

The brain and spinal cord were removed from the body about 24 hours after death and they appeared normal to the naked eye. The cord was hardened for six weeks in a mixture of 3 per cent. bichromate of potassium and 10 per cent. formalin; pieces from different levels of the cord were imbedded in paraffin. The staining methods used were those of Marchi and Weigert Pal; aniline blue-black was also employed. The white matter showed no morbid changes either by Marchi's method or by the Weigert Pal method. Throughout its entire length the periphery of the white matter presented a vacuolated appearance; this was due, however, to post-mortem changes. As regards the grey matter, a large number of sections from different parts of the cord were examined; many of them were cut serially. They appeared to show that the cells in the lumbar region were fewer in number than usual; the deficiency was most marked in the case of the large cells of the anterior horns. The cells which were present looked healthy, the only exception being that some who saw the sections thought one or two cells showed slight necrosis. The perivascular spaces in the lumbar region were larger than those in the thoracic or cervical regions. Since sections from all parts of the cord were treated in precisely the same way, the larger perivascular spaces in the lumbar region could not be due to shrinkage of the vessels. There was definite thickening of the small arteries in both the grey and the white matter; the patient had been a drinker. No hæmorrhages were observed. Sections of the cord were shown at a meeting of the Neurological Society on June 24th, 1905. Although there was some difference of opinion regarding the importance to be assigned to the appearances just described, the majority of those who examined the sections considered that in the lumbar region the perivascular spaces were enlarged.

The investigations of Leonard Hill show clearly that if animals are subjected to a pressure greater than one atmosphere, a large amount of nitrogen is dissolved in the blood, according to the law of solution of gases; if the pressure is

neuritis, for when one of us saw him on each of his admissions to the hospital he had none of the tenderness and wasting characteristic of this disease. Nor, strictly speaking, is the case to be regarded as a fatal case of diver's paralysis, for the patient died as a result of pulmonary tuberculosis. But it does illustrate admirably the power of recovery, for although there is no doubt that each of the attacks of paralysis after diving was due to the escape of gas bubbles into the blood-vessels and tissues of the spinal cord yet at death three months after the last attack but little change could be seen in the cord. The escape of gas could not have led to any destruction of nerve cells for no degenerated fibres were to be seen, and for this reason, if there was an unusually small number of cells in the lumbar spinal cord it cannot have been due to their destruction; at the most the evolution of gas may have left some permanent distension of the perivascular spaces. The formation of gas bubbles in the spinal vessels and their escape into the perivascular spaces on the arrival of the patient from a great depth interfered with the circulation through the cord so as to lead to paralysis; as the gas became absorbed the transient damage to his nervous tissues recovered, taking a few weeks to pass away. This is what usually happens, for the disease is rarely fatal; it will be remembered that our patient recovered from several attacks.

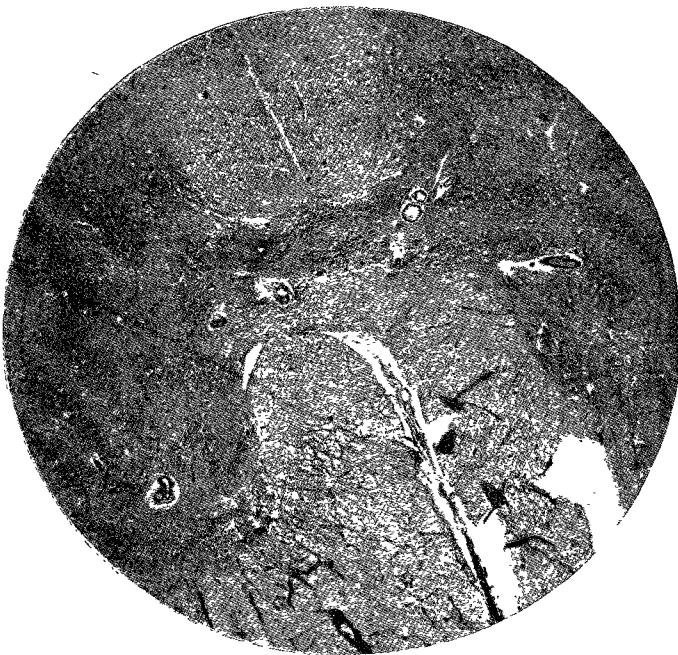
We record this single case because the opportunities of post-mortem examinations in cases of diver's paralysis are scanty. Probably the opportunities will become fewer still now that it is known that the disease can be prevented by slowly lowering the pressure when the workman comes out of the high pressure.

A CASE OF ANENCEPHALIC MONSTER.

By R. H. PARAMORE, M.D. LOND.

ON Feb. 8th, 1905, I was called to a case of labour. I was told that the child was born but that it had some peculiar condition of the head. On my arrival I found a full-term anencephalic foetus lying on the bed. It was quite still and made no attempt to breathe. The cord had been tied and severed and in the stump I felt the pulse beating slowly but with full volume; in a short time it ceased.

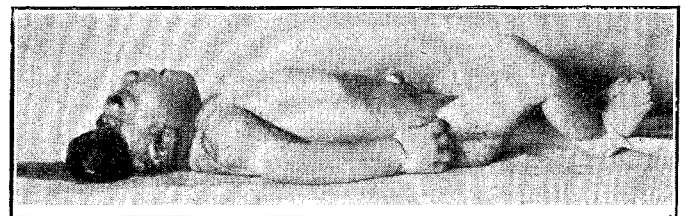
The illustration will show the condition better than I can describe it. Other than the head the foetus was well formed. The arms and legs were big and strong, the shoulders were broad, and, I was told, they caused some delay in delivery. The foetus was a male, the scrotum was large, a testis was present on each side, but the penis was small and diminutive. The nails had grown to the tips of the toes and fingers. The head consisted of an apparently normal base. The skull cap, above a line drawn around the cranium at about the level of the superior curved line of the occipital bone and continued forward along a line just above the zygoma to the superciliary ridges of the frontal bone in front, was



A micro-photograph of a section through the lumbar region of the spinal cord. The perivascular lymph spaces in the grey matter are seen to be much distended.

allowed rapidly to return to the normal this gas is set free in the vessels and may even escape into the perivascular spaces. There is no doubt that the symptoms of diver's paralysis are in the same way due to the evolution—when the sufferer suddenly comes from the abnormally high to the usual atmospheric pressure—of the excess of gas dissolved in the blood in the vessels of the spinal cord.

There is no need for us to give the literature of the subject, for that has been recently fully done by Leonard Hill¹ and Leonard Hill and J. J. R. Macleod.² In the latter paper a list of fatal cases will be found. With regard to our own patient we do not think that his paralysis was due to alcoholic



Showing appearance of the child.

entirely absent, its place being taken by two or three bulbous tumours in which no pulsation was felt. These were of unequal volume, but all of the same semi-solid consistence, of black colour, and covered with a shining membrane which was not skin, but which was continuous with the skin all around the cup-shaped rim of bone resulting from the absence of the skull top. These masses were irregular in size and the largest was on the right side of the head. They were attached by their bases to the base of the skull where the sella Turcica could easily be distinguished between them by the finger. On re-examination 12 hours later these black masses had lost their tenseness

¹ Influence of Atmospheric Pressure on Man, THE LANCET, July 1st, 1905, p. 1.

² Caisson Illness and Diver's Palsy, Journal of Hygiene, vol. iii., No. 4, 1903.

and now felt like flaccid bags with semi-fluid contents. Behind, the lower part of the occipital bone was present, covered by skin and hair, but it ended above in a rounded horizontal edge which passed forward each side to the superciliary ridges of the frontal bone. The vertebral column was natural.

The prominence of the eyeballs was the most characteristic feature of the face. The upper and lower lids were bulged outwards over the globe, the palpebral fissures being about normal. This prominence was due to the fact that the orbital plates and external angular processes of the frontal bone had not grown forward to cover in the eyes; indeed, in the specimen these parts of the bony skull seem to be entirely wanting. This lack of development in turn is due to the absence of the frontal lobes of the brain which normally as development continues push the developing bone in front of them. Measurement shows very well the antero-posterior shortening of this part of the skull; whereas the fronto-occipital and the suboccipito-frontal diameters in normal children at term average respectively four and a half and four inches, the distance in this specimen between the root of the nose and the uppermost part of the occipital bone behind measures only two and a quarter inches.

The ears were large and coarse. They stuck out from the head and were placed about an average distance behind the eyes. The profile illustration shows the relation of the face to the rest of the head. The body was photographed lying quite flat on a table, so that none of the occiput was hidden in a recess. The foetus weighed seven and a half pounds.

The mother was 20 years of age. She lived in the country and came to London for the confinement. Her last period commenced on March 18th and ended on March 23rd, 1904, since when she saw nothing. Previously to this she had been quite regular every month and was generally poorly for six days. The pregnancy apparently was uneventful, except that she had a fright from a dog. This occurred in October and reckoning the beginning of the pregnancy to date from the first period missed (April) this happened in the sixth month, at far too late a period of gestation to account for the maldevelopment. Otherwise, she had little morning sickness and worked up to Dec. 23rd. I am unable to state whether there was hydramnios in the case, for those present at the birth were unable to give any definite information on this point. The patient herself was not well developed mentally and was rather stupid. The puerperium was uneventful.

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NOTES ON A CASE OF TOXIC OR TYPHOID PNEUMONIA.

By A. M. ELLIOT, M.B., C.M. EDIN.

THE following notes are from a case of lobar pneumonia occurring in a native ward boy working in the local hospital. First the daily clinical notes will be given and any comments will be made at the end.

The patient was a tall, strong, wiry man, about 35 years of age. He was admitted into hospital on April 28th, 1903. For the previous ten days or so he had been in attendance on several cases of pneumonia. On the 26th he said that he felt tired and had a slight catching pain at the right base if he took a long breath. On the 27th he had a slight cough and was unable to continue his duties. He was taken in on the morning of the 28th. On admission the temperature at 9 A.M. was 103.6° F., the pulse was 102, and the respirations were 40. He complained of much pain over the right side of his chest. He had a short, hacking cough, with scanty tenacious sputum slightly streaked with blood. The tongue was thickly coated. The eyes were bright. The spleen was normal. Resonance was somewhat impaired over the right base. A faint pleuritic rub was heard over the sixth, seventh, and eighth intercostal spaces posteriorly and laterally. A few râles were heard at the right base. The percussion note was slightly duller than that on the left side. He vomited twice during the day and had five loose yellow offensive motions. On April 29th the rusty sputum was more abundant. The dulness at the right base was marked; also bronchial breathing. The patient still complained of pain. Friction sounds were heard over the middle lobe. He

vomited several times and had seven loose motions for the day. On the 30th he had passed a restless night. He was slightly delirious at times. The lower lobe was quite dull. The middle lobe on percussion gave well-marked Skodaic resonance. Examination of the blood showed increased leucocytosis. The urine was acid; it contained no albumin. Four motions were passed. On May 1st the condition was the same. On the 2nd the patient had a very restless day. He complained of severe pain in the left shoulder-joint, which was swollen, tense, red, and exquisitely painful when touched. Râles were heard over the whole of the right lung. On the 3rd the shoulder was still painful. The cough was very troublesome. He perspired profusely all day. On the 4th he was delirious. His shoulder was much swollen and a red blush was spreading up into the neck. On the 5th the left shoulder was the same. He complained of much pain in the throat, which was increased on swallowing. He could not open his mouth freely nor could he protrude the tongue far. Towards evening he complained of pain in the right shoulder. This was hot, tender to the touch, and slightly reddened. The abdomen was tympanitic; he had five loose motions. The temperature dropped to 100°. The pulse was irregular and weak. Examination of the blood showed increased leucocytosis. On the 6th the patient was very delirious all day. The cough was troublesome; the sputum was still rusty. The lower intercostal spaces were bulging somewhat; the dulness was absolute. An exploring needle was passed but with negative results. On the 7th, 8th, and 9th his condition remained more or less the same. He was restless and was delirious at times. On the 10th the pulse was intermittent and very soft. Percussion below the right clavicle was dull; breathing was tubular. Coarse râles were heard at the base. The sputum was still rusty but more abundant. The Widal test was carried out with a negative result. The left joint was much better and was not so painful on handling. From the 11th to the 17th the temperature remained above 100°. His breathing was faster but less laboured. His bowels were still loose. On the 18th the temperature dropped to 99°. From the 19th to the 23rd the temperature kept high. The bowels became looser. On the 24th the temperature fell to 99° again and the respirations to 35. A Widal test was carried out but gave negative results. On the 25th the temperature was normal in the morning. On the 27th the patient perspired freely all day. On the 30th he complained of pains below the right nipple. A patch, limited above by the lower border of the fourth rib, below by the upper border of the sixth, internally by the right border of the sternum, and externally by a line one and a half inches to the right of the nipple line,—over this area the percussion note was tympanitic. On auscultation breathing was amphoric in character. Over the rest of the lung the breathing was bronchial with coarse râles here and there. The sputum was scanty and frothy. On the 31st the morning temperature was 99°, the pulse was 104, and the breathing was 36. There was marked dulness round the base. An exploring needle was passed and some pus was drawn off. A portion of the seventh rib was resected and 12 ounces of pus escaped. The evening temperature rose to 101.8°. On June 1st his temperature fell to 97°. The pulse was 104 and the respirations were 30. From this date until the 15th he was constipated and was relieved by enema. The wound progressed favourably and the tube was removed on the 20th. On the 5th the urine became scanty, high-coloured, and ammoniacal. An acute attack of cystitis had suddenly set in. By the 18th all bladder trouble had ceased. On the 24th an acute attack of dysentery started; there were great pain, much straining, mucus, and blood. This lasted 18 days, with from three to 11 loose motions in the 24 hours. He gradually picked up strength and it was hoped that he had seen the last of his complications. On July 15th he complained of pain above the wound in the side. There were signs of pus, so the wound was opened and a tube was left in for five days. After this he gained strength and was eventually discharged on August 3rd, having been in hospital 99 days. He was naturally much emaciated. The upper part of his right chest was sunken and the intercostal spaces were drawn in. There were no breath sounds and percussion gave a dull, hollow note. The cough had ceased. The appended chart shows the course of the temperature from admission until nearly the end of June.

The above case presents many points of interest. The first diagnosis was that of lobar pneumonia. In a few days the question arose whether it was not a case of typhoid fever