retson is recommended by Hildenbrant.²⁷ Beau,²⁸ of Toulon, used a semilunar flap in the cheek from a little behind the anterior border of the masseter to the chin, turned it up, and trephined over the entrance of the inferior dental nerve and divided it. He then exposed the mental nerve at its foramen of exit, thoroughly freed it and pulled the above piece through, the mental branches having been dissected out and divided.

In Warren's method an incision was made from the sigmoid notch to the lower border of the jaw. The fibres of the masseter were cut, and a trephine of 20 to 25 millimetres applied below the notch, exposing the nerve and vessels. The nerve was drawn down and 11 millimetres excised. Velpeau's modification of this consisted in raising a V-shaped flap with the convexity downwards, avoiding injury to the parotid. Galignani²⁹ recommended an incision along the lower border of the jaw, and behind the ramus, as high as the lobule of the ear. The periosteum was raised until the tendinous insertion of the internal pterygoid was reached. This was divided and the periosteum elevated until the dental foramen was reached. The nerve was drawn down with a hook and $5\frac{1}{2}$ millimetres excised. Weir Mitchell³⁰ trephined at the angle of the jaw and excised part of the nerve. He also suggested blocking up the end of the canal to prevent re-union.

These are some of the numerous operations proposed and actually carried out for the relief of neuralgia of the inferior dental nerve. Further, the body of the jaw or the ascending ramus has been perforated by the dentist's drill (Tomes) so as to completely destroy the nerve, that is, cut it across. All these operations have the disadvantage that the nerve is not sufficiently removed between the foramen ovale and the upper end of the inferior dental canal. It was to provide a means of doing this without injury to important parts that I suggested and have frequently carried out the operation which I shall now describe. In devising this operation the objects which I had in view, besides that alluded to, were: (1) To secure separation of the lingual and inferior dental nerves from their continuation with the main trunk just outside the foramen ovale. (2) To effect this without notable scar and without injury to such important structures as the facial nerve, parotid gland and the articulation of the lower jaw. (3) To see clearly every step in the operation and to have the nerve in view, not only where it is first exposed, but where it is divided. (4) To obtain immediate union of the wound.

(To be continued.)

REMARKS ON THE USE OF ELECTRICITY IN GYNÆCOLOGY.

By A. E. AUST-LAWRENCE, M.D.,

Obstetric Physician to the Bristol General Hospital, and Lecturer on
Gynecology at the Bristol Medical School;

AND

W. H. C. NEWNHAM, M.A., M.B.CANTAB.,

Assistant Obstetric Physician to the Bristol General Hospital.

HAVING worked at this subject for now four years, we are induced to put before the readers of the BRITISH MEDICAL JOURNAL our experience of it after giving it a fair trial. We shall not enter into the details of apparatus, etc.; this can be learnt from Apostoli's published works. We will simply state what we consider to be the value of the continuous current and of the interrupted current in the treatment of certain diseases peculiar to women.

We may state that the amount of knowledge of electricity that is required to carry out this treatment can be very easily acquired by anyone who is willing to devote a little time to obtain it from books and from conversation with electricians, but we consider that something more than a mere smattering of knowledge of diseases of women is necessary to avoid mistakes, which even with the most experienced will sometimes creep in. We have used the galvanic current over 500 times

²⁷ Loc. cit.

²⁸ *Union Médicale*, 1855, 161, etc.

²⁹ *Gazette des Hôpitaux*, 1889.

³⁰ *Phil. Med. News*, 1882.

in 100 separate cases without any ill result, and in most of them with benefit.

Myoma Uteri.

The first set of cases we will take will be that of myoma uteri. We have used it for growing fibroids without bleeding, and for the same class of tumours with bleeding, for stationary tumours accompanied by bleeding, and for the same kind of tumours without bleeding but accompanied by pain. The results have been as follows: There has not been a very great reduction in the size of the tumours, but rapidly growing tumours have been checked in their growth in all instances except one. The bleeding has been lessened in a very marked degree by the intrauterine use of the positive pole. The pain also has been lessened and in some cases removed entirely. The general health has been much improved, the feeling of weight has been removed to a great extent, and this out of all proportion to the diminution of the size of the tumour.

In a short paper like this we cannot quote details of cases. We simply give our opinion after working at the subject. We do not regard electricity as a means of cure or even of relief in all cases of myoma uteri; we regard it as a very valuable addition to our means of treating a very troublesome set of cases. Fibroids of the uterus have been often classified according to their position in the walls of the uterus; this to a certain extent is useful, but we are sure what is often of as much importance is the fact of their being accompanied or not by any other diseased pelvic condition, especially disease of the uterine appendages. An ordinary uterus will bleed most profusely in some cases when there is disease of the appendages; how much more so then will a fibroid uterus bleed when complicated with a similar disease? These cases we regard as least amenable to the electric treatment, and in all probability they require removal of the diseased appendages with the double result of removing diseased organs and bringing about the menopause.

The removal of the appendages does not always check the uterine hæmorrhage. We have had placed under our care for electric treatment a patient from whom a very able surgeon removed both appendages; this young woman has had profuse uterine hæmorrhage ever since the operation. We dilated the uterus and found a myoma situated in the anterior wall and bulging well into the uterine cavity. She has had two applications of electricity and the uterus is already much smaller, and the hæmorrhage has lessened although it has not yet ceased entirely. We have followed the rules laid down by Apostoli, and can to a great extent verify his statements.

Subinvolution.

In ordinary cases of subinvolution of the uterus the intra-uterine application of the positive pole with a current of 50 milliamperes given once a week for three or four times has a very good effect, the uterus very rapidly undergoing involution. The cases do best where the enlargement of the uterus is the principal lesion; those cases complicated with endometritis are best treated by ordinary intrauterine medication and curetting.

Dysmenorrhœa.

In cases of dysmenorrhœa, due to a narrow condition of the cervix uteri, the intrauterine use of the negative pole causes at once a dilatation of the canal, which remains permanent, and removes the pain which was due to the stenosis. We know of no treatment so effectual for the relief of pain in these cases if the cause is simply a narrow canal.

Often these cases are complicated with tubal or ovarian disease; if so, after dilating the canal with the galvanic current, the faradic current should be used for the relief of the other pain.

Caustic Action.

Destruction of diseased tissue is most easily effected by the negative pole either by puncturing or simply by touching. It is most useful in urethral cases, and in chronic inflammatory deposits in the pelvis, in order to assist absorption or to drain away pus, etc.

The Faradic Current.

Although relief of pain is very marked by the use of the galvanic negative pole within the uterus, yet the best agent for this purpose is the faradic current. To relieve pain by the faradic current it is necessary to attend to a few brief directions.

In a very large class of cases, all that need be done is to

place one electrode over the sacrum and the other in the groin, and apply the secondary faradic current very weak to begin with, and gradually increase its strength as much as the patient can bear. In other cases one electrode may be placed in the vagina and the other in the groin. In another set both poles may be placed in the vagina, using the bipolar vaginal electrode. It is only by testing each case that it is possible to say which mode of administration will give the most relief.

The effects derived from the secondary faradic current in these cases, and used as we have described, are as follows:—

1. A marked diminution in the sensitiveness of the parts in the course of the current, and to which the electrodes have been applied. If it is a case of a painful and prolapsed ovary that at the beginning of the sitting cannot be touched without inducing great pain, it can be firmly pressed on at the end of the sitting without causing pain, and this condition will last some hours after the application. To obtain permanent relief, the application must be made night and morning for about ten days, then daily for about twenty more days; at the end of this time, in the majority of cases the nerves in the painful organs or tissues cease to have the power of conveying pain, yet the organs or tissues still remain as they were before the electricity was used.

2. We believe the current does assist absorption of effused products, but of this we cannot be sure. Our principal object in using this form of electricity is to relieve pain, and in the majority of cases where a woman complains of pelvic pain, one can relieve her to a very great extent, and remove entirely in a large number of cases the pain she complains of.

This electrical treatment is of very great value in a class of cases where any aid is welcome; treatment can be carried out so easily—any nurse can do it, or the patient can do it herself—and the expense is slight, as these batteries can be hired for a few shillings a week.

THE PUERPERIUM AS A FACTOR IN THE ETIOLOGY OF MULTIPLE NEURITIS AND DEGENERATIONS OF NERVE TISSUE.

By H. HANDFORD, M.D., M.R.C.P.,
Physician to the General Hospital, Nottingham.

GOWERS has mentioned the instance of a lady who, a few days after childbirth, on two occasions, suffered from a neuritis of the ulnar nerve, followed by paralysis and muscular wasting, but ultimately by recovery.

I have to relate two instances of multiple neuritis, both probably of alcoholic origin, where the onset seemed most clearly to be determined by childbirth. In a third case the exact diagnosis is more difficult, but its onset immediately after a confinement was equally clear. Gowers suggests that the "tissue health is lowered," and, consequently, slighter causes are efficient to excite neuritis. The rapid progress of *tabes dorsalis*, and the frequency of optic atrophy in it when sexual relations are actively maintained, has been frequently noted. The relation of childbearing is probably only of a similar nature, and it is not suggested that it is an efficient cause *per se*. On the other hand, childbearing is a common occurrence in women, and the neuritis may have been simply a coincidence; but multiple neuritis is a comparatively rare disease, and for 3 out of 6 or 7 cases, in both sexes, to commence with childbirth seems an undue proportion. Is the influence of childbirth one of the factors which renders alcoholic neuritis so much more common in women than in men, while drinking habits are more prevalent in the latter?

CASE I.—M. K., aged 43, married seven years, three children, has always been a stout, florid, healthy woman. Her husband keeps a publichouse and is a habitual drunkard, but evidence of drinking habits in the patient could not be obtained. Three days after her confinement she lost power in the legs completely, and, at the same time, felt strange sensations like pins and needles in the arms. This was soon followed by paralysis. She had been able to walk about up to the date of her confinement. The general character and course of the paralysis was typical of an alcoholic multiple neuritis. There was loss of muscular sense, impaired cutaneous sensibility, but greatly increased deep sensibility, general muscular wasting, loss of knee-jerks, and the presence of the reaction of degeneration in the muscles of the arms and legs. The condition of the eyes was normal. She was able to walk a little in six months, and in twelve months she was comparatively well.

CASE II occurred in a stout well-nourished woman, aged 34, the wife of a publichouse-keeper. She suffered from complete paralysis of the extensors of the toes and the flexors of the ankle, with weakness of most of the other muscles of the leg, coming on immediately after her confinement. The ankle-joint was habitually extended and the toes pointed. There was much hyperæsthesia, both superficial and deep, and a little oedematous swelling. No contraction could be elicited in the muscles below the knee by as strong a faradic current (sledge at 7 centimetres distance) as the patient could bear. A voltaic current from twenty-six cells, registering 30 milliampères, caused much pain and produced some contraction of the rectus femoris, deficient in quantity but normal in quality. No response could be obtained from the muscles below the knee. Some weeks later there was considerable muscular wasting, extending as high as the right gluteal muscles. In six months' time she could walk without a stick, and eventually she completely recovered, except that the affected muscles remained rather small.

CASE III.—In this last case the exact diagnosis is much more difficult, but it lies between *tabes dorsalis*, sclerosis with patches in the crura and in the lumbar enlargement of the cord, and multiple neuritis. There certainly is ataxy; but against the affection being *tabes* are the facts that she has never suffered from lightning pains or gastric crises, the pupils are dilated, there is no atrophy of the optic discs, the arms were affected as early and as severely as the legs, there was distinct loss of power, and there is now distinct localised muscular wasting. There was no evidence of syphilis, and her children are very healthy looking. E. S., aged 31, married six years; three children. She suckled the last a year and a half. Difficulty in walking and weakness in the arms came on immediately after her confinement two years ago. In the house she used to have to assist herself by the furniture, and in the street walk along by the wall. On admission, in July, 1888, she could not stand, and could only feed herself with one hand with a spoon. The legs were very feeble, and occasionally jumped and became drawn up without the patient's knowledge. The knee-jerks are totally absent, as are also all the superficial reflexes. Cutaneous sensibility is much diminished in the arms and legs. There is double ptosis with divergent strabismus and widely-dilated pupils, moving neither to light nor to accommodation—a complete paralysis of both third nerves. Sight is good in each eye, and the discs are normal. There is inco-ordination and loss of muscular sense. She soon went home and I have been able to keep her under observation up to March, 1891. The duration of the illness is, therefore, five years. There is now no appreciable alteration, except that voluntary movements of the arms are more irregular and the left is much weaker than the right. There is no rigidity of the legs. The thighs are well nourished, but there is considerable wasting of the muscles below the knee in the left leg. She cannot stand but spends her time entirely in bed, eats and sleeps well, and is free from pain.

In further illustration of the influence of fatigue on the progress of nerve degeneration in general and *tabes* in particular the following case is noteworthy:—

M. A. L., aged 46, married twenty-six years, no children, was always a poor walker, and usually did not walk more than a mile a day. She had suffered occasionally for the past two or three years from shooting pains in the legs, but considered herself quite well. In May, 1889, she had occasion to walk more than four miles, was very much fatigued, and next day was obliged to keep her bed, where she remained until she was admitted into the hospital in October of the same year, and was found to be suffering from well-marked *tabes dorsalis* with Charcot's affection of the left hip.

CASE OF ECHINOCOCCUS OF SPINAL CANAL, WITH OPERATION.

By WILLIAM B. RANSOM, M.A., M.D., M.R.C.P.,
Physician to the General Hospital, Nottingham;

AND

A. R. ANDERSON, F.R.C.S.,
Surgeon to the General Hospital, Nottingham.

CASES of operation for the removal of tumours compressing the spinal cord are as yet so few, and the production of symptoms by an echinococcus cyst within the spinal canal is so rare an occurrence, that the following case, although not successful in the result, seems to us worth publishing. The failure of the treatment does not make the case less instructive, and the case as a whole offers distinct encouragement to surgical procedure.

HISTORY OF CASE (MEDICAL, BY DR. RANSOM).

J. U., a married man, aged 42, a mechanic, was admitted into the General Hospital, Nottingham, under my care on December 31st, 1890, with paraplegia of a fortnight's duration. Twenty years before he had had gonorrhœa and a chancre, probably soft, but there was no history of secondary syphilis. He had been somewhat addicted to alcohol. For six years he had had a hydrocele of the right tunica vaginalis, which had been tapped on several occasions. He was admitted into a surgical ward in 1889; pure carbolic acid was injected, but without satisfactory result, and after leaving the hospital the fluid reaccumulated. When a surgical in-patient, no symptoms of nerve disease beyond occasional pain in the back were observed. The patient said that he first began to suffer from pain in the back eighteen months before his admission in December, 1890. The pain began gradually, and increased to such severity that he would spend hours of the night walking about, sleep being impossible. The pain was worse at night; it was of two kinds: a constant gnawing and burning pain, and occasional shooting pains which ran down the legs to the soles of the feet. At this time he had no difficulty in walking, in