DESCRIPTION
OF AN
ABNORMAL FOETUS.
It is to the kindness of Professor Simpson that I am indebted for the Feces the description of which forms the subject of the following pages. To his further kindness, and that of his colleagues I must trust that it may be received as favourably as the many imperfections of a first attempt at Descriptive Anatomy will allow of. To Professor Goodric I have to return my very grateful thanks for the valuable assistance which on more occasions than one he afforded me.

Trusting that the few Sketches at the end may assist in rendering the description a little more intelligible, and may compensate for some at least of its inaccuracies, I diffidently offer it for the examination of the Medical Faculty.

A.B. Preger.

Edinburgh 30th June 1858
Description of the Fetus before dissection

The Fetus is a female, and appears to have reached nearly the end of the 8th month of uterine gestation.

It measures as follows:

Entire length: 13 1/2 inches

From Chin over Vertex to upper edge of occipital foramen: 11 1/2"

From one internal auditory to the other: 8 1/2"

From Chin to upper edge of umbilical fissure: 6 1/4"

From Chin over most prominent part of umbilical tumor to pubes: 10 1/2"

The
(The nails on the fingers and toes are small but distinct.)

The head is covered with a small quantity of hair, and is placed on the trunk in such a way that the face looks directly upwards, and the vertex backwards making the mastoid processes rest nearly on the spines of the scapulae, so that a line drawn from the chin through the acromion process to the trochanter major is nearly at right angles to another drawn from the acromion to the vertex. There is considerable flattening of the occipital region evidently from great deficiency of the occipital bone. The anterior fontanelle is well closed, the posterior can scarcely be felt.

On the back of the head arising from about the superior angle of the occipital bone is the commencement of a large spinæ-bifida. The base of it extends from that point down to nearly the last dorsal vertebra. (The term is almost as large as the head of the foetus.)
poetic.) Its walls are very thin, while along the most prominent part the skin is deficient in an irregular line exposing the subjacent dura-mater. The edges of this line are smooth and irregularly scalloped sloping gradually down to the level of the dura-mater, and presenting the appearance of the edge of a healing ulcer. The dura-mater is smooth and glistening of a reddish colour.

The whole of the front of the neck and upper part of chest are very prominent owing to a mass beneath the skin of a dense firm consistency, slightly moveable, and pitting on pressure. Altogether this mass has somewhat the appearance of an immense bronchocele, but appears to be divided transversely about the level of the clavicles.

About an inch below the extremity of the ensiform cartilage the parietes of the abdomen become fissured, allowing some of the viscera to protrude between the edges covered only by the parietal layer of
of the peritoneum. The fissure extends down to within an inch of the pubes. The margin of the skin where it becomes deficient presents the same appearance as on the corresponding part of the spine bifida.) The projecting tumour is of a conical shape, very moveable, firm, and hard. It seems to consist almost entirely of hair except at the lower part where some of the intestines can be felt.

There is but one umbilical artery which along with the umbilical vein enters the abdomen on the under surface of the extruded viscera. Otherwise the external appearances are normal (Plate I.)

Dissection of Foetus.

On removing the skin, fascia, and fat from the right side of abdominal wall the external oblique muscle is seen in all respects normal; but on its being reflected the internal oblique muscle is found to be divided into two unequal parts.
parts by the tenth rib and its cartilage, which instead of curling up like the ninth rib projects downward and forward in the direction of the normal position of the umbilicus. (The cartilage suddenly stops short about one line from the outer edge of the rectus muscle. The fibres of the lower half of the muscle are inserted into the lower edge of the tenth rib and cartilage; while the corresponding fibres of the upper half arise from its upper edge and are inserted into the tenth rib and its cartilage and aponeurosis of the abdomen.)

On opening its sheath, the rectus muscle is found well developed. It possesses only one tendinous intersection about one line above the point of the displaced cartilage of the tenth rib. The upper edge of the muscle is nearly one inch from the margin of the fissure of the abdominal wall (Plate II fig. 1). The Transversalis is pale, rather indistinct but seems normal.
The muscles, ribs, and cartilages of the left side are normal.

Viscera of Abdomen.

The abdomen being laid open, the liver seems to fill nearly the whole cavity, and is of a conical shape (the apex directed downward and forward and to the right side, and the base appearing as if it were attached to the triangular cartilage from which it hangs down nearly to the centre of the abdomen loose and pendulous, in shape not unlike the adult heart when contracted. The apex appears to be glued as if by old adhesions over a space about the size of a four-penny piece to the parietal layer of peritoneum.)

(The anterior layer of the coronary ligament is reflected from the diaphragm close to the edge of the costal cartilages; while the suspensory ligament is prolonged downward and forward to the beginning of...
of the fissure in the abdominal wall. The lesser being passed and thrown to the right side, the stomach is seen lying obliquely across the upper part of the abdominal cavity - the lesser and pointing downward and forward to the right side.

The spleen is closely attached to the greater end of the stomach by a fold of peritoneum which also slings the caput, ascending, and transverse portions of the colon to the great curvature of the stomach. The caput coli is thereby completely displaced from the right iliac fossa - a great portion of the small intestines being interposed.

The ascending colon is very short; in fact, the caput passes almost at once into the transverse portion of the colon which passes upward and backward along the great curve of the stomach to the left hypochondrium. (Plate II fig. 2) then getting under the spleen it turns backward and downward towards the middle.
middle line (on the under surface of the diaphragm), and in front of the right side of the left suprarenal capsule. Becoming very tortuous it descends in front of the spine covered on all sides by peritoneum) till it dips down into the pelvis (Plate III fig. 1.)

Passing from the umbilical cord to the lesser end of Stomach the omphalo-mesenteric vessels are seen obliterated and small. Below the small intestines the single umbilical artery passes up to the left iliac artery, and attached to its under surface is the urachus and bladder emerging from the pelvis (Plate II fig. 2.) (The liver, Stomach, and intestines being drawn upwards out of the abdomen, and the peritoneum dissected off the back wall of that cavity.) On the left side the kidney and ureter, the ovary, fallopian tube, horn of uterine of that side along with broad and round ligaments are entirely absent, but the left suprarenal capsule is large and
and well developed adhering to the under surface of the diaphragm. On the right side all these organs are normal.

No trace of a pancreas can be discovered.

(The Quadratus lumbrorum, Psoas and Diaphragm of both sides are normal (Plate III fig. 1))

Thorax. On removing the skin from the front of the thorax, the swelling before mentioned as existing there is found to consist of masses of fat and cellular tissue infiltrated with serous, giving it a jelly-like appearance.

No distinct mammae gland can be detected.

The Pectoralis major muscle on both sides is (large and fleshy, the origin and insertion) normal, but the Pectoralis minor is absent on either side.

(The Thorax being opened the heart occupies nearly the whole cavity being
being distended with injection. Lying on the pericardium is the thoracic portion of the Thymus gland.

The lungs are small and firm, nondistended, of a pinkish colour lying at the back of the thorax.

The left subclavian artery coming off from the second part of the arch of the aorta curves backward and upward to the left for about 1/2 an inch, then enters a foramen in the transverse process of the 2nd dorsal vertebra, passes through, and comes out between that transverse process and the one above it: the first dorsal. The artery now passes upward and outward over the middle of the first rib (Plate V fig. 1).

(The right subclavian is normal, so also is the right vertebral which enters the foramen in the last cervical vertebra.

The other parts of thorax are normal except the ribs which will lie
The neck. The front and sides of the neck are filled up with a mass of the same jelly-like substance as on the front of the thorax.

The Platipna is thickened and imbedded in this mass.

The Sterno-hyoid and thyroid muscles are well developed but are more separate in the middle line than normal.

There is no bronchocele; the thyroid gland being quite normal.

(The Thyrides gland is also normal projecting up into the neck to within one line of the inferior margin of the Hyoid.)

The Brachial plexuses of nerves on the right side is formed by the anterior divisions of the twelver cervical and three upper dorsal nerves. The fifth and sixth cervical unite to form one cord. The Seventh continues single. The three dorsal unite to form a third cord, and the three
cords thus formed pass on into the axilla before they exchange fibres.

On the left side the plexus is formed by the few lower cervical nerves which soon unite to form one trunk, made up of the three upper dorsal nerves. The interchange of fibres all takes place above the clavicle.

Dissection of the Back. The Brain, and contents of the Spina bifida are so fluid that it is impossible to give any description of them. The Drapezium is very narrow and small. It arises from the superior curved edge of the occipital bone beginning beginning at the lateral angle and extending to within half an inch of the edge of the occipital bone where it is attached to ligamentum nuchae. It passes nearly horizontally forwards but a little downwards, and is invested first by a long slender tendon into the junction of middle with eternal third of the clavicle; and second by a broad thin tendon into the
the acromial third of clavicle, acromion process, and anterior fourth of spine of scapula.

The latissimus dorsi is divided into two distinct parts. The first or superior is long, narrow and fleshy, and arises from the half inch of occipital bone between the origin of the trapezius and the edge of the fascia also from the tips of spines of the sixth and seventh dorsal vertebrae, and from the intervening ligamentum nuchae.

The second part is broad, flat and thin. It arises from the lumbar aponeurosis and the posterior 5th of the cost of ilium. Interdigitating with the external oblique it ascends to the inferior angle of the scapula. Here it meets the fibers of superior part, which having descended from their origin pass over the inferior angle of the scapula (a bursa intervening). The fibers of both parts having become partly mixed at this point, are inserted into the shaft of the humerus by a broad
broad flat tendon (Plate III fig. 2). Reviewer anguli scapulae is short and broad, arises apparently normally, proceeds nearly horizontally backward, outward, and slightly downward. It is divided into the superior angle and posterior third of superior costal of scapula. Near its origin it appears to receive a very small slip from the mastoid process.

Neither the splenius nor Rhomboid muscles exist normally but a muscle. Possessing the insertion of the latter, and the origin of the former muscle, seems to replace them. It may be called the Rhombo-splenius, or from its attachments the musc. scapulares for it arises from mastoid process and mastoid ridge, descends nearly perpendicularly. The fibers slightly converging are inserted into the superior angle and upper 1/5 of the posterior border of the scapula (Plate IV fig. 1).

The Serratus magnus is much atre.
atrophyed arising from the 6th, 7th, 8th, 9th, and 10th ribs near their angles. The fibres soon converge, and are inserted into a small part of the base of scapula near its inferior angle by a thin flat tendon.

The Complexus major muscle appears to arise from the transverse processes of nearly the whole cervical and dorsal vertebras. The lower fibres pass from their origin upwards and a little outwards, then turn round the under or anterior surface of a bone which passes between the upper cervical spinous processes and the base of the scapula. This bone is more minutely described on pages 21, 22, 23. They then proceed backwards, upwards, and inwards to be inserted along with the upper fibres which pass nearly horizontally backwards into the occipital bone between the curved ridges.

(The Tracheo-mastoid muscle appears normal (Plate IV fig. 2).)

As the deeper muscles of this region
region cannot be fully dissected without destroying the relations of the preceding ones, and as they are not likely to be more interesting, I have refrained from giving any description of them.

Description of the Bones. - The fissure in the bone corresponding to the roof of the spheno-occipital is very extensive. Beginning at the posterior angle of the occipital bone, it extends down through this bone into the foramen magnum, then through the spinous processes of all the cervical and eleven upper dorsal vertebrae - the bodies of all the vertebrae remaining entire. A very sharp curve in the spine takes place at the junction of the dorsal and cervical vertebrae with its convexity forward causing the head to be thrown completely back, so that the occipital bone rests on the apices of the cervical and dorsal spinous processes, which however are very long and prominent. Some of the cervical vertebrae
vertebrae seem to be absent for the bodies of only four of them can be distinguished. The bodies are much flattened from behind forward and considerably extended from side to side. The bodies of the dorsal vertebrae appear to be all present, but it is with difficulty that they can be distinguished on account of the slight degree of ossification which they possess.

The laminæ and spinous processes of both the cervical and dorsal regions are much altered in size, shape and position being arranged in groups or rather run together into flat plates of bone varying in size on the same and opposite sides (Plate IV figs. 34-41). On the right side only five laminæ can be distinctly made out as belonging to the cervical region. They are arranged as follows:

The atlas is distinct and separate.

The next two are firmly ossified together.

The fourth and fifth unite with the
and second dorsal to form a large plate of bone of a somewhat triangular shape. The dorsal laminae of this side are all present, and, although most of them are very closely packed together yet only the first and second appear to be really shifted together into the plate just mentioned with the two inferior cervical spinous processes (Plate V figs. 344). On the left side the atlas appears to unite with the three below it to form a large flat spinous process. The fifth and sixth are very small and short but separate and project outwards under cover of and nearly at right angles to the others.

The first dorsal is separate, large, and club shaped. The next six are joined into one plate. The rest are separate.

Owing to the curve in the spine before mentioned, these plates, but especially those on the left side, are arranged somewhat like radii of a
a semicircle that arises all converging to a centre situated about the point of junction of the occipital and condyloid parts of the occipital bone; while the circumference is formed by the bodies of the cervical and dorsal vertebrae bent upon themselves. They rise also from the bodies of their respective vertebrae, nearly perpendicularly, forming a more or less complete wall of bone on each side of the spinal canal.

The greatest depth of the fissure thus formed is nearly three fourths of an inch, measuring from the apex of the spinous processes to bodies of the vertebrae. (Plate V fig.4).

Again, tracing upwards the fissure from the eleventh dorsal vertebra in which it begins, the two sides gradually diverge until at the first dorsal vertebra they are a full inch separate. They then gradually converge towards the skull.

By removing one of the Sacral bones, and looking down, the fissure seems
seems to form the middle part of the posterior fossa of the base of the cranium — the floor of it being formed by the bodies of the dorsal vertebrae, the anterior wall by the bodies of the cervical vertebrae, and the basilar process of the occipital bone. The sides are formed by the perpendicular laminae and spinous processes of the cervical and dorsal vertebrae; while the posterior wall is deficient from the removal of the pack of the apina-bifida."

The next peculiarity that I shall describe is perhaps the most curious of the whole, and, so far as I can learn, has never been seen before. It consists of two superadded bones occupying a very curious place, and differing somewhat from each other both in position and mode of connection. They extend between the spinous processes of the cervical vertebrae and the bases of the scapulae, one on either side. That on the right side is about half an inch long.
long composed of a cylindrical shaft completely ossified, and an enlarged articulating extremity at either end still cartilaginous. The scapular end is the larger and is bent at a slight angle to the shaft, and is attached to the base of the right scapula about a third of an inch from its inferior angle by a distinct joint admitting of motion in all directions. The vertebral end is smaller and nearly straight with the shaft. It is articulated by a similar kind of joint to the apex of the plate of bone formed as before described on pages 748, by the spinous processes of the two inferior cervical and two upper dorsal vertebrae. It has thus an oblique direction from below upwards and inwards towards the middle line (Plate V figs. 3V4).

That on the left side is shorter and not quite so cylindrical in shape. It is placed higher up in
in the neck than the right. Its vertebral end is attached by cartilage, without a distinct joint, to the apex of the plate formed by the union of the four upper cervical spinous processes (page 18). Its other end is firmly ossified to the under surface of the scapula at about the junction of the middle with the upper third of its base; so that the scapula of this side extends of much less motion than the other. (Plate IV fig. 2.)

The two scapulae vary much in shape from each other, and from the normal form. The right one is proportionately large and broad; the inferior angle is prolonged into a slender rounded process. The coracoid process is much longer and more curved downwards than usual (Plate V figs. 3 and 4).

The left scapula is very considerably distorted - the body being much narrowed and
and pointed. The inferior angle is round and prominent, being bent up. The superior angle is also very prominent, and projects as a sharp angular corner in which the spine of the scapula begins. The latter is strongly marked, standing out very prominently from the body of the bone.

(The supraspinous fossa is very large in proportion to the supraspinous. The coracoid process is long and curved downwards like the other. (Plate V fig. 2 which is not an exact drawing on account of the muscles being retained in situ on the bone.)

The ribs. On the right side at first sight there appear to be only eleven ribs, but on examining their necks from the inside it is found that the first rib arises by two heads, and that a nerve passes out between them, so that what appears to be the first rib is really the second while the proper first
First rib is very short and feebly developed, and runs at once into the second at its neck. The second and third are also united at their angles by bone for a very short distance. The other ribs of this side are all normal except the tenth which is described at page 5.

On the left side the first and second ribs are developed in the same way as on the right, but the others as far down at least as the seventh inclusive are all more or less clefted together. (Plate V fig.1.) The rest of them on this side are quite natural.

The above description constitutes the chief particularities met with on dissecting the Fœtus.
Plate II.

This plate illustrates the external oblique muscle as it appears at the posterior surface. The external oblique muscle is lifted off the internal oblique muscle by the internal surface of the abdominal arch. The external oblique muscle is the largest muscle of the abdominal wall and is responsible for rotational movements of the trunk. The muscle fibers run from the anterior superior iliac spine to the pubis and costal margin.

(see page 182)
Plate III

Fig. 1. A deep vein of the abdominal cavity showing the course of the colon, the bladder and ureter, veins and fatty tissues on the right side, and the presence of the left renal capsule. The bladder and ureter, K, figure 33.

Fig. 2. Shows the superficial muscles of the left shoulder. The small edge of the shoulder; the divided origin of the clavicular side, the friction of the head on the trunk. The position of the head on the trunk. The figure of the occipital bone. The shape of the atlas bone. (Pages 135, 138)
Plat. IV.

Fig. 1. A view of some of the deeper muscles of the shoulder. The Scapula is reflected exposing the Rhombo-Scalenus, Levator Anguli Scapulae v. its small accessory slip to the Breastoid process. (Page 147.)

Fig. 2. Shows the deep muscles of the shoulder from behind. The Wristflexus dorsi is hooked down to expose the prominent superior angle of the scapula over which it glided the stripped Semis. magnus and the origin of the Complexus major. The Rhombo-Scalenus v. Trapezii are both reflected to show the anomalous bone with the Complexus major turning around it. The Scapulo-Mastoid. (Page 147.)
Plate V.

Fig. 1. A diagram showing the manner in which the lower excentric parts of the left side are opposed together. Also the left labellarian artery passing through the transverse process of the second dorsal vertebra. (Page 22, 23, 24).

Fig. 2. Diagram of the left scapula. (Pages 22-23, 24).

Fig. 3. Shows the way in which the spine, back process of cervical and dorsal vertebrae are grouped together on the right side. The anomalous bone jutting between the base of the scapula and the plate formed by the union of the two lower cervical and two upper dorsal spines. The shape of the right scapula, the position of the head on the trunk. (Page 22).

Fig. 4. A view from behind showing the extent of the spine through the scapital bone and spines of the cervical and dorsal regions. The bend in the spine at the junction of dorsal and cervical vertebrae. Also the grouping of the cervical & dorsal spines of the right side. (Pages 16 to 23).
Plate I

Shews the appearance of the foetus before dissection. The tumour on the back is the sack of the spine (spina bifida), that on the front is formed by the vesicles of the abdomen covered by peritoneum.

The single umbilical artery (green) and the umbilical vein (red) are seen passing into the abdomen (pages 12-3, 194).