

Surrey Gardens; but since it has again found a suitable home, its importance and value have increased year by year, and now, in its way, I should think it is almost unrivalled. We are indebted for the progress, largely to the enlightened liberality of the treasurer and governors, but directly to the admirable labours of two successive curators: Professor Charles Stewart, who was with us for many years, and who was a year or two ago, much to our loss, elevated to the curatorship of the museum of the College of Surgeons; and Samuel Shattock, who now occupies the post, and has signalled his brief tenure of office by the most splendid work, and of whom I may mention especially that during the last few months, with the aid of Dr. Stone and Mr. Plowman, he has re-arranged, renovated, and enlarged the museum of *Materia Medica*, which, now that it is completed, is probably the finest, most perfect, and most serviceable museum of the kind in existence.

Year by year, gentlemen, during the fifteen years we have occupied our present site, our school, which had been so often and so seriously checked in its career, has increased in usefulness and prosperity, until once more it occupies a leading position among the metropolitan schools of medicine. Nor can I see any cloud in the horizon—any reason why our success should not be maintained in the future. But, while the school grows and prospers, those who contribute to its progress drop out one by one, and one by one new comers fill the places thus vacated. Fifteen years is a short time—at any rate seems short to those whose journey of life approaches completion, and for whom the abyss into which all must finally plunge is already within easy distance. Yet many changes have occurred even in this short time; and not only have we had losses amongst those who were with us from the beginning, but some of those who joined us later have disappeared from our midst. Some have died; some have left us from age or from ill health; some have transferred themselves to other spheres of usefulness. Our late treasurer, Sir Francis Hicks, under whose reign the present hospital was built, and to whose sagacious energy we are indebted for the carrying out of most of the improvements which I have discussed, died, after a short illness, nine years ago. Mr. Whitfield passed away a year earlier. Poor old Rainey, whose laborious and useful career among us had extended over so many years, worked with us for a time at this hospital; but he was falling into ill health, and probably few of those who only knew him here could form any conception of what kind of man he had been. He retired on a pension some years ago, and died but recently. Peacock and Murchison are both dead; and it is only within the last four months that poor Frank Mason, whose genial temper and kindness of heart had won for him the warm affection of all his colleagues, and of everyone who knew him, whose musical accomplishments were our admiration and delight, and whose eminence as a surgeon was universally recognised, was, to our infinite loss and grief, snatched away by death, in the prime of life, in the fulness of his powers, and when there seemed for him the promise and the assurance of a long and prosperous career. But great though our sorrow is when those we love are removed from among us, Time, the healer, brings its compensation in the hallowed memories that remain when the sting of loss is no longer acutely felt. And irreparable though our loss may seem when eminent colleagues and great teachers depart, they are yet not wholly lost to us, for their names, their examples, and their works survive, and add accumulating lustre to the school which they adorned.

I have now completed, however inadequately, the task which I had set before myself; and it only remains for me to give, on behalf of myself and colleagues, a cordial welcome to you who come among us to-day for the first time; to advise you to do your duty, and work systematically at your studies, for you have much to do, and little time to do it in; and to urge you here, and in the future, to show yourselves worthy heirs of those proud traditions which are the common heritage of all who join our ancient hospital and ancient school; and lastly, to thank you, Mr. Treasurer, and you my audience, for the kind patience with which you have listened to my address.

ADULTERATION OF BEER IN PARIS.—There is evidently a strong and creditable desire on the part of the authorities in Paris to put a stop to the adulteration of beer, and the recent agitation has, it is believed, already been attended with good results, and several foreign brewers are said to have given up its use. Dr. Chaumemps and the Committee of the Municipal Laboratory do not, however, mean to rest satisfied with half measures. They have had a recent interview with the Minister of Justice, in which they asked that adulterated beer should be thrown away as soon as it reached the frontier, or, if that were not possible, immediately after it enters the Paris railway stations.

BRITISH MEDICAL ASSOCIATION.

FIFTY-FOURTH ANNUAL MEETING.

PROCEEDINGS OF SECTIONS.

BRAIN-SURGERY.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Brighton.

By VICTOR HORSLEY, B.S., F.R.S.,

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THE following paper is necessarily, owing to the brevity of the time at the disposal of those reading papers at the meeting, a simple description of that method of operating on the brain which I have adopted as one which successfully meets the various difficulties and dangers of the task.

Since in many very essential points my method differs from what are considered by some the canons of surgery, I think the subject may best be handled by my describing, in detail, the treatment of an imaginary case, illustrating the same by these photographs¹ and specimens removed from the patients² you see before you, and from the lower animals the subjects of experiments.

Preparation of the Patient.—The day before the operation, the patient's head is shaved, and washed with soft soap and then ether; next the position of the lesion is ascertained by measurement, and marked on the scalp. The head is then covered with lint, soaked in 1 in 20 solution of carbolic acid, oil-silk and cotton-wool, being thus thoroughly carbolised for at least twelve hours before operation. Finally, the patient has the usual purgative administered the evening before, followed by an enema on the morning of the operation.

Anæsthetic.—The method of narcotising the patient is most important, and consists of the administration, by hypodermic injection, of a quarter of a grain of morphine, after which the patient is chloroformed. The object of giving the morphine is two-fold. In the first place, as is well known, it allows of the performance of a prolonged operation, without the necessity of giving a large amount of chloroform. In fact, the amount actually used in an operation lasting two hours, I have found to be very small. The second reason for employing morphine is, perhaps, the more important, since it is based upon the fact determined by Professor Schäfer and myself, from experiments on monkeys—namely, that this drug causes well-marked contraction of the arterioles of the central nervous system; and that, consequently, an incision into the brain is accompanied by very little oozing if the patient be under its influence. I have not employed ether in operations on man, fearing that it would tend to cause cerebral excitement; chloroform, of course, producing, on the contrary, well marked depression. Naturally, if there existed any heart-complication, the above theoretical considerations would be disregarded in favour of the safer narcotic. In the case of the second patient I show you to-day, from whom I removed this tumour, the heart is displaced outwards, and the lower lobe of the left lung rendered practically of very little use by repeated attacks of pleurisy; but I did not consider this condition was sufficient to negative the use of chloroform. In a case where considerable heart-mischief exists, no doubt an operation of the kind might be done under the influence of eucaïne. If this be attempted, care must be taken to employ a very strong solution when the dura mater is exposed, since that membrane is extremely sensitive (being supplied by branches of the fifth cranial nerve), a fact which appears to be unknown to clinicians, although it is obviously of immense importance in considering the causation of intracranial pain, cranial tenderness, etc.

Although solutions of eucaïne can, it is said, be made perfectly aseptic, further confirmation of this assertion must be produced before it is used as I have just suggested, since it can hardly be repeated too often that asepsis is the one cardinal point on which brain-surgery rests.

¹ Very kindly made for me by Dr. Wilson, Senior House-Physician to the National Hospital.

² By the courtesy of the Board of Management of the National Hospital for Paralysis, etc., the patients have been sent to the meeting at Brighton at the charge of the institution—an effort to aid the progress of medicine which I am sure the Association will fully appreciate.

Treatment of the Wound.—It is notorious that, for the last thirty or forty years, the operation of trephining has been in exceedingly evil repute, owing to the very high mortality which followed its practice. This mortality was evidently caused by the frequency with which septic meningitis followed opening of the dura mater, the danger of which procedure, by the way, was fully realised by Pott and his school, who employed the trephine very freely. Consequently, there had gradually arisen opposition to surgical interference with the brain. In the absence of antiseptic precautions of a most stringent nature, caution is of course praiseworthy; but, thanks to the teaching of Sir Joseph Lister, no one conversant with the splendid principles of scientific surgery discovered by his genius, need hesitate to follow the dictates of reason and common sense, and proceed to operate. I shall not enter here into a critical examination of vague statements which one sees paraded in our journals, respecting the treatment of wounds, since, even were the language in which they are couched worthy of notice, I must not waste the time of the meeting by discussing the first principles of surgery. I will now give briefly the results of a fairly wide experience on this question, having performed a large number of operations on monkeys, with only one failure, while similarly the application of the same methods to man has hitherto always been followed with success. As I shall frequently have to quote from experiments on the lower animals, I wish here to make a brief comment upon the opinions of those who seem to consider that the processes of repair of tissue in the lower animals differ greatly from those in man, and that, therefore, safe deduction cannot be made from one to the other. While admitting, of course, that the tissues of the lower animals are not so frequently the seat of fatty and other forms of degeneration, it is the greatest possible error to imagine that wounds heal in a manner different from that which we see in man. Indeed, to obtain primary union in some animals—for example, the horse—it is necessary to adopt the most elaborate precautions. The stereotyped views on this subject have no doubt hindered the progress of brain surgery, since the time when Dr. Ferrier and Professor Yeo fully demonstrated at the meeting of the Association at Cambridge, that the popular views concerning operations on the brain were erroneous.

The experience I have gained during the last two years will, perhaps, as Brown Professor of Pathology to the University of London, warrant my stating distinctly that the generally received opinion on this question is absolutely groundless.

To return to the point under consideration—namely, the treatment of the wound—I consider that, in view of the fact that almost all methods have disadvantages which entail great responsibility on the surgeon, the safest is strict Listerian; meaning by that expression the use of the carbolic spray, 1 in 20 carbolic lotion, and, for the first few days, at any rate, dressings of carbolic gauze. Although, of course, one meets with idiosyncrasies against carbolic acid, now and then leading to some inconvenience, it is surely better to use it, as being the most powerful, and at the same time safest disinfectant, until some better is discovered. I need hardly say that the use of sublimate wool, the skin being protected by carbolic gauze, or other slight modifications, may prove more serviceable; but good carbolic gauze is quite elastic enough to obtain the best results.

Line of Incision.—It is the general custom to remove the soft parts from the cranium by means of a cruciform cut. I would point out that this method is practically inconvenient, since four distinct flaps have to be held back, requiring as many assisting hands, all very much in the way. If, on the contrary, a semi-lunar flap be raised, it can be simply thrown back, and requires no more holding. One or two details will not be out of place here. 1. The incision must be carried vertically to the bone, and all parts superficial to the periosteum raised with the flaps. 2. The curve must be a shallow one, to avoid cutting collateral vessels. 3. It must be so drawn as not to divide the main arterial trunks supplying that portion of the scalp. (This can be very easily done without interfering with the first twenty-four hours' drainage of the wound, even if the flap be turned downwards, since, as the patient lies in the supine position, the discharge can always escape freely from the posterior border.) The periosteum should be reflected by a crucial incision from an area corresponding to the first trephine-hole, and subsequently as more bone is cut away.

Removal of the Bone.—Our present means of removing the bone are open to considerable improvement, no doubt, but one of the safest and most rapid is to make a couple of trephine-holes at the opposite extremities of the area to be removed, then to half cut through the sides of such an area with a Hey's saw, and, finally, to complete the division with a powerful bone-forceps. Assuming that the dura mater has been, by means of the trephine-holes, separated as far as possible

from the under surface of the bone to be removed, I should have premised that, as no doubt will be usually the case where exploration has to be made, the opening of the skull will have been commenced by the removal of a large disc with the trephine. It will be found, I think, that the most convenient sized instrument for this purpose is one two inches in diameter. Where it is possible to preserve the dura mater intact, the portions of the bone removed should be preserved in warm aseptic sponges, and, at the end of the operation, should be placed between the skin and dura mater, having previously been divided into small fragments after the manner indicated by Dr. Macewen.

Treatment of the Dura Mater.—The dura mater should be incised round four-fifths of the circumference of the area exposed at $\frac{3}{4}$ -inch distance from the edge of the bone, so as to render it possible to stitch the edges together afterwards. The dura mater is best opened first by incision with the scalpel, and then by blunt-pointed curved scissors, great care being taken not to wound the meninges beneath. The main branches of the middle meningeal artery are best secured by a ligature passed through the dura mater just outside its cut edge, and knotted before the vessel is divided.

Treatment of the Brain.—The first practical point to notice after the division of the dura, is whether the brain immediately bulges into the trephine-hole or not. Although my experience on this point in man is founded on five cases, three of which were cases of tumour cerebri, I am inclined to believe that the fact of the brain bulging very prominently into the wound, indicates pathological intra-cranial tension—a piece of evidence which, if true, is obviously of the highest importance, since, other things being equal, it will indicate the existence of a tumour. I have never, in experiments on healthy animals, observed such immediate bulging, and, conversely, it has never been absent in the three cases of tumour. (The two cases not accounted for in this paper are respectively: 1. The case reported by Dr. Bennett and Mr. Godlee in the *Medico-Chirurgical Transactions*, vol. lxviii, p. 249. 2. A case of tumour cerebri just operated upon by me.)

If nothing obviously abnormal presents itself in the membranes, the next point, or systematic observation of the brain, is its colour. Experience alone will give adequate familiarity with the appearance of the living brain, and, consequently, warrant anyone giving a decided opinion on the subject. As I am one of those who do not consider it justifiable to try an experiment on man before I have found it to be harmless to the lower animals, I regret very much that existing legislation makes it almost impossible for operating surgeons to acquire this fundamentally important experience. I lay special stress on this point, since the existence of a slight yellowish tinge, or, possibly, the contrary condition, namely lividity, will indicate the existence of a tumour beneath the cortex in the corona radiata.

The condition of the vessels and the perivascular lymphatics must next be investigated, and particular note taken of any yellowish white patches in the walls of the latter, indicating old mischief. I may here note that an accurate knowledge of the arterial and venous supply of the brain is highly necessary, since, not only for this purpose, but also for the more difficult one of removing portions of the brain, is it of great service to see at once what portions of the brain are actually, or likely to be, deprived of their blood-supply. Alterations in the density of the brain must next be observed; but it must be remembered that cerebral tumours situated beneath the cortex are scarcely to be detected, save by exploratory incision.

The examination of the brain exposed being supposed to be completed, the next point to consider is the mode of removal of a portion of the brain or tumour.

Perhaps the one dread of attacking the brain surgically has been the fear of hæmorrhage. This is as unreasonable as the taking of precautions against septic changes in the wound is indispensable. However, we must devote a little time to its consideration, for it has been the custom to avoid the supposed danger by the use of the actual cautery, a barbarous plan, which is accompanied, of course, by secondary inflammatory troubles, as proved by experimental investigation.

A moment's thought shows us that in the brain, just as in the kidneys, the vessels (and it is the arterioles we are most concerned with) are directed perpendicularly to the surface. Everyone who has had experience of operating on the kidney knows that a free incision of the knife into that organ is followed by profuse—and, to some, alarming—hæmorrhage, but that this bleeding will permanently cease if the wound be plugged for a few minutes with a piece of sponge.

With this suggestive fact in view, it seemed to me that we ought to treat the brain in exactly the same way, and thus, while being conservative as far as possible, we should obtain in addition a cleanly cut surface most favourable to rapid union. It will be

noted, in connection with this point, that when considering the anaesthetisation of the patient, I showed that much of the hæmorrhage³ could be guarded against by the use of morphia. Perhaps, considering the terminal character of the cerebral arteries, it is scarcely necessary to urge that, where possible, every main vessel should be left intact; but I may be allowed to point out that, owing fortunately to the fact of their running in the pia mater, they can be raised from the brain, and especially out of the sulci, so as to allow of the subjacent brain being removed, while, at the same time, the vessel-wall is so little damaged, that any resultant thrombosis will be of a very temporary nature.

Further, in incising the brain, the cuts in the cortex must be made exactly vertically to the surface, and directed into the corona radiata, where necessary, in such a manner as to avoid damage of the fibres coming from the portions of cortex, and surrounding the seat of operation. This, of course, is easily done by remembering the paths taken by the fibres from the cortex to the internal capsule. There are many other points connected with the physiology and pathology of the brain which will regulate operative treatment of the same, such, for instance, as the taking care to leave, if possible, portions of each centre, so that the representation of the movements of any particular joint may never be totally destroyed, for total destruction means obviously a permanent paralysis on the opposite side of the movements previously regulated by that cortical centre.

A portion of brain removed, whether normal or abnormal, does not leave, as might have been supposed, a permanent gap with vertical sides, for, even in a very short time, the floor of the pit—that is, the corona radiata—bulges almost to a level with the surrounding cortex. In addition, the cut edges become slightly everted, and if less brain than bone is removed, they are extruded into the opening in the skull. Thus, owing to the mechanical relations between the brain and the skull, there is, normally, a tendency to hernia cerebri, as you see well shown in these photographs of a monkey's brain operated upon successfully under these conditions.

I do not at all propose to discuss the causation of hernia cerebri, as it is usually understood, since that condition can only occur when the reflected flap of scalp has not united by the first intention, a further necessary factor being decomposition in the wound, and conversion of the latter into a suppurating cavity.

The advantage of raising a large flap of scalp, which can be laid down again like the lid of a box, will now be obvious, since, being continuous throughout, it offers plenty of resistance to the upward gushing brain, which the point of meeting of four cross cuts can never do; this, indeed, on the contrary, favouring the very thing one wishes to avoid. The principal resistance to this hernial protrusion of the normal brain is, of course, supplied in other ways. (See Drainage and Dressing, below.)

Closure of the Wound.—All oozing, etc., having been made to cease by gentle pressure with a soft sponge, the flap must be laid down and secured with medium silk sutures at distances of one centimètre, and between these, horsehairs.

With the closure of the wound, we are brought to consider the important question of drainage. I suppose that, at the present time, I shall be accused of insanity if I propose to lay down the dictum that, as a rule, wound-cavities produced by removal of portions of the brain are not to be drained for more than twenty-four hours; but it is, nevertheless, my intention to make such a proposition. Let us consider for a moment the conditions of the problem. We wish to obtain union by the first intention—that is, firm union in four or five days. We also wish to secure pressure on the brain, which, as just mentioned, is tending to extrude; and, finally, we wish to arrange matters so that, when the wound is finally healed, the flap of skin may be separated from the brain beneath by a rushion of soft normal (that is, non-inflammatory) connective tissue. All these latter conditions are to be obtained by allowing a certain amount of tension of wound-exudation within the cavity. During the first twenty-four hours, there is a steady oozing of blood and serous fluid from the cut surfaces. This is best removed; and therefore I put in a drainage-tube at the most dependent point of incision (that is, as the patient lies in bed). This tube is to be taken out the next day, and the wound carefully dressed, firm but gentle pressure being made over the centre of the flap. If the wound-exudation that subsequently collects in the cavity accumulates to any appreciable extent, on the third day the patient may complain of some pain and throbbing in the wound, which, when exposed, will be

found to be distended in the centre, the periphery being firmly united. Now comes a most difficult point in the treatment—namely, the question whether this tension is to be allowed to proceed, or whether it should be released. By adopting the latter measure, the advantages of the pressure will be lost; so that the point in question is one requiring special attention. The practical feature upon which it is to be decided is the very simple one whether the primary union is in danger of being broken down by the pressure or not. If the former is the case, the pressure can easily be diminished by gently opening up the track of the drainage-tube with a probe, and liberating some of the exudation. The value of the tension in reducing the tendency to hernial protrusion is obvious; but I wish to draw attention to the fact that, until it is finally absorbed, the heightened pressure serves two purposes. In the first place, it compels the lymphatics of the brain meninges to absorb the fluid, just as the peritoneal vessels do after ovariectomy, so admitting of rapid union of the whole skin-wound; and, in the second place, it acts as a kind of scaffold for the building up of normal connective tissue in the part. This latter point is very obvious in the lower animals, in which, if we reopen the wound at the end of a few days, the cavity is always found filled with a delicate, spongy, pink connective tissue, the meshes of which contain the above-mentioned wound-exudation. It is this connective tissue which is to form an elastic barrier between the scalp and the brain. As a general rule, it will never be necessary to do more than relieve the tension in the wound once. At the end of a week or five days, the wound may be lightly covered with a little powdered boracic acid, cotton-wool, and collodion; and the stitches may be removed at any time after the first week. It will always be found that the scalp tends to fall in a little at the seat of operation; but, if the foregoing directions have been faithfully followed out, the hollowing will be slight.

It may be considered as a point of practical importance whether a patient will not run considerable risk in pursuing his avocations with a large gap or gaps in the skull. As a matter of fact, this is of little account, as evidenced by experience.

It may here be conveniently observed that, supposing a second operation to become necessary, it will be found that the cicatricial tissues referred to above, will be more vascular than the normal tissues, and that the dura mater is slightly adherent to the surface of the brain close to the cut margin on the dura mater. Finally, old cicatrices in the substance of the cortex cerebri, above all those which have healed by suppuration, and which fill up cavities produced by traumatic loss of substance, frequently displace large vessels, and often afford passage for large veins.

The preceding paper is only intended to be a brief sketch of the chief points I have found it to be practically useful to observe in operating on the brain; but I am very glad to have this opportunity of expressing my indebtedness to the Association, which, by its Scientific Grants, has made possible the performance of the experiments upon which the foregoing methods are based.

THREE CASES, ILLUSTRATIVE OF THE FOREGOING PAPER.

The following cases, which I have treated according to the method just described, afford many points of general interest, and suggestions for future treatment. Perhaps I shall do better to enumerate these where they naturally occur in the clinical histories. I shall, however, recapitulate, at the end, those points which appear to me specially worthy of attention.

I wish, however, first to express here my great indebtedness to Dr. Wilson, senior House-Physician to the National Hospital for Paralysis and Epilepsy, Queen Square, for his assiduous care of the following cases.

CASE I.—James B., aged 22, was admitted into the National Hospital for Paralysis and Epilepsy, under the care of Dr. H. Jackson and Dr. Ferrier.

Past History.—At the age of 7, the patient was run over by a cab, in Edinburgh. He was at once admitted into the Royal Infirmary, under Professor Annandale, who found a depressed comminuted fracture, with loss of brain-substance, in the situation mentioned below. The fragments of bone, etc., were removed, and the wound ultimately healed, although it suppurated freely, and hernia cerebri occurred. The patient was hemiplegic for some time, but gradually (seven weeks) the paralysis disappeared. At about 15 years, the patient began having fits, which were very intermittent. He was admitted into the hospital in 1885, when he had an enormous number

³ No doubt one additional reason why the hemorrhagic oozing so soon stops in a brain-wound, is that clotting is induced early by the presence, in considerable quantity, of the lecithin proteid compound which exists in quantity in the brain, and has been discovered by Dr. Woodruff to play a very important part in the process of coagulation. *Ibid* Reports of the Brown Institution, etc.

⁴ Owing to the great courtesy and kindness of Professor Annandale, who supplied Dr. Ferrier with an elaborate description of the case while under his care, I am fortunately able to furnish an accurate history of the injury causing the epilepsy.

of fits, and for some days was in the *status epilepticus*. After discharge from the hospital, he had no fit for seven weeks, at the end of which period they returned, and for three days before admission he was again in the *status epilepticus*.

Present State.—On the left side of the vertex of the head (the exact site as determined by measurement being the centre of the upper third of the ascending frontal convolution; that is, posterior to the hinder end of the superior frontal sulcus) there was a quadrilateral scar, opposite the centre of which the bone could be felt to be wanting, so as to form an oval opening in the skull, the long diameter of which was about 1 inch, and parallel to the sagittal suture. Pressure on this scar always gave pain, which was very greatly increased when the patient was suffering one of his paroxysms of fits.

Fits.—The fits, which occurred in batches (at this time the patient had 3,000 in a fortnight), were almost always of the same character, usually commencing in the right lower limb, sometimes in both the right limbs, simultaneously. An example of a fit of the first category, is as follows.

"The right lower limb was tonically extended, and the seat of clonic spasm. The right upper limb was then slowly extended at right angles, to the body, the wrist and fingers being flexed; the fingers next became extended, and clonic spasms of flexion and extension affected the whole limb, the elbow being gradually flexed. By this time, spasms in the lower limb having ceased, but those in the upper limb continuing vigorously, spasm gradually affected the right angle of the mouth, spreading over the right side of the face, and followed by turning of the head and eyes to the right."

To sum up, the parts affected were so in the order of lower limb, upper limb, face, and neck; the character of the movements was, first, extension, then confusion, finally, flexion⁶, showing clearly that the focus of discharge was situated around the posterior end of the superior frontal sulcus, this point coinciding, as mentioned above, with that found by actual measurement. Before going on to describe the surgical treatment, it is important to mention that the patient was distinctly hemiplegic, even ten days after the last fit, but he could perform all the movements of the right limbs, though about half as strongly as on the left side, there was no affection of sensation on the right side, while the reflexes, superficial and deep, were exaggerated in both the right limbs.

Operation, May 25th, 1886.—According to the method described in the foregoing paper, the bone around the old opening was freely removed, the dura mater, arachnoid, and skin being found to form a homogeneous mass of fibrous tissue; the former was raised with the flap. The scar in the brain was found to be highly vascular, of a deep red colour, and about 3 centimetres long and 2 broad. The membrane covering the brain around appeared to be very opaque, and the brain of a slightly yellower tinge than usual. The scar, and about half a centimetre of surrounding brain-substance was excised to the depth of 2 centimetres. It was then found that the scar-tissue penetrated a few millimetres further into the corona radiata fibres of the marginal convolution. This portion was then removed, and the wound closed. In the removal of the mass, three fair-sized veins, coming directly from the middle of the area for the upper limb, had to be ligatured, since they passed directly into the scar. The wound completely healed in a week. The tension of serum was twice relieved (once, probably unnecessarily). The most interesting point now to be recorded is, that after the operation the patient was at first completely paralysed in digits of the right upper limb; and for further flexion of the wrist and supination of the fore-arm. Coupled with this motor paralysis, there was loss of tactile sensibility over the dorsum of the two distal phalanges of the fingers. He could not localise the touch anywhere below the wrist within the distance of one internode; finally, he could not tell the position of any of the joints of the digits. Then we have here, apparently, a distinct instance of loss of tactile sensibility and muscular sense, coupled with motor paralysis, all due to lesion⁷ of the cortex. It cannot, however, be too clearly understood that it is very possible that some of the fibres coming from the gyrus fornicatus in the corona radiata may very probably have been injured. This condition of motor and sensory paralysis gradually disappeared in the course of the next two months. Up to the present time the patient has had no fits.

CASE II.—Thomas W., aged 20, was admitted into the National Hospital under the care of Dr. Hughlings Jackson.

Family History.—There was nothing important, save that a paternal aunt died of consumption.

Past History.—He had had many attacks of pleurisy after the age of 15.

History of Present Illness.—He began, in January, 1884, to have "cramps" in the left thumb and forefinger, these consisting of clonic opposition of the named digits, and occurring about twice a day for three months. The first severe fit occurred in March, 1884. Spasm spread up the arm, and the patient fell. He had the second in January, 1885. Then followed a series of remissions of the twitchings, until, in August, 1885, another severe fit commenced a series of fits, occurring once or twice a week, until admission on December 4th, 1885. The character of the fits was almost always the same. They began by clonic spasmodic opposition of the thumb and forefinger (left), the wrist next, and then the elbow and shoulder were flexed clonically, then the face twitched, and the patient lost consciousness. The hand and eyes then turned to the left, and the left lower limb was drawn up. The right lower limb was next attacked, and, finally, the right upper limbs. Paralysis of the left upper limb frequently followed a fit. At frequent intervals every day the patient's thumb would commence twitching, but progress of the convulsion could often be arrested by stretching the thumb or applying a ligature. In February and March, 1886, the twitchings frequently commenced in the face, but in April again the thumb was the most frequent seat of origin of the fits.

Present State (much abbreviated). **Motion.**—The grasp of the left hand was 45; of the right, 85. He could perform all movements with the left upper limb, though those of the hand were rather enfeebled. The left thumb was frequently in a state of rigidity, alternating with clonic spasm. (This state could easily be induced by manipulating the thumb.) **Sensation.**—There was no affection, save loss of muscular sense (that is, sense of position, etc.) in the left thumb. **Deep Reflexes** were exaggerated in the left upper limb. The patient frequently had severe headache, beginning at the occiput, and shooting forward, especially to the right parietal region. The *Optic Discs*, examined by Mr. Marcus Gunn, appeared to be normal, though very pink (physiological hyperæmia).

Diagnosis.—In a paper referred to in the foregoing case (No. 1), Dr. Beever and myself have shown that the movement of opposition of the thumb and finger can be elicited by minimal stimulation of the ascending frontal and parietal convolutions at the line of junction of their lower and middle thirds. Dr. Hughlings Jackson witnessed one of our experiments demonstrating this fact, and expressed his belief that this patient (Case II) was suffering from an irritative lesion of unknown nature, situated in the part of the brain thus indicated. Confirmation of this opinion was to hand in the order of march of the spasm, which was in nature and arrangement in exact accord with the results of the investigations referred to. An exploratory operation was therefore decided upon.

Operation (June 22nd, 1886).—The seat of the lesion having been determined by measurement, the large trephine was applied; and on raising the dura mater, a tumour came into view. More bone was removed above and in front, so as to completely expose the mass to which the dura mater was adherent. The border of the tumour stood out about one-eighth of an inch from the surface of the brain, and it was much denser than the brain-substance. It appeared to be only half an inch broad, but as the brain-substance all round it for more than half an inch appeared dusky and rather livid, I removed freely all the part apparently diseased. (As is shown in the photograph and specimen, this procedure was fully justified, since the growth spread very widely under the cortex.) Before closing the wound, the centre of the thumb-area was removed by free incision. This detail Dr. Jackson and myself had resolved to carry out in the possible event of there being no obvious gross organic disease, in order to prevent, as far as possible, recurrence of the epilepsy.⁸ Numerous vessels were ligatured, especially three or four at the upper border of the growth proceeding from the rest of the cortex, for the movements of the upper limb. The wound was closed as before. Five-sixths of it healed by the first intention in a week, in spite of the fact that there was considerable oedema of the scalp, due to irritation by the carbolic gauze (removed speedily by changing to eucalyptus gauze). The remaining sixth, just at the lower border of the flap, gave way, and healed by granulation, after separation of a small piece of skin at the edge. The after-condition of the patient was most interesting and im-

⁸ To discuss this point in detail would entail excessive lengthening of this paper; but I wish to point out that, as strongly urged by Dr. Jackson, the removal of an epileptogenic focus is not only justifiable, but called for. The exact localisation could be ascertained by the use of the induction current, the employment of which means I resorted to for diagnosis nearly three years ago. *Brain*, vol. vii, p. 232.

⁵ Only those facts are given which directly bear on the cerebral disturbance.

⁶ See a paper by Dr. Beever and myself to be shortly published by the Royal Society in the *Philosophical Transactions*.

⁷ By this I mean, of course, the disturbance in the area for the upper limb produced by the ligature of the veins coming from it, as noted above.

portant. There was, next day, partial motor paralysis of the left side of the face (lower division), complete motor paralysis of the left upper limb, from and including the shoulder. On the 27th June, there was noted left hemianæsthesia to a light touch (sensitivity to pain unaltered), localisation of a prick of a pin very deficient all over the left side, perfect on the right, complete loss of muscular sense in the left upper limb below the shoulder. On the second day after the operation, when making an effort to move the left upper limb, the patient suddenly put his hand to the wound, and said he felt a "buzzing" in the head there. When the left upper limb was passively moved, he also complained that pain seemed to shoot up the "bones of the limb," side of the neck, and through the hand to the wound. The deep reflexes were much exaggerated on the left side in both limbs. All the above conditions gradually improved, and at the date of the meeting, the patient had regained everything, except that the grasp of the left hand was not quite so good as before, and the five movements of the fingers remained hampered. Further, the deep reflexes on the left side are at the present time still very much exaggerated. The patient had, in July, a few slight twitches in the three right fingers; none in the thumb or index; no fits since operation. The tumour was composed of dense fibrous tissue, with two caseated foci, microscopical examination proving it to be tubercular.

CASE III.—George W. J., aged 24, was admitted into the National Hospital, under the care of Dr. Buzzard.

The family history presented nothing important.

Past History.—There was none, save that he had had otitis media.

History of Present Illness.—At 5 years old, the shaft of a carriage fell on the vertex of the head, inflicting a wound and slight punctured fracture. At 18 years old, the patient was kicked by a horse on the same spot. Three months later, the fits began. Fits occur usually in batches of three or four every three weeks.

Present State.—The patient was a tall, powerful young man, with numerous scars about the head, due to falls, etc., when fits had occurred (he also had most of his teeth kicked out by horses when he had fallen down near them, his occupation being that of a stable-help). There was the scar and minute depression of a right depressed fracture in the upper anterior angle of the left parietal bone, close to the middle line. This scar and the scalp around were very tender to pressure. The patient frequently had intense headache at this point, always increased (with also the tenderness) when the tendency to fits came on. There was almost complete right hemianæsthesia, the patient neither feeling a touch, nor a prick with a pin. Although this, also, is a very important point, I may pass it by in saying that Dr. Buzzard ordered the application of a strong faradic current to the affected side, which completely dispersed the hemianæsthesia, but left the fits unaltered.

Character of Fit.—The aura was entirely abdominal. The patient had a feeling as if he were going to defæcate, accompanied sometimes by a sharp pain in the left side of his abdomen. This was followed by tightness in the throat, and sometimes a spasmodic cough. The head (and frequently the eyes) then turned to the right; the right arm was jerkily protruded, and the patient lost consciousness. All the limbs became affected, that is, powerfully flexed, as a rule; the lower limbs, however, being frequently extended. After the fit, the patient stated that the right arm felt weak for some time.

Diagnosis.—In a paper (*Proceedings of the Royal Society*, No. 231, 1884) by Professor Schäfer and myself, it is shown that, situated in the marginal convolution on the mesial surface of the hemisphere are motor areas for the muscles of the trunk, and that the abdominal centres are just opposite the hinder end of the superior frontal sulcus. Professor Ferrier has shown (*Functions of the Brain*) that the area for movement of the head and neck lies below this sulcus, and that the area for protrusion of the arm lies about its hinder end. This last point has been confirmed by Dr. Beevor and myself. These facts led Dr. Buzzard to diagnose an irritative lesion situated in the posterior third of the superior frontal convolution, that is, just under the slight depression in the skull. Fully concurring in this diagnosis, I performed the following exploratory operation.

Operation, July 13th, 1886.—A flap being raised from the skull, and the bone trephined close to the left depression, it was found that there had been splintering of the inner table, so as to form a rough coronet round the inner orifice of the minute puncture in the skull, the said puncture being filled with scar-tissue. Further, the dura mater was found to have been torn by the original injury, and projecting downwards into a cavity in the brain was a rough small plate of bone. These fragments being removed, and the dura mater freely opened, the cavity just mentioned was found to be wedge-shaped, and about one to five centimètres deep, by one centimètre broad, filled with fluid and

loose connective tissue. It was situated exactly where diagnosed (*vide supra*). By means of a circumscribing cut, at a distance of about five millimètres, the cavity was then removed.

The wound was completely healed in four days. One week after the operation, the patient complained of weakness in the whole right upper limb. All movements were affected, especially those of the hand. This paresis is extremely interesting, as being, without the slightest doubt, an example of male hysterical paralysis, and its connection with the functional anesthesia before the operation is obvious. The interval of six or seven days before its appearance exactly coincides with that given recently by Professor Charcot. This paresis had, at the date of the meeting, practically disappeared.

Want of time compels me to proceed to formulate, without further observations, certain deductions which, I think, are warranted from the foregoing details.

1. In man, temporary (cortical) paralysis of motion and possibly of muscular sense may follow ligation of the vessels supplying that part of the "motor area" in which the lost movements are represented.

2. Temporary paralysis of sensation and movement of the so-called hysterical or functional type may follow operations upon the "motor area" in man.

3. The arrest of oncoming epileptiform seizures by the application of ligatures or by extension of the part contracted and rigid, suggests further, the possibility of the so-called muscular sense being represented in the excito-motor area.

Mr. ERICHSEN (President of the Section) said that it would be difficult to overrate the interest of Mr. Horsley's paper, which he might characterise as pure science applied to the advancement of practical surgery.

Professor CHARCOT (Paris) said it had given him very great pleasure to come into the Surgery Section and listen to the interesting demonstration given by Mr. Horsley. He thought that British surgery was to be highly congratulated on the recent advances made in the surgery of the nervous system. Not only had English surgeons cut out tumours of the brain, but here was a case in which it was probable that epilepsy had been cured by operative measures. The cure was very creditable not only to the surgeon who operated, but also to the surgeon and the physicians who had so accurately diagnosed the case.

Dr. HUGHLINGS JACKSON warmly congratulated Mr. Victor Horsley on the success of his operations on the brain. He (Dr. Jackson) had long felt confident that there was in every case of epileptiform seizures a very local change of some kind. Very often there was tumour (frequently syphilitic), but occasionally no such coarse product. When there was tumour, the fits were not owing, he thought, to repeated irritations of the brain by the growth (a "foreign body"), there was some persistent, and yet varying, change in some small part of the cortex on which change—become independent of the growth which had produced it—the fits directly depended. As he would put it, there was in every case of epileptiform seizure a persisting "discharging lesion;" that that "discharging lesion" was produced by tumour might be confidently diagnosed in cases where there was double optic neuritis and severe headache. When there are epileptiform seizures without these complications, we cannot tell whether there is tumour or not. In the case of his patient operated on by Mr. Horsley, there were no signs of tumour—no optic neuritis and no severe headache, no signs of, indeed, no history of, injury. Dr. Hughlings Jackson drew particular attention to the fact that he had advised operation in this case, bearing well in mind the possibility of there being no tumour. And in any future case of epileptiform seizures of the same kind, could he be certain (which he could not) that there was no tumour, he would still advise operation. Believing that the starting point of the fit was a sign to us of the seat of the "discharging lesion," he would advise cutting out that lesion, whether it was produced by tumour or not. He had formerly said that operation should not be attempted in cases of epileptiform seizures (with, perhaps, the exception of cases of fits limited to one arm, and very frequently repeated), unless there was also double optic neuritis to, so to speak, guarantee tumour. Here was a change of opinion. In this patient's case, cells of the "thumb-centre" having become highly over-unstable (that centre, or part of it, having become a "discharging lesion"), Dr. Hughlings Jackson advised that the centre should be cut out. The tumour was found and removed, but the "thumb-centre," or part of it, was cut out too. He had recently under observation in the London Hospital a patient who had 1,945 fits in about fourteen days; each fit began in the left thumb. Recently, Dr. Beevor and Mr. Horsley, following on Ferrier's lines, had made a minute map of the so-called motor area of the cortex. Dr. Hughlings Jackson was

much impressed by the certainty and precision with which Mr. Horsley, on gently faradising a small part of its cortex, put a monkey's thumb in exactly the position that of the patient just alluded to got into at the onset of his seizures. He determined that, in future, cases where the spasm began very locally, deliberately, and where the fits were often repeated, he would advise cutting out the part of the cortex which physiological experiments have shown to represent, especially the peripheral part first in spasm, besides removing a tumour if there were one; this, he hoped, would be cutting out the "discharging lesion," the very local cause of the fits. The case of the patient operated on by Mr. Horsley showed the great value of experimental researches on the cortex of monkeys; clinical knowledge is not yet precise enough for minute localisation. Not believing in the current doctrine of "abrupt localisations," he used the term "thumb-centre" merely as a name for that part of the cortex where the most special movements of the thumb were represented. That Mr. Horsley had cut out this, or part of this centre, was shown by the fact that the patient who could move his thumb, had lost the most "delicate" movements of it. Dr. Hughlings Jackson believed there would be further compensation (directly after the operation the whole arm was paralysed); even if the fits recur, the patient is well rid of a tumour; if they recur, Dr. Hughlings Jackson would advise removal of more of the cortex, believing it better to have some permanent paralysis than to be subject to fits, some becoming universal. He considered it quite certain that epileptiform seizures would be impossible if enough of the so-called motor area was removed. He concluded by speaking of some difficulties in diagnosis.

Dr. ROYLE (Manchester) was very glad to hear the lucid and satisfactory demonstration which Mr. Horsley's cases had afforded, and the practical and useful benefits which might fairly be hoped to follow from the line of treatment. He (Dr. Royle) had at present a young man, about 25 years of age, previously very healthy, never had any fits, free from any gout, rheumatism, or syphilis, and who, in December last, was knocked down by a horse, jerking him over a rail in the ground, bruising his right side, and bumping his head on the ground. He was rendered for some time insensible, gradually recovered consciousness in a few days, but was unable to get about, from the bruised thigh and hip, etc. Of these he gradually but slowly improved, yet grew very nervous and sensitive, and, without any preliminary warning, was occasionally taken with fits of a very violent character—of an epileptic hysterical character. His memory was more or less defective; and on the right side, on closing his eyes, he was perfectly insensible to pain even when a needle was pushed under the finger-nails or passed all over the right half of his body, and was unaware that any trial had been made of his sensitiveness. The attacks were so violent and sudden that he had been seized and fallen in the street, and been taken up by the police as being unable to take care of himself. Latterly, the symptoms had assumed such a form that there was fear of his mind becoming permanently deranged. The cases brought forward by Mr. Horsley led them to hope that, with watchful care and skill, something might be done to help a young man like this case to be restored to health and rendered capable of earning his living, and freed from the terrible calamity of such dangerous seizures.

Professor E. P. THURING (Brooklyn) had been present, by invitation of Mr. Horsley, at the operation at the National Hospital, London, in Case No. 3. He took measurements and diagrams at the time, and sent an account of the same to New York surgeons. The case awakened attention there among many who were looking with admiring interest upon the audacious, yet intelligent and successful, experiments of our English and Continental colleagues. Last spring, he had the satisfaction of treating a case of chorea and epilepsy, of six years' standing, where no evidence of tumour was found. The artificial trance, on two occasions, was induced after the example of recent experiments at the University of Nancy. The athetosis of the arms and facial contortions were arrested. The fits, which had occurred several times a day, ceased entirely, and did not return.

Dr. GIBSON (London) said that, as a physician, who was not a specialist, he could not help congratulating Mr. Victor Horsley on the splendour of his success in the treatment of a class of cases (epilepsy and paralysis) which were the despair of the practical physician. The fact that the cases on which he had operated upon had been practically cured since the operation, three, two, and one month ago respectively, and rescued from what might be justly termed "a living death," and cured without a single hitch in a brilliant operation, was a sure guarantee that this splendid and successful surgery would be perpetuated. It was too soon to predicate the permanence of the cure; but not too soon to thank the author of the paper for bringing his cases before the profession.

RESECTION OF THE ENTIRE SHAFT OF THE TIBIA FOR NECROSIS, WITH REPRODUCTION OF THE BONE: RECOVERY.

Presented to the Section of Surgery at the Annual Meeting of the British Medical Association in Brighton.

By W. C. WILE, M.D.,
Newton, Connecticut.

ON May 8th, 1883, I was consulted by the parents of Willie W., in relation to a running sore on the shin of his left leg. On external examination, I found three openings leading through sinuses, which were found to lead to dead bone. The tibia was much enlarged, and the boy showed a decided limp in his gait. He suffered considerable pain, especially at night, which had been controlled chiefly by anodynes. The boy was 12 years old, with hereditary scrofulous tendencies, and had the history of a fall, striking his shin violently against the iron rail of a railroad-crossing, causing, at the time, quite a severe contusion, which was followed by considerable inflammation. Soon afterwards, the bone commenced to enlarge, and had continued to increase in size up to the date of my first visit. The sinuses had opened about a year before, and continued to discharge ever since. The boy's general health was poor, he giving every evidence of the exhausting character of the discharges; and it was quite evident that the injuries he had received three years previously had lit up an inflammation of the periosteum, which had led to grave destruction of bone-tissue. It was also quite evident that, if the impairment of the general health was allowed to go on, the result could not be other than death; and the struggle, apparently, could not be a long one. I advised operative interference—of exactly what character, however, it would be hard for me to say until after an exploratory incision had been made. The family consenting, I put the boy upon a month's preparatory treatment, getting the secretions in perfect order, building up the general health with cod-liver oil, iron tonics, and liberal diet—beef, peptonoids, and Murdoch's liquid food—on which I largely depended to build up the patient. On May 11th, with the assistance of Dr. J. J. Barry, of South Norwalk, who kindly administered the ether, and Dr. S. T. De La Mater, of Bridgeport, I made an incision along the line of the tibia down to the bone, cutting through the diseased periosteum, and carefully lifting it away. I found the bone to be badly diseased; so much so that, after consultations with the two physicians, it was decided to remove the entire shaft. In its removal, I was particularly careful not to injure the periosteum, peeling it up cautiously, and, as nearly as possible, keeping it intact. After removing the shaft, a considerably quantity of diseased bone, at each end, was removed with the gouge. After this was all removed, I packed the cavity with absorbent cotton moistened with a solution of carbolic acid (one to twenty). The boy rallied nicely from the operation; and, under the influence of the same treatment that was pursued in the preparation of the case, healthy granulations sprang up, and there was soon evidence of the production of new bone. After two months, the shaft was strong enough to allow the fitting of the shoe, to which were attached braces at the side, with the joints at the ankle, the upper ends of which grasped the limb just below the knee by a steel padded band. By this time, the external wound had healed, and the boy was put upon crutches. From this time out, the progress was uninterrupted. The tibia is now strong and well formed, and the termination of the case is all that could be desired.

ANEURYSM TREATED BY A NEW COMBINATION.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Brighton.

By RICHARD BARWELL, F.R.C.S.,
Senior Surgeon to, Charing Cross Hospital.

My object in this paper is to bring more prominently before the profession than has yet been done a method of treating large aneurysms for which deligation is impracticable. Especially do I wish to show this preparation, because, although I have as yet had no opportunity of repeating this method, and, therefore, am not able to report a successful case, yet I venture to believe that, if surgeons will examine this specimen, they will see in it such promise as to induce them to try the treatment, of which I will now give a brief account.

Let me, however, first say that the man, aged 39, had been under my care about seven months, and had, under the rest-and-diet-treatment, considerably improved; then the symptoms had become worse. The case was really a hopeless one at the time I tried this plan. But

when the deterioration in his state had, after improvement, become pretty strongly marked, I had been considering whether it was not my duty to intervene, even though with but slight hopes of success. I could, however, think of no other method that would be justifiable, save the introduction of some solid substance and galvanopuncture.

The results of these methods have not been encouraging; they have hitherto been used singly; and it appeared to me that the cause of failure in the former method was the softness of the clot produced in the latter, the small area of blood exposed to the galvanism. From this I deduced that a combination of the two modes would have a greater chance of success.

With the assistance of Dr. Montagu Murray, who managed the battery, I proceeded thus. The skin over the aneurysm was punctured with a bistoury, and a small hollow needle of ivory sharpened like a subcutaneous injection needle was introduced into the sac, and thereby about ten feet of the finest steel wire was passed into the aneurysm; this was connected with the positive pole of a Garnet's battery; the negative being applied by means of a large pad of spongio-piline to the back, over the spine and left scapula. Thus, a current equal to nine or ten milliamperes was passed for an hour and ten minutes, the man feeling no pain or inconvenience; there was no change in the tumour. The man appeared, at the end of twelve hours, very much better, the tumour more solid, and the pulsation more distant. But four days after the operation a tumour appeared on the right of the sternum, which the man told me had existed two years previously. The attempt was unsuccessful; the man died a week after, and I bring the parts with me, because it is evident from the condition that, although the method failed in this particular instance, it contains the elements and great promise of success.

I need hardly detain this meeting with a description of the condition of the lungs, which could hardly have failed to cause death; but I do wish to call attention to the clot formed in the aneurysm. Some of it has evidently been brushed from the wire in opening the sac, but the wide coils of that material are surrounded by thick, firm, colourless clot, which in many places bind the wire to the sac-walls; thus strengthening them, and rendering rupture hardly possible wherever the wire had penetrated. This had not occurred in the secondary sac. It appears that this mode offers, therefore, a method of dealing with large internal aneurysms which may hereafter prove valuable, and which, when opportunity occurs, I shall test again.

SUPRAPUBIC LITHOTOMY.

By THOMAS ANNANDALE, F.R.S.E.,

Regius Professor of Clinical Surgery, University of Edinburgh.

IN the JOURNAL of January 2nd of this year, I published an account of a new method of performing suprapubic lithotomy in male children, and I reported a case in illustration. Since then, further experience has convinced me that this method is an improvement in the case of adults, as well as in the case of children; and I therefore trust that some of my surgical friends will try this method, and report their experience of it.

Briefly stated, the steps of the operation are:

1. The gradual and thorough dilatation of the bladder by the injection of some antiseptic fluid.
2. The introduction of a lithotrite, and the seizing and fixing of the stone in its blades.
3. The depression of the handle of the lithotrite, so as to press the stone against the abdominal wall immediately above the pubes, in the middle line.
4. Cutting down through the abdominal wall, in the middle line, upon the pubes, and immediately above it, in the usual way, until the bladder is reached.
5. Depressing the handle of the lithotrite still more, so as to stretch the wall of the bladder over the stone, and make it prominent at the wound.
6. Incising the stretched bladder wall upon the stone, to a sufficient extent, in a direction downwards, and then protruding, through the opening, the stone and blades of the lithotrite.
7. Gently opening the blades of the lithotrite and removing the stone, and in withdrawing the lithotrite, catching one end of an India-rubber catheter in its blades, and bringing it out through the urethral orifice, the other end of the catheter being left in the bladder.
8. Stitching the wound in the abdominal wall, and introducing a drainage tube at its lower end.

If the wound in the bladder wall be small, I think it is better not to

stitch it, but if it be large, two or more catgut sutures should be inserted.

The dilatation of the rectum is not, in my opinion, required, and if employed, only complicates the operation.

NOTES ON TWO CASES OF CIRRHOSIS OF THE LIVER.

Read before the Gloucestershire Branch.

By J. C. GOODING, M.D., Cheltenham.

I do not propose to enter at any length into the subject of cirrhosis of the liver; its nature, causes, and diagnosis are, no doubt, known to all of us; but I wish to call in question the prognosis and treatment which are to be found laid down in works on the subject, and my warrant for so doing will be made good by the histories of two cases, to which I shall invite your attention.

We are told, and I believe, that alcohol—the most frequent cause of this disease—is taken up, much as it is swallowed, by the radicles of the portal vein, is conveyed by that vein into the parenchyma of the liver; that, in the capillaries, it comes into direct contact with the delicate areolar tissue—the continuation of Glisson's capsule; that the cells of this scarcely more than granular structure, irritated by it, proliferate, greatly increase, and form a substantial interlobular tissue, so causing increased size of the liver by its physical addition, and more by the impediment it offers to the circulation. The earliest increase of the connective tissue is upon the finer subdivisions of the vessels in the interior of the liver. After a time, the contraction of this cicatricial tissue compresses, and takes the place of the gland-substance; and the smaller subdivisions of the portal vein are narrowed and obliterated. The origins of the bile-ducts at the periphery of the lobule are destroyed, too, by its pressure, producing ascites, derangement of the digestive functions, and a crowd of other symptoms. We are further told that the "prognosis is always unfavourable, and the main question regarding treatment is the possibility of relieving the disorders of function which threaten life, and so delay the fatal termination."

The first case came under my observation when the effects produced by the contracting tissue were extremely marked. The patient was a laundress, aged 55. She lay on her bed, propped with pillows, and her legs drawn up. She was much emaciated, and had a yellowish skin. The digestive functions were wholly disorganised. Ascitic fluid distended the abdomen, and embarrassed respiration. I undertook to treat her, on one condition, that she absolutely obeyed all my directions, any breach of such at once terminating my attendance. She solemnly agreed. My first order, rather unexpected by her, was total abstinence from alcohol in every form. Within a week, because of the difficulty of breathing, it was necessary to tap her; a painful was withdrawn. The tapping had to be repeated after six weeks. In the meanwhile, she was taking small doses of calomel, frequently repeated, and the salivation so produced was persistently maintained, in a mild form, for seven or eight weeks. This experiment was based on the well known power of mercury in causing the removal of adventitious material, and the marked benefit which attends its use externally in splenic and other glandular enlargements. After the second tapping, the fluid ceased to be effused. The mercury was discontinued, and, at the expiration of a few days, when all traces of salivation had disappeared, nitro-hydrochloric acid and bitters were administered. The appetite improved, the evacuations became healthy, the skin gradually lost its yellow tinge, strength returned, and the patient became ruddy and fat.

The other case was that of a well known tradesman, aged 60, not a drunkard, but fond of his sherry at dinner, and his whisky at night. He was on several occasions seen by me for pain in the right hypochondrium, yellowish skin, and gastric disturbance. Caution as to what he was bringing about failed to shake his faith in the virtues of his "mountain dew." At last the yellow skin became persistent, the colour deepened, his appetite completely failed, and flesh was steadily lost. He still refused to stop all alcoholic drinks, as I desired, but he gradually reduced them; yet, after months, no progress was made, except in emaciation. After twelve or fifteen months I got him to give up all stimulants; but, after two months of abstinence, he still lost flesh, continued jaundiced, and could scarcely walk. There was no ascites. He went to Folkestone for change. I offered a consultation, while passing through London, with a distinguished physician. I detailed the history, and the difficulty I had had in getting the patient to become a total abstainer. The physician agreed

in the diagnosis, and suggested hydrochlorate of ammonia. After three weeks the patient returned home, and informed me that the physician had ordered him a glass of beer at lunch, a glass of whisky at night, and if he liked a glass of port he might have it! Indignant at this reversal of my advice, I asked an explanation; the physician replied that as the old man had "fatal cirrhotic liver," "I don't think, at the last, a glass of grog at night will do much harm!" I immediately stopped the alcohol again, persisted in administering nitro-hydrochloric acid in increasing doses, and had his legs sponged every night for a quarter of an hour with the acid bath. He had previously had a long course of bichloride of mercury. After several weeks I had the gratification of seeing indications of improvement, which gradually became more and more evident, till at last he perfectly recovered. Now, three years after, he is a healthy, rosy old man.

I cannot tell at what stage of cirrhosis such treatment would be fruitless; but, in both these cases, alcohol had, through years, been doing its characteristic work in the liver, and the effects produced indicated a condition of the extremest gravity. In the latter case, in Dr. Wilks's opinion, a hopeless condition had been produced. They both perfectly recovered. It is exceedingly difficult to get people to give up drink; but my experience proves this to be imperative, if success is to be obtained.

These are the only two cases of far advanced cirrhosis of the liver I have so treated. They are a proof of the old adage, that "while there is life there is hope," if you can get the patient to give up alcohol.

ABSTRACTS OF INTRODUCTORY ADDRESSES

DELIVERED AT

THE METROPOLITAN MEDICAL SCHOOLS.

ST. GEORGE'S HOSPITAL.

The Introductory Address was delivered on October 1st by Dr. WADHAM, Senior Physician to the Hospital, and Dean of the Medical School.

Dr. Wadham began his address by referring to the addition and improvements which had been made in the school premises, the increased facilities which had been provided for the study of physiology, and the appointment of Dr. Délépine as special physiologist. He also mentioned the arrangement which had been made with the Normal School of Science at Kensington, by which students could, for a small fee, study, before entering the hospital, the subjects required for the preliminary scientific examination of the London University. He then alluded to the competition which was taking place between the medical schools, and the questionable system of offering entrance scholarships. He warned the students that the medical profession was comprehensive and difficult beyond most others; that it required for its study more than average abilities and energy, and that to master even its scientific portion, they would have to make use of their brains as well as their memories.

Dr. Wadham then gave to his audience salutary advice as to their conduct, and warned them against the evils of overlooking the existence of religious and moral principles, whilst absorbed in scientific studies.

In referring to the difficulty which students experienced in passing their numerous examinations in the four years supposed to be sufficient for that purpose, he noted that, as a rule, this was only done by students of exceptionally good abilities and memories, and only by such of them as had the good fortune not to fail in any of their examinations. It would be better to recognise this fact, and extend the period of study by at least another year. This would be fairer to parents who were now systematically deceived as to the length of time during which their sons had to remain at the school; and would be a decided relief and advantage to the latter. The authors of the conjoint scheme appeared to have some inkling of this matter, for they invited students to present themselves for examination in several subjects immediately after registration. In other words, they invited, but did not compel them, to study, before entering the medical schools, chemistry and physics, and pharmacy and materia medica. In the latter case, they asked students, before they knew anything of disease, to come and be examined as to their knowledge of the medicinal action of the agents used for its relief. The effect of this regulation was either that students were crammed in these subjects beforehand, or else had to commence their studies with an amount of work

which they ought to get through during their first year, but which they could only accomplish by a process closely allied to cramming here. In this manner they learnt an innumerable number of facts, but had no time to assimilate or co-ordinate them. They acquired information, but not knowledge; not even the knowledge of how to put the information to practical account. This information they delivered over to their examiners as much as possible in the very words in which they received it from their teachers; and, unless gifted with very good memories, forgot it immediately. This regulation was also unfair to the schools, as it obliged them to maintain a staff of teachers upon subjects which students were allowed, if not encouraged, to study elsewhere.

Unless a student, by the end of his first year, was successful in passing his examinations in all these subjects, with the addition of elementary anatomy and physiology, he had either to sacrifice his next winter session in order to get them up, or else to study higher anatomy and physiology, and to dissect at a time when his mind is busy with some, or all, of these other subjects. In either case, the result was that he fell behind with his work, and probably took nearer six than four years to obtain the qualification to practise. It was true that an attempt had been made to bring the examinations within the capacity of students, by issuing synopses as to the range of most of the subjects, and allowing them to take them up for examination one at a time. The privilege had also been lately granted of allowing students to postpone, until the second stage of their examinations, the subjects of pharmacy and materia medica. By this arrangement, the student, without being once rejected, might have to appear nine times before his examiners, in order to obtain the double qualification under the conjoint scheme. These synopses, however, were either so obscurely worded as to render their meaning difficult, or else some of them were of such a nature as to be very imperfect guides to the students, and could hardly be said to bind the examiners at all. Dr. Wadham explained this objection by quoting from some of these synopses. It seemed, moreover, an anomaly to tell the unfortunate first year's student that he was informed in the synopsis that the anatomical knowledge required of him was merely an acquaintance with the bones, and the attachments of the muscles to the bones of the upper and lower extremities; and, at the same examination, to ask him to enumerate the principle changes which food underwent in the mouth, stomach, and intestines. In short, some reform was needed in the present system of examinations, and the studies of the first year's student should be made less burdensome. These synopses should also be made clearer and more definite, should indicate all the questions that could possibly be asked, and, in addition to being a guide to the student and teacher, should be binding on the examiners.

The best reform would consist in an extension of the period of study. The student should be obliged to pass an examination in such subjects as chemistry, and physics, and pharmacy, and materia medica (excluding therapeutics), before he entered a medical school, or at least before he commenced the study of human anatomy and physiology. If animal and vegetable biology were substituted for pharmacy and materia medica—which latter more concerned the chemist than the physician—and therapeutics were included in the examination in medicine, it would be a better arrangement. The examinations in elementary anatomy and physiology might with advantage be abandoned. These repeated examinations worried the student, and interrupted his work, and were merely tests of his progress, which might be much better carried out by the school authorities.

Should the Conjoint Board ever take this view of the subject, they would find the materials for teaching ready to their hands at the London University, in the arrangements of some of the larger schools, and in that which St. George's, in common with some of the smaller schools, had made with the normal School of Science at Kensington. In this manner, students would have time and facilities for studying and understanding subjects which they now only got up by memory for examination, and a check would be put to the pernicious system of cramming. The period of study being thus prolonged, the expenses of medical education would be apparently increased; this increase, however, would be more apparent than real, for the intelligent student from choice, and the dull one from necessity, invariably occupied more than the conventional four years in acquiring even the rudiments of his profession.

Speaking of the suggested discipline of students, and the proposal to found colleges or residences in connection with all the schools, the lecturer said: "I allude to this all the more willingly, because I think that, in the treatment of this subject, the public have not used the wisest method of arriving at a just conclusion. They have placed theory before experience, and the visionary before the practical, and