suppose that there was some degree of nephritis present, for casts of the tubes were found.

Most of you are aware that a disease of the cord closely akin to that we have now been considering is not very uncommon in children, the term infantile or essential paralysis being applied to it. This disorder was long recognised before its intimate pathology was made out. Of the pathogeny of it, both in the child and in the adult, we are still in ignorance. This much is certain, that the disease seems to attack robust children and adults, and not those who by any obvious delicacy or vulnerable constitutional state might seem to be predisposed. Several names have been applied to this disease; you will find it described as polio-myelitis or tephro-myelitis, anterior, and anterior cornual myelitis. The morbid anatomy is probably the same at both ages. After thirty-five years of age you must not expect to meet with it. In children it is common for one or two limbs only to suffer; in adults there may be, as in this instance, more general implication of them. Recovery appears to be more common, and more complete also, in subacute cases in the adult. At the onset febrile symptoms have been noted, but not always. In children there is often pain in the back or limbs, simulating rheumatism or other joint-disease, probably due to hyperæsthesia. The paralysis is sudden and swiftly spreading, and groups of muscles in different limbs may be attacked by acute wasting. Faradaic contractility is rapidly lost, and the paralysed parts become cold. If no recovery occurs, the limbs fail to grow properly, and various forms of club-foot may ensue. In the adult such results do not of course occur. In the subacute form of anterior spinal paralysis we may believe that the congestive or inflammatory process, if it be such, does not attain the same degree of activity or so profoundly affect the integrity of the ganglionic cells of the grey matter of the anterior horns of the cord. There are doubtless several grades of intensity of such a process, and we may fairly assume this to be so when we find that recovery is not infrequent in cases of this kind. It is not possible to imagine that complete or grave destruction of the ganglion cells can have occurred when gradual restoration of function sets in and the consequent paralysis passes off, but such must have taken place in the class of cases where little or no improvement follows either after treatment or lapse of time. A case somewhat similar to the one I have related to you recovered lately under the care of my colleague, Dr. Andrew, the electrical reactions not being abnormal in that instance. We seem to need further observations on the exact electrical conditions present in these cases.

What are the therapeutical indications? It may be said that the disease is in many cases self-limited. It has its natural history, progresses so far, and tends to recovery. This is important to know; but while physicians should be familiar with the natural history of disease, their business is to prevent, neutralise, and curtail its ravages if they can do so. Medical art is the healing art, be it remembered. This is sometimes forgotten. I used belladonna in this case very freely. Brown-Séquard has encouraged us to employ this drug, believing that it is capable of controlling inflammatory processes in the spinal cord. Whether it is really of avail in this manner I cannot tell you. Professor Fraser has shown that it is a drug possessing very remarkable powers over the cord. It may have had no share in the recovery, but I am inclined to believe it had. I am not a sceptic with regard to the use of drugs, and if I ever became so I hope I should cease to practise. It is not the physician's business to watch the natural history of disease at the bedside, *and do nothing*. Despair never yet saved a life or helped a sufferer. I think, however, that we must also attach much importance to the electrical treatment applied to the muscles in the form of the daily use of the constant galvanic current. This certainly promotes their nutrition. So soon as amendment fairly set in, I had recourse to tonic and stimulant drugs as combined in Easton's syrup of the phosphate of iron, quinine, and strychnia; and with this, cod-liver oil, and good diet, the general nutrition of the man was certainly well-secured. The result, you will admit, has been eminently satisfactory. There is reason to fear that some chronic nephritis still exists. There is no dropsy. It may be that the severe wetting experienced before this spinal trouble set in induced nephritis. The albuminuria has been very intermittent. The man is working nine hours daily, and says he feels as well as ever he did. He will report himself to us at intervals, and I shall not fail to keep you informed as to his

further progress. Such cases may suffer relapse, and fresh outbreaks occur in the cord. Should you meet with them in your future practice, I think I may fairly urge you to follow me in the treatment adopted in this instance.¹

COMPOUND DEPRESSED FRACTURE OF THE SKULL.

EIGHT SQUARE INCHES OF BONE REMOVED; WOUND OF LONGITUDINAL SINUS; SECONDARY APHASIA; EMBOLIC PNEUMONIA; COMPLETE RECOVERY; REMARKS.

By JORDAN LLOYD, F.R.C.S.,

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THE following case of complete recovery after such extensive damage is sufficiently rare to justify its being recorded. I have never seen so serious an injury of the head followed by such perfect convalescence.

Henry P—, aged forty-two years, blacksmith, was admitted into the Queen's Hospital on the morning of May 7th, 1885, under my care. Shortly before admission a brick had fallen from a chimney-stack beneath which the patient was standing (a height of nearly eighty feet), striking him on the top of his head and felling him to the ground. He was picked up unconscious and brought at once to the hospital.

On admission the man lay with his eyes wide open as if perfectly conscious, but would not answer questions, and made no attempt to speak. Pupils equal, neither contracted nor dilated. Pulse quiet, 84. Right arm and leg rigid; he appeared to have no control over them. The left limbs were moved readily. The left eyelids were intensely purple, hard, and swollen. There was no bleeding from the nose or ears. On the top of the head, its centre corresponding to the junction of the sagittal and coronal sutures, was a huge wound with a deep depression in the exposed bones. The gap in the bone was $2\frac{1}{2}$ in. long and $1\frac{3}{4}$ in. broad; the depressed portion was sunk nearly an inch below the surface, and was broken up into many pieces. A few minutes after admission he was seized with violent epileptiform convulsions; they began in the left facial and cervical muscles, and chiefly affected the left limbs and half of the body; they lasted a little more than a minute. During the preparation for operation he had two other similar seizures. Without employing an anæsthetic, crucial incisions 5 in. long were made in the bone, and the pericranium detached; then, by means of two long cuts with Hey's saw—one in front of, and the other behind the depression,—supplemented by a trephine hole at the right limit of the injury, the whole of the fragments, eighteen in number, were readily removed. These fragments, afterwards fastened together and preserved, measure on their cerebral surface $3\frac{1}{4}$ in. across and $2\frac{1}{2}$ in. from behind forwards. There was a transverse wound in the longitudinal sinus $\frac{1}{4}$ in. long, from which the bleeding was very profuse, and which was controlled by finger pressure on a pad of absorbent wool placed over the wound. A huge blood-clot was removed with the fingers from beneath both frontal bones, in quantity more than eight ounces. For this removal two fingers were inserted into the cranial cavity between the dura mater and the bones so far that the whole of the base of the left anterior fossa was readily felt, the crista galli being recognised and a mass of clot removed from the right fossa in its neighbourhood. A fracture could be traced from the wound, running the whole depth of the left frontal bone backwards along the roof of the orbit towards the sphenoidal fissure. Another fracture ran along the temporal fossa and was lost below; opposite to this fracture there was a rent in the dura mater about an inch long. The clot in the anterior fossa probably came from meningeal arteries. At least twenty-five ounces of blood were lost before the operation was completed. Two drainage-tubes, each four inches and a half long, of the thickness of penholders, were passed beneath the frontal bone inside the skull down to the orbital plates. The skin flaps were sutured, and the parts dressed moderately

¹ Since this lecture was delivered Dr. R. A. Gibbons has kindly sent me a copy of a paper of his published in the "Medical Times" of Sept. 5th, 1885, in which he describes a case of acute anterior polio-myelitis in a boy aged nine years treated very successfully by belladonna in full doses.

firmly with iodoform gauze. He was very restless during the day and had to be forcibly restrained. He became conscious about an hour after the operation, but appeared not to understand anything about him.

May 8th: The patient can speak this morning, answering questions rationally, but slowly; can move arms and legs fairly well; complains of intense headache; no vomiting; pupils equal; pulse 120; temperature 37.9°.—10th: Wounds healed except at tubes; headache better; speaks fluently; paralysis of arm and leg almost gone; free thin serous discharge from drainage-tubes; pulse 96; temperature 38.9°.—11th: Appears stupid; will not answer questions, although he seems to understand them; restless and wandering; mouth foul, teeth sordid; less power in limbs; pupils equal; headache; no vomiting; pulse soft, 92; temperature 39.5°.—13th: Has not spoken since last report; aphasia is now complete, and is of the ataxic variety; restless; paralysis of limbs complete; micturition and defecation natural; pulse 96; temperature 38.1°.—18th: Is more intelligent in appearance and behaviour; when spoken to, after hesitation he emits a kind of meaningless grunt. There is returning power in the limbs.—22nd: Gradually improved since last visit. The patient spoke to-day for the first time since the 11th. He astonished the nurse by saying "Yes" in answer to a question, and by counting from 1 to 10, slowly, but quite correctly. No paralysis of face, tongue, or eye muscles. Mr. Priestley Smith examined both optic discs and pronounced them normal. Temperature 37.5°; pulse 90.—28th: He improved until the 26th, when the drainage-tubes, which had been shortened from day to day, were finally removed, and he gradually began to fall off in his general condition. To-day he has cough and rusty tenacious sputum; dulness, bronchophony, and bronchial breathing over the right base. Paralysis of limbs almost gone; is quite clear and rational in his talk. The temperature has gradually risen since the 25th, and is now 39.4°; pulse 108.—June 8th: The pneumonia noticed in last report is gradually clearing away, and he is feeling much better. Wounds have quite healed, except where two or three sinuses lead down to bare bone. He has been taking quinine, dilute hydrobromic acid, and brandy. Temperature, 37.4°.—27th: Has gradually improved since last report. He is allowed to get up for the first time, all remedies being discontinued. Temperature 36.9°.—July 6th: Was made an out-patient, being apparently none the worse for his injury. There is a sinus at front wound which leads down to a large piece of bare frontal bone.—Sept. 3rd: An exfoliation, two inches and a half long, and consisting of the whole thickness of the bone, was removed through a three-inch incision to-day. Against our wish, he returned at once to his work at the forge, assuring us that no harm would follow, as he had been at work now for six weeks, and that he felt as well and could work as well as ever he did in his life. His power of smell appears unaffected in either nostril.—10th: Wounds soundly healed. There is a depression at the site of injury, into which half an ordinary-sized lemon can be readily sunk down to the surrounding level. It is thickly covered with hair, and is quite free from all signs of bony re-formation. Pulsation is hardly recognisable, but when he coughs the hollow fills up completely just for the moment. He remembers nothing of the accident. He felt no pain at the time of injury, and was surprised in the morning afterwards to find himself in a hospital.

Remarks.—A common brick, weight about 9 lb., falling from a height of eighty feet would attain a momentum by the time it struck the top of the patient's head—at least I should have expected so—sufficient to have killed immediately by cerebral concussion. Here, however, the resulting concussion was profound for a short time only, and had almost passed away by the time the patient was admitted into hospital. His symptoms then were those of compression; he was conscious but could not speak, Broca's convolutions being compressed by the blood-clot which was subsequently removed. The indications for treatment were of course clear enough, and the onset of epileptiform convulsions did away with the necessity for anæsthetics. Although so large a surface of bone was depressed and broken into eighteen fragments, there was no means of elevating or removing them until the overhanging edges of the outer table of the skull had been removed. Hey's saw is the best instrument for this purpose. It is quicker than the trephine, and with a blood-clot present between the bone and dura mater, as there was here, there is little danger of injuring the latter.

The wound in the longitudinal sinus had been made by one of the fragments, and I regard it as one of the salutary incidents in the case. The large quantity of blood lost therefrom had, I venture to think, a restraining influence upon the inflammatory process subsequently occurring, and essential to repair. Local and general blood-letting are therapeutic measures, too much neglected in the treatment of injuries of the contents of the three great cavities of the body. The importance of examining for, and thoroughly removing, blood-clot is well shown in this case. Elevation of bone alone would have benefited the patient but little. The introduction of a finger into the cranial cavity until its tip is felt to be exploring the base of the skull might at first sight appear like meddlesome interference; here, however, it was necessary for the removal of the compressing blood-clot. The fractures which ran down from the gap in the vertex to the base are common enough, and their existence should always be borne in mind in severe injuries of the vault; it is seldom that we have the opportunity of diagnosing them by a finger within the cranial cavity. The introduction of drainage-tubes deeply into the skull is no novelty; indeed, the first time drainage-tubes were ever used at all was in a case of this kind, and so long ago as the middle of the sixteenth century, by Ambroise Paré. The almost complete disappearance by the following morning of the hemiplegia and aphasia was a surprising fact, and pointed clearly to the absence of gross lesion of the brain tissue itself. Their return on the fourth day, and their subsequent somewhat rapid disappearance, were due to the process of repair—pressure from inflammatory exudation—in all the structures involved in the injury. The onset of pneumonia seemed to follow the complete withdrawal of the drainage-tubes, and might have been due to the disturbance of one or more small aseptic emboli which were carried to the lungs and started the inflammatory process there. I would call attention again to the patient's complete recovery. Since his discharge from hospital he has had neither loss of memory, headache, giddiness, nor disturbance of any of the special senses. He has no impairment of power in the extremities. He is at work as a blacksmith, and assures me that he handles the hammer as well as ever. It remains only to add that he has throughout his life been a heavy beer-drinker, and even at the present time he systematically ignores my injunctions of abstinence. I regard the patient as belonging to that class of individuals, not infrequently met with by the operating surgeon, whose tissues seem to be comforted rather than irritated by mechanical injury, and whose reparative processes never pass beyond what we might call the boundary line of "physiological inflammation."

FRACTURE OF THE BASE OF THE SKULL; RECOVERY.

By MERJIBHAI BUSTOMJI SETT, L.M. & S.,

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THE following notes of a case of very severe fracture of the base of the skull (the result of one of the now very common carriage accidents), with recovery, may be of interest.

Gulbye, a Parsi girl aged twelve, was seen, on Jan. 15th, 1884, lying in a lane near the French bridge against a very hard stone wall, in a large pool of blood, and wholly insensible. Blood was gushing from the left ear and nostril. She was removed in this state and put to bed as promptly as possible. The pulse was almost imperceptible; respiration very much embarrassed and stertorous; pupils dilated and insensible to light; temperature very low. There was deep ecchymosis of the left eye. There was no sensation or motion in the left arm and leg, save a spasmodic action occasionally. Ordinary restoratives being used, the pulse began to be felt, though very faintly. The head was immediately shaved, and cold applications were assiduously continued. The bowels had been constipated ever since the accident, and the urine was also retained. A large dose of calomel was effectively given, and a rectal enema was also used.

For nine days and nights the girl was lying in a precarious condition, quite unconscious, with involuntary evacuations and profuse bleeding from the ear and nose, now getting fetid and watery in colour and consistence. The tempera-