

Engravings intended to illustrate some of the diseases of arteries, accompanied with explanations.

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ENGRAVINGS
OF
DISEASED ARTERIES.

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MAY 1971

ROYAL COLLEGE
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ENGRAVINGS.

ENGRAVINGS,
INTENDED TO ILLUSTRATE
SOME OF THE
DISEASES OF ARTERIES.

ACCOMPANIED WITH EXPLANATIONS.


By JOSEPH HODGSON,
MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON.

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J. CUMMING, DUBLIN.

1815.



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Fig 1

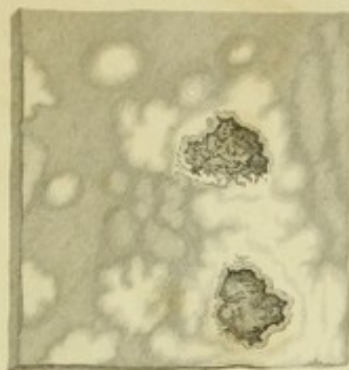


Fig 2



Fig 3

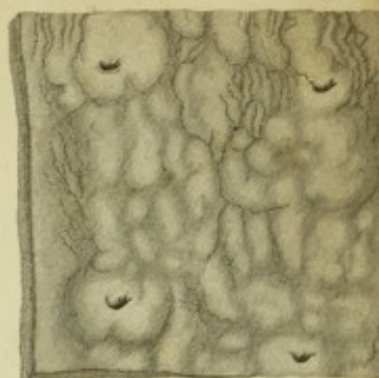


Fig 4



Fig 5

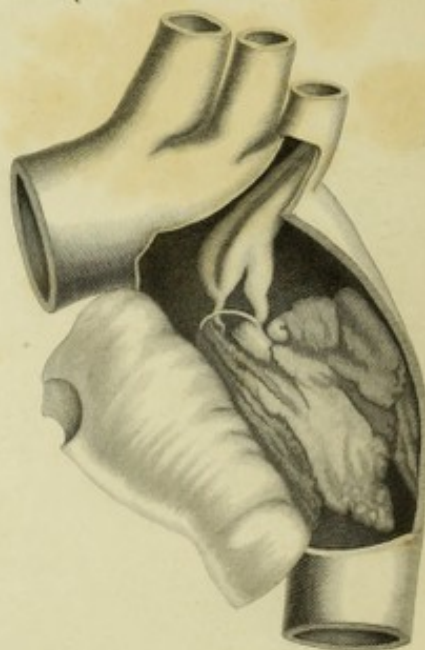


Fig 6



Fig 7

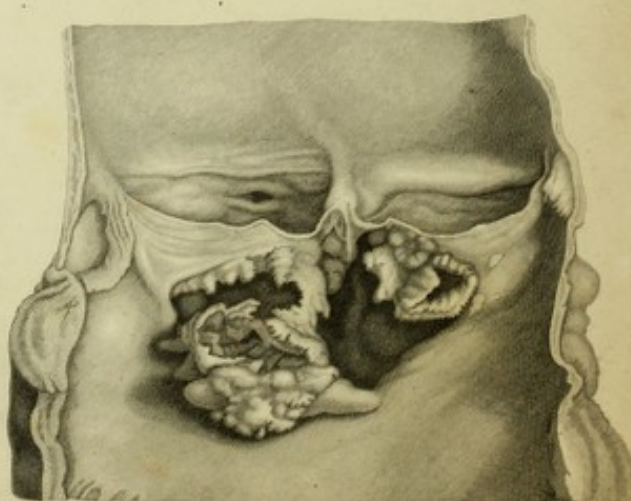


PLATE I.

THIS Plate is intended to represent some of the morbid appearances which are observed upon the internal surface of arteries, and in the valves of the aorta.

Fig. 1. represents the appearance produced by a deposition of atheromatous or curdy matter between the internal and middle coats of a portion of an aorta. The diseased part is of an opaque yellow colour, and is generally somewhat elevated. In some instances these elevations occupy a considerable extent of the vessel: in others they are more circumscribed, and have a pustular form. When the internal coat is punctured, thick matter may be pressed from underneath it. Ulceration sometimes takes place on the surface of these elevations. In the specimen represented in this figure two considerable ulcers existed in the vicinity of each other. Calcareous matter is frequently deposited in the part of the vessel exhibiting this morbid appearance, which is often met with in the arteries of aneurismal subjects.

Fig. 2. represents a transverse section of the commencement of an aorta, the valves of which were united together by a deposition of calcareous matter. The deposition generally com-

mences between the duplicature of membrane which forms the valves, and, in an early stage of the disease, it is separated by a delicate pellicle from the cavity of the vessel. But when the deposition is very extensive, this membranous covering is destroyed, and the blood is in contact with the earthy matter. The deposition is very irregular in its appearance. Sometimes the valves are lacerated in an early stage of this disease, and their shrivelled remains are covered with earthy matter. In general, however, the rigid valves do not retain their situation close to the sides of the aorta, but, by projecting into its area, diminish the calibre of that part of the vessel. In some instances a mere fissure remains for the passage of the blood. In the specimen represented in this figure, the area of the vessel was very much diminished, and several eminences of calcareous matter were situated at the bases of the valves.

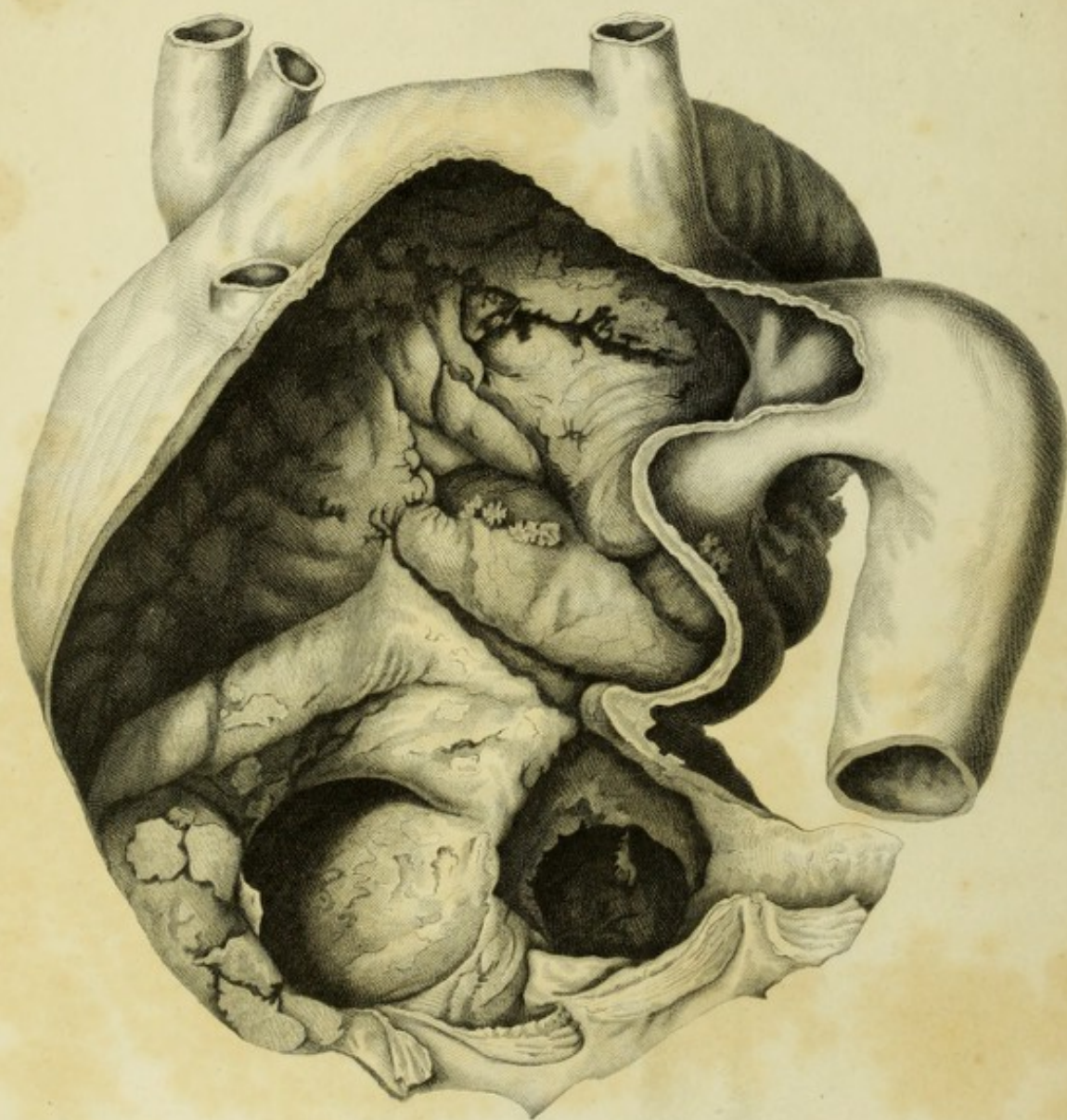
Fig. 3. The internal coat of arteries is frequently thickened, and converted into a pulpy structure, which has been denominated the steatomatous condition of an artery. This appearance was exhibited in the aorta a section of which is represented in this figure. In some instances the appearance of this disease resembles that of small flattened tubercles: in others the whole surface is irregular, and deep cracks are situated between the elevations. In this figure the mouths of four of the intercostal arteries are seen upon the most prominent elevations.

Fig. 4. is intended to represent a combination of diseased appearances which is very frequently met with in the arteries of aneurismal subjects. This figure is taken from a portion of the abdominal aorta of a patient who died with an aneurism of the arteria innominata. The internal coat exhibited the appearances of chronic inflammation, being of a red colour, which was irregularly shaded and disposed in the vicinity of other morbid appearances. In some places the internal coat is thickened, and converted into a steatomatous structure: in others it is also thickened, but converted into a dense cartilaginous structure. In some parts calcareous matter is deposited in the internal coat, and presents the appearance of small white specks: in others it is mixed with a deposition of atheromatous matter: more generally, however, it forms a brittle scale or crust. The mouths of the branches of the upper part of the abdominal aorta are seen in the specimen from which this figure is taken.

Fig. 5. exhibits the effects of acute inflammation of the internal coat of an artery. The specimen from which this figure was taken consisted of a portion of the aorta of a patient who was destroyed by a violent inflammation of the thoracic viscera. The inflammation had extended to the aorta, the internal coat of which was of a deep red colour, and a considerable effusion of lymph had taken place into its cavity. The effused lymph was intimately connected with the internal coat of the artery: a plug of it extended into the left subclavian artery, and nearly obliterated the cavity of that vessel.

Fig. 6. The semilunar valves of the aorta are sometimes thickened and converted into a dense structure resembling ligament or cartilage. They have a shrivelled and contracted appearance when thus diseased, and are incapable of closing the area of the vessel. In some instances they are ruptured, and form cartilaginous eminences, which are attached to the sides of the vessel. In the specimen from which this figure was taken the valves are of a dense fibrous structure, and their edges present an irregular cartilaginous appearance. This condition of the valves of the aorta is generally attended with an enlargement of the left ventricle, and an increase of its muscular structure.

Fig. 7. A peculiar fungus sometimes grows from the membranous lining of the heart and arteries, but more frequently from the semilunar valves of the aorta. In the specimen from which this figure was taken two of the valves of the aorta are ruptured, and their lacerated edges are studded with numerous wart-like excrescences. Some of these excrescences are attached to the valves by narrow peduncles: others have a broad base, and the appearance of unhealthy granulations. Immediately below the valves there was an extensive ulcer, which had penetrated deeply into the parietes of the ventricle at the root of the aorta.



Drawn by J. Hodgson

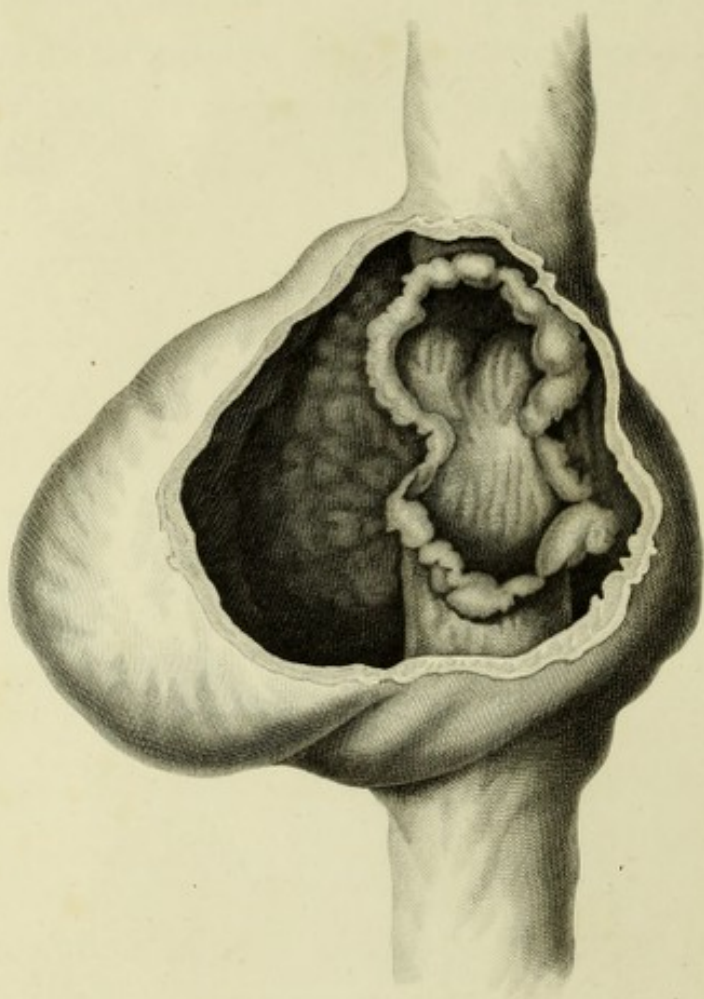
Engraved by J. Stewart

PLATE II.

THE disease which this Plate is intended to illustrate consists in a præternatural and permanent enlargement of the cavity of an artery, and is generally attended with a morbid condition of its coats. The most frequent seat of this disease is the ascending portion and the arch of the aorta, but it is by no means rare in other parts of the system. The dilated coats of the vessel form the boundary of the cavity: they are in general remarkably thickened, and the internal surface, in different parts of the cyst, presents the morbid appearances which are peculiar to the coats of arteries. In some instances small sacs or pouches proceed from the sides of the dilated vessel: in others the dilated coats appear to have given way, and an aneurism is thus as it were ingrafted upon a dilated artery.

In the specimen from which this figure was taken the ascending aorta is dilated into a cyst more than four inches in diameter. The dilatation commences at the origin of the vessel, and terminates abruptly in the middle of the arch of the aorta. The internal coat is irregularly thickened, and in some parts covered with a deposition of calcareous matter. In many places deep fissures are apparent, and immediately above the semilunar valves there are two sacculi

lined with thick crusts of calcareous matter. The semilunar valves are separated from each other in consequence of the dilatation of that part of the vessel to which they are attached: they are thickened and shrivelled. The abrupt termination of the disease in the arch of the aorta is very remarkable, and allows a just estimate to be formed of the extent of the dilatation. The arteria innominata, and the left carotid and subclavian arteries, arose from the upper part of the cyst.



Drawn by J. Hodgson

Engraved by J. Stewart

PLATE III.

THIS Plate is intended to illustrate the formation of aneurism in consequence of the destruction or rupture of the coats of an artery.

The preparation from which this figure was taken consisted of a thoracic aorta communicating with an aneurismal sac, which proved fatal by bursting into the lungs. The internal coat of the vessel was very much thickened and diseased. At the part where it communicates with the aneurismal sac a portion of the circle of the internal and middle coats of the vessel appears to have been ruptured or destroyed by ulceration: their lacerated and thickened edges are retracted to a considerable distance. The external is stripped from the middle coat to some extent, and contributes to the formation of the sac. In the commencement of the disease, when the internal and middle coats are lacerated or destroyed, the external is elevated and expanded into a small sac by the impulse of the circulating blood: the dilated external coat at length gives way, and the sheath of the artery and the surrounding parts form the remainder of the sac.

Fig. 1.



Fig. 2.



Fig. 3.



Fig. 5.



Fig. 6.



Fig. 4.



Drawn by J. Hodgson.

Engraved by S. Murray.

PLATE IV.

THIS Plate is intended to illustrate the formation of aneurism in consequence of the dilatation of the coats of an artery.

Fig. 1, 2, 3, 4. The aorta from which these figures are taken appeared to exhibit, in three stages, the formation of aneurism in consequence of the dilatation of the coats of the vessel. The internal coat was inflamed, and very much diseased. At the arch of the aorta there was a dilatation not larger than the half of a small pea: about two inches lower there was a second dilatation which would have contained a hazel nut; and, immediately above the diaphragm, a large aneurism, which proved fatal by bursting into the mediastinum, arose from the aorta. A portion of the vessel containing the first dilatation was macerated until its coats could be separated with facility. The three coats of the vessel were found to be equally dilated, and, when separated, each presented the appearance of a minute aneurism. *Fig. 1.* represents the diseased internal coat: near the middle of the figure a small pouch is apparent. *Fig. 2.* represents the portion of the middle coat, in which there is a corresponding dilatation. The same appearance also exists in *Fig. 3.* which represents

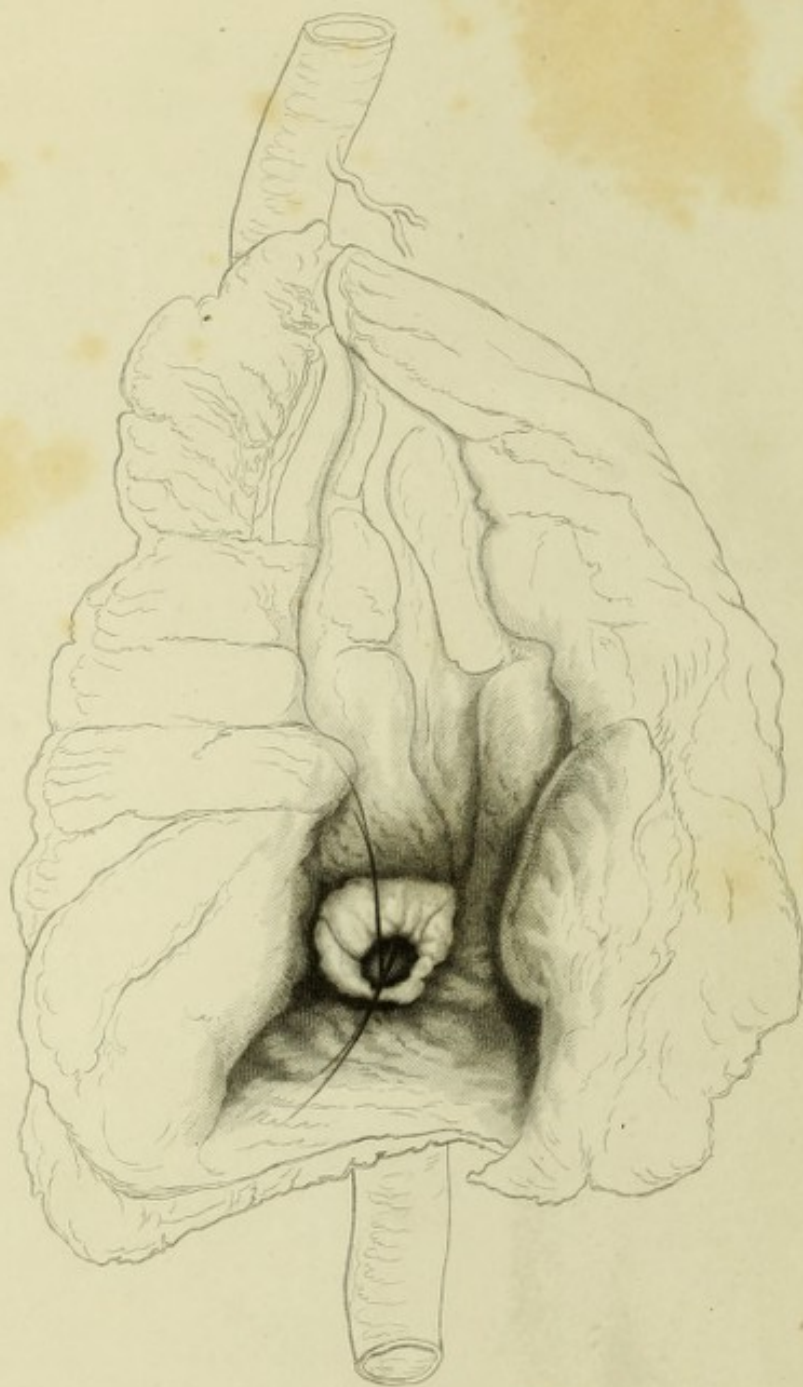
the external coat. The second dilatation, which is represented in *Fig. 4*, exhibited the same appearances in a more advanced stage. The coats of the vessel, at that part, adhered more intimately to each other than in a natural state; but it was evident that the sac was formed by the dilated internal, middle, and external coats of the artery. In the aneurism which was situated immediately above the diaphragm the dilated coats of the aorta could be traced to some distance into the sac, the remainder of which was composed of the parts contained in the posterior mediastinum and the vertebræ. This aneurism was too large to be represented in this plate, but that stage of the disease in which the dilated coats of the vessel have given way, and the surrounding parts form the remainder of the sac, is shown in the following figure.

Fig. 5. represents an aneurism of the thoracic aorta. A considerable portion of the sac is continuous with, and appears to be formed by, the dilated coats of the artery. The part at which the coats of the vessel appear to terminate is seen near the middle of the sac, the remainder of which is composed of a portion of the lungs. The difference in the structure of the two parts of the sac was very evident, and indicated the line at which the dilated coats of the vessel seemed to terminate.

Fig. 6. represents a portion of a popliteal artery, from the side of which a small sac arose. The internal coat of the

vessel was very much thickened, and contained numerous scales of calcareous matter. This little sac was evidently formed by the dilated coats of the vessel, for the internal and middle coats could be traced in its circumference: the former in that situation exhibited the same morbid appearances as in other parts of the vessel.

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Drawn by J. Hodgson

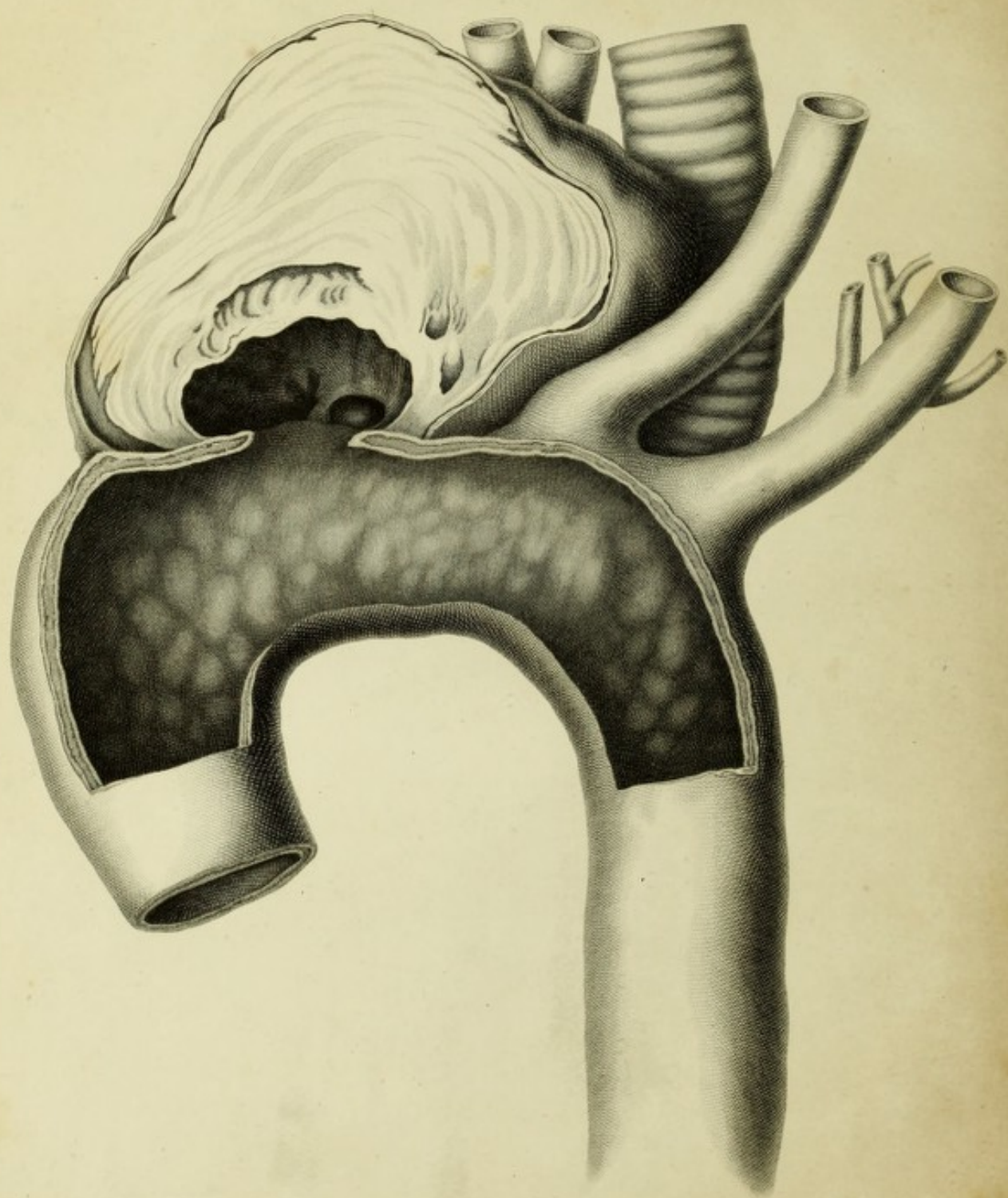
Engraved by J. Stewart

PLATE V.

THIS Plate is intended to illustrate the formation of a diffused aneurism in consequence of the rupture of a small sac formed by the dilated coats of an artery.

A sac which is formed by the dilatation of the coats of an artery, as it advances in size generally contracts firm adhesions with the surrounding parts; so that when the dilated coats of the vessel give way, the effusion of blood is prevented by these adhesions, and the remainder of the sac is formed in the same manner as when an aneurism is in the first instance the consequence of the destruction or rupture of the coats of an artery. In some instances, however, the sac which is formed by the dilated coats of the vessel bursts suddenly before the adhesions are sufficiently firm to resist the impulse of the circulating blood. When this happens, the blood is injected among the surrounding parts, forming a diffused aneurism. The figure represented in this Plate exhibits a small sac, formed by a dilatation of the coats of the femoral artery, which burst suddenly. A quantity of grumous blood was found among the muscles of the thigh. A large cavity containing blood was situated upon the triceps muscle. The femoral artery communicated with this cavity by a circular

opening not larger than the calibre of the vessel. This opening was evidently the mouth of a small sac, for the dilated and ruptured coats of the vessel are seen at the bottom of the cavity reflected upon the external surface of the artery. The internal coat of the vessel was much thickened, and contained numerous depositions of calcareous matter.



Drawn by J. Hodgson.

Engraved by L. Stewart.

PLATE VI.

THIS figure represents an aneurism of the arch of the aorta, and is intended to illustrate the mode by which a spontaneous cure of aneurism is sometimes accomplished in consequence of the sac being filled with lamellated coagulum. This aneurism originated from a circumscribed opening in the aorta, about three quarters of an inch in diameter, in which space the coats of the vessel were evidently deficient. The sac was nearly filled with very firm and fleshy layers of coagulum, so that it was impossible it could have given way in any direction. This coagulum did not extend into the aorta, but was arched over the opening into that vessel so as to leave a small cavity. Through this cavity the blood passed into the arteria innominata, which originated from the inferior and posterior part of the sac. The arched termination of the coagulum had a membranous appearance on its surface. The sac adhered intimately to the trachea, and caused it to assume a remarkable curvature. The aorta was larger than usual. Its internal coat was of a deep red colour, and irregularly thickened. In some places it was converted into a cartilaginous, and in others into a steatomatous structure.

This figure represents an anterior view of the head of the cat, and is intended to illustrate the mode by which a spontaneous outflow of anæsthetic is sometimes accomplished in the case of the cat being filled with kerosene. The anæsthetic is said to originate from a communication opening in the lower part of the nasal cavity, and to issue from a small space, the base of the nasal bone, situated between the two nostrils, and filled with very thin and highly elastic cartilage, so that it was impossible to render these parts rigid in any direction. This connection will not extend into the nasal cavity, but will extend over the opening into that cavity, so that a small cavity, through this cavity the blood passed into the nasal cavity, which originated from the inferior and posterior part of the nasal cavity. The nasal cavity of the cat had a remarkable appearance as the nostrils. The cat adhered firmly to the nostrils, and passed a few minutes in a remarkable position. The cat was larger than usual, and was of a deep red color, and irregularly thickened. In some places it was converted into a cartilaginous mass, and in others into a spongy structure.

Fig. 1.

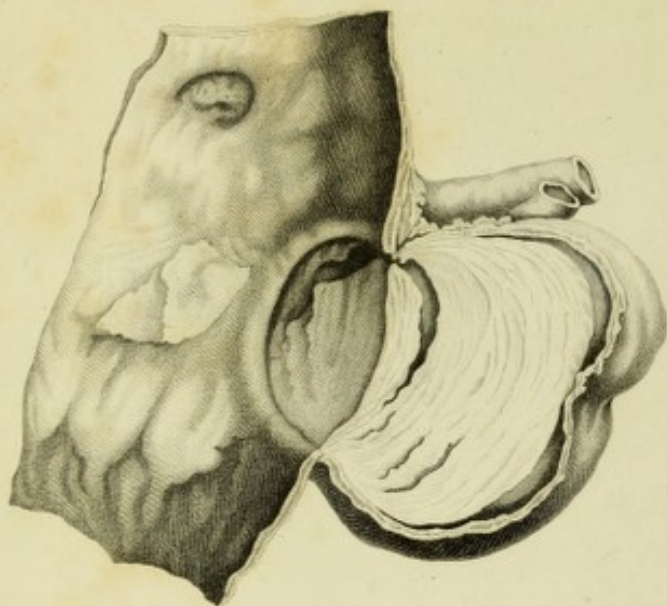


Fig. 2.



Fig. 3.



Fig. 4.



Drawn by J. Hodgson

Engraved by J. Stewart

PLATE VII.

THIS Plate also is intended to illustrate the modes in which a spontaneous cure of aneurism is sometimes accomplished in consequence of the deposition of coagulum in the sac.

Fig. 1. represents a section of an aorta in which an aneurism was situated at the origin of the cœliac artery. This aneurism was filled with firm lamellated coagulum, which entirely closed the communication between the sac and the artery. The coagulum terminated at the part where the coats of the artery had given way in a smooth surface, which had a membranous appearance. The cœliac artery arose from the sac: the commencement of this vessel, to the extent of an inch, was obliterated by coagulum. The superior mesenteric artery was obliterated by a thickening and deposition of atheromatous matter in its coats. The parts are reversed in the preparation from which this figure is taken.

Fig. 2. represents the external appearance of a small aneurism arising from the anterior artery of the cerebrum. This tumour was very hard, and of a dark colour. The appear-

ances which were exhibited when the vessel was slit open in a longitudinal direction are represented in *Fig. 3*. A small circular opening was observed in the coats of the artery corresponding to the part at which the tumour was attached. This opening, which occupied but a small portion of the circumference of the vessel, was plugged by the base of a firm lamellated coagulum, which filled the sac, but did not extend into the cavity of the vessel, so that the continuity of the latter was restored, and the ingress of blood into the former was prevented. The condition of this small aneurism was therefore similar to that which is represented in *Fig. 1*. of this Plate. When the sac is filled with coagulum, as in these specimens, the increase of the disease is prevented: the coagulum is gradually absorbed; as its absorption advances the sac contracts, and in this manner a cure of the disease is in some instances accomplished, without the obliteration of the vessel from which the aneurism arose.

Fig. 4, represents a longitudinal section of an aneurism of the femoral artery in which coagulum was deposited throughout the whole circumference of the interior of the sac. A small canal remained through the centre of the mass, which afforded a passage for the blood, and preserved the continuity of the tube. The sac commenced immediately below the origin of the epigastric artery, and appeared to occupy the whole circle of the vessel. The canal which remained through the centre of the coagulum was irregular in its

form, and in some places larger than the calibre of the artery. The coagulum was of a very firm lamellated structure: that part of it which formed the immediate boundary of the canal had a membranous appearance. The *arteria profunda* arose from the inferior extremity of the sac.

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Fig. 1.

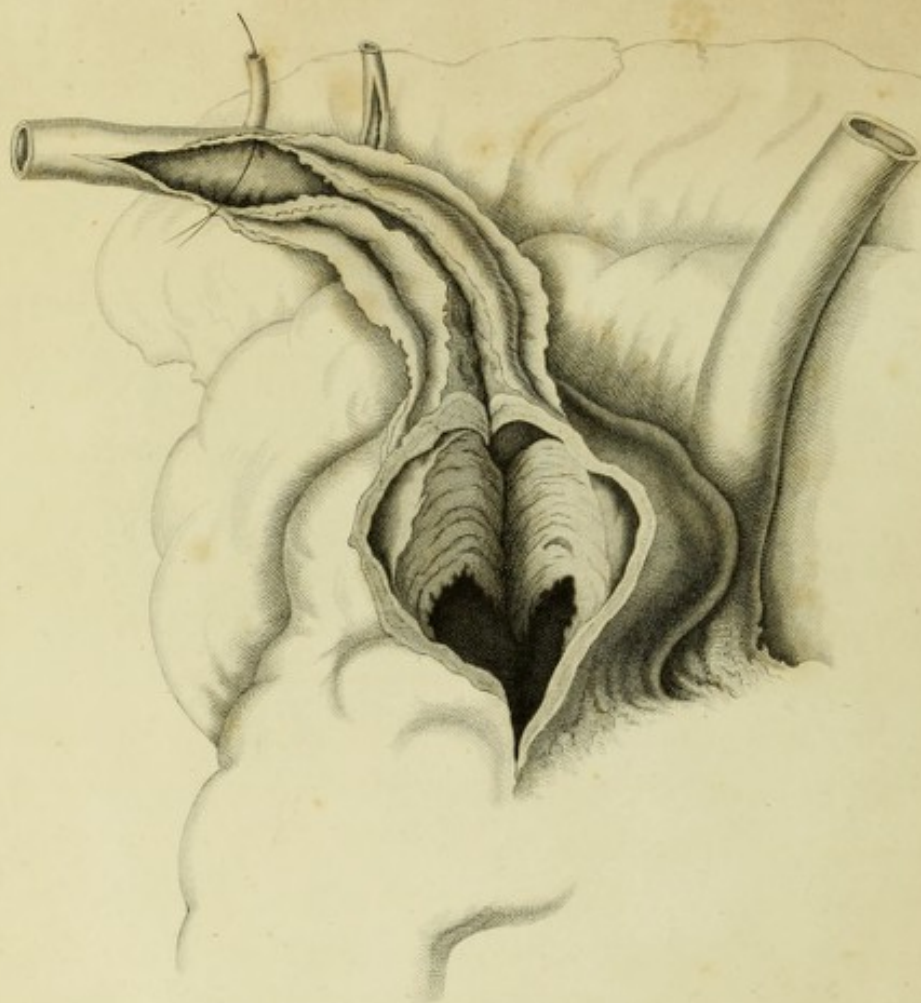


Fig. 2.

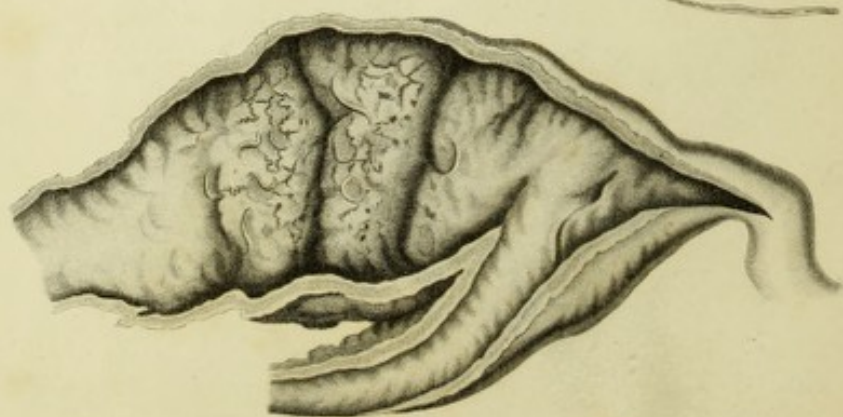


Fig. 3.



Drawn by J. Hodgson

Engraved by J. Sherrin

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PLATE VIII.

Fig. 1. represents part of a preparation which was taken from a patient who died with a very large aneurism of the aorta, which had caused the absorption of the upper part of the sternum, and appeared externally in the form of a large pulsating tumour. This great aneurism arose from the arch of the aorta, and filled the upper part, more especially the left side of the chest. The commencement of the left subclavian artery was apparently dilated into a sac resembling in size and shape a very large chesnut. This small aneurism was nearly filled with layers of coagulum; and the subclavian artery, from the point where it emerged from this little sac, was filled with a firm ligamentous substance. The vertebral, the internal mammary, and superior intercostal arteries, were very much contracted, and filled with a similar substance. The inferior thyroid artery was not obliterated, and beyond the origin of this vessel the subclavian artery was pervious. The most prominent part of this figure represents the aneurism at the commencement of the subclavian artery cut open, so as to expose a section of the lamellated coagulum which it con-

tained. Beyond this part the subclavian and vertebral arteries are filled with a ligamentous substance. A bristle is introduced through the inferior thyroid into the subclavian artery. Part of the posterior surface of the large aneurism which arose from the arch of the aorta, and the commencement of the descending aorta, are represented in outline. In this case the arm was well nourished, although the subclavian artery was obliterated before it had given off any branches.

Fig. 2. represents the superior mesenteric artery of an ass dilated into a sac containing numerous small worms and flakes of lymph or coagulum. This disease very frequently exists in the superior mesenteric artery of horses and asses. Immediately after its origin from the aorta the vessel is gradually dilated into a sac. This sac consists of the three coats of the vessel, which are remarkably thickened. Sometimes the dilated coats of the vessel are soft and pulpy; sometimes they are hard, and of a dense tendinous structure. The internal surface of the vessel in some places is smooth and polished; in others it is irregular and rough, in consequence of the adhesion of flakes of lymph or coagulum. In the specimen represented in this figure flakes of coagulum were found only in a part of the cavity: in some instances the coagulum is found in irregular masses, and sometimes it accumulates to such an extent as to obliterate the canal. Numerous small round worms are imbedded in the lymph.

Fig. 3. represents one of the largest of these worms of its natural size. The head is obtuse, and the tail pointed. A convoluted line, which I conceive to be the internal tube, commences at the head, and terminates a little above the extremity of the tail. When examined under a microscope, several longitudinal lines are observed passing down the surface of the worm, which is intersected by numerous transverse rings.

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