

beautifully clear and free from all vascularity or opacity. The aperture shown in the engraving upon the summit of the sac was accidentally made in opening the body. The hepatic flexure of the colon with the immediately adjacent parts of the ascending and transverse colon were incorporated in the right and upper part of the sac. The whole of the small intestine from the end of the duodenum to the ileo-cæcal valve was contained in the sac, its walls, though smooth and polished, were intensely injected and tightly stretched by accumulated gas and fluid in its interior—in short, it showed all the signs of well-established strangulation. It required some time and repeated examination, in the absence of any available experience on the matter, to determine the precise anatomical nature of the conditions briefly described above. Ultimately it became quite clear to all who saw the case that we were dealing with a congenital displacement of the small intestines into a sac formed in the following manner. The left layer of the mesentery had been invaginated along the posterior wall of the abdomen, and behind the superior mesenteric vessels, displacing forwards and to the right the right layer of the mesentery, the parietal peritoneum on the posterior right abdominal wall, the right meso-colon, the right colon, and the parietal peritoneum on the right abdominal wall—that is to say, a sac formed by the left layer of the mesentery lay behind the parts of the peritoneum and the large intestine enumerated above. I had myself never before seen anything of the kind, neither was I acquainted with any literature bearing upon the subject, so I ventured to send a short account of the case to Mr. Frederick Treves, along with the photograph, of which the above is the engraving, of the opened body. He was able at once to identify the condition, and very kindly wrote to me, giving me, amongst much interesting information upon the matter, reference to Sir Astley Cooper's plate illustrating his mesenteric variety of retro-peritoneal hernia, to which variety the case here recorded clearly belongs. There is no need for me to attempt any explanation of the mechanism by which this abnormality was established, for this has already been done in Mr. Treves's admirable account of the development of the fossa duodeno-jejunalis,¹ and its relation to the development of recto-peritoneal hernia. I would, in conclusion, draw attention to an extremely interesting paper upon Retro-peritoneal Hernia by Dr. Pye-Smith,² which, so far as its author was then aware, was the first English notice of the duodeno-jejunal fossa. Dr. Pye-Smith in this article makes reference to Treitz's writings on the subject, by whose name (Mr. Treves informed me) this hernia is known to continental writers.

Leeds.

ARSENIC IN PERNICIOUS ANÆMIA.

By E. A. BARTON, L.R.C.P., M.R.C.S.

THE following case, as illustrating the value of arsenic in pernicious anæmia, is not without interest.

J. A—, a coachman, came to me on Nov. 25th, 1890. He then stated that he had always been somewhat pale, but for the last three months he had become much paler, and was very weak, the least effort fatiguing him. He complained that for the last three or four weeks there was blood in his mouth on waking in the morning. The patient was emaciated and intensely pale, the hands were pearly white, the conjunctivæ lemon-coloured, and the ears looked transparently waxy; the gums were very large, spongy and quite pale, and at the junction of the teeth and gums was a thin line of blood; the lips were blanched and the tongue pale but clean; there was no oedema of ankles. Altogether he had the appearance of a man who had recently suffered a severe hæmorrhage. He was short-breathed, and felt faint on standing. The lungs were quite sound. The heart had a soft systolic murmur at the apex, and another at the base over the pulmonary cartilage. They were both probably hæmic in origin. A marked venous hum was also observed in the neck. The pulse was quick, very compressible, and not accelerated. There were no petechiæ on the skin. The urine was very pale in colour, and contained one-sixth

albumen. Three grains of sulphate of iron were ordered thrice daily. A week afterwards I had the opportunity of making a careful examination of the blood, and found that the corpuscles numbered only 18 per cent. of the normal quantity, while the hæmoglobin was 23 per cent. The corpuscles themselves varied in size, were soft and plastic, and formed rouleaux readily. The blood was, on being drawn, obviously pale and thin. There was no leucocytosis. He complained of being unable to read, and on examination large hæmorrhages were observed in both retinæ. The urine at this time contained only the merest trace of albumen, which in a day or two entirely disappeared. The iron was discontinued and five minims of liquor arsenicalis thrice daily were substituted, with very generous diet. On Dec. 13th, a week after the arsenic was begun, he had a fit, which seemed from the description more of the character of a faint, for when I saw him he was sensible, with no paresis. There was some tendency to wander in his talk. The next morning he volunteered the statement that he saw red colour when looking at anything white. He was also annoyed by noise in his head "like a steam engine," keeping time to his heart. A fortnight after the commencement of the arsenic (which was never increased beyond five minims three times a day) there was no further bleeding from the gums, and he declared himself stronger, and was allowed to move about his room. The urine was normal, but very pale, and the appetite extraordinary, for besides the most nourishing diet of strong soups &c. he took three pints of milk daily. In three weeks he was able to walk half a mile without fatigue, and in a month returned to work, the corpuscles on Jan. 16th being 76 per cent. and the hæmoglobin 60 per cent. The hæmorrhages into the retinæ had entirely disappeared, except for a slight blur on the right side. He could read small print. He continued the arsenic for ten weeks from the commencement.

Recoveries from pernicious anæmia are so rare that some seem to doubt the authenticity of such cases. Here was a case in which the percentage quantity of hæmoglobin and the number of corpuscles were practically the same, showing that each corpuscle contained its right quantity of hæmoglobin. The disease, then, was one of diminution in number of corpuscles and corresponding increase in the proportionate amount of plasma. The hæmorrhages into the retinæ, from the gums and probably the kidney, combined to give a grave import to the disease; and the fit was, I think, attributable solely to anæmia. The rise in one month of the number of corpuscles and quantity of hæmoglobin to thrice the quantity under the administration of arsenic proves the enormous benefit derived from the drug.

Cheniston-gardens, W.

AN

ANATOMICO-PHYSIOLOGICAL CONTRIBUTION ON THE OSSICULA AUDITUS.

By DOCTOR P. C. LARSEN-UTKE.

WHILE investigating the subject of the anatomy of the organ of hearing I have alighted on some points upon which I cannot agree with the views of H. Helmholtz in his book, "Die Mechanik der Gehörknochen und des Trommelfells (Bonn, 1869)." With due regard to so eminent an authority, I at first thought I was mistaken; but as all further examinations yielded the same result, I could scarcely doubt the validity of my observations, of which the following is an account. My preparations have been examined by Dr. Med. Wilhelm Meyer of Copenhagen, who agrees with my view of the matter.

The first point concerns the ligamentum externum mallei. In his description of this ligament, Helmholtz says (p. 20): "Von diesen Bündeln [those, namely, which are inserted medially to the "crista colli mallei," and laterally to the "incisura Rivini"] ist das stärkste und am meisten gespannte das hinterste; die Richtung desselben geht verlängert auf die Spitze der Spina hin, und dieser Strang ist es hauptsächlich, der die Drehungsaxe des Hammers darstellt. Ich möchte deshalb diesen hintersten Strängen des Ligamentum externum den besonderen Namen Ligamentum mallei posticum beilegen, weil sie in der That in mechanischer Beziehung eine besondere Bedeutung haben." And further, page 22: "Denkt man sich die Richtung des

¹ Hunterian Lectures on the Anatomy of the Intestinal Canal and Peritoneum in Man: Brit. Med. Journal, Feb. 28th, 1885, p. 415.

² Guy's Hospital Reports, vol. xvi., 1887, p. 131.

Ligamentum posticum durch den Hammer hindurch verlängert, so trifft die Verlängerung auf die mittleren stärksten Züge des Ligamentum anterius, die von der Spina tympanica major ausgehen. Diese beiden Faserzüge zusammen, die zwar durch den Körper des Hammers getrennt, doch in mechanischer Beziehung ein Band ausmachen, können wir das Axenband des Hammers nennen."

In opposition to the above quotation I have on all preparations which I have made found the parts so arranged that the hindmost strands of the ligamentum externum, in place of having their elongated axis running in the direction of the ligamentum anterius, generally alight on the medial wall of the cavitas tympani at a point lying within one millimetre either in front of or behind the processus cochleariformis. The hindmost strands of the ligamentum externum mallei (Helmholtz's ligamentum posticum) thus form an almost right angle with the ligamentum anterius, and cannot make part of the "Axenband," on which as a chief factor rests the theory of the movements of the malleus, as taught by Helmholtz.

The second point concerns the relation of the movements of the malleus to those of the incus, and through this to those of the stapes. About this Helmholtz says, page 36: "Das Verhältniss des Steigbügels zum Amboss ist so, dass wenn der Hammerstiel einwärts gezogen ist, der lange Fortsatz des Ambosses fest gegen das Knöpfchen des Steigbügels drückt, auch wenn das Kapselband zwischen beiden durchschnitten ist. Bewegt man den Hammerstiel nach aussen, soweit es die Hemmungsbänder des Hammers zulassen, so entfernt sich dagegen bei durchschnittenem Kapselbande der lange Fortsatz des Ambosses um $\frac{1}{4}$ bis $\frac{1}{2}$ millimetre vom Steigbügel. Drückt man bei dieser Stellung des Hammers den Ambossstiel wieder gegen den Steigbügel an, so bleibt er so stehen ohne zurückzuspringen. Es lösen sich hierbei die Sperrzähne des Hammerambossgelenks von einander, und es ist keine hinreichend grosse Kraft da, die den Amboss zurückzöge. Bei erhaltenem Ambosssteigbügelgelenk bleibt natürlich die Spitze des Ambossstiels immer am Steigbügel haften; aber aus den eben beschriebenen Thatsachen folgt, dass bei herausgetriebenem Hammerstiel der Amboss keinen Zug auf Steigbügel ausübt, da ja selbst bei gelöstem Gelenk der Ambossstiel am Steigbügel stehen bleiben kann ohne mit dem Hammerstiel nach aussen gezogen zu werden." The point of disagreement between Helmholtz and me is, whether any lateral movement be communicated to the stapes through the incus, when the manubrium mallei is moving laterally. I have taken the precaution to convince myself that my preparations are made of persons who, while living, had sound hearing. Through these preparations I have come to the conviction that, when the manubrium mallei is moved laterally, the crus longum incudis not only follows this movement, but at the same time exercises such a traction on the stapes, that this also moves laterally. The truth of this observation may be proved in two ways.

1. On an os temporis the tegmen tympani is removed and the vestibulum laid open by chisel or saw, so that its tympanic wall, with the basis stapedis in its fenestra ovalis, is freely exposed. (a) If the caput mallei is cautiously but distinctly pressed laterally, the lower end of the crus longum incudis is seen to move medially and a little upwards. (b) If the caput mallei be pressed medially, the lower end of the crus longum incudis is seen to move laterally and a little downwards. When, during these movements of the crus longum incudis, we examine the basis stapedis from the vestibulum (it is best to use spectacles with magnifying glasses, so that both hands may be free for the manipulations of the preparation), a distinct movement of this is observable, most like a partial turning of the basis stapedis around an axis corresponding to the crista baseos stapedis. That this turning movement is not the only one which the basis stapedis is making is proved by the following experiment:—

2. The canalis semicircularis superior is opened in two points, about six millimetres distant, in the eminentia arcuata; through one of the openings the cannula of a fine syringe is introduced and the vestibulum filled with a coloured fluid. A capillary glass tube is fastened airtight in the other opening, the fluid driven through it, and the opening for the cannula closed. The meatus auditorius externus is cleaned, and after having convinced oneself that the membrana tympani is entire and tuba Eustachii open, Siegle's pneumatic funnel is applied air-tight in the meatus, and by

alternately sucking and blowing, the air column in the meatus is attenuated and condensed. The movements communicated to the membrana tympani cannot reach the basis stapedis by any other way than through the ossicula, as with an open tuba Eustachii no attenuation or condensation of the air in the cavitas tympani is possible, and consequently the fenestra rotunda remains unaffected. By this experiment we observe (a) by the condensation a rise of the coloured fluid in the capillary tube, and (b) by the attenuation a fall of it; and this rise and fall can be attributed to nothing but respectively a medial and a lateral movement of the basis stapedis, thus a piston movement of the basis stapedis in the fenestra ovalis. While the first of the two points—namely, the direction of the hindmost strands of the ligamentum externum—does not seem to be of much practical interest, the same does not hold as to the second point. From the otiatric practice it is sufficiently known what striking effects the application of Siegle's instrument and the passive motion of the ossicula therewith attained often will have both on deafness and tinnitus. That this effect chiefly is attributable to the increased motion of the basis stapedis seems to me not only probable, but almost proved by my experiments; and when by means of Siegle's instrument it thus becomes possible not only to push the basis stapedis medially, as has hitherto been believed, but to give it a piston movement of much wider range, the possibility is increased for partly or wholly to restore that most important part of the sound-conducting apparatus to its normal function.

Copenhagen.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF GENERAL PARALYSIS OF THE INSANE, WITH "CROSSED REFLEXES."

BY F. H. W. COTTAM, M.R.C.S., L.R.C.P.,

ASSISTANT MEDICAL OFFICER, COUNTY ASYLUM, PRESTWICH; FORMERLY MEDICAL OFFICER, HAYDOCK LODGE, NEWTON-LE-WILLOWS.

E. McM—, aged fifty-five, was admitted into the asylum at Haydock Lodge on July 12th, 1890. The case was diagnosed as one of organic brain disease, probably general paralysis of the insane. He had a slow mental reaction; memory defective, for both recent and remote events; was easily confused, with failure of the power of attention; slept badly and often wandered about aimlessly at night; pupils unequal; facial and lingual tremors present, though not strongly marked; knee-jerks exaggerated, and there was a slight shuffle in his gait. For some months the only unusual point was an occasional syncopic attack, sometimes preceded by facial twitching; at other times he merely turned pale, became unconscious for a minute or two, and then recovered without any subsequent paralysis. About March 1st, 1891, he began to go down hill; general muscular tremors were noticed; his hand grasp became weak and tremulous, and as his gait became more unsteady, especially after a syncopic attack, he had to be put to bed. He passed faeces and urine involuntarily, his pupils were irregularly oval, and the left side of the face and neck were frequently flushed. About this time I found, in addition to the exaggerated knee-jerks, that tapping either patellar tendon was also associated with a contraction over the outer and upper part of the opposite thigh in front. This "crossing" occurred with both knee-jerks; but on tapping the left patellar tendon, the contraction on the right thigh was more marked than that on the left thigh, which followed tapping the right patellar tendon. That this crossing was not due to the "physical diffusion of vibration" (Ross) was, I think, shown by the fact that the contractions could be plainly felt as well as seen, and also that the crossed contractions, which could almost always be elicited, occurred after the ordinary reflex. Again, the plantar reflexes were faint, but were associated with the same phenomenon, the "crossed contractions" occurring in the same locality as in the case of those following the knee-jerks. "Front-tap contractions" could be obtained, and these also brought