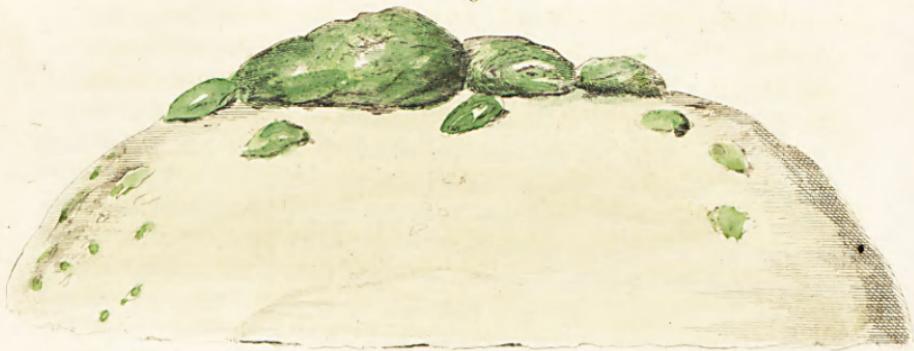
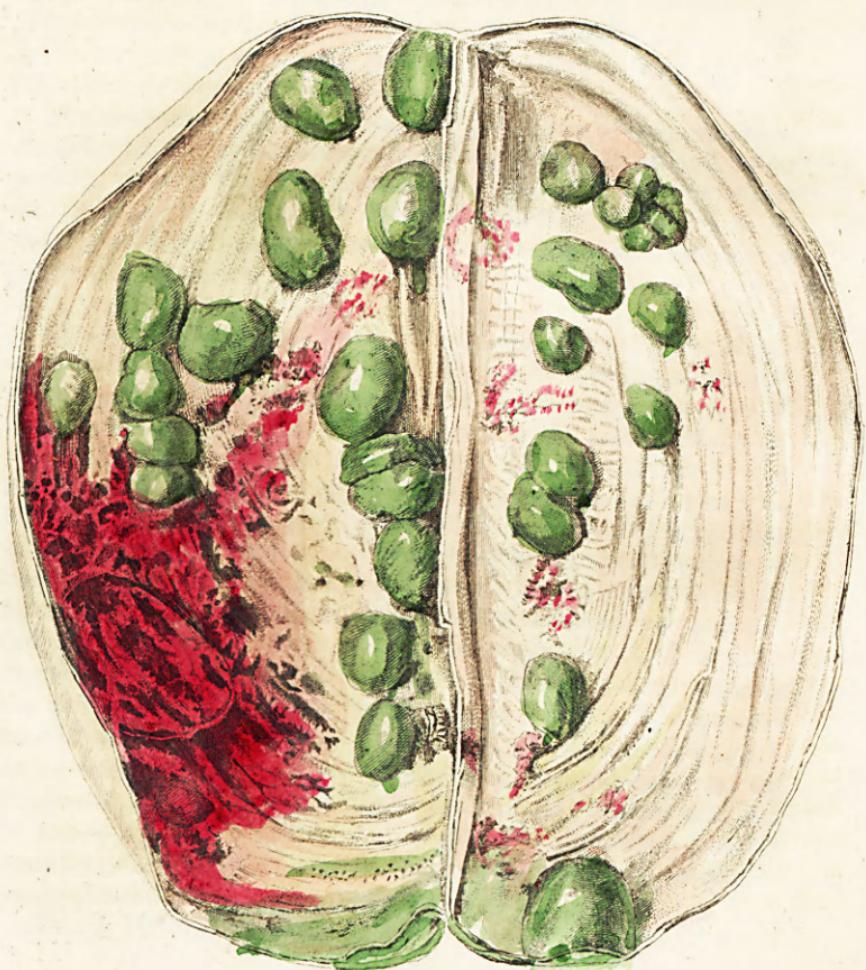


*Fig. 1.*



*Fig. 2.*



ART. III.—*Case of peculiar Disease of the Skull and Dura Mater.* By J. H. BALFOUR, M. D., F. R. S. E., Fellow of the Royal College of Surgeons, Edinburgh. (Read to the Medico-Chirurgical Society on the 3d December 1834.)

ON the evening of the 4th October 1834, I was requested to visit a young gentleman, about 18 years of age, who, according to the statement of his friends, laboured under deafness of several months duration, which they had considered to be his chief complaint, but which was soon proved to be merely a symptom connected with some deep-seated disease of the head.

The patient was tall and emaciated, his eyes were large, his countenance had a pallid hue, and he appeared to be of a strumous habit. On inquiry, I found that he complained of headache, which was at times severe, and was accompanied with vertigo, and a sense of ringing in the ears and throbbing in the head. The pain frequently extended through the whole head, but was generally referred to the posterior region. The *cranium* itself was large and well-developed, but did not at that time present any peculiar appearance which would have directed attention to it. He experienced a feeling of weight and heaviness in the head, which was somewhat relieved by assuming a recumbent posture. There was some discharge from the right ear, and an appearance of ulceration in it. His pulse was 120, with a peculiar jerk, and his tongue was very foul and coated. There was considerable heat of surface, more especially in the head. His appetite was tolerably good, and he complained much of thirst. His bowels were confined, and were reported to be generally constipated,—no evacuation taking place often for eight days at a time. He had also some shooting pains in the knee, hip and shoulder joints, which he attributed to rheumatism. Though he was in the constant habit of going out for the purpose of taking a walk, still he was easily fatigued by any exertion, and was obviously in a weak state of body.

His friends stated that he had always been of a pensive disposition, and, even when a child, had not entered into the active sports of other boys. He was very fond of reading, and his headach was principally attributed to this. His growth had been very rapid within the last two years, and he was much taller than most young men of the same age. He had always displayed great cleverness and proficiency in his studies, and although, from particular circumstances, he laboured under great disadvantages as to the means of education, still, by his own unaided exertions, he had made considerable progress in ancient and modern languages, as well as in mathematics. He had never been very robust, and had not enjoyed good health for several

years, but his intellectual powers had always been vigorous and active. About three years previously he had been affected with pulmonary complaints, which were relieved by bleeding and the antiphlogistic regimen. Subsequently to this he complained of pain in his head, which had continued to recur at intervals ever since, but which had never assumed any degree of severity till within the last few weeks. With the view of easing the pain and procuring sleep, he had frequently of late resorted to the use of laudanum in considerable doses. His deafness had commenced in the month of August last, after exposure to cold and wet, and had continued to increase since that period. No medical treatment had been adopted, from an impression on the part of his friends, that his complaints were owing to a want of tone and energy about the system, and would ultimately be relieved by proper attention to diet and regimen.

From the state of the bowels and tongue, I was induced, in the first instance, to prescribe a full dose of purgative medicine. Cold was also applied to his head; his ears were syringed with milk and water; and an embrocation was rubbed on the knee, hip, and shoulder. He was put upon light diet, and was ordered to abstain from reading, and any violent exercise. The use of laudanum was also as much as possible prohibited.

Next day the symptoms were unabated, and, as the medicine had not produced any effect, pills, consisting each of five grains of the colocynth pill mass, and one drop of croton oil, were administered. The exhibition of four of these produced, on the 6th of October, a copious evacuation of indurated feces. Still, however, the symptoms were little relieved, and the headache continued to recur in paroxysms, which were particularly severe during the night, and forced him to have recourse to laudanum for the purpose of procuring sleep. The severity of the pain of the head was frequently indicated by a peculiar distressing expression of countenance, a contraction of the muscles of the forehead, and an involuntary sort of sighing. During the occurrence of the pain he seemed to be uneasy in every position, and attempted to obtain temporary relief at one time by walking about the room, and at another by assuming a recumbent or sitting posture. When walking, the feeling of weight in the head annoyed him much. The deafness was still very great; pulse very frequent; and tongue foul. Leeches were now applied to the head, and the bleeding was encouraged for several hours, and afterwards cold applications were continued. He was ordered to have a warm bath, and the purgative pills were repeated. The ears had been syringed several times with soap and water; but, as the deafness seemed to depend on some deep-seated disease, this operation was now omitted. The leeching was fol-

lowed by scarcely any alleviation of the symptoms, and the following is the report of the 10th of October :—Headach severe, recurring in paroxysms, rendering him very restless and uneasy, and frequently causing him to sigh; great sense of weight in the back part of the head; pulse 130; tongue cleaner than formerly, but still white and furred; skin warm; discharge from the ear continues; some numbness in the *perineum* and about the *anus*, with difficulty of micturition; eyes rather prominent, and some effusion of blood under the *conjunctivæ*, which appear swollen.

His head was now shaved, and a blister was applied to the back part of the head and the nape of the neck; the discharge from which was kept up by savine ointment for six or seven days. An astringent lotion was applied to the eyes; and whey, ether, and tincture of muriate of iron were given to relieve the dysuria. A purgative enema was also administered, and ordered to be repeated every two days, if the bowels were not freely relieved.

As the headach, however, still continued to recur with severity, I now, with the approbation of Sir George Ballingall, who saw the case, ordered two grains of calomel, and half a grain of opium, to be taken twice a day. This treatment was continued for seven days, until the mouth became slightly affected. Saline medicine was then administered, and, as the throat had assumed an aphthous and œdematos appearance, a stimulating gargle was prescribed. The throat was also scarified, in order to afford relief from the feeling of suffocation which the patient experienced.

The mercurial action continued for several days, and was succeeded by a complete remission of the headach.

The eyes, however, at this time became very prominent. There was considerable bloody effusion of the *conjunctivæ*, and an œdematos swelling and protrusion of the mucous lining of the eyclids. There was also slight strabismus, and some degree of double vision.

On the 1st of November, the following is the report of his state:—Headach has not returned; eyes very prominent; conjunctival lining much swelled and protruded; vision very imperfect; bowels now easily kept open by a dose of compound powder of jalap and enemata; tongue rather white; pulse varying from 120 to 130, irregular; discharge from blister has ceased. Has occasional nervous tremors, during which the head and body are much agitated, while the senses remain entire, and he is able to answer questions distinctly.

On the morning of the 2d November, he experienced a feeling of numbness, which extended along the whole of the left side

of the body, and was accompanied with sickness, vomiting, pain at the *scrofula cordis*, and some difficulty of breathing. These symptoms were relieved by the use of stimulating embrocations, and the administration of a little brandy.

On examining the head at this time particularly, I remarked a peculiar prominence over the upper part of the frontal and parietal bones, communicating an elastic sensation as if the sutures were cartilaginous. Pressure on the swelling caused slight pain. On examining the patient carefully on the evening of the 2d along with Dr Abercrombie, we detected a hard tumour behind each eye immediately under the superciliary ridge, pressure on which did not cause much pain.

The head was ordered to be again shaved, and a blister was applied over the whole head. At the same time, the purgative medicine and the other remedies were continued.

Previous to this period the patient had been able to sit up during the greater part of the day, but now, in consequence of the tremors, &c. he was confined wholly to bed, and continued to be so until his death. November 3d. Blister on the head rose well; swelling of eyes continues; bowels open; pulse as before; tongue cleaner; some cramping pain of stomach, which was relieved by magnesia and antispasmodic draughts. In the course of three or four days, the eyes became so prominent that the eyelids could scarcely cover them. On the 8th of November, the vision of the right eye was totally lost, and the eye itself, from constant exposure, became opaque and collapsed. In the course of two or three days more, the left eye also was so much protruded as to be totally unfit for vision, and it too lost its transparency and figure. The mucous membrane was also protruded so as to appear like a prominent circle round the eyes.

While the protrusion of the eyes was going on, the tumours on the head had increased much in size, and smaller swellings of a similar nature appeared on different parts of the *cranium*. Some abscesses likewise appeared on the neck, and one of the tumours on the back of the head began to discharge a greenish-coloured matter. Above the *zygoma* on the right side a distinct swelling was also detected.

Leeches were applied to the tumours in the orbits, and blisters were applied to the temples, which were dressed with mercurial and hydriodate of potass ointment. Cold astringent lotions were prescribed for the eyes, and the eyelids were rubbed with hydriodate of potass ointment.

All the symptoms, nevertheless, became aggravated; his eyes were more and more protruded, so as to be almost forced out of their sockets, the tumours on the head increased both in number and size, and the nervous tremors became distressing. He was disturbed by fearful dreams, and frequent-

ly awoke in great agitation. When roused he answered questions distinctly, and seemed to be quite coherent. He occasionally asked for food, which he seemed to take with some degree of relish. He always intimated to the nurse when he wished to go to stool or make water, and was uniformly assisted out of bed on these occasions. This he continued to do till within a day of his death.

From the middle of November, the medical treatment consisted in keeping the bowels open by medicine and enemata; giving anodyne and antispasmodic draughts when the nervous agitation and cramping pain of the stomach were severe; applying cold astringent lotions to the eyes; and administering nourishing diet.

On the 22d and 23d of November, he was in a very restless and agitated state, being frequently troubled with horrible dreams, and throwing off the bed-clothes, as if in great agony. The recollection of some family distresses seemed to prey upon his mind, and he frequently alluded to them in a very striking manner. At times he fell into a low quiet state, during which his pulse became small, feeble, and irregular, and his extremities cold. From this state he was several times roused by stimuli.

Although he was now much weaker than formerly, still he could raise himself in bed, and seemed to possess considerable muscular power. He could still answer questions rationally, but his articulation was less distinct, and his deafness extreme. The paleness of his complexion, and the prominence of his eyes, combined as they were with blindness and deafness, contributed to give his countenance a peculiar ghastly and cadaverous appearance.

24th. Appears to be sinking; pulse varying from 130 to 140, small and weak, and at times nearly imperceptible; skin becoming cold; some wheezing in the respiration, which is quicker than natural; answers questions very indistinctly, and can scarcely be made to hear; bowels opened by injection; no paralytic symptoms, and less nervous agitation. Wine and brandy were ordered to be given, and warmth was applied to the extremities. At seven A. M. on the 25th of Nov. his breathing was very laborious, and was accompanied with much mucous rattle. He had been restless during the night, frequently throwing off the bed-clothes, and raising his hands to his head. He was now, however, quiet, and seemed to be insensible; pulse nearly imperceptible. From this time he gradually sunk, and expired without a struggle at half-past nine in the morning.

26th. Nov. *Inspection 28 hours after death.* On removing the scalp, there was observed a large mass of olive-green coloured matter, in some places half an inch in thickness, and about an inch and a half broad, covering the sagittal suture and

part of the parietal bones on either side, and extending from the coronal nearly as far as the upper part of the lambdoidal suture. (See Plate II. Fig. 1.) This green-coloured matter was of a firm cartilaginous consistence, and presented a smooth green surface, when cut with the knife. It was intimately connected with the outer table of the skull. Patches of a similar kind of matter existed on several parts of the parietal and occipital bones, and a large mass was detected below the right temporal muscle, attached to the bone on that side.

On removing the skull-cap, its internal surface, more especially at the upper part above the longitudinal sinus, was observed lined here and there with thin layers of a similar green-coloured matter, interspersed with some bloody spots, and the bone in these situations was distinctly roughened by absorption, and exhibited a cellular cancellated appearance. In three or four places the skull-cap was so thin as to be quite transparent.

On the upper surface of the *dura mater* there was a large deposit of the green-coloured matter, and several rounded masses were scattered over it in different places. The internal surface of the *dura mater* was studded with rounded green-coloured masses covered by the inner layer of that membrane. At the back part of the inner surface of the *dura mater*, on the right side, there was a large bloody patch with several smaller bloody spots around it. (See Plate II. Fig. 2.)

Green-coloured masses were also found outside the *dura mater*, close to the petrous portion of the temporal bone, on the sphenoid bone, and in other parts of the base of the skull, as well as at the union of the *falx* and *tentorium cerebelli*, and under the *cerebellum*.

Near the *crista galli* of the ethmoid, the orbital plate of the frontal bone, on removing the *dura mater*, was seen to be thin, transparent, and so soft as to be easily perforated,

There was some effusion under the arachnoid, and a minute quantity of serosity in the ventricles. The brain was very firm in texture, but did not exhibit any trace of disease in its substance.

Almost the whole of the cavity of both orbits was filled with green-coloured firm matter, similar to that found on the *cranium*. The matter was firmly attached to the frontal bone, and had no connexion with the interior of the *cranium*. The optic nerves, while in the interior of the *cranium*, were healthy, but in passing through the green matter in the orbit, they became small and elongated.

No examination was made of the chest or *abdomen*.

Since writing the above, I have learned that several members

of the family have died of *phthisis*, and some have been cut off by head complaints.

The disease in this case appears to be of a very uncommon nature, and is not noticed, so far as I know, in the works of any authors who have written on diseases of the head. I have, therefore, been induced to draw up a full account of its symptoms and history, so far as they could be ascertained. I fear, however, that, while I thus add an interesting fact to our pathological knowledge, I am unable to suggest any remedy for the disease.

From the morbid appearances presented on dissection, I think we are entitled to draw the conclusion, that the disease had existed for a considerable period; and its commencement may in all probability be dated so far back as the time when the patient first complained of headach. This, it will be observed, was between two and three years before his death. The morbid changes, however, appear to have proceeded at first in a very slow and insidious manner, and no distinct signs of their existence were obvious till August 1834, when, after exposure to cold, deafness came on, accompanied with an aggravation of the headach. From that time the progress of the disease was more rapid, and was marked by more evident symptoms.

The tumours on the skull and *dura mater* were peculiar both as regarded their texture and colour. In texture, they resembled what has been termed a soft node, and when cut into, they presented a uniform smooth surface, similar to that of blanc-mange, rendered very stiff by the addition of isinglass. Their colour, as represented on the plate, was of a bright olive green,—a tint which may have been owing to the presence of colouring matter of a similar nature to that found in the bile. This is a mere hypothesis, as, unfortunately, no chemical analysis was made of it. I may remark, however, that the patient never laboured under jaundice, and was not subject to any bilious complaint. I regret that no examination was made of the chest and *abdomen*, to ascertain whether any tumours of a similar nature existed in the lungs, liver, heart, or large vessels.

It is particularly deserving of notice, that the intellectual powers continued nearly unimpaired during the whole course of this formidable disease. It will also be remarked, that the severe headach yielded speedily and completely to the use of calomel and opium; while the tumours on the head and in the orbit increased latterly with amazing rapidity, notwithstanding all attempts to check their progress. No particular cause can be assigned for this remarkable disease, although it undoubtedly may in some degree be connected with the patient's strumous *diathesis*.