it, while the bladder had methyl-blue solution in it. But it was impossible to make the two metallic instruments touch each other, although a great deal of trouble was taken to do so, thus showing that there was a stricture of the ureter below the fistula opening into it. This also proved that it was really a uretero-vaginal, and not merely a vesico-vaginal fistula. As the quantity of urine coming from the fistula was less than the total quantity secreted by the kidney on that side, I came to the conclusion that there was some obstruction to the flow into the bladder, as well as difficulty in the escape of the urine from the fistula; in other words, (1) that there was no vesico-ureteral fistula; (2) that part of the urine passed by the natural valvular opening into the bladder, which valve prevented milk or methyl-blue solution from passing from the bladder into the ureter; and

(3) that the fistula was not merely a vesico-vaginal one. The quantity passing by the fistula was ascertained in the following manner: the catheter was passed into the bladder every two hours, and the quantity measured; then the patient was made to sit on a chamber for two hours on several occasions, and the quantity which dribbled away was carefully ascertained. While the two quantities together measured sixteen drams every two hours, the quantity which dribbled away in that time was only five drams, while the quantity drawn from the bladder was about eleven drams. After the examination the fistula closed up completely, and for five days she was perfectly dry, for the first time in eighteen months. The explanation of this temporary improvement was that the manipulation with the probe had set up a local inflammation, with swelling of the lining of the fistula, so that its calibre was closed. In a few days, however, the wetting of the bed and clothes began again, and I decided to operate for its closure. Being loth to resort to the serious operation of transplantation of the ureter until I had first given her the chances, however small, of having it cured by a vaginal-plastic operation, the latter was undertaken, with the promise to the patient that if it failed, as it had done twice in London, I would almost surely cure her by opening the abdomen and transplanting the ureter. Bovee in his excellent paper says: "In but very few of the uretero-vaginal fistulæ can cure be procured by vaginal plastic surgery. The danger of relapse from heavy strain from cicatrical contraction is too great to permit this plan to be adopted in any but the most favorable cases."

Vaginal Operation.—The fistulous track was dissected out with sharp curved scissors and tenaculum, and three silk-worm gut sutures were passed around it with great difficulty, owing to the mass of cicatrical tissue in the vagina reducing the canal very much in size, and making it conical with the point of the cone exactly at the fistula. Much to my regret this only stopped the flow for a few days, after which it was worse than ever. One more attempt was made, this time by removing a strip of vagina all around a distance of one centimetre, and then bringing the raw surfaces together. This was exceedingly difficult, but was finally accomplished; but the tissues were so friable that the stitches cut through, and the patient was still worse. The poor woman was by this time very discouraged, and worn out physically, so that I felt fully justified in doing the more radical operation, and at the same time one more sure of effecting a cure, and to this the patient readily assented.

Transplantation of Ureter.—On the 17th August, 1901, assisted by Dr. Ritchie, England, and Dr. Gillespie, the following operation was undertaken. The abdomen was incised in the middle line, from the pubes to umbilicus down to, but not through, the peritoneum. The latter was then easily pushed off the abdominal wall

on the right side, and not only the bladder, but also the large vessels of the pelvis were exposed to view, my intention being to find the ureter, and to cut it off close to the fistula, and to transplant it into the bladder higher up, without opening the peritoneal cavity at all. Although I nearly succeeded in doing so, and would have no difficulty in doing so should I ever have a similar case, yet on this occasion several circumstances threw me off the track, and I was eventually obliged to follow the same plan as I had seen Sanger follow in a similar case in Leipsic, when I was there three years ago, namely, to open the peritoneum, running over the large vessels at the brim of the pelvis and to feel for the artery, see the vein and pick up the third tube, which was the ureter. One of the circumstances above referred to was the vomiting, which started violently the moment the anesthetizer ceased to pour on the anesthetic, and this he often stopped doing, because she was so weak; and another was the distension of the stomach and colon with gas, although the bowels had been well moved and the small intestines were collapsed. The third circumstance was the retroversion of the uterus, owing to which I found two round tubes dipping down into the pelvis—one being the ovarian vein, and the other the round ligament. I mention these little difficulties so as to help any of my hearers who may have to perform this operation. Had it not been for the vomiting and distension of the large bowel, the intestines would have been easily pushed into the upper abdomen, as the patient was in the highest Trendelenburg posture, without which, indeed, the operation for me would have been well nigh impossible. Another cause of the difficulty in finding the ureter was in not first passing the probe into it from the vagina before the operation; for when I asked one of my assistants to do this during the operation he was unable to find it. When at last I was reluctantly compelled to open the peritoneal cavity, I had only to make a little slit in the peritoneum lining the wall of the pelvis in the line where I knew the ureter should be, when I quickly came upon it, and picked it up. About one inch of the lower end of it was imbedded in cicatrized tissue, and, of course, this much of it had to be scarified; a silk ligature was passed around it, while my assistant pulled it taut and tightly tied and cut it off. The ureter was then severed a little above the ligature, and covered with a gauze sponge, as urine came from it. As most of the deaths or failures to unite have been due to the septic condition of the urine, I had taken the precaution to administer urotropine for a week before, so that I was not afraid of a drop or two of urine escaping; and as stricture of the ureter is another cause of failure, I did not wish to bruise it with a Pean forceps. We all thought it much thicker than we had ever seen it before; perhaps the obstruction at the site of the injury had caused it to hypertrophy, as it is a muscular tube capable of peristalsis. The

end of the ureter was split open to a distance of a third of an inch, so as to avoid subsequent stricture after it was transplanted, an accident which has marred the success of more than one case where this was not done. A slit was then made obliquely into the right upper corner of the bladder, and the ureter stitched into it, the mucous membrane of the ureter to the mucous membrane of the bladder, with very fine chromicized catgut, and the fibrous coat of the ureter to the muscular wall of the bladder, with six fine black silk stitches. In doing this Van Hook's method was employed, which will be described later on. The bladder was then distended with a pint of weak methyl-blue solution, and, to my delight, not a drop leaked through the point of transplantation. The two-inch cut in the peritoneum was closed with fine catgut, as was also the opening in the parietal peritoneum. In case that the transplanted ureter should fail to adhere, a drainage tube was passed down from the end of the incision in the abdomen to a little below the opening in the bladder, and a piece of iodoform gauze down to the lowest point between the peritoneum and the pelvic fascia. The abdomen was closed with silk-worm gut, and the patient went off the table in fair condition. Apart from the vomiting, which lasted three days, she has made an excellent recovery. The *cathéter-à-demeure* was left in for five days, by which time I believed that the ureter was primarily attached in its new place. It is now ten or eleven days since the operation, and the patient can hold her water for eight hours, and is rapidly regaining her health and strength.

Remarks.—This case is of interest for several reasons. 1. It is, so far as I am aware, the first time that the operation has been done in Canada, and my Canadian brethren will, I am sure, share my pleasure in seeing it result successfully. It had been done successfully ten times in Europe and the United States up to May, 1899, including the one I saw Sanger do in Leipsic. The first successful experiments on animals were performed by Paoli and Buschi in 1888. The end of the ureter was split before suturing it into the bladder.

Novaro (*Centralblatt f. Chirurg.*, 1893, vol. xxvii., p. 596), following this method, performed the first operation on man. He made an incision in the end of the ureter 1 cm. in length. Although there was some leakage for a few days, there was a successful result. Penrose (*University Med. Mag.*, April, 1894), Krug (*Journal Obstet. and Gynecology*, N.Y., 1894, p. 496), and Baldy (*Amer. Journal Obstetrics*, 1896, vol. xxxiii., p. 362), performed similar operations, employing the idea suggested by Van Hook, in his "Anastamosis Operations," namely, introducing two traction sutures, each with a needle at both ends, which is passed through the wall of the ureter from within out, forming a loop on its inner side. Both ends are now carried through the bladder wall from

within out, coming out on one side of the incision. A similar suture is placed on the other side, and the ureter drawn into the bladder opening by traction on the stitch, and fixed there by tying. The only difference in my case was that I did not pass these silk stitches through the bladder mucosa, which I think a weak point in Van Hook's otherwise excellent method. In Baldy's case the proximal end of the ureter was too short to go to the bladder without too much tension on the sutures, so he brought the bladder over to that side of the pelvis by two stout catgut sutures. Kelly (*Johns Hopkins Bulletin*, Feb., 1895) gained an inch in his case by dissecting the bladder from the horizontal rami of the pubes and dropping it back into the pelvis.

Boldt (*Amer. Journ. Obstet.*, 1896, vol. xxxiii., p. 844) passed a ureteral catheter into the fistula before the operation, which I forgot to do until after I had begun, and thus found the ureter more easily; after cutting the ureter off he left the catheter in the proximal end, and passed it into the bladder through the opening and out through the urethra, thus running less risk of leakage if his incision had failed.

Fullerton ("Kelly's Operative Gynecology," vol. i., p. 463) severed a double ureter on right side. As soon as detected he closed the distal ends, and introduced both proximal ends into the same opening in the bladder, with good result.

Baumm, Witzell, Veit and Kelly have performed intra-peritoneal implantation into the bladder, and although they were all obliged, as I was, to open the peritoneum for a few minutes to find the ureter, I believe that with a little more experience we could complete the operation extra-peritoneally, thereby reducing the small death rate, Kelly having lost one case on the seventh day from sepsis.

2. My case is interesting because the injury to the ureter was caused by the delivery of a child. In the majority of cases it has resulted from difficult operations, mostly vaginal hysterectomies. Ferguson found that in sixty-five cases of ureteral fistula, twenty-five were due to parturition, in sixteen of which the forceps were employed. In twelve, vaginal hysterectomy was the cause, two by stone in the ureter and ulceration, three by abdominal section, one had a traumatic origin, two from pelvic abscess, one from a pessary, one from tubercular necrosis of the ureter, as in Krame's case.

3. It shows the value of urotropine in making the urine aseptic; my patient had a temperature of 103° a week before the operation, which may have been due to infection of the ureter, but if this was so, the urotropine apparently remedied it, for there was no temperature whatever after the operation.

4. Owing to the extensive bruising at the time of the confinement, and also owing to the four plastic operations, the

vagina was reduced to a very small cone of cicatrized tissue, so that repair by this means was out of the question. In a large and capacious vagina I believe that the ureter could be found and repaired by splitting open the vagina and exposing the base of the bladder, as in my method of repairing severe vesico-vaginal fistulæ.

In no case should we implant the ureter into the bowel nor tie the ureter so as to cause hydronephrosis. Nephrectomy, even as a last resort, is hardly justifiable, in view of the possibility of there being but one kidney, and of the splendid results of transplantation of the ureter.

248 Bishop Street, Montreal.

NOTES ON PRACTICE IN MIDWIFERY.*

By R. E. McKechnie, M.D., Nanaimo, B.C.

Mr. President and Gentlemen,—I wish to preface the following remarks by explaining that the points touched on are not of the abstruse order, but common, every-day subjects, a discussion of which will be of benefit to us all. My opinions have been arrived at, not from a reading of text-books, but from hard, every-day experience in a busy practice. And the success met with leads me to hope that I may be allowed to express myself with confidence engendered by the results obtained. In ten years there have been in my practice 1,250 confinements, with three deaths; 285 miscarriages, with one death. None of these fatalities could be properly attributed to my routine, but were unavoidable.

My first death was in a woman of 46, with marked disease of the aortic valves, *in extremis* when I reached her, and dying inside of ten minutes of my entrance into the house. The second was a case of placenta previa, in seventh month, in one married about five months. In an attempt by the victim to cover the anachronism by tampering with herself hemorrhage set in. She did not send for help until her loss was great, and then sent for a midwife, who told her it would come all right, and who in turn waited until she was scared by the heavy flow before sending for me. The result can be anticipated.

The third, also placenta previa, was not properly my case, fall-

---

* Read at second annual meeting of British Columbia Medical Association, September 5th and 6th, 1901.

ing into my hands through the absence of the attending physician, and being so far gone as to be dead in about fifteen minutes after I saw her.

The fatal miscarriage was self-induced—a typical malignant case of septicemia—help not summoned until case was hopeless. With this explanation concerning my fatal cases, I can safely claim that my methods are not at fault, and excluding these, have yielded uniformly satisfactory results.

Then, first, as to position. I have found the lateral best for all purposes. To begin with, the patient is less exposed, and even the most unrefined woman appreciates attention to this detail. In using forceps everything is in favor of this posture. Absolutely no assistance is required, except in fat women, to lift the thigh as the handles sweep forward. It is easier to pull in the axis of the brim than with the patient on her back, and it is easier to judge this axis correctly than when the dorsal position is used. The perineum is in sight and under absolute control, hence one can look for the minimum of lacerations. But the chief advantage of the lateral position, when forceps are used, is that it is possible to use leverage in the line of traction, instead of doing as so many do, pulling with all their might one way, with a couple of women pulling the other, to prevent the doctor pulling the patient all over the bed. If the following technic be carried out the operation is shorn of its appearance of brutality, more force can be used with less effort, and all dangers from slipping are done away with, as the forceps can slip only an inch or so. The forceps are applied in the ordinary manner, the handles brought back into the line of traction desired, or as near to it as possible, and then grasped firmly by the right hand, with its ulnar edge next the buttocks. Only moderate traction is made with this hand, its chief use being to compress the handles, and thus grip the head firmly during extraction. If the head be high up, the lock is at the vulva, the hilt of the forceps just outside. Traction is then made by the right hand sufficient to allow the left hand to grasp the shanks of the forceps below the hilt, with the ulnar side of the hand against the vulva. The lever consists of the forearm, wrist and hand, the fulcrum being at the wrist where it rests against the buttock, the long arm of the lever extending from this point to the elbow. Force exerted by gradually throwing the weight of the body, through the arm, on to the elbow, gives an advantage of about three to one, the long arm of the lever being about three times that of the short arm; hence, twenty-five pounds pressure gives you seventy-five pounds pull. This is combined with traction in the axis required, by both hands giving all the force needed with the least effort. In addition, the direction of the force exerted at the fulcrum prevents the patient being pulled about. When the head advances an inch, or the forceps slip, the power of the leverage is lost until

the fulcrum is readjusted, hence the slip cannot be great. The forceps are under absolute control. By the time the head is down so low that the handles begin to sweep forward, this leverage system loses its advantage, but is not needed any longer, as the most difficult part of extraction, as regards force, is passed, and the head is delivered by ordinary means.

The Douche.—As regards douching, I think it is overdone. Formerly I gave an intra-uterine douche after each instrumental case. To-day I never do so, unless there is good reason for it. With the patient's vulva and vagina, and the hands of the operator well cleansed, and the instruments sterilized, there is but little danger of introducing infection. In addition, the blades pass inside the membranes, not touching the walls of the uterus at all. So douching merely means an unnecessary instrumentation, with a slight added risk of infection, not called for.

Twins.—In handling a case of twins many practitioners, after delivery of the first child, wait until pains set in, and the second child is well forced down, and probably then leave it to nature. As in these cases the uterine wall is generally over-distended, and the pains weak, this may cause a delay of an hour or so, and only prolongs the suffering without gaining any advantage. To increase the pains, to make sure of prompt contraction when the uterus is emptied, and to prevent undue hemorrhage, it is well to at once give ergot. Then stimulate the uterus by friction on the fundus, if needed, and proceed with the extraction of the second child. There is no need to wait, for the canal is fully dilated. The first child has made the road to travel easy, and no harm results from rapid extraction, with forceps if the head presents, or by introducing the hand and securing a foot if the reverse be the case. I think ergot should be thus used early in all cases of twins, and, as indicated; also in all cases where the uterus is excessively dilated, as by excess of water or by an extra large child, the object being to aid the weakened wall in its contractions, and thus prevent hemorrhage after delivery, which is so common with an undistended uterus. Judgment, of course, is needed, especially in the last named class.

Ergot.—Ergot is not used enough. A case dragging along, with pains weak but exhausting, should have some help, and forceps should not be the first resort. If ergot can cause stronger pains, then use it, and pay little heed to the possibility of ruptured uterus from tetanic contraction. In the great majority of times the case is directly benefited; but if excessive action supervenes it can be absolutely controlled by chloroform, and delivery terminated by forceps, which probably would have been necessary if ergot had not been used, owing to the inertia of the uterus, or else the case would have been unnecessarily prolonged, and the patient exhausted by avoidable suffering.

It is a common experience with the use of chloroform that increased hemorrhage can be looked for. After delivery, the patient not yet being conscious, ergot cannot be given by the mouth, and if you wait for the hemorrhage, and then inject hypodermically, you have to wait still longer for the drug to act. It is, therefore, better practice as a routine measure to give a dose of ergot before you begin with chloroform; and if this practice be adopted cases of hemorrhage after chloroform will become a rarity.

Calcium Chloride.—This drug possesses the power, when taken internally, to render the blood more ready to coagulate. Its use, then, is self-indicated in those women whose history shows them to be bleeders, or in that much more numerous class who, while not bad enough to be classed as bleeders, nevertheless lose far more than is good for them. I have used this remedy in a number of cases with the best of results, and can recommend it. I give it in from 5 to 10 grain doses, three times daily, during the last month of pregnancy.

The Catheter.—I well remember, shortly after graduation, calling one evening on a medical friend. Later on I took a long walk with him as he went to catheterize a confinement case. On inquiry I learned that quite a few of his cases needed the same attention. I know that this is the experience of many. In ordinary general practice we have to get along with all sorts of nurses, very few of whom could safely be trusted with a catheter, hence it is necessary for the physician himself to take the matter in hand. So the first thing in the morning and the last thing at night, for the first few days, he has to endure this unromantic drudgery, toil pure and simple, which must be attended to, whether he be worn out for want of sleep or not. My experience has been that rarely is it necessary to use the catheter at all. In fact, I do not think I have catheterized a confinement case in the last five years, with the exception, perhaps, of some with a ruptured perineum newly repaired. I instruct the patient to turn over on her stomach, and then get up on her hands and knees, taking care not to assume the erect position. The nurse then pushes the vessel under her, and the act is completed without further trouble. I have never yet had any ill effect from this procedure, and do not expect any. Some cases have exceeded directions and assumed the erect posture, sitting on the vessel placed in the bed, and even with these no harm has resulted. When one considers the size of the uterus in the first few days, it is seen that a retroversion is out of the question, and a prolapse not probable. However, the position on the hands and knees is perfectly safe, and, in addition, is effective, and will save the weary practitioner many a midnight stroll.

In the foregoing I have not attempted to deal with any out-of-the-way problems, but have sought to discuss a few practical points in the light of my own experience. Probably similar conclusions

have been reached by you individually, and if so, but little benefit will result from this paper. But in this Province, where the majority of the members of the profession are isolated, and have but few opportunities to compare notes, a simple essay like the foregoing will prove of more practical good than one dealing with new methods in this old science, which started with the birth of Cain.

THE OXALIC ACID OF THE ORGANISM.

Cipollina (*Berliner klinische Wochenschrift*) says that authorities are now agreed that the oxalic acid of the urine has a double source, originating both in the metabolic processes of the organism itself, and being absorbed and excreted from already existing amounts taken in with the food. In order to determine the relative importance of these two factors, as well as what particular organ is most concerned in the formation of the substance within the animal body, the author made a series of analyses of the more important viscera, and of a considerable number of the vegetable food products in common use. The figures obtained show that oxalic acid is present in small amounts in the organs of man and animals, the largest amount being found in the thymus gland, and of the organs of adult life in the spleen. The total amount in the whole body, although small, is still about ten times as large as the maximum quantity excreted by the kidneys. Vegetables containing appreciable amounts of the acid are, in order of strength: carrots, a variety of mushrooms, cauliflower, cabbage, cucumbers, green beans, turnip-cabbage, sorrel, and spinach. While attempts at accurately locating the source of the acid in the body are not very satisfactory, it is highly probable that the spleen, and perhaps also the liver and muscles, can elaborate this substance from uric acid by oxidation.—*Medical Record.*

UTERUS SEPTUS AND PREGNANCY.

Shoemaker (*Amer. Jour. of Obstet.*) operated five years ago on a woman with uterus septus. He removed one tube and ovary, freed adherent appendages, curetted the uterus, and fixed it to the abdominal walls, choosing the point on the septum where the two halves united. The patient became pregnant after the operation, and aborted about the sixth month. During that pregnancy the unimpregnated half of the uterus could be outlined with the greatest ease on one side of the enlarged impregnated half. Once more the patient became pregnant, and was delivered of a healthy child.—*British Medical Journal.*

Clinical Reports

CASES IN PRACTICE: (a) LIGHTNING STROKE; (b) THREE CASES OF NERVOUS DISEASE IN CHILDREN.*

By Dr. A. F. McKenzie, Monkton, Ont.

Mr. President and Gentlemen,—Although the total number of deaths from lightning stroke is said to be very large it does not often fall to the lot of a practitioner to be called upon to treat a case. It may therefore be of some interest to you to hear a short account of a case which came under my observation.

One day during the excessively hot weather which we had during the latter part of last June a short thunder storm lasting only a few minutes blew up about noon. During the storm a young woman about twenty-five years of age was standing in the doorway of a small one-storied building with a board roof. A flash of lightning struck the roof and chimney directly over her head, knocking off several boards and setting fire to the roof. It then passed downwards at the side of the door-jamb, knocking off a splinter of wood, and then struck the young woman, throwing her forward. She was picked up in an insensible condition and carried into the house. I saw her a few minutes after the accident. She was lying on the lounge in a state of collapse. The face was pale and covered with perspiration and slightly drawn to one side. Her mouth was bleeding, one tooth having been knocked out, another one broken across and one or two others loosened. The injury to the mouth was no doubt caused by contact with a board, which was lying on the ground and which she struck as she fell forward. She appeared to be quite insensible to her surroundings but kept moaning loudly, as though in pain. There was a gurgling in the throat, as though she were unable to swallow. The appearance of the patient was rather startling and reminded one somewhat of that of a person to whom chloroform had been administered beyond the limits of safety. The respirations were however regular, although shallow, and the pulse fairly good. A slight odor of something burning could be noticed. I had the patient's clothing loosened so as to allow freer respiration, and had her removed to a bed, where she was able to lie in a less cramped position. I had taken with me some aromatic spirits of ammonia and gave her a few drops of this in a spoonful of water. At first

*Read before the meeting of the Huron Medical Society, held at Clinton, Sept. 6th, 1901.

this seemed to remain in the throat but was soon swallowed. I then proceeded to get ready a hypodermic injection of strychnine. By the time I had this ready the patient appeared to be recovering consciousness and jerked her arm away as soon as I tried to insert the needle. From the time she was struck until she appeared sensible enough to recognize her surroundings was probably about half an hour.

An examination showed that the lightning first struck her at the junction of the neck with the trunk about three inches to the left of the spine. At this point there was a spot about one and a half inches in diameter where the skin was blistered and somewhat blackened. From this down to the left gluteal region was a white elevated streak about half an inch wide, which looked as though it might have been produced by the cut of a large whip lash. Subsequently this streak acted like an ordinary blister. At the gluteal region there was another spot blackened and blistered similar to the one on the shoulder. At the gluteal region the force of the electricity appeared to go more deeply into the flesh, causing ecchymosis, so that there was a diffused black and blue path extending from the left buttock down the back of the thigh to the knee. From here it crossed over to the front of the right leg extending down to the foot, where it tore open the side of the shoe. An examination of the underclothing, stockings and shoe, which I here show you, will give a good idea of the course of the current. For about forty-eight hours after the injury the patient, although for the most part sensible and able to move and get out of bed, took spells, when her mind wandered. There was also a good deal of complaint of nervous pains in the arms and legs, requiring the use of morphine. Subsequently there was some complaint of the blisters, but these did not give much trouble in healing. At the present time, nine weeks after the injury, there can be seen a mark extending from about the lower angle of the scapula to the gluteal region. The lower two-thirds are dark red. The upper third is much lighter in color. There is no elevation nor hardness excepting at the lower extremity of the mark, where a boil formed. The patient thinks the mark shows more color before a storm. The patient was able to sit up four days after the injury and resumed work within two weeks. It was feared by her friends that after she recovered from the injury she would be terrified during a storm, but such is not the case. She says, however, that she becomes drowsy before a storm comes on.

THREE CASES OF NERVOUS DISEASE IN CHILDREN.

During the last three years I have been called upon to treat three children, each of whom presented a combination of symptoms different from anything that I had previously seen. The symptoms in the three cases were sufficiently alike to apparently justify

one in classifying them together. The first case was particularly puzzling to me, but my experience with it gave me more confidence in the management of the other two, although I still feel considerable doubt as to the etiology and pathology of all three.

The first case was a little girl about five years of age. I was consulted regarding her on the 14th of February, 1899. The history I received was that she had been somewhat poorly the previous fall, suffering from symptoms which the parents ascribed to worms, some of which she passed after the administration of medicine secured at the drug store. During the winter she was somewhat better until a few weeks before I saw her, when all the members of the family took what they considered to be la grippe. The rest of the family made a good recovery, but the little girl did not. When I was consulted the principal symptoms complained of were extreme irritability, restlessness, loss of appetite, abdominal pains and frequent micturition. An examination of the urine showed the presence of considerable urates, but otherwise appeared normal, and I concluded that the child was suffering from indigestion and possibly worms, and treated her accordingly No worms, however, were passed. The patient kept getting worse and I began to think the case a more serious one than I first imagined. The abdominal wall was somewhat retracted. The abdominal pains became somewhat less severe, but patient began to complain of coldness and uneasy sensations of some kind in the legs. The pains, so far as I could make out were, first, in the fleshy parts, and then in the joints, but there was no redness nor swelling in the latter, such as one would expect in rheumatism. Restlessness and irritability were extreme, the patient scarcely getting any sleep herself nor allowing her parents to get any. The urine was scanty, and the child would frequently sit on the vessel for long periods without passing any. There was a peculiar frowning expression of the face. There appeared to be great muscular weakness, but no complete paralysis. The pulse was rapid, but the temperature was seldom more than one or two degrees above normal. The hands and feet were of a rose-red color, although quite cold to the touch. At times there were erythematous spots on the body, and a papular rash appeared on the feet and hands. These papules subsequently became vesicular, and some of them pustular, causing desquamation of the skin. There was suppuration of the left ear, and the upper lip became very sore. A slight broncho-pneumonia also developed. About five or six weeks after I first saw her, one worm was passed, and the bowels, which formerly had been constipated, became a little loose. I do not remember whether or not the worm was passed as the result of the administration of anthelmintics. Shortly after this the appetite became better, and the patient gradually improved in all respects, so that she was able to walk, with a

peculiar waddling, stiff gait, about ten weeks after I first saw her and improvement gradually continued until she became quite well. The mother told me that the peculiar pink color of the extremities while they were at the same time cold, was a symptom noticed by her early in the sickness, although I must confess I did not notice it particularly until later. This child had always been of a somewhat nervous temperament, whereas the second case was that of a sturdy looking child, four years of age, and of German parentage. She began to be sick about the middle of November, 1899. The symptoms were practically the same as in the first case, but the child never became so weak, and was never confined to bed. There was the same sequence of abdominal pains, supposed to be due to indigestion and worms, and in this case some worms were passed as the result of treatment early in the sickness. The pains in the abdomen were followed by itching, and pains in the extremities. The hands and feet were of the same bright red hue as the first case, and had the same coldness to the touch. The face wore a frowning expression, and the eyes were kept partly shut from the light. A papular erythematous rash appeared over the whole body, but was most marked on the hands and feet, where vesicles and, subsequently, pustules formed, causing desquamation of the skin and nails. The elevation of temperature was slight, but the pulse rapid. The urine was scanty, and the child almost constantly expressed a desire to urinate. The restlessness and irritability were extreme. The father formed the conclusion that the desire to get on the chamber was a pretext to enable her to get her feet on the cold floor in order to ease the itching and irritability there. The child had the same peculiar gait that the first child had when she was getting better. The disease lasted about the same length of time as in the first case, decided improvement setting in about the tenth week, and complete recovery following.

The third case was that of a female nursing child, six months old, about whom I was consulted on the 13th of March last. When the child was about three months old it had an attack of pneumonia, from which it recovered so far as the lung trouble was concerned, but its bowels, which previously had been regular, remained constipated, and it was somewhat irritable. When I was consulted in March it had been decidedly ill for about three weeks. There was loss of appetite, constipation, apparently abdominal pains, and extreme restlessness, the child tossing herself around, and not sleeping more than a few minutes at a time. Erythematous spots came and went on different parts of the body. The hands and feet were of a rose-red color, although cold to the touch. The mother thought that this condition had been present to a certain extent since the attack of pneumonia. The temperature was only slightly elevated, and the pulse was very rapid. Later on in the

course of the disease I discovered a cardiac murmur. I am not sure whether or not this was present at the commencement of the illness, nor whether it was an essential or accidental factor in the case. The child lost three pounds in weight, and became very weak. After the illness had lasted for six or seven weeks improvement gradually set in, and at the present time the child is in fairly good health. The cardiac murmur is still present, and the child gets slightly cyanosed when it cries or struggles. The bowels still remain somewhat constipated, but are improving in this respect under treatment.

The following symptoms were more or less prominently present in all three cases: (1) Pains or uneasy sensations of some sort in the abdomen and extremities, causing extreme restlessness, irritability and insomnia, which to the parents were the main symptoms. (2) Eruptions on different parts of the body and a peculiar, rose-red color of the feet and hands, accompanied by coldness to the touch, and followed by desquamation. In the third case the desquamation was slight. (3) A frowning expression of countenance, with avoidance of light. (4). Loss of appetite, with resulting loss of weight. (5) Loss of muscular strength, almost amounting to paralysis, and giving rise, where the patient was able to walk, to a peculiar waddling gait. (6) Slight elevation of the temperature with rapidity of the pulse, which for the most part during the acute stage was about 120 in the older children and 160 in the infant. (7) Scanty urine, with frequent desire to micturate. This was a very noticeable symptom in the first two cases, and in the infant the mother thought the child was more restless before micturition.

If a child were brought to my office to-morrow with a history of having been extremely restless and irritable for some time, as though suffering from some kind of pain, having a frowning expression, with erythematous spots on its body, and with its extremities a rose red color, although cold to the touch, I would be inclined to associate it with the cases I have here described. The group of symptoms may, I think, be best explained by the circulation in the system of some poisonous substance, acting principally on the peripheral sensory and vaso-motor nerves. They may, therefore, be provisionally called cases of multiple peripheral neuritis. We know that of late years an immense number of cases of peripheral neuritis have been described having more or less features in common. Although these cases are grouped together, they vary considerably as to their symptoms and etiology.

The following causes have been given for peripheral neuritis: (1) Chemical poisons of various kinds, such as lead, arsenic, mercury, phosphorus, silver, alcohol, ether, etc. (2) Micro-organisms, or their products, which produce specific diseases, such as diphtheria, influenza, typhoid, pneumonia, erysipelas, gonorrhea, syphi-

lis, the various forms of septicemia and malaria. Peripheral neuritis is an essential part of beri-beri and leprosy, and it occurs, *too, in rheumatism, gout and diabetes.*

Although the cases which I have described were very similar one to another, it is doubtful whether they all had the same etiology. The first case gave a history of having had influenza, and we know that in the adult this is frequently followed by peripheral nervous trouble. There was, however, a history of poor health existing before the influenza. In the second case the parents felt sure that the child did not have influenza. In the third case there was a history of pneumonia occurring three months before the onset of the nervous trouble in its acute form, with an intervening period, during which the child was not exactly as it should be. A possible factor in the first two cases may have been santonin poisoning. Both of these patients had frequently been given worm powders before I saw them. The mother of the second patient stated that she had given the child on an average one powder every week for a year. Sometimes their administration would be followed by the passage of worms and sometimes not. I have not seen a description of any cases of chronic santonin poisoning, but an overdose is said to cause disturbance of vision and frequent micturition, a symptom which was so marked in these cases. The third case, however, was not dosed in this way, and I was inclined to attribute the cause of the trouble in this patient to intoxication from the alimentary canal due to the chronic constipation. Possibly also there may have been some connection between the illness and the previous attack of pneumonia. The mother of the child says that she herself had a severe attack of grip just before the child took sick. The treatment adopted in these cases was largely symptomatic. An effort was made to keep the alimentary canal in good condition, and to support the patient as well as possible with suitable food. The most urgent symptom requiring treatment was the extreme restlessness. In the first case opiates and bromides were used, with no decided effect. Possibly I was a little timid in the dosage. In the second case I did not seem able to affect the restlessness to any extent until I tried sulphonal. This gave some rest at night, About this time my attention was called to chloretone, and when the father of the child came to the office to have the sulphonal repeated, I at the same gave him some chloretone powders, and asked him to report which had the best effect. He soon reported that the chloretone was decidedly superior. The same drug gave satisfactory results in the third case. As soon as the worst of the acute stage was over and the appetite began to improve, cod-liver oil appeared to be very beneficial.

Reports of Societies

TORONTO CLINICAL SOCIETY.

The first regular meeting of this society for the session of 1901-1902 was held in St. George's Hall, Elm Street, on the evening of the 2nd of October.

Dr. J. F. W. Ross, the President, occupied the chair.

The following Fellows were present: Pepler, Elliott, Small, McIlwraith, Orr, Lehman, Anderson, McCollum, Bruce, Macdonald, Grasett, Greig, Silverthorn, Oldright, Ryerson, Aikins, Parsons, Thistle, Trow and Baines.

SPECIMEN OF HAIRY TUMOR REMOVED FROM THE STOMACH.

By Dr. Herbert A. Bruce. A report of this has already been published in the medical journals.

DISCUSSION.

Dr. Oldright asked Dr. Bruce why he gave milk every hour after the operation.

Dr. Thistle asked about the condition of the stomach, whether there were any gastric symptoms, from the presence of the tumor in the stomach.

Dr. Anderson asked what information one might have got had an analysis of the stomach contents been made.

The President stated he had seen the patient in consultation with Dr. Bruce, and he had never made a more careful examination of a patient in his life; and the surprise was that they did not discover that the tumor was in the stomach. The idea was that the tumor must be the spleen, though the splenic enlargement did not fit in with the condition, and then it would be impossible for a woman with such a large spleen to be in such a healthy condition. He doubted if any hair would have come up had an examination of the stomach contents been made.

Dr. Lehman asked Dr. Bruce to explain what caused the small grey spot on the tumor.

Dr. Bruce in reply.—Dr. Aikens asked when solid food was first given after the operation. She had milk forty-eight hours after the operation. The first solid food was given in about ten days; fish and chicken in about two weeks. Answering Dr. Oldright's question, Dr. Bruce stated that he had frequently found that the administration of milk in that way agreed with the patient very

much better than when a larger quantity was given at a longer interval. Replying to the questions of Drs. Greig and Thistle. There was none whatever pointing to the stomach. Patient had a splendid appetite and took her nourishment well and was always hungry. Dr. Anderson had examined the blood for leukemia going on the possibility of splenic enlargement. He did not think that a stomach examination in the usual way would have helped in the diagnosis. As to the grey spot it was thought to be due to pressure.

(a) CYSTIC TUMOR IN POPLITEAL SPACE; (b) A CASE OF POLYMASTIA.

Two patients were presented by Dr. A. A. Small, which proved of considerable interest. The first occurred in a woman of about forty years of age and was situated about the lower part of the popliteal space of the left leg.

Dr. Grasett considered it was an interesting tumor. It seemed to be cystic and was perhaps connected with a bursa or was growing from a tendon sheath.

Dr. Aikins had seen the patient about a month ago at the city dispensary and had diagnosed a popliteal bursa. He referred to a similar case he had seen in London, in 1881.

The tumor in the second case was situated on the back of a woman of fifty-five or sixty years of age. It was near the posterior border of the right axilla, was about three or four inches in diameter and had a smaller nipple-like tumor at its centre.

Dr. McIlwraith, who had examined the tumor closely, stated there were no evidences of any milk ducts opening on the surface at all; and on pressing the tumor one does not feel any divisions. He had ascertained that it had developed only within the last four or five years, and practically after the woman had passed the child-bearing period of life. Developing after that time of life would seem to be a very unusual thing. He thought it might probably be a lipoma rather than a supernumerary gland.

Dr. Silverthorn agreed with Dr. McIlwraith and stated that the tumor seemed to be distinctly capsulated. Occurring in a woman of sixty years of age, who had borne children, and development coming on only within the last few years, and previous to that no sign of activity of the so-called supernumerary breast, negatives the diagnosis of polymastia, and then the smaller tumor does not seem to be a real nipple at all.

Speaking of the first case, Dr. Silverthorn thought the tumor cystic and probably from a bursa.

Dr. Small stated that the nipple has always been present.

Dr. Ross referred to the fact of there being no enlargement during the time the woman was nursing her children; and the nipple is not characteristic at all. He further referred to a case in Hirst's text-book.

TUMOR OF BREAST—SPECIMEN AND CLINICAL NOTES.

Dr. A. A. Macdonald showed a specimen of a fibro-cystic adenoma. There was one point of interest in connection with the case worth noting: it occurred in a woman of forty-six years, who had three or four children. Her mother had died of cancer of the liver, the father being alive and healthy. Eight weeks before removal of the growth she consulted Dr. Macdonald. She came for pain in the breast. On examination, the surgeon could find no trace of disease or undue enlargement; he could not tell any difference between the two breasts; practically normal breast tissue. The pain, however, persisted, but her general health improved a trifle. She again consulted Dr. Macdonald, and this time, on examination, found a circumscribed tumor with a fairly definite outline. An operation was performed three days after this latter consultation and the growth removed. Section showed a cyst with a hard fibrous mass attached. Dr. Macdonald thought it well to cut wide of the tumor and therefore removed the whole breast. The interesting point is its rapid growth. This is usual in cystic tumors of the breast but not in fibromata. The fibromatous portion of this tumor may have been present at the time of his first examination, but the cyst portion developed subsequently; the presence of pain during the early history of the case is characteristic of benign tumors. Such tumors never invade the surrounding tissues, and never recur. Microscopic examination confirmed the diagnosis, and Dr. Macdonald believes removal to be the correct thing.

Dr. H. B. Anderson, in discussing this case, stated that in fibro-cystic adenoma complete removal of the breast is the correct thing.

The discussion was continued by Drs. Oldright, Silverthorn and the President, the latter pointing out that when operating on a galactocele, do not let the cream run into your wound. If you do you will have a nasty wound. Another point: incision into these tumors should first always be made.

Dr. Macdonald replied, emphasizing this latter point of Dr. Ross.

NOTICE OF MOTION.

Dr. C. Trow, seconded by Dr. W. B. Thistle, that Article X. of the By-Laws be amended, to read, "that the number of resident Fellows shall not exceed 100."

The meeting then adjourned for refreshments.

GEORGE ELLIOTT,
Recording-Secretary.

TORONTO MEDICAL SOCIETY.

The first regular meeting of the Toronto Medical Society for the season of 1901-1902 was held in the Council Chamber of the College of Physicians and Surgeons on the evening of the 3rd of October, Dr. F. N. G. Starr, the President-elect, in the chair, while Dr. Ashton Fletcher acted as Secretary.

Amongst others, the following members were present: Dr. J. H. Richardson, Mr. Cameron, Drs. McPhedran, Peters, Chambers, Hay, Clemes, Bascom, Primrose, McCallum, Reeve, Oldright, Malloch, Bryans, Porter, Carveth, Young, Scadding, Yeo, Dickson, W. J. Wilson Clarence, Starr and Dr. Langstaff, of Richmond Hill.

Mr. Cameron showed several calculi which he had extracted from the bladder of an old man of seventy-six years. The old gentleman had contracted the opium habit; and a catheter had to be used, and subsequently every half hour during the day and the night. Mr. Cameron operated and did a high section and found fourteen small stones in the *cul-de-sac*, behind the prostate.

PRESIDENT'S ADDRESS.

Dr. Starr then delivered the annual presidential address. He thanked the members for having honored him with the office of president. The address, which proved a very interesting one, and was heartily applauded at its finish, consisted of pen pictures of some of the medical men, now deceased, who had won for themselves honor and distinction in this city in days gone by. Lantern-slide portraits of these fathers of medicine in Toronto were projected on the canvas—familiar to a few of the older ones, but new and interesting to the younger men. These men had been always held in high esteem, as well by the community as by the profession of medicine, and were shining examples to the profession to-day, because they always walked in the straight, strict paths of the regular profession. Among others exhibited, and whose character, attainments and work were dwelt upon, were James Macauley, Widmer, described as the father of surgery in Upper Canada, and who along with his partner, had the whole district of York and surrounding neighborhood for many years at his command in the practice of medicine; John Rolph, Beaumont, Gwynne, Hodder, H. H. Wright, Philbrick, W. T. Aikins, James Ross, L. McFarlane, F. W. Strange, J. B. Kennedy, Zimmerman, Fulton, and James H. Richardson, who is still with us, and whom the president hoped would long live as an example for the present-day surgeons to emulate.

At the close of this excellent address, Dr. Richardson moved, seconded by Dr. Oldright, that a vote of thanks be presented to

the president for his very able and interesting address. This was carried unanimously.

Mr. Cameron told how pleased the members were that Dr. Richardson was able to be present.

HYDROA VACCINIFORME.

This patient was presented by Dr. Graham Chambers. She was a girl of thirteen years, and she has been troubled with a skin disease for the last ten years, it beginning at three years of age. The lesions always resulted in scars. Jonathan Hutchinson was one of the first to describe this disease. It is characterized by vesicles, and these vesicles are, as a rule, on the exposed parts of the body, that is, on the face and hands, or, in the summer-time, if the feet and legs were bare, on those parts as well. Dr. Chambers mentioned that there were three types of the disease. For the last four weeks this patient has been taking arsenic, and there are now very few lesions present, but there are scars.

BLASTOMYCETIC DERMATITIS.

This patient, a young man of probably twenty-five years, was presented by Drs. Primrose and Chambers. He first came to Dr. Primrose with a history of trouble beginning in the form of a warty growth on the shoulder. It began as a small papule which subsequently developed into a wart. Dr. Primrose first saw him in February last, and shortly after that date a similar growth appeared on the malar bone of the right side. He again came to him early in August with several of these warty growths in different localities. There was one in the angle of the eye, at the inner canthus, which looked exactly like an epithelioma. The patient was sent into St. Michael's Hospital and Dr. Chambers called in consultation. He suggested that it was blastomycosis. A section was made and the fungus was readily found under the microscope. The fungus is of the yeast form. Dr. Primrose excised some of the lesions, while others were scraped and the actual cautery applied. Subsequently he took eighty grains of iodide of potash three times a day, and took this for six weeks. A large number of giant cells were seen under the microscope.

Dr. Chambers showed some photographs and cuts which illustrated the disease, one cut in particular being very similar to this case. The first case studied was under Duhring, of Philadelphia, in 1898. He had been studying this disease when Gilchrist found the fungus. Hyde and Montgomery have probably done more work on this than any other dermatologists. Only one or two cases have been described in Europe.

Dr. Primrose showed two lantern-slides of the case.

The society then adjourned for refreshments.

Original Abstracts.

THE PRESENT STATUS OF THE CARCINOMA QUESTION.

Dr. Nicholas Senn contributes a lengthy article to the *Journal of the American Medical Association* (September 28th, 1901) on "The Present Status of the Carcinoma Question." The subject is taken up at considerable length as regards the nature, cause and treatment of the condition. The author, adopting the law established by Virchow as a result of what he terms his "immortal researches," *omnis cellula e cellula*, defines carcinoma as "an atypical proliferation of epithelial cells from a matrix of embryonic cells of congenital or post-natal origin."

He sets forth a number of propositions, the most striking of which are the following:

"As carcinoma always originates from epithelial cells, primary carcinoma in mesoblastic tissue is impossible from a histogenetic standpoint, unless a matrix of embryonic epithelial cells has become displaced during the development of the embryo, or when embryonic epithelial cells have become buried in mesoblastic tissues, after birth, by injury or disease."

"The stroma of carcinoma consists of pre-existing connective tissue fibres and their descendants."

"Regional metastasis in carcinoma takes place exclusively through the lymphatic channels, and the pre-existing lymphatic structures take no active part in the origin and growth of the secondary tumors."

"The general dissemination of carcinoma usually takes place by direct implication of veins in the primary or secondary tumors. Carcinoma cells reach the venous circulation from an intravenous tumor thrombus, by carcinomatous endophlebitis, or, finally, by perforation of the vein wall by isolated carcinoma cells. Retrograde intravenous extension of carcinoma is due to the transportation against the venous current of minute emboli of carcinoma cells surrounded by a mantle of the third corpuscles of the blood, which move step by step upon the intima. Retrograde extension through the lymphatics may take place in the same manner, but there is very little doubt that it is more frequently the result of carcinomatous endolymphangitis."

He is of the opinion that the increased prevalence of the disease is more apparent than real, and that heredity may be fairly considered as a potent predisposing cause. In this connection, he states that it is not fair to exclude from statistics the existence of cancer in distant relatives, because it is well known

that deformities, mental peculiarities, etc., often skip one or more generations to again appear.

Inflammatory products predispose to carcinoma, it not unfrequently developing in the inflammatory product of tubercular affections of the skin; so also prolonged irritation, the most marked example of which is the production of cancer from Paget's disease of the nipple, and lastly, the benign tumors, the most prone of which to undergo cancerous degeneration are the papillomata and adenomata. These all produce local conditions favorable to the development of carcinoma. The parasitic theory of the origin of cancer is summed up in the statement: "The positive results of implantation and inoculation experiments have so far failed in establishing beyond all doubt, upon a bacteriologic and histologic basis, the parasitic theory of carcinoma."

The painstaking researches of Pianese, of Naples, seem to prove that all carcinoma parasites so far discovered and described are the products of cell alterations. The only real advances in treatment up to the present time have been operative. Internal medication by the use of arsenic, condurango, turpentine and chelidonium, is considered, more especially the use of arsenic internally, as advocated by Washington Atlee. His conclusion is as follows: "The experience of centuries, and the internal use of innumerable remedies, have demonstrated that, so far, carcinoma has not been materially influenced for the better by this method of treatment."

Local applications, notably methyl-blue, must be regarded as at best only palliative in their influence, and parenchymatous injections useless. So far all efforts in the direction of serum treatment, from Adam Kiewiez's cancer serum to Coley's fluid, have proved utter failures, the latter himself not claiming much for his toxin in the treatment of carcinoma. The report made to the New York Surgical Society, in 1896, is endorsed. This report sets forth: "(1) The danger of the treatment is very great. (2) The alleged successes are few and doubtful in character, and the most that can be fairly claimed for the treatment by toxins is that it may offer a slight chance of amelioration. (3) Valuable time is often lost in operable cases by pursuing the treatment. (4) The method should never be resorted to except in absolutely inoperable cases."

Operative treatment has undergone a decided improvement during the last decade. The more radical procedures are the outcome of the researches of Heidenhain, who showed the way to surgeons in following the extension of the disease through the regional lymphatics and glands. He it was who first insisted that recurrence was the result of imperfect removal. Halstead was the first in America to appreciate the importance of Heidenhain's teachings. Halstead has lately been making his operations more

radical, and insists that in 34 per cent. of cases of mammary cancer the disease will be found to have reached the sub-clavicular space. He removes both pectoral muscles, and thinks, in his recent papers, that he will come to remove the contents of the anterior mediastinum. He claims that in 52 per cent. of his operations no recurrence has taken place. The author refers to the suggestion made by Beatson to perform oöphorectomy for cancer of the breast as one of the modern surgical curiosities, and states that this freak of surgery will not find any new advocates. "A radical operation for carcinoma should never be attempted unless the local conditions and general health of the patient are such as to promise an equivalent of the immediate and remote risks to life and comfort involved by the operation," and the permanency of the results cannot be determined in less than ten years after the operation.

He suggests as rational to search for some remedy which would affect the parenchyma of the tumor in one of two ways: (1) By the use of an agent or agencies which would destroy the imperfectly developed epithelial cells; or (2) the employment of some remedy possessing the power of converting embryonic into mature epithelial cells, thus producing a benign tumor. No attempt has been made in the latter direction. An endeavor has been made to bring about the former by ligation of the blood-vessels supplying the tumor, and the application of sclerogenic substances, so far with only indifferent results. W. McK.

THE EARLY DIAGNOSIS OF ACUTE SPECIFIC FEVERS.

In the section on Diseases of Children, at the recent meeting of the British Medical Association, Dr. F. Foord Caiger opened the discussion on "The Early Diagnosis of Acute Specific Fevers." He said that an early diagnosis was more important in these affections than in any other class of diseases, not only on account of the patient's welfare, but also for the safety of the general public. This is especially true of those diseases—measles, diphtheria, mumps, and whooping cough—which are infective at an early stage of their course.

Dr. Caiger first considered a group of diseases which are characterized by a catarrh of the naso-respiratory tract, and more or less fever in their early stages, viz.: measles, rubella, ordinary cold, and whooping cough. The fact that measles and rubella have a rash is an important point of distinction from the other two. The rash of measles usually appears on the third night, but it may appear earlier, particularly in measles following scarlatina. In a series of 78 post-scarlatinal cases, in 27 the rash appeared on the first day, in 24 on the second, in 13 on the third, and in 4 on the

fourth. Even in those cases in which the rash does not appear until the third day, a blotchiness of the face and suffusion of the eyes may often be seen at an earlier period. The spots of Koplik are of great value in the early diagnosis of measles. Dr. Caiger considers that they are very constant in occurrence.

In rubella the subjective symptoms are usually very mild, and the rash may be the first sign to draw attention to the disease. The tender enlargement of the posterior cervical glands is an important symptom of rubella, and may be present several days before the eruptive stage. The catarrhal symptoms and pyrexia are slight. The rash of rubella resembles very closely that of measles, but the lesions of the former are usually smaller and pinker, and the rash is more generally diffused.

An ordinary cold is difficult to distinguish from the pre-eruptive stage of measles. Nasal catarrh and lacrymation may be present in both diseases, but conjunctival injection and photophobia are generally absent in a common cold. Moreover, Koplik's spots and the subcuticular blotching of the face, particularly around the mouth and lips, are early signs of measles.

Whooping cough, at the commencement of an attack, is very difficult to distinguish from an ordinary bronchial cold, and this difficulty is increased when the characteristic whoop is absent. In whooping cough the cough is usually worse at night, and has a paroxysmal and very energetic character. There is frequently puffiness around the eyes, and sub-conjunctival edema.

Dr. Caiger then discussed the differentiation of spasmodic, catarrhal and membranous croup. Spasmodic croup usually occurs in infants, and invariably comes on suddenly, usually at night. It passes off suddenly, and in the intervals the stridor completely disappears. Some reflex cause—worms, gastric disturbance, or dentition—is usually made out, and the child is likely to be rickety. The diagnosis between inflammatory croup and membranous croup is frequently very difficult. A history of exposure to the infection of diphtheria, in one case, or exposure to cold in another, is of value as far as it goes, but it is apt at times to be misleading. A speck of definite exudation on the tonsils, or rhinorrhea, without other signs of catarrh, usually indicates diphtheria. In every case of doubt a sterilized swab should be passed into the upper part of larnyx and the secretion examined for bacilli.

The differentiation of diseases which are attended with a febrile sore throat—namely, diphtheria, tonsillitis and scarlet fever—was next discussed. In the early stages follicular tonsillitis and diphtheria are frequently distinguished with great difficulty, and the diagnosis must depend upon bacteriological examination. The following points, however, are of some value in distinguishing these diseases:

In tonsillitis the exudation consists of small spots, which rarely coalesce to form a continuous pellicle. In diphtheria the exudation, even if it begins as a number of spots, soon coalesces in patches. The exudation of diphtheria is frequently found on the palate, whereas the exudation of follicular tonsillitis is usually limited to the tonsils. Albuminuria is common in diphtheria, but uncommon in tonsillitis. The glands in the neck are more swollen in diphtheria than in tonsillitis. On the other hand, the fever and constitutional symptoms are apt to be more severe in tonsillitis than in a mild case of diphtheria.

In scarlet fever, sore throat is an early symptom. The whole faucial mucous membrane assumes a vivid red, velvety appearance. Vomiting occurs in four-fifths of the cases. At a very early stage of the disease, and before many hours, the rash appears. An erythematous rash occasionally accompanies tonsillitis, but it is never punctiform and rarely persists more than twenty-four hours. A creamy white furred tongue, which rapidly becomes denuded on the third or fourth day and assumes the well-known strawberry appearance, is another important sign of scarlatina.

In concluding his discussion Dr. Caiger referred to the differentiation of scarlet fever, measles and rubella. The distinction between a mild scarlet fever and rubella is apt to be difficult. The rash appears very early in each disease, and there is usually some redness of the faucial structure. The main points of distinction are as follows: The period of incubation of scarlet fever is much shorter. Vomiting is common in scarlet fever, but rare in rubella. Faucial inflammation is more marked in scarlet fever. The rash in scarlet fever is erythematous and punctiform or finally papular. In rubella, at the early stage, the rash is morbilliform, and only at the latter stages becomes diffused. The face in scarlet fever is flushed, and the region around the mouth is pale. In rubella the rash, in the form of red spots, invades the face, and the circumoral region is not exempt. In rubella the posterior cervical glands are usually enlarged, whereas in scarlet fever they are not involved.

G. C.

CHRONIC INVALIDISM IN WOMEN—ITS CAUSES AND CURE.

W. S. Playfair (*The Lancet*, Sept. 21st), brings to mind the sofa or bed-ridden lady, who has been "doctored" nigh on to death. It is only within the last twenty years that "neurasthenia" has become to be applied to these cases of "nervous exhaustion," or more commonly "nervous prostration." This functional derangement is rarely, if ever, met with in hard-working women. It was formerly the despair of the physician, but since Weir Mitchell and others have brought it to be recognized as an important type of disease, nine out of ten cases are restored to proper health, and

therefore Playfair considers it to be one of the greatest clinical discoveries of the past century. The treatment of these cases must be considered from the standpoint of prevention, and then the precise handling of a properly selected case as to prevention; the essential is to secure a strong mind in a strong body. Good physical health must be secured through a proper education and training of the young girl. Long before the actual breakdown arrives there are such signs as headache, emaciation, amenorrhea, and menorrhagia, of sufficient warning to nip the oncoming trouble in the bud. The treatment of the established condition should be carried out physically as well as psychologically. Experience in the physician himself in conducting a patient through the rest cure is one-half the battle. He should possess firmness veneered with gentleness. Massage applied to exercise muscles while the patient rests in bed for weeks must be intelligently and conscientiously carried out. Emphasis is strongly placed on removal from home and sympathizing friends. Start in with milk diet, and gradual addition of other easily digested foods. In ten days there will be marked improvement.

Playfair generally keeps these patients in bed six weeks. Psychologically, he believes, suggestion works wonders here, and if the patient comes with the idea firmly fixed in her mind that a cure is going to follow, all the better for her. Marvellous will be the result. GEO. E.

ON THE USE OF THE ROENTGEN RAYS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

Hugh Walsham (*Philadelphia Medical Journal*, Sept. 7th) has been working on the use of the X-rays in the diagnosis of pulmonary tuberculosis for the past five years. He propounds three questions:

1. Can the Roentgen rays show tubercle in the lungs?
2. If so, at what stage of their development?
3. Can the rays detect tubercle in the lung before the physical diagnosis already at our disposal?

He has made a thorough study of the shadows in a normal lung. The pulmonary image in health is quite transparent. The shadowy lines to the right of the heart are caused by the junction of pericardium and pleura. He excludes the scapular shadow by taking the subject prone, with arms hanging over a couch. Confusion should not arise through a triangular shadow in muscular subjects caused by the anterior axillary folds, only seen when patient is taken prone. The shadow of the heart in pericardium is well seen. The shadow of diaphragm, well seen, is not so important as its movements; it plunges up and down, piston-wise,

and does not become flattened with respiration. The important point in connection with the diaphragm is that its movement on the affected side is much less than on the non-affected or less affected side, even although the disease is confined to one apex. Why this is has not been explained. In a well-developed case of pulmonary tuberculosis the image is obscured by flocculent shadows, punctate in parts. Caseation shows a very dense shadow. The first question is, therefore, definitely answered affirmatively. Cavities can be easily detected. The smallest one Walsham has detected was less in size than a small marble.

As to the second question he says: "We must admit that the very earliest stage in the development of the tuberculous process cannot be detected by the X-rays." But the X-rays are able to pick out in shadow a very small tuberculous focus. The history of the case must decide in telling a tuberculous shadow from a new growth.

The X-rays are not to be depended upon to diagnose tubercle off-hand. As with lupus, which to-day is being treated with conspicuous success by X-rays, the time may not be far distant when the tubercle which comes as a shadow may depart as a shadow through the application of chemical rays. GEO. E.

THE ABSTRACTION OF CALCIUM SALTS FROM THE MOTHER BY THE FETUS A CAUSE OF OSTEOMALACIA IN THE FORMER.

Drennan, St. Thomas (*New York Medical Journal*, Sept. 28th), after reading an article of Branth on "Cleft Palate and its Association with Hair-Lip," thought there might be a new theory for the causation of osteomalacia. Branth had mentioned the experimental fact that lionesses fed on flesh containing bones too large for mastication gave birth to cubs with cleft palates; but in the case of the fetus the mother's tissues would supply the necessary calcium salts. This latter statement set Dr. Drennan thinking, and she propounds the question: "May not this very abstraction of calcium salts from the mother's tissues result in producing osteomalacia in her?" GEO. E.

Williamson (*British Medical Journal*) after a careful study of twenty cases of diabetes, has become convinced of the value of sodium salicylate in mild or medium cases of this disease, although he does not regard it as a specific, nor is it suitable in all cases. The author begins with 10 grains three times daily, increasing to 15 grains four or five times daily. He prefers the natural preparation, made from oil of wintergreen, to the synthetic product.—*American Medicine.*

Physicians' Library.

Saunders' Medical Hand Atlases; Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. By PROF. DR. O. HAAB, Director of the Eye Clinic in Zurich. From the Third Revised and Enlarged German Edition. Edited by GEO. E. DE SCHWEINITZ, Professor of Ophthalmology, Jefferson Medical College, Philadelphia. With 152 colored lithographic illustrations and 85 pages of text. Philadelphia and London: W. B. Saunders & Co. Canadian agents: J. A. Carveth & Co. Price, $3.00 net.

The subject of ophthalmoscopy has become an important factor in medicine, and we are therefore pleased to see an English translation of Professor Haab's excellent work.

The first part of the volume is devoted to the description of the ophthalmoscope and of the measurement of refraction by this instrument. The normal eye ground is then considered, and is illustrated by plates showing the normal fundus as it appears in blondes, brunettes, youth and old age, as well as by a plate showing the ophthalmoscopic appearance of medullated nerve fibres in the retina.

The remaining part of the work is given to illustrations and descriptions of congenital and normal defects of the choroid, retina and optic nerve. Thirty-five plates are devoted to changes in the retina alone. A character which, we think, will prove of great value in understanding the nature of the changes is the reproduction of microscopical sections of the diseased part, along with ophthalmoscopic appearance of the disease.

The plates throughout the work are excellent, and are always accompanied by descriptions of the illustrations.

DOMINION MEDICAL MONTHLY

AND ONTARIO MEDICAL JOURNAL

EDITORS:

GRAHAM CHAMBERS, B.A., M.B. WALTER McKEOWN, B.A., M.D.

ASSOCIATE EDITOR:

GEORGE ELLIOTT, M.D.

Address all communications to the Publishers, THE NESBITT PUBLISHING COMPANY, Limited, 44 Adelaide Street West, Toronto, Canada.

VOL. XVII. TORONTO, OCTOBER, 1901. No. 4.

CANADIAN INFLUENCE ON MEDICAL THOUGHT.

The *Canada Lancet* endorses the suggestion of the *British Medical Journal* that a branch of the British Medical Association should be started in Toronto, which might absorb the too numerous small societies at present existing here, and form one large influential and representative medical society for the city. The necessity of some such action is apparent, but whether the end sought can be best obtained by the formation of a branch of the British Medical Association is an open question.

We must regret that as far as medical research is concerned almost no original work has been done by Canadians in their own country. Not only this, but few ideas have been put forward by any of the great body of medical men of the Dominion, and it is safe to say that we have had little effect in moulding the general medical thought of the age. Our men are admittedly capable and well trained; it is doubtful if in any other country in the world is the average of medical education higher than in Canada. The preliminary education is thorough, and some, at least, of the medical colleges will compare favorably, as regards equipment, with those of any other state. In spite of this we are forced to admit that as a nation we are not fulfilling the duty which rests upon us of doing our share of the work which is being accomplished

in the advancement of human knowledge concerning the prevention, recognition and treatment of disease. We are rather inclined to lie back in the race and let others do the striving.

The stimulus is lacking—the opportunities for expressing our views are limited. Our medical societies, with the exception of the Canadian and Ontario Medical Associations—and even these are not largely attended—are small, and consequently offer little inspiration to men to do their best. There is no greater incentive to the preparation of a good paper than the knowledge that it will be listened to by a large audience and fully discussed. Talking to a few men scattered among a great number of vacant seats, followed by a lame discussion, is, to say the least, discouraging.

Canadians again seem to have a distinct lack of confidence in themselves. Instead of looking to our own men for advice and guidance, we are always looking to England. Qualifications which simply give a license to practise in Great Britain are quoted by Canadians who have been the recipients of them with evident pride. The inference certainly is that the license to practise in England implies a higher degree of education than in Canada. This is not so. The Ontario Medical Council examination is of as high, if not of higher, standard than the M.R.C.S. and L.R.C.P., and the sooner we recognize it the better for the professional standing of all here. We will have to build up a higher opinion of ourselves. The English practitioner can never be brought closely in contact with us, on account of the distance which separates the two countries. It is just possible that if instead of forming, as has been suggested, a local branch of the British Medical Association, a branch of the Canadian Medical Association were formed here and in other centres, it would be better all round. We should intermingle more with our American confrères, who are closer to us geographically, and perhaps closer also in medical thought, than our British brethren. Distant fields look green. Close contact with the leaders of the profession in the United States might develop in the minds of some of our men that they were quite capable of measuring swords, intellectually, with them. Perhaps we might acquire a little of their self-assertiveness, and perhaps it would do us good. It might teach us that we should aim for something more than to bask in the reflected light of British medical achievement, great and brilliant though it has been.

The subject is of sufficient importance to bear considerable discussion. An academy of medicine has been spoken of for years, but nothing has ever come of it. Even were it established, as proposed, in Toronto, its influence would be largely local. We want something which will bring the profession of Canada more closely in touch—a difficult matter, on account of the great distances separating our principal medical centres.

PROFESSOR GOLDWIN SMITH'S GIFT.

Professor Goldwin Smith, by his generous gift of ten thousand dollars to the trustees of the University of Toronto, to be expended upon the library, has given a backset to the argument that a state-controlled institution cannot hope to profit by private munificence. The University has been honored by this mark of appreciation by a man of such high standing in the intellectual world as Professor Smith, but it is only in accordance with the general character of his acts since he has come among us. Professor Smith has given many previous proofs of his interest in the social and educational welfare of the people of his adopted country, and it is just possible that his efforts have not always been sufficiently appreciated.

The University is urgently in need of funds. It is to be hoped that the example set by one whom we may undoubtedly consider the most distinguished citizen of this country, will be followed by others. We predict that the gift will produce results far greater than anticipated by the donor, and that the good effect will not be confined to improved library facilities.

QUERY DEPARTMENT.

We have determined to open a "Query Department," and will try to the best of our ability to answer as fully as possible any requests for information from our readers which may be sent the editors, in regard to diagnosis, treatment, or other matter bearing upon the practice of medicine or surgery. We will make this department not only a source of strength to this JOURNAL, but also, we hope, one which will prove of value to our subscribers.

News Items

TORONTO has been declared free from smallpox.

A FUND is being raised by the nurses of the General Hospital, Kingston, Ont., for a home.

DR. C. B. SHUTTLEWORTH has gone to England for a two years' post-graduate course.

ON account of the epidemic of smallpox at Ottawa a general vaccination has been ordered.

TORONTO'S vital statistics for September were as follows: 339 births; 229 marriages; 252 deaths.

SMALLPOX is prevalent at Woodstock, Ottawa, Manitoulin Island, and Copper Cliff, near Sudbury.

DRS. UREN and Lusk have been appointed on the Anatomy Department of Trinity Medical College.

THE vital statistics for London during September were as follows: deaths, 57; births, 60; marriages, 66.

DRS. MONTIZAMBERT and Bryce attended the recent meeting of the American Health Association at Buffalo.

DR. ROSWELL PARK is expected to address the Hamilton Medical Society at the next meeting of that body.

THE Hamilton Medical Society has passed a resolution urging that an isolation hospital be established in that city.

THE death of a centenarian recently occurred in the County of Wentworth. He had attained 103 years and seven months.

STRATFORD has a new septic tank, and if successful will serve as a model from which to copy for other cities in the Province.

QUEEN'S MEDICAL DEPARTMENT opened on Oct. 2nd. Extensive additions have been made during the recess at a cost of over $10,000.

MONTREAL is again threatened with an epidemic of smallpox, and the Provincial Board of Health has issued a general call for vaccination.

THE Ontario Board of Health are considering the advisability of appointing a permanent inspector in the unorganized districts in New Ontario.

LADY MINTO recently opened the Victoria Cottage Hospital at Regina. The Lady Minto Cottage Hospital Fund contributed $1,500 toward its erection.

CATTLE for exhibition purposes for the Chicago International Live Stock Exposition will be allowed into the United States without the tuberculin test.

DR. BRYCE, of the Provincial Health Department, has sent out a special medical officer to investigate several supposed cases of smallpox in Western Ontario.

MONTREAL GENERAL HOSPITAL had 234 admissions during September. There were 226 discharges for the same period; deaths, 14. There were 126 ambulance calls.

A DOWIEITE in British Columbia has been convicted of manslaughter for failing to provide proper medical attention for two of his children, who died from diphtheria.

DR. A. E. ROSS, Montreal, has received a commission in the army medical service corps. For the time being he will be unattached. He served two years in South Africa.

THE Medical Department of the Western University, at London, opened for work on the 1st of October. The "freshies" put up a supper for the entire college on the evening of the first day.

THE Inland Revenue Department has recently examined sixty-four samples of effervescent sodium phosphate, with the result that only thirteen samples, or 20 per cent., were found to be genuine.

AT the recent Senate elections of Toronto University the following members of the Medical Faculty were elected by accla-

mation: Dr. W. H. B. Aikens, Mr. I. H. Cameron, Dr. Adam H. Wright and Dr. James M. McCallum.

DR. LEWIS H. MARKS, Trinity, '96, has resigned from the position of assistant surgeon in the National Soldiers' Home of Indiana after a service of four years and a half, and has commenced practice in Poughkeepsie, N.Y.

THERE is some talk in Toronto of having physicians appointed to inspect the Public Schools daily, same as is now being carried out in New York, Boston and Chicago. This has already been endorsed by the Provincial Board of Health.

THE Medical Department of Toronto University opened on the 1st of October. Dr. J. F. W. Ross delivered the opening lecture, taking for his subject "The Indian Medicine Man and His work." A very large class of freshmen was registered.

DR. E. B. WHITE, of London, Ont., who was on a tour to the principal hospitals of the United States, and who intended following this up with a course in the Old Country, is announced to be seriously ill with typhoid at Denver, Colorado.

ASYLUM CHANGES.—Dr. Harvey Clare, assistant physician at the Asylum for Idiots, Orillia, has been promoted to the position of assistant physician at the Asylum for the Insane, Brockville, Dr. Wilson of that institution going to the London Asylum.

DR. DONALD ARMOUR was recently married at Cobourg. He has resigned from the Anatomy Department of Rush Medical College and will take up his residence in London, England, where he has received a similar appointment on the University of London.

TRINITY MEDICAL COLLEGE opened on the afternoon of the 25th of September, the opening lecture being delivered by Dr. Charles Sheard. Trinity has a promising first-year class, the Dean stating that it is the largest class registered on the first day in twenty years.

THE following have recently been elected to office in the Quebec College of Physicians and Surgeons: President, Dr. Lachapelle,

Montreal; Vice-presidents, Dr. Valiee, Quebec, and Dr. Craik, Montreal; Registrar, Dr. Marsolais, Montreal; Treasurer, Dr. Jobin, Quebec; Secretaries, Dr. McDonald, Montreal, and Dr. Paquin, Quebec.

THE Reverend Principal Grant, while lying on a bed of sickness, recently sent a message to the medical students at their opening lecture, at Queen's. He pledges himself that hereafter, for the sake of the profession of medicine and for the sake of the community, that irreverent and half-taught students would not be allowed to pass the examinations at Queen's.

THE following medical corps took part in the Royal Review in Toronto on the 11th of October: Major Nattress was principal medical officer; Cavalry Division—No. 2 Bearer Company, A.M.C.; No. 2 Field Hospital, A.M.C. Artillery Division—No. 4 Bearer Company, A.M.C.; No. 5, Field Hospital, A.M.C. P.M.O. to infantry divisions, Major C. W. Belton, A.M.S. No. 1 Infantry Division—No. 6 Bearer Company, A.M.C.; No. 6 Field Hospital. No. 2 Infantry Division—No. 7 Bearer Company, A.M.C.; No. 6 Field Hospital.

Obituaries

HUGH URQUHART BAIN, M.D., PRINCE ALBERT, N.W.T.

Dr. Bain died on the 2nd of October, at the age of forty-nine. He was a son of the late Rev. William Bain, D.D., Perth, Ontario, and was a practitioner widely known throughout Western Canada.

CHARLES DE MARTIGNEY, M.D., MONTREAL.

The death of Dr. Charles de Martigney occurred last week (October 6th), and his death removes one of Montreal's oldest and most prominent citizens. Since 1897 the deceased has led a retired life. He was born in 1826, at Varennes, was educated in Montreal and practised his profession for over thirty years.

TRUMAN W. DUNCOMBE, M.D., ST. THOMAS, ONT.

Dr. Duncombe died suddenly in his own office on the evening of the 2nd of October. He had been complaining of feeling unwell for the two weeks prior to his death, but was not supposed to be seriously ill. He had resided in St. Thomas for over eighteen years, having come to that city from Waterford, Ontario. He was prominent in Liberal politics and was well-known throughout the western district of Ontario. He had reached the age of forty-two years.

Abstracts

THE JUVENILE FORM OF GENERAL PARALYSIS.

Most authors define the juvenile form as general paralysis of the insane occurring in subjects under twenty years of age. J. A. Hirschl (*Wien. klin. Woch.*) says that it would be more correct to classify this condition according to the form of syphilis which produced it—that is, juvenile paralysis is the disease caused by hereditary syphilis, and adult general paralysis of the insane by acquired syphilis. But there are a few cases of each class in which no history of syphilitic disease can be obtained. In his clinic in Vienna, during the past ten years, twenty cases of juvenile general paralysis have been under observation. Of these eight have already been dealt with in previous reports, and Hirschl details the history of four others, and at the same time gives a general summary of the total number of cases. In seventeen a definite history of hereditary syphilis was presented, in one case it could be considered highly probable, and in the remaining two cases there was nothing to justify the assumption of such a taint. The first of these two, however, showed a family history in which the mother appears to have died from some ill-defined form of paralysis; while, in the second case, the parents of the patient had disappeared, and no family history could be obtained. As far as neuropathic taints were concerned, in two cases there was apoplexy in the patient and "potus" in the father. In four cases some relative suffered or had suffered from general paralysis of the insane. In nine cases (45 per cent.) the patients were more or less marked imbecile individuals. The illnesses began between the ages of eight and twenty years, in ten cases it began between fourteen and sixteen years. In most cases puberty had not been entered. Of the twelve males, nine had undeveloped genital organs, and three normally developed organs; while of the eight females, five did not menstruate at all, one menstruated at first, but during the course of the illness the periods ceased, one menstruated regularly, and of the last no note appears to have been made. The course of the illness, the physical and mental symptoms, and the post-mortem appearances were singularly typical in most of the cases. As an example, one of the four cases recorded by Hirschl presented the following history: Male, aged 16; father died of cerebral hemorrhage; mother has pupils which do not react to light; has had eleven pregnancies, the first, second, ninth, tenth, and eleventh living, healthy children; third and fourth abortion, in fourth and sixth month respectively; fifth, the patient; sixth, seventh, and eighth full-time babies, that died after four, six, and three weeks respectively. Patient was treated at the age of four weeks for a rash, and the diagnosis

entered in the hospital books was "congenital syphilis." At the age of six he entered school, but did not progress as other children do. At the age of thirteen the mother noted that the child was weak-minded. Since the early part of fourteenth year he has been noted to have "playing" movements with his fingers. These movements are like those of cigarette rolling. He also makes grimaces, but is very quiet and apathetic. The right pupil measured (on admission at the age of fourteen) 6 mm., and the left 4.5 mm. They neither react to light, nor does the left pupil react to accommodation. Weakness of muscles supplied by N. facialis. Fibrillary tremors around the lips; coarser movements of the tongue. Speech slow, somewhat "scanning," tremulous phonation, dragging" and "stumbling" of syllables. Deep reflexes exaggerated. Paralytic disturbances of writing and reading. Patient occasionally exhibited an idiotic smile, but otherwise showed no changes of mood. Intelligence markedly deteriorated. Has forgotten what he had learned, but still appeared to grasp the simple "one times one." All his doings are slow. In the course of the two years the dementia has progressed, and the bodily condition has deteriorated. The paralytic symptoms have not developed in general, but the rhythmical movements are more marked. His intelligence has disappeared; he does not recognize any of the people around him, although he knows that food brought to him is meant to be eaten. He has no power of mimicry, or of symbolising, and he does not even show, by movements or otherwise, when he is hungry. In summing up the points of difference between juvenile paralysis and the adult disease, Hirschl states that: (1) Congenital syphilis is the cause of juvenile paralysis; (2) this disease begins in early life; (3) the patients in this form are mostly mentally weak; (4) the prodromal period is characterized by manifold symptoms; (5) the greatest mental disturbance is dementia, and paralytic mania or paralytic hypochondriasis are rarely seen; further, there are no remissions, but symptoms of irritation and "attacks" are common; (6) the disease has a relatively long course (average in the twenty cases three years and nine months); and (7) a diffuse cerebral sclerosis with severe leptomeningitis is found post-mortem.—*British Medical Journal.*

TUBERCULOSIS, BOVINE AND HUMAN.

F. Hueppe (*Lancet*) vigorously combats the views advanced at the recent London congress by Robert Koch. Because the bacillus of man has no hold on the ox, Koch assumes the tubercle bacillus of man and of the ox are of different species. This is, says Hueppe, a bold statement, and he himself utterly repudiates any such con-

clusion. The histological differences between miliary tubercles in the human subject and the tubercles of Perlsucht in the ox, which differences, however, the majority of pathological anatomists do not deem of such importance as Virchow does, indicate a dissimilarity in the inherent quality of the tissue, but whether this inherent quality will attain its remote or ultimate developments by easy processes or by difficult ones, by the operation of pathogenic agencies of like kind or of unlike kind—on these points the histological appearances supply no data for the formation of an opinion. Only bacteriological experiment can throw light upon the question of communicability and can explain whether in the course of inoculated disease or natural infection a biological or morphological modification and adaptation of a parasite of like kind takes place, or whether only parasites of unlike kind have to be reckoned with. The differences which Virchow discovered long ago and the distinctions which Koch has now found to exist are concerned with quite different things—the one with the inherent quality of the structure and the other with the remote or ultimate developments dependent thereon—and the facts ascertained with regard to one of those do not necessarily serve for the elucidation of the other. The cattle bacillus certainly affects the human subject. We are in fear that it will be communicated to us by the milk of tuberculous animals. The channel of contagion is not the gastro-enteric tract so often as is supposed, but is very frequently the tonsils. It therefore appears possible that when fluids containing pathogenic organisms are drunk these organisms make their way into the system from the upper passages—the tonsils—and then the primary focus of the disease is in the region of the air passages; it is under these circumstances a mistake to suppose that there is an infection of the lung through the respiration. For this reason Hueppe has a suspicion that many forms of tuberculosis are at present erroneously ascribed to respiration, whereas they ought to be attributed to infection from food, especially milk. Hueppe is not disposed to relax any of the precautions of modern years in reference to the use of milk and meat. He says that when cattle are allowed to graze at liberty, uncooked milk may be taken with impunity. But in low countries and towns where cattle are herded together in damp cow-houses and infection spreads from animal to animal, Koch's assertion that there is no cause for uneasiness would be an invitation to carelessness which would undo all that has been accomplished. We ought to carry on the struggle against bovine tuberculosis unremittingly, both on account of the economic danger and also because bovine tuberculosis forms an immediate danger to mankind. The question is not whether this danger is great or small, whether it has been overestimated formerly or is underestimated by Koch now; but what has to be considered is that this danger comes upon us in a form which requires the most energetic

measures of public hygiene, because the inhabitants of towns, especially the workers in manufacturing towns, are quite unable, individually, to protect themselves sufficiently against it.—*Medical Record.*

PROGNOSIS AND TREATMENT IN PULMONARY TUBERCULOSIS.

Robert Maguire (*The Lancet*). In his second lecture Maguire continues the subject of the prognosis of tuberculosis. Pyrexia, he thinks, is not so significant; it may be absent, and he does not consider that tubercular poisoning itself often produces pyrexia, but rather that it is due to staphylococcal and pneumococcal poisoning; an increased morning temperature, and the nearer the approach to evening temperature the worse the outlook for the patient. General weakening at the commencement of the attack greatly increases the gravity of the case. This is specially so if there is a cardiac or vasomotor weakness. Hemoptysis causes altogether too much alarm, especially in the early stages; it occurs from so many other causes that he says: "I think one may say that hemoptysis alone is most frequently not caused by lung disease." Repeated small hemoptyses are often a relief to an over-congested pulmonary area, and a single large hemoptysis without fever is apparently of little importance; but if fever is present it should excite all attention. In the second stage, that of progress, a point that we should look out for is the presence of large bubbling rales, indicating formation of cavities, which may or may not be detected during life, indicating progress of the germ and extension of its action. Pyrexia alone is not a specially important symptom in these cases. Extension of the tubercular lesions of the lungs may take place in five ways, each of which is discussed: (1) By simple contiguity; (2) by lymphatic absorption; (3) by bronchial insufflation, a matter of greatest importance; (4) by venous conduction; (5) by arterial conduction. The lymphatic absorption undoubtedly plays a great part in the extension of contiguity, and it may be carried to remote parts of the body in this way. Bronchial insufflation is much more important, and the extension from the apex to the lower lobes is largely in this way. Venous and arterial conductions are, of course, important and more serious than some of the other methods. Tuberculosis of the larynx is never, he holds, an early condition; it is always produced by infection of the larynx through the excretion of the lungs. The same is true of infection of the bowels through swallowing of sputum; both, of course, are of the gravest prognosis. As regards symptoms, there are only two which greatly help in the prognosis in the second stage. They are pyrexia and hemoptysis. The former is always present; the higher the fever and more nearly the morning temperature approaches that of the evening the

worse the prognosis; but still worse is the so-called hectic fever, where the subnormal morning temperature is followed by an evening rise of perhaps even eight degrees. Maguire's experience shows that no drug has any effect on this symptom. Hemoptysis is much more serious in the second stage than in the first, inasmuch as it is more usually caused by ulceration of the blood-vessels. Its dangers are: (1) loss of blood; (2) shock; (3) fright. He has seen cases where this last caused the death. In the third stage we have signs of activity and consolidation, or loss of lung tissue, dyspnea, and hemoptysis, which last is a very serious matter. If copious, it is most frequently caused by rupture of an aneurism of the pulmonary artery in a cavity, and he warns against reckless percussion in this stage on account of the possible presence of these aneurisms. —*Journal American Medical Association.*

DIFFERENTIATION OF TUBERCULOUS AND NON-TUBERCULOUS PLEURISIES.

Dieulafoy (*Gaz. degli. Osped.*) concludes that idiopathic pleurisy *à frigore* is really of a tuberculous nature, sometimes primary, sometimes secondary, to pulmonary lesions. The most certain diagnostic method is the microscopic examination of the centrifugalized deposit from the effusion. In cardiac and renal cases there is nothing but scales of endothelium formed of a few cells and also a few red corpuscles—that is, the contents of an edematous exudation. In pleurisies due to the pneumococcus, streptococcus, etc., the chief elements are multinuclear leucocytes, the red corpuscles are more numerous. Finally, in tuberculous cases there are lymphocytes and numerous red corpuscles. Dieulafoy looks on the lymphocytes not as having migrated from the vessels, but as the locally-formed product of the tuberculous process. The frequent cure of acute idiopathic pleurisy does not disprove its tuberculous nature: it is the most curable of the tuberculoses of the serous membranes. A patient cured of an acute pleurisy *à frigore* must be considered tuberculous, and must undergo for a time suitable hygienic and therapeutic treatment.—*British Medical Journal.*

DYSMENORRHEA.

G. T. Harrison (*Jour. Amer. Med. Assoc.*), after reviewing the nerve supply of uterus, takes up the various theories as to the causes of painful menstruation. A form of dysmenorrhea of interest to the general practitioner is the pain accompanying menstruation in young girls soon after the establishment of the function. This is

due to the backward development of the uterus, especially to the small calibre of the blood-vessels. Tonics, exercise, laxatives, and the administration of a teaspoonful of the fluid extract of hydrastis, three times daily, during the intervals, will usually remedy the trouble in time. Phenalgin or antipyrin will usually relieve the pain at the period, but the latter is very depressing to the heart. Opium should never be used, except in extreme cases. Apiol given twice a day for some days previous to the menstruation is of value. Where these methods prove useless, gradual dilatation with steel sounds or the use of electricity may be tried. Where there is chronic endometritis or a myoma in the uterine wall the cervix may be dilated with Pryor's dilator, curetted with a sharp curette, and packed with iodoform gauze. The same treatment works well in the membranous form of dysmenorrhea. Fritsch recommends the prolonged use of the uterine irrigations of lysol 1-1000th, after thorough dilatation. Fliess, of Berlin, calls attention to what he terms nasal dysmenorrhea. He finds that certain points, particularly the inferior turbinate bones, which undergo certain changes during menstruation, sometimes induce dysmenorrhea as a reflex phenomenon. The application of cocaine to this part of the nasal mucous membrane alleviates the dysmenorrhea, while cauterization will effect a permanent cure. The relation between the nose and the genital organs deserves further investigation.—*The Amer. Gyn. and Obst. Jour.*

RELATION BETWEEN THE BILE AND THE PRODUCTION OF HIPPURIC ACID.

S. Rosenberg (*Centralblatt fuer innere Medicin*) investigated the validity of the conclusions recently reached by Zimmermann. The latter decided that when bile was absent from the intestine that benzoic acid no longer produced hippuric acid in the organism through synthesis with glycocol, and that the latter substance is produced from glycocholic acid after its absorption from the intestine. As was to be expected, Rosenberg offers strong proof that these conclusions were at least too far-reaching and probably essentially incorrect. He made a gall-bladder fistula in a dog and allowed the bile to discharge through this, preventing the dog from lapping any of the discharged bile. Probably no bile reached the intestine, and at any rate dog's bile contains but traces of glycocholic acid, if any at all. Yet the urine of the dog contained hippuric acid in considerable quantity after the administration of benzoic acid, while more was found when benzoic acid was withheld. There was not the faintest evidence of absorption of bile into the circulation, so Rosenberg decided that Zimmermann's conclusions were incorrect; and since then he has found that Kuehne and Hallwachs had performed the same experi-

ments with the same results nearly fifty years ago, and that Bunge and Schmiedeberg showed that the injection of benzoic acid is followed by hippuric acid synthesis in frogs, even after extirpation of the liver. He believes that the bile cannot be the only source of glycocol.—*Pacific Med. Jour.*

AFFECTION OF THE INGUINAL GLANDS IN VISCERAL CANCERS.

M. C. Vrannay (*Quarterly Medical Journal*) says that it has been known for some time that the supraclavicular gland on the left side was often enlarged in cases of visceral cancers, but it is not so well known that the inguinal glands are enlarged in some cases of the same kind, even before any other signs of the primary disease are manifest. The inguinal glands may be enlarged in cancers of the intrapelvic organs (anus, urethra, vagina, prostate, bladder, rectum, uterus, either body or neck, and ovary); in cancers of the abdominal organs (cancer of the peritoneum is often accompanied by enlargement of the inguinal glands, and this is often secondary to cancer of the small or large intestine), and in cancer of the vermiform appendix; but of all the cancers of the digestive tube cancer of the stomach is most frequently propagated to the glands of the groin. It has been noted also in cancer of the pancreas and kidney, and not, so far as the author knows, in cancer of the spleen and suprarenals. The same disease in the esophagus and lungs may give rise to it. Among the influences which tend to propagation of the cancer to the inguinal glands is proximity of the original tumor to the groin. Two forms of invasion may be distinguished: (1) Late in the disease, when general invasion has taken place, and (2) early in the disease when enlargement of these glands appears before any other symptom; in this latter case they are probably not affected before any other glands, but owing to their superficial seat they sooner attract attention and may be a most valuable symptom. The glands may become affected by a direct lymph stream or by a retrograde lymph stream.—*Medical Age.*

A BACILLUS ISOLATED FROM THE BLOOD OF SYPHILITICS.

De Lille and Julien (*Académie de Med*, Paris) report the successful isolation of a characteristic bacillus from the blood of syphilitics. The blood in each case was taken from a vein of the arm; in this blood are to be seen the spherical refractile bodies which have been described by other writers, but the nature of which has not been elucidated. The authors believe that the negative results of culture

experiments hitherto have been due to the presence in the coagulated blood of a bactericidal alexin. They have used for culture blood plasma separated from the serum, and also fluid from blisters, which they state is alexin-free. From these on the ordinary media they almost always obtained a culture; in cases primarily negative they were successful by using the method of culture in a collodion sac. The bacillus is poly-morphic, either short or thread-like. The appearances on culture media are described. The bacillus is pathogenic to guinea-pigs, and produces locally an indurated ulcer with swelling of the nearest lymph glands; the organism was in no case found in the cadaver. The blood of syphilitic patients added to a three days' old culture of the bacillus causes agglutination of the latter; normal serum produces no such effect. Inoculation of the bacillus on animals already infected with syphilis was without effect. From a rabbit inoculated from a culture a large quantity of blood was obtained on the third day; on separating this into plasma and serum, cultures were obtained from the plasma and not from the serum, an observation which supports the theory of an alexin in the serum. This alexin, the authors state, is "fixed" by the isolated bacillus when the latter is injected into animals already infected with syphilitic products.—*British Medical Journal.*

RUPTURE OF UTERUS: SUBSEQUENT LABOR.

Kosminski (*Monats. f. Geburts. u. Gyn.*) reported before the Lemberg Gynecological Society recently a case where a woman, with contracted pelvis, suffered from rupture of the uterus at the fourth labor. Abdominal section was performed and the rupture closed by suture. In her next pregnancy she came under Kosminski when in the eighth month. It was decided to perform Cæsarean section at term, but pains soon set in, and he had to turn and deliver. This maneuvre proved very difficult. The child was asphyxiated, and could not be revived.—*British Medical Journal.*

THE ETIOLOGY OF ERYSIPELAS AND ITS RELATION TO THE PYOGENIC INFECTIONS.

Jordan (*Münchener medicinische Wochenschrift*) says that the distinction of true and false erysipelas is a doctrine no longer tenable, for many clinical varieties of the disease occur and etiologically there is no difference between them. It is rather a question of varying degrees of intensity of the same disease, depending on the inconstant virulence of the cocci and the resistance of the tissues. The specific nature formerly ascribed to the

disease can no longer be upheld, and in origin, nature, course, and complications it bears a close analogy to acute osteomyelitis. Several cases are cited and references given which show that although it is usually a streptococcus infection, staphylococci may also produce the typical picture of the disease, and experiments are described showing that in the rabbit's ear it is possible to produce typical erysipelas not only with streptococci, but also with staphylococci, pneumococci, and bacteria coli. Human erysipelas is usually caused by the streptococcus pyogenes, but may also be due to the staphylococcus pyogenes, but may also be due to the staphylococcus aureus, and it is still an open question whether pneumococci, bacteria coli, and typhoid bacilli may not also produce it.—*Medical Record.*

NOTE CONCERNING A SIGN OFTEN ASSOCIATED WITH EARLY PHTHISIS.

W. Overend (*Lancet*) says that in cases which follow the ordinary sequence of initial deposition and consolidation within the upper lobes, accompanied by dulness in the supraclavicular and supraspinal areas, a number of venus varicosities, one-third to two-thirds of an inch in length, may often be observed beneath the skin in the neighborhood of the spines of the seventh cervical and three upper dorsal vertebræ. They appear early and may become very conspicuous. At times they become apparent only after stretching of the skin laterally. Local pain is occasionally felt, also slight edema may be found over these vertebral spines. This is considered due to the peculiar venous ramifications of this area. The sign appears to the author to be useful, and he has not come across it in any of the text-books and special treatises. The attention of the practitioner is at once arrested by it, and the condition of the posterior apices of the upper and lower lobes is then determined. The presence of ausculatory signs within this dorsal area, combined with wasting and myoidema, he believes, renders the diagnosis of early phthisis, even in the absence of sputum and bacilli, practically conclusive.—*Medical Record.*

TREATMENT OF CONVULSIVE TICS BY THE RE-EDUCATION OF THE MOTOR CENTRES.

Dubois (*Bulletin Général de Thérapeutique*) reports nine cases of convulsive tics which he treated by methodic exercises tending to a re-education of the neurons associated with the production of these convulsive movements. The author orders the patient to rest immobile in a position of repose for a certain length of time, usually

a few minutes at first, the period gradually extended as the patient gains control of himself. This command is made by verbal suggestion, without hypnosis, in order to sufficiently impress the idea of rest, so that this may be realized unconsciously by the impressions made on the centres producing the various convulsions. This treatment acted well in the cases reported; in one patient there has been no return of the affection for three years; another has had no return of his symptoms for two years, while others are in various stages of improvement. In order to obtain the best results the patient must be a willing co-operator, the physician must be authoritative, patient, and have confidence in the method. The treatment takes considerable time, but in the author's opinion this will be rewarded by certain improvement, and often by definite cure.—*American Medicine.*

SODIUM BROMIDE IN THE VOMITING OF PREGNANCY.

Trible (*Merck's Archives*) recommends sodium bromide in the vomiting of pregnancy due to reflex nervous irritation. He cites the case of a woman, six months pregnant, who was unable for nearly a week to retain any food. Various drugs had been tried, with no apparent benefit. The position of the uterus and the condition of the os were normal. Rectal injections of 40 grains of sodium bromide, dissolved in a sufficient quantity of water, were given every three hours until vomiting ceased. The following morning the patient ate and retained a good breakfast of milk and eggs. By the continued use of the bromide in smaller dose, the vomiting was avoided and finally ceased altogether. Several similar cases of vomiting of pregnancy occurring in the author's practice have all yielded rapidly to this treatment.—*American Medicine.*

Special Selections

THE CHEMICAL SIDE OF NERVOUS ACTIVITY.*

By W. D. Halliburton, M.D., F.R.S., F.R.C.P., London.
Professor of Physiology, King's College.

Lecture III.

The lecturer stated in his two concluding lectures he proposed to deal with the more strictly pathological side of the subject. Chemical pathology is a comparatively new branch of science, and has a great future before it. He stated that the credit of opening up a new area of research, namely, the application of chemical methods to the investigation of nervous diseases, should be largely given to his colleague, Dr. Mott. The three researches with which he proposed to deal were:

1. The Chemical Pathology of Hyperpyrexia.
2. The Chemical Pathology of General Paralysis of the Insane.
3. The Chemistry of Wallerian Degeneration.

The Chemical Pathology of Hyperpyrexia.

The experiments on this subject were described in detail, but they may be summed up by saying that they fully confirm the hypothesis that the physico-chemical cause of death from hyperpyrexia is heat coagulation of cell globulin. When this constituent of cell protoplasm is coagulated, the vitality of protoplasm is destroyed, just as muscle loses its irritability when the corresponding proteid in that tissue is coagulated. The temperature at which such coagulation is most readily produced is 47° C. Such a temperature in animals is almost instantaneously fatal; but 47° C. (117° F.) is unknown in man. Nevertheless, proteids will coagulate at temperatures below their normal coagulating point, provided the heating is continued long enough. In the case of cell globulin, coagulation can be produced by a temperature as low as 42° C. (108° F.) This chemical change in the brain substance can be demonstrated by experiments with saline extracts of that tissue, or with the "surviving" brain of animals just killed. They are coincident with the histological (chromatolytic) changes in the nerve cells, which can be rendered evident by the use of the methylene-blue process. The expression "coagulation necrosis" employed by Marinesco for this appearance is therefore justifiable. Marinesco and others who have employed exclusively histological methods of

*Abstract of the third and fourth Croonian Lectures, 1901.

research have naturally failed to grasp the chemical meaning of their observations, and have consequently missed the connection of the temperature necessary to produce these changes with that of the coagulation temperature of cell globulin. Although the nerve cells are those which lend themselves most readily to the histological part of the research, it is by no means improbable (looking at the wide distribution of cell globulin) that many other cells of the body are affected by high temperatures in a corresponding manner; some varieties of what is called "cloudy swelling" are, without doubt, instances of coagulation necrosis.

CHEMICAL PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.

The lecturer stated that his work (in connection with Dr. Mott) on this subject had been previously published, he therefore would only describe it in general terms. He did so in order to lead up to the consideration of the third pathological subject he proposed to deal with, and which he reserved for his final lecture.

The cerebro-spinal fluid removed from cases of general paralysis of the insane is much increased in quantity, and takes the place of the atrophied brain material. It produces when injected into the circulation of anesthetized animals (dogs, cats, rabbits), a fall of arterial blood pressure, with little or no effect on respiration. This pathological fluid is richer in proteid matter than the normal fluid, and among the proteids nucleo-proteid is present. The fall of blood pressure is, however, due not to proteid nor to inorganic constituents, but to an organic substance, which is soluble in alcohol. This substance is precipitable by phospho-tungstic acid, and by chemical methods was identified as choline. The crystals of the platinum double salt, which, when crystallized from 15 per cent. alcohol, are characteristic octahedra, form the most convenient test for the separation and identification of this base.

The nucleo-proteid and choline doubtless originate from the disintegration of the brain tissue, and their presence indicates that possibly some of the symptoms of general paralysis may be due to auto-intoxication; these substances pass into the blood, for the cerebro-spinal fluid acts as the lymph of the central nervous system. Choline can be detected in the blood removed by venesection from those patients during the convulsive seizures which form a prominent symptom in the disease.

Normal cerebro-spinal fluid does not contain nucleo-proteid, and the amount of choline is so small that it cannot be readily identified. Normal cerebro-spinal fluid produces no effect on arterial pressure, neither does the alcoholic extract of normal blood or of ordinary dropsical effusions.

The presence of choline in the pathological cerebro-spinal fluid

and blood will not explain all the symptoms of general paralysis ; for instance, it will not account for the fits just referred to. Its presence, however, is an indication that an acute disintegration of the cerebral tissues has occurred. If other poisonous substances are also present they have still to be discovered.

The proof that the toxic material is choline rests not only on chemical tests, but also on the evidence afforded by physiological experiments ; the action of the cerebro-spinal substance exactly resembles that of choline. Neurine, an alkaloid closely related to choline, is not present in the fluid ; its toxic action is much more powerful, and its effects differ considerably from those of choline.

Physiological Action of Choline.—The doses employed were from 1 to 10 c.cm. of a 0.2 per cent. solution, either of choline or of its hydrochloride. These were injected intravenously in anesthetized animals. The fall of blood pressure is in some measure due to its action on the heart, but is mainly produced by dilatation of the peripheral vessels, especially in the intestinal area. This was demonstrated by the use of an intestinal oncometer. The limbs and kidneys are somewhat lessened in volume ; this appears to be a passive effect, secondary to the fall in general blood pressure. The drug causes a marked contraction of the spleen, followed by an exaggeration of the normal curves, due to the alternate systole and diastole of that organ.

The action on the splanchnic vessels is due to the direct action of the base on the neuro-muscular mechanism of the blood vessels themselves ; for after the influence of the central nervous system has been removed by section of the spinal cord or of the splanchnic nerves, choline still causes the typical fall of blood pressure. The action of peripheral ganglia was in other experiments excluded by poisoning the animal previously with nicotine.

Section of the vagi produces no effect on the results of injecting choline. There was no evidence of any direct action of the base on the cerebral vessels. Choline has no effect on respiration.

The effect of choline soon passes off, and the blood pressure returns to its previous level. This is due partly to the great dilution of the substance injected by the whole volume of the blood, and may be partly due to the excretion of the alkaloid, or to its being broken up into simpler substances by metabolic processes. It does not pass as such into the urine.

If the animal has previously received an injection of atropine, the effect produced by choline is a rise of arterial pressure, accompanied by a rise of the lever of the intestinal oncometer. This observation appears to be of some importance, for it shows how the action of one poison may be modified by the presence of another. This has some bearing on general paralysis, for the arterial tension in the early stages of that disease is usually high, not low, as it would be if choline were the only toxic agent at

work. After a succession of fits the tension sinks, and this may be explained as a result of choline action.

Physiological Action of Neurine.—The doses employed varied from 1 to 5 c.cm. of a 0.1 per cent. solution. These were injected intravenously. Neurine produces a fall of arterial pressure, followed by a marked rise, and a subsequent fall to the normal level. The effect of neurine on the heart of both frog and mammal is much more marked than is the case with choline; in the case of both choline and neurine the action on the heart is antagonized by atropine. The slowing and weakening of the heart account for the preliminary fall of blood pressure. The rise of blood pressure which occurs after the fall is due to the constriction of the peripheral vessels, evidence of which was obtained by the use of oncometers for intestine, spleen, and kidney. It produces a marked effect on the respiration. This is first greatly increased, but with each successive dose the effect is less, and ultimately the respiration becomes weaker, and ceases altogether. The animal can still be kept alive by artificial respiration. In large doses neurine acts like curare on the nerve endings of voluntary muscle.

It should be mentioned that in the cases of brain atrophy referred to, the cerebro-spinal fluid was removed as a rule soon after death. Specimens removed during life by lumbar puncture give, however, the same results.

The lecture was illustrated by a number of lantern slides to show the histological changes in nerve cells referred to; and also the graphic records of the experiments on blood pressure, etc., in connection with choline, neurine, and cerebro-spinal fluid.

LECTURE IV.

THE CHEMISTRY OF NERVE DEGENERATION.

The concluding lecture dealt with the chemistry of Wallerian degeneration, the third of the pathological questions to which the lecturer had alluded at the commencement of his previous lectures.

It has been now shown that in the disease, general paralysis of the insane, the marked degeneration that occurs in the brain is accompanied by the passing of the products of degeneration into the cerebro-spinal fluid. Of these, nucleo-proteid and choline are those which can be most readily detected. Choline can also be found in the blood. On continuing work in this direction, it was found that this is not peculiar to the disease just mentioned, but that in various other degenerative nervous diseases (combined sclerosis, disseminated sclerosis, alcoholic neuritis, and beri-beri) choline can also be detected in the blood. The tests employed to detect choline are mainly two: (1) a chemical test, namely, the obtaining of the characteristic octahedral crystals of the platinochloride from the alcoholic extract of the blood; and (2) a physio-

logical test, namely, the lowering of blood pressure (partly cardiac in origin, and partly due to dilatation of peripheral vessels), which a saline solution of the residue of the alcoholic extract produces; this fall is abolished or even replaced by a rise of arterial pressure if the animal has been atropinized. It is possible that such tests may be of diagnostic value in the distinction between organic and so-called functional diseases of the nervous system. The chemical test can frequently be obtained with 10 c.cm. of blood.

A similar condition of the blood was produced artificially in cats by a division of both sciatic nerves, and is most marked in those animals in which the degeneration process is at its height, as tested histologically by the Marchi reaction.

The Marchi reaction is the black staining produced by Marchi's fluid, a mixture of Muller's fluid and osmic acid, after the tissue has been previously hardened in Muller's fluid. Osmic acid by itself stains the medullary sheath of fresh healthy nerve fibres black; but if the healthy nerve fibres have been previously treated with a chromic solution like Muller's fluid, they take on a greenish-grey color with Marchi's fluid. Neutral fat, on the other hand, such as in ordinary adipose tissue, is stained black by Marchi's fluid under all conditions; and the degenerated fat which appears in Wallerian degeneration resembles the fat of adipose tissue in this respect. The chemical explanation of the Marchi reaction is the replacement of phosphorized by non-phosphorized or neutral fat. When the Marchi reaction disappears in the later stages of degeneration, the non-phosphorized fat has been absorbed. These facts were established by chemical analysis of the nerves.

The axis cylinder participates in the fatty degeneration; and the multiplication of the nuclei of the primitive sheath is first noticed about the eighth day, and is possibly due to the irritation set up by the presence of the products of disintegration.

The main facts regarding the experiments in animals may be summarized as follows:

A series of eighteen cats was taken, both sciatic nerves were divided, and the animals were subsequently killed at intervals varying from 1 to 106 days. The nerves remain practically normal as long as they remain irritable; that is, up to three days after the operation. They then show a progressive increase in the percentage of water, and a progressive decrease in the percentage of phosphorus until degeneration is complete. When regeneration occurs the nerves return approximately to their previous chemical condition. The absorption of the fatty products occurs earlier in the peripheral nerves than in the central nervous system.

This confirms previous observations by Mott and Barratt on human spinal cords, in which unilateral degeneration of the pyramidal tract by brain lesions produced an increase of water and a diminution of phosphorus in the degenerated side of the cord, which stained by the Marchi reaction.

The main results of the experiments on animals are given in the following table:

CATS' SCIATIC NERVES.

Days After Section.	Water.	Solids.	Percentage of Phosphorus in Solids.	Condition of Blood.	Condition of Nerves.
Normal	68.1	31.9	1.1	Minimal traces of choline present	Nerves irritable, and histologically healthy.
1–4	64.–	35.5	0.9		
4–6	68.4	31.7	0.9	Choline more abundant	Irritability lost; degeneration beginning.
–	67.2	32.8	0.8		
10	72.7	27.3	0.3	Choline abundant	Degeneration well shown by Marchi reaction.
14	71.4	28.6	0.2		
17–27	72.1	27.9	Traces	Choline much less	Marchi reaction still seen, but absorption of degenerated fat has set in.
30	72.5	27.5	0.0		Absorption of fat practically complete.
44	72.6	27.4	0.0	Choline almost disappeared	Return of function; nerves regenerated.
100–160	66.2	33.8	0.9		

Our chemical knowledge of the process of Wallerian degeneration is thus mainly limited to what occurs in lecithin, the main constituent of myelin. This substance is broken up into its constituents, and each of these is in time removed by absorption. The products of disintegration are four in number:

1. Choline. This is removed first, and can be detected for a time in the blood.

2. Phosphoric acid. This disappears next.

3 and 4. Fatty acid and glycerine. These are the elements of a neutral fat, and the fat so formed resembles other neutral fats by giving the black Marchi reaction. In time, however, this is removed also. In the removal of the fat, certain cells, probably the hypertrophied cells of the neurilemma, can be seen microscopically to play a phagocytic *rôle*.

Noll has shown another interesting fact in connection with "disuse atrophy," that is, the change which occurs in the central end of a divided nerve before regeneration has occurred. Here there is also some diminution in the amount of protagon, though not nearly so great as in the peripheral end of the nerve.

The lecture was illustrated by a number of lantern slides, to show the relationship between the histological and chemical changes which occur in divided nerves.

Other slides were reproductions of the tracings showing the effects upon arterial pressure of the choline separated out from the blood of the cases of nervous disease mentioned, and from the blood of the cats operated on.

These and others will be reproduced, and full details of all the experiments given when the lecturer publishes these lectures in a separate form, which he hopes to be able to do shortly.—*British Medical Journal.*

THE ACTIVE PRINCIPLE OF THE SUPRARENAL GLAND.*

At the recent meeting of the Mississippi Valley Medical Association, held at Put-In-Bay, Ohio, there was an interesting discussion in regard to the uses of the active principle of the suprarenal gland. It was introduced by Dr. Jokichi Takamine, the well-known Japanese-American chemist, who described how he had first discovered the method of isolating the active principle from the gland, and likewise gave a detailed account of the process by which it is manufactured for medical use. In the course of his remarks, he said that the therapeutic applications of adrenalin, as the active principle in question is called, are already numerous, and that new uses for it are continually being found by investigators. Generally speaking, when locally applied, it is the most powerful astringent and hemostatic known—being more than one thousand times as strong as the fresh gland. It is useful in all forms of inflammation, and is the strongest stimulant of the heart. It is non-irritating, non-poisonous, non-cumulative, and without injurious properties. It has been used with good results as an antidote in morphine and opium poisoning, in circulatory failure, in the prevention of collapse, in anesthesia, and in allied conditions. It is invaluable in carrying out bloodless operations in nose, ear, and throat work. It has also given good results in some cases of deafness, hay fever, nasal hemorrhage, and various forms of heart diseases. Such authorities as Drs. Mayer, Wilson, Bates, Reichert, Ingals, Stucky, Johnson, Chambers, Curtis, Swain and many others have reported very favorable results.

Dr. Carolus M. Cobb, Boston, said he had used adrenalin extensively in cases of vaso-motor rhinitis, and particularly that form of the malady which was commonly known as hay-fever. It had many advantages as compared with the fresh suprarenal gland, which was open to objection because it had always to be made fresh, was of more or less uncertain strength, and was sure to break down and be disagreeable. He had used adrenalin as a spray, and also in an ointment, containing about a gramme of the preparation in an ounce of vaseline. The latter the patient could apply himself, and it worked beautifully. With the proper use of adrenalin in these forms it was possible so to treat hay-fever of the autumnal variety that patients could be rendered so comfortable as to be able to live about where they chose and do very much as they chose. It certainly worked marvellously, and it kept well in the ointment as well as in solution.

*Abstract report of Mississippi Valley Medical Association.

Dr. John North, Toledo, Ohio, thought the profession was very much indebted to Dr. Takamine for the preparation of this extract. He had used it from the very first, the manufacturers having sent him some samples when it was brought out. The results he had obtained with it were highly satisfactory. It enabled him to perform operations on the nose without drawing enough blood to do more than stain the instrument. Sometimes there were not more than a drop or two produced in removing a spur from the septum. As to secondary hemorrhage, it was not more apt to come on with this preparation than when the fresh gland was used. He had never had a case of severe nasal hemorrhage after using it; and in one case he had by its means arrested a hemorrhage which he had tried in vain to stop by plugging and other devices. He had also had satisfactory experience with adrenalin in the treatment of hay fever. He would like to say more about the preparation, but time did not permit.

Dr. George W. McCaskey, Fort Mayne, Ind., said his experience with adrenalin had been somewhat limited: but he had obtained good results from its internal administration. He had seen the heart drop from twenty to twenty-five beats a minute through its influence.

The Chairman (Dr. Chas. F. McGahan, Aiken, S.C.), said he had had a great deal of experience with the preparation since it came out, and so far he had not found anything in its action which did not call for extreme satisfaction. He had heard a good deal of praise of it, too, from other practitioners. There was one case of a remarkable character which he understood the doctor who had charge of it intended to write up, and therefore he would not mention his name. It was that of a patient residing in Washington who had a troublesome growth or gathering at the top of the larynx. Two of the best nose and throat physicians in Washington came to the conclusion that it was a malignant affection, and it was thought that the patient had not long to live. Under the circumstances, the physician in attendance thought there could be no harm in spraying it with adrenalin, which he did in the hope that it would afford some temporary relief. The result was that the gathering disappeared, and the patient had gone to Atlantic City and was doing well. Dr. McGahan added that he himself had used adrenalin a great deal in nose and throat work, and he could corroborate all Dr. North had said as to the bloodless character of the operations it rendered possible. His usual procedure, after he got the nose open and clear, was to put in some oily solution; and then he gave the patient a weak solution of adrenalin, 1:5,000 or 1:10,000, with which to spray himself at home. In his part of the country they did not cure all their patients with iodide of potassium, as one of the speakers in a previous discussion claimed that he did in Florida; but they always succeeded in giving their

patients relief, and then they proceeded to see how they could prevent a recurrence of the disease. Adrenalin was of great aid to them—enabling them, as it did, to make bloodless operations and clear out the nasal cavities, after which an oily solution was applied, and the patients were in a condition to enjoy a comfortable night's rest.

Dr. Mayer—Is it better in all cases than the suprarenal gland?

Dr. McGahan—Yes, because it is simply the extract of the gland, minus impurities.

AIROL AS AN EXTERNAL ANTISEPTIC.*

For many years iodoform has been one of our most precious remedies in the treatment of wounds, ulcers, burns, etc. Were it not for its great drawbacks—its abominable odor, tendency to cause itching and eczema, and danger of intoxication—the search for a substitute would be superfluous. As it is, the number of iodoform substitutes is very large, but the ideal preparation Dr. J. Braun found in airol. Chemically, airol is bismuth-iodo-subgallate; its action is due to the liberation of iodine, which being *in statu nascendi* exerts a powerful bactericidal effect, and to the residual bismuth subgallate which exerts its well-known siccative and healing properties. It is greenish-grey powder, odorless, and insoluble in water. It is employed either pure or mixed with boric acid and starch, or in the form of a salve, or suspended in a mixture of glycerine and water. The author has used airol for a number of years in the following affections and with most gratifying results:

1. In ulcers of the leg. As is well known, these ulcers sometimes assume such large proportions and look so nasty that it is a surprise how the patients could go on for such a long time without applying for treatment. As a rule iodoform is very unsuitable in such cases, as it quickly causes a troublesome eczema. Airol, on the other hand, has given the author the most excellent results. Without any irritation, it dries the ulcerating surface, converting it into an area of healthy granulations. Under two weeks' treatment with airol in powder or ointment form—provided the patient stay in bed—such ulcers assume a perfectly healthy appearance, and in another two weeks' time they cicatrize completely.

2. Similarly excellent results have been obtained by the author in abscesses of the lymphatic glands of the neck and of the axilla, and in burns of the second degree. In the latter he uses for the first few days a powder consisting of one part of airol and nine parts of starch; after that an ointment of the following composition is

*Deut. Aerzte Zeit., No. 16, August 15th, 1901.

applied: Airol, one part, vaseline, two parts, and wool-fat, seven parts. The action of airol in burns is not only antiseptic and healing, but distinctly anodyne; frequently every trace of pain disappears in the first twenty-four hours. Even if used freely and for a long period, there is never any danger of intoxication.

3. In rhinitis of scrofulous individuals, especially such as suffer at the same time with blepharitis and conjunctivitis, airol in the form of a 5 to 10 per cent. ointment or a 10 per cent. powder (one part airol, ten parts finely powdered boric acid) snuffed up into the nose is very beneficial. It quickly diminishes the secretion and heals the excoriated spots.

4. Another trouble in which airol has proved remarkably useful is cracks of the nipples. It is well known how extremely painful and troublesome these cracks and excoriations may become. Here, again, airol acts not only as a vulnerary, but as an anodyne as well. Before and after each nursing the nipple must be carefully washed with a weak solution of potassium permanganate and then covered with airol wool-fat ointment or airol collodion.

5. Other affections in which airol in ointment or powder form has proved highly effective are balanitis, ulcers and abscesses of all kinds, ulcerations of syphilitic origin, chancroids, catarrh and erosion of the cervix uteri and in tubercular ulcers of the tongue, larynx and pharynx. In chancroids the author advises a preliminary washing with a weak solution of corrosive sublimate or copper sulphate; the chancroid is then dried and covered with pure airol; as soon as it assumes a healthy granulating appearance, a 10 per cent. airol wool-fat ointment is substituted for the pure airol. In erosions of the cervix suppositories (containing 8 gr. of airol) or a 10 to 20 per cent. ointment are employed. In ulcers of the larynx and pharynx the airol is employed by insufflation.