A trephine half an inch in diameter was then applied, and a button of bone three-eighths of an inch in thickness was removed. The portion of bone on each side of the opening was then cut through with a chisel, and the neck of the condyle cut away piece by piece, so as to leave no portion projecting from the temporal bone. The result was quite satisfactory.

A similar operation, but performed by a different method, was successfully undertaken by Dr. Robert Abbe, of New York, in a boy aged 10, who had suffered from otitis media and suppuration of the joint some years before. A vertical incision was made in front of the ear, and a horizontal one meeting its upper end was carried along the lower border of the zygoma. The parotid, with the facial nerve, was drawn down, and with a periosteal elevator the posterior fibres of the masseter were cleared away, and the articulation exposed. A narrow osteotomy chisel was now applied to the neck of the condyle, and carefully driven half through the bone, and by forcibly opening the mouth the bone was broken through. The neck of the condyle was then carefully removed piecemeal, but the condyle was left *in situ*. The result was satisfactory.

Sédillot mentions that in a case of true ankylosis of the temporo-maxillary articulation, M. Grube, in 1863, carried a straight chisel through the mouth to the neck of the jaw, which broke by hammering. Some months later he divided the masseter subcutaneously, and the cure, by the formation of a false joint, was permanent. In 1879 I performed the same operation in a child aged 6, but the results were unsatisfactory. Suppuration was set up, and required an external opening, and the movement, which was free at first, became as limited as before the operation, and I subsequently excised the condyle. It would appear, therefore, that mere division of the neck of the bone does not offer such good prospect of a permanent false joint as removal of the neck or the condyle, though these operations are necessarily more severe.

Esmarch's operation of removing a wedge in front of the masseter is of course as applicable to cases of ankylosis from disease of the joint as to cases of cicatrix, and Fischer (*Archiv für Klin. Chirurgie*, Bd. xiii, Hft. 3) appears to have performed the operation on both sides of the jaw, in a case of bilateral ankylosis of the temporo-maxillary articulation, with very good result, the patient obtaining complete and useful control over the central movable portion of the jaw.

I have recently performed an operation which appears to me to possess equal advantages over other proceedings undertaken for ankylosis of the temporo-maxillary articulation, and which consists in the division of the ramus of the lower jaw beneath the masseter by a saw introduced from the mouth. The patient was a young gentleman aged 16, who came under my care in 1886 with complete closure of the jaws due to ankylosis of the left temporo-maxillary articulation. He had scarlet fever in 1881, and the disease followed upon this. In 1882 and twice in 1883 attempts were made to screw the mouth open, with only partial and very temporary success; and when I saw him, the application of the powerful screw-gag I show produced no effect. In December last I made a small incision within the mouth immediately above the last molar tooth, and having passed a steel director to clear the way, I was able to push an Adams saw beneath the masseter, and to divide the ramus horizontally. No hæmorrhage occurred from the inferior dental artery, though the accompanying nerve was subsequently found to have been damaged.

The patient was able to open his mouth as soon as he recovered from the chloroform, and made a rapid recovery. Unfortunately he caught cold on the railway journey home, and an abscess formed and pointed behind the jaw, but has left only a dimple. The patient can now open his mouth so that there are nine-sixteenths of an inch between the incisor teeth, and his condition is a most satisfactory one.

[To be continued.]

An extraordinary case of poisoning is reported from Pollokshaws, near Glasgow. On Tuesday evening nine children were seized with illness, exhibiting all the symptoms of poisoning, and two of whom have since died. The facts, as stated, are that the children, having gone into a yard where were stowed two barrels containing the remains of poisonous chemicals, picked up and ate portions of what turned out to be bi-arsenate of soda, used in the process of bleaching. The two children who died were aged 3½ and 4 years respectively. The others are said to be recovering.

THE anniversary meeting of the Sanitary Institute of Great Britain will be held on Thursday, July 14th, at 3 P.M., when the chair will be taken by Sir Douglas Galton, K.C.B., who will present the medals and certificates awarded to the exhibitors at the Exhibition held at York. An address will be delivered by Dr. G. V. Poore, entitled, "The Shortcomings of some Modern Methods of Sanitation."

CLINICAL LECTURES ON THE UTERINE NEUROSES.

Delivered at the University College Hospital.

By GRAILY HEWITT, M.D., F.R.C.P.,

Professor of Obstetric Medicine, University College; Obstetric Physician to the Hospital.

LECTURE IV.

Pathology of the Cases of Uterine Vomiting and Cases of Hysterical Attacks.—In attempting an explanation of the phenomena attending uterine vomiting and hysterical attacks, we have to consider the condition of the nerve centres as well as that of the uterus. Assuming it as proved that the vomiting and the hysterical attacks are reflex acts starting in an irritation in the uterus, it seems proper to suppose that in a given case there is (A) abnormal excitability of the nervous centre as well as (B) abnormal irritation of the sensory nerves of the uterus. And it is, of course, conceivable that when the factor A is at its maximum, the factor B being in a minimum state, the reflex phenomena may be present. Or, reversing the respective intensity of the two factors, a minimum degree of central excitability, associated with a maximum degree of peripheral (uterine) irritability, may also give occasion to the vomiting or the hysterical attack. Between these two extremes there may be many degrees of variation. We have to determine, therefore, the nature of the changes which occur in the nervous centre and in the uterus respectively, and which give rise to the reflex phenomena.

Factor A.—For a long period the diseases of the nervous centres in which no obvious physical change could be detected have been spoken of as "functional," including the so-called "hysterical." So far as these latter diseases (the hysterical) are concerned, I have for a considerable time formed the opinion that they occur particularly in individuals who are in a condition of mal-nutrition, and I have gone so far as to conclude that the undue excitability of the nervous-centres in "hysterical" cases, and, whether attended with convulsive attacks or with other reflex symptoms such as vomiting, is really dependent on mal-nutrition of those centres (see quotation from last edition of my work already given). I am much interested to find that Dr. Gowers has quite recently expressed views on this subject which confirm the ideas just alluded to. Dr. Gowers (Gowers on Diagnostic Value of the so-called Tendon Reflexes, *Lancet*, November 7th, 1885) deprecates "the wide use of the term 'functional disease.' We apply it to all cases in which we should not expect to find changes visible with the microscope, and in which recovery is possible. But in a very large number of these cases there must be more than a mere derangement of function; there must be a change, and a considerable change, in the nutrition of the nerve elements..... The change in nutrition that the microscope can detect, even as the most trifling alteration of aspect or behaviour to reagents, is simply colossal considered as an alteration in molecular nutrition. Many so-called functional diseases (most of them, indeed) are far less thought of and spoken of as nutritional diseases."

The great success of the Weir-Mitchell system in the treatment of so-called hysterical cases lends great support to the view that the central nervous system is in a state of decided mal-nutrition in such cases. The treatment is essentially a forced feeding, and Dr. Weir-Mitchell in his work argues for the presence of molecular circulatory or nutritive abnormalities. The clinical history of all the cases I have seen, apart from pathological evidence, is, I believe, amply sufficient to justify such a conclusion.

This accords well with all that is known of the general aspect and history of such cases. The subjects of them are emphatically starved individuals. There is usually a previous history of inappetency, insufficient feeding, gradual weakening of all the vital forces as a result. The general weakening influence may be inadequate dietary, influence of a prostrating disease—for example, scarlet fever—the nature of the cause varying in different cases, but having as an effect great enfeeblement of the general nutrition of the body. The nerve-centres participate, hence the liability to nervous diseases.

Factor B.—The irritation present in the uterus, and effective in giving rise to the reflex phenomena, must be something which operates on the sensory nerves of the organ. This operation may be accompanied with a painful sensation referred to the uterus by the patient,

or it may be quite unaccompanied by a painful sensation. There is strong reason for believing that the nerves of the uterus are subjected to undue compression, and that this compression is the starting-point of the reflex act. This compression may be produced in various ways. A sudden bending of the uterus, whether it consists in a sharp flexion of a uterus previously in a normal state, or of a sudden exaggeration of a previously existing flexion, is probably the most common method in which the uterine nerves are compressed, and thus irritated. There is another method in which such compression might obviously be produced, namely, by the sudden or more gradual occurrence of congestion in a uterus previously in a state of sharp flexion. An unnaturally soft uterus would, of course, obey a physical force applied to it, and become more easily bent than an organ possessing a more firm texture. Again, a succession of physical strains on an unduly pliable uterus would be likely to produce a continually increasing flexion. I entertain a strong belief not only that forced increase of flexion gives rise to congestion of the uterus, but that presence of marked flexion, even without temporary exaggeration of the same, may or does act as a more or less incentive to congestion of the uterus, and clinical observation of many cases induces me to differ from Dr. John Williams in the conclusion he draws from his researches as to the anatomy of the uterine vessels, that flexion of the uterus cannot occasion congestion of the organ. Whether, however, we consider the congestion present as resulting from the flexion or not, the fact remains that it is very frequently associated with flexion, and will be liable to accentuate, if it does not produce, that compression of nerves and the resulting initiation of reflex phenomena.

In most cases in which the reflex phenomena are present, the uterus is, as already stated, unduly soft. In some it has become indurated, the congestion has become chronic, and the uterus is large, hard, as well as flexed. A chronic neurosis is sometimes established in these cases, which is demonstrably present in certain special spots, for example, at the internal os uteri. Unquestionably, however, the most common condition of the uterus met with in cases of uterine neurosis with reflex phenomena, is a swollen, rather soft, decidedly flexed state of the organ, accompanied in many instances with a state of undue sensitiveness to the touch. There are a few cases in which compression of uterine nerves is brought about by the presence of small fibrous tumours embedded in the uterine wall. I have mentioned one case in which the severe sickness due originally, as was supposed (and rightly so, I believe), to severe flexion, was cured for some time, but later on sickness recurred, and it was then found that a small fibroid tumour was growing in the uterine wall. Uterine fibroid tumours are, according to my experience, more liable, however, to produce sickness than to occasion hysterical attacks.

Respecting the connection between presence of flexion and production of hysteria, the opinion of Niemeyer, who was certainly an unprejudiced observer, may be quoted. He says that "flexions more than any other of the disorders of the uterus give rise to hysteria."

The general swelling of the uterine tissues present in cases of congestion is, in all probability, intensified at menstrual periods. Thus there may be not enough compression of nerves in a given case to excite sickness at ordinary times; but the additional menstrual increase in bulk would explain why the sickness should be more intense, or in some cases exclusively present, at the time of the catamenial periods. Presence of induration, then, by preventing the healthy distension of the blood-vessels, would add to the degree of the nerve-compression.

The condition of the ovaries in these cases of sickness or hysterical attacks is necessarily a matter of great interest. As a matter of fact I can say that in the cases which have come under my notice I have not found the ovaries notably sensitive to the touch or unusually swollen. In cases where the ovary is prolapsed—which more often than not happens in association with retroflexion of the uterus—the prolapsed organ is liable to be tender and inflamed; but such tenderness and signs of tenderness in the ovary do not seem necessarily to produce either sickness or tendency to hysterical attacks.

The cases which have been detailed in the previous lectures offer what I cannot but regard as conclusive proofs of the accuracy of the pathological views above expressed—not only the facts in regard to the etiology of the attacks, but the still more important facts in reference to the effects of the treatment. They were treated on the supposition that the altered shape and position of the uterus was the cause of the uterine irritation, and, as a general rule, the most marked benefit was derived from this treatment. Further, the cases in which the treatment was less rapidly efficacious were those in which the uterus most resisted the attempted improvement in its shape and position. The facts of the cases indicated that complete and perfect restoration of the uterus to its proper shape and position was not abso-

lutely essential, but that a partial improvement was often sufficient to materially benefit the patient; from which it may well be argued that the cases support the contention that the reflex symptoms occurred, in many cases at all events, from an exaggeration of a previously existing flexion and displacement.

Those who consider it a matter of indifference whether the uterus be affected with severe flexion or not will probably argue that in the cases above related the bending of the uterus was not a factor in the production of the symptoms, inasmuch as such flexions are frequently present without occasioning such, or indeed any, symptoms. Further, they would probably urge that the painful sensitiveness, the congestion or swelling, or other altered condition of the uterus in the above cases were not dependent on the existence of the flexion. There is no doubt of the fact that considerable flexions of the uterus may be present without symptoms, and *a fortiori* without their particular symptoms—sickness and hysterical attacks.

The question therefore is, what is the difference between the individuals who never present such symptoms, but who are the subjects of flexions of the uterus, and those whose cases have been above described? I believe that the subjects of these reflex symptoms are, as a rule (1) unduly susceptible to reflex irritation in consequence of what has been termed by Dr. Clifford Allbutt and others a "neurotic" tendency, but which may be better described as mal-nutrition of the nerve-centres; and (2) peculiar in regard to the presence of an abnormal flexibility of the uterus (itself also an effect of mal-nutrition of this organ). The reflex phenomena are brought into existence by the association of the foregoing elements in the particular case, which association constitutes a predisposition; and they actually occur when, in consequence of some physically acting mechanical cause, the uterus is suddenly or slowly, but decidedly, thrown into a condition of exaggerated flexion. The various factors concerned have a different proportionate intensity in different cases, and the minimisation of one of them may be sufficient to prevent the reflex phenomenon altogether. And thus in a particular case the patient may be on the verge of an attack of severe sickness or an attack of hysterical convulsions, but in the one case there will be only a slight nausea, in the other a quasi-hysterical manner which is to the experienced observer an indication of a marked predisposition at all events.

Again, it will probably be argued that the patients were relieved of their symptoms by the general treatment, and not by the local treatment they received. To this it may be replied that in some of the very worst cases general treatment had been assiduously applied, and wholly without result, before the patients were subjected to local treatment. And again, if that contention were correct, it would hardly be likely that so many cases should be found amenable to my "general" treatment, and not improved by the "general" treatment of their previous medical advisers. I have already stated that general treatment is no doubt necessary and valuable.

There are also cases of uterine irritation in which those reflex symptoms do not occur, although the uterine irritation is great, simply because the nervous centres are in a tolerably sound state.

It is worthy of note that patients liable to hysterical attacks are by no means individuals of weak will as a rule, and the mode of occurrence of the attacks betokened frequently that the very contrary is the case in fact. The cases I have been describing are not, it must borne in mind, emotionally produced attacks which have what may termed a "central" origin, and without evidence of reflex origin all. Again, the cases of feeble, weak intellect frequently spoken of as "hysterical," these cases are also probably instances of central nervous disease or disorder, and are not included in the category of cases to which I have called attention.

Observation has not enabled me to indicate any pathological distinction between cases of uterine sickness and cases of hysterical attacks. Nor is there any obvious reason why in one case there should be sickness and in another hysterical attacks. The probability is that the pathological cause is very similar in both cases. This is proved by the fact that the two symptoms are frequently observed in the same case. Why the apparently identical uterine condition should in one case give rise to one reflex symptom, and in another instance occasion a different reflex phenomenon, remains to be explained.

The arguments in favour of the pathological explanation of reflex uterine vomiting and of hysterical attacks above given may be generally stated as follows.

The subjects of these cases are usually individuals in whom the nutrition process has been for some time in a markedly deteriorated state.

As a result, there is a general weakness affecting most of the organs of the body, but particularly the nerve centres and the uterus. The nerve-centres are too impressionable. The uterus has lost its proper

tonicity, and is manifestly unduly soft to the touch, and, *pari passu*, more easily flexed than usual. [At a later period the uterine tissues may be found, however, unduly hard.]

There is generally a well-marked history of accidents, falls, strains, or the like, such as would be likely to accentuate or increase or produce a decided flexion or increase of flexion of the uterus. There is usually an obvious connection as cause and effect between the mechanical disturbing force and the onset of the symptoms.

The symptoms are found to be relieved and their occurrence prevented more or less completely, and in most cases immediately, by so treating the uterus (by rest alone or by aid of mechanical supports) as to lessen the degree of the uterine displacement, or so as to prevent its exaggeration by ordinary bodily movements.

ON THE TREATMENT OF FIBROIDS OF THE UTERUS BY ELECTRICITY: THE USE OF POSITIVE GALVANO- CAUTERISATION.

By W. WOODHAM WEBB, M.D., M.R.C.P.LOND., Neuilly-sur-Seine, France.

I AM not going in these observations, which I wish to make purely practical, with a view to bring a subject which has much interested me under the notice of others, to enter upon any description of the histological characters of the various tumours we meet with in and about the uterus, nor upon any discussion as to the way in which electricity acts in controlling their nutrition, arresting their development, causing their diminution, and regulating the combined functional powers of the ovaries and their appendages, among which the uterus must be included as perhaps the most important. Men may differ in their opinions as to what constitutes a uterine tumour. Practically, it is of more importance to look to the symptoms depending upon excessive deposit of tissue in or about the organ. And with regard to the mode of action of electricity used curatively in such cases, we must for a time be content with knowing the fact that it does what we propose to do in a manner safe, comparatively easy, and in a reasonably short space of time. I propose in this article to point out the way in which one of the modifications of the operative proceedings are applied to the relief of the different classes of cases, and to give illustrations by reference to patients who have come under my own examination, or of whom I have been able to verify the history, and to note the result of what has been done for them.

Putting aside all other considerations but those of treatment, these uterine fibroids range themselves into two groups. Those which are hæmorrhagic or leucorrhœal, and others which are not so, but where the attendant evils arise principally from the arrest or disturbance of the periodical functions of the organs of generation, and the mechanical interference with the position and continuous operation of the viscera concerned in organic life. In both groups we have to get rid of effects, and to remove the cause of these effects. If one woman is sinking because she loses too much, another flags because she loses too little. Both have a tumour which is the cause of the suffering. In the one case, we must begin with checking the outflow of blood with which the woman's powers and life are oozing away; in the other, we must re-establish and make easy a salutary exudation, by suppressing the secondary local inflammation or nervous irritation with which the deficiency is associated. In both we have to direct our ultimate efforts to producing a structural change in the overgrowth with, if not its destruction, a diminution of its bulk sufficient to allow of a return to all the suspended conditions of functional regularity.

To attain these ends, after the method of Apostoli, we have in our hands two powerful remedial agents: the positive pole of the electrical battery, which is antihæmorrhagic; and the negative pole, having contrary powers—hæmorrhagic; and being also, as Apostoli calls it, "*démétritif*." This negative pole is used in two ways, either for intra-uterine cauterisation, or by way-punctures in the diseased tissues. It is in the exact adaptation of these means to the end proposed that we have reason to hope for success. The leading indications are simple enough, but qualifying conditions come up at each step of progress and demand vigilant caution. With that and experience no treatment can be more free from pain and danger, no results more satisfactory. Delicate manipulation, patience, circumspection, and a thorough knowledge of what may be the consequences of either rashness or timidity, are the requisite qualifications of an operator. These are to be abundantly met with among the members of the profession,

but I am afraid that the questions of time and convenience, inevitable in electrical operations, will often be found incompatible with the ordinary engagements of practitioners. Operative details would be

out of place here (see JOURNALS, Nos. 1379 and 1331), and I must confine myself to indicating how, in a typical case, without complications, the treatment moves onward. I take, first, the use of the positive pole in cauterisation.

A patient with one of these interstitial hæmorrhagic fibroids is generally an object of pity. She comes to you pale, exhausted, often changing her position to relieve her suffering, walking with difficulty, unable to work, complaining of headache, sleeplessness, palpitations, with the breathing quick, the appetite gone, the stomach rejecting food, the bowels constipated, the bladder irritable, lancinating pains in the lower part of the body, a sense of weight and fulness in the pelvis, cramps in the thighs, and lymphatic stagnation, with swelling of the feet. At her periods she loses profusely. They come too frequently, and there is sometimes almost continuous hæmorrhage, or hæmorrhage alternating with leucorrhœa. Examination discovers the uterus enlarged, with a tumour bulging into the cavity or projecting outwards, distorting the body, shortening or obliterating the neck, bringing the whole mass low down into the basin, and necessarily pressing on the bladder, obstructing the rectum and impeding the movement of blood and lymph.

The first indication here is to stop the loss which is draining away life. Period or no period, the positive galvano-caustic is applied to the cavity of the uterus in proportion to the measurement and the power of endurance of the patient. At this first sitting she may not be able to bear a higher intensity than 50 or 100 milliampères for more than five minutes. The first cauterisation is always tentative, and tests the susceptibility of the patient. We must always avoid causing any severe pain. In a few cases the electro-chemical action set up in this one application stays the bleeding. Occasionally it is followed by a slight aggravation of all the symptoms. This is a precursor of better things, and the patient may be tranquillised by the assurance that it will soon subside, and give place to a period of calm and improvement. It is rarely necessary to do more than enforce perfect rest in bed. The gauze in the vagina must be changed, and injections regularly used. Repeated on alternate days, or every third or fourth day, the dose is gradually augmented. An eschar is formed, the mucous membrane is renewed, the surface becomes contractile and resistant, exudation cannot easily take place, and the hæmorrhage is stayed.

The woman soon shows the effect of such relief. She sleeps, has less languor, and is more disposed to food. The stomach digests the food she takes, the circulation is freer, the nerves less agitated, and the lymphatics work. A few days of such unwonted nutrition make a great change. The countenance brightens, the spirits are more elastic, and with hope and confidence the woman now asks for a continuance of the treatment which at first she submitted to passively and fearfully. The positive-pole cauterisations go on at intervals varying according to circumstances, with interruptions at the time of menstruation. By degrees one can prove with the sound a lessening of the uterine cavity. The tumour shrinks, its form changes, it sometimes becomes nodulated. The abdominal and pelvic troubles grow less and less, the periods are natural as to time, quantity, and character, health is restored, and the woman resumes her usual habits. Contraction of the tumour goes on for some time after cessation of the treatment, though it very seldom happens that it advances so far as to leave no tangible trace. What remains is an inconvenience easily suppressed, and to which habit makes the bearer indifferent. It is satisfactory to find, from five years' experience, that relapses are exceptional. Once arrested, the disposition to growth of the tumour seems to be definitely suspended, the residuum is an inert mass, and the patient keeps free from trouble. It has happened that an early menopause has been brought about. There have been no dissections to show the histological changes.

I have summarised a few cases. CASE I.—Madame B., 26 years of age, sound constitution and general good health. Married when 16 years old. Had three children by the time she was 23. Labours natural. Menstruation before marriage fairly regular, scanty, and without pain; after marriage more frequent, more abundant, but still painless. Health remained good up to January, 1886, when, after a severe shock, caused by the sudden death of one of her children, her troubles began. Menstruation was suspended for two months—at the third month slight reappearance. She now became subject to giddiness, frequent fainting, and loss of appetite. Was laid up with an attack of rheumatism, complicated with cystitis and hæmaturia, for fifteen days in April. Menstruation recommenced, and became profusely hæmorrhagic. This continued, with intervals of eight or fifteen days, from May to September; flow often mixed with clots. Health gave way; she grew thin; coughed, with bloody expectoration; lost all desire for food, and had incessant pain in body and back. Dr. Legris, her attendant, and M. Tillaux, of the Hôtel Dieu, ascertained