

CASE
OF
A FŒTUS
FOUND
IN THE ABDOMEN OF A BOY.

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Read March 16, 1808.

JOHAN HARE, the subject in whom this curious phænomenon occurred, was born on the 18th of May, 1807. At the time of birth he appeared to be a healthy well formed child. He was, however, soon troubled with frequent vomiting; discharging large quantities of fluid, which was sometimes of a green, at others of a yellow colour. A peculiarity in the form of his abdomen did not long escape notice; a prominence, easily discernible, presenting itself at the upper part, a little to the left of the scrobiculus cordis. The evident increase of this tumour, and

the periodical vomiting, induced his mother to consult me respecting him. I saw him first on the 3d of September, at which time he had the general appearance of a plump and healthy child. His mother informed me that he lived chiefly upon the breast, and that the milk was not returned, excepting when the bilious vomiting took place; which recurred at intervals of a week or ten days. His stools were of a green colour: he appeared to suffer pain, and his sleep was much interrupted.

On examining the abdomen, I found a round smooth tumour, situated evidently within that cavity, at its fore and upper part, immediately below the margin of the chest; occupying a space, bounded by an imaginary perpendicular line drawn from the apex of the third false rib on the left side, and meeting a transverse line, passing just below the navel; so that it was placed in the epigastric and umbilical regions, but inclining to the left side. Its extent towards the right could not be ascertained, as the child always appeared to suffer when that part was pressed, and the tension of the abdomen in the act of crying, rendered examination more obscure. The tumour was somewhat moveable; it was tense: and afforded a distinct sense of fluctuation at its most prominent part, where it was covered by the left rectus abdominis.

From this examination it was evident that the disease was not seated in the spleen; nor did it ap-

pear probable that it was an affection of the liver. I was therefore led to conclude that there existed in this part an original imperfection; probably a cyst adherent to the mesentery or vertebræ, distended by a fluid, and perhaps containing hydatids. With this view of the case, I saw no prospect of affording relief, excepting as far as the stomach and bowels were concerned; and, as I could not encourage his mother to expect a cure, I soon lost sight of him. It was not until the 7th of January in the present year, that she again brought the child to me. I now found him a mere skeleton clothed in skin, with a face of age and anguish. The account which was given of the interval was interesting. It was stated, that the child daily became thinner, whilst the tumour in the abdomen rapidly increased, until at length he was nearly thirty-six inches in circumference. His sufferings kept pace with this augmentation in bulk. He seldom slept, but was almost continually crying or screaming. He took very little nourishment, the pain compelling him to quit the breast almost as soon as he had been applied to it, and he refused every other kind of food. The tumour, during its increase, continued to preserve its peculiar shape; and did not equably distend the abdomen. It formed a tense projection forwards; whilst the flanks and the hypogastric region were soft. In this respect a remarkable change took place on the 23d of December, which was succeeded by some interesting phænomena.

For seven days and nights prior to this event the sufferings of the child were almost incessant; his cries were interrupted only by exhaustion and fatigue; and his death was hourly expected. On the day above noted, when his mother went to change his cloth, as she thought for the last time, she was greatly surprised to find the belly no longer tense at the part opposite the tumour, but equally soft in every part. She also perceived a remarkable change in his form. The anterior prominence was lessened, and the sides of the abdomen now projected greatly between the lower ribs and the *cristæ* of the *ilia*. He became quiet and apparently easy for two days and nights, voiding in this time, vast quantities of urine. This discharge continued about a week, and was attended by a corresponding diminution of the abdomen.

This narrative warrants the conclusion that the tumour consisted principally of a fluid contained within a distinct cyst: that this cyst was ruptured on the 23d of December; that its fluid contents escaped into the cavity of the peritoneum, and that the absorbents of this extensive membrane rapidly removed them.

The vomiting, which, prior to this event, had daily recurred, now wholly ceased; he became ravenous, and could with difficulty be kept from the breast; he regained strength, and improved in appearance. This favourable change was not of long duration. The cyst soon began to fill again; for, when I saw

him on the 7th of January, fifteen days after its rupture, the mother assured me he had already considerably increased. At this time the circumference of the abdomen was found to be eighteen inches and a half. Fluctuation could be distinctly felt in a cyst not firmly distended: and a hard tumour was discovered, apparently floating in it, which easily slipped from the grasp; and endeavours to fix it appeared to give pain to the child.

I had now an opportunity of seeing him occasionally until the period of his death. The abdomen gradually increased, and its augmentation depended on an accumulation within the tumour, as its peculiar form demonstrated to the eye and to the touch. The child again lost his rest and appetite. Emaciated as I found him, he still further declined in appearance, and the vomiting returned. In relation to this symptom, it is proper to note an appearance often observed before by the mother, and now distinctly perceivable: prior to ejection, a pouch appeared to fill at the scrobiculus cordis, and to be pressed by the cartilages of the ribs against the tumour upon which it rested; so that, by the state of this part, the mother could foretell the approach of vomiting, by which it was always emptied.

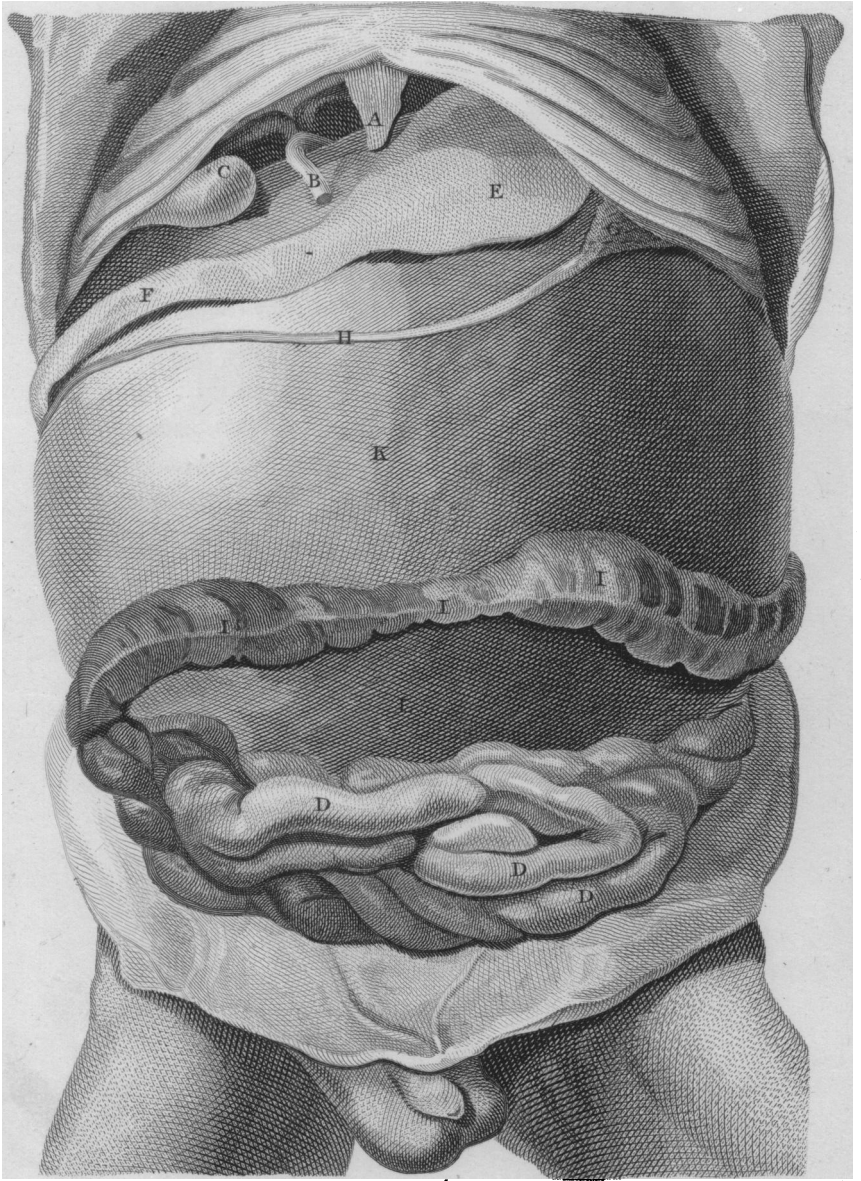
The inspection of the body, after death, fully explained this circumstance. On the 25th of February last he died. About twelve hours after death, I examined the body, in the presence of my friend,

Dr. Birkbeck, whose zeal for such inquiries induced him to accompany me.

Inspection of the Body after Death.

The abdomen, when measured, was twenty-two inches and a half in circumference. When this cavity was exposed no fluid escaped; it was occupied chiefly by a large and nearly spherical tumour, which in parts was somewhat transparent, and appeared distended by a fluid. Above it, in the right hypochondrium, was seen the liver much diminished in size; the fundus of the gall bladder was turned forwards and inwards towards the linea alba. At the scrobiculus cordis, lying on the upper part of the tumour was seen the pyloric extremity of the stomach; which fully explained the appearance observed to precede the act of vomiting during life. The pylorus itself was scarcely distinguishable, therefore no means existed which were fitted to prevent a constant and free communication betwixt the cavity of the elongated stomach and the duodenum. The duodenum descended obliquely along the right side and upper part of the tumour; and then took its usual course behind it. The cæcum was not materially altered in position; but the colon ascendens together with the arch of the colon, passed transversely over the tumour, somewhat below its middle, and was

firmly adherent to it; the tumour being evidently placed between the lamina of the transverse mesocolon. The diaphonous omentum was stretched over the tumour betwixt the great curvature of the stomach and the arch of the colon; and the omentum minus was put equally upon the stretch; the small intestines were thrust down into the pelvis and hypogastric region, where, during life, they had been distinctly felt. The dense inferior part of the tumour rested on the mesentery. Before removing any part, I looked carefully for a cicatrix, which might mark the part through which the fluid must have escaped at the time the occurrences denoting a rupture of the cyst took place; but in this I was unsuccessful. I found the cyst thin and transparent, where it was covered by the omentum; thick, dense, and perfectly opaque below the arch of the colon. After raising the stomach from its situation, the pancreas was seen stretched out upon the cyst, and its transparent duct appeared running along the fore and upper part towards its opening into the duodenum. It was remarkably elongated, measuring nine inches. The little pancreas was widely separated from the larger portion of gland; remaining close to the duodenum at the termination of the elongated pancreatic duct. So much were these glandular substances compressed between the cyst and the upper layer of the transverse mesocolon, that in a hasty view they might have been passed by unnoticed. The splenic branch of the vena portæ also took its course on the



W. Clift del.

J. Barro Sc.

anterior surface of the cyst towards Glisson's capsule. This bundle of vessels answered the purpose of a firm ligament suspending the tumour. The posterior surface of the cyst rested chiefly upon the aorta, and was adherent to the left crus of the diaphragm. The cœliac artery, elongated, ran upwards and forwards to reach the superior part of the tumour, where its three branches were distributed in the usual manner. The superior mesenteric artery ran downwards towards the small intestines, closely adhering to the posterior part of the cyst; and behind it the duodenum crossed the spine as usual. The vena cava passed on the right side, unconnected with the tumour.

After having thus far ascertained the relative situation of the tumour, and removed it from the body, I punctured it; seventy-eight ounces, or four pounds fourteen ounces of a limpid fluid escaped, having the colour of an infusion of green tea, with a very slight tinge of blood. The opening was now dilated to expose the fleshy mass which had been felt during life, and it may be easily conceived that we were greatly surprised on finding that this substance had unequivocally the shape and characters of a human fœtus.

The preceding description of the situation of the cyst and its relation to the natural contents of the abdomen will be rendered more intelligible by a re-

ference to the first plate, which must not be considered an exact representation of appearances as they were exhibited on opening the body. The ingenious and accurate artist, Mr. Clift, had not an opportunity of seeing the parts in the state here represented; and had no other aid, than a loose and imperfect outline hastily made when the cavity of the abdomen was exposed.

The superior part of the figure represents the margin of the thorax, with the xiphoid cartilage (A); immediately below is seen part of the liver, with its ligamentum rotundum (B); and the gall bladder (C); the fundus of which is turned inwards and forwards, towards the *linea alba*. The great spheroidal cyst is seen extending upwards to the liver and diaphragm, and downwards to the ilia, thrusting the small intestines, (D D D) into the pelvis and hypogastric region. The stomach (E) is lying on the upper part of the cyst: the duodenum (F) passes over it obliquely downwards, and to the right. The situation of the pancreas (G) is here pointed out; but its little glandular particles were so spread as, at first, to be hardly visible; its diaphanous and singularly elongated duct (H) crosses the cyst and passes towards the duodenum. The colon ascends together with the arch of the colon (I I) are placed transversely upon the cyst, below its middle, and adhere to it; the laminæ of the transverse mesocolon, having been separated from each other by the gradual increase of the cyst. - The superior lamina

is spread over and adheres to the larger upper part (κ); the inferior lamina is similarly connected with the inferior, less extensive portion (L), and terminates at the commencement of the mesentery. Betwixt the stomach and the arch of the colon the omentum was stretched over the cyst, giving to it another but unadhering covering. Thus the omentum no longer formed a loose bag; but passed directly from the stomach to the colon as a mere duplicature of the peritoneum. It would be prolix and superfluous to notice in detail the manner in which this was effected, as it will be easily understood by the anatomical reader, who will readily conceive how the progressive augmentation of the cyst, by displacing the parts to which the omentum is attached, gradually expanded the mouth of this peritoneal sack, until at length its internal surface became applied over the great distending tumour.

The external Appearances of the Fætus.

THE surface of this singular monster was covered with a quantity of sebaceous matter, such, in all respects as is often met with on the skin of infants recently born. When this was removed the creature appeared as rosy and as healthy as if it had been

yet alive. Its short and stout limbs were plump and firm; they were almost fixed in a posture resembling that in which the foetus in utero is usually found. Its spine was greatly curved and formed a considerable rotundity backwards. The upper extremities lay close on each side of the trunk; the lower, which were remarkably short in proportion to their bulk, were drawn upwards towards the anterior part of the body, leaving the nates and genitals exposed below.

At the upper part of the trunk, above and between the shoulders was situated a dark red fleshy mass in the place of head, of which there was not any other vestige. This substance, when fresh, was plump and soft; careful dissection proved it to be of a texture resembling the pia-mater. It is plentifully supplied with blood vessels of considerable magnitude, but in no part of it could be found any substance resembling brain, nor could any nervous filaments be discovered in it. Across and into this substance ran a slender white cord, which was continued to the containing cyst and there attached; it measured about two inches and a half in length. This proved to be nothing more than a slip of dura-mater. Another portion of this membrane may be seen covering and adhering to part of the anterior surface of the mass of pia-mater, But the chief connexion betwixt the containing cyst and the foetus was found at the umbilicus; to this was fixed the



J. Busire Sc.

W. Child del.

apex of a fleshy cone, the basis of which was formed by the inferior portion of the cyst, immediately before that part of it to which the beginning of the jejunum is attached. The side of this conical substance was of a full red colour, smooth, plump, and to the feel possessed a soft fleshy firmness.

The diameter of the base of the cone measured one inch seven-tenths.

Its extremity at the umbilicus, half an inch.

Its side, one inch three-tenths.

A diagonal incision through its dense circular base gave vent to a quantity of black tenacious matter much resembling the meconium of infants; this, it was now found had been contained in several convolutions of intestine, one of which adhering to the part divided, had unavoidably been wounded: thus it appeared, that this fleshy cone was an exomphalos; but at the same time it formed an important bond of union betwixt the foetus and the containing child, as will be shewn in the sequel.

What remains to be noticed in relation to the external appearances of the foetus will be better explained by a reference to the plates.

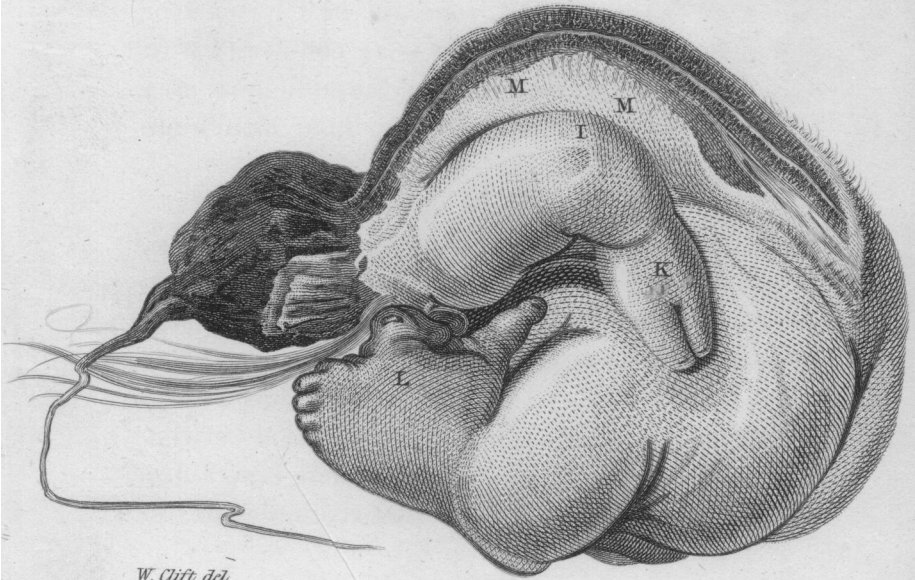
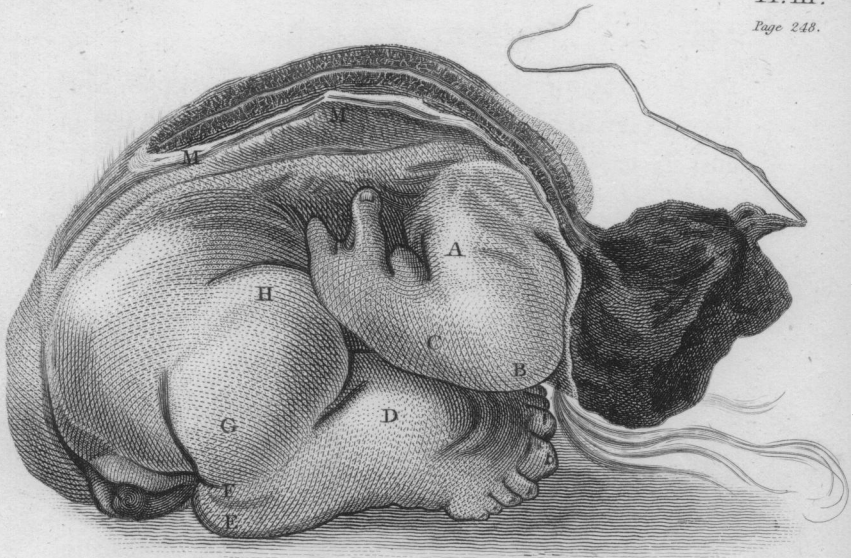
The first plate, it has already been said, must be considered only as an ideal representation; but the

three following are most faithful delineations, and give exact ideas of the size and shape of the fœtus and its various parts.

The second plate exhibits a front view of the fœtus.

At the upper part is seen the dark red mass of pia-mater (A) which occupies the place of head, and the white filament of dura-mater (B) that connected it to the containing cyst. At the basis of this substance are seen two locks of fine long hair (cc) of a light brown colour; and beneath these, upon the thorax, two eminences (DE). One on the right (D) is of a button like shape; its surface flat; its edge circular and rounded. It consists merely of common integuments padded with fat. The lesser eminence (E) on the left, together with its stalk or peduncle (F) by which alone it is connected with the body of the fœtus, contains the rudiments of a bony substance and some dense cellular membrane covered with common integuments.

At the umbilicus (G) is seen a portion of the ex-omphalos; the greater part being supposed, in this drawing, to have been removed for the convenience of shewing, in one view, the whole of the anterior and inferior regions of the body. The breech (HH) is well formed. The clutch or separation betwixt the nates is distinctly defined; but there is no anus. The genitals have all the external characters of the



W. Clift del.

J. Basire Sc.

male : a penis (I) with a loose and rugous prepu-
tium ; a glans penis denuded and most perfectly
formed ; with a distinct orifice to the urethra ; this
canal is not continued more than a line in the sub-
stance of the penis, where it then terminates.

A scrotum- (κ κ) divided into two parts towards
the anus, but having no other character of labia.
There is, however, an appearance under the penis,
seen only when it is raised, which, at first sight ren-
ders the intended sex doubtful. A smooth red sur-
face is seen, at the upper part of which is the aper-
ture of a small and very short canal extending in-
wards not more than a line ; this is probably the
continuation of the urethra, as it begins nearly
opposite the termination of that portion of the canal
within the penis.

The right lower extremity consists of a very short
thigh (L) ; a distinct knee (M) ; a very short leg (N) ;
a well marked ankle, and a cōrrectly formed foot (O) ;
the back of this foot rests against the shoulder of the
same side, whilst the sole is turned directly forwards,
the heel and outer edge of this foot and the hollow
of the sole have all the most natural appearance ;
but the toes exceed the usual number ; four very
small separate phalanges furnished with nails hold
the place of the little toe and its neighbour ; next to
these are two large indistinct toes, each furnished
with a nail, and the great toe is split into two smaller
well shapen toes with nails. If then we consider

the nails as pointing out the number of toes, it must be said that to this foot belong eight toes.

The left lower extremity is not equally well formed. A thigh, a knee, and a leg, are easily distinguished; but the foot is greatly mis-shapen, in the manner of a club foot; the sole is turned backwards, and rests against the body and left shoulder; the heel (P) and the outer edge of the foot (Q) being turned inwards. The toes differ materially from the ordinary arrangement: three little toes (R) furnished with nails, lie evenly next each other towards the outer edge of the foot; whilst the great toe (S) is seen projecting considerably outwards, like a thumb separated from the fingers: betwixt these is a short thick misshapen projection (T) with a nail upon it. On this foot then there are five nails.

The left superior extremity, seen in this drawing, will be better explained by referring to the third plate.

The third plate contains the two side views. In the first figure is seen, in addition to a different view of some parts already enumerated, the right superior extremity, consisting of an arm, (A) an elbow (B) bent and pointed forwards; a fore arm (C) with the hand directed backwards, and resting against the side. The fingers are not complete either in number or form. There is one finger very well shapen; it has a perfect nail, the only one on this

hand; on each side of this there is an imperfect stump evidently intended for fingers.

This drawing shews the back of the right foot (D) and its eight toes distinctly; together with the heel (E); the ancle (F); the leg (G) and the knee (H); the nates and genitals are likewise seen in part.

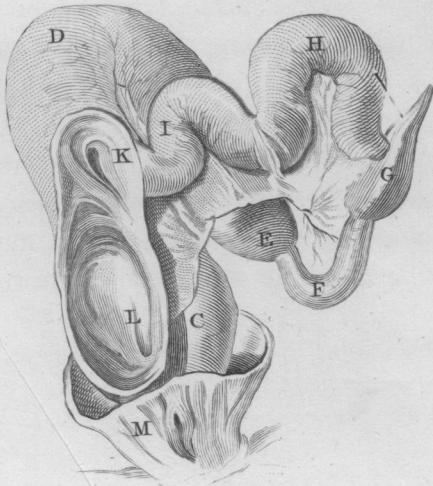
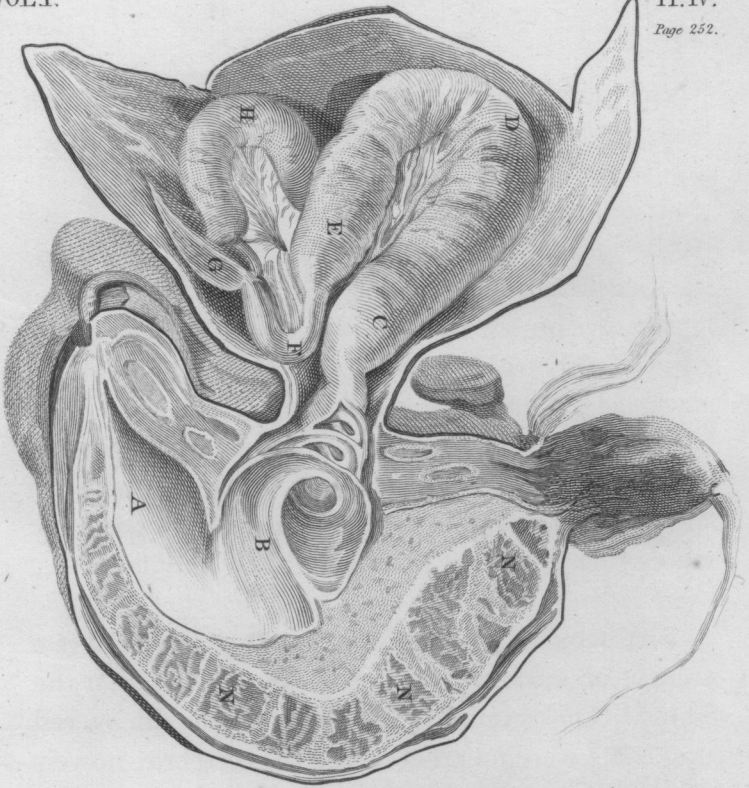
In the second figure may be seen the left superior extremity, the elbow (I) of which is marked by a slight bend and a deep dimple; it consists of an arm, a fore-arm, a well marked wrist and a hand (K) to which there are but two fingers; these are large, straight, and parallel; on each a nail is distinctly seen. This view again shews the left foot (L) which has been somewhat removed from its natural position for the purpose of exhibiting it more distinctly.

Both the views in this plate shew the great curvature of the spine, and also a singular appearance, which almost entirely occupies the posterior region of the body; an abrupt termination of the common integuments on each side (M) forms the boundary of a dark red surface, broad at the shoulders, and tapering to a point towards the sacrum, above which it terminates. On the integuments around it are a number of fine short erect hairs, which are more numerous towards the pelvis. Along the middle of this space, in the direction of the spine, runs a line or raphé, from each side of which pass off trans-

versely numerous filaments, the extremities of which hang loose, and, when floating in water their arrangement may be more distinctly observed. Their course is not straight, but rather serpentine; and they send to each other, in an oblique direction, slender filaments of a similar structure; they become gradually shorter towards the inferior pointed extremity of this part. On each side of this part the dark red denuded surface is rough; but the villi, which give it this appearance, have not any uniform or regular arrangement; betwixt this and the edge of the integuments, there is a margin of perfectly smooth and polished membrane.

The peculiar structure of this part rendered it a subject of curious attention in the dissection of the fœtus. On examining the spine, it was discovered that there were no processes to the vertebræ, no vertebral canal, no spinal marrow; that the substance in question, plentifully supplied with blood vessels, lay on the posterior surfaces of the bodies of the vertebræ, thus occupying the place of the medulla spinalis.

From these circumstances it appears warrantable to conclude that it was intended to form the spinal marrow, and that it consists of the membranous and vascular materials which appertain to it.



W. Clift del.

J. Basire Sc.

Dissection of the Fœtus.

It now became a matter of more interesting inquiry to ascertain the structure of this singular production ; to discover the organs it possessed ; to determine what were its functions, and in what manner they were performed ; to trace its mode of connection with the containing child, and thus to explain its nourishment and growth.

This required some deliberation and care ; as much deviation from the ordinary structure and situation of parts might be expected ; as all lay within a small compass, and at a great depth from the surface ; owing to the bent position of the body, the fixed posture, the shortness and the great bulk of the limbs. Much of the aid which injections afford, was not in this case to be obtained. The discovery of so singular a phenomenon was of course not looked for ; and the removal of the parts from the body, took place under circumstances, which rendered the preservation of them hopeless. Many vessels were therefore wounded, which might have afforded means of filling their branches with wax. The cyst itself had been slit open, and the basis of the exomphalos divided, in order to examine its contents.

The investigation was begun by a perpendicular incision through the parietes of the abdomen, on the left side of the navel; and another, at right angles with this, slit the umbilicus open. A membranous pouch was now exposed, which appeared to occupy the whole cavity of the abdomen; from this proceeded an intestine through the umbilicus; but nothing else could be seen at this confined incision; and it therefore became necessary to make an extensive exposure of the whole interior. It appeared that this would be most safely effected by extending the vertical section, begun at the abdomen, through the thorax, down the spine and through the pelvis; as the corresponding edges of each portion of the section, could be equally discovered, and the course of divided vessels be traced without difficulty. This section is represented in the first figure of the fourth plate, in which the cavity and contents of the exomphalos are also displayed. The deficiency of vertebral canal and spinal marrow was now ascertained; the bodies of the vertebræ (N N N) being the only parts of the spine which had been developed. The small cavity betwixt this and the interior parietes of the body contains but few parts; and these do not bear any very close resemblance to the usual contents of the trunk. There was no diaphragmatic partition dividing this cavity into thorax and abdomen. There was no heart, no spleen, no liver, no urinary organs, nor any internal organs of generation. At its upper and posterior part, close to the vertebræ, lay a very vascular

substance of a pale rose colour; which, from its texture and situation, may be considered as intended for the lungs.

The alimentary canal is the most perfectly formed of the internal organs; part indeed of the intestines, situated in the exomphalos, is in all respects naturally constructed. Its commencement occupies the inferior and anterior part of the body, and entirely fills the pelvis; it consists of that pouch, which has been already noticed. The complete section of the body at once exposed its cavity, which was filled with a coagulum of florid blood. That portion of this pouch which occupies the pelvis (A) gradually contracts towards the anus, where it terminates with an impervious point; so that there is not here any outlet. Behind the upper part of the pubis the substance of the pouch is folded transversely and forms a ridge, which projects considerably into the cavity. The extremities of this fold are gradually lost on each side in the substance of the pouch. Above this transverse partial septum the cavity is again expanded, especially at its posterior part (B), from whence commences a spiral course of the intestinal tube, narrowing in capacity as it passes towards the navel; giving to this part the appearance of a turbinated shell; the basis of which (B) is in the cavity of the body, and the apex passes out at the navel; there is, however, no modiolus around which this portion of the alimentary tube winds itself. A correct idea of the construction of this part may

be formed, by considering it as a conical tube, coiled, from right to left, like a cork-screw or a well-staircase. It forms three complete turns; and, having passed out at the navel, terminates in a sudden enlargement of the intestinal tube (c) which is the commencement of the first and most considerable convolution of intestine (c d e). This passes along the side of the exomphalos to its basis, to both of which it adheres; it then bends its course backwards towards the body; this portion is unadhering; the concave edge gives attachment to the mesentery, in which the natural course of the blood vessels is readily seen. Having nearly reached the navel it again adheres to (e); then suddenly is lessened in capacity, forming a small tube of dense structure (f), which terminates in a singular three-sided pyramidal body (g) the apex of which is free. This body is of a firm fleshy consistence; its basis is united to the dense portion of intestinal tube (f) just noticed with which its narrow cavity is continuous. To one of its sides another convolution of intestine (h) is attached, of less capacity and extent than that first described (c d e). The aperture of communication between this intestine (h) and the three-sided appendix is large enough to admit a probe. From this last mentioned knuckle of intestine, which is supported by a distinct portion of mesentery, the intestinal tube is continued behind the great convolution (c d e) adhering to the basis of the exomphalos. It may be traced in the second figure of the fourth plate, in which the right side of the exom-

phalos is supposed to be removed, and the parts hidden in the first figure are distinctly shewn. To preserve a distinct idea of the whole course of the intestines, the large convolution (C D E) is here again seen terminating in the dense narrow tube (F); and the smaller convolution (H) is seen arising from the three-sided appendix (G). The remainder of the intestinal tube (L) takes a tortuous course across the basis of the exomphalos, to which it is firmly fixed, and terminates in the straight gut (K L M). This capacious intestine closely adheres to the right side of the exomphalos, passing from its basis to the umbilicus, near which it terminates by an external opening (M). This intestine is, in the drawing, represented as slit open, for the purpose of shewing the numerous folds of its internal surface; the termination (K) of the preceding intestine (I); and a small opening (L) which leads to an external aperture (M) through which a probe passed without force. Here then the anus is found; this outlet of the intestinal canal is situated on the right side of the exomphalos, near the umbilicus.

It would be tedious to enter into a minute description of the bones of this foetus; the following general remarks have therefore been deemed sufficient.

There is an irregular bony substance at the upper part of the trunk, which may be considered as in-

tended for the basis of the cranium. The spine, of which notice has already been taken, consists only of the bodies of the vertebræ, in which ossification has not been tardy. There are but few ribs, and these very short. The pelvis consists of a sacrum and two ossa innominata. The ileum is ossified, but the pubis and ischium are almost wholly cartilaginous. Of the cylindrical bones the bodies are ossified; but their apophyses are cartilaginous. The carpus, the tarsus, and the phalanges, are entirely cartilage. Some of the joints are well-constructed: the extremities of the bones which form them are covered with diarthrodial cartilage; they are united by firm ligaments, and lubricated by synovia.

Very little muscular substance is to be met with; there is not any on the posterior part of the trunk; the anterior parietes of the abdomen are composed solely of common integuments, adipose substance, and peritoneum. About the hip-joints there are some slender portions of muscle; but little, if any, are discoverable in the remainder of the limbs; they principally consist of adipose substance.

One of the most singular circumstances in the structure of this creature is the total absence of brain, of spinal marrow, and of the nerves of sense and voluntary motion; but a distinct plexus of nerves is seen just within the umbilicus, about the commencement of the intestines, to which numerous branches are distributed.

The sanguiferous system is without a heart. It consists of two main trunks. One, which is ramified at each extremity, sends numerous branches from the middle of the basis of the exomphalos, into its laminated substance; which extend far beyond the circular limits, defined by the attachment of the side of the cone. The peculiar structure in which they ramify forms a considerable portion of the cyst, as will be seen in the account given of this part. This trunk is then placed between the intestines (C D E and H I) to which it sends branches; enters the umbilicus at its inferior part; passes first under and then to the right of the turbinated portion of intestine, and lastly enters the lung. It here divides into several branches, which are distributed to the extremities, to the spine, to the pelvis, and to the mass of pia-mater, which holds the place of head.

The other great trunk is placed on the right side of the first in the lung; where it receives branches from the pia-mater, from the spine, from the pelvis, and from the extremities. As it passes out at the umbilicus, it gradually separates from the first mentioned vessel, and takes a direct course between the inner surface of the side of the exomphalos and the straight gut (K L M). Having reached the basis, it runs a little way along its edge, and then takes an extensive course on the inner surface of the cyst towards the superior mesenteric vessels of the containing child, near which it terminates. The consi-

derable length of this vessel, it is evident, has been occasioned by the gradual augmentation of the cyst ; it was so choaked up by coagulated blood that quicksilver could not be made to run any distance in it, and though it could be traced to the neighbourhood of the superior mesenteric vessels, yet the greatest care and perseverance could not discover its mode of termination.

From what has been already stated, it must appear, that the containing cyst answered the purpose of a placenta to the fœtus, and it therefore becomes a point of some interest to inquire into its structure. The thickness of the cyst is various ; it is thinnest at its fore and upper part, where it was covered by the omentum ; and, when fully distended, it was at this part transparent. Here an appearance was met with which explained the escape and re-accumulation of the fluid contents noticed during life. A laceration is seen on the inner surface about half an inch in length, which leads to a separation, of the extent of three-quarters of an inch, between the two layers of which this part of the cyst is composed. At the termination of this separation there is a small hole through the external coat. This appearance, it is probable, had been produced in the following manner :—the great accumulation of fluid occasioned the internal coat first to give way, and this small rupture was, by the same cause, gradually enlarged. The external coat opposite this part had now to sustain the whole increasing force of disten-

tion; till at length, yielding at the small point noticed, it allowed the fluid to escape into the posterior cavity of the peritoneum, and thence, under Glisson's capsule, into its anterior cavity. In the flaccid state of the cyst, produced by the partial evacuation of its fluid contents, its vessels would in part repair this breach, and the separated laminæ would again be brought into contact; so that a fresh accumulation of fluid would be prevented from escaping.

The thickest part of the cyst is its inferior portion; the middle of which forms the basis of the exomphalos. It receives a peritoneal covering, between the arch of the colon and the mesentery, from the inferior lamina of the transverse mezo-colon; the superior lamina of which is spread over the upper part.

The internal surface of the cyst is lined by a smooth delicate serous membrane, which is reflected over the side of the exomphalos, and terminates as abruptly at the navel of the fœtus as the peculiar structure of the funis appears to end at this part in a fœtus placed under ordinary circumstances. At some parts of the internal surface there is a scaly appearance, resembling, in some degree, deciduous cuticle.

The substance of this cyst consists of several layers of considerable firmness; varying at different

parts in thickness, and apparently in number. Opposite and to some extent around the exomphalos these laminæ appear much thicker, more numerous, and more distinct than elsewhere; this part can be shown to consist of eight laminæ; they appear distinctly in a vertical section; and separate readily. This part of the cyst receives a very considerable artery from the colica sinistra; this vessel sends branches round the basis of the exomphalos, whose subdivisions cross it in all directions; but no mesenteric vein accompanies this artery.



It may be here useful to recapitulate as much of the foregoing narrative as relates to the business of circulation. It has been seen that the foetus is furnished with two vessels; a short one, obviously ramified at each extremity; the branches of one extremity meeting with numerous arterial branches of the containing child in the substance of the containing cyst; the other, a long vessel, separated during the greater part of its course from the first, running along the inner surface of the cyst, and terminating abruptly at its posterior part, near the superior mesenteric vessels of the containing child.

Here then arises a difficulty in the way of considering the cyst as answering the purpose of a pla-

centa ; for to establish this opinion, it would be requisite that each vessel should ramify in the substance of the cyst ; and that its branches should be so situated as to admit of communication with those of the other vessel. Although such an arrangement does not appear, it is however probable. The greatest caution and assiduity did not lead to the discovery of the manner in which the long trunk terminated ; it could not be traced into any branch of the mesenteric vessels of the containing child ; (yet, had this been the mode of termination, the size of the vessel renders it probable that it might have been detected) ; nor could any branches be shewn to proceed from it. Its extremity, however, inclines towards the exomphalos, and is not more than an inch and a half from it ; the substance of the cyst is here considerable, and of the same structure as that in which the other vessel ramifies, and of which it is a continuation ; branches may therefore be sent into this part ; but, as quicksilver could not be made to run into, or the eye to trace such branches, I am not authorized to assert their existence. It is, however, clear, that this vessel conveyed the venous blood of the fœtus from its body to the cyst, and that the fœtus was supplied with arterial blood from the cyst by the short doubly ramified vessel ; but whether this vessel received its blood from the ultimate ramifications of the long venous trunk of the fœtus, or from the great arterial branch of the colica sinistra, I am not able to determine.

Attempts were made to ascertain whether there existed any direct communication between the branches of the colica sinistra, and the cystic branches of the short foetal trunk ; but the incision which had been made through the cyst at the basis of the exomphalos, had divided the most considerable branches of both these vessels, and allowed the quicksilver to escape too rapidly to admit of pressure from a considerable column. The injection did, however, run into some minute branches, without in any instance entering the other set of vessels.

I here close the description of this extraordinary case, which, in conjunction with an account of a similar occurrence published a few years since, in a *Bulletin de L'Ecole de Médecine, de Paris*, will tend to affix some credibility to similar cases met with in authors ; with regard to these, however, it is to be regretted that they do not contain that internal evidence of their truth which an anatomical account of the appearances displayed by dissection would afford.