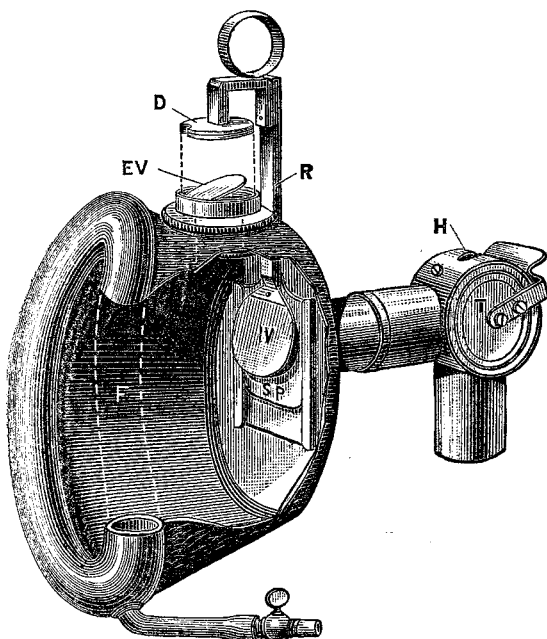


Whether the absorption of this gas would have the effect of rendering the anæsthesia even more perfect remains to be seen by experiment.

I now propose to describe the apparatus before alluded to, (see woodcut). The face-piece (F) is furnished with two valves, an inspiratory valve (IV), and an expiratory valve (EV). The inspiratory valve (IV) is mounted upon the sliding plate (SP), which can be moved up and down by the rod (R) which is attached to it. When the plate (SP) is raised, as in the woodcut, the valve (IV) is in contact with the orifice of the tube coming from the two-way stopcock (T), and gas rushes past it during inspiration, but not during expiration; when, however, the plate is pushed down by the rod (R), the valve (IV) is also displaced, and gas can pass backwards and forwards through the orifice previously guarded by the valve (IV). The expiratory valve (EV) is situated upon the upper part of the face-piece. When the rod (R) is raised, as in the woodcut, the valve (EV) is capable of acting during expiration; when, however, the rod (R) is depressed, the circular damper (D) is pushed down upon the valve (EV), and the latter is rendered inactive. It will therefore be seen that when the rod (R) is raised, both valves are capable of acting; when, however, the rod (R) is depressed, all valve action is suddenly abolished, and gas can only pass in and out of the orifice of the tube previously guarded by the valve (IV), the rod (R) which necessarily comes over this orifice offering practically no obstruction to the passage of the gas. The two-way stopcock (T)



is fixed on the one side to the face-piece (F), and on the other to a piece of tubing connected to a Cattlin bag holding two gallons of gas. The latter (as is commonly the case) is filled from the gas-bottle through a stout piece of india-rubber tubing; and I have found it convenient to have a small stopcock with a bayonet joint interposed between the bag and the gas-bottle, so that the two may be quickly and readily disconnected, if necessary. The anæsthetist can, under these circumstances, attach the bag by any simple contrivance to his coat button, and with the two gallons of gas and the face-piece he is equipped for most short operations.

The following are the details of the method: the bag and the tubing between it and the face-piece having been filled with gas (by placing the two-way stopcock as in the figure), the face-piece (which is also arranged as shown), is accurately fitted to the patient's face. It will be seen that the face-piece is so made that it can be grasped firmly at its back part by the hand of the anæsthetist, whose forefinger and thumb will then be able to press its sides over the nose of the patient. Inspiration now takes place through the air-hole (H) of the two-way stopcock, and expiration takes place through the valve (EV). I am in the habit of testing the fitting of the face-piece by placing my finger for a moment over the air-hole (H), and then asking the patient to "try to breathe." If no air enters at any part, the sides of the face-piece will be observed to fall in as the tendency towards a vacuum is set up; whereas if air should gain admission (as it sometimes does) between the face-piece and the face,

there will be slight, if any, falling in of the sides of the former, and, in all probability, some noise of in-rushing air will be audible. Having adjusted the face-piece satisfactorily, gas is turned on at the stopcock (T), and a certain number of expirations are allowed to escape through the valve (EV). As far as my experience goes, it is best to allow nearly one-half of the contents of the bag to be inhaled, and then exhaled into the surrounding atmosphere; and to effect this, four or five respirations are usually requisite. The rod (R) is then depressed. The patient now breathes directly in and out of the bag, and the usual evidences of anæsthesia ensue. The total number of respirations necessary will, of course, vary with each individual patient; the average number in one hundred cases was forty-five. I usually wait for some slight twitching of the muscles before removing the face-piece. The period of anæsthesia which ensues is, I think, not quite so long as that which is met with under ordinary circumstances, although Mr. Read, one of the dental surgeons at the National Dental Hospital, assures me that he sees no difference in this respect between the anæsthesia which is obtained by using plenty of nitrous oxide and that induced by administering two gallons in the manner I have described. I have been unable to ascribe any unusual after-effects to this mode of administering the gas. Further experience is necessary before more detailed comparisons can be made between the anæsthesia thus induced and that obtained by employing several gallons of gas.

The experience I have had in the above method of administering nitrous oxide gas has led me to the conclusion that it can be employed in all short operations, especially in hospitals where economy has to be considered. I believe that the average amount of nitrous oxide used for each patient at the National Dental Hospital is five or six gallons when the ordinary apparatus is employed. At hospitals where small fees are charged for the privilege of having the gas administered, it might be possible to reduce or abolish these fees, except under special circumstances.

Economy in nitrous oxide is doubtless to be secured in others ways than that which I have mentioned. Many anæsthetists use the "Supplemental Bag," which can be adapted to ordinary face-pieces, and by its use less gas is certainly necessary than under ordinary circumstances. How much less will, of course, depend upon various conditions. I believe, however, that, as a rule, it is necessary to use a great deal more than two gallons of gas. If two gallons of gas will suffice for short operations, it may be found practicable for the anæsthetist who is called to administer gas to one patient either to dispense with the heavy gas-bottle or to substitute for it a much smaller and more portable one.

Mr. Hawksley of 357, Oxford-street, is the maker of the face-piece; and I have to thank him for the care and attention with which he has carried out my instructions.

Somerset-street, Portman-square, W.

NOTE ON A CASE OF OSTEO-ENCHONDROMA OF THE CEREBELLUM.¹

By CHARLES ATKIN, F.R.C.S. ENG.,
HOUSE SURGEON, INFIRMARY, SHEFFIELD.

MR. SHAW, of Attercliffe, Sheffield, in making the post-mortem examination on the body of a boy aged eleven, found a hard bony substance in the right lobe of the cerebellum. The cause of death was meningitis following otorrhœa of only three weeks' history. In the right lobe of the cerebellum, embedded in the substance of the organ underneath the grey matter, was a hard body about the size of a bean, half an inch by three-eighths of an inch, weighing seventeen grains. It was not enclosed in a cyst or surrounded by any undue vascularity or softening, and had apparently nothing to do with the cause of death. It was single, no smaller one being in the neighbourhood, quite firm and hard, giving at once the idea that it consisted of bony tissue. The mother stated that he has always been a delicate boy, especially up to the age of four, suffering from "water on the head," that he was late in teething, had

¹ Read before the Sheffield Medico-Chirurgical Society, April 23rd, 1885.

never had scarlet fever or measles, and had always been lively, attentive, and quick at learning. The parents were apparently healthy, though the father had a strumous phthisical appearance, and three brothers aged respectively nineteen, fourteen, and nine all had otorrhoea.

The interest of the case lies chiefly in the origin and nature of the growth. After decalcification the bony tumour was carefully cut in two, one half being cut up into sections for the microscope and the other preserved in spirit. On viewing the cut surface the growth was seen to consist of two portions: one, a central nucleus with prolongations, and the other surrounding tissue of evidently different structure. Under the microscope four different tissues are seen—first, the stellate nucleus, consisting of fine granular matter readily taking aniline colours, staining yellow with picricarmin; secondly, well-marked hyaline cartilage, forming a complete capsule for the nucleus, which sends its prolongations in and amongst it in a very irregular manner; thirdly, some true bone, and most externally parallel bundles of fibro-cellular tissue, which were, previous to decalcification, as hard as bone. There is no doubt that the tumour is perfectly innocent; it is not a chondrifying or calcifying sarcoma; it is not a mass of brain sand. In the granular centre, brain elements, such as Deiter's cells or Purkinje's corpuscles, are absent. One might imagine that it might be degenerated additamentary corpus dentatum, but even then the stellate cells are wanting. Is the nucleus of the tumour hypertrophied neuroglia due to circumscribed encephalitis? I have searched for records of similar growths, but have found nothing at all comparable to it. Calcifications of tumours of the brain are uncommon, but still well known. Bevan Lewis has recorded a calcified angioma, and Ross quotes one by Meschede. As well as with regard to its seat and the fact of its causing no symptoms, it is curious in another way—viz., that it is an exception to the rule that heterologous enchondromata are generally malignant.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas ac morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUY'S HOSPITAL.

DISTENSION OF FRONTAL SINUS TREATED BY INCISION AND DRAINAGE; CURE.

(Under the care of Mr. HIGGENS.)

DISTENSION of the frontal sinuses from the accumulation of fluid is somewhat rare, especially when the fluid is non-purulent. Incision, with the application of the trephine, when the bone has not been absorbed from pressure or removed by disease, followed by free drainage, is the best treatment. In addition to the ordinary external opening, Mr. Higgens made one from the distended sinus into the nasal cavity, thus providing further drainage and allowing the external wound to close at an earlier date.

Eliza H—, aged eleven, admitted July 20th, 1884. The history was that usually given in these cases—a blow across the nose from a fall six or seven years previously. Some eighteen months later the child had scarlet fever, and at that time a small abscess formed at the inner canthus of the right eye; this burst and gave no further trouble. Two years ago the right eye began to water, and a swelling appeared at the side of the nose; this has gradually increased. On admission there was a fluctuating swelling surrounded by irregular bony edges, situated at the inner angle of the right orbit rather above the position of the lacrymal sac. The swelling is rather larger when the patient is in the erect position than when lying down; it is also rather smaller in the morning than later in the day.

July 21st.—An incision made into the swelling gave exit to a large quantity of thick, opaque, yellowish discharge; the finger passed through the incision entered a considerable cavity. An opening was made through the lower part

of the cavity into the superior meatus of the nose, and a drainage-tube passed through it and out at the right nostril, and left with one end projecting through the incision and the other through the nostril. The drainage-tube remained in position till November 10th (nearly four months), when it was removed.

Dec. 8th.—Opening where drainage-tube projected quite closed; replaced by small depressed cicatrix. An irregular bony edge can still be felt, but the fluctuating swelling has entirely disappeared.

LIVERPOOL ROYAL INFIRMARY.

SUICIDAL WOUND OF NECK TREATED BY TRACHEOTOMY AND THE INSERTION OF DEEP SUTURES; REMARKS.

(Under the care of Mr. REGINALD HARRISON.)

FOR the following notes we are indebted to Mr. H. Pearson.

H. O—, aged fifty-six, no occupation, a weakly and ill-nourished looking man, was brought to the Royal Infirmary early on the morning of July 29th, 1884, with a severe wound in the neck, as follows: There was a deep cut on a level with the upper border of the thyroid cartilage, and extending, on the surface, about two inches to either side of the middle line; this wound, inflicted by a razor, passed horizontally backwards, so as to divide all the structures attached to the upper border of the thyroid cartilage, and, still deeper, dividing the pharynx nearly half way through. On making efforts at swallowing, the thyroid cartilage moved upwards and forwards through the wound in a most curious way. It was stated that he had lost a quantity of blood, but there was no bleeding of consequence on his arrival at the hospital. The following treatment at once suggested itself: to perform tracheotomy, and then to bring the divided parts together with strong deep wire sutures. To the attainment of this object the patient was anaesthetised, and the trachea opened above the isthmus; a large tube was inserted so that respiration might be as free as possible; next, the base of the epiglottis, which on being released from the thyroid cartilage had become tilted upwards and backwards, was drawn down and fixed to the centre of the upper border of the thyroid cartilage by means of a medium-sized wire suture; then, by means of a curved mounted needle, a strong wire was passed on either side through the upper part of the lateral wing of the thyroid cartilage and carried around the hyoid bone; on tightening these two sutures the deep soft parts were brought neatly together, and the hyoid bone maintained in its proper relation to the thyroid cartilage; finally, the surface wound was neatly closed over the deep sutures by means of fine silver wire. The man was kept in bed surrounded by a tent, the temperature of the room maintained at 65°, and the air constantly moistened by a steam kettle; two ounces of sanitas to each large kettleful of water served very well to keep the atmosphere pleasant and sweet. He was ordered to have milk and beef-tea thrice daily through an œsophageal tube, also beef-tea night and morning by the rectum. He was troubled a little with slight bronchial irritation for a few days afterwards, but his temperature never rose above 102.2°. The greater part of the wound united rapidly, leaving only a fine fistulous tract leading from the pharynx to the right angle of the cicatrix. As this opening showed no tendency to heal, a plastic procedure was resorted to on Aug. 29th—viz., the tract was thoroughly scraped with a Volckmann's spoon, and the walls of the fistula brought together by means of a strong deep suture; this was then covered in by bringing together the edges of the previously dissected up skin. This wound united kindly, and on Sept. 12th the tracheotomy tube was removed, and on the 18th (a week before his discharge), this last wound having closed, the patient was permitted to take soft solid food by the mouth.

Remarks by Mr. HARRISON.—This wound was so large that it was quite out of the question to leave it to heal without maintaining the divided structures in good position, and moreover, to this end, it appeared a necessity to have free respiration below the site of injury. Similar treatment seems to suggest itself as commendable and safe for wounds of much less extent than the above, if not, indeed, to all cases of cut-throat whenever the pharynx or larynx has been laid in communication with the surface of the neck. The four deep sutures used had, up to the time of the