with the carotid impulse. With each cardiac cycle this sequence is repeated—presystolic filling, systolic collapse. In some forty cases of our own, including pathological cases, though chiefly consisting of anæmias without heart or lung mischief, the systolic collapse was noted in eleven certainly, in two with less certainty. Excluding six or seven cases of actual chest disease, and a few in which no note is recorded about pulsation, the proportion in which systolic venous collapse is observed in marked anæmia without thoracic disease becomes a considerable one, and probably is little under one-half. The subjects were mostly lying quite flat when this was noted. M. Parrot,²⁶ alluding to the pulse in the external jugular in anæmia (recumbent posture), says (p. 660) it is presystolic in time, and in two of his cases on p. 663 he makes the note that the venous subsidence corresponds in time with the arterial shock. M. Potain,²⁷ dealing with similar cases, agrees with M. Parrot in placing one elevation of the vein in the presystole and one collapse of the vein immediately after it; this collapse, on his tracings, corresponds very nearly with the carotid impulse, still more nearly with the ventricular apex thrust. The complication which he introduces is that he describes a double stroke to the venous oscillation, therefore also a double collapse. Note, however, that he records a presystolic rise and a collapse which, if it does not actually fall in with the first part of the systole, would come very close to it. Potain's second rise falls during the systole of the ventricle; his second collapse in the early part of the ventricular diastole. Friedreich,²⁸ speaking of similar cases, says that, if a single stroke occurs, it is presystolic; if, as not rarely happens, the stroke is double, the second stroke is systolic. Thus in substance he agrees with Potain, though his interpretation of the second stroke is very different. When we come now to examine the very careful work of Riegel,²⁹ we find that his tracings obtained from the veins of normal animals show a slow rise of the curve culminating in the presystole, a sharp fall (collapse of the vein) occurring in the systole. This is very definitely shown by simultaneous tracings taken by means of manometers in connexion with the jugular vein and carotid artery, the pens of the two levers being placed directly under each other in the same vertical line. The venous curve is here seen to resemble closely the arterial curve, but it is reversed, the rise being dicrotic, the fall monocrotic. Gottwalt,³⁰ working experimentally in a different way to Riegel—by means, viz., of a delicate tambour arrangement—obtained curves which at first sight do not show much resemblance to Riegel's, but on closer examination there is a decided similarity in the tracings, and they agree essentially in this, that the great wave is presystolic, the great fall systolic. Lastly, François Franck makes the rise of the vein culminate in the presystole, the collapse of the vein systolic; he differs, however, from Riegel in making the down stroke trirotic.³¹

(To be concluded.)

THE MANDIBULAR TUBERCLE AND DIMPLE.¹

By J. BLAND SUTTON, F.R.C.S.

OCCASIONALLY we find on one or both cheeks of children, at a spot varying from two to four centimetres behind the angle of the mouth, a small tubercle rarely exceeding a rape-seed in size. A typical specimen is shown in Fig. 1. The patient is an intelligent girl of eleven years. On examining the interior of the mouth, I found in the buccal mucous membrane, at a spot exactly corresponding to the tubercle on the outside, a circular, slightly depressed cicatrix. The tubercle had been noticed "ever since the child was born." She had no other congenital defects. This case is exceptional in that the ears are of normal size and of goodly shape.

The next case is in striking contrast. The patient, a girl of seven years, was mentally obtuse, and presented on the right cheek, three centimetres behind the angle of the

mouth, a slight depression in the skin, surmounted by a small cutaneous nodule. The depression was three millimetres in depth. In the buccal mucous membrane, at a spot corresponding to the depression, there was a distinct white cicatrix five millimetres in diameter. On the left cheek, four centimetres behind the angle of the mouth, there was also a small cutaneous nodule. The pinna was very defective, and the entrance to the auditory meatus was covered with skin. On this side there was no cicatrix

FIG. 1.

The head of a girl, showing a small mandibular tubercle.

in the buccal mucous membrane. This case I described in the Transactions of the Odontological Society of Great Britain (December, 1887).

The third case was a lad under the care of Mr. Cowell, who was so good as to give me an opportunity of examining it. The patient, a lad of seventeen years, had a well-marked coloboma of the left upper eyelid and two accessory nodules in relation with the left tragus. In addition, he had on the

FIG. 2.

The head of a girl with a mandibular tubercle associated with a malformed auricle.

left cheek, four centimetres behind the angle of the mouth, a cutaneous nodule as shown in Fig. 3. I at once examined the buccal mucous membrane, and found, at a spot corresponding to the tubercle, a deep and puckered recess. Full details of the abnormality of the eye and eyelid have been published by Mr. Cowell in the Ophthalmological Society's Transactions for 1891.

The fourth specimen occurred in a stillborn foetus, sent to

²⁶ Archives Générales de Médecine, 1867, p. 649 *et seq.*

²⁷ Mémoires de la Société Médicale des Hôpitaux de Paris, Mai 24me, 1867.

²⁸ Op. cit., p. 47.

²⁹ Op. cit., p. 2064 *et seq.*

³⁰ Op. cit.

³¹ See Frédéricq, op. cit., p. 659.

¹ Paper read at the Pathological Society on Nov. 17th.

me by Dr. Battiss. Hanging pendulous from the right cheek, two centimetres behind the angle of the mouth, was a small nodule, the size of a rape-seed; immediately behind this was a pedunculated pyriform body, eight millimetres long.

FIG. 3.

The face of a lad with a well-marked mandibular tubercle, malformation of the tragus, and coloboma of the eyelid. (Mr. Cowell's case)

The corresponding pinna presented a supernumerary tragus (Fig. 4). The buccal mucous membrane was quite normal in appearance. A portion of the tubercle was removed for microscopical examination. It consisted of dense connective

FIG. 4.

The right side of the head of a foetus, showing a large mandibular tubercle.

tissue traversed by bloodvessels and covered with skin beset with lanugo, and richly supplied with sweat-glands and sebaceous glands of large size. Thus it was structurally a small dermoid tumour. The left cheek and pinna were

quite normal. The foetus had a large spina bifida (meningo-myelocoele) in the lumbar region.

In connexion with this subject, it is necessary to point out that in many mammals, notably dogs, there frequently exists posterior to and in a line with each angle of the mouth a small cutaneous nodule, from which two or more stout vibrissae project. These nodules occupy positions identical with those on the cheeks of the children described in this communication; their general appearance is shown in the accompanying sketch of the head of a black-and-tan terrier (Fig. 5). In many breeds of dogs the presence of such

FIG. 5.

The head of "Pierrot," a black-and-tan terrier, showing the mandibular tubercle with its vibrissae.

nodules is the rule, and I am of opinion that they have an embryological significance. So far I have not succeeded in finding a cicatrix in the buccal mucous membrane corresponding to the nodule, as in the case of children. A pair of similar nodules with vibrissae often exist in the submaxillary region of many dogs, midway between the symphysis and body of the hyoid, in close juxtaposition on each side of the median line, and in the line of the median fissure

FIG. 6.

The mandibular and other facial fissures of an early human embryo. (Modified from His.)

which, in the embryo traverses this region, separating the mandibular bars.

It is not difficult to find a satisfactory explanation of the buccal tubercles, recesses, and cicatrices. The mandibular fissure or cleft of the mammalian embryo is relatively more extensive than the opening of the mouth, which in the adult represents it. The general appearance of the embryonic mandibular cleft and the facial fissures radiating therefrom is shown in the now familiar sketch (Fig. 6). In fish the whole of the mandibular fissure forms, in the adult, the

gape; persistence of the fissure throughout its whole length in man gives rise to the malformation termed *macrostoma*, whereas excessive coalescence of the dorsal (posterior in the adult) extremities of the cleft produces *microstoma*. Imperfect closure of those sections which normally coalesce produces such faults as recesses, sinuses, minute dermoids, and tubercles. Thus it comes to pass that these imperfections in the line of the mandibular fissure have a morphological significance. I am unaware that any previous observer has attempted to account for the existence of these curious tubercles, yet many must have observed them, and as this is probably the first time that a description of these bodies has been accorded a hearing before a learned Society, I will venture to mark the occasion by conferring upon them the dignity of a title, and hope that these interesting nodules will be henceforward known as *mandibular tubercles*.

TWO CASES OF TRAUMATIC EPILEPSY TREATED BY TREPHINING.

By ALEXANDER MILES, M.D., F.R.C.S. EDIN.,

—SYME SURGICAL FELLOW.

(Concluded from page 1161.)

CASE 2.—John E—, aged thirty-five, a miner and native of Durham, was admitted to Ward 31, Royal Infirmary, Edinburgh, under the care of Dr. Wyllie, on May 18th, 1889, complaining of dizziness and vomiting, which had lasted for eight days previously to his seeking admission. He states that four and a half years ago he had a quarrel with a fellow-workman, from which he dates his present illness. This quarrel culminated in a fight, which was brought to a close by patient's antagonist striking him on the head with a large stone. This blow did not render him insensible, but he suffered so much from the effects of it that he could not return to work for over a week, and when he did he was "very weak." The exact manner in which he was affected was not very evident from his story. Six months later he again received an injury to his head, this time being struck with a bottle, which cut his scalp. The wound did not heal until he had been treated in Sunderland Infirmary, which he entered three weeks after receiving the injury. As in the former case, he was not rendered unconscious. The patient was at one time a professional pugilist, and has so many scars on his head that he is unable to identify the one last referred to. One of the cicatrices is markedly depressed.

Condition on admission—Patient is a well-developed man of medium height; his face wears a rather anxious expression, and there is continual twitching of his facial muscles. The muscles retract the angles of the mouth, as if the patient were trying to say "C" distinctly; he then protrudes his lips. He has great difficulty in putting out his tongue, and he quickly draws it back. There is no paralysis of lingual muscles, but the spasmodic action of these causes some indistinctness in articulation. These symptoms came on about a year subsequent to his injury with the bottle. The muscles of the external ears, and the occipito-frontalis contract from time to time. All his movements are exaggerated when he is watched, but they are suspended during sleep. He can pick up a toothpick, but not a pin. Twitching movements occur at the metacarpophalangeal joints; there is occasional flexion or extension of the wrist joints, but never any movements of the elbow or shoulder. The muscular sense is unimpaired. When standing, his toes twitch, those of the right foot especially. He complains of dizziness and headache, which sometimes come on with vomiting. There are twitchings of the eyelids, but no interference with vision. The patient seems to be able to control the movements slightly, as he can carry a glass of water to his mouth without spilling any. There is no tenderness on pressing over the depressed cicatrix on the scalp. After consultation with Mr. Miller, it was decided to recommend an operation, and this was performed on June 21st.

Operation.—Chloroform was administered, and a V-shaped incision was made over the depression on the left side, a little above and in front of the ear. The flap of skin was reflected, and the temporal fascia crucially opened. On exposing the temporal muscle, it was seen to be divided

into two parts by a dense adherent cicatrix, which condition had simulated a depression of the skull. The trephine was applied with its centre over this cicatrix, and on removing the circle it was found to be normal, although somewhat thicker than usual. There was no depression. Two branches of the middle meningeal artery were seen on the surface of the dura mater. The dura mater was punctured with a small trocar and cannula, and about an ounce of clear fluid drawn off. The dura did not bulge; it was thickened at one part. The vessels on its surface were then secured with double ligatures and divided, and a crucial incision was made into it. This exposed a bluish translucent cyst wall, with a large vein coursing across it. An attempt was made to remove a part of the wall of this cyst, but was unsuccessful on account of its extreme thinness. There was a depression on the surface of the brain, which measured about half an inch in every direction, but the brain tissue round about seemed healthy. The bone was not replaced, and the wound was dressed with iodoform gauze.

June 21st: After recovering from the effects of the chloroform the patient became very restless, complained of great thirst, and was loud in his demands for ice and water. The jerking movements went on as before, and affected his tongue very much, making his articulation indistinct. He refused to do what he was told, and was generally difficult to manage. In the evening he fell asleep, and during that time the spasms were less marked.—22nd: During the night the patient's restlessness and spasms still continued; and during the day the jerkings were worse than they had ever been, his speech especially being much interfered with. In the afternoon a drachm and a half of paraldehyde was given, and after this he had some snatches of sleep, during which the spasms stopped entirely. At 8.30 P.M. two drachms of paraldehyde were given, which only served to increase his excitement. He had to be removed to the ward for delirious patients.—23rd: At 1.30 A.M. he was still very noisy. One-eighth of a grain of hyoscine administered hypodermically quieted him for an hour. At 3.30 P.M. the wound was dressed; looking well. Hyoscine repeated. Slept for two hours.—24th: Much quieter. Speaks better.—25th: Spasms not so constant, but seem to be "altogether on a larger scale."—26th: Much better to-day. Spasms only occur now and again when at rest, but become worse when he is spoken to. During sleep they are absent. Speaks much better.—July 1st: Since last note patient has improved considerably, but spasms are still present, especially when he becomes excited.—5th: During sleep it was observed that he lay quiet for a time, and then had severe jerkings, as if a sort of explosion of nerve force took place. Got up for two hours to-day. Wound healed.—15th: Jerkings now very marked during sleep, and also when much excited.—19th: The patient has been going out every day for some time. He walks fairly well, and his articulation is pretty good. The explosions already referred to as occurring during sleep are very striking, the whole body being sometimes thrown into violent action.—On the 20th he went home under the care of his brother.

On Feb. 12th, 1890, the patient was admitted to the Crichton Royal Institution, Dumfries, and for the following notes of his condition then I am indebted to Dr. Rutherford and Dr. G. R. Wilson.

J. E—, aged thirty-six, single, miner. Was never in the asylum before. Not suicidal, somewhat dangerous. Has been insane since a few days before admission. He had been violent, had stood naked in the street, and had threatened to kill his brother. His sense of well-being is increased, and he laughs without apparent cause. He is a somewhat pale, unhealthy-looking man, with an unintelligent expression and limited powers of conversation.

Examination of nervous system.—Face is slightly asymmetrical, and the right angle of the mouth droops a little, the naso-labial fold being more marked on the left side. The acts of frowning, raising the eyebrows, tightly closing the eyelids, and showing the teeth are all imperfectly performed, the muscles of the right side being most affected. He can close the left eye alone, but not the right. Twitching of the right angle of the mouth occurs every second with occasional intermissions. The left angle twitches much less than the right. There are in addition occasional spasmodic contractions of the occipito-frontalis and external ear muscles, also more marked on right side. The lips are frequently protruded "and smacked." Tactile sense is good all over the face. The lower jaw moves in the mesial line, and the masseters and temporal muscles act