

never seen double out of doors, but has frequently noticed it in-doors, more particularly during the last twelve months. She has squinted occasionally; during the last two months the squinting has been more frequent. She does not suffer from headaches. She was fitted with glasses, which were not decentered, and since then she can read for any length of time, without discomfort and without diplopia. The refraction is:—Retinoscopy—

$$\begin{array}{r} \text{V.} \quad \text{H.} \\ + 3.5 \quad + 4.5 \\ + 3.5 \quad + 4 \end{array} \left. \vphantom{\begin{array}{r} \text{V.} \\ + 3.5 \\ + 3.5 \end{array}} \right\} \text{V.} = \left\{ \begin{array}{l} \text{R.} - \frac{c + 2}{+ .75 \text{ Ax. } 90^\circ} = \frac{6}{5} \\ \text{L.} - \frac{c + 2.25}{+ .25 \text{ Ax. } 90^\circ} = \frac{6}{5} \end{array} \right.$$

There is latent homonymous diplopia, as indicated by the Maddox rod, to the extent of 7° to 8° on each side.

Here is a case in which there is obviously latent diplopia, and in which complete comfort is given by the use of glasses. I record the case as typical, and because I have found that operation is rarely if ever required.

THREE CASES OF HEAD INJURY.

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CASE I.

L. P., æt. 60, consulted me for swelling of the left cheek and inability to open his mouth, due to a large alveolar abscess, and an abscess in the substance of the cheek. He also exhibited obvious left facial paralysis, with smoothing out of all wrinkles, much impaired movement of all left facial muscles in such acts as speaking, laughing, &c., and pulling of the mouth to the right side. The left eye was the subject of chronic conjunctivitis, with much thickening of the lids and absence of eyelashes. There was very slight ptosis, and deafness was absolute in the left ear.

On enquiry, he informed me that thirty years ago, while intoxicated, he was thrown from his horse, and was quite unconscious for twelve hours. There was free bleeding from the left ear, and he had all the signs of fracture through the petrous bone, with involvement of the facial and auditory nerves. For fifteen

weeks he could not close his left eye, and during that time it became inflamed, and caused a great deal of trouble. The power gradually returned to a certain extent in the facial muscles, though for years his buccinator was of little use to him, as he had to clear the food out from his cheek with his finger, and he was constantly biting his cheek. He describes himself during the thirty years since the accident as "extraordinarily healthy," without any headaches or impairment of memory or other mental process. Till ten years ago, he was a very heavy drinker, and took no care of his health, lying out all night while drunk, and being engaged in many drunken fights.

I have reported this case, as it is interesting in showing how severe injuries to the head may be recovered from, in spite, in this case, of a habit of life well calculated to prevent the natural reparative and restorative forces from acting.

CASE II.

W. K., æt. 11. This patient was an exceedingly thin delicate-looking boy, who an hour before I saw him was struck by a cricket ball on the right side of the head, while acting as umpire in a school match played by older boys. When the accident happened he fell, but got up at once and walked to his home, about 200 yards away. His mother noticed a depression of the skull where the ball struck him, and brought him to me. He was then perfectly conscious, and showed only slight symptoms of shock. His only complaint was slight headache. Above the right ear there was a large well-marked depression of the skull, and the sharp edge of the adjacent bone could be distinctly felt bordering the depressed portion. There were absolutely no symptoms of compression of the brain, and he wanted to walk home after I examined him.

I decided to operate to ascertain the extent of the injury, and elevate the depressed bone. The scalp was prepared for operation, and with the patient under chloroform, I turned down a large U-shaped flap of the scalp, and exposed the injured area. Here I found an almost perfect circle of bone, quite $2\frac{1}{2}$ inches in diameter, depressed below the level of the rest of the skull, and round the lower part of the circle, locked under the sound portion. This circle of bone was traversed by several fractures, and three ad-

joining pieces so found were quite loose. A linear fracture also ran from the lower circumference of the circle towards the base of the skull. The three loose pieces, with a combined surface area about equal to a florin, were removed, and not replaced. The dura mater beneath was uninjured, and there were no signs of intra-dural extravasation. After elevating the remainder of the depressed bone, and releasing it from its locked position, the flap of scalp was replaced and sutured in position, and a small drain-tube inserted through an incision about its centre. This was removed in twenty-four hours.

An hour after operation the child was quite sensible. There was primary healing of the scalp wound, and not one bad symptom manifested itself. At present, three months after the operation, he is in excellent health, and the pulsation, which could at first be seen over the area where the pieces of bone were removed, has quite disappeared.

CASE III.

E. D., *æt.* 14, was thrown from her horse, and picked up unconscious. She lay in a comatose state for some hours, and then became restless, it being noticed that the left arm and leg were the only limbs she moved. She could not be roused at all, and the bowels and bladder acted at intervals involuntary. Two days after the accident she was brought by rail to the Horsham Hospital.

On admission she was unconscious, breathing somewhat heavily; the pupils were equal, and reacted to light; the pulse was 90, full and strong; the temperature was 102° in the mouth, and the surface temperature on the right side was 1° F. higher than on the left. There was no bleeding, &c., from the ears or nose, or other signs of escaping cranial contents. The skin showed no mark of injury nor any depression, the only marks of injury on the body being a small abrasion on the right shoulder and right cheek. The usual signs of cerebral irritation were absent. The left arm and leg were occasionally moved, but the right limbs were quite motionless. The reflexes could not be elicited on either side. Every few hours the urine was passed into the bed, and there was also incontinence of *fæces*. At times the patient became restless, and once or twice required to have the

left arm and leg strapped down, as she flung them about so recklessly. At such times she moaned a good deal. At no time was there any twitching or convulsion. She lay in this condition for twenty-one days, and then commenced to respond to stimulation, grunting and muttering when attempts were made to rouse her. When the ear was pinched she would put her left hand to it, and after about a week, also made slight movements with her right arm and leg. About this time, too, she began to regain intelligence, noticing any movement round the bed, grasping the feeding cup with her hand, and so on.

The remainder of the history of the case is one of steady improvement, speech being slow to return.

It is now eleven weeks since the accident, and she can walk with only slight dragging of the right leg, and can move the right arm freely, though there is very little power in the muscles. Even yet there is occasional incontinence of urine. She is perfectly sensible and intelligent, and remembers everything up till just the moment of the accident. She remembers the saddle beginning to turn, and of the events after that she has no recollection.

This case I consider one in which there was considerable concussion, and perhaps laceration of the left motor area. She probably fell on the right side of her head, and the brain received its injuries by *contre-coup*. It was at first puzzling to decide whether the paralysis of the right side did not warrant an operation. As regards treatment, the usual general treatment of head injuries was carried out, with careful feeding and nursing, and now the exhibition of K I, with good feeding, plenty of fresh air, and massage.