Case of notencephale : with engravings / by Charles T. Hildreth.

With the respects of the Author

NOTENCEPHALE,

WITH COPPERPLATE ENGRAVINGS,

Colored after Nature.

By C. T. HILDRETH, M. D.

NOTENCEPHALE.

Pl.I.

Drawn by T. Edwards.

Eng.d by G.G. Smith.

CASE

OF

NOTENCEPHALE,

WITH ENGRAVINGS.

BY CHARLES T. HILDRETH, M. D., M. M. S. S.

BOSTON:

~~PUBLISHED FOR THE AUTHOR.~~

1834.

DESCRIPTIONS OF THE PLATE.

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a Frontal Bones.
b Parietal Bones.
c Occipital Bones.
d Temporal Bones.
e Styloid Process of the Temporal Bone.
f Malar Bones.
g Nasal Bones.
h Os Unguis.
i Superior Maxillary Bones.
j Inferior Maxillary Bones.
k Mamillary Bone.
l Left Spinous Processes of the four upper dorsal vertebra united into one.
m Spinous Processes of the vertebræ split and turned to the right and left, laying open the spinal canal.
n Bodies of the vertebræ.

PL. II.

Fig. 1.

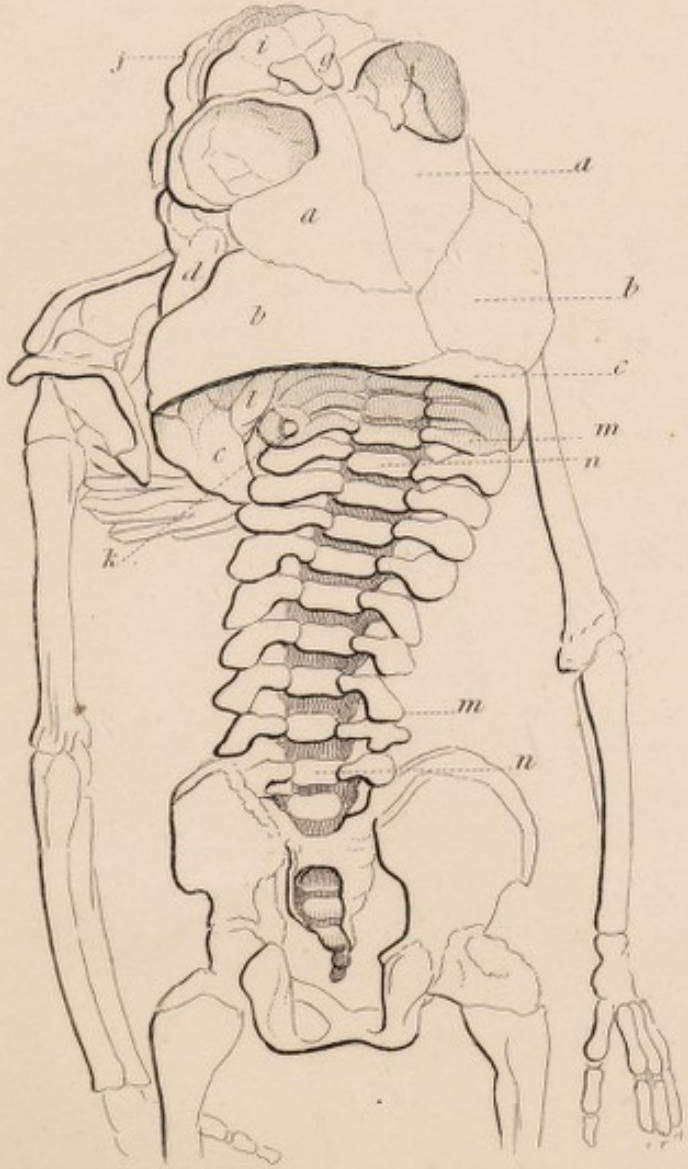
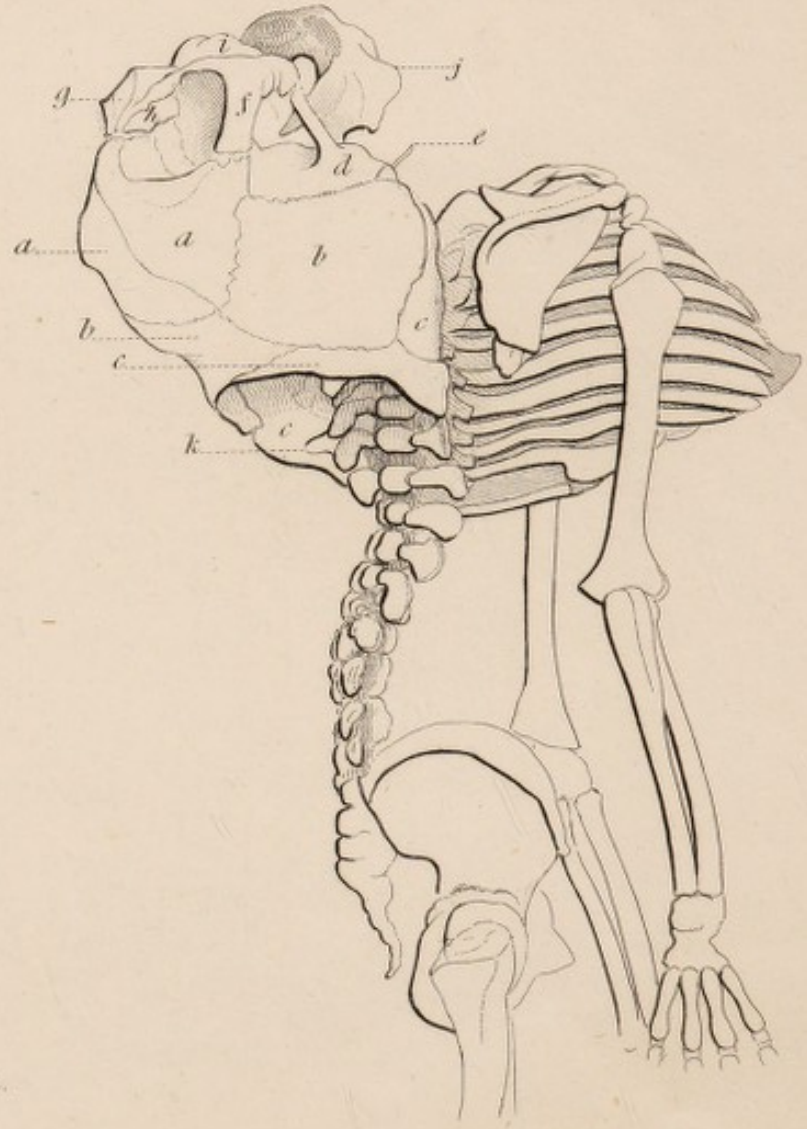


Fig. 2.



Drawn & Eng. by G.G. Smith.

CASE OF NOTENCEPHALE.

A STRONG degree of evidence, to a candid mind, that Nature's laws were framed by infinite wisdom, is gathered from the [illegible] beauty of their arrangement, and the [illegible] harmony in their operation.

Notwithstanding the simplicity of the laws we know, when philosophically considered, yet it is only by the most patient investigation and careful study, that we can learn those of the animal kingdom, which regulate nature in the formation and development of man.

From the incapacity of our perceptive powers, few, very few, are the laws we elicit, in comparison with the vast and infinite number which altogether escape our notice. So boundless is this field, that the efforts of an expansive and vigorous mind are essential to its successful culture. How very necessary, then, that the fellow-laborers, who are so few in this great work, should at once proclaim each new discovered law, for the enlightening of the great mass, who, for the most part, pass their existence without recognising the most familiar of the many laws, whose principles of action regulate animal life.

It is very desirable that those who make researches in the science of mind or matter, should have the intellect and the courage, so highly necessary to establish their discoveries on the firm basis of rational demonstration; that the inquirers who candidly examine these laws in search of truth, may not fail to discern their endowment in nature. What, though the great mass should not, during the lifetime of the discoverer, examine or believe! The veracity of the system if founded in nature will remain, and posterity, as with Galileo, will acknowledge its truth. So the intellectual Spurzheim, though he lived not to see the system he labored to perfect fully acknowledged, yet future generations will see its accordance with the laws of our constitution, and will embalm his name with a rich and lasting glory.

It is not our fortune to speak of the discovery of a law of

nature, but of a departure in nature, from one universally recognised, and for which no physical cause whatever is known to have existed, whereby a rational explanation of the phenomena can be given.

When, as in the case before us, nature forsakes her accustomed course, and disclaims obedience in her operations to the laws of vegetative life, the result produced by such aberration is so very remarkable, that it stands out in bold relief, a proof at once, uncontroverted and apparent, of the beneficence of that power, which has constituted man as he is, both with reference to himself and all exterior agents.

This monster, so accurately represented by the engraving, was the product of a third impregnation in a married lady, aged thirtyfive, a resident in this city, the mother of two stout boys, the eldest aged four, the youngest two years. She has never miscarried. She enjoys tolerable health, though of a delicate frame and very excitable temperament.

As no moral cause for this anomaly was known to have existed, it may be well for us to record each sign of pregnancy, and every peculiar event, in any way connected with the case, at some length, to the better elucidation of the subject.

During gestation, she did not express any fears with regard to the *malformation* of the child, but thought it would soon die or have very delicate health, for reasons to be hereafter explained.

Having under her care an aged relative, who occupied one of the chambers of her house, she was under frequent necessity of visiting her. On these occasions she was in the habit of carrying the youngest boy, who was quite large, up and down stairs, supported on her abdomen ; this subjected her to much animadversion from her friends, but her ardent devotion to the child triumphed over all opposition. The fifth month was nearly or quite completed before she felt decided motion.

October 16th, she rode out of town, accompanied by her husband. On their return the horse ran with them, but no accident resulted, as the animal was soon stopped, and no one received injury. Soon after going to bed that night she felt the first motion. Her usual mode of calculation has been, to suppose gestation half complete on quickening. She was confined January 16th, just three months after. As the limbs and body of the child were perfectly developed, and very fat, and the nails and hair well grown, we are inclined to the belief that it was born at the completion of the eighth month, and that labor was thus early induced, from

the very painful distention of the uterus, by an enormous quantity of the liquor amnii.

The mother felt much solicitude, that the period of quickening should be so long deferred, and she soon became alarmed at the infrequency and imperfection, or rather singularity of the child's motions. Once or twice a week was as often as it was felt, and the sensation communicated to her, was more as if it fell, or impinged on some intervening substance between the child and the uterus, than as if it moved its limbs or body; — quite unlike the vigorous movements in utero, of her other children.

Touched externally, the uterine tumor felt equally tense; no inequality either of surface or solidity could be detected.

For these reasons, she occasionally gave way to despondency, and in her fears anticipated a puny child, that would die young.

During the latter part of the seventh month, her size so very rapidly increased, that the volume of the uterine tumor nearly or quite doubled. The fundus filling the epigastrium, so that the distention of the abdominal parietes was now more painful than either of her other gestations had been, at the full period. Her anxiety was therefore very considerable, on account of the suffering she thought inevitable, during the nine weeks yet necessary to complete her full term. The pain and distention exceeded all the cases we have known, excepting one of very large twins.

December 20th, in the night, her youngest child was taken ill and she rose hastily from the bed to render assistance, when she felt a very remarkable subsidence of the uterine tumor. Her expression was, she '*felt the child fall.*'

A very evident change in her form was certainly apparent.

The gradual subsidence of the womb during the latter part of the ninth month, so that the base is a little above the umbilicus, occasioned by the dilatation of the neck and contraction of the fundus, is an occurrence familiar to us all; but in this case, it took place very suddenly and was soon followed with severe paroxysms of pain in the right hip, particularly acute in the right sacro-iliac-synchondrosis. These pains continued for near a week with much severity, never fully going off, attended with nausea and vomiting of bile, constipation of the bowels, which was very obstinate, and very considerable tenderness of the soft parts at the seat of pain, pulse 110, hard, but small. The remedies used, were venesection, blister to the epigastrium, cathartics and copious lavements, which pro-

duced, by the fifth or sixth day, very free evacuations of dark green, bilious and highly offensive stools. Whereupon the patient rapidly regained her health and strength, but retained still the painful distention of the womb.

The os uteri was twice touched during this time, it was soft and flattened, would admit the point of the finger, but not so far as to feel the membranes; nor was there the least muscular contraction of the womb, even during the most severe paroxysms of pain. They were altogether false. The usual secretion of mucus which attends labor, was also absent.

January 1st, 1834, she was quite well of the attack, and continued in a state of tolerable comfort until January 9th, when, as she was walking across the floor about one P. M., she had a slight uterine pain, and found herself suddenly inundated with a very large quantity of liquor amnii. We were with her in about half an hour, and observed that the water had run in a broad stream across the floor from her chair, a large cushion on which she sat, and her clothes were completely drenched. We were informed that the floor had been once or twice overflowed and as often wiped up, to the amount of half a pailfull.

She was somewhat excited, by the enormous quantity of water, though she felt very much relieved from the load which had oppressed her, and was rather disposed to be cheerful. Touching, ascertained the mouth of the womb rather high up, the lips thick, but soft, the finger readily entering, no part of child or membranes could be felt. The pains were slight, and did not exercise the least dilating influence on the os uteri or the neck of the womb. On the occurrence of each pain a very considerable quantity of water was evacuated; but they gradually diminished both in frequency and severity, so that she retired at nine P. M, and passed a good night, sleeping soundly. In one or two days she again got about, feeling, as you may readily suppose, more light and comfortable than for a long time before. The motion of the fœtus was still very slightly felt once in a day or two. There was little or no uterine pain, and her size being very much diminished, she hoped to remain well until the first of March, the time she had set for her accouchement.

We once had a case six weeks before confinement where the chorion was ruptured, attended with regular pains, and the discharge of a large quantity of the liquor amnii, probably five or six quarts. Our explanation is, that this quantity of water was formed between the chorion and the amnion; the former being ruptured and the latter remaining entire, the woman in a few days got up and went her full time with a perfect child.

Two similar cases have come to our knowledge; and we explain a case in which an attempt by a *doctress* to procure abortion by rupturing the membranes was unsuccessful, in the same manner.

January 15th, labor came on at one A. M. Having so often disappointed her friends, she waited until 4, A. M., when she requested that we might be summoned. Before the messenger had left the house, the head had passed the external organs. So little pain did she suffer in the descent of the head — the presenting part being very small — that she was deceived as to its proximity. Occurring in the night and residing at the distance of a mile, half an hour elapsed before our arrival. We found the child born, completely enveloped in the membranes, with its lower extremities yet in the vagina. From the position, we concluded the birth had taken place with the face to the pubes. The membranes yet enveloping the head and body, were so entire and adhered so very close, that the least admission of air to the lungs was quite prevented. Two female friends were present, but they had offered no assistance. There was no pulsation in the funis umbilicalis. Discovering the monstrosity, we concluded not to attempt the inflation of the lungs; which would probably not have been successful for reasons to be mentioned when describing the brain. The mother felt the motion of its arms beneath the membranes for fifteen or twenty minutes after birth.

On cutting the funis and making firm pressure on the abdomen, with friction, the womb was found imperfectly contracted on the placenta. By making gentle extension on the cord, a very considerable gush of blood followed and continued to flow, until the organ was firmly grasped by the hands, and great pressure made on the womb and its neck immediately above the pubes; means which have always been successful with us in arresting that torrent of blood called a *gush*, after the removal of the placenta, and before its removal, when that could not be immediately accomplished. We then employed, from the os pubis to the coccyx, the application of a folded napkin wrung out in cold vinegar, to be held there with firm pressure by an assistant; the hips raised on a pillow; the head very low, without pillow or bolster; the patient on her back. The pulse was very quick and feeble. A dram of ergot was now prepared by infusion, and given in two separate doses, without producing the slightest uterine contraction. After continuing pressure two hours, the pulse rallied; the hand was introduced, the placenta was found firmly adhering to the fundus, where it was

retained by an hour glass contraction, which we had great difficulty in overcoming, and only succeeded by strongly pressing down the uterus with our left hand applied to the abdominal parietes.

After placing our patient in bed she was comfortable. The first week she had a severe attack of irritable head — more properly called *irritable pain of the head*, for so very sensitive was the skin of the forehead, that the least touch would aggravate the pain to a most distressing degree. It yielded at length to opium, with submuriate, carried to induce a slight salivation; and in two weeks our patient was discharged cured.

The fœtus, a female, very fat and perfectly formed, except in the parts to be described, measured thirteen inches in length, and weighed three pounds one ounce, and bore evident marks of having entered upon the eighth month of its existence.

It had no neck; its face looked upward, slightly inclining to the left; from the manner in which the head was joined to the body, the ears were placed horizontally, and doubled forwards by the top of the shoulders. Its lower jaw was very prominent, between which and the middle of the sternum the skin was very full and prominently distended with fat.

The vault or arch of the cranium fell directly backwards and downward from the brows; its cavity was very small, containing less than an ounce of the brain; opening by a large occipital hole of a flattened oval figure, capable of admitting the points of three fingers, one side of the occipital hole being formed by the spinal column, which was open throughout its whole length. The bones composing the arch of the cranium were completely ossified, and covered with well grown hair, which descended as low as the base of the scapula, each side of the cerebral tumor.

The mass upon the back was at once recognised as the brain, covered with its appropriate membranes, through which the convolutions were very distinctly seen, large, and imperfectly developed. Beneath the membranes a small quantity of dark colored serum was diffused, lying mostly in the sulci of the convolutions, giving them a deeper shade than natural; the membranes also being of a deeper color than natural, the mass presented a purple hue, which was heightened by considerable quantities of coagula, interspersed through the substance of the brain. The very wide difference in color between the light purple membranes, with the engorged brain beneath, and the delicate flesh color of the skin, cannot be truly represented without the aid of coloring.

The external investment of the brain was composed of two thin, firm membranes, which could be separated from each other, though connected by numerous filaments. On removing the membranes, the brain was very distinctly seen to be divided into two equal hemispheres, the falx running obliquely down the back, from the right temple to the left sacro-iliac synchondrosis; this obliquity was parallel with a lateral curvature of the spine.

The skin, from the sacrum to the occiput, was split, or divided and turned aside, so that the base of the brain reposed upon the true bodies of the vertebræ, the spinous processes being cleft vertically and turned to the right and left. The investing membranes did not perfectly envelope the brain, that is, they were not continued under the organ, but terminated at the edge of the true skin.

At the circumference of the brain, where the membranes came in contact with the true skin and hairy scalp, there was the most perfect cicatrization of the two textures; so complete was the union that the brain was held securely in its place, and the smallest quantity of liquor amnii was prevented admission beneath. Although the convolutions were plainly seen through the membranes, yet on dissection they could not be separated from each other, owing to their delicate texture, so that we very much regret not having subjected it to a more perfect process of hardening previous to dissection, than the one which was adopted.

Distinct lobes were not made out. The portion of the brain where the convolutions were the least developed, was the anterior and upper part, lying above and slightly reposing upon the hairy scalp covering the frontal and parietal bones, as the child lay on its abdomen upon the dissecting table. The posterior edge of the os parietale of the left side and a very narrow spicula of the os occipitis on the right, formed the posterior boundary of the arch of the cranium — beneath which the brain dips down and enters the cavity of the skull through the large occipital hole; which is very accurately represented. (Plate II.)

In the left hemisphere the convolutions were more perfectly developed than in the right; but the texture of the brain was rather more soft; the substance of the brain was of a dusky red color, and its cortical portion but imperfectly shown; considerable quantities of coagula were diffused in the substance of the brain and between the convolutions; in each hemisphere was a cavity, supposed to be the lateral ventricle, filled with

coagula. These lesions were altogether incompatible with the continuation of life, and most probably occurred while the child lay enveloped in the membranes, immediately after birth.

From the very delicate texture of the brain in the fœtal state, and the organ in this subject being unusually soft, we were unable to make out any of the other grand subdivisions, so readily found in the healthy subject. Notwithstanding very great care was taken in the dissection, there was no cerebellum recognised. The brain below the occipital hole, which reposed upon the vertebræ, sent off no nervous filaments, and had no nervous connection with the spinal nerves below, so that these spinal nerves were without cerebral influence.

The length of the brain was three inches and one half, breadth three inches, height two and one quarter inches. After dissection, when carefully collected, it weighed three ounces.

The spinal column, as has been mentioned, was open throughout its whole length, (Pl. II. Fig. 1.) the spinous processes being split in the middle (vertically) and turned so far to the right and left as to form a straight line with the posterior face of the bodies of the vertebræ, making a flat surface on which the base of the brain reposed. The posterior face of of each of these vertebræ, corresponds to the anterior part of the spinal canal in a perfect vertebra. Bearing in mind the fact that each vertebra in the early fœtal state is double, being composed of a right and a left bone, united at the median line by cartilage, which in a very short time becomes perfect bone, we shall the more readily be enabled to comprehend the law of nature in the formation of the spine. In the sacrum there was an attempt by nature to form a canal that would have been completed in a short time; the processes at the sides of the bone were turned together backward, and united by cartilaginous union, forming a short tube, which still remains perfect and is seen in the skeleton; (Pl. II.) this canal of the sacrum was filled with a mass of reddish grey nerves, each nerve being invested with a tough membrane of great strength. There were in these nerves reddish grains, appearing like adipocire. They were also deposited between the nerves.

The posterior faces of the vertebræ, as has been remarked, were covered by well formed dura mater, which was continued up the vertebral column into the cavity of the cranium, which it lined throughout. A very small and thin membranous bundle of nervous fibres was seen passing down over five or six of the processes of the left side; but, other than this, no trace of spinal cord was seen. A few nerves were seen going through the

base of the cranium; one bundle appearing like the par vagum, passing the foramen lacerum. The petrous portions of the ossa temporalia in the base of the skull, were moderately large; and the internal ear was most probably perfect, with its appropriate bones, canals, membranes and nerves; the foramen auditorium internum of the right pars petrosa was large and well developed for the admission of the seventh pair of nerves — the left pars petrosa smaller and without any apparent foramen. The membrana tympani of both ears was perfect, well preserved, and is beautifully shown in the skeleton.

The optic nerves were large and well developed, the organs of vision being quite perfect.

The spinal nerves were large and well formed; when traced from the abdominal side of the spine through the intervertebral foramina, they were found to retain their full size, and pass directly into the dura mater of the spine, where they abruptly terminated, being firmly united with this membrane. These nerves were of a very tough, firm texture; the dura mater of the spine being not a hollow tube as usual, but a thick, firm, solid membrane. The nerves of the trunk, the upper and the lower extremities, were all perfect and properly distributed.

The organs in the cavity of the chest were perfectly well developed, and so were the organs in the cavity of the abdomen, with this exception, that the kidneys were united into one solid organ, having three ureters, two on the right side enclosed in one sheath, and one on the left, all terminating in the bladder; the right half of this kidney was twice the size of the left; its renal capsule was correspondingly large, and these were about half the size of the kidney.

It is said that in children who are born without cerebrum, the renal capsules (or glands) are extremely small and sometimes wanting, but in a perfect fœtus, where the cerebral development is good, they are larger than the kidneys; in this case they were about half the size of the kidney.

The organs of generation were perfect: there was, however, observed to be but one umbilical artery.

We claim your continued indulgence while we give the skeleton a tolerably accurate description.

The bones of the face, and some of the bones of the skull, were well formed and need no description. The frontal and parietal bones fell downward from the brows, were small and thin, but well ossified, and without fontanelles, as seen in Plate II. We would further observe that the bones of the head were ossified a little more than any other part of the skeleton.

We readily notice (Plate II, fig. 1) a double lateral

curvature of the spine in which the head participates, the inclination being from the left to the right, as low as the eighth dorsal vertebra, below which it extends from right to left as low as the last lumbar vertebra: this was an effort of nature, to keep the centre of gravity over the perpendicular axis of the pelvis, which would have been otherwise much thrown to the left, in consequence of the chest being inclined to that side. The ribs of the right side go directly forwards from the vertebræ almost in a straight line, being but little curved and quite long, otherwise nearly perfect; the left ribs are imperfect, and pass off directly to the left of the spine an unusual distance, before they are inclined forward to join the sternum.

There are no cervical vertebræ recognised as such.

This head, better developed than the case of M. Lallemand, is joined to the dorsal vertebræ, like every case of notencephale, by the bones composing the base of the skull. The four upper dorsal vertebræ are united into one, and thrown backward as you follow up the spine. Their spinous processes are like the other vertebræ, split and turned to the right and left. Those of the left, inclining far to the left, are seen at letter *l*, (Pl. II, fig. 1.)

During the last month of the fœtal state, the os occipitis in well formed subjects, is composed of three separate bones, united by cartilage; in this case it is composed of six distinct bones similarly joined. Five of these bones united the head to the dorsal vertebræ, forming the principal part of the base of the cranium. The pars cuneiformis of the occiput is placed in the middle, joining the sphenoidal bone above, and the top of the first dorsal vertebra below. It is half an inch long by three eighths of an inch wide, of an irregular hexagonal figure. At its upper part it is united to the sphenoidal as just stated, on each side it joins the temporal, lower down on its sides it has the two lateral portions (occipital) of an irregular oblong form, and at its lower extremity it joins the top of the first dorsal vertebra. The lateral portions on each side, have the temporal above them, and the processes of the four upper vertebræ below them, their exterior ends are united to other lateral occipital bones, which are larger, and of an irregular rhomboidal figure; these last named may be known by having the letter *c* on each bone. They join the ends of the processes of the dorsal vertebræ at their inferior and the parietal bones at their superior edge or line of union, the anterior half forming with the parietal the squamous suture of the line of union, and the posterior half, the sutura dentata: each rhomboidal

bone at its anterior superior part is also united to the inferior posterior part of each temporal bone. The right rhomboidal is, on its posterior edge, joined to the sixth and last piece of the occipital bone, which is known by the dotted line running from the letter *c* to each figure; these rhomboidal bones with the letter *c* upon them, form a very considerable part of the line of union between the head and the trunk.

The sixth and last piece of the occipital is peculiar to the right side, it is three lines broad at the base, where it joins the processes of the seventh, eighth and ninth vertebræ, and rises past the lower end of the pars rhomboidalis and parietal bones to the sagittal suture, where it terminates in a point, so that the lambdoidal suture is confined to the right side of the skull. There is one small bone peculiar to the left side, situated on the spinous process of the ninth dorsal vertebra, not very much unlike the processus dentatus of the second vertebra of the neck, in a perfect fœtus at the eighth month; this bone is marked *k*, Pl. II., and called mamillary bone.

The pars petrosa of the right temporal bone, is well defined, as has been mentioned; the left is much smaller than the right. Other prominences in the base of the skull are not recognised except a very imperfect sella turcica.

The ribs on the right side (Pl. II, fig. 2) are nearly perfect, but rather straight. On the left, there is great deficiency and malformation, the first rib being but one third its usual length, united by a very long cartilage to the sternum; the second rib is wanting; the third and fourth only three lines in length, joined together, are turned backward and downward, and are united by cartilage to the fifth rib, which is very short, but quite broad and joined by cartilage to the base of the left scapula; the last named rib is given off from the middle of the sixth, seventh, eighth, and ninth ribs, which are united, and form an irregular flattened bone from their head to their middle, where they diverge, and are joined to the sternum by separate cartilages; the tenth and eleventh are amalgamated in their middle, but in all other respects are perfect; the twelfth is the only rib in a normal condition.

It gives us pleasure to acknowledge, in a particular manner, the valuable services of our highly esteemed friend Dr J. B. S. Jackson, in this delicate dissection; and the careful preparation of the skeleton. The examination was made in the presence of Dr Channing, Professsor of Midwifery, Drs Otis, Lewis, and several other medical gentlemen.

F. Lallemand, Professeur de Clinique Chirurgicale à la

Faculté de Montpellier, has published the second edition of a very interesting case of notencephale, with engravings, which occurred at the Hotel Dieu, 1816; it differs from our case in many particulars of formation, and development; but is similiar in this remarkable fact, that the quantity of liquor amnii discharged during the labor, was altogether unprecedented. Let it be remembered, that five days previous to the accession of labor, our patient, on the occurrence of slight pains, discharged from the uterus, in the course of a few hours, the very unusual quantity of liquor amnii, estimated at three gallons. This enormous quantity of water, may in part account for the indistinctness of the fœtal motions. This was not the only cause, as all will acknowledge, after what has been stated; let us therefore stop and take a discursive glance at the case.

We here see the perfect integrity of the peripheral nerves, we see a tolerably well formed cerebrum, externally quite perfect, internally so soft that the minute subdivisions were not made out, as in a perfect brain. We learn, also, that there is no cerebellum, and no spinal cord. From the motions succeeding birth, may not the position be maintained, that there was a medulla oblongata, more or less perfectly developed, and if so, might not its seeing, hearing, smelling, and tasting, also have been moderately perfect? It would not have possessed the powers of locomotion from there being no spinal cord; and although the organs of generation were perfect, yet, if the cerebellum holds that influence over their exercise which we believe it does, they could never have sustained their appropriate and important functions.

But we are going too far to suppose anything like the establishment of animal existence, where there is so signal a deficiency in the essential organs of the cerebral system, whose just adaptation to each other is so highly requisite to the continuance of the vegetative functions, the performance of muscular and sensative motions and the more important manifestations of mental life.

From this and all similar cases, how irresistible the conclusion, that man, in his physical and moral nature, is admirably adapted to the sphere in which he exists, and the agents with which he is surrounded.

But to return; the great and principal cause of the slight and imperfect motion, was the entire absence of the spinal cord, from which deficiency cerebral impressions could not be communicated to the nerves of the lower extremities, nor could the automatic motions of the fœtus *in utero* be performed.

The spinal cord being an apparatus which transmits muscular and sensative powers, and the means of communication between the cerebral operations and the organs of motion, we could not in this case expect any motion in the lower extremities of this fœtus while in utero, or after birth.

The formation, growth, and development of these anomalous cases, will enable those who cultivate an acquaintance with nature's laws, to learn by careful study something of her operations, in a sphere so completely excluded from view that very little is yet clearly known.

Inasmuch as the great and good SPURZHEIM labored for truth and the discovery of nature's laws, we need not allude to the high gratification the medical world would have experienced could we have been assisted with a hand like his in the management and dissection of this rare and interesting case.

In the London edition of his Anatomy of the Brain, page 14 and 15, the position is maintained, very correctly as we believe, that the nervous system does not, if we may be allowed the expression, vegetate from a centre, that there is no punctum saliens; his words are, 'that it is not a unit, but consists of many essentially different parts, which have their own individual origins, and are mutually in communication.' Yet, he says, (page 62) that the spinal cord is the origin of the nerves styled spinal; and disclaims the positions maintained by M. Serres, which, among others, are, 1st. that the nerves are developed from the circumference towards the centre; 2d. that they are fully developed while the spinal cord and brain are still in a fluid state, and 3d. that the spinal nerves do not arise from, but are only implanted into, the spinal cord.' Here is a case which goes to maintain the theory of M. Serres. The spinal nerves were perfect, and all terminated on the dura mater of the spine, there being no trace of spinal cord, other than a very small, thin, membranous bundle on the left side of the spinal column, not at all resembling the spinal cord either in texture, color, or form. However tenacious we may be of our particular theories, no one can believe this to have given off the left spinal nerves, when the right half of the spine had not the slightest appearance of medullary tissue upon it, while the nerves were equally perfect and finely developed. It would, therefore, appear that this particular position of the great master, that the spinal cord is the origin of the nerves termed spinal, must be given up; for we cannot suppose a nerve or a set of nerves to originate from a part which does not exist. We see that they are here

formed independent of the cord; and are ever joined with it, only for the purpose of receiving and transmitting cerebral influence, the sense of touch, general sensations, and the powers of vegetative life. That there was or was not a medulla oblongata, from which the pneumogastric nerve originates, we were unable to determine with certainty, the bones of the skull not having been sawed open, that the skeleton might not be injured, which we much regret, inasmuch as this cerebral mass is the great moving principle of life. By having freely opened the skull we could more readily have examined the base of the brain. The great softness of the organ deterred us, but we confess our fault; nothing should have deterred us; time should have been given to it, the brain should have been hardened, and more if possible should have been discovered.

The pneumogastric nerve was seen, as has been stated, in the base of the skull, but not so certainly recognized as in a perfect fœtus, from the very confused state of the parts, and the great hurry incident to all dissections made by or in the presence of medical gentlemen engaged in extensive practice. We therefore conclude that the motions felt by the mother were of necessity performed by the superior extremities, through the agency of the eighth pair of cerebral nerves, the spinal accessory branch of which, after uniting with the par vagum, is distributed among the muscles of the neck and shoulder; these could transmit nervous influence quite sufficient to account for the feeble motions performed by the infant in utero, and after birth, while it lay enveloped in the membranes, struggling for breath. The mother describes the sensation at that moment as if it were moving its arms and body in endeavoring to crawl, (from the manner in which the head is joined to the body they must have moved together,) and she is distinct in her recollection that the feet and legs, which were yet in the vagina, did not move in the least. Perhaps it may be thought that some allowance should be made for the excitement incident to such occasions, but the mother avers that she was perfectly collected, and speaks of the conscious happiness she experienced on the birth of the child, from the proof she felt in its motions that it was living.

We have at length completed the case, and have only to add, that we are not aware that there is a case of monstrosity recorded with a brain so perfect in its exterior, yet without cerebellum and spinal marrow. And should another occur we hope, for the sake of science, it will not fall into the hands of so unskilful a reporter or so imperfect an anatomist. This, we say, on our own part, as a matter of fact, and are deeply impressed with the feeling which impels to its acknowledgment.