cent. Personally, I view the operation in the majority of cases as possessing the only risk of sepsis. Passing from the question of risk to the next most important point we have to consider, namely, what does operation offer for the relief of hopeless cases such as are handed over to the surgeon by the physician. For the better consideration of this question, I believe the work of each person in each individual disease should be taken alone, and for this purpose have provided a table (see Table V) of all the cases I have myself operated upon.

In the first place, as regards fracture of the spine. Unquestionably, it seems to me, we ought to operate without delay in all cases where displacement or crepitus indicates compression, and where extension directly after the accident clearly fails to reduce the deformity.

It is hardly necessary to do more than point out that, admitting the advantages of early operation, the fact remains that nevertheless recovery is always possible.

The next most important subject is caries of the spine. While agreeing with Dr. Macewen that operation in acute cases is likely to be unsuccessful, I cannot but think that where, as in my second case of caries, there is great pain, this might best be relieved and the abscess opened by trephining the spine posteriorly. In any case it does no harm, and I have also seen cases advised to be let alone die in the excruciating agonies of acute compression, a state of things which is certainly a reproach.

As regards the value of the operation there can be no doubt. The first among the cases of caries in the table is, perhaps, the strongest evidence, since the patient was cyanotic and obviously dying when the arches of the atlas and axis were removed with complete relief. In one case only does the patient remain in *statu quo*. Even where there was extensive concomitant tubercular disease in other viscera I have seen (as in Case 6) patients actually improve after this operation.

Of exploration I need not speak, as the cases in which I have performed the operation are given in the table, and could only be advantageously referred to in detail, for which my allotted time has long since been exhausted.

In conclusion, let me say that in the very large majority of the cases alluded to, unless something be done, the end is hopeless and painful. Further, that the two considerations customarily before one in recommending operative treatment do not here possess the same import or bearing as in other diseases of other parts. I refer to (1) the risk of operation; (2) the possibility of benefit resulting therefrom.

Of risk, enough has been said; and in view of the inevitable fate of such cases not so treated, it is certainly *une quantité négligeable*.

As to benefit, I venture to claim all improvement for the operation, inasmuch as retrogression and death otherwise infallibly occur.

I am greatly obliged to you for the courteous attention which you have accorded me.

THE WORKING OF THE LUNACY ACTS.—Dr. Freer has called our attention to facts disclosed at a recent meeting of the Droitwich Board of Guardians. From information at our disposal and the report in the *Birmingham Daily Gazette*, it appears that complaint was made respecting the case of a pauper lunatic, a young woman who became insane after childbirth, and it was stated that at the time complaint was made it took two men to hold her down, and that she had not tasted, apparently had refused, food for several days. The medical officer had given the relieving officer an instruction or notice to remove the lunatic to an asylum, but this had not been done. The relieving officer was asked by the Board for an explanation, and, as reported by the paper above-named, "he admitted the facts as stated, and said the difficulty arose in consequence of the regulations under the new Lunacy Act, by which only certain magistrates appointed by quarter sessions could make an order for the removal of lunatics. He had spent the greater part of two days in seeking for a magistrate qualified to sign the order. All the magistrates in the neighbourhood who were so qualified were either ill or absent, and the woman was in such a dangerous condition that he could not take her some miles across the country in a cab to a distant magistrate." The difficulty appears to have been the outcome of misapprehension. Any justice having jurisdiction in the place where the woman resided could have seen her and signed the order [Lunacy Act, 1890, Sect. 14 (2) (3), and Sect. 17].

TAPPING AND DRAINING THE VENTRICLES IN CERTAIN CASES OF BRAIN DISEASE.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association, held in Birmingham, July, 1890.

By A. W. MAYO ROBSON, F.R.C.S.,

Honorary Surgeon Leeds General Hospital; Lecturer on Practical Surgery Yorkshire College; and Examiner in the Victoria University.

In 1888, while sitting powerless by the bed of a child dying of coma due to meningitis, a train of thoughts passed through my mind, which, culminating in the ideas set forth in this paper, have also for their foundation a case which came under my care in February, 1889.

Can we, in looking at the brilliant success of abdominal surgery, ever hope for like results in the surgery of the brain? The answer to this question depends on another: With what degree of safety can we open the skull, and, when opened, explore the contents?

The work of Macewen, Horsley, Barker, von Bergmann, Keen, and numerous other surgeons both at home and abroad, proves beyond doubt that the operation of trephining, if undertaken with proper precautions, is not by any means a dangerous one, probably not more dangerous than opening the abdomen; and that the brain may be explored in various directions without adding very materially to the risk is also proved by numerous recorded cases.

Thanks to the work of Hitzig, Ferrier, Goltz, Schäfer, Hughlings Jackson, Horsley, Fraser, and others, cerebral localisation has been so well worked out that many instances of hitherto hopeless brain disease are now capable of being correctly diagnosed and successfully treated by the surgeon; but there remains a large group, or, I should perhaps rather say, there remain large groups of cases, where the disease is not so distinctly localised, and where the changes in the brain or its coverings are often only of a temporary nature; where medical means alone frequently fail to cure or relieve, and where surgery has not yet generally ventured to interfere. I refer chiefly to the inflammatory conditions ending in coma. It will be at once thought—but how numerous are the cases of abscess within the cranial cavity which have been successfully drained? I am not referring to these, but rather to those cases of meningitis, whether simple or tuberculous, where symptoms of coma more or less gradually supervene.

If we have a serous, purulent, or tuberculous peritonitis, we do not hesitate to open the abdomen and drain it; and if we have a pleura full of fluid, we feel it our duty to perform paracentesis, or, if the fluid be purulent, to incise and drain the chest. Then why, if we can as safely open the skull as we can the abdomen, should we allow the brain to suffer compression, even unto death, when we can, as the following case will prove, tap the ventricles and remove the pressure?

The following case, which is I believe one of the earliest, if not the first, in which the operation of trephining and tapping the ventricles has been performed, will serve to illustrate my remarks:—

A Case of Localised Meningitis, with Accumulation of Fluid in the Lateral Ventricle, treated by Operation. (Under the care of Dr. T. Churton and Mr. Mayo Robson). Medical history by Dr. Churton.

—A G., aged 10, a fair, rather delicate child, was admitted into the Leeds Infirmary under my care on January 19th, 1889, complaining of pain around the left ear and over the whole of the left side of the head. She was fretful and constantly crying out, but quite conscious. (Notes were taken by Mr. Reginald F. Walker, then house-physician). Temperature 103.6°. She was rather deaf in the left ear, and there was a little discharge from the meatus. There was marked tenderness around the ear, especially over the mastoid process, but neither redness nor swelling. Tongue dry, brownish in centre; food taken fairly well; no vomiting; bowels constipated; urine lithatic. Pulse quick; heart normal. *Tache cérébrale* obtainable. The patient had had nocturnal enuresis since infancy; measles at 2 years of age; bronchitis a few months ago. Pain in the ear and head, with feverishness, began on December 19th; on the 22nd, the ear began to discharge pus stained with blood. This discharge continued, but in diminishing quantity. On the 12th it was noticed that the patient kept her head

very rigid and complained of pain if it was moved. She also rambled at times, and there was some twitching about the angles of the mouth. There was constipation, but no vomiting. In the evening of the 18th she was worse; temperature 105° . The note made on January 22nd is as follows: Apparently no pain, but the child is restless and constantly talking. Sleeps very badly. Takes milk freely. Tongue dry and brown. No aural discharge; no optic neuritis.

A diagnosis of basal meningitis in the left, middle, and posterior fossæ was made: and on the 24th she was ordered to have a grain of calomel night and morning, and a grain of potassium iodide with tincture of bark every four hours. A week later (January 31st), she was brighter and less irritable; the temperature was normal, but the pulse was 112 and the breath-rate 32. On February 5th the evening temperature was 103.5° , and she was found to have right hemiplegia and aphasia. There was slight twitching of the arm and tonic spasm of the thumb. The child was restless and not completely unconscious; the pupils were dilated; there was double optic neuritis; no rigor.

It was thought thrombosis of some vein, possibly even of the left lateral sinus, had occurred, but during a consultation a suspicion of cerebral abscess was entertained, so that on this ground, and also with a view to possible relief of intracranial pressure, an exploratory operation was agreed upon. In the result, it appeared that the diagnosis of a circumscribed basal meningitis was probably correct, the accumulation of fluid in the lateral ventricle being secondary to the meningitis.

February 6th. An operation having been decided on, the patient's head was shaved, and a carbolic dressing applied.

Operation, February 7th. The fissure of Rolando having been mapped out, the A.C.E. mixture was administered. A large semilunar flap was turned down, and the skull was trephined with a trephine $1\frac{1}{2}$ inch in diameter over the situation of the motor centre for the arm. On raising the dura mater, which appeared to be healthy, the surface of the brain was found to be compressed and non-pulsatile. An exploring syringe was thrust deeply in various directions in the hope of reaching pus, but failing to find any purulent collection, the needle was inserted into the posterior extremity of the second frontal convolution, and pushed transversely inwards and slightly downwards into the lateral ventricle. Six drachms of clear fluid were drawn off, after which natural pulsation returned in the exposed convolutions. The dura mater was then carefully sutured by means of fine catgut, several bone grafts were placed over it, and the scalp was stitched in position, no drainage tube being employed.

On the following day, slight power of movement returned in the arm, and soon afterwards in the leg. On the third day, the patient could answer simple questions. Improvement continued, and within a month all paralytic symptoms had disappeared. The wound healed by first intention without any sign of pus, and

when she went into the country at the end of a month, she seemed bright and well, could speak like other children, could use her hands perfectly, and could walk with a slight limp. When seen six months after, she was in good health and perfectly well except that she was occasionally subject to slight convulsive seizures, not accompanied by loss of consciousness, and limited to the right arm; the attacks were possibly due to adhesions at the site of operation. Bromide of potassium was prescribed, and when last seen the attacks were only occasionally recurring. The patient was shown at the Leeds meeting of the British Medical Association, August, 1889.

REMARKS.—It may happen that the simple opening of the dura mater and evacuation of fluid without puncture, or that simple tapping, as in the present case, may suffice to give such relief that the balance of circulation will be restored and recovery follow,

but in other instances proper drainage may be required. It might be thought that drainage of the cerebro-spinal fluid over a longer or shorter period might be in itself a serious matter, but many cases can be brought forward to prove that this not so, and that so long as the wound is kept aseptic the fluid may escape without doing serious harm; for instance, on several occasions, after the excision of a spinal meningocele, I have seen a leaking of the cerebro-spinal fluid, in some instances for several hours, in others for several days, and in one case where I partly excised the sac of a syringo-myelocoele, and replaced the spread-out nerves in the spinal canal, I deliberately drained the spinal cavity for some days, the patient making a good recovery. Other cases might be advanced where the escape of cerebro-spinal fluid after injury to the brain has not led to serious results; therefore one need have no fear of the loss of cerebro-spinal fluid *per se* doing harm; and that a drainage tube may be borne by the brain for a time with impunity is now amply proved by numerous cases in the hands of various surgeons.

The ventricles may be reached from the surface of the brain, and, thanks to Professor Fraser's researches in deep cerebral topography, we can tap or drain the central cerebral

cavities with great certainty, either through the frontal lobes, so reaching the anterior cornua of the ventricles, or through the occipital lobes to reach the posterior horns, or laterally to reach the ventricle of the corresponding side at any part. For instance, the anterior part may be reached by pushing a hollow needle horizontally inwards through the posterior extremity of the second frontal convolution, the middle part may be reached through the lower end of the second parietal convolution, and the posterior part through the posterior extremity of the superior temporo-sphenoidal lobe. This will be better shown by the accompanying plates taken from photographs kindly lent me by Professor Fraser.

In carrying out this procedure I would suggest the following points in the *technique* of the operation, several of which have been suggested by Mr. Victor Horsley:

Fig. 1.—Reduced, by kind permission of Professor Alec. Fraser, from a photograph in his *Guide to Operations on the Brain*.

1. If there be time, a purgative to be administered the day before operation.

2. The head to be thoroughly shaved and washed, and the site of the operation to be rubbed over with benzine.

3. The chief convolutions, the fissure of Rolando, and the base line to be mapped out, according to the needs of the case, with nitrate of silver.

4. A carbolic dressing to be applied, which is to remain on until the time of operation.

5. The anæsthetic, if one be required, to be the A.C.E. mixture.

6. The observance of strict antiseptic precautions.

7. In order not to lose the landmarks after the flap has been turned back, the scalp to be perforated at the necessary point by a small drill, so as to make an easily recognisable mark on the skull which will show after the flap has been reflected.

8. If the trephine opening have to be a large one a semilunar flap should be reflected, but if, as I would propose in these cases of simple tapping of the ventricles, the trephine opening be only a small one, then a simple vertical incision through the scalp should be made about three-quarters of an inch or an inch in length.

9. If drainage have to be effected the trephine opening must be larger, and then the dura mater must be reflected by an incision passing two-thirds or three-quarters round the circumference, one-sixth of an inch from the bony margin of the opening.

10. The avoidance of puncture in the course of the main vessels and through the known important parts of the brain, if possible.

11. The needle or director to be removed and reintroduced for every fresh puncture, so as to avoid lateral movement when within the brain.

12. The punctures to be made in the course of the fibres and vertical to the surface.

13. If a drainage tube is to be left in a fine director should be used, along which the small extremity of Professor Lister's sinus forceps can be pushed, so as to dilate the puncture, after which the drainage tube can be easily introduced by means of forceps.

Since writing this paper I have drained the lateral ventricles in a rapidly advancing hydrocephalus in an infant, but unfortunately I did not allow sufficient length of drainage tube, and when the brain began to shrink the tube slipped out of the ventricle, and failed to drain properly. Dr. Fraser's charts helped me considerably in this case also.

MR. BRUCE CLARKE, after congratulating Mr. Mayo Robson on his result, said he thought there were two important points to be considered in connection with this paper. In the first place, how far was the circulation likely to be interfered with and the patient damaged by the removal of large quantities of cerebro-spinal fluid? One case of the kind had been under his own care, in which the patient was suffering from chronic meningitis, and in which the subdural space was filled with fluid, probably half an

inch of fluid surrounding the brain. In this instance, though the wound did excellently, the patient gradually sank in four days, apparently from the draining off suddenly of so large an amount of cerebro-spinal fluid. He had seen another case—not one of his own—in which chronic hydrocephalus was present, in which the removal of large quantities of fluid seemed to produce speedily a fatal result. Another important point raised by Mr. Mayo Robson was the question as to how far tapping the ventricles could relieve a purulent basic meningitis. For his own part, he did not think it was possible to do so. Another question raised was what was the best method of carrying out antisepsis. He now never used anything else but plain water at the operation, washing the operation area with soft soap and his own hands with the same previously. He took care that his sponges and instruments were made pure with carbolic acid beforehand, but he used

nothing but water at the operation, and no drainage tube as a general rule. He found his wounds healed better and secreted less than by any other method.—Mr. KENDAL FRANKS said he would like to express the pleasure with which he had listened to Mr. Robson's paper, as he had recently had a case in which he tapped the lateral ventricle in a case of tuberculous meningitis with increasing coma. In the treatment of tuberculous peritonitis, it had been abundantly proved that cure could very frequently be effected by opening and draining the abdominal cavity. It could not well be explained how it was that cure was effected, but the fact was indisputable. He had for some time thought that it might be possible to relieve, and sometimes to cure, cases of tuberculous meningitis by opening the cranial cavity and draining the superabundant fluid which was threatening to destroy life by its very pressure. It might not be very easy to explain how this might cure the tuberculous mischief, but neither could it at present be said how a similar procedure cured it in the peritoneal cavity. The case to which he alluded was a boy aged 9, who was under the care of a medical colleague in the Adelaide Hospital. The child had been ill for only a short time, a little over a week. He was brought into hospital in a semi-unconscious

condition, with paralysis of the right arm and leg and decided weakening of the muscles on the left side. There was a previous history of otorrhoea on the left side. A consultation was held on the case, and the diagnosis lay between an abscess in the temporo-sphenoidal lobe and tuberculous meningitis. Operation was decided on, as the child was rapidly losing ground, coma was increasing, and a fatal issue was otherwise unavoidable. He (Mr. Franks) trephined over the posterior portion of the temporo-sphenoidal lobe, and at its lower margin. As soon as the plate of bone was removed the dura mater bulged into the wound, and when this was incised the brain substance was extruded forcibly; it did not pulsate. There was evidently great intracranial pressure. He passed a medium-sized blunt-pointed aspirating cannula into the temporo-

Fig. 2.—Reduced, by kind permission of Professor Alec Fraser, from a photograph in his *Guide to Operations on the Brain*.

sphenoidal lobe in various directions, but no abscess could be found. He then passed the cannula inwards, with a slight inclination forwards and upwards, until it entered the apex of the descending cornu of the lateral ventricle. There was instantly a full stream of clear fluid, which gushed out through the cannula. Lister's sinus forceps was passed beside the cannula, and then a drainage tube was inserted, and the wound closed and dressed. The child began to move the right arm and leg whilst on the table, and during the course of the afternoon recovered consciousness. His condition was most satisfactory. The next morning, pressure symptoms again presenting themselves, the drainage tube was taken out, cleaned, and replaced, but the symptoms did not improve. In about four days the child died, and a *post-mortem* examination was made. The ventricles were found to contain a very small amount of a sanio-serous fluid, the drainage had been quite efficient, but the cause of death was apparent on removing the brain, for its base was found to be the seat of purulent tuberculous meningitis. The immediate beneficial results of the operation were, however, so marked that Mr. Franks had been led to hope that, by interfering earlier in these otherwise hopeless cases, one might succeed in obtaining a good result.—Mr. WHEELHOUSE mentioned the fact that he had tapped and drained the cranium in a case of chronic hydrocephalus, but with a steadily approaching fatal termination; and had been so impressed with the hopelessness of the case from the first to the last that he made up his mind that the operation did not hold out a reasonable prospect of success. He drew attention to the essential difference between the contents of the peritoneum, the pleura, and the cranium.—Mr. MAYO ROBSON, in answer to Mr. Wheelhouse, wanted it to be clearly understood that, although he had mentioned the fact of his having drained a case of chronic hydrocephalus, his paper was intended to illustrate the advantage to be gained by the relief of pressure by operation in acute cases, which so often ended fatally by pressure. He said, in answer to Mr. Bruce Clarke, that in future he would modify the rapidity of drainage should he have to operate on a case of chronic hydrocephalus, as although he believed, from the record of numerous cases in which the loss of cerebro-spinal fluid had persisted for several days or longer, that *per se* it was not necessarily dangerous, the rapid evacuation, as in hydrocephalus, might be inadvisable. Mr. Robson thought Mr. Kendal Franks's case very interesting, and he believed with him that in many cases of tuberculous meningitis one might look for cure by operation.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

ON DUGAS'S TEST FOR DISLOCATIONS OF THE HEAD OF THE HUMERUS.

In the memoranda of the BRITISH MEDICAL JOURNAL of October 18th Dr. John A. Anderson gives a case of dislocation at the shoulder, in which he applied Dr. Dugas's test, and found it fail. I wish to confirm Dr. Anderson's statement by giving my experience in a recent case.

On November 20th a pit headman came to me suffering from an injury to his shoulder. Owing to a scaffolding giving way he fell a considerable distance. He could not say what position his arm was in when he fell. On making a careful examination I found the head of the humerus dislocated into the axilla. The articular surface of the bone could be distinctly felt in the axilla when the arm was raised. There was a decided hollow under the acromion, the shoulder was flattened, and the elbow stuck out from the side. In addition, and very important, I think, as a confirmation of the diagnosis being correct, all these signs immediately and permanently disappeared when I reduced the dislocation by extension with the heel in the axilla. I could make out no sign of fracture. After the reduction the patient moved the arm about and felt perfectly comfortable.

Remembering Dr. Anderson's case I determined to see what light mine threw on the matter. I found that I could put my patient's fingers upon the opposite shoulder quite easily, and without causing any pain worth mentioning, while his elbow was close to his side. He was a well-developed man but not at all stout, so that there was no fat to interfere with the close approximation

of the elbow to the side. I am inclined to think that the explanation of the condition lies in the fact that the muscles about the joint were very lax, as the arm could be freely moved, and also very slight traction was required to reduce the dislocation.

I consider the matter of some importance as I believe many surgeons rely on Dr. Dugas's test as absolutely diagnostic of dislocation of the shoulder. I remember one of my clinical teachers affirming this most positively and applying the test in a case of fracture of the neck of the humerus to prove that it was not a dislocation.

Kirkintilloch, N.B.

W. T. BLAKELY, M.B.

IPECACUANHA IN LABOUR.

WHILE the accelerating action of ergot in cases of lingering labour is universally known and acknowledged, there is another drug which, so far as I am aware, is not noticed in works on midwifery, and which yet is capable in such cases of rendering signal service; I allude to ipecacuanha. Not only in cases of rigid cervix, where possibly it might be considered to act in a similar manner to antimony, but in cases of simple inertia in either first or second stage, it is a potent instigator of uterine contraction.

In the course of general practice extending over many years I invariably carried a bottle of vinum ipecacuanhæ in my midwifery bag, and rarely, if ever, gave a dose of ergot in the first stage of labour. Time after time on coming to a confinement case where the pains had been feeble and inefficient, or had totally ceased, two or three 10 or 15 minim doses of the wine at intervals of ten minutes have been followed in a surprisingly short time by energetic uterine action, with a rapid termination to the labour. It never produces the quasi-tetanic contraction so often met with as the result of ergot, the pains continuing to recur regularly just as they do in natural labour, but with greater force and at shorter intervals. Conviction of the value of the drug for this purpose induces me to give my experience of it, believing that its merits will be recognised by any who choose to give it a trial.

Enniscorthy.

THOMAS DRAPES, M.B.

A LOOSE STITCH IN CÆLIOTOMY.

In a recent ovariectomy, where I had to use a drainage tube, I introduced what I think is a novelty. When the glass drainage tube is removed the wound at that spot is usually closed by a piece of strapping, as it would be difficult and painful to the patient to pass a suture with needles. What I did was this: When I sutured the wound I passed one stitch exactly at the site of the tube, leaving it loose, and shooting the ends to prevent its being accidentally drawn out, so that when the tube was removed all that had to be done was to tie this stitch. This has acted very well in the case referred to, and perhaps will lessen the tendency of the site of the tube becoming a weak spot in the continuity of the wound. I have used the word "cæliotomy," suggested by Dr. Harris, to designate central abdominal incision as being infinitely preferable to "laparotomy," which can only mean a flank incision.

Harley Street, W.

HEYWOOD SMITH.

COMPLETE ACUTE INVERSION OF THE UTERUS.

Mrs. M., multipara, sent for me at 2 A.M. on September 20th last. The message was urgent, as the child had been born before the messenger left home. I arrived on the scene about fifteen minutes later, and found the patient suffering from the effects of severe hæmorrhage and shock. I removed the child, and on applying my hand over the region of the fundus I failed to find any trace of the contracting uterus. The hæmorrhage had ceased, but the patient continued bearing down forcibly, and said she could not help it. I was about to make a vaginal examination, when I noticed the placenta, followed by a globular mass, to which it was attached, coming slowly through the vulvæ. The case was one of complete inversion.

I peeled off the attached placenta quite easily from the inverted fundus, smeared my hand with carbolic oil, and by means of gentle manipulation I had not much difficulty in reducing the displacement, and I had the satisfaction of feeling the replaced organ contracting firmly on my hand before removing it.

My friend, Dr. Grimoldby, for whom I had sent on discovering the serious nature of the case, confirmed the diagnosis of the condition, and we stayed about three hours with our patient, fearing that she might die from the serious amount of shock from which she was suffering. For the first week the patient suffered from