

Five Cases of Idiocy, with Post-Mortem Examinations. By
W. W. IRELAND, M.D., Edin., Medical Superintendent
of the Scottish National Institution for the Education of
Imbecile Children, Larbert, Stirlingshire.

I give the details of five cases of Idiocy where the observations were completed by an examination after death. The greatest advantage of such studies as can be made in an Institution for the Training of Idiots is the careful analysis of the mental symptoms, and for this I am much indebted to the teachers for their patient attention and intelligent remarks. The absence of microscopical observations in all the pathological descriptions, save one, is a source of regret to me, though I have been so fortunate as to obtain the report of so competent an observer as Dr. J. Batty Tuke in the case of K. I. The object kept in view in reporting these cases is to throw as much light as possible on the relation of the mental deficiency to the pathological lesions. It is not, therefore, to be expected that they should be reported in the same form as clinical cases published with the intention of illustrating the treatment of ordinary diseases, or the action of new remedies. It is true that the existence of idiocy often modifies the symptoms of ordinary disease, and requires a corresponding modification in treatment; but it would unduly complicate our reports, and probably lengthen the paper to a tedious degree, were commentaries of this kind introduced.

The first case, F. Q., was a boy, admitted in September, 1872. He was then thirteen years of age. He was the youngest of a family of thirteen. His father was 41 and his mother 42 when he was born. His birth took place after a very sudden labour; but there was no proof that it was premature. He was supposed to have been idiotic from birth, and began to walk when three years old. He had a chronic cough, but was thought to be improving in strength for the last few years. In expression he was dull and inanimate, with an odd face and short squab figure. In height he was 3 feet 8 inches. His gait was clumsy and awkward. The constitution was evidently feeble. There was a bruit at the heart with the first sound heard at the base. The pulse was weak and the extremities habitually cold. The fingers were clubbed. The measurements of the head were as follows:—

1. From the glabella to the occipital protuberance . . .	26½c.
2. Circumference	48c.
3. From tragus to tragus across vertex.	32c.

106½c.

The palate was not vaulted. The ears were thin and membranous.

He seemed to possess all his senses, and often smelled his food before tasting it. He could speak a few words, but only when excited. He used a spoon, could grasp an object, and could tie knots and put in buttons. In character he was somewhat wild and obstinate. His mother said that at home he used to wander away for miles, and had always to be carried back when caught. After admission he was much confined to the sick-room from various ailments, so that little was done in the way of training. He learned to thread beads, selecting the proper numbers and colours, and also to knit a little. He had been getting cod-liver oil for several months, as he seemed to be of a tubercular constitution, but the existence of tubercule could not be proved during life. When taken ill he was believed to labour under bronchitis and emphysema, as evidenced by heat of surface, increased pulse, cough, expectoration (which he always swallowed), pain in the chest, and breathlessness, sonorous, cooing, and liquid râles, with clearness in percussion. At one spot on the lower side of left lung percussion was almost tympanitic. The heat of skin and increased pulse diminished; but he still continued to be affected with cough, dyspnoea rising into paroxysms, want of appetite, and wasting. No rise of temperature at night was remarked. He died, after being confined to bed four weeks, apparently from asthenia. He had been in the Institution seven months. During the inflammatory stages of illness he used to make signs as if for a dog, and look for or at it. This was supposed to be a delusion.

The examination of the body was made two days after death. The bronchi were found to be congested. The lungs emphysematous and speckled through their whole extent, with tubercular spots about the size of grains of sago and rice. There were no cavities nor large masses of tubercule, and, from the presence of the emphysema everywhere, no dulness on percussion could be expected.

The bronchial glands were full of cheesy tubercular matter. The thymous gland was filled with a white, softened mass of tubercule. The valves of the aorta and pulmonary artery were deficient; the membranes of the valves unusually thin, and the corpora Arantii wanting. In one of the aortic valves there was a slit in the membrane.

The mesenteric glands were tubercular. The spleen had a porphyritic appearance of purple and white from concretions

of tubercular matter, about the size of barley-corns. The liver was reduced in size, with specks of tubercle thinly disseminated. Some specks were also noticed in left kidney.

HEAD.—The dura mater was strongly adherent at posterior part of hemispheres, above the occipital tuberosity.

There were about three ounces of fluid in the base of the brain.

The pia mater was adherent on both sides to the hemispheres over the region of vertex.

The encephalon weighed	36½oz.
The cerebrum	32½oz.
The cerebellum, pons, and medulla oblongata	4oz.

The convolutions were broad and simple, but not shallow; they were not symmetrical. The grey matter was as broad as usual. On the left side the radiating convolutions of the island of Reil were replaced by one simple convolution about a half inch broad, running from centre to circumference. On the right side there were two convolutions.

The cleft of the fourth ventricle seemed unusually wide. This appeared to be owing to deficient size of the uvula and amygdalae.

The weights of the following organs were noted:—Right lung, 23oz.; left lung, 22½oz.; heart, 7oz.; liver, 2lbs.; thymus gland, 1½oz.; right kidney, 2½oz.; left kidney, 2½oz.; spleen, 6½oz.

This boy seems to have had meningitis either before or immediately after birth, which, probably, injured the growth and nutrition of the brain. The mutism was, no doubt, owing to the mental fatuity and paucity of ideas.

K. U., ten years old on admission, was the eldest of three children. I could not learn anything about his birth and parentage which threw light upon his malady. Nothing particular was noticed about him till the eighth month, when he was believed to have become paralytic, and had always been very delicate since. The measurements of head, taken in 1871, were—

1. From glabella to occipital protuberance	31½c.
2. Circumference	51c.
3. Transverse	33c.

It required very little attention to see that there was partial paralysis of the arm and leg on the left side. The arm was scarcely ever used; the leg was weak, and dragged after the other. There was also some paralysis of the face on the right side. He slavered a little from weakness of the right

lip, and was unable to pronounce the letter K. If asked to say "cask," he would say "as;" if asked to say "cuddy" he would say "uddy," and so on. He also pronounced the letter G imperfectly, and his voice had the peculiar quavering character often met with in paralytics. When he spoke it seemed as if the organs of speech were not under ready control. The inability to pronounce the gutturals properly was, no doubt, owing to deficient power in the pharynx and soft palate. On being made to try to pronounce K with the mouth open the uvula was seen to be drawn to the side opposite to that on which the leg and arm were paralyzed. Sensibility was deficient on the paralyzed side, both to ordinary impressions and to electricity. He could use a spoon and grasp with the right hand. During the time this boy was in the institution, which was about two years and three months, he seemed to improve in general health. Both motor power and sensibility increased on the paralyzed side, and he learned to use the right hand with more expertness. He could write half text on a slate; but was never able entirely to dress himself. He walked better, and could go further. He was regularly exercised in pronunciation, and learned to speak better. He learned to read words of one syllable, and could count and add small sums together. He picked up some notions in physical geography, such as the shape of the world and its relation to the stars, and seemed to have some power to attaining to general and abstract ideas. He was attentive, anxious to learn, of an affectionate disposition, with a strong sense of duty, and was good tempered, though sometimes obstinate. He appeared to me to have the intelligence of a child of five years of age. He was regarded as a pupil likely to improve mentally, but who would always remain physically weak and incapable. K. U. was taken ill in the month of January of bronchitis. There was great prostration throughout the illness, which only lasted five days. The patient became more and more comatose, and during the last two days could scarcely swallow. The bowels remained confined for three days, in spite of injection, and the last day the urine accumulated in the bladder.

The right lung weighed $17\frac{1}{2}$ oz.; the left, 16oz.; the heart, $4\frac{1}{2}$ oz.; the liver, 29oz.; the right kidney, 3oz.; the left kidney, $3\frac{1}{2}$ oz.; the spleen, $4\frac{1}{2}$ oz.

The examination was made two days after death. There were old adhesions of the pleura on the left side, but none on the right. Both lungs shewed lesions of acute bronchitis,

and some pneumonia at the base. In both lungs there were deposits of miliary tubercule, the size of barley-corns. The bronchial glands were enlarged and of a cheesy consistence. There were white deposits of miliary tubercule found in both kidneys.

HEAD.—The encephalon weighed 48oz.; the cerebrum, 42oz.; the cerebellum, medulla, and pons, 6oz.

The skull-cap was very thin, the sutures open. The cerebral hemispheres were evidently flattened. The grey matter paler than usual. The lateral ventricles were much distended with fluid; about two ounces were taken out and measured, but some escaped. On the roof of the left ventricle, above the posterior corner, there was a spot of white softening about the size of a walnut. No traces of apoplectic clot could be found in any part of the encephalon. There were deposits of tubercule along the course of the middle cerebral arteries.

It seems to me probable that the softening in the brain as well as the amount of fluid in the ventricles was increased during the boy's illness, which, however, was of short duration. No change had been noticed in his symptoms before the bronchitis, but he had been treated for a milder attack about three weeks before.

J. G., aged 46, was believed to be a congenital idiot. He could speak freely, was well grown and strongly made, and for some time managed to get a living by delivering parcels from the railway. In the end he found himself in the lunatic wards of a poor-house, and becoming affected with carious disease of the foot he was transferred to the Stirling District Asylum, where the foot was amputated. He died some months after of pleurisy. The examination was made on the 29th of November, 1871, by Dr. Frederick Skae and myself. The head measured from glabella to occipital protuberance 13 inches. The circumference was 22 inches. A serous effusion was found in the chest, pushing the lungs to the middle line, and a little black pigment was found at the apices of both organs, which were deeply congested. The spleen was enlarged, weighing $12\frac{1}{2}$ ounces. The liver fatty. Peritoneum was speckled by tubercular granules. Both kidneys were lobulated in an unusual manner, divided by shallow furrows on the outer surface, as in the kidney of a new-born child. Both organs seemed fatty. The right kidney weighed 6 ounces; the left $6\frac{1}{2}$ ounces.

The skull was somewhat thicker than usual, and very hard

and solid. The encephalon weighed 52 ounces; the cerebrum $44\frac{1}{2}$ ounces; the cerebellum, pons, and medulla $7\frac{1}{2}$ ounces. The convolutions were rather simple, and the grey matter seemed somewhat shallower than usual; but on the whole the brain might have passed for an ordinary one, at least to the naked eye, save that the tubercular quadrigemina were unusually small and indistinctly defined.

This was, as far as the examination went, one of those cases noted in idiocy as well as in insanity, where the appearance of the brain threw little or no light upon the symptoms during life.

A. L. was sent to the Stirling District Asylum the 5th June, 1871. As his friends did not come with him, very little information about his history was obtained. Though supposed to have been an idiot, there was no exact proof of it. But it appeared from the certificates which accompanied him, that he had been in a state of the deepest fatuity for two years. When he first came into the Asylum, I am told he seemed to notice things, and shewed signs of being scared or terrified. Dr. F. Skae thought he was weaker on one side, as if paralysed, and did not appear to see with one eye. During the month of August, when in charge of the Asylum in Dr. Skae's absence, I studied this boy's case. At that time he might be truly said to show no more intellect than a newly-born child. He possessed only the passive intellect, that is, he was sensible to outward impressions, but did not seem to draw inferences from them, much less recollect them. It could not be made out that he attended to sounds; but he seemed to notice lights. He had several bed-sores, and shrank and moaned when they were dressed; but he made no use of his hands, and had to be fed with a spoon. He never voluntarily altered his position. His knees were bent upon his body, and his arms were bent, the forearm upon the humerus. He remained in this condition, it might be said of vegetative life, for several months, requiring great care and attention on account of the difficulty of feeding him, dressing his bed-sores, and arranging his position so that new ones might not form.

He died on the 22nd September, 1871, and the examination of his body was made on the day following by Dr. Skae and myself. I may here notice that all the pathological examinations in this paper were made along with Dr. Skae, whose friendly co-operation has been of great advantage to me.

A. L. was 4 feet 8 inches in length ; the girth round nipples was 2 feet 1 inch. The features were regular, and not unpleasing. The measurements of the head were—

1. From glabella to occipital protuberance	31½c.
2. Circumference	50c.
3. Transverse	30½c.
	122c.

The kidneys were slightly granular.

In the frontal part of the hemispheres especially there were found two ounces of fluid, and there were seven ounces in the lateral ventricles. The substance of the hemispheres was much hardened. The anterior cerebral arteries were somewhat atheromatous.

This case illustrates the relation of chronic hydrocephalus, external and internal at once, with complete idiocy or fatuity. It ought to be remarked that the size of the head was not enlarged, nor the shape altered.

K. I.* had been four years in the Larbert Institution. On entry he was sixteen years of age, could speak and read a little. He learned to walk at 18 months, and is said to have begun to speak at the usual time. From the information given in the Case-book, it appeared that his parents dated the imbecility from his fifth year, when he had gastric fever.

The young man, however, had much the appearance of a congenital idiot. He had a thick hanging under lip, and a very red face, which became purple when enraged. He had a keel-shaped palate, with teeth bad and ill-placed. Apparently 28 teeth had come out; but many of them were decayed. The head was small. He was tolerably strong and active, and had the free use of his limbs. The senses seemed normal; both taste and smell had been tried, and noted to be good. He improved a great deal in the Institution, where he made himself useful. He was willing to learn, and had a marked sense of moral and religious duties, but was irascible and pugnacious. He had a high opinion of his own powers, and would have accepted any task, however difficult. He had attained to considerable skill in filling brushes, used to ring the school bells, and set the tables for dinner. He could read

* The rest of this paper formed part of one read to the Meeting of the Medico-Psychological Association held at Glasgow, 10th June, 1873.

the New Testament, and could add and multiply small sums. He had been four years in the Institution when he took ill. He kept his bed on the 24th December, but made no distinct complaint. It soon appeared that he had pleurisy on the left side; and on the 31st decided symptoms of pneumonia were detected on the same side. The tongue was very dry; the mouth and teeth foul, and there was from the beginning a marked aversion to food.

On the 31st December the *tache meningitique* was noticed. It had been sought for as early as the 27th. Up to this date, in spite of the difficulty in getting the patient to take food, I had not despaired of recovery, knowing that the inflammation was mainly confined to one lung. But now I suspected the supervention of meningitis, and had little hopes of recovery. On the 1st of January he totally refused his food, and it was necessary to insist firmly on his taking some. He vomited part of what was given to him. It was difficult to say exactly when derangement of the mind had commenced; but on the night of the 31st, and on the 1st January, 1873, he had some delusions. He said that a boy had stuck wires in the roof, and asked another boy why he had stayed so long out of his bed, although it was only four o'clock in the afternoon. On the 2nd of January he could still speak a little, and answer simple questions. I told him he would die if he did not take food. He said he did not care. His tongue was red and dry; the papillæ were much enlarged; the pulse 130, respirations 44 in the minute.

Dulness was over whole lung behind, with increased vocal resonance and crepitant râles; percussion clear in front. On right side there was blowing respiration, and clearness behind. The patient had always swallowed his expectoration. The *tache meningitique* appeared on every part of the body and on the neck and forehead, but was absent on the arms—and on the legs below the knees. On touching the skin with the hand, the red discoloration appeared in about 40 seconds, and passed away in about the same time. He laboured very much for breath, but seemed conscious of what was being done around him. He hid his bread, and pretended he had eaten it. A slight drooping of right eyelid had been noted for two days.

About noon he began to be comatose, and died at 11 p.m. the same day.

An examination of the body was made on the morning of the 4th January.

The following measurements of the head were carefully taken :—

1. From glabella to occipital protuberance	-	-	33c.
2. Circumference	-	-	51½c.
3. Transverse	-	-	33c.
			117½c.

About the ordinary size of the head of a child of four or four-and-a-half years old.

The pleura of the left lung was adherent, especially behind, where there were layers of recent lymph; but not more than an ounce of fluid was collected. The entire lung was blocked up by the inflammatory exudation, save at the apex and at the anterior surface of the chest, where there was a shallow layer of pulmonary tissue still admitting of air. Softening had commenced at the base of the lung. The right lung was adherent to the pleura, and its tissue was somewhat congested behind. The left lung weighed 51½ ounces; the right 24½ ounces. The heart weighed nine ounces. The aortic valves were hardly competent; the corpora Arantii rudimentary almost wanting. The right suprarenal capsule was much enlarged, and weighed one ounce.

Head.—The sutures of the cranium seemed obliterated on the external surface. On the internal, they could be traced; but were nearly effaced, and quite closed. The sphenobasilar suture could not be seen; but, owing to difficulty of paring off the membranes, its traces might have escaped observation.

The great wing of the sphenoid bone was larger than the left, and different in shape. The left wing, though shorter, seemed a segment of a larger circle than the right. The capacity of the cavity, of which the greater sphenoid wing forms the upper lip, was thus larger on the right. The right jugular foramen was twice as large as the left. The basilar portion of occipital bone descended at an unusually acute angle to the foramen magnum.

The arachnoid was not adherent, but some yellowish-coloured fluid was seen in the sulci of the hemispheres, and a drachm or two of straw-coloured serum was seen collected at the foramen magnum, but escaped on cutting the cord. The pia mater was much congested, being of a deep, continuous red over the hemispheres. The arachnoid was opaque and thickened below over the corpora mamillaria tuber cinereum and optic tract.

The convolutions were simple, not much divided, of normal

breadth; the grey matter somewhat paler than usual. Five layers could be counted with the naked eye. There were no convolutions on the surface of the island of Reil on the left side.

The weight of the encephalon was $35\frac{1}{2}$ ounces; that of the cerebrum, $30\frac{3}{4}$ ounces; of cerebellum, medulla, and pons, $4\frac{3}{4}$ ounces.

On interrogating the young man's friends, who are people of good intelligence, they stated that he had begun to speak about the usual time. The mother was a well-grown and good-looking woman, but said not to be very strong. She had a good deal to put her about during confinement, and the child was born somewhat before the usual time. They, however, all agreed in the statement that the boy was not imbecile before the age of four, when he was seized with what they called gastric fever, with marked head symptoms. From this fever he was long in recovering, and, when he recovered, was found to be imbecile.

In considering the lesions found in the body we ought to separate those which were of recent from those which were of older date. The pleurisy and inflammation of the lungs and of the pia mater were obviously of recent origin, and were the causes of his death. Respecting the meningitis, it was probably no older than two or three days, and followed upon the inflammation of the lungs.*

On the other hand, the closure of the sutures at the base of the skull and the thickening of the arachnoid were no doubt of earlier date. The size of the head and the weight of the brain† approached that of a boy of about four years of age, and there was nothing in his intellectual powers to gainsay the idea that the brain had never grown after the period of his illness, when probably the sutures had closed in,

* I have during my short experience found reason to agree with the remark of Dr. Wilbur (Nineteenth Report of the New York State Asylum for Idiots, Albany, 1870, p. 9). "Death in the case of idiots usually results from one of two causes. Where the idiocy has originated in disease of the nervous centres in infancy, death comes at last by a renewal of disease in the organ or part originally affected, no matter what the character of the final sickness at the outset. Again, where there is a congenital defect or infirmity of the brain, or general nervous system, the case succumbs at last by the failure of vital power at critical periods of the life of the individual."

† Dr. Peacock, in his *Tables of the Weights of the Brain and some other Organs of the Body*, London, 1861 (reprinted from the monthly "Journal of Medical Science, 1847"), gives the weight of the encephalon in a boy of 4 years 6 months as 39ozs. 12 drachms, and a female child of same age as 34ozs. 8 drachms.

save the speno-temporal one, which had remained open a little longer, and allowed the superjacent convolutions to increase a little.

It is possible that inflammation of the membranes was the cause of the synostosis of the sutures, and we may fairly assume that the inflammation extended to the brain substance, and was thus a farther cause of mental hebetude.

I sent some sections of the hemispheres to Dr. J. Batty Tuke, and this distinguished microscopist subjected them to a very careful examination. The following were the changes noted by him, which I give in his own words :—

- 1st. Considerable exudation deposits.
- 2nd. Considerable thickening of the muscular coats of the vessels.
- 3rd. Thickening of the pia mater with lymph deposits.
- 4th. Scattered colloid bodies.
- 5th. Deficiency of nerve cells.
- 6th. A few crystals of phosphate of lime in the brain substance.

This appears to me the most probable explanation of the evidence laid before you, though it might be argued that the anxiety of parents to avoid the suspicion of a hereditary taint, often renders them unfaithful observers; and the form of the palate and the teeth lead one to suspect congenital idiocy. The early history of idiocy is rarely studied in a scientific manner, and a few connected cases by a careful observer would be of great value.

I venture to add a few remarks upon some signs or concomitants of idiocy present in the case just related, in the hopes that they will be useful to those who study the subject. In K. I. the palate was vaulted, and the teeth were bad, and I hoped that the examination of the skull would throw some light upon the cause of these appearances, but the examination was, of necessity, a hurried one, no sections could be made of the bones of the cranium, and the only abnormalities noted were the synostoses of the sutures and the irregular and unsymmetrical form of the base of the skull.

The most common deformity in congenital idiocy is a peculiar conformation of the palate, which has been described as highly vaulted or keel-shaped, resembling the impression of the keel of a ship, or it might be compared to the inside of a saddle viewed from below, the pommel being turned backwards, for the arch is sharper behind than in front, and there is occasionally a narrower furrow running along the middle. The cleft palate, which I have seen in three cases of idiocy,

seems to be an exaggeration of this deformity. In many born idiots the palate appears quite normal; but I have found this malformation in thirty-seven out of eighty-six cases of idiocy in this Institution. Many of the other cases were, of course, not congenital. Often the arching is confined to the posterior half, or three-fourths of the palate, and the development of the alveolar processes is not interfered with, but congenital idiots have very often teeth deformed in shape, irregularly placed, and prone to early decay. This is especially the case in the upper jaw; out of 37 cases found to have a saddle-shaped palate, 11 had good teeth, and 21 had teeth much decayed or irregular. The remaining five had a few decayed teeth. Two of the 37 cases had fissure of the hard palate; 14 had what may be called the Grecian aspect of the face, the forehead and the nose running in an uninterrupted slope. One, if not two, of the cases where the saddle-shaped palate was found was of hydrocephalic origin; at least, hydrocephalus was present.

There seems some connection between idiocy of all types and the healthy nutrition of the teeth. I have noted cases in which the teeth have fallen out and decayed in youth where the idiocy was the result of hydrocephalus, meningitis, or traumatic injuries of the brain. As far as my reading goes, the only writer who notices a highly vaulted palate occurring in Cretins is Dr. Blackie* who mentions this characteristic in two out of six cases of Cretins which he describes. In Cretins the teeth are generally bad,† and Morel has proposed to found a distinction between Cretinism and sporadic idiocy in the slowness of the appearance of the second teeth in Cretins,‡ but idiots, too, are often slow in getting their second teeth. As they are very apt to decay, it is rare to see a complete set of twenty-eight. The wisdom teeth do not commonly appear at all. In many cases the teeth commence to decay two or three years after they have

* "Cretins and Cretinism," by George S. Blackie, M.D., [Edin., 1855, pp. 63-68.

† Sardinian Report, p. 11, "Après la chute des dents du lait il n'en repousse plus chez quelques Cretins." Stahl says (Beitrag zur Pathologie des Idiotismus Endemicus genannt Cretinismus in den Bezirken Sulzheim, and Gerolzhofen in Unterfranken des Königreichs Baiern, 1843)—"Es tritt die Zahnbildung zur normalen Zeit und ohne Beschwerden ein, p. 337. Die Zähne sind in der Regel verdorben, cariös, nach aussen gedrückt, mangelhaft, hie und da aber auch vollzählig und perlweiss, p. 341."

‡ Morel, *Traité des Dégénérescences de l'Espèce Humaine*, Paris, 1857. See the "Atlas," p. 23.

appeared. They first turn black at the margin of the gums, then rapidly become hollow, and break in pieces. Very often before idiots have grown up only two or three rotten stumps remain. This process often goes on with great rapidity, three or four teeth being lost in as many months. It is not generally accompanied with much pain, though the gums become swollen, and purulent matter is found round the carious stumps. I am not able to offer any adequate explanation why bad teeth should be so common with idiots. If I may trust my own observation, lunatics do not seem to have worse teeth than the classes from whom they are drawn. But to return to the point from which we started, I have examined some preparations of the bones of the fœtus as well as the skulls of monkeys, in the expectation of finding that a highly vaulted palate was the result of arrested development. I found, however, that in the human embryo the portion of the palate formed by the upper maxilla and palatal bone was flatter than in the adult. The palate of most monkeys appears also to be flat. That of the gorilla has a trough-shaped form, similar to what I have seen in a few idiots; but this in the ape seems to be dependent upon the prognathism of the powerful upper jaw and the great strength of the alveolar processes, whereas, in the cases with which I have compared it, the jaw, though narrow and trough-shaped, is not generally prominent, the narrow appearance being owing to diminution of the normal breadth rather than to increase of length. In the first years of childhood, however, the arch of the palate is higher and less rounded than it is in the adult. In the fœtal, as in the infantine skull, the pillars of the nares seem proportionally shorter than they are at a later age. I am not possessed of exact information how often a vaulted palate may occur in individuals of ordinary intelligence. Bad teeth are, unhappily, very common, especially with some nations, as the Americans; and a cleft palate has no necessary connection with idiocy. In the "Westminster Review" of April, 1873, there is a notice of a pamphlet on "Alveolar Contraction," by C. R. Coffin, printed for private distribution. "We write from an imperfect knowledge of dentistry, and it may well be that its contents are familiar to all informed practitioners, but they are in a measure new to ourselves, at least in a practical point of view, and we hasten to say a few words in reference thereto. What Dr. Coffin states is, that dentists find themselves, as practical men, face to face with a peculiar change in the roof of the mouth and in the alveoli

of the jaw which is greatly on the increase, and which, if ill-managed, results in a state of much discomfort and disfigurement, to say nothing of any ulterior consequences in the health. This change, which Dr. Coffin speaks of in terms of "consternation," is a tendency to contraction of the sockets, especially in the upper jaw, with narrow and high vaulted roof or palatine cavity, alterations in the dimensions of the antrum or maxillary sinus, and contracted nasal passages. This gives the feature of acute angular, or "prognathous" facial aspect, and close approximation of the canine, bicuspid and true molar teeth. Thus mastication, speech and beauty are interfered with, and dental caries and neuralgia, on the contrary, are encouraged."

It would be useful to know in what proportion of cases this abnormal appearance of the jaw is present with those not mentally affected. I had designed making some remarks upon the abnormal shape of the sphenobasilar bone described by Virchow and others in the crania of Cretins, and the enlargements of the jugular foramina occasionally described in those afflicted with the same disease, but fear that this would require more space than I could at present venture to claim.

The Functions of Brain and Muscle, considered in relation to Epilepsy. By J. THOMPSON DICKSON, M.A., and M.B. (Cantab), Lecturer on Mental Diseases at Guy's Hospital.

The object of this paper is to discuss some of the opinions which have recently been expressed as to the nature of Epilepsy; and in particular, the views of Dr. Hughlings Jackson, who regards the epileptic phenomenon as the result of a "discharge" from a damaged portion of the brain, which he speaks of as a "discharging lesion."*

In November, 1867, I published a paper in the "British Medical Journal" on a case of "Petit Mal" in a girl who cut her throat whilst passing through the phase of mental disturbance which is frequently associated with that form

* "On the Anatomical and Physiological Localization of Movements in the Brain." By J. Hughlings Jackson, *Lancet*, January 18th, 1873.

"Anatomical, Physiological, and Pathological Investigation of Epileptics." By J. Hughlings Jackson, M.D., *West Riding Lunatic Asylum Reports*, Vol. III., 1873. Also a paper in the *Medical Times and Gazette*, November 30th, 1873.