

try the effect of manual extension, and succeeded in reducing the deformity, though he could not altogether remove it. Unfortunately, a day or two later, in carrying the patient down some narrow stairs preparatory to conveying him to hospital, a great deal of the advantage that had been gained was lost, and the patient's strength was too much exhausted to permit a second attempt being made. For the first two days there was retention of urine, then the bladder began to recover; but for a time micturition was very slow, and the stream was ejected without force. The bowels were relieved by enemata. On the seventh day after the accident he was brought to the hospital by the ambulance without any difficulty.

On admission the second lumbar vertebra was found to be displaced forwards upon the third, and rotated slightly towards the left, so that the right transverse process was more deeply sunken. Extension was tried, but it had no effect upon the deformity. The patient could flex the right hip and raise the knee with the foot resting on the bed. The quadriceps and all the muscles below were paralysed. On the left side the loss of power was more extensive; the patient was unable even to move the hip-joint. Tactile sensation was good all over the right side (the skin over the gluteal region was not tried), and on the left above the knee; below it was considerably impaired, especially over the foot. The lower extremities felt dead and numbed, and at times there was a pricking sensation in the feet and thighs. Micturition was carried out very slowly. The bowels were constipated; and though the evidence was not satisfactory, it seemed on the whole that there was some loss of power over the external sphincter.

For about three weeks the condition of the patient steadily improved. On the right side the quadriceps recovered, so that the knee could be straightened and the whole limb raised up from the bed, and some power returned in the gastrocnemius. On the left the hip could just be flexed, drawing the foot up. Sensation became practically normal, except over the outer side of the left leg and the left foot. The knee-jerks, however, remained absent; there was no patellar reflex. The nerves continued to be very tender on pressure, and the muscles below the knees on both sides wasted until there was scarcely any fleshy substance left. All the muscles reacted to galvanism, and all but the left tibialis anticus to faradaism. At this point matters became stationary, and as after some weeks there was no evidence of further improvement, the patient was advised to undergo an operation.

Laminectomy was performed on March 3rd (nine weeks after the accident). An incision five inches long was made in the middle line of the back, and the periosteum and muscles stripped off the spines of the second and third lumbar vertebrae. The spines were then removed with bone forceps, the laminae divided with a trephine, and the dura mater exposed. As this bulged up at once into the gap, and appeared to be under considerable pressure, the right lower articular process of the second lumbar vertebra, which was twisted round upon the third, was removed as well. This seemed to give sufficient room. No vessels required tying. The wound, which was very deep, was sponged out with corrosive sublimate, dusted with iodoform and fastened with deep sutures, and sponges wrung out of carbolic were placed on either side to secure sufficient pressure. The shock after the operation was very slight; there was no retention of urine, and the temperature rose only to 101° on one occasion. A small portion of skin that had been bruised by a retractor sloughed at the upper end of the wound, and there was a little suppuration around one of the deep sutures. Otherwise it healed well and without any trouble.

The day after the operation the patient complained of severe shooting pain in the left ankle, but stated that the sensation of numbness had greatly diminished. The next day the extensors of the toes upon the right side, and the peronei upon both, were able to contract a little. On the sixth day the left gastrocnemius began to recover, and, although there was a good deal of shooting pain and tenderness down both legs (especially the left) for some weeks longer, from the time of the operation the patient gradually regained power over all the muscles except the tibialis anticus and the extensors of the toes upon the left side. Galvanism and massage were commenced upon March 26th, and the patient was allowed to sit up on April 15th. By the beginning of June he had left off crutches and could walk fairly well; the only inconvenience

was the loss of power over the dorsal flexors of his left ankle and the consequent dropping of the toes. Several attempts were made to relieve this by means of rubber accumulators, but they seemed to give him more trouble than the complaint.

The patient was shown at the Clinical Society on Jan. 22nd, 1892. He could walk up- and down-stairs without a stick, and stoop down and lift himself up without the least difficulty. The toes of the left foot still dropped, but the muscles were apparently regaining power.

Remarks by Mr. MANSELL MOULLIN.—The shock of the accident may be considered responsible for the loss of consciousness, the general paralysis and loss of sensibility over the lower part of the body, and the retention of urine. These symptoms at least passed off very much sooner than they would have done had they been due to hæmorrhage or pressure. Of the rest, those which disappeared spontaneously in the course of the first three weeks may be attributed to simple bruising, extravasation of blood, or the displacement of the bones, and there can be no doubt that the early reposition of the fragments by Dr. Male, although it was only partial and relapsed to some extent, was of material benefit. The rapidity with which those that had not already disappeared began to clear up after the operation may be regarded as proof that they were really due to compression. It is probable from the early loss of faradaic excitability that the nerves supplying the extensors of the toes and the tibialis anticus on the left side were hopelessly crushed; but I have regretted since that I did not open up the canal more freely upon the left side, as they might then have had a better chance of recovery.

BRADFORD INFIRMARY, YORKS.

COMPOUND DEPRESSED FRACTURE OF THE SKULL; APHASIA;
FACIAL AND BRACHIAL PARESIS; TREPHINING;
RECOVERY.

(Under the care of Mr. APPELYARD.)

THIS case of compound fracture of the skull with depression of the bone is an example of the rarer group of injuries of the cranial vault, in which localised symptoms dependent on the cerebral injury attract most attention and call most urgently for relief. It also illustrates the satisfactory recovery which results nowadays from application of the trephine with elevation of the bone fragments in these injuries, when it is possible to render the wound quite aseptic. In such there is no doubt of the necessity for operation. For the notes of this case we are indebted to Dr. J. Lacy Firth, house surgeon.

S. H.—, coalminer, aged forty-three, was working in the shaft of a mine at 10 A.M. on July 16th, 1891, when a sharp-angled stone weighing about 7 lb. fell upon his head from a height of seven or eight feet. For a minute or two he lost consciousness, but then recovered, and with support was able to walk home, a distance of half a mile. At 3 P.M., five hours after the injury, the patient was brought to the Bradford Infirmary in a cab. He was still able to walk with support.

On admission the patient was pale and looked ill; lips blue; he was with difficulty able to sit up. On the left side of the scalp, vertically above the external auditory meatus and two inches from the line of the sagittal suture, was a triradiate and contused wound. On raising the anterior flap the parietal bone was found to have sustained a depressed fracture. The depression was roughly the shape and size of a broad almond with the long axis transverse. The depressed fragments were absolutely immovable. The depth of the depression was about one-third of an inch. A good deal of mud had entered the wound. The patient was quite conscious. When asked his name he strove apparently to recollect and utter it, but had to make several efforts before succeeding, and immediately afterwards said "That's it," and was obviously pleased with his success. The expression "That's it" he uttered several times when trying to say other words. Impaired articulation and hesitation in the formation of words rendered his speech very difficult to understand. He appeared to perfectly understand all that was said to him. The tongue on protrusion deviated to the right of the middle line. There was depression of the right corner of

the mouth when at rest, and impaired power of raising it when asked to raise the upper lip. He could not raise the right arm from the bed, and had no power of grasp. There appeared to be no loss of strength in the right leg. Tactile sensation tested roughly appeared to be unimpaired.

Trephining by Mr. APPELYARD.—At 7 P.M., nine hours after the injury, chloroform was given. The head was shaved and cleansed with soap, turpentine, and a 1 in 1000 perchloride of mercury solution in turn. The wound was enlarged and the quarter-inch trephine twice applied—one complete ring and two-thirds of a second ring of bone being removed. In both cases the fragments of the outer table came away in the trephine first, and the internal table was sawn through separately. The depressed fragments were now easily removed—first the outer table fragments, and next the inner. The two tables had been separated by the injury of the diploë. The inner table was more extensively fractured than the outer, and loose fragments of the inner table were removed from beneath the uninjured outer table. The dura mater appeared uninjured. No sutures were applied. The wound was dressed with cyanide gauze and sal alembroth wool. Four hours after the operation the patient could raise his arm from the bed.

Second day.—There was no noticeable affection of speech, and the patient had slight grasping power.

Third day.—Wound dressed; it looked well.

Fourth day.—Wound dressed. The anterior flap pulsated markedly. No tenderness or swelling. Grasp remains weak, and the facial and lingual paresis is unaltered.

Fifth day.—Wound healing rapidly. The hand and arm are weaker than yesterday.

Sixth day.—Power of grasp lost again. The triceps appears to be completely paralysed, but the biceps is fairly powerful. For the last twelve hours the patient has had sensations of pins and needles in the forearm from the wrist to elbow.

Eighth day.—Sensation altered, as on sixth day. Grasp still almost absent; facial, lingual, and upper arm paresis less marked. A drop or two of clear serous fluid was expressed from beneath the anterior flap. Morning temperature: right side, 97.6°; left, 96.8°.

Ninth day.—Power of grasp considerably increased. There is incoördination of movement. On attempting to pick up or reach an object the hand digresses from side to side two or three times before succeeding. A drop of serum was expressed from beneath the anterior flap.

Fifteenth day.—The incoördination is less marked and also the disturbed sensation.

Twenty-third day.—There is fair grasping power in the right hand. Facial and lingual palsy very slight. Slight incoördination as before.

Thirty-first day.—Patient discharged.

The patient was seen three months after the accident and said then that he felt perfectly well with the exception that the little finger was somewhat numb and useless. He could, however, flex and extend the thumb perfectly and tactile sensation was perfect. A fortnight later he was seen again. He feels as well as he ever felt in his life. The little finger has lost its numbness. Scar firm. No tenderness of scalp. No headache. He has been doing his ordinary work a fortnight.

To the above notes it should be added that the highest temperatures recorded (axillary) were on the evenings of the first three days, and were respectively 100.8°, 99.6°, and 98.6°. After the third day they were for the most part slightly subnormal, and only twice reached the height of 98.6°. For the first fourteen days the temperature in the right axilla was slightly higher than in the left. The difference varied from 1° to 2° F. On three occasions only was it equal on the two sides.

Remarks.—Noteworthy features in the above case appear to be the slight and transient concussion, the difference in extent of the injury to the external and internal tables of the calvaria, the healthy appearance of the dura mater, and the presence of the symptoms of numbness and incoördination in the forearm and hand, the former being first observed on the sixth day and the latter on the ninth, and both persisting to the end of convalescence, and disappearing *pari passu* with the motor paresis. Do not the latter symptoms point to segmental sensory representation in the cortex? and do they not fall more in accord with Dr. Bastian's view of the kinæsthetic function of the cortex in the Rolandic area than with Dr. Ferrier's view of the purely motor function of that area

Medical Societies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Gelatiniform Degeneration of Hydatid Cysts.—Changes in the Blood in the Course of Rheumatic Attacks.

AN ordinary meeting of this Society was held on Feb. 9th, the president, Mr. Timothy Holmes, in the chair.

Dr. MITCHELL BRUCE and Mr. MARMADUKE SHEILD communicated a paper on Gelatiniform Degeneration of Hydatid Cysts. The authors first related the case of a patient, a male aged forty, who was the subject of a large hydatid cyst. The symptoms commenced very obscurely, and the diagnosis was at first dubious. When the usual signs of hydatid cyst declared themselves aspiration was performed, but no fluid escaped, and the cannula was found blocked with tough, jelly-like material. The characteristic hooklets were discovered in this under the microscope, and the diagnosis was verified beyond a doubt. As the cyst was rapidly increasing direct hepatotomy was performed. Much difficulty arose in the operation, from the depth at which the cyst was located in the liver. The operation was described, and the method by which the cyst was evacuated and secured to the abdominal wound. Good union took place, no peritonitis occurred, and the cavity contracted. Unfortunately the patient died eight days after the operation, with all the ordinary symptoms of delirium tremens. His previous habits, for upwards of twenty years, strongly predisposed him to this complication, and it is believed that otherwise the operation would have been quite successful. The authors discussed the general question of solidification of hydatid cysts. They next referred to the peculiar degeneration exemplified in the case related. Its rarity was pointed out and its clinical importance insisted upon. Finally, the surgical question was raised as to the best method of dividing a considerable thickness of liver tissue, with special reference to the causation and checking of hæmorrhage.

Dr. ARCHIBALD E. GARROD contributed a paper on the Changes in the Blood in the Course of Rheumatic Attacks. The work of Malassez, Bixter and Wilcox, Hayem, and Maragliano and Castellino upon the changes in the blood during rheumatic attacks was referred to, and the results obtained by the three last-mentioned observers were quoted at some length. The author's conclusions were based upon some eighty examinations of the blood of rheumatic patients, as many as six or eight observations having been made in the course of the attack in some cases. The corpuscles were counted with a Thoma-Zeiss hæmocytometer, 256 squares (equal to 32 squares of Gowers' hæmocytometer) being counted on each occasion. For the estimation of the hæmoglobin percentage a von Fleischl's hæmometer was employed. Results of comparisons of these instruments with others of Gowers' pattern were given. Observations on ten healthy persons and ten chlorotic patients with the instruments used are quoted as standards for comparison. The following conclusions were arrived at:—An attack of rheumatism is always attended with a considerable diminution of the number of red corpuscles, which diminution commences very early in the attack. When convalescence sets in the lost corpuscles are rapidly replaced. In acute cases the loss of red corpuscles is usually about 1,000,000 per cubic millimetre. The rapidity of the diminution and repair is such that within as short a period as ten or eleven days a million corpuscles may be lost and replaced. The development of a fresh rheumatic manifestation during convalescence is attended by a fresh fall, and in this way the phenomena of loss and repair may be repeated several times in the course of the attack. In prolonged attacks there is not a progressive diminution of the number of red corpuscles, but, on the contrary, the numbers remain at or about an even low level. There is no real connexion between the variation of the red corpuscles and the temperature curve, the blood changes being equally marked in afebrile cases. Indeed, these variations afford a far more delicate index than does the temperature chart of the activity of the rheumatic process. The changes in the blood may be equally conspicuous whatever the nature of the rheumatic manifestation which they accompany, whether arthritis, pericarditis, erythema, or pleurisy. The changes