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Jackson (J.B.S.)

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A

DESCRIPTIVE CATALOGUE

OF THE

MONSTROSITIES

IN THE CABINET OF THE

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

1848.

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MONSTROSITIES IN THE CABINET

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By J. B. S. JACKSON, M. D.

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BOSTON:

PRINTED BY FREEMAN AND BOLLES.

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Annex

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1847

DESCRIPTIVE CATALOGUE

THE

POSTAL SOCIETY FOR MEDICAL IMPROVEMENT



POSTAL

PRINTED BY JAMES W. BROWN AND COMPANY

## PREFACE.

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THE Catalogue of the Cabinet of the Society being in type, it was deemed advisable to print a few additional copies of that portion of it which treats of the Monstrosities. This department stands, as it were, by itself, and concerns the general anatomist rather than the medical practitioner; it illustrates the laws of the development of organs, to which so much attention has been of late directed; and it is believed that the large collection of specimens belonging to the Society's Cabinet, will furnish some important additional facts. Further, there are many cases of malformation of the individual organs in the general Catalogue, that it would have been desirable to reprint in connection with the Monstrosities which are here described; but, as this could not be done, a simple reference will be made to them in the index.

In the dissection of the specimens, reference was constantly made to the work of M. Isidore Geoffroy St. Hilaire, which may be supposed to contain about all that is known upon the subject; and an attempt was made to follow his classification; but this was found to

## PREFACE.

be impossible. His nomenclature might have been used in many cases, but as it could not always be strictly followed, it was thought best, in referring to his work, to mention the volume and page, and not trouble the reader with a name which would seldom convey any meaning, or would not fail to be soon forgotten; one of his terms only, as a solitary exception to the above remark, having been used in the index. The general division of the subject is into Monstrosities by deficiency, by excess, and by distortion.

# MONSTROSITIES.

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## I. MONSTROSITIES BY DEFICIENCY.

757. A lithographic drawing of a specimen which was presented to the Society by Dr. George C. Shattuck. This form of monstrosity has been described by M. Isod. Geoff. St. Hilaire (*Histoire des Anomalies*, vol. II. p. 469) as the acephalus, and the external appearances, in the present case, are well represented, and perfectly characteristic, the drawing having been made directly upon stone.

The mother of this subject was twenty years of age, and had been married three years. On the 25th of June, 1837, she was confined for the second time, being then in the seventh or eighth month of pregnancy; one well formed child had been expelled, when the monstrosity presented by the feet, and was withdrawn, the case being attended by Dr. Ward N. Boylston, then a pupil of Dr. S.

When received, it was quite fresh, weighed nearly four pounds, and measured from ten to eleven inches in length. The integuments were excessively œdematous, constituting by far the great bulk of the fœtus, and on the back and sides were found, on dissection, several large cysts. Superiorly, it terminated in a regular, rounded mass, and upon the median line, anteriorly, and not far from the above termination, there was the fleshy protuberance which is so often found in these cases. This protuberance, which represented the head, consisted of two portions, one above the other, and closely connected; the upper one was of a rounded form, and four or five lines in diameter, the lower one being considerably smaller, and terminating anteriorly in two points; the internal structure of this mass will be described in connection with the skeleton. In place of the upper extremities there appeared externally, upon the right side, two fingers, which looked not unlike the claw of a lobster; on the left side there was but a single finger. Both of the feet were turned in, and each had four toes, those on the right side being equi-distant, but those on the left irregular; otherwise, the lower extremities were well de-

veloped. The anus was imperforate; penis well developed; umbilical cord very small, and much shrivelled, but sufficiently long, and at its junction with the abdomen the intestines protruded, and were covered only by a delicate membrane.

On dissection, there were found in the abdomen the intestines, the left kidney, two renal capsules, the bladder, and the testicles, the greater part of the intestines being contained in the hernial sac. The stomach, liver, pancreas, spleen, and right kidney were wanting.

The small intestine (No. 761) was eleven inches in length, terminated bluntly in a cul de sac, and was nearly filled with a whitish, curdy substance. The large intestine was eight inches in length, and contained a white, crumbling substance at its upper part; the rectum was filled with mucus, and terminated in a cul de sac, except for a very minute opening into the urethra, just in front of the verumontanum. The kidney rested upon the front of the spine, or a little to the left of it and was sufficiently well developed; renal capsule very small, and closely attached to its concave edge. On the right side, the renal capsule was much larger. Bladder, prostate gland, and testicles well developed. Vas deferens wanting upon the right side; upon the left, it was traced very nearly to its termination in the urethra, but the vesiculæ seminales could not be found.

The heart was entirely wanting. In the *American Journ. of Med. Sciences* for Feb. 1838, in which this case was published, there is a sketch of the external appearance of the fœtus, and also of the circulation, the course of which was as follows. The umbilical vein divided into two large branches soon after its entrance into the abdomen; one passed downwards to supply the pelvis and lower extremities; the other passed upwards on the right of the spine, and divided at the upper part of the thorax, to form the right and left subclavian and jugular veins; about the middle of the thorax a large branch was sent off on the right side, and which seemed to correspond to the vena azygos. The aorta divided, at the upper part of the thorax, into the right and left subclavian arteries, from which were sent off two small vessels, that, from their relation to the cervical vertebræ and to the cranial bones, were regarded as carotids, the corresponding veins being, of

course, regarded as the jugulars. The main trunk descended in front of the spine, or a little to the right of it, and gave off the intercostals; inferiorly, it terminated in the left umbilical and the left iliacs, which were distributed as usual; the iliacs and the umbilical artery upon the right side were perfectly distinct from those on the left. In front of the thorax, beneath where the sternum should have been, there was quite a network of vessels. The structure of the arteries and veins was apparently normal; the valves in these last, however, were probably wanting, as shown by the experiment of inflating the vessels when the abdomen was first opened. In the thorax was a quantity of condensed cellular membrane, and along the spine several large cells filled with serum, but nothing like a pleural cavity.

The spinal marrow was fully exposed by separating the wings of two of the dorsal vertebræ, and was found to be of the usual size, the nerves going off on each side. At its upper extremity it was still more satisfactorily shown; it there bulged slightly, and measured four lines transversely, then becoming smaller, and terminating in a blunt point, nerves being sent off from it to form the axillary plexus, which was large on each side. Within the thorax and abdomen were found several ganglia of the sympathetic nerve. Muscles of the trunk and lower extremities sufficiently developed, but elsewhere imperfect.

The skeleton (No. 759) having been prepared, and mounted, has been represented in Fig. 4, at the end of the volume. There are nineteen vertebræ, besides the sacral; three, situated above the upper rib, are partially united, and the bodies of two or three of the upper dorsal are irregularly ossified, but the rest are well developed. Nine ribs on the left side, and ten on the right; these last having hardly a trace of cartilage, but otherwise are not remarkable. The sternum is, of course, cartilaginous, but consists of two lateral portions, which are widely separated, except at the lower extremity, where they are closely approximated but do not unite; the portion which is upon the left side is attached to the clavicle, and to the cartilages of the ribs, but on the right to the clavicle only. There is a scapula on each side, sufficiently large, although not well formed, the right being the most perfect. The clavicles are

short, stout, and bent to somewhat of an angular form. The right upper extremity wants the humerus, but there is a slender bone, about an inch in length, which is evidently the ulna, and attached to this is a small cartilage, which may represent the head of the radius, these being directly attached to the scapula by ligament; the carpus exists, but the distinct parts were not made out. There are two metacarpal bones, about five lines in length; one is slender, and connected with the long finger above mentioned, and which has three well developed phalanges; the other is broad and stout, and bifurcates so as to connect with both fingers, of which the short one has two phalanges. The left upper extremity consisted of two, small, irregular cartilages, followed by a perfectly well developed metacarpal bone, and three phalanges. The pelvis and lower extremities are well formed, except that, as appeared externally, the feet are turned in, and have only four metatarsal bones and toes; one of the cuneiform bones, also, is misplaced, being set back behind the others.

Connected with the upper extremity of the spinal column is a row of eight small bones; they are altogether one inch in extent, and, for the most part, exceedingly irregular, but the terminal bone ends distinctly in an alveolus, in which are seen the well developed crowns of two incisor teeth, besides a smaller one, which is connected with one of them laterally.

This chain of cranial bones terminated in the external fleshy protuberance above mentioned, and the teeth were contained in a cavity in the lower point, probably the dental sac. The protuberance was generally fleshy to the feel, and had some dark hair about it. Between the upper and lower portions were two small openings, which led backwards into two distinct cavities, three-fourths of an inch in extent, large enough to admit a probe, and ending in a cul de sac, the inner surface being smooth and polished, except just within the openings, where it was thickened and rough; taken in connection with the bones about them, and especially with the teeth, these may fairly be called nasal cavities, the development being altogether very remarkable for this form of monstrosity.

758. Cast in plaster of the above monstrosity, taken, before the dissection, by Dr. O. W. Holmes.

759. Skeleton of the same.

760. Colored drawing, to show the course of the circulation from the same; the sketch in the *Medical Journal*, above quoted, having been taken from this, as that of the external appearances was from the lithographic drawing.

*Dr. Jeffries Wyman.*

761. Small intestine injected, to show the termination in a cul de sac; from the same.

762. A cast in plaster of a second acephalus; taken by Dr. O. W. Holmes. The specimen was brought from Salem by Dr. E. B. Peirson, in May, 1842, the case having occurred in the practice of Dr. Samuel Johnson. The mother was a mechanic's wife, and had previously had two well-formed children. Nothing remarkable was noticed in pregnancy, except her great size; labor took place at the sixth month, and was easy. There were twins, as usual in such cases, and the monster was born first, which, according to St. Hilaire, almost never happens. The second child was well-formed, but died in twelve hours; a large quantity of liquor amnii was discharged with this, but with the first none at all, so far as observed. Placenta single, the cord of the monstrosity being about six inches in length, and inserted near the edge.

Externally, this specimen resembled very nearly the one (No. 757) already described. The weight was four pounds and thirteen ounces, the length eleven inches, and the width, at the upper part, six inches. Integuments excessively œdematous, but there were no cysts, as in the last case. Feet turned in, and the toes imperfect, but the lower extremities were otherwise well developed. There was some vestige of the right hand, but only a pit upon the surface in the place of the left. A small, fleshy protuberance, as usual in these cases, represented the head, and around it was some appearance of hair. Immediately below this protuberance, and almost concealing it, was a remarkable development of pia mater; it formed a soft, dark red, circular, flattened, pedunculated mass, sixteen lines in diameter, and about three lines in thickness, the base being about eight lines; it was covered by serous

membrane alone, and consisted of a uniform, dark red, spongy tissue, such as is found upon the base of the cranium, in the common "acephalous fœtus." There was nothing between this mass and the cellular tissue which filled the cavity of the thorax, and there was no trace of cerebral substance. This formation is not mentioned by St. Hilaire, but Béclard (*Art. Monstruosité, Dict. des Sc. Med.*) has described something of the kind.

On dissection, there was found no trace of heart, lungs, thymus gland, liver, spleen, pancreas, or diaphragm. The umbilical vein was fully injected from the trunk (No. 763), and showed no appearance of valves; it sent branches to the lower extremities, and to the abdomen; then ascended along the spine, and divided to supply the upper extremities and the neighboring parts; one large branch entered the spinal canal, upon the right side, between two of the lumbar vertebræ. There were two umbilical arteries, which were distributed as in the last case (No. 757), the left being connected with the aorta, which divided at the upper part of the spine like the vein, and at the lower part gave off the usual vessels to the pelvis, and to the left lower extremity; the umbilical artery upon the right side, and its branches, appeared to be distinct from those on the left.

The mode of circulation in these cases has never been satisfactorily determined, from the want of sufficient facts. Sir A. Cooper, however, has shown (*Guy's Hosp. Reports, No. xi.*) that in one case, at least, it must have been carried on through the monstrosity by the heart of the perfect fœtus, the placenta being single, as, according to St. Hilaire, it generally is, and the umbilical arteries of the two fœtuses communicating freely, so that the blood entered the monstrosity by these vessels, and was returned by the veins, contrary to its usual course. With regard to the absence of valves, in the present case, Sir. A. C. noticed the same fact in one, if not both, of the subjects which he dissected, and St. Hilaire mentions another case, being, as he says, the only one in which, so far as he knows, this point has been examined.

The large intestine was ten inches in length; small intestine fifteen inches, and ending in a cul de sac, there being two dilations of the lower part of the ileum, from one of which arose a

marked diverticulum; anus open. There was a considerable quantity of nearly colorless mucus, with some white, curdy flakes, and in the small intestine some traces of a greenish color. The renal capsules were small, and united across the spine like a horse-shoe kidney. Left kidney large; measured thirteen by sixteen lines, and seemed to be distended with urine; right kidney five by nine lines. The bladder was rather small, but contained urine. The testicles, gubernacula, vasa deferentia, prostate, verumontanum and penis were sufficiently well.

The ganglia of the sympathetic nerve, and the filaments connecting them were unusually developed in the thorax, abdomen and pelvis; in the thorax were two ganglia which extended from the upper rib to about the eighth rib upon the right side, and to the sixth on the left. The spinal marrow was sufficiently developed, as were the intercostal nerves, and the nerves in the lower extremities. The right brachial nerve was rather large, and it was one of the most remarkable points in the whole anatomy, that although there was no trace upon the left side either of a clavicle or upper extremity, not even in the cartilaginous state, yet there was a very tolerably developed nerve, artery and vein running down in connection, in the situation and direction which the extremity would have taken if it had existed.

The skeleton, having been partially prepared, and preserved in that state, there were found to be eleven ribs on the left side and twelve on the right; all well formed, except the three first on the right side, which were fused anteriorly. The dorsal vertebræ corresponded to the ribs, the fourth being incomplete on the left side; cervical vertebræ about three in number, but not exactly determined, the wings being fused, although the transverse processes were tolerably distinct; ten vertebræ below the dorsal, of which five may be regarded as lumbar, and five as sacral; and below these last was a hard, thick, blunt cartilage, in place of a coccyx. The sternum was in two lateral portions, widely separated, sufficiently and about equally developed. The right upper extremity was about three inches in length; there was one metacarpal bone, with its phalanges well developed and ossified, and above these two irregular cartilages; upon the left side, as above stated, no clavicle, and no trace

of an upper extremity. Pelvis well formed. Lower extremities sufficiently developed, strongly rotated inwards, and the feet turned in; head of each femur quite prominent anteriorly, as if partially dislocated, and the synovial membrane seemed universally adherent. On the left foot there were four toes, the fourth metatarsal bone being cartilaginous and quite slender; six tarsal, the third cuneiform being wanting. On the right foot, on which there were three toes, there were two metatarsal bones well developed, and two which were very imperfect and cartilaginous; tarsal as on the left side.

763. Veins of the above monstrosity; injected, dissected out, and displayed upon a black board.

764. Intestinal canal, from the same case, and prepared like the veins.

765. A third specimen of acephalus, preserved entire in spirit. It is smaller than the two others, the length being from six to seven inches. The lower extremities are well developed, but the feet are much distorted, there being only two toes on the left, and three on the right. No trace of upper extremities. Sex female, anus not open. Hernia of intestine into the cord. Just above the cord, and rather to the left of the median line, is a very soft, fleshy, rounded protuberance, about one-third of an inch in diameter. Integuments very œdematous, as usual.

One well formed child was born, and afterwards the monstrosity, which presented by the feet. Quantity of liquor amnii large, there being a separate discharge for each fœtus. Placenta single; cord of the monstrosity slender, but that of the child was quite large. Labor occurred at the sixth month, and was otherwise natural; the child living a few hours only.  
1842.

*Dr. M. S. Perry.*

766-74. Specimens illustrating one of the varieties of that form of monstrosity which is commonly known as the "Acephalous Fœtus." The specimens are so similar, that one general description may answer for the whole, and with these, have been incorporated notes of seven others which have also been observed, the cranial bones of several of them having been preserved in the Cabinet.

Externally, this variety of monstrosity is characterized as follows:—The trunk and extremities were well formed and fully developed; the vault of the cranium was wanting, and the base of the skull was covered by a deep red, smooth, but somewhat irregular, serous surface, this surface extending down the neck, sometimes as low as the middle of the back, and terminating in a point; on the margin of the integument, about the base of the cranium, was a narrow strip of hair; the neck was short, the ears rested on the shoulders, and turned forwards over the meatus, the face was directed upwards in proportion to the malformation of the neck, the mouth was open, and the prominent, staring, frog-like eyes were situated almost upon the top of the head.

On cutting through the arachnoid membrane, over the base of the cranium, for so it must be called, a coarse lace-work of vessels was found, consisting of pia mater, and very much congested; but, although the thickness of this vascular substance varied in different subjects, and still more in different parts of the same, there was nothing that could be called a tumor, as described by St. Hilaire (*Hist. des Anomalies*, vol. ii. p. 336.) In eight of the cases above referred to, there was no trace of brain; in one there was a doubtful trace, but in four there were distinct traces of cerebral substance in the pia mater.

St. H. remarks (vol. ii. p. 339) that his father and M. Serres discovered the pituitary gland in one case; in the above cases, I found, no less than six times, a rounded body about the size of that gland, and precisely in its situation, but although sometimes soft like brain, it more commonly had almost the fleshy consistence, as it had the color, of a lymphatic gland; and these were not all, for the same was also found three times in the other varieties of this form of monstrosity. The cerebral character of this body being then rather doubtful, it was excluded in speaking of the brain.

The spinal marrow terminated about where the serous surface began, but could sometimes be traced a little way upon the membranes, as a thin expansion; below this, whenever examined, it was found to be fully developed.

Of the nerves about the base of the cranium, the spinal accessory was generally seen after a little dissection, and some-

times at once ; branches of the fifth pair were several times found, and in one case there was some appearance of the Casserian ganglion ; the other nerves, when seen, were so involved in the cellulo-vascular tissue that they could not be traced to their foramina.

The internal organs of the thorax and abdomen, in ten of the cases which I examined myself, were well formed, with the following exceptions. The renal capsules, in every one, were very small, and in some they might readily have been dissected away with the fat which was found about the kidneys, as probably happened in some of the published cases, in which they are stated to have been wanting. The same general fact in these cases was noticed by Mr. Hewson (Phil. Trans. 1775), and seems now to be generally known, although I do not find that St. Hilaire refers to it. In one there was a supernumerary artery at the arch of the aorta ; in another there was but one umbilical artery ; in one the heart was malformed (No. 340), and in one the diaphragm was almost entirely wanting upon the right side, the liver encroaching upon the thorax, and the right lung being no larger than the upper lobe usually is. In one (No. 773) there were several peculiarities that will be noticed hereafter. In two, of which I did not see the dissection, the internal organs were well formed, except that the renal capsules were very small, and in one of the subjects one of them was not found.

The cranium was very remarkable in these cases, and the general form varied so little that one representation (Figure 5) will suffice for the whole. The frontal bones (*a. a.*) were very imperfectly developed in all, forming, as it were, a part of an irregular bony circle or ring ; the nasal processes, however, were always quite large. In connection with these bones may be mentioned the extreme shallowness of the orbits, causing the eyes to protrude and appear large, as they are generally described, although, when dissected out, they were found to be no larger than usual. The parietals were wanting in every case, excepting one (No. 769), in which they existed in a very rudimentary state. The occipital bone was the most remarkable ; the basilar and lateral portions were sufficiently developed, although not always well formed, and the last two were directed horizontally outwards, and sometimes even a little

downwards; the posterior portion, as seen in the figure, is divided into two equal portions (*b. b.*) which are of a very peculiar form, and are widely separated, so as to form on each side the lateral margin of the cranium. The petrous portion of the temporal bone was always large and quite prominent; passage for the carotid artery sufficiently large, but short and direct in its course, instead of being circuitous as usual; squamous portion very imperfectly developed, and situated rather beneath the cranium than upon its side; the ossicula were sufficiently developed, but the stapes was often more or less distorted. The great wings of the sphenoid bone are distinct from the body, in a fœtus at the term, whereas, in the above cases, the left wing was co-ossified in two, the right in three, and in five they were both united to the body of the bone; pterygoid processes quite large; small wings scarcely developed, having, in some cases, long slender spines, directed anteriorly, and in others being united posteriorly with the body of the bone, so as to make two distinct foramina behind the optic; these last, and those for the fifth pair of nerves were sufficiently developed. The two superior maxillary bones, which should be distinct, were co-ossified anteriorly in nine of the above cases, and in one of two cases, in which they were separate, the two inferior maxillary bones were co-ossified, this being the only instance in which this unusual condition was observed. The other bones of the head were not remarkable; the inferior maxillary is sometimes spoken of as larger than usual, but it only appears so from the deficiency of the cranial bones.

The malformation of the spine, which existed in all, was confined to the neck in some, but extended, in others, as low as the middle of the back, the wings of the vertebræ being widely separated, unequally developed, and often more or less co-ossified; the bodies, also, were very often irregularly developed. Some of the ribs were generally co-ossified when there was much malformation of the spine. Skeleton, otherwise, well formed. The osteology will be fully illustrated in the four following specimens, which are a part of those above described.

There are some other interesting circumstances in the history of these cases, which should not be omitted. With regard to the sex, five were males and eight were females. In seven

the birth was premature, and one only is stated to have been born at the full term. One presented by the arm, but the child was readily turned, and delivered by the feet; a second presented by the feet; a third, by the head, but the face was to the pubes; five by the head, and in these, and all of the others, the presentation must have been natural, or the contrary would have been stated; and a similar observation might be made in regard to many other points, all of the positive facts of any importance having been obtained, in nearly every case. Three were reported still born, and so, I am quite sure, they all were, or that they gasped but a few times at the most. A very curious fact, which was noticed in this, and in another variety of this form of monstrosity, and almost universally, was a profuse discharge of what has been regarded as the liquor amnii; it is recorded, however, only eight times in the first variety; Lallemand has observed the same fact in an analogous case, and attributed it to the dropsical affection which he supposed to have destroyed the brain and spinal marrow. In regard to previous births, one case was that of a first child, but in seven there had been other children, and, for the most part, a large number. St. Hilaire seems to attach much importance to the occurrence of some cause acting upon the mother, in the early months of pregnancy, and tending to produce the monstrosity (II. pp. 345 and 369;) in one of the above cases, the mother attributed it very decidedly to a severe fright; in four others, no cause could be assigned, and in the remainder the fact is not noticed.

766. A mounted skeleton of an "Acephalous Fœtus;" this is the specimen which is represented in Figure No. 5. 1839.

*Dr. J. C. Hayden.*

767. A set of separated bones of the head and part of the spine, of an acephalous fœtus; mounted individually upon pedestals, and placed upon a black board. 1839. *Dr. J. D. Fisher.*

768. A second specimen, similar to the last, but showing also a fusion of the ribs. 1841. *Dr. George C. Shattuck.*

769. A third specimen; in this there are two rudimentary and very

irregular bones, that are connected with the frontal, and probably represent the parietal bones. 1842.

*Dr. William E. Townsend.*

770. Drawings, showing the external appearances of an acephalous fœtus. Two of them represent in outline a front and side view of the head and shoulders, and the third gives a back view of the whole in India ink, the head being shaded. They were taken by a professed artist, for Dr. Charles T. Hildreth, and, being admirably well done, might be copied here, if this form of monstrosity were not sufficiently well known; the only representations, however, that I have seen of it are two wretched figures, one in St. Hilaire's work (*Hist. des Anom.*,) and the other in a Memoir by V. Portal (*Annales des Sciences Nat.* vol. xiii.).
771. Cranium of the monstrosity, from which the above drawings were taken; prepared by Dr. C. T. Hildreth. The skeleton has also been preserved, but, being in an imperfect state, it has not been mounted with the cranium; it, however, shows an extensive fusion of the ribs, and separation of the wings of the vertebræ as low as the eighth dorsal. 1835.
772. A fœtus preserved in spirit, and showing the full development and plump condition so often noticed in these cases. Dissected by Dr. Joseph W. McKean. 1828.
773. A fœtus preserved in spirit, and which had been in spirit for some time when it was dissected. The case, which is interesting from the malformation of the internal organs, and from the circumstances of its birth, occurred in the practice of Dr. Ezra Palmer, Jr., and an account of it was published by him in the *Medical Magazine* for December, 1833.
- The deficiency of the vertebræ extended to about opposite the lower angles of the scapulæ, the brain being nearly wanting. Left upper and right lower extremities imperfectly developed; feet turned in, as in varus. Something like a penis was seen, about one-third of an inch in length, and having the appearance of an urethra, which terminated almost at once in a cul de sac, but there was no prepuce nor scrotum, neither

did the anus exist, nor the sulcus between the nates. Otherwise the fœtus externally was well formed.

The abdomen was much distended, and, when the specimen was fresh, there was supposed to be ascites; the peritoneal cavity, however, on being opened, was found to contain a few ounces only of a reddish brown fluid. The urinary bladder was as large as a common-sized orange, considerably thickened, and filled about one-third of the cavity of the abdomen, the urethra being pervious to the extent of about two-thirds of an inch. Kidneys and renal capsules small, but the ureters were tortuous, and very much dilated. The large intestine opened into the upper back part of the bladder, and upon its left side, being, for the last two inches, distended with meconium. At the fundus of the bladder, and connected intimately with its parietes, were the rudiments of a uterus; these consisted of three cavities, one of them about two-thirds of an inch in diameter, and the other two about half as large, the largest being situated immediately upon the right side of the intestine, and the two others close to it, but upon the other side; they were about a line in thickness, rugous upon the inner surface, and opened freely into the cavity of the bladder, two of them by distinct openings, and the third indirectly through one of the others; from each side there was sent off a prolongation, or horn, which terminated in a short Fallopian tube, and beneath which was a well developed ovary. The other organs of the abdomen were well formed, and have been removed, except the large intestine; the thoracic organs were also well formed. In the preparation, the anterior parietes of the abdomen and of the urinary bladder having been cut away, there are seen the openings from the intestine and from the uterine cavities into the bladder, the appendages of the uterus, and the dilated ureters, these last being injected.

This fœtus was born in company with two others, which were well formed; the first, a male, weighed seven pounds, and did well; the second, the subject of the present case, weighed five pounds, and gasped only a few times after it was expelled; the third, a female, weighed six pounds, and lived for ten hours. The two first presented by the breech, but the presentation of the third was natural. They were contained in separate cavities, and the placenta, which was single, weighed two pounds.

The mother was a respectable, middle aged woman, and had four children previously to her confinement with the triplets. 1835.

774. Cast in plaster of the head of an acephalous fœtus, taken by Dr. Morrill Wyman, of Cambridge. The child was born at six o'clock, A. M., on the 25th of August, 1843, and died in the course of the forenoon of the 30th, having lived more than five days. During this time it appeared very feeble, and in the most miserable state possible; it, however, opened its eyes, moved its lips, protruded the tongue to the edge of the lips, and took liquids from a sop, but would not suck. It also moved the limbs. It was small, but externally well formed, except for a reddish mass, which exuded serous fluid, and was situated about midway between the eyes and the occiput. The case occurred in the practice of Dr. T. Wellington, of West Cambridge.

775. The cranium of an acephalous fœtus, which differed from all of those above described (p. 246,) in having the spine entire throughout, and in having the posterior portion of the occipital bone only partially divided, as shown in Figure 6. The parietal bones were wanting, and the cranium was otherwise formed as in the above cases, excepting that it was more elongated than usual.

Externally, the fœtus was well developed, and well formed, excepting the head; the neck being sufficiently long, the ears were not bent forwards as in the other cases; weight five and a half pounds; sex male; born at the full period, and presented by the lower extremities, which moved when they were first felt in the vagina, though the child never breathed; quantity of liquor amnii very great. The mother had previously had six or seven children, and assigned no cause for the monstrosity.

Upon the base of the cranium was an irregular, dark red mass, nearly as large as an English walnut, one rounded, pedunculated body hanging down over the left eye; on dissection, this consisted of a coarse, reticulated structure, with some large blood-vessels, and numerous, small, serous cysts, but without a trace of cerebral substance. The spinal marrow

terminated just above the base of the skull, in four little rounded eminences, and was, at the same time, rather enlarged. Renal capsules exceedingly small, but the internal organs were otherwise well formed. 1838. *Dr. George Bartlett.*

776-81. The next six specimens belong to another variety of the "Acephalous Fœtus," which resembles the one already described (p. 246,) in its general characters, but differs from it much in the degree of malformation; the spine is open throughout, and is often incurvated so as to add very much to the external deformity; there are also more frequently than in the first variety other malformations, both external and internal; the cranium, however, remains about the same, although there is more development of brain.

776. A mounted skeleton, being the first specimen in this series. The spine was perfectly straight, except at the upper lumbar vertebra, where there was a slight anterior curvature, but this is not now to be seen; all of the vertebræ are well developed, except the wings of the third cervical, which are quite small; the wings of the dorsal vertebræ, also, not being so widely open as usual in this form of monstrosity. Otherwise the skeleton is well formed, excepting the head, as externally, the subject was well formed, except for the head and spine.

A trace of brain only existed, if any at all, but, in the situation of the pituitary gland, there was found a soft, rounded, reddish mass, in this case, and in No. 778; there was some appearance, also, of a thin and superficial layer of medullary substance in place of the spinal marrow; and the same has been sometimes observed in other similar cases; spinal nerves and ganglia well developed, as they usually are in these cases. The internal organs were well formed, except for the small size of the renal capsules, and a fissure of the uvula; this last was also observed in Nos. 781 and 783, and twice in the first variety of the acephalous fœtus (p. 246,) the soft palate being otherwise well developed.

This case occurred in November, 1844; the mother was a young married woman, and this was her first child; no accident during pregnancy; considered herself as in the sixth month when labor came on, without any obvious cause; breech

presentation; child still born; quantity of liquor amnii large.  
*Dr. Benjamin E. Cotting, of Roxbury.*

777. A mounted skeleton; the second specimen in this series (p. 254.) Cranium as in the first variety (p. 246.) except that there are two long, slender bones, finely serrated on their edges, closely connected with the frontals, and which may perhaps be rudimentary parietal bones; the same have been figured in the case of No. 781, and also by Lallemand, in his case above referred to (*Observations Pathologiques, 1825.*)

The cervical portion of the spine is bent directly downwards and backwards, so that the upper dorsal vertebra forms the proper summit of the spinal column, and, in the recent specimen, the posterior edge of the base of the cranium was united by fibrous substance to the wings of the sixth dorsal vertebra; wings of the cervical and dorsal vertebræ extensively co-ossified. Skeleton otherwise well formed.

When recent, a large and somewhat lobulated mass of cerebral substance was found, and there was some appearance of spinal marrow. The specimen was then put in spirit, and after some time was taken out and hastily examined; the internal organs were well formed, except for the renal capsules, which were not found; the entire absence of these organs is so contrary to what has been generally observed, that I think there must have been an oversight in this case, the examination having been made under very unfavorable circumstances. When recent, this fœtus weighed one pound and a quarter; sex female; discharge of liquor amnii very great. 1838.

*Dr. Charles Wild, of Brookline.*

778. A mounted skeleton; the third specimen in this series (p. 254.) Cranium as in the last specimen, except that there is but one so called rudimentary parietal bone, and that is quite small and attached to the left frontal bone. The spine is nearly doubled upon itself, the middle dorsal vertebræ projecting forwards, and the upper lumbar backwards; there is also a considerable lateral distortion. The wings of the cervical and dorsal vertebræ are unequally developed, and extensively fused, especially upon the right side; the bodies also are very irregular. Of the ribs, there are eleven upon the left side, and these are

distinct ; on the right, there are ten or eleven, and nearly all of them are fused.

Externally, this fœtus was more deformed and much smaller than those already described, weighing scarcely twelve ounces (avoird.) In consequence of the strong curvature of the spine, the trunk was much shortened, and the projection of the lumbar vertebræ was very conspicuous. The parietes of the abdomen were deficient upon the left side, and the liver and intestines protruded, forming a large tumor, and covered only by a thin membrane, which was continuous with the integuments. The right hand was strongly flexed, and turned so that its cubital edge came in contact with that of the fore-arm, as shown in the skeleton ; the left foot was, also, strongly bent outwards.

On dissection, no trace of cerebral substance was found, excepting the pituitary body ; no cysts in the pia mater ; spinal nerves and ganglia distinct, with some appearance of spinal marrow, the parts being considerably injured in the delivery, as they often are.

Internally, the diaphragm was wanting. Liver fawn-colored, and the umbilical vein entered on the convexity of the organ, there being no division into lobes ; spleen, kidneys, bladder, uterus, ovaries, and vagina well formed. Renal capsules rather larger than usual in the acephalous fœtus, and not connected with the kidneys, but rather above them and towards the median line. The arch of the aorta gave off the right subclavian and carotid only ; the pulmonary artery gave off the usual branch to each lung, and then divided into two main branches, one being the ductus arteriosus, and the other, after running some way upwards, dividing into the left subclavian and carotid arteries ; the other vessels, and the heart, externally, were well formed, as were also the lungs.

The mother of this subject was a young woman, and had had one miscarriage, but had never carried a child to the full term. Considered herself as in the seventh month of pregnancy, when the child was born ; the liquor amnii had been coming away for three weeks, and in considerable quantity, the discharge being profuse towards the last ; back of the child presented, and thus it came into the world. The placenta was reported by Dr. S. as large, and made up almost entirely of serous cysts ; cord exceedingly short. In the course of her

pregnancy, the mother sent for Dr. S., in consequence of her anxiety from what her friends had said, that her child would resemble a certain dog, to which she was much attached, and which had been used to draw her breasts after the previous miscarriage. This child was born on the 30th of October, 1840, and on the 1st of December, 1841, she was again delivered of another very similar monstrosity, (No. 780.)

*Dr. Asa B. Snow.*

779. This specimen, the fourth of this series (p. 254,) is preserved entire, in spirit, and is interesting in connection with the last, as it resembled it perfectly in size, and its general outline, and in the projection formed by the lumbar vertebræ. There is also the same deficiencies of protrusion of the parietes of the abdomen, with a protrusion of the contents, the only difference being that, in the present case, it is upon the right side, whereas in the other it was on the left; sex male.

*Dr. Charles Walker.*

780. Separated bones of an entire skeleton, the spine only being preserved as a single piece; mounted on pedestals, and displayed upon a black-board; the fifth specimen of this series. The right wing of the sphenoid is fused with the body of the bone. The spine, which is represented in Figure 8, is four inches in length, and nearly straight, open throughout, of course, but otherwise well developed below the lower dorsal vertebra. The wings are mostly small, and more or less fused as low as the sixth dorsal vertebra, on the left side, and rather lower down, on the right. The bodies of the corresponding vertebræ are generally very irregularly developed; most of the cervical, with the two upper dorsal, are fused into one mass, and bifid; the two lateral halves being separated so as to leave an opening of considerable size (*a.*), although much less than in the next case. Upon the body of the eleventh dorsal vertebra, posteriorly, is seen what appears to be the wing of a vertebra (*b.*), inclining to the right side, and resting immediately upon a small bone, which may be a misplaced and undeveloped body. Of the ribs, there are nine upon the left side, and eleven on the right; many of them are fused, and some are very imperfectly developed. Extremities well developed.

This child was born on the 1st of December, 1841, and the most remarkable circumstance in the case was, that, thirteen months previously, the mother had been delivered of a similar monstrosity (No. 778.) Labor occurred at the eighth month, and the presentation was natural; weight of the child two pounds and nine ounces. She subsequently had two other, well formed children, one at the full period, and one prematurely; and about a fortnight after the last, in February, 1845, died of acute nephritis.

*Dr. Asa B. Snow.*

781. The cranium and trunk of the sixth specimen in this series (p. 254;) represented in Figure 9; the extremities, being well formed, have been removed. The head is inclined to the right side, and carried backwards so that the occiput is closely connected with the wing of the sixth dorsal vertebra upon the left side, and with the eighth on the right. The rudimentary parietal bones (*a. a.*) exist, as in No. 777, and there is a considerable separation between the palatine bones, extending somewhat to the upper maxillaries, and connected with a fissure which was observed in the soft palate.

The spinal column is remarkably malformed. A front view of this part of the skeleton has been represented in Figure 10, and an idea may be given of it, by supposing that there had been a longitudinal fissure through the bodies of the vertebræ, from the first cervical to the eighth dorsal, and that the two lateral portions had then been so widely separated as to result, not merely in a coming together, but in an actual fusion of the cervical bodies with the dorsal of the same side; the fusion being more marked posteriorly than in the front view. The lateral portions do not, however, come perfectly together, but there remains a central opening (*a.*), about three lines in diameter, and surrounded on all sides by the bodies of the vertebræ. Upon the left side the third cervical is in contact with the seventh dorsal (*b.*), and on the right side, the second, third, fourth, and fifth cervical are fused into a common mass with the eighth dorsal (*c.*) As to the number of the bodies, there are in the neck, on the left side, six, distinct from each other, and regularly arranged, the last two being fused with the bodies of the dorsal vertebræ; on the right side are seven, much more irregular, and of which four are fused, as above stated.

The body of the first upper dorsal vertebra, on the left side, exists; the two next are wanting; the four next are distinct, and of some size, and two of them certainly are fused with the bodies of the cervical vertebræ; the eighth and ninth form a common large mass, bounding the central opening inferiorly. On the right side, the bodies of the dorsal vertebræ are much more irregular; the first four or five are almost entirely wanting; the sixth and seventh are of some size, but are fused with the cervical, and the eighth is fused with four of the cervical, as above stated. The bodies of the last three dorsal vertebræ, and of the five lumbar, are well developed, there being, however, a slight lateral curvature. Most of the wings of the cervical vertebræ are fused, and many of the dorsal, especially on the right side. There are twelve pairs of ribs, which are, for the most part, closely compressed, as usual in these cases; three of the lowest are fused on the right side, and on the left, they are generally flattened, but otherwise well developed.

This case occurred in December, 1844. The mother had previously had two well formed children, and considered herself as in the sixth month of pregnancy, when, without any obvious cause, labor came on; breech presentation; child still born; sex female; quantity of liquor amnii very large. The deformity of the trunk was very considerable, but the extremities were well developed. Upon the base of the skull were some traces of brain, and, in place of the spinal marrow, a layer of medullary substance, thin, but of some width, and covered, if at all, by the most delicate membrane; nerves and ganglia well developed, as usual in these cases.

Internally, the diaphragm was pushed very high into the thorax, the lungs being imperfectly developed. Pericardium mostly wanting, so that the heart and lungs laid, as it were, in one common cavity; the heart being well formed. The mesentery, also, was quite imperfect, appearing more or less perforated and tattered, although much of it was entire. A fissure was found through the centre of the uvula, and extending somewhat into the soft palate, the bones being separated, as already shown. Œsophagus quite short. The stomach, which, with a portion of the intestine, has been injected (No. 782,) was, perhaps, sufficiently large, but of a very irregular form;

the right extremity terminating in a cul de sac, and the intestine arising at a considerable distance from it. The liver was considerably fissured, and the umbilical vein entered upon the convex face; gall-bladder and ducts apparently well, but the intestine, wherever examined, contained only a light colored, pasty mucus, and without a trace of bile. Renal capsules exceedingly small. The kidneys were united by their lower extremities, across the spine, the two pelves being proved, by inflation, to be separate. The other organs were well formed.

*Dr. Anson Hooker, of East Cambridge.*

782. Malformed stomach, from the above case.

783-88. In the four next cases, constituting the third variety of the "Acephalous Fœtus," the spine is open throughout, and much incurvated, as in the last group. The brain, however, is considerably developed, and the form of the cranium is much altered, in regard to the existence of the parietal bones, and a consequent change in the posterior portion of the occiput.

783. Cranium and trunk prepared, and mounted. This is the first specimen in the present series, and has been represented in Figures 10 and 11. The head being thrown very far backwards, and the upper half of the spine much bent upon itself, the posterior portion of the occipital bone is closely connected with the wings of the ninth, tenth, and eleventh dorsal vertebræ; this portion of the occiput consists of two broad, flattened bones (*a. a.*), wanting the prolongation which usually extends forwards to the frontal, as the parietals (*b. b.*) exist in this case; these last, however, are in a very undeveloped state. The basilar portion of the occiput is large, as also the lateral portions; the right being fused with the temporal bone. The petrous portion of the temporals is very irregular, the cranium being otherwise formed as usual in these cases. The cervical, and upper half of the dorsal vertebræ, are bent strongly backwards (Figure 11;) the lower dorsal forwards; and, below these, the spine is straight, there being the usual number of vertebræ, unless one may be wanting in the neck. The bodies of the cervical consist mainly of two broad lateral portions; the two upper dorsal are irregular and fused; the fifth is very

imperfect, but all of the other bodies are well developed. The wings of the cervical are mostly fused; the seven or eight upper dorsal are small and crowded, although distinct, and the rest are fully developed. The ribs are normal, except for a partial fusion of the tenth and eleventh, upon the right side. Extremities well formed, and have been removed in the preparation.

The fœtus weighed, when recent, three pounds and six ounces (avoird.) and was quite fat; neck most completely wanting, in consequence of the curvature of the spine. A mass of brain existed, equal to more than an inch in diameter, and at its base were several nerves. The spinal marrow existed, although less developed than in the next case. The parietes of the abdomen were deficient about the umbilicus, and a tumor, from which the cord arose, was formed there, two inches in extent, and covered by a transparent membrane. The liver was large, and sent off a considerable lobe between the two others, to form the protrusion at the umbilicus. The heart was malformed, and has been already described (No. 341.) Each of the lungs consisted of a single lobe, which was deeply fissured at the base. There was also fissure of the uvula. Renal capsules exceedingly small; right hypogastric artery wanting. The other organs were well formed, as were the extremities.

Labor came on at eight and a half months; the child presented by the feet, and was still born; sex female; quantity of liquor amnii very large. The mother was a respectable woman, and attributed the monstrosity to a fright which she had received when six weeks pregnant; had had three other children, and all well formed. 1845.

*Dr. Milton Fuller, of Medford.*

784. Cranium and trunk prepared, and mounted. This is the second specimen of the present series, and is represented in Figure 12. The spine is so strongly bent upon itself, as to bring the occipital bone in close connection with the two last dorsal vertebræ. The parietal bones (*a. a.*) are developed very much as in No. 787, and extend transversely across the base of the cranium, upon which they are depressed, and with which, to a certain extent, they come in contact, the right being rather the

largest ; their external surface is quite concave, and the suture between them runs obliquely towards the right side. The posterior portions of the occipital bone (*b. b.*) are connected with the parietals, and pretty well developed, so as nearly to meet from the two sides ; superior edge quite dentated, the inferior being thicker and smooth ; on the right side it is fused with the lateral portion, and with the temporal bone. The frontal bones (*c. c.*) are considerably developed, but strongly depressed upon the base of the cranium. The bodies of the vertebræ, in the cervical portion, consist of five or six pieces irregularly developed ; two or three of the upper dorsal are also irregular, as well as the sixth, but the rest are sufficiently well. The cervical wings are imperfect, and mostly fused ; those on the right side forming one mass with the first six dorsal ; the six upper dorsal, on the left side, are also fused, but not with the cervical ; otherwise the wings are well developed. On the left side there are eleven ribs, which are not remarkable except for a fusion, to a small extent, between the fourth and fifth ; on the right side, there are twelve, but they are pretty extensively fused.

The subject of this case was a first child, and born of respectable parents. Labor came on in the night, at the seventh month ; and the child was born half an hour before Dr. D. arrived ; quantity of liquor amnii large. The heart was seen to beat about thirty times in a minute, for nearly two hours after the birth, but without any other sign of life. Sex female.

A mass of brain was found, equal to  $\frac{3}{4}$ ij, or more, and divided upon the median line, almost equally ; the right lobe being again subdivided ; something like a ventricle was also found upon the left side, and at the base were several nerves.

The spinal marrow appeared as a thin, flattened ribband of distinct medullary substance, of a reddish color, and, as observed in some other cases, divided into two lateral portions.

The parietes of the trunk were extensively deficient ; the liver, stomach and intestines, spleen, heart, and left lung protruding. The placenta, which was born with the child, was not remarkable. The cord was but five inches in length, and sent off a duplicature of the amnion, from half an inch to one inch in width, which was expanded over the organs, and could be stripped up nearly to the surrounding integument. Other-

wise the fœtus was well formed externally, except for a varus of the left foot.

On dissection, a thin, dense, fibro-cellular membrane was found to invest the protruded organs, when the amnion was raised, the muscles, of course, being wanting. The heart was fully and regularly developed, some elongation only being observed of the vessels, which were put upon the stretch by the unnatural position of the organ; pericardium well. In the right cavity of the thorax there was nothing very remarkable. Upon the left side there was no pleural cavity, and nothing in place of the lung but a coarse cellular tissue; the lung itself appeared just beneath the transparent membranes, not unlike a thin muscular expansion, the bronchus being small in proportion to the undeveloped condition of the organ. The liver was somewhat irregularly developed; ascending colon situated in the middle of the abdomen, as in the earlier months; the renal capsules were larger than usual in such cases, and the left hypogastric artery was wanting, the organs being otherwise well formed. 1845.

*Dr. Henry Dyer.*

785. A colored drawing of a monstrosity, an account of which was published by the late Dr. Charles T. Hildreth, in the Medical Magazine for July, 1834. The third specimen in this series (p. 254.) This drawing was made by a professed artist, and was afterwards engraved on copper, and published with the case; engravings being also made of the skeleton. The whole was done at the expense of Dr. H., and, the plates having been preserved, have been used for the present work. The case is particularly mentioned by St. Hilaire (*Hist. des Anom.* II. 313,) and the drawing of the monstrosity has been represented in one of his plates.

The external appearances of the fœtus are so well represented in Figure No. 13, as to render a general description unnecessary. The weight was three pounds and one ounce, and the length thirteen inches. Sex female.

The brain rested upon the expanded dorsal and lumbar vertebræ, and upon the integument which covered the depressed cranial bones, sending a prolongation, however, beneath these last. After dissection, it was carefully collected, and found to weigh three ounces. It was divided into two equal hemi-

spheres, and imperfectly into convolutions, the arachnoid membrane being continuous about the base with the common integument. The whole mass was very soft, and of a dusky red color, from congestion, and effused blood; there being in each hemisphere a cavity which was filled with coagula. No other parts of the brain were recognized, and no connection was traced between this mass and any of the nerves, either cerebral or spinal.

The spinal marrow was wanting, and, the spinal column being open throughout, the nerves terminated, as usual, in the membrane upon its posterior face. A very small bundle of nervous fibres was seen passing down over five or six of the processes upon the left side, and a few of the cranial nerves were found, among which, it was thought, was the par vagum. Nerves of the trunk and extremities well developed.

The internal organs were well formed, except for the kidneys; these were united across the spine (No. 787,) and the left was not more than half as large as the right; upon the right side were two ureters, which were distinct throughout; renal capsules sufficiently developed. There was also but one umbilical artery. The development of the renal capsules is interesting as an exception to the general law, and it should be observed, that, in the last case, these organs were larger than usual in the "acephalous fœtus."

The history of this case was as follows: The mother was a married woman, thirty-five years of age, of excitable temperament, and had previously had two well formed children. In the present case, the motions of the child were not felt until about the end of the fifth month, and were always feeble and peculiar. The uterine tumor was uniformly tense, and, towards the end of the seventh month, increased very rapidly, so as to fill the epigastrium, and cause a very painful distention. December 20th, being called hastily, in the night, to attend a sick child, she felt a remarkable subsidence of the tumor, the change in her form being very apparent; this was soon followed by paroxysms of pain in the right hip, with vomiting and constipation, which continued more or less for five or six days, but were relieved after free evacuations, although the sense of painful distention continued. On the 9th of January, whilst walking across the room, she had a slight uterine pain,

and, suddenly, a most profuse discharge of liquor amnii; slight pains continued through the day, and with them considerable discharges of water; but, in a day or two, she was about again, and much more comfortable than before; slight motions of the child being still occasionally felt. On the 15th of January labor came on, and was accomplished with very little pain; the child was born alive, but completely enveloped in the membranes, the mother having felt its motions for fifteen or twenty minutes after it was expelled. On the arrival of Dr. H., half an hour afterwards, the lower extremities were still in the vagina, and, from its position, the child had probably descended with the face to the pubes. 1834.

*Dr. Charles T. Hildreth.*

786. Skeleton of the specimen above described, and of which a back and a side view are represented in Figures 14 and 15. The head is bent strongly backwards, and there is also a lateral inclination of the head and spine. The frontal and parietal bones (*a. a.* and *b. b.*) are much more developed than in any of the preceding specimens, but are depressed towards the base of the cranium; posteriorly, or rather inferiorly, however, there is a broad, open cavity, which readily admits the ends of three fingers. The basilar and lateral portions of the occiput are sufficiently developed, but the basilar has a peculiar hexagonal form, and the lateral portions are seen to encroach much upon the petrous portion of the temporal bones. The posterior portion of the occiput consists of two bones (*c. c.*), one upon each side, of a somewhat rhomboidal form, and tolerably developed; that upon the right side is curved upon itself, and forms a part of the cranial cavity, a small portion of it only, above the curve, being seen in Figure 15; the one upon the opposite side is rather behind or below the cavity, but they both serve to connect the parietal bones with the spinous processes of the dorsal vertebræ. There is also another distinct bone, which is marked *c.*, and may perhaps be considered as a part of the occiput; it is a long and narrow bone, situated behind the right parietal and posterior occipital; resting, like the occiput, upon the extremity of the spinous processes of the vertebræ, and forming, with the left parietal, the posterior edge of the cranial cavity. The other bones of

the head are not particularly remarkable; palatines not separated, as in some of the cases.

The spinal column, as before stated, is open throughout; otherwise, the vertebræ are well developed, from below upwards to the twelfth dorsal. Above this, the bodies are well developed as high as the sixth dorsal, above which they become more and more irregular. The dorsal wings, on the right side, are generally well, except for a fusion of the first two; upon the left side, the last six are sufficiently well, although less regular than those on the right, but above these are four others which are fused and much compressed, in consequence of the curvature of the spine towards that side; upon the ninth is a distinct bone, marked *k.* in the figure, and which appears not unlike a rudimentary wing; something of the same kind having been observed in No. 780. The cervical vertebræ are very irregular; the bodies consist, for the most part, of two lateral rows of small bones; the first pair of wings are small and distinct, but below these are four others which are fused together, and with the dorsal, those upon the left side being shown (*l.*) in Figure 14.

The ribs upon the right side are of the usual number, and fully developed; the second, third, and fourth, however, are fused at their angles, and the eleventh becomes very broad near its anterior extremity, as seen in the figure. On the left side, the twelfth only is normal; the first is quite small, and between this and the next is a large, open space, the ribs below this being much compressed, fused, and irregularly developed; as to the number, there may be one or two wanting, but this is doubtful. The pelvis and extremities are well developed.

787. Kidneys and renal capsules from the above case (p. 264.)

788. Head and trunk of the fourth and last specimen in this series (p. 254); the deformity is excessive, as is shown in Figure No. 16. The occipital bones are united with the spinous processes as far down as the first lumbar vertebra, except upon the left side, where there is a deficiency to a considerable extent between the lateral portion of the occiput and the spine; the antero-posterior curvature of the spine is very strong, the

upper dorsal and the middle lumbar vertebræ forming the prominent points, and, as a consequence, the pelvis and the anterior extremities of the ribs are brought into close contact. The cranial cavity is quite capacious. The frontal bones (*a.*) are fully as large as in the last specimen, and the parietals (*b.*) are considerably larger and convex outwardly, there being a considerable space between the frontals and the base of the skull. The basilar and lateral portions of the occiput are well developed; the posterior portion (*c.*) consists upon each side of one piece, the one upon the left being more rectangular, but the one upon the opposite side sending out a long and slender portion which is connected, as in the preceding cases, with the parietal bone, and forms the posterior boundary of the cranial cavity. Orbital cavities deep, as a consequence of the development of the frontal bones; upper maxillaries not co-ossified; the palatine fossa being deep and narrow, and the palatine bones themselves small.

The spinal column has some lateral distortion, besides the strong curvature above reported; the wings of the first cervical vertebra separate; otherwise, the wings of all of the cervical vertebræ, of which there are six or seven, and of the first seven dorsal, upon the left side, are co-ossified, except for two linear divisions; upon the right side, the cervical and first dorsal wings, and below these two or three others are co-ossified, the wings of the other vertebræ being separate. An additional wing is seen, resting upon the wings of the second and third lumbar vertebræ upon the left side, and, upon the same side, the wings of two or three of the upper sacral vertebræ have produced a growth of bone, which extends, as one continuous piece, to about the median line, and forms, thus far, something like a spinal canal. There is also seen a very anomalous bone, larger and thicker than the wing of a vertebra, besides differing from one in form; it is attached at one extremity, by fibrous substance, to the back of the first lumbar vertebra, and at the other, to the inner surface of the posterior portion of the occipital bone, upon the right side, thus forming an arch over a portion of the spinal column. The cervical portion of the spine is of considerable length, broad and flattened. Some obliquity of coccyx, but pelvis otherwise well.

Thorax exceedingly prominent. The sternum is fully de-

veloped, but the anterior half has no connection with the ribs, and appears perfectly naked. Upon the right side there are seven ribs; the cartilage of the first joins the sternum about midway; the second, third, and fourth are fused posteriorly, and the cartilage of the second is to a certain extent wanting; the fifth, sixth and seventh are also fused posteriorly, and, instead of terminating as usual, send out a broad, thin, but strong expansion of bone, which stretches, like a diaphragm, across the front of the spine, and even to some distance beyond it upon the left side, where it is connected again with the body of the vertebra, and appears as one of the ribs. The above remarkable appearance has been represented in Figure 17. Upon the left side, there are twelve ribs, including the one which is fused with, or which is sent off from those upon the opposite side, this being the tenth in order; the first two are disconnected with the sternum, as in birds; a rudimentary cartilage, however, being sent off as if to meet the second; the first is very small; from the third to the eighth, inclusive, the ribs are well developed; the ninth and eleventh are broad and flattened; the eleventh having a slender attachment, which connects it, near its head, with the front of the body of the vertebra, midway; the twelfth is normal.

The extremities, being well formed, except for the club-feet, have been removed.

Externally, this fœtus was quite fleshy, and would probably have weighed four or five pounds. Deformity very great, the neck being absolutely wanting, and the upper extremities apparently much elongated; circumference about thorax fourteen inches; both feet affected with varus, as so often happens where the nervous centres are imperfectly developed. The frontal and parietal bones evidently existed, but were much depressed, and covered by scalp and hair; the brain appeared, with a quantity of deep red vascular tissue, and formed a mass about the size of an English walnut, the deficiency of the spine appearing below. About this deficiency, was an appearance of cicatrization, the cuticle being continued, to some extent, beyond the limits of the cutis; this appearance is usually seen, to a greater or less extent, and the cuticle has often been separated from the subjacent parts by maceration.

On dissection, a mass of brain was removed from the cra-

nial cavity, equal in bulk, by estimate, to  $\frac{3}{4}$ ijss. ; convolutions distinct; one portion was firmer than the rest, and showed some appearance of a pons, and medulla oblongata. Upon the bodies of the lumbar, and a few of the dorsal vertebræ, there were seen two large parallel nervous cords, which became united at the lower extremity, and, upon raising up the brain, there was seen beneath it a thin expansion of medullary substance, which was probably connected with the cords just mentioned; nerves and ganglia distinct, as usual.

In the roof of the mouth there was the very deceptive appearance, which is so often seen in these cases, as of a fissure through the palate; the uvula, however, was divided upon the median line; thymus gland quite large; lungs irregularly fissured; alimentary canal well, except that the cœcum and ascending colon were found in the middle of the abdomen; liver large, and irregularly divided.

The kidneys were in the usual situation, and separate, but rather small, and seemed to be made up of thin and delicate cysts, apparently containing a thin liquid, and being about a line in diameter (No. 789.) The right ureter was of some size and firmness, from the bladder upwards, to about the brim of the pelvis; and the left ureter was in the same condition, nearly to the kidneys; they then became abruptly so small and filiform, that they could scarcely be traced, and continued without any further change as far as the kidneys. Bladder small. The renal capsules were as large, in proportion to the size of the kidneys, as in a well formed fœtus, but were broadly and intimately united across the spine, like a horse-shoe kidney (No. 789.) The same condition was found in No. 762. St. Hilaire (I. 543) quotes a case of fusion of the testicles, kidneys, and renal capsules, and remarks that there is no other case of this last on record. The other organs were well formed.

This case occurred in the practice of Dr. S. W. Drew. The mother was a respectable woman, and this was her first child. When about two and a half months pregnant, she attended an operation upon the eye, when she became very faint and remained so for some time. Labor occurred at eight and a half months, and was short; liquor amnii discharged before Dr. D. arrived, but nothing was said of the amount; head pre-

sented, and the child lived about half an hour. Sex female.  
1847.

789-95. The four next cases may be grouped together as a fourth and last variety of the "Acephalus Fœtus." The spine is entire, except in the first, in which the deficiency may be considered as an accidental complication; the cranial cavity is closed posteriorly by the occiput, and the parietals exist, but there is very little appearance of brain, and the same was observed in a similar case, which was dissected some years since. Superiorly, the cranial cavity is, of course, open, and, in most of the cases, largely so.

789. An entire skeleton, being the first specimen in this series. The posterior portion of the occiput consists of a single piece, that extends from side to side, and rises perpendicularly from the spine, the upper edge being thick, smooth, and rounded, and the lower edge deeply notched upon the median line. As a rudimentary parietal, there is, upon the right side, a long, narrow, flattened bone, reaching from the frontal to the occipital, and depressed upon the base of the skull, there being nothing of the kind upon the other side. The frontal bones are not much more developed than in the first variety of this form of monstrosity. Otherwise, the cranium is not remarkable, except for the vertical direction of the base of the skull posteriorly.

The spine is perfect in its cervical portion, but below this it is open throughout. The wings of the two last dorsal, and first lumbar vertebræ are fused, and the body of the tenth dorsal is imperfect, so as to cause a considerable lateral curvature. From the bodies of the second and third lumbar vertebræ, posteriorly, there arises a mass of bone, apparently formed by the fusion of three or four rudimentary wings, uniting with the proper wings upon the left side, and forming the passage for a large nerve that went to the sciatic. Sacrum very imperfect; three distinct wings upon the right side, and two on the left, these last being fused; at its lower extremity, anteriorly, is an anomalous bone, about one line in diameter, and extending transversely from side to side. Coccyx entirely wanting.

The pelvis is well formed, in itself, but the antero-posterior

diameter is much elongated, and it seems to be attached to the front of the sacrum rather than to the sides. Ribs well formed, and of the usual number, except upon the left side, where the last two are wanting, and the tenth becomes abruptly widened, about midway, as in Figure 15.

Externally, this fœtus was well formed, except for the head and back; neck not shortened, and the ears inclined but little forwards. Weight two pounds and two ounces. Upon the base of the skull was a prominent, irregular, lobulated mass of pia mater, equal to an inch or more in diameter, and containing a few serous cysts, but no trace of brain. The spinal marrow was somewhat enlarged just at its termination, and gave origin to the portio dura and mollis, and to the par vagum; the fifth pair of nerves, with its Casserian ganglion, and the spinal accessory were also distinct. In the neck, the spinal marrow seemed to be perfectly developed, but below this, it was altogether wanting; a cavity, however, was found, as usual, on cutting through the membranes, and the nerves were seen going off upon each side, one large branch passing through the adventitious passage in the lumbar region, as above stated. Internal organs well formed, except for the small size of the renal capsules (No. 792,) and a small diverticulum from the intestine (No. 791.)

The mother was a young married woman, and this was her first child. Labor natural; head presented; quantity of liquor amnii very great. The child gasped for about five hours after it was born, and bled freely from the head and back, but showed no other signs of life. Sex male. 1838.

*Dr. George Hayward.*

790. Two drawings of the above specimen, as it appeared in the recent state; a back and side view. *Dr. Jeffries Wyman.*

791. A diverticulum, from the above case.

792. Kidney and renal capsule, from the same.

793. A mounted cranium, represented in Figure 18, and forming the second specimen in this series. The posterior portion of the occipital bone (*a.*) consists of a single, thick, solid piece of

bone, extending across from side to side, and rising perpendicularly from the spine, the upper edge being smooth, rounded, and almost eburnated; it is firmly ankylosed to the lateral portions, and, in part, apparently, to the temporal bones. The frontal and parietal bones (*b.* and *c.*) are very considerably developed, but depressed entirely down upon the base of the cranium; upper surface of the parietals concave. The opening in the vault of the cranium, formed by the occipital and two parietal bones, is not far from the size and form of the thumbnail; posteriorly, the whole base of the cranium is inclined upon the portion that is anterior to it, so as to come into a vertical position, the basilar and posterior portions of the occiput being parallel to each other, as remarked by St. Hilaire (II. 322,) in a form of monstrosity, which, in some respects, resembled the present case; this appearance was observed in three cases, at least, of the present series.

The fœtus was sent to Dr. C. from the country. It lived nine hours after it was born, and weighed seven pounds and a half. Sex female.

In the recent state, the top of the cranium was flattened from the orbits backwards, but was covered by integument and brain, except towards the back part, where it was deficient to the extent of two-thirds of an inch or more. From this part, there projected or hung off two or three soft, dark red masses, having a serous surface, one being about as large as the top of the finger, and the others much smaller, the integument stopping abruptly about their base. Just behind the large mass there was seen a small opening which led in the direction of the spinal cavity, but this was not traced. On cutting through these masses, they were found to consist of a dark red, flaccid, œdematous, apparently cellular tissue, containing a serous cyst, about the size of a pea, but no trace of brain; on removing this tissue, however, from between the vault and base of the cranium, a small mass of cerebral substance was found, and which was apparently in the situation of the pituitary gland. The spinal marrow terminated in an expansion in the membranes, between the basilar and posterior portions of the occipital bone, the nerves being sent off on each side. Otherwise the fœtus was well formed, externally and internally, except for the small size of the renal capsules.

1842. *Dr. Walter Channing.*

794. The cranial bones, in this specimen, have been separated by maceration, mounted separately upon pedestals, and placed in a small glass case ; the third in the present series.

The posterior portion of the occipital bone is seen to consist of two broad pieces, which are deficient, so as in the recent state to greatly enlarge the foramen magnum, although superiorly they nearly met. The upper edge of these two bones is thin, rough, and inclined forwards ; the surface posteriorly is somewhat convex, and they are strongly ankylosed both with the lateral portions of the occiput and with the temporal bones ; differing much, then, from the last two specimens. The lateral portions are distinguished by their outward direction, and large foramina ; and the basilar, by its unusual breadth.

The frontal bones are very considerably developed, as in the last case, and partially ankylosed, the orbital and frontal portions being almost compressed into one broad flat piece. The parietals consist, as in the same specimen, of two, broad, flat, irregular bones, which were depressed so as nearly to touch the base of the cranium ; upper face concave. Large wings of the sphenoid bone co-ossified with the body, and very imperfectly and irregularly developed ; foramina large ; body large, and terminates, in front of the small wings, in a strong point. The squamous portion of the temporal bones is larger than in the first form of the "acephalous fœtus" (p. 249,) and the carotid foramen is long and circuitous, but otherwise, there is no marked difference ; ring large, irregular, and co-ossified. The lower maxillary bone is rather short, but stout ; posteriorly, it is broad and flaring ; anteriorly, it is pointed, and the two portions are strongly co-ossified. There is one anomalous bone, of a triangular form, and equal to about five lines in extent, but this was not seen until after the bones had been separated by maceration. St. Hilaire remarks (II. 302) upon the very compact and almost eburnated condition of many of the bones, and especially of the occipital, in a certain form of monstrosity, to which, osteologically, the present specimen and the last seem to be allied, and in both of which, this structure, in nearly all of the larger bones, is strongly marked. The form of monstrosity referred to, however, is characterized, according to St. Hilaire, by a pedunculated brain, resting upon

the depressed vault of the cranium, apparently somewhat developed, and covered, for the most part, by integument; whereas, in these two cases, the quantity of cerebral substance was very small, and it was covered only by serous membrane. The cervical vertebræ have been preserved, the wings being irregularly developed, and somewhat fused; the two upper ribs of each side are also seen to be fused.

The subject of this case, which occurred in the practice of the late Dr. Henry G. Wiley, was an illegitimate child; and this was the only instance of the kind that was observed in all of the cases of "acephalous fœtus" that are here referred to, so far as was ascertained. With regard to another point, the mother was said to have carried her child ten months; and St. Hilaire refers to a similar occurrence in a form of monstrosity to which the present case is nearly allied (II. 346.) Weight nearly six pounds. Sex female. Top of head quite flat, even with the brows, and covered by integument, on which was some hair. On the back part, and about over the occipital foramen, was a dark red mass, covered by serous membrane, about one inch and a quarter in diameter, and consisting partly of cerebral substance. All of the joints of the lower extremities were more or less distorted, and also the hands; the fingers being strongly flexed, and the points bent permanently backwards. Internal organs well formed, except for the small size of the renal capsules, and for the existence of two ureters upon the left side. 1842.

795. A mounted cranium; the fourth and last case in this series. The frontal bones are not much more developed than in No. 789, and are more irregular than in any other specimen. The parietals, also, are represented by two very irregular little bones, from three to four lines in length, and situated behind the frontals. The posterior portion of the occipital bone consists of two broad pieces, which meet upon the median line, and slightly overlap, except inferiorly, where there is some deficiency; upper edge arched forwards, as in the last case, and somewhat eburnated; not co-ossified with the lateral portions, nor with the temporal bones; the basilar portion is almost parallel with the posterior, as above stated (p. 272.)

The mastoid portion of the temporal bone is imperfectly de-

veloped, and the three pieces of the sphenoid are co-ossified, as are also the two superior maxillary bones. The spine was entire throughout, and the skeleton was otherwise well formed.

The child, in this case, was fully developed, and would probably have weighed seven pounds. Born at the full period, before Dr. W.'s arrival, and lived ten hours. Sex male. The mother had had several well formed children, and attributed the malformation, in the present case, to a very direct and strong moral impression, the explanation being given since her delivery. The tumor upon the top of the head was about the size of an English walnut, and somewhat flattened, the arachnoid being apparently covered by a very delicate membrane, which resembled the cuticle, as seen about the base of the tumor, and when detached by putrefaction. The tumor consisted almost entirely of serous cysts, from two to six lines in diameter, and connected, as usual, by a greatly congested celulo-vascular tissue, and at the base there was some appearance of an arachnoid cavity. One mass of rather doubtful cerebral substance was found, about five lines in diameter, and two and a half lines in thickness, of a greyish color, ecchymosed, and having almost the consistence of a lymphatic gland. The spinal marrow terminated just above the foramen magnum, in a broad, thin expansion. Internally, the renal capsules were quite small, the kidneys large, and each of the ureters formed two separate ducts for some distance after leaving the organs; in the uvula there was also the trace of a division along the median line. Otherwise, the organs were well formed, the thymus gland appearing rather large, as it often does. In the stomach were six or eight distinct ulcerations, from half a line to a line in diameter, and with some appearances of inflammation; this being the only case in which anything like acute disease was found in the internal organs. 1845.

*Dr. Abner B. Wheeler.*

796. Spina bifida; a wet preparation. The malformation reached, externally, from the sacral into the dorsal region, and measured three inches and one-fourth. Integuments immediately about it cicatrized, as in the "acephalous fœtus." Surface at first rather depressed, but before death considerably

elevated by the effusion which took place ; it was also excoriated from the time of birth, and discharged a thin, purulent matter. On cutting through the membranes, the cavity beneath was found in a state of intense inflammation, as shown by the effusion of serum, and a large quantity of recent lymph. This last being removed, the spinal marrow was seen terminating, as usual in these cases, where the malformation commenced, and adhering to the inner surface of the cavity ; below this, the nerves went off from the membranes upon each side ; the anterior and posterior branches, and the ganglia connected with these last, being perfectly distinct, and of full size, as shown in the preparation. Upon each side there was another cavity, which was apparently distinct from the first, but in the same state of inflammation.

The subject of this case was a twin-child, and otherwise well formed, except for a strong eversion of the right foot ; the other child was well formed, but had died, apparently, before labor began ; both were males. Frequent and ineffectual attempts were made to induce motion in the lower extremities ; urine and fæces discharged about once in two days, and it was never observed to make any expulsive effort. Much distressed on the first night, but was afterwards kept constantly under the influence of paregoric, and it died, without any material change of symptoms, on the tenth day.

Inflammation of the membranes, as a cause of death in these cases, is described and figured by Cruveilhier (*Anat. Path.*), and the same has been several times observed here. In one case, the lymph not merely invested the whole spinal marrow, and extended to the base of the brain, but the brain itself was completely and very peculiarly disorganized ; and, throughout the spinal marrow, there was the appearance of a central canal, which was filled with thick yellow pus. 1839.

*Dr. James B. Gregerson.*

797. A dry preparation, to show the condition of the bones, in a case of spina bifida. The wings of the last three lumbar vertebræ, as well as the sacral, are separated from each other, though, individually, they are seen to be fully developed. When recent, there existed, at this part, a soft, red tumor, two inches in diameter, the edges projecting over the base ; this

ruptured probably at the time of birth, and, so long as the child lived, discharged abundantly, the surface having, to some extent, an opaque, and somewhat sloughing appearance. Internally, the sac was highly inflamed, as in the last case, and, above this, there was an imperfect cavity in which the spinal marrow was seen to terminate, the nerves being connected, as usual, with the membranes.

This was also a male child; otherwise well formed, and lived about two weeks. Had a perfect use of the lower extremities, and seemed to be doing well until the eighth day, when there came on convulsions of the head and upper extremities, which recurred very frequently, and were constantly becoming worse as long as it lived. The lower extremities were not convulsed, but, when the change occurred, became paralyzed, and there was some rigid contraction of the muscles of the feet and toes, the system generally becoming affected.

*Dr. Z. B. Adams.*

798. A second specimen, similar to the last. The subject of this case was a first child, and hydrocephalic; presented by the feet, and was still-born. Sex female. Labor occurred at eight, or eight and a half months; quantity of liquor amnii very large. The head was eighteen inches in circumference, and the ventricles of the brain were large in proportion; cranial bones widely separated, with some perforations through their substance.

The preparation shows an open condition of the spinal canal, from the eighth dorsal vertebra downwards, the bodies and wings of the vertebræ being in no way remarkable, except for a fusion of the wings of the seventh and eighth upon the right side. In the recent state, the corresponding part of the surface of the back presented the usual appearance, being depressed rather than otherwise; membranes thickened towards the median line, and gave origin, as it were, to the nerves, both branches of which, with their ganglia, were of full size; no distinct appearance of medullary substance; cavity not inflamed. 1847.

*Dr. Stephen Ball.*

799. Spina bifida in a boy, sixteen years of age; the spinal marrow terminating at the fourth dorsal vertebra; the spine was

removed as low down as the sacrum, and has been prepared to show the condition of the bones. At birth, there was observed a small tumor in the middle of the back, the surface having much the appearance of an old cicatrix, and below this, in the lumbar region, was an "ulcer" about half as large as the hand; paralysis complete below the ribs. Nursed as well as any child, and appeared to enjoy perfect health, the "ulcer" discharging for about six months, and then healing entirely. Generally quite costive, and the fæces were passed involuntarily. Urine also discharged involuntarily; always perfectly limpid, without sediment or odor, and, until a short time before death, much more copious than natural; the character of the excretion being very different from what is generally observed in cases of paraplegia. Appetite generally good, and he was not troubled with indigestion. When he was between thirteen and fourteen years old, hair appeared upon the pubes, but he never showed any sexual propensities, so far as could be ascertained. The tumor, in the middle of the back, was exceedingly tender, but in the ulcer there never appeared to be the least sensibility, not even on the application of caustics. Right leg often œdematous, but the left never; both were always of a natural temperature, and not liable to become cold. Mind active; upper half of the body unaffected. About two years before his death, the ulcer in the lumbar region broke out again, and he gradually sank under the profuse discharge which took place from the surface.

On dissection, the surface of the tumor over the middle of the back appeared as if cicatrized; beneath this was a coarse, white, cellular tissue, which contained no fat, like the surrounding integuments, and beneath this a serous cavity, formed by the expansion of the spinal membranes, and partly filled with serum. The wings of the dorsal vertebræ, from the fourth to the ninth, inclusive, were separated so that, midway, the little finger could be passed freely about within the cavity, at the upper extremity of which the spinal marrow was distinctly felt to terminate in the membranes posteriorly, as usual in spina bifida, and from this point downwards it was satisfactorily ascertained that the spinal marrow did not exist. Below this fissure the spinal canal was again completed by the union of the wings of the two next vertebræ, those of the last dorsal

and first lumbar being also closely approximated. The four last lumbar and first sacral were open posteriorly, the wings upon the right side being very imperfectly developed, and partly fused, whilst those on the left side could hardly be said to exist; the foramina for the nerves, however, were sufficiently large. Throughout the lumbar region there was found, in the situation of the spinal cavity, a coarse, white, cellular tissue, surrounded, for the most part, by a firm membrane, which appeared to be an extension of the dura mater, and upon this last, the nerves appeared to terminate. The wings of the dorsal vertebræ, from the third downwards, were extensively fused, the last being also very irregular; bodies of the fifth, seventh and eighth formed throughout in two lateral portions. The spine, at the dorsal region, was strongly bent towards the right side, the bodies of the vertebræ at that part being narrower on that side than on the other. There was also a disease of the first two lumbar vertebræ, about one-half of the bodies of these bones having been destroyed by caries, with their intervertebral substance; some new bone was thrown out upon them anteriorly, and a very considerable quantity of the same upon most of the rudimentary wings of the lumbar vertebræ upon the left side, this new bone lying immediately beneath the ulcerated surface, so as to be covered by little more than the granulations.

The thoracic and abdominal organs appeared sufficiently healthy; the liver was rather large and of a pale fawn color, but the lungs were not tuberculous. 1836.

*Dr. Asa B. Snow.*

800. Cast in plaster of the nates and lower part of the back, showing the size and form of the tumor, in a case of spina bifida, which may be compared with the following dissected specimen. The patient is a bright, healthy-looking little girl, four years of age; walked as early as other children, and is disposed to play, but soon becomes tired, and often falls, the lower extremities being turned much inwards, and deficient, to a certain extent, in the power of motion; the urine and fæces are often discharged involuntarily, the bowels being always costive. The tumor is of a regular rounded form, like a female breast, about as large as the fist, and situated over the very lower part

of the spine ; it is perfectly covered by cutis and integument, and resembles to the feel, not an encysted, but rather a common fatty tumor, so that excision has often been suggested ; upon the surface there is nothing remarkable, excepting a minute, warty-looking body, and some appearance, as of a small nævus ; the separation of the wings of the sacrum is not distinctly felt. The tumor, which was small at the time of birth, has grown rather faster in proportion than the child itself. January 27th, 1845. *Dr. Charles E. Ware.*

801. A specimen which is preserved in spirit, and shows the condition of the parts in a case similar to the last. The tumor was rather towards the left side, about three inches in diameter, fleshy to the feel, and covered by integument, with a small nævus upon the surface, as in the other case. On dissection, it was found to consist mainly of fat, but near the surface was a cavity of some size, formed by an expansion of the spinal membranes, and in which the spinal marrow itself terminated, about half an inch within the sac. The wings of the sacral vertebræ are separated, excepting perhaps the first, and upon the left side two or three are fused into a separate mass of considerable size, and are connected with the ilium and ischium. The bodies of the same vertebræ are also irregularly developed, and upon the left side there is quite a deficiency of bone, leaving a circumscribed cavity, at the bottom of which the theca is seen, and the nerves arising, as it were, from it.

The patient was a male child, fourteen months old, always feeble, and subject to diarrhœa, under which it at last sank, October 10th, 1843. The power of motion in the lower extremities was imperfect, so that it could never stand alone, and there was a want of control of the sphincters of the rectum and bladder. The tumor was congenital, and grew with the child, and the case was particularly interesting in connection with the one last described, as the two patients lived for a time in the same neighborhood, and were observed together.

*Dr. Henry G. Wiley.*

802. The trunk and lower extremities of a malformed, seven months fœtus. When recent, a large, rounded, uniform, encysted tumor was situated over the sacrum, and apparently

just ready to burst; it was formed by common integument, and so far differed from the ordinary cases of spina bifida. On being laid open, it was found to contain  $\frac{3}{4}$  of serum, though far from being distended, and was lined by a smooth, polished, and highly vascular membrane. Through an opening, one-fourth of an inch in diameter, there protruded a small portion of spinal marrow, which adhered to the inner surface of the sac, and may still be seen in the preparation; this continuation of the spinal marrow in substance into the lower part of the canal, and below where the cauda equina usually forms, has been observed in certain cases of spina bifida since the time of Morgagni. The external organs of generation and the anus were wanting. Both feet turned inwards, and the left also upwards. Otherwise, the fœtus was well formed externally. On examination of the internal organs, the uterus was found to be of some size, but the cavity terminated below in a cul de sac, and the vagina was wanting; left Fallopian tube and ovary normal. The right Fallopian tube and ovary, also, seemed to be well developed, but the tube, instead of uniting with the uterus, took the course of the round ligament, and was lost towards the groin. The kidneys were entirely wanting, but the renal capsules were of full size, and in their proper place; so, in a specimen that was exhibited to the Society by Dr. Samuel Parkman, one of the kidneys was wanting, but the renal capsules were equally and fully developed; and in a case that was observed by Dr. Lewis, at his dissecting-room, the left kidney was situated in the cavity of the pelvis, but the renal capsule was in its usual place. The bladder, of course, was very small, but communicated with the rectum by a capillary opening, as in the cases of imperforate anus, above described (p. 129.) All of the above points, excepting the last, are shown in the preparation; the rectum is also seen, much distended, the rest of the intestine being cut away. Gall-bladder wanting, the ducts being traced directly from the liver into the intestine. The liver itself, and the other abdominal organs were well formed, and have been removed. In the thorax there was nothing remarkable excepting a deep yellow stain upon the external surface of the ventricles of the heart; this was another instance of kirronosis, of which so marked a case has already been recorded (No. 744.) 1836.

803. A mounted cranium, in which there is seen, near the centre of the posterior portion of the occipital bone, an oval, defined opening, about two lines in diameter, and extending quite through the bone; there is also a considerable deficiency of the frontal bones, commencing at the anterior fontanelle, and terminating rather abruptly some way above the orbits. The subject was a female child, born rather prematurely, and lived but a few hours. Upon the back of the head was a soft tumor, about the size of a large filbert, sufficiently defined, but flattened, and covered by healthy integument; on incision, there was found a small cavity within, lined by a delicate, vascular, serous membrane, which seemed to penetrate the opening in the occiput, and to be connected within the cranium, but this last point was not examined. Otherwise, the child was well formed externally and internally. 1846.

*Dr. John Homans.*

804. A mounted cranium, showing a deficiency in the occiput, and upper part of the spine. The child was born with a cyst attached to the back of the head, covered by integument, and nearly as large as the head itself. The cyst presented in the delivery, and, as it caused some delay, it was burst, and discharged a considerable quantity of bloody serum. Labor occurred at six and a half months, and the child lived four days and a half. During this time it appeared very feeble, and only one attempt was made to give it nourishment, this causing much distress; there were frequent but slight convulsions from the time of birth, and, towards the last, the hands were strongly and rigidly flexed. The cyst contracted much in size after the child was born, and became dark and quite offensive.

On dissection, the inner surface of the cyst appeared to be lined by a serous membrane, and was of a dark red color. Through the deficiency in the occiput, which was at once observed, the brain protruded somewhat, and was covered by its proper membranes, and by the dura mater, and, having been carefully removed, it seemed pretty certain that the cerebellum was wanting, and the pons Varolii very imperfectly developed. The organs of the thorax and abdomen were well formed. Sex male.

The cranium is generally well formed, but some of the

bones are imperfectly developed. The anterior fontanelle is large, the frontal bones considerably separated, and in several places the bone is very thin, or even not yet formed. This is more remarkable along the upper and back part of the parietals, and also along their inferior border, large and irregular deficiencies in the bone being there supplied by membrane; towards the vertex, and along the sutures, the fibres, which shoot out from the edge of the bone, are very marked, but about the membranous patches the edges of the bone are defined. The place of the bone is also supplied by membrane, upon each side, between the temporal and the occipital bones, and also at the base of the skull, between the petrous portion of the temporal and the sphenoid. The deficiency in the occipital bone, above referred to, enlarges, as it were, the foramen magnum, measuring three-fourths of an inch transversely, and an inch and two-thirds antero-posteriorly, from the junction of the basilar with the spine, the opening posteriorly being well defined, and of a regular, oval form. The separation of the lateral portions of the occiput is just equal to the width of the deficiency in the posterior, so that the regular form of the opening is preserved. Otherwise, the cranium is well formed. Several of the cervical vertebræ having been prepared, in connection with the cranium, the wings of three or four of them are seen to be separated so as to enlarge the opening in the occiput, and there is one wing more upon the right side than on the left, causing a lateral inclination which was as marked in the recent state as it is now; most of the bodies also are imperfectly or irregularly developed. 1846.

*Dr. Z. B. Adams.*

805. A mounted cranium, in which the upper back part of the skull is largely open and greatly malformed. The posterior portion of the occiput consists of two parts, one behind the other, and there is a second large foramen, with several, small, irregular bones about it, which suggest the idea of a second occipital bone. Otherwise, the cranium is well formed, except that the vault is altogether larger than usual.

When recent, there existed upon the back of the head a very large tumor, formed by a protrusion of the scalp, and lined by dura mater. Otherwise, the fœtus, externally, was

well formed. Sex female. In consequence of the great size of the head, an extensive rupture of the uterus took place, and the patient died in the course of the day. After the occurrence of the accident, the child was turned, and the lower extremities and body came away readily, but the head remained fixed in the pelvis until it was perforated through the frontal bone, after which there was a copious discharge of water, and it was at once born. 1843.

*Dr. J. C. Hayden.*

806. A fœtal cranium, showing the effects of hydrocephalus, and the condition of the bones in fissure of the palate. It is much enlarged, measuring seven inches in length, and four inches and one-fourth between the parietal protuberances; the sagittal suture varies in width from two inches to two and three-fourths, and the whole posterior portion of the cranium is largely open. Between the frontal bones, anteriorly, are several ossa Wormiana, two of which are quite large; none being found about the occiput. The nasal bones are one inch apart, and directed upwards and outwards. The left superior maxillary bone is imperfectly developed, and contains the rudiments of the canine and two bicuspid teeth only; it is widely separated from the vomer, which last is quite broad, and altogether larger than usual. The right superior maxillary is well developed, except in its palatine portion, there being a deficiency from behind forwards nearly to the alveoli; the separation from the vomer, however, is much less than upon the other side. The distance between the palatine bones is ten and a half lines. Connected with the right superior maxillary is a portion of alveolus, or intermaxillary bone, which contains the first incisor tooth of the left side.

The brain was tolerably developed, and some appearance of convolutions was seen, but it was not in a state for any further examination. Internally, the organs were well formed. Externally, and before dissection, the fissure in the lip, upon the left side, and the double fissure in the palate corresponded with the condition of the bones, the cavity of the left nostril and that of the mouth being directly continuous, and the left ala nasi being carried apparently off into the middle of the cheek, so that, at first sight, the nose upon this side seemed to be wanting. Otherwise, the fœtus was well formed.

Labor came on at the end of the eighth month, and was terminated in twenty-four hours. The membranes ruptured quite early, as Dr. D. supposed at the time, and there was at once a discharge of water, which he estimated at two quarts, after which the pains subsided for some hours. The child, when born, had an extensive laceration in the posterior part of the scalp, and a direct communication with the cavity of the cranium, but the scalp itself appeared to be well developed, and perfectly sound in structure. 1844. *Dr. Horace Dupee.*

807. A highly finished and very correct drawing, by Dr. James F. Colman; showing the external appearances of a monstrosity which was presented to the Society by Dr. H. B. C. Greene. The fœtus weighed eight pounds and two ounces, and, from its size, the labor was very difficult. The most conspicuous object was a cyst, which arose from the top of the head, rather to one side, and was more than half as large as the head itself; consisted mainly of integument, and seemed to be connected with the membranes of the brain, having burst during labor, and discharged one or two pints of fluid. The convolutions of the brain were seen, but the organ was not examined. The situation of the eyes was marked externally by a slight linear depression, the orbits being filled with adipose substance; there was, however, something like a membrane, with a black substance upon it, and which was probably the choroid coat; no trace of optic nerves. The nose consisted of two slightly projecting alæ, and a small intermediate prominence; nasal cavities distinct, but terminated posteriorly in a cul de sac. About the mouth, there was a double hare-lip, the appearance of a deep fissure of the palate, as above noticed (p. 269), and an adhesion of the under surface of the tongue, quite to the tip. The sex was apparently female, but, on separating the labia, which were large and well developed, there was found nothing, except the opening of the urethra at the upper part of the fissure, to show that they were anything more than a simple fold of the integuments. At the umbilicus there was a hernial protrusion of the intestines, and otherwise the trunk was well formed.

The lower extremities (No. 810) were quite short; the feet, however, were of the full size, but extended so as to form a

continuous line with the front of the leg. Each foot has six perfect toes. On dissection of one of these extremities, there were found six metatarsal bones, three of them resting upon the cuboid, and the remainder on three cuneiform bones, one of which last was supernumerary, the large cuneiform projecting so far beyond the edge of the foot as not to support any one of the metatarsal bones. The bones of the thigh and leg were short, but broad and stout. One of the upper extremities (No. 810) had five perfect fingers, besides the thumb, but upon the other, the supernumerary finger arises from the cubital edge of the hand, and is directed backwards towards the fore-arm, as in a case quoted by St. Hilaire (I. 686.)

On dissection, the epiglottis was found to be wanting, except for three little shreds; glottis large and very prominent; vocal cords wanting; body of the hyoid bone very broad, and the thyroid cartilage malformed. Thoracic organs well developed. Stomach, intestines, liver and pancreas well. Spleen very much fissured and lobulated (No. 812.) Kidneys very large, and much altered in structure (No. 811,) the renal capsules being as small as in the "acephalous fœtus." Testicles and vasa deferentia well formed, these last opening freely into two distinct cavities, that were situated in a body, which seemed to partake of the character of a prostate gland, of the vesiculæ seminales, and perhaps of the uterus; these cavities opened upon each side of the verumontanum, like the vesiculæ, but differed from them in structure. In front of these, but still in the same organ, was a third cavity of considerable size, rough upon the inner surface, but quite different in structure, as it was distinct from the first two, and opening largely upon the top of the verumontanum. The inner surface of the urinary bladder, to the extent of about half an inch, had a strongly marked arborescent appearance, as usual in the cervix uteri; neck large; urethra pervious throughout, and opened as above stated, but without any appearance of a penis or clitoris.

808. Cranium of the specimen above described. The vault is entirely open, as represented in Figure 19, the bones which form the sides being tolerably, though irregularly developed, and deeply serrated upon their edges. Parietals wanting. The basilar and two lateral portions of the occipital bone are suffi-

ciently well formed; the posterior portion consists of two pieces, that are distinct, and, for the most part, widely separated, though they meet to a small extent superiorly. Upon the right side, and connected with this last part of the occiput, is a small, triangular bone, two or three lines in diameter, which would perhaps be regarded by some as a rudimentary parietal, and upon the opposite side there seems to have been a corresponding one. This posterior portion of the occiput is, moreover, distinguished by a considerable lateral distortion. Temporal bones sufficiently well, the passage for the carotid forming a deep groove. The sphenoid bone is sufficiently large, but very irregularly developed; the small wings are separated from the body to the extent of two or three lines, and are connected with the orbital portion of the frontal bone and the æthmoid; the body of the bone being connected anteriorly with the united maxillaries; large wings sufficiently well developed. The superior maxillary bones are very broad anteriorly, and short in their antero-posterior diameter; the alveoli being for the most part very large, and the palatine fossa deep and much compressed; posteriorly, the orbital portion inclines directly backwards, and the two are united by a broad suture below the æthmoid bone. The palatine bones are small, and unite so as completely to close the posterior nares. The nasal cavity is large, broad, directed upwards, and terminates in a cul de sac, the orbital cavities being small, irregularly developed, and opening largely into the cavity of the cranium. The æthmoid seems to be imperfectly developed, and the vomer is probably wanting. The inferior maxillary bone, as shown in the figure, is very irregular, and without any appearance of an angle; the two pieces are intimately united, the chin is much elongated, and from beneath it there projects a large, thick spine, for the insertion of muscles; in the situation of the angles it flares off on each side in a broad spine, and, upon the inside, there is a strong ridge of bone, which terminates in a very prominent spine, about where the nerve enters; the coronoid process is comparatively small, and the alveoli are quite large, as in the upper maxillary bones. The other cranial bones are not remarkable, neither were those of the trunk. 1838.

*Dr. H. B. C. Greene.*

809. The two upper and one of the lower extremities of the specimen last described.
810. One of the kidneys, from the above specimen; length two inches and ten-twelfths, and otherwise large in proportion; surface unequal and irregular, but not lobulated, and having nothing like an external tunic that can be raised. The other kidney, which perfectly resembled it externally, having been cut open in the recent state, there was found no trace of cortical nor tubular portions, except for two very small and doubtful mamillary processes; consisted of a close, tough, but very flaccid tissue, and contained an immense number of small cysts, from half a line to one line in diameter. These cysts were collapsed, as if the fluid, if they ever contained any, had been absorbed; their parietes were firm and moderately thick, and they could be very readily detached from the substance in which they were imbedded. The same appearance was found in the kidneys of a patient from whom a malformed uterus (No. 652) was taken, and something of the kind also in No. 788.
811. Spleen from the above case.
812. Skeleton of a monstrous Calf. The animal was born at Wrentham, March 15th, 1839, at the full period, and was received on the following day in a perfectly fresh state. It was regarded in the neighborhood as a "calf changed into a bulldog," and the supposed resemblance, as well as the fact of the malformation, was attributed to a particular fright which the cow had received during the early months of gestation. The head was full and rounded, the line of the face was abrupt, the muzzle was short and square, and the under lip was somewhat projecting. The extremities were very short, but of full size, and this was one of the most remarkable peculiarities in the case; the anterior being turned directly backwards, the posterior backwards and inwards. The measurements were, from the muzzle to the root of the tail twenty-seven inches, and to the top of the head seven inches and three-fourths; circumference of body twenty-six inches; extremities six inches in length, the anterior being six inches and three-fourths, and

the posterior seven inches in circumference. On dissection of the thorax and abdomen, nothing unusual was found.

The cranium is represented in Figure 20, and presents the following peculiarities, as compared with a standard specimen of about the same age. The cranial portion is sufficiently large, but quite broad and rounded; no indications of hydrocephalus, which, according to St. Hilaire, (II. 212) has been so often observed in animals affected with this form of monstrosity, the bones being sufficiently thick, and the structure healthy. The sagittal and lambdoidal sutures exist, but with a slight deficiency of bone at their junction. The superior and lateral portions of the occiput are co-ossified, as also the basilar portion and the sphenoid bone. Foramen magnum small and irregular. Basilar portion of occiput thick, quite irregular, and with a well marked longitudinal fissure upon the under surface. The facial portion of the skull is also quite broad, with a flaring of the upper and lower jaws; the shortness, however, is the most striking peculiarity, the distance from the posterior extremity of the vomer to the extremity of the intermaxillary bones being three inches and one-fourth, whilst in the other cranium, which could have been very little older, it was five inches and three-fourths. A broad fissure in the palate is also observed, not involving the intermaxillary bones, but extending quite through the maxillaries, the separation between these last being one inch and two-thirds, and the palatine portion of course very imperfectly developed. Orbits large. Nasal bones short, and very broad.

The trunk is separately preserved, and also the individual extremities, as ligamentary preparations; the first is well formed, excepting the pelvis. The feet, also, with the carpus and tarsus, are well formed, but the other parts are exceedingly imperfect; the scapulæ, humerus, radius and ulna, femur, tibia and fibula consisting of very short, thick, and irregular bones, measuring generally from one inch and a fourth to two inches in length. Each of the ossa innominata consisted of a single piece, and were quite as imperfectly developed as the bones of the extremities, the cavity of the pelvis being very small. The extremities of the femur and humerus were formed by very large, rounded, cartilaginous masses, but are now, of course, quite dried up. 1839. *Dr. J. B. S. Jackson.*

813. A drawing, to show the external appearances in the above case ; by *Dr. Jeffries Wyman.*

814. A foetal skeleton, showing an imperfect development of the extremities, &c. The subject was a male child, premature and still-born. It was quite plump, and generally well developed, externally and internally ; the hands and feet, also, as in the last case, were of full size and well formed, but the limbs were very short, and the bones thick and stout. Before the skeleton was dried, the humerus and ulna measured, each, one inch and a fourth in length, and the hand one inch and a half ; the femur one inch and a fourth, the tibia one inch and a third, and the foot nearly two inches ; the femur being considerably curved, and some of the other bones more or less so. The cranium is generally well formed ; the parietal bones, however, are deficient on each side of the vertex, so as to leave a defined opening, which measures one inch and three-fourths transversely, and one inch in the opposite direction, with two ossa Wormiana at the posterior fontanelle, and a third about the middle of the sagittal suture. The ribs also are shorter than usual. The spine is perfect, and measures eight inches in length. 1846. *Dr. John Homans.*

815. Cast in plaster of the above specimen.

*Dr. William E. Coale.*

816. Imperfectly developed extremities, in connection with hydrocephalus, and malformation of the cranial bones (No. 817.) This case occurred in the practice of Dr. E. T. Learned, of Weymouth ; the child presented by the breech, and in about an hour the head was removed. The head was quite large, and discharged, on being tapped, about five or six ounces of serum ; external ears malformed and very imperfect ; lower jaw also very imperfect, and evidently disconnected with the base of the skull.

The right upper extremity, before dissection, consisted of an arm and hand which were well developed, except for an absence of the thumb ; the hand, however, formed a right angle with the arm ; the fore-arm is wanting, and the carpus is seen, in the preparation, to be directly attached to the humerus.

The left upper extremity consisted of a hand having only three fingers, but otherwise well developed; seemed to be attached almost directly to the shoulder; a short bone, however, could be felt, and this, on dissection, proved to be an imperfectly developed humerus. The right lower extremity consisted of a foot, having four toes, but otherwise well developed, though arising directly from the groin; on dissection, the fourth metatarsal bone was found to be entirely wanting, except for its very anterior extremity; the tarsus was developed in proportion to the number of toes. The left lower extremity also arose directly from the groin, was an inch and a quarter in length, consisted of a single, well developed toe, and terminated posteriorly in a proper heel, the bones and cartilages being developed in accordance with the external appearances. The muscles, nerves, and blood-vessels were not examined. In place of the pelvic bones, there are seen on the right of the sacrum two small cartilages, one above the other, and upon the left side a third, which is still smaller. The pelvis, and the right upper and left lower extremities are preserved together in one jar in spirit, and the left upper and right lower extremities are preserved in a second jar, as dry specimens. The internal organs were well formed, and the spine was six inches and a quarter in length.

*Dr. Winslow Lewis.*

817. Some of the cranial bones, from the above case, mounted separately, and displayed upon a black-board. The lower jaw consists of two small bones, of the usual width, and united by a proper symphysis, but developed only to the extent of the alveoli for the incisor and canine teeth. The two upper maxillary bones are united, and in these also the alveolar portion is very deficient. Between the petrous portion of the temporal bone and the body of the sphenoid is a large, thick, and exceedingly irregular bone, nearly equal in extent to the body and wings of the sphenoid; upon the right side it is separate, but upon the left it is ankylosed to the sphenoid and temporal bones. 1845.

*Dr. Winslow Lewis.*

818. A drawing, in India ink, of Mr. Benoni T. Bachelder, who exhibited himself in this city not long since, and an account of whose case was published, with remarks, by Dr. O. W. Holmes,

in the Boston Med. and Surg. Journal (March 3d, 1847.) According to Dr. H., Mr. B. is twenty-eight years of age, and has one perfect extremity, the others being abortive stumps, and much like those left after amputation.

The right humerus is a foot or more in length. The deltoid and pectoral muscles are well developed; the biceps has a well marked fleshy belly, but tapers rapidly, in common with the other muscles of the arm, towards the lower extremity, which is rounded off without anything like a cicatrix, and has a small, wart-like excrescence upon one side near its termination. This, Mr. B. says, made its appearance some years since, and was not a part of the original conformation. The humerus is felt to be somewhat flattened, so as to spread a little transversely at the lower end, as if there were an effort at the formation of condyles. All the movements of the shoulder-joint are perfect, and the muscular power is very considerable.

The thigh-bones are about a third of the natural length. The extremity of each of the stumps has a little, mushroom-like appendix or fleshy pad attached to it; that on the right the largest, bearing a certain resemblance to a flattened and boneless great toe, and capable of slight voluntary motions. The left is smaller, and can be retracted by a voluntary effort of the muscles of the stump. The pelvis is said to be narrow.

The left upper extremity is well formed and exceedingly muscular. Supporting himself upon this, he is able to move freely about, going up and down stairs, crossing the room in a rapid series of bounds, and throwing himself into a chair with the most perfect ease.

Otherwise, Mr. B. seems to be fully developed, and he is one of a large family, all of whom are well formed. His general health is quite good, and his weight is at present ninety-two pounds, but, at the age of twenty-three, was, as he says, one hundred and seventeen.

The drawing was made by *Dr. William T. Parker.*

819. Drawing of a monstrosity, which was presented to the Society by Dr. Abner B. Wheeler. The parietes of the abdomen were wanting upon the right side and in front, so that the intestines and a large part of the liver protruded, forming a mass as

large as the fist. The intestines were very much matted together, had a thickened, fleshy look and feel, and were of a deep red color, there being also a considerable effusion of greenish yellow lymph over the peritoneal surface.

The right lower extremity, as shown in the drawing, was entirely wanting, but the left was well developed. This last stood off at a right angle from the trunk, the knee was strongly flexed, and the foot turned inwards; the toes were malformed, the first being sufficiently large, but scarcely separated from the second, the second and third fused, the fourth distinct, and the fifth large and widely separated from the rest.

Otherwise, the fœtus was well formed externally, except for some lateral compression of the thorax. Sex female. Weight two pounds and a quarter.

On dissection, the right internal iliac artery was found to be no larger than a small thread, the left being of full size. The right sacral nerves were also exceedingly small, excepting the first. The uterus was of a conical form, the apex being inclined towards the left side, and giving off the Fallopian tube; left ovary well developed; right tube and ovary wanting. The other abdominal organs were not remarkable except for what is said above of the liver and intestines. In the thorax there was considerable serous effusion, and the arch of the aorta gave off four vessels of about equal size, but otherwise nothing unusual was observed.

The mother had previously had one well formed child, and felt the motions of this last as much as she did those of the first. Labor came on at the end of the seventh month; the head presented, the quantity of liquor amnii was smaller than usual, and the child and placenta were expelled together. The heart beat for about ten minutes, and the child gasped a few times after it was born, a general convulsion being produced whenever it was moved.

The drawing was made by *Dr. Jeffries Wyman.*

820. Skeleton of the above monstrosity. A small bone, measuring about two by three lines, is connected with the right side of the sacrum, and upon this there was, when recent, a rounded cartilage, about a line in diameter, but otherwise there is no trace of a right lower extremity. The left lower extremity is in the

position in which it is above described, the os innominatum being well developed, as is the rest of the skeleton. 1839.

*Dr. Abner B. Wheeler.*

821. Placenta from the above case; injected and dried. The membranes are connected with the cord throughout, which, in the recent state, was but three inches and a quarter in length; they were also continuous with the integuments of the fœtus about the right hypochondrium, and adhered slightly to the left lobe of the liver.

822. Cast in plaster of an upper extremity. The arm was well formed; the fore-arm was pretty well developed, but bent to a right angle upon the arm, and measured but seven inches in length; the hand was bent to a right angle upon the fore-arm, and sufficiently developed, except for the thumb, which was in a very rudimentary state, and connected with the integument by a small peduncle.

The subject of this malformation was a man, thirty-five years of age, who died at the Almshouse, October 21st, 1844, and was known during life to have had a good use of the limb.

The dissection was made by Dr. B., who found the muscles developed in accordance with the condition of the bones (No. 823); the biceps was attached to the ligament which usually connects the radius and ulna; the nerves ran in a perfectly straight course, but the arteries were much contorted.

The cast was taken by

*Dr. Henry J. Bigelow.*

823. A ligamentary preparation of the upper extremity just described; by Dr. Samuel Cabot. The radius is seen to be entirely wanting. The ulna is strongly developed, but curved upon itself, and measures six inches and three-fourths in a straight line. The inferior articulating surface of the humerus is narrow, as it receives only the ulna, but that portion is most developed with which the radius is usually connected; otherwise this bone is well formed. The bones of the hand are well developed, except for the thumb, which consists of two rudimentary phalanges, upon the last of which is a small nail; the trapezium also is wanting.

*Dr. Winslow Lewis.*

824. A rhinencephalous pig; preserved in spirit. The eyes are contained in a common orbit, but the fusion is not complete; the proboscis is directly above them, and is about one inch and three-fourths in length, and one-fourth of an inch in diameter.
825. A second specimen. This subject was older than the last; the fusion of the eyes is less complete, and between them and the proboscis the cranium appears to be deficient, or, at least, the integuments are wanting. This last complication is very unusual.
- 826-30. The following specimens of "Blighted Fœtus" had the flattened, bloodless, macerated look, which is generally seen in these cases, and, as usual, they were all cases of twins, the other fœtus being well formed.
826. The first specimen is shown in Fig. 27, and weighs only ninety-two grains. The trunk is one and a half inches in length, smooth on the surface and quite firm, and terminates bluntly, without any trace of a head or upper extremities. The pelvis, however, exists, and the lower extremities are tolerably developed; legs crossed, and strongly flexed, so as to come in contact with the body, the left foot being also bent into contact with the leg; right foot very imperfect. Labor occurred at seven and a half months, and the perfect child was born first. 1838.  
*Dr. William J. Walker.*
827. The second specimen (Fig. 28) is four inches in length, two in width, and was enclosed in a distinct cavity attached to the placenta of a full grown fœtus. In this case the lower extremities are wanting, but the head exists; also, the spinal column, the ribs, the scapulæ, and one of the upper extremities are seen; this last adhering to the trunk. 1834.  
*Dr. John Odín.*
828. The third specimen is about the size of a five months fœtus, the external parts generally being well developed; enclosed in a sac, which was connected with the placenta of a large and vigorous fœtus; cord fourteen inches in length. 1830.  
*Dr. Joseph W. McKean.*

829. The fourth specimen is less developed than the last, the weight being less than five ounces ; connected with the placenta of a mature fœtus. This case is remarkable for the strong flexion of the limbs, and for being enveloped in an abundant, soft, ragged, adventitious deposit. 1829. *Dr. John Ware.*

830. A cranium, prepared to show the great overlapping of the bones which takes place in the blighted fœtus, when the development is sufficiently advanced. In the recent state, the subject of this case resembled No. 828, and a healthy eight months fœtus was born at the same time.

*Dr. D. H. Storer.*

831. A human fœtus, between two and three months old, and affected with hare-lip upon the left side. 1830.

*Dr. J. H. Lane.*

832. The superior maxillary bones of a six months fœtus, that was affected with hare-lip. That on the left side wants the two first alvæoli, but is otherwise well formed ; the alveolus for the first incisor, however, exists as an intermaxillary bone, and is connected by a slender process with the vomer. The right superior maxillary is sufficiently developed.

833. A drawing of the right hand of a child between two and three years old. The fingers are closely united, and there is a single, continuous nail extending across the whole, the outline of the fingers being distinctly felt. The thumb is well developed, and the hand is otherwise sufficiently well, except that the articulation of the middle finger with the metacarpus is not in a line with the rest. The case occurred (1847) in the practice of Dr. Anson Hooker, of East Cambridge, and the drawing was made by

*Dr. Jeffries Wyman.*

A somewhat similar case was reported not long since to the Society, but in which the deformity was considerably greater, the right hand being here also affected. The thumb was wanting ; three fingers only could be felt, and these, with three metacarpal bones, were more or less imperfect ; nail not perfectly continuous, but divided towards one of the edges into two portions. The subject of this case was a well formed

child, about two years old, and a patient of Dr. Edward Jarvis, of Dorchester.

## II. MONSTROSITIES BY EXCESS.

834. "Two male children, well grown, united from the shoulders on one side to the navel; there is but one umbilical cord; the thorax is common to both, having no partition, and but one heart; the aortas have an arch from two ascending arteries, arising, apparently, from each superior corner of the heart." The above account of this specimen is from the Boston Medical Intelligencer, for August 19th, 1823. The union seems now to be rather anterior than lateral.

*Dr. George Parkman.*

835. Skeleton of two female children, that were united face to face from the top of the sternum to the umbilicus, being otherwise well formed, as is the last specimen, which, in the recent state, it very perfectly resembled. Weighed nine pounds and two ounces, and was quite fresh when received, but died probably during the delivery, there being some laceration of the soft parts, with fracture of some of the bones; the mother also died in consequence of the difficulty of the labor.

The thorax forms one large, continuous cavity, and has a sternum upon each side, but these last, instead of being distinct, as, according to St. Hilaire, they usually are in these cases (III. 95,) are united so as to form an arch above the common cavity.

On dissection of this fœtus, the alimentary canal, the pancreas, the spleen, the urinary and genital organs, the thymus gland, and the vocal and respiratory organs were found to be in double sets and well formed; some adhesions only existing between the intestines and the other parts. The principal nerves were also dissected.

The diaphragm formed one large and continuous arch between the two fœtuses.

The two livers were united, but appeared to be no larger than the single organ in a fœtus at the term. A single broad ligament extended from the umbilicus along each face of the organ to the diaphragm, making the two abdominal cavities

quite distinct. There were two umbilical veins and a gall-bladder upon each face of the organ, the ducts being distributed as usual.

The two hearts were united to form one common organ, the ventricular portion resembling somewhat, in its breadth, the heart of a tortoise. There was but a single auricle, irregular on the inner surface, and having a band running across it midway, but with nothing that could be called a septum; two appendices were found at each extremity, with the pulmonary veins and the superior vena cava of each fœtus. The ventricular portion consisted of two cavities, the septum being perfect, except for a small opening at the upper part; auriculo-ventricular valves well developed. At one extremity of this ventricular portion there arose an aorta which was in every way normal, and by its side a pulmonary artery, smaller than itself, and having but two valves; at the other extremity there was another aorta, which gave off the pulmonary artery. The only peculiarity noticed in the vessels was the existence of but one umbilical artery in one of the fœtuses. 1837.

*Dr. Nathaniel Miller, of Franklin.*

836. Drawing of a monstrosity that was sent to the Society by Dr. E. T. Learned, of Weymouth. The subject of this case consisted of two fœtuses, which were united from above downwards, but separate below the umbilicus; having two perfect faces, four upper extremities, and being well formed externally, except for the fusion. Sex male. Weight twenty-four ounces, and length of the spines three inches and a fourth.

The mouth of each fœtus opened posteriorly into a common pharynx, from which descended the œsophagus (Figure 22.) Below the diaphragm there was seen the stomach, which, when distended, was about the size of a large cherry (No. 838); this communicated with a portion of intestine, about one inch and a quarter in length, and this opened into a cavity which sent off a separate intestine to each fœtus, the small intestine being seven inches in length, and the large eight inches, without including the rectum. The liver was decomposed, and unfit for examination. Urinary and genital organs double, and well-formed; the respiratory organs were also double, with the thyroid and thymus glands.

There were two separate hearts. Each had, at least, one auricle, and in one of them there was an appearance of a second; each had also two ventricles, which communicated freely, and gave off from their common cavity an aorta and a pulmonary artery, the vessels being distributed as follows. Each aorta gave off two carotids, after which the arch became very small. One of the pulmonary arteries gave its branches to the lungs, and its ductus arteriosus to the aorta, which afterwards sent off the two subclavians. The other pulmonary artery gave its branches to the lungs, and then a large branch which formed the second descending aorta, from which one subclavian artery was seen to arise; the second having probably been cut off; the ductus arteriosus was then given off, and, after having joined the arch of the aorta, opened at once into the first descending aorta, and thus formed a free communication between the two.

The drawing was made by

*Dr. Jeffries Wyman.*

837. Skeleton of the above monstrosity; not mounted. The head contains two entire sets of bones, which are sufficiently developed for the age of the subject, though somewhat crowded; most of them have been detached, but those of the base still remain in connection, and are represented in Figure 21. The sphenoids are the only ones that require any particular notice; the body of each of these bones is divided longitudinally into two equal portions, and each revolves one-quarter of a circle, so as to bring the posterior edges of the two corresponding portions into opposition; the inner lateral edges of each sphenoid, then, are opposed to those of the opposite sphenoid, whilst the outer lateral edges are opposed to the basilar portion of the occiput and to the temporal bone. This is certainly very different from a figure of a similar case by Serres, in the *Memoirs of the Institute* (vol. 55.)

The large and small wings are sufficiently well, except that three of the last retain their early fœtal condition of being distinct bones. The other bones are not remarkable, except for some difference in the size of the parietals in the two subjects, and a fusion of the two portions of each frontal bone. The thorax is double, as usual in these cases, and the two skeletons are otherwise well formed. 1836.

*Dr. E. T. Learned, of Weymouth.*

838. A model, in wax, of the œsophagus, stomach, and upper part of the intestine, from the above monstrosity; as already described.
839. A fœtal Calf, preserved in spirit, the age of the subject being perhaps two or three months. Malformation as in the last case, except that one of the faces is somewhat imperfect.
840. A double Pig, similar to No. 836, except that instead of a second face, an ear only is found, perhaps a fusion of two. A stuffed specimen.  
Some years since, a human subject, showing this same form of monstrosity, was brought from Siam, and was in the Society's cabinet for a time, but was afterwards removed.
841. A double Guinea-pig, preserved entire in spirit. Malformation as in the last case. *Dr. George B. Doane.*
842. A double Chicken, preserved entire in spirit, and malformed like the last specimen; there is also a lateral distortion of the upper mandible. This form of monstrosity is common in the mammalia, but St. Hilaire does not mention its occurrence in birds. 1845. *Dr. Francis W. Cragin*, of Surinam.  
A second specimen has lately been received, and resembles the one just described, except that the upper mandible is not distorted. Upon the back of the head there is seen the external opening of the central ear, or perhaps, from the size, a fusion of two.
843. A double Kitten, preserved entire in spirit. Malformation as in No. 840, except that the ear on the back of the head is wanting.
844. Skeleton of a double Lamb; not mounted. Externally, this subject resembled the last, as a monstrosity, except for some peculiarities about the head. Below the angle of the jaw, upon the right side, was a narrow fissure, one and a half inches in length, opening largely into the pharynx, and at its posterior extremity, on separating its edges, was seen a malformed internal ear. The external ear, upon the left side, was well formed, but the right, which was situated not far from the fis-

sure, terminated in a cul de sac, though otherwise well developed. Secondly, there were beneath the anterior extremity of the lower jaw, and inclining to the left side, two incisor teeth, the relations of which will be hereafter described.

On dissection, there was seen on the back of the pharynx a fold of membrane, which was evidently the rudiment of a second palate, and beneath this some appearance of the root of a second tongue. Œsophagus single, and well formed.

The stomach was formed by the fusion of two organs. The fourth, or digestive cavity, was single, but very large, measuring, in a collapsed state and before being opened, four and a half inches in length, and one and a half inches transversely. Of each of the three other cavities there was a double set, those which corresponded being equally developed. The first extended off two inches from the lower extremity of the œsophagus upon each side, and was about two-thirds of an inch in diameter. Where these two opened into the fourth cavity there were seen, closely grouped together, four others, each of which was about one-third of an inch in diameter; these, of course, were the second and third cavities, and one of each of them was situated, side by side, on each face of the stomach, or between the two first cavities.

The intestine continued single for seven feet and a half, and then divided, one portion consisting of thirty inches, each, of small and large intestine, and the other of about thirty-four inches, each, of the same. Just at the division there was a sort of diverticulum, six and a half inches in length, terminating in a cul de sac, and lying free in the cavity of the abdomen; this appendage was not uniform in size, but was in some parts considerably smaller, though nowhere larger than the intestine itself.

There were two distinct livers, one being somewhat larger than the other, and each having its gall-bladder, ducts and vessels; the umbilical vein entering upon the convexity of the organ. There were also two distinct sets of urinary and genital organs.

The lungs, trachea, and thymus gland were in double sets and well-formed. The larynx, which corresponded to the face of the animal, was also normal, though the cornu of the hyoid bone on the right side, and in connection with the fissure in the

neck, was imperfectly developed. The other larynx was altogether small, and the cornua of the hyoid bone, which were otherwise not remarkable, were so closely connected as to appear like one bone before they were separated.

Two distinct hearts were found; one was decidedly larger than the other, but both of them sufficiently developed, and, seeming to be externally well formed, were not cut open. An aorta and pulmonary artery arose from each, and communicated, as usual, by the ductus arteriosus. The arch of each aorta gave off a single vessel which very soon divided into the two carotids; one of these vessels being proportioned to the size of the head of the animal, but the other quite small. At some distance beyond the arch each aorta gave off two subclavians, directly opposite to each other. At the arch the two aortas communicated by a vessel which was about the size of either of the ascending portions.

Of the skeleton. — The cranium is single in front, but is not well formed, there being a want of symmetry between the two sides; posteriorly, it is quite broad, and formed by the fusion of two. There are two occipital foramina, two-thirds of an inch apart, one being of full size and well formed, the other considerably larger and somewhat irregular. The lateral and two basilar portions of the occiput are quite distinct, these last being connected with a common but broad sphenoid bone, and also with each other through nearly half their extent; the posterior portions are less distinct, being partially fused with the parietals. Of these last there seem to be two sets, and connected with each an interparietal. Between the lateral portions of the occiput are a few, small and very irregular bones upon the median line, to represent the face of the second fœtus. Upon the left side the temporal bone is well developed, but on the right the bony cavity connected with the tympanum is very imperfect, its internal structure being exposed in the form of a very irregular surface, which, when recent, was covered by a thin, delicate membrane, and was seen in this state at the bottom of the fissure which opened externally beneath the lower jaw. There is much lateral distortion of the lower jaw, especially on the right side, and connected with the posterior inferior portion of the symphysis is a small, distinct bone which contains two incisor teeth, (Fig. 23,) the atrophy

of the lower jaw being much greater than in any case referred to by M. St. Hilaire, where he treats of this form of monstrosity (III. 257.)

The bodies are connected as usual in these cases, the sternum and ribs corresponding to the face of the animal being well developed, but not those upon the opposite side. To distinguish the two bodies, that may be called A which corresponds to the right side of the face of the animal, and the other B. The spines are distinct throughout, and have the usual number of vertebræ. The spine of A has, in the cervical and upper half of the dorsal portion, a strong, double lateral curvature, there being a considerable atrophy of the dorsal wings upon the concave side, but with less difference in the neck, where the curvature is less marked; the atlas, however, is thrown quite to one side; the spinous processes and wings of the first six dorsal vertebræ are fused, and also the seventh and eighth. The spine of B. is less curved in its dorsal portion, and the cervical very little if at all; the first four dorsal wings are fused, also the fifth and sixth, and the seventh and eighth. B. has thirteen well developed ribs on each side. A. has a remarkable development of the right transverse process of the vertebra in place of the thirteenth rib, and, as it seems intended to represent a rib, this vertebra has been regarded as one of the dorsal; the fourth, fifth, sixth and seventh ribs on the left side are very closely fused posteriorly, but anteriorly divide into two portions, otherwise the two bodies appear to be well formed, as are also the eight extremities.

The subject of the above case was sent to the Society in May, 1843, by *Dr. Henry C. Perkins*, of Newburyport.

845. Skeleton of a double Pig; not mounted.—Externally, this monstrosity resembled No. 841, except for a deficiency of the vault of the cranium, and that there was no additional ear upon the back of the head. How far the brain was developed, if at all, could not be ascertained, as the spinal marrow had been cut off at its upper extremity, being there of about the proper size; the specimen had been in spirit, but was otherwise in a state of good preservation. The posterior portion of the occiput is very imperfectly developed, but connected as usual with the lateral portions, and forms with them a high wall perpen-

dicular to the base of the cranium. The cranial portion of the frontal bones is wanting, and the parietals are very imperfectly developed; these last being separated by the whole width of the base of the cranium. The palatine, the maxillary, and, to a certain extent, the intermaxillary bones, are separated, as usual, in fissure of the palate. Otherwise, the cranium is sufficiently well formed.

The two spines are united in the cervical portion. Posteriorly, the first three vertebræ are single; the fourth is double, having two sets of wings, and something like a rudimentary one between them, and from the fifth downwards the two columns are separate throughout. Anteriorly, the fusion is much less complete, the two rows of bodies being distinct throughout; the first body in each spine consists of two bones, one above the other, and between those of the second vertebræ there is an additional bone of considerable size; the fourth, and all below, are well formed. The spinal canal is single to the fourth vertebræ. The thorax is formed, as usual, by a fusion of the two, the side corresponding to the back of the head being imperfectly developed. The extremities which correspond to the imperfect side have the scapulæ united by their upper edges, and also by their spines (Figures 33 and 33'), but are otherwise well formed, as are the two other upper extremities, and both sets of the lower.

On dissection, the œsophagus was found to be single, but communicated largely throughout with the larynx and trachea, as has been observed in some analogous cases (Anom. des Org. III. 144.) The stomach (Fig. 34) was single, but formed by the union of two. The small intestine was single for the first thirty-two inches; it then became dilated, as shown in Figure 24, and from this second cavity there arose a double set of intestines, the small measuring between five and six inches, and the large about twenty-four inches. Two inches above the dilatation there was a diverticulum, ten lines in length, and situated parallel to the intestine, to which it closely adhered, except near the extremity. Both subjects were males, and there was nothing unusual in the genital or urinary organs, excepting that one set of kidneys was somewhat smaller than the other. The hyoid bone, epiglottis, larynx and trachea, corresponding to the face of the monstrosity, appeared to be

well developed, except that the two last, as above stated, opened freely into the œsophagus; the primary bronchia and the lungs were also sufficiently developed. About opposite to the lower part of the trachea, and in the parietes, as it were, of the œsophagus, there was found a second, small, rudimentary larynx, below which was a trachea of corresponding development, two bronchia, and a pair of lungs, these last being about one-third or one-half as large as the first pair. A large blood-vessel passed down between the cartilage of the larynx and its mucous surface, running parallel to and in front of the trachea, and dividing to send a branch to each lung, as it were a pulmonary artery; its origin, however, could not be determined, as it had been cut off about half an inch above the larynx.

The heart was single, and appeared externally well formed, except that no vessels were found to enter the left auricle; a large branch, however, entered the right auricle, and, from its situation, was probably the common trunk of the pulmonary veins. Internal structure normal. The aorta divided almost at once into two large trunks, one for each fœtus; and these gave off branches, which must have been the carotids and subclavians. The pulmonary artery gave off two small pulmonary branches, and sent to each aorta a ductus arteriosus, these two last vessels being of unequal size.

846. A portion of small intestine, from the above case, injected, and represented in Fig. 24. St. Hilaire (II. pp. 102 and 132) remarks upon dilatation of the intestine at the point of division as very rare, but refers to three cases.

847. Skeleton of a double Pig; mounted.

The cranium is malformed very nearly as in the last case, the vault being open superiorly, and the cavity quite shallow. The parietal bones form the lateral boundary; the cranial portion of the frontals is entirely wanting, as is also the posterior portion of the occiput, the lateral portions being well developed, but widely separated, and not ankylosed with the temporals, as in No. 845. There was also a fissure through the palate, and double harelip, the maxillary and palatine bones being separated as usual, with a deficiency of the facial portion of the intermaxillaries.

The seven cervical and first dorsal vertebræ are single, and then the spines divide. As in No. 844, the subject which corresponds to the right side of the face of the animal may be called A, and the other B. The spine of B is sufficiently developed to about the tenth dorsal vertebra, but with a considerable lateral curvature, and a fusion of two or three wings upon each side; at this point there was an antero-posterior curvature, and below this it is open as far as the sacrum, as in a case of spina bifida, the bodies and expanded wings forming a broad, flat surface; there are five lumbar vertebræ, and the sacral and coccygeal are probably normal. Upon the right side the wings of the vertebræ of A seemed to be well developed as low as the sixth dorsal, but with a partial fusion of the first three; upon the left side there are seen two very broad and irregular wings, which are fused with those of the right side. Below the sixth dorsal vertebra the spine is open throughout as far as the sacrum, and most irregularly and strongly curved or rather twisted upon itself, producing a degree of shortening such that in the recent state the ilium came nearly into contact with the ribs; upon the right side there are the wings of five lumbar vertebræ, and with these are connected the bodies, which consist of two broad and irregular bones, but upon the left side the wings are entirely wanting; the sacral vertebræ are imperfect, and the coccygeal entirely wanting. The thorax, which corresponds to the face of the animal, is sufficiently developed; the ribs on the left side of A, are fully so, except for a fusion of the first two, the whole number being fourteen; upon the right side of B there are thirteen, and they are more compressed. The thorax, which corresponds to the occiput of the animal, is represented by fourteen ribs, all of which are separate but much compressed, the first one or two belonging to the left side of A, and the others to the right side of B.

The pelves and extremities are well formed.

Before dissection the condition of the head and of the spines corresponded with that of the skeleton as above described; there were but two upper extremities, and the two lower of each of the subjects were united by integument as far down as the middle of the leg. The organs of the abdomen had been mostly removed, but there remained for B an intestine,

left kidney, bladder, testicles and penis; in A there was the right kidney, the testicles, and an imperfect bladder, but no intestine. The thoracic organs had not been disturbed, and were found normal, the aorta dividing for the two subjects just above the diaphragm. 1834.

*Dr. Francis W. Cragin, of Surinam.*

848. The cranium of a double Pig; mounted. This specimen differs from any in the present series (p. 298), inasmuch as there is a common central orbit, and the anterior as well as the posterior portion is composed of the parts of two individuals. The occipital foramina, the basilar and posterior portions of the occiput, the parietal, frontal, and nasal bones are double and well developed, though somewhat irregular; the anterior portion of the two faces being not merely approximated, but to some extent overlapping; one of the parietals also consists of two pieces. Upon the outer half of each cranium the lateral portion of the occiput, the temporal, the os unguis, the malar, and the intermaxillary bones are well developed; the upper maxillary of each, however, is deficient throughout in its palatine portion, there being a fissure of the palate as in the last case. Upon the inner half of each cranium the temporal bones are very imperfectly developed and completely fused; the tympanic cavities are much compressed, situated directly between the two occipital foramina, and show no trace of a division; the squamous portions consist of a single broadly expanded bone, bounded by the parietals and the occiput, and having in its centre a common meatus, the vaginal process of each bone being well marked; the petrous portions are situated between the two basilars. The central orbital cavity is formed mainly by the frontal bones and the anterior sphenoids; each of these last is perforated by a large optic foramen, and the two bones are intimately fused together, and also with the posterior sphenoid of the subject which may be called A, with the vomer of A, and with a bone of some size which may perhaps be the ascending portion of the palatine of B, there being nothing corresponding to this last in the other subject. Between the central orbit and the base of the skull there is now seen to be a free opening, and this is divided by a bony partition which seems to be formed by the internal wings

of the posterior sphenoids, that of B, however, being detached from the body of the bone; there are, of course, two basilar bones, and a posterior sphenoid connected with each. In front of the central orbit the os unguis of each subject is largely developed, but the superior maxillary bones are in the most rudimentary state, and show no trace of alveoli; the nasal cavity is open throughout; the intermaxillaries are very imperfect, and particularly that of A, which contains only one incisor tooth. The lower jaw is single, the branch corresponding to A being shorter than the other, and flaring outward.

The rest of the skeleton has been preserved separately, but not fully prepared; there are four upper and four lower extremities, and the thorax is formed, as usual in these cases, by a fusion of the two.

As this subject was in a state of advanced putrefaction, when received, the dissection was hastily made, and those parts only will be mentioned which were particularly examined. In the central orbit were two distinct eyes, and upon the back of the head a large double ear. The œsophagus was single, and situated between the two tracheæ; stomach formed as in No. 845; small intestine well developed, and single to within nine inches of its lower extremity, where it divided, but without any dilatation at this part; at the umbilicus was a considerable hernia. The respiratory organs were double, but both sets of lungs were very imperfectly developed; one larynx also being imperfect, and the cornua of the hyoid bone closely compressed, as in No. 844. The two hearts were widely separated, and each had its pericardium; internal structure of both normal; the vessels, entering and leaving the organs, were all of them traced, excepting the pulmonary veins, which, owing probably to the undeveloped state of the lungs, must have been very small and were not found. The two aortas communicated at the arch by a vessel which was of considerable length, and fully equal in size to either trunk; one aorta passed over the left primary bronchus, and the other over the right of the other set of lungs, as in No. 850, and, lastly, each aorta sent off at the arch two vessels, one of which soon divided. 1847. *Dr. John C. Warren.*

849-57. In the present series, which is the reverse of the last

(836-48), the duplication commences with the head, and the fusion goes on from above downwards.

849. A double-headed Fish, preserved in spirit.—The two heads are about equally developed, and the fusion commences just behind the pectoral fins, the spines being traced separately to behind the anus. Each individual has a dorsal fin, and two pectorals, but the anus and a single pair of ventral fins are common to the two. The specimen belongs to the genus *Pimelodus*, and measures one inch and three-fourths in length, and one-third of an inch from the anterior extremity to the point of fusion. It was taken in the Gulf of Mexico, by Lieut. White of the U. S. Navy, he having caught it in his hand. 1846. *Epes S. Dixwell, Esq.*

850. A drawing of the alimentary canal of a monstrosity that was born in the practice of Dr. Nathaniel Ruggles, of Nantucket, in June, 1846, and was subsequently examined in this city. It has been represented in Fig. 26, and the following account of the case, as it was reported to the Society, is here given, by the permission of Dr. R.

The subject of this case had two heads and necks, which were distinct throughout, one pair of upper and lower extremities, and a trunk which was formed by the fusion of two. Sex male. The mother was a middle-aged woman, and this, which was her first labor, occurred about the end of the eighth month. One of the heads presented, but Dr. R. brought down the feet, and after three hours accomplished the delivery, much force being required; the children lived about twenty-five minutes. Weight five pounds and a half. A hasty examination of the organs was made at the time by Dr. C. T. Collins, of New York, and Dr. Ruggles, and a short account of the case was published by Dr. C. in the *New York Med. and Surg. Reporter*, of which he was at that time the editor. The body was then sewed up, but the organs, which had been removed in a mass, were preserved separately, and a few weeks afterwards the specimen was sent to this city, where it remained for a short time; here it was again examined, and very recently the whole has been returned to Nantucket and buried.

With regard to the external appearances, it may be stated that there was no trace of a third upper extremity, and that the two spines, being traceable to the middle of the back, would probably have met about at the sacrum.

On examination of the organs, there were found two hearts within a common pericardium. One was perfectly normal. The other was somewhat smaller; consisted of a single, large, ventricular cavity, from which there arose an aorta of full size, and a small pulmonary artery, the ductus arteriosus being very slender; the left auricle was very much larger than the right, the limits between them being well defined, though there was only the trace of a septum. The lower vena cava was common to the two organs, and divided just above the diaphragm. Each aorta gave off a large vessel, which immediately divided, and just beyond this a second, undoubtedly the two carotids and a subclavian, the subclavian arteries arising from different aortas, as each of the two upper extremities belonged to a different subject. The aorta of the largest heart passed, as usual, over the corresponding left primary bronchus, but the other over the right primary bronchus of the second set of lungs, and somewhere between the arch and the diaphragm the two formed a common trunk.

The respiratory organs and thymus gland were in double sets, the lungs being small, irregular, and much fissured, except the one which corresponded to the malformed heart, and was upon the right side.

The alimentary canal, having been washed out and inflated, a drawing was made of it by Dr. Jeffries Wyman, and has been represented in Figure 25. The two stomachs were well formed, and one of them was of full size; the other was about half as large as the first, and buried, as it were, in a cavity in the liver. The duodenum of each was about three-fourths of an inch in length; the two then united to form a single intestine, which was three inches and a half in length, half an inch or more in diameter, and much contorted. Near the termination of this irregular portion of intestine was a diverticulum, three-fourths of an inch in length, and adherent to the intestine, its cul-de-sac being directed towards the great dilatation, into which the intestine now opened. The dilatation was three inches and a half in length in a straight line, and one and a

half inches in diameter; considerably curved upon itself, and upon its large curvature sacculated, as the large intestine of an adult often is. The dilatation was followed by ten inches of small intestine, which arose quite abruptly, and eight and a half inches of large intestine, besides what may have been left in the body.

The liver was single; lobes irregular. One well developed gall-bladder, with its ducts, corresponded to the largest stomach, and near it there was seen the situation for the second, if it had existed. According to the statement of Dr. R. there was one spleen and two kidneys. In the mass examined here, there were found two rudimentary spleens connected with the large stomach, and about a line or more in diameter; one kidney with its renal capsule, and a second renal capsule without its kidney.

851. A double-headed Lamb. The two heads are united at an obtuse angle, and the central ears appear to be fused at the base. The animal is otherwise well formed, and, from its size, may have lived for some time after birth. A stuffed specimen.

852. A double-headed Kitten. There are no central ears, but the eyes are somewhat far apart. A stuffed specimen.

853. A second specimen, preserved in spirit. The central eyes are not fused, though they are in a common orbit, there being two perfect sets of lids. 1844.

*Mr. Kimball*, Proprietor of the Boston Museum.

854. A double-headed Chicken. The central eyes are probably fused, there being but one set of lids. The upper portion of the spinal canal seems to be open, as in the next case.

855. A double-headed Duck; said to have lived for a short time. The two heads form a more acute angle than in the last specimen, but the central eyes are equally far apart. The top of the cranium may have been injured by violence, but the upper portion of the spinal canal seems to be open, as from congenital deficiency.

*Dr. J. B. S. Jackson.*

856. A small double-headed Snake, from South America. The

two heads appear to be equally developed, and form with each other a right angle as in St. Hilaire's figure, (Pl. xv.) the central eyes being widely separated.

*Boston Society of Natural History.*

857. Cranium of a double-headed Lamb. The animal was carried to the full period, and well formed, except for the head, which was sent to Dr. J. by Dr. L. W. Briggs, of Bristol, R. I. There were two perfect eyes, and upon the median line two others which were fused, the two cavities of the vitreous humor being separated by a common sclerotic coat. The cavity of the mouth was single, and the tongue and lower jaw showed no trace of duplication, in which respect this specimen resembled one already described (No. 848), and differed from what has been generally observed in this form of monstrosity. (Hist. des Anom. III. 200.) The cranium, having been prepared, is seen to be divided anteriorly into two portions, which are symmetrical; each has two frontal bones, two unguis, one nasal and intermaxillary, and upon the outside a well developed maxillary, but upon the inside this last is entirely wanting; the outer nasal cavity is perfect, but the inner is not so, there being a deficiency of bone between the intermaxillary and os unguis. At the bottom of the large common orbit are seen the two optic foramina about one-third of an inch apart; superiorly the orbit is mostly membranous, but inferiorly it is in part formed by an irregular, imperfectly developed, bony plate. The posterior sphenoid, where it is connected with the basilar, is double, this last and the whole occipital region being single and well formed. 1846. *Dr. J. B. S. Jackson.*

858—69. The following specimens may be grouped in one series.

858. A model of Aké, the well known Chinese monstrosity (Hist. des Anom. Pl. xviii. Fig. 4); sent to Dr. Reynolds by a gentleman in Canton, and with it a manuscript copy of Dr. John K. Mitchell's description of the individual as observed by himself; the manuscript is deposited with the specimen. Dr. M.'s description was published, with an engraving, in the Philadelphia Journ. of the Med. and Phys. Sciences, in 1821, and is, of course, much more to be relied upon than that of Dr.

Livingstone's account of the case which was sent to England from Canton, and has been published in the Catalogue of the Hunterian Museum, Dr. L. himself never having seen the individual. It is remarkable that Dr. M.'s description, which is so very full and satisfactory, is not mentioned in the Hunt. Catalogue, nor by St. Hilaire. *Dr. Edward Reynolds.*

859. A Kitten, preserved in spirit, and showing two pairs of extremities growing from about the epigastric region; the anterior are united by integument as far as the carpus, the paws are clubbed, and there are but four toes on each; the posterior extremities are more developed, and there is an anus and some appearance of genitals, but no tail.
860. A stuffed specimen, very similar to the last, except that the anterior extremities are not united.
861. A third specimen; preserved in spirit, and resembles No. 859, except that there is only one pair of supernumerary extremities, and these are the posterior.
862. A Chicken preserved in spirit, and having two supernumerary extremities growing from the back of the pelvis; they are not fully developed, and the thigh bones are united by integument. A similar specimen has also been sent to the Society by Dr. Jarvis, of Dorchester. 1840. *Dr. Robert W. Hooper.*
863. The skeleton of a Chicken, that resembled the last specimen; mounted. The supernumerary extremities have a very slender attachment to the coccyx upon the left side, but are tolerably developed; a small, irregular bone, which represents the pelvis, being connected with the upper extremity of the two femora. Otherwise, it is well developed. 1847.  
*Dr. D. H. Storer.*
864. A portion of the skeleton of a Fowl. Upon the right side there is an additional ischium, somewhat developed, and situated between the sacrum and the true ischium, with which last it is fused, the sacrum and coccyx being much inclined towards the left side. From this additional bone there arises an ex-

tremity which is considerably and permanently distorted. The tibia is a short, thick, stout bone, about one inch in length, the femur and metatarsal bones being tolerably developed; the toes are five in number, and one of these is bifurcated. 1835.

*Dr. Winslow Lewis, Jr.*

865. Skeleton of a Chicken that lived three months; mounted. The left femur, which is formed by the union of two, is very broad, has two distinct trochanters, and terminates inferiorly in two extremities, one of which is sufficiently well developed. The supernumerary member has in the place of a tibia and fibula two bones, that look not unlike tibiæ, being largely and about equally developed, separate above, but soon becoming fused, and connected with the femur by two additional and distinct articulating surfaces; the metatarsal bone is short, slender, and very much bent upon itself, and beneath it there was during life a considerable callus, this division of the extremity being as much or more used in progression than the other; the whole terminates in three very imperfectly developed toes. In the pelvis there is some appearance of duplication upon the left side, but, otherwise, the skeleton is well formed, as were the internal organs, except that the intestine had four cæca, two of them being large, one small, and one of intermediate size. 1840. *Dr. J. B. S. Jackson.*

866. The fore-foot of an adult Pig; preserved in spirit. One of the small toes is normal, but in place of the other are two large toes, giving altogether the appearance of a double foot, the supernumerary, however, being less developed than the principal. Where the foot was cut off there are seen to be five metatarsal bones.

867. The hind feet of a young Pig; one has been dried, and the other prepared to show the condition of the bones, the malformation being apparently the same in both. In the dissected specimen, the two principal toes, and the small one upon the outside, are perfect in all their parts; upon the inside there are two other toes, nearly as large as the first two, and connected with the tarsus by a single large metatarsal bone; between these two feet, for so they appear to be, is a small un-

developed toe, that belongs rather to the supernumerary foot than to the principal. The tarsus has additional bones or rather cartilages in connection with the supernumerary metatarsal.

This specimen, with the following others, was purchased by subscription amongst the members of the Society, at the New England Museum : — Nos. 537, 636, 824, 825, 839, 840, 845, 851, 852, 854, 859, 860, 861, and 866.

868. A series to show the development of the supernumerary thumb so often observed in the domestic Fowl.

In the first specimen there is a very imperfectly developed additional phalanx, besides the terminal one, the nail only appearing externally. In the next, the first phalanx of the proper thumb bifurcates, the additional phalanges being well developed and directed upwards ; these two specimens are mates, as are also the fourth and fifth. The third essentially resembles the second, the fusion at the bifurcation being more complete. In the fourth specimen the additional thumb is in all its parts fully developed, curved upwards, and situated directly above the principal. The fifth resembles the fourth. In all of these, excepting the fifth, the development of the bones has been fully shown by removing the soft parts from the under surface of the thumb. The last specimen consists of a set of bones, separated by maceration, and in which the bone that supported the two thumbs consists of a single broad piece. 1845.

869. A preparation to show the development of the bone in a supernumerary thumb ; there are two phalanges, connected by fibrous substance, the first about two lines in diameter, the second nearly an inch in length, and supporting a well formed nail. It was attached to the integuments over the metacarpal bone of the thumb, and was removed as an incumbrance, the patient being a young mechanic. 1837.

*Dr. J. B. S. Jackson.*

870. A cast in plaster of the right hand of a little girl, showing a thumb with three phalanges. The thumb is long and slender, and reaches about as far forwards as the little finger. 1846.

*Dr. Benjamin E. Cotting, of Roxbury.*

871. Two Hen's eggs, united by a short thick band ; they are tolerably developed in regard to size, though there is only a trace of shell. *Boston Society of Natural History.*
872. A double Peach, preserved in spirit ; the two are fully developed, and united intimately, though to a small extent, near the common stem. *Dr. J. B. S. Jackson.*
873. A cast in plaster of two Apples, united like the above. *Dr. Henry I. Bowditch.*
874. A cast in plaster of two Cucumbers, that had a linear union throughout almost their entire length ; these two casts were taken by Dr. William E. Coale. *Dr. Charles Bertody.*

### III. MONSTROSITIES BY DISTORTION.

875. Cranium of a Fowl, showing a strong incurvation of the upper mandible to one side, as in No. 842. *Mr. Charles K. Whipple.*
876. Cranium of a Canary bird, showing a similar deformity. *Dr. William T. Parker.*
877. A Hen's egg, quite small, and contracted at one extremity, so as to resemble in form a certain kind of gourd ; shell for the most part well developed. 1844. *Dr. Benjamin E. Cotting, of Roxbury.*
878. Deformity of the lower extremity ; removed at the hip-joint, and preserved in spirit. The knee appears to be dislocated, the head of the tibia resting upon the outside of the femur ; the leg, in the recent state, was strongly flexed upon the thigh, the foot very strongly flexed, and twisted so that its inner edge was in contact with the leg, and its sole with the thigh, the outer condyle being quite prominent, and forming the proper termination of the extremity.
- From a child that was born with imperforate anus, and died on the fifth day, being otherwise well formed, except for some trifling deviations in the arteries. October, 1841. *Dr. E. O. Phinney.*

879. Cranium of a six months fœtus; mounted. There is great deformity of the vault, and such as may possibly have been caused by external pressure, the bones being compressed laterally, and the right parietal doubled upon itself; the vertical diameter, on the other hand, is proportionately increased, and the whole occipital region much depressed. Otherwise the fœtus was well developed; presented by the knees. The mother has aborted several times at the same period, and thinks she has a uterine tumor, though none has ever been discovered on examination. 1847. *Dr. Enoch Hale.*
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950. The cranium and trunk of a malformed fœtus; mounted. The cranium differs from any of those already described; the frontal, parietal and occipital bones are very imperfectly developed, but, instead of flaring outwards, they rise perpendicularly from the base of the skull, and give to the cavity a horse-shoe form; the posterior portion of the occiput consisting of two pieces which are widely separated. The trunk is preserved on account of a strong lateral curvature of the spine, and a narrowing of the right side of the thorax, several of the last ribs upon this side lying in close contact with the spine; the sixth, seventh and eighth ribs are fused, the second wants its cartilage, and the sternum, which is very short, is connected with the first three ribs only. Upon the left side the cavity of the thorax is well developed, and the sternum is connected with the usual number of ribs. The skeleton was otherwise well formed, and the extremities were therefore removed.

In the recent state, the fœtus was sufficiently developed for the age. The cavity of the cranium was entirely open, and contained a small quantity of brain, from the base of which several of the nerves were traced. The parietes of the abdomen were almost entirely wanting, and to some extent those of the thorax; the liver, stomach, small and large intestines, kidneys and left testicle lying completely exposed. The heart was covered only by its pericardium. The whole peritoneal surface and the left pleural cavity were inflamed, and the lung much compressed. There was fissure of the uvula, as in so many of the acephalous fœtuses; the gall-bladder and

ducts contained a very little colorless secretion ; the renal capsules were nearly or quite as large as in a well-formed fœtus ; the left umbilical artery was wanting ; organs otherwise not remarkable.

The mother was a respectable, young married woman, and this was her first child ; no cause assigned for monstrosity. Labor occurred at about the eighth month, and was easy ; head presented ; quantity of liquor amnii large ; the cord was only a few inches in length, doubled upon itself and adherent, and broke in the delivery ; placenta exceedingly large. Child still-born, though the motions had been felt, as so often happens, only a few hours before. Sex male. 1847.

*Dr. Asa B. Snow.*

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## EXPLANATION OF THE FIGURES.

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|---------|-------------------|--|
| Fig. 1. | Pl. I. No. 329.   | Foramen ovale open in the adult.   |
| " 2.    | Pl. I. No. 330.   | The same.  |
| " 3.    | Pl. I. No. 331.   | The same.  |
| " 4.    | Pl. III. No. 759. | Skeleton of a monstrosity (acephalus.)   |
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- " 21. Pl. VIII. No. 837. Base of the skull, with a portion of the skeleton of a double fœtus.
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- " 23. Pl. IX. No. 849. A double fish.
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- " 33. Pl. X. No. 845. Fusion of the scapulæ of a double fœtus. 33'. Another view of the same.
- " 34. Pl. X. No. 845. Fusion of two stomachs in a double pig.

Figures 7. 23. 30. 31. and 32. it should be remarked, have been added since the text was prepared for the press.

## ERRATA.

- Page 22, 19th line from the bottom, for 10 read 9<sup>l</sup>.
- " 25, 3d line from the bottom, for 787 read 786.
- " 27, and 30, 17th and 6th line from the bottom, for 254 read 24.
- " 33, 12th and 21st lines from the bottom, omit (No. 789.)
- " 49, 2d line from the bottom, for 810 read 809; on the 50th page, for 810, 812, and 811, read 809, 811, and 810.
- " 66, last line, for 23 read 7.
- " 69, 11th line from the bottom, for *mounted* read *not mounted*.
- " 73, 17th line from the top, for 26 read 25.

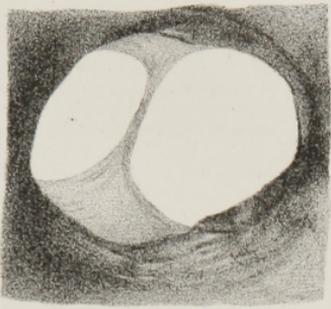


Fig. 1.



Fig. 3.

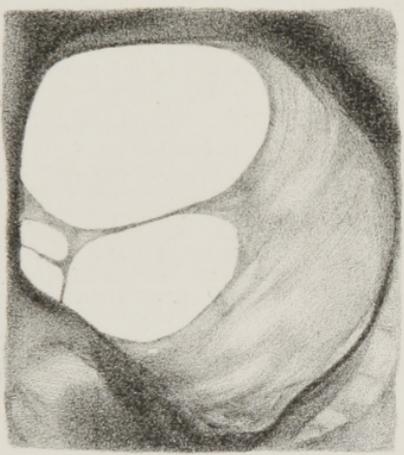


Fig. 2.



Fig. 29.

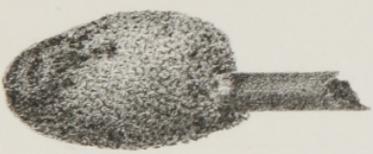


Fig. 30.



Fig. 26.





Fig. 32.



Fig. 31.





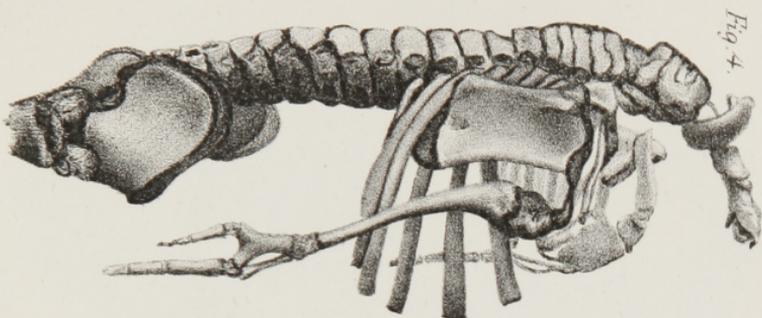


Fig. 4.

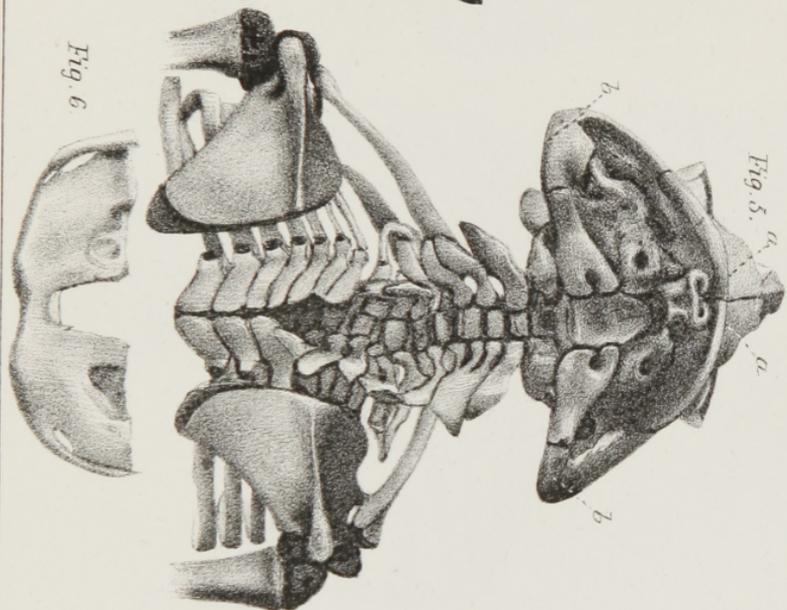


Fig. 5.

Fig. 6.



Fig. 8.





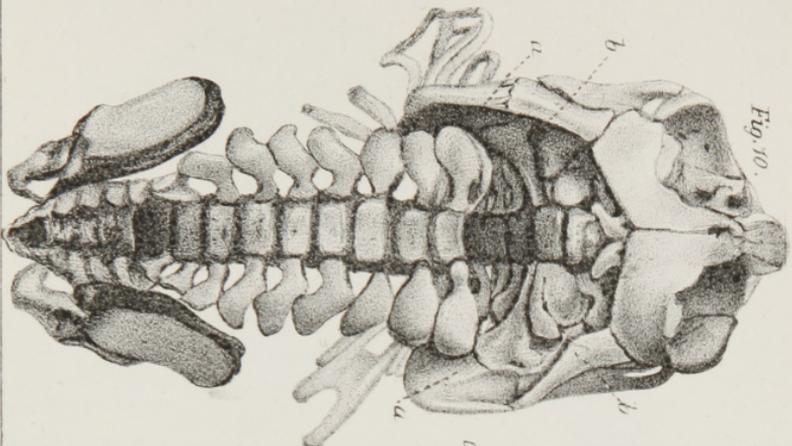


Fig. 10.

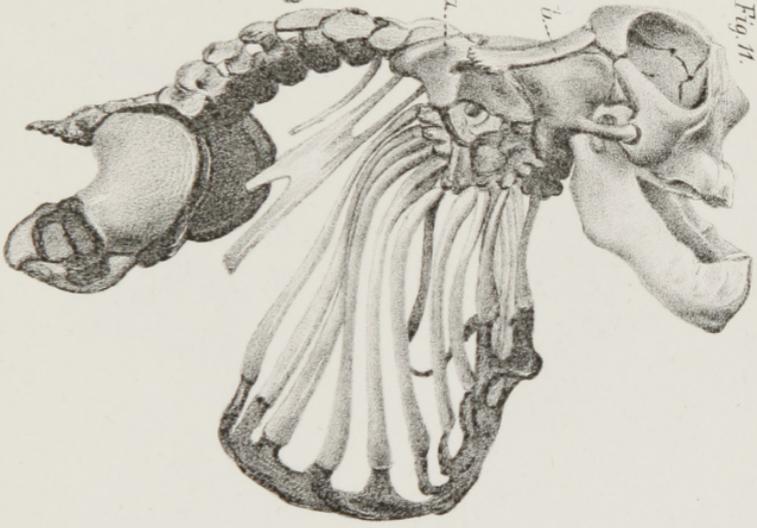


Fig. 11.

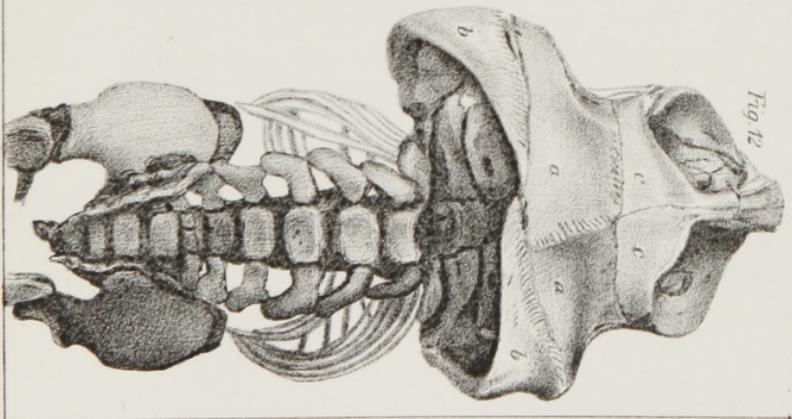


Fig. 12.

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Fig. 16.

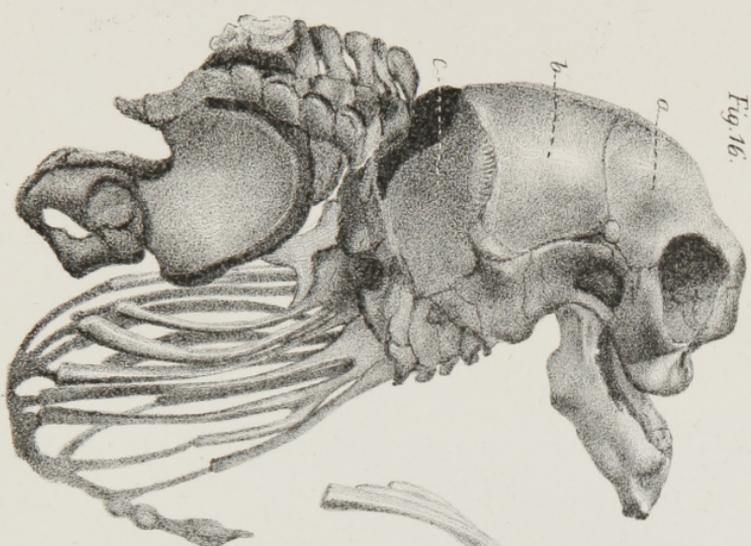


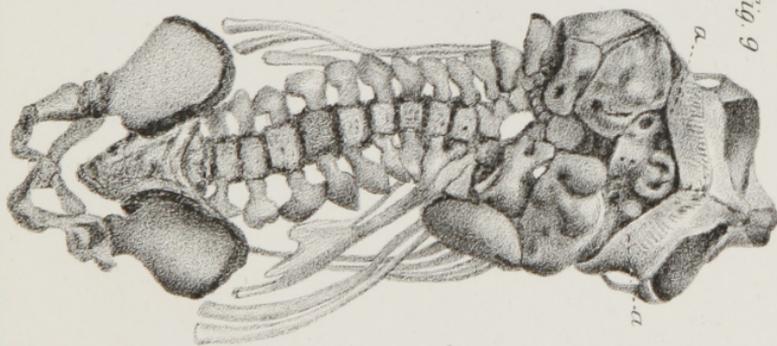
Fig. 17.



Fig. 9'



Fig. 9.



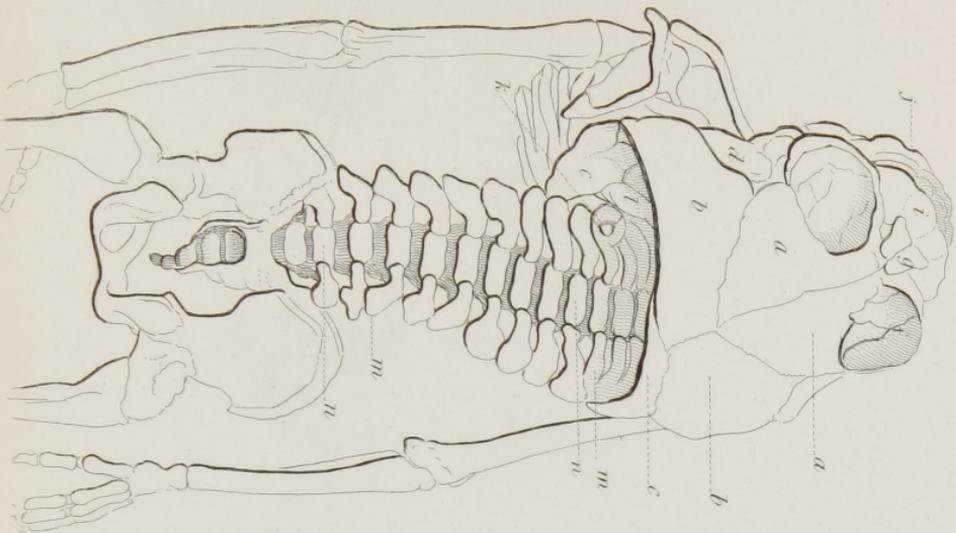




Drawn by T. Edwards.

Engr. by G. G. Smith.





Drawn & Eng. by C. Smith.





Fig. 18.

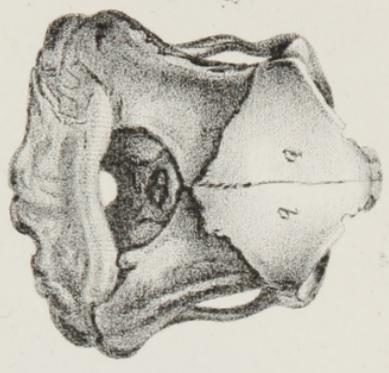


Fig. 19.

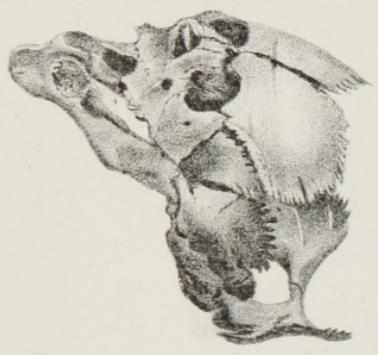


Fig. 20.

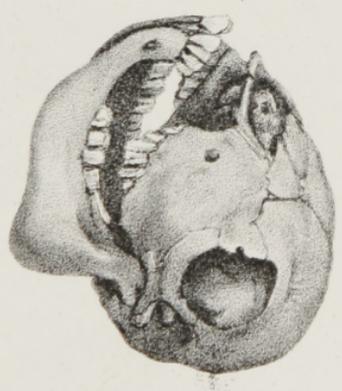


Fig. 21.

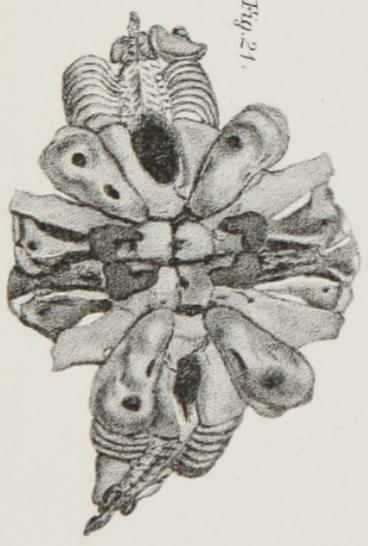




Fig. 28.



Fig. 27.



Fig. 7.



Fig. 23.

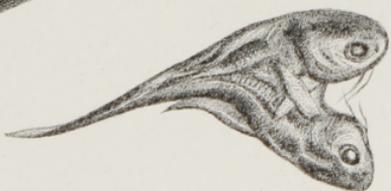






Fig. 22.

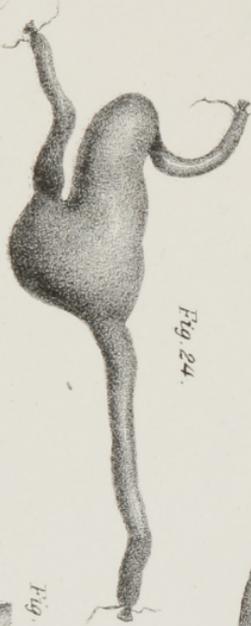


Fig. 24.



Fig. 25.

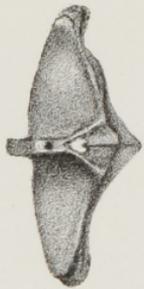


Fig. 33.



Fig. 34.

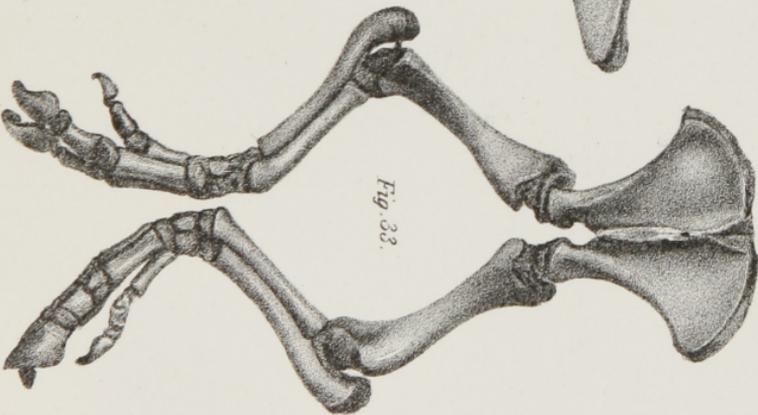


Fig. 33.







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