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Contributors

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To the Royal College of Surgeons of England
12

ANIDIAN MONSTE

BY

JOHN GAMGEE.

Extracted from 'The Veterinarian' for June,

LONDON:
PRINTED BY
J. E. ADLARD, BARTHOLOMEW CLOSE.
1851.

To the Royal College of Surgeons of England
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ROYAL COLLEGE OF SURGEONS OF ENGLAND
PRESENTED BY THE AUTHOR.

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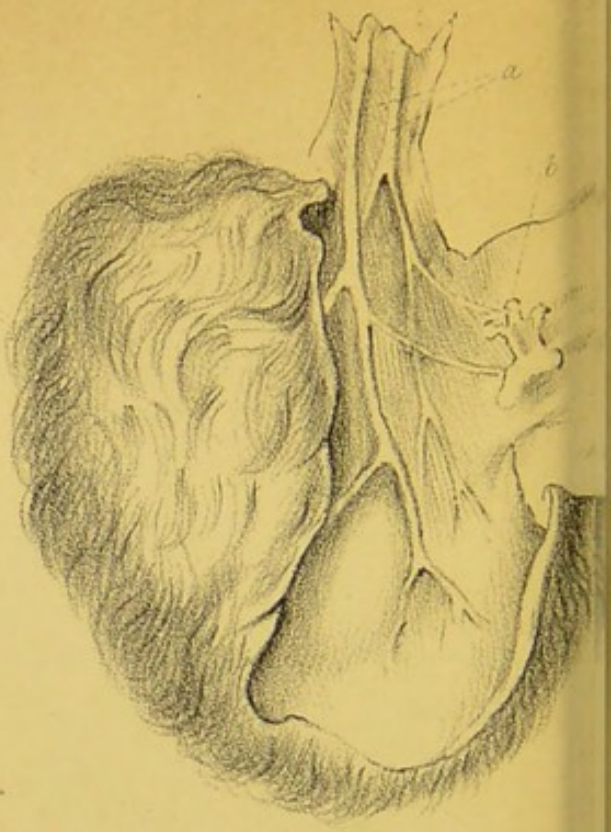

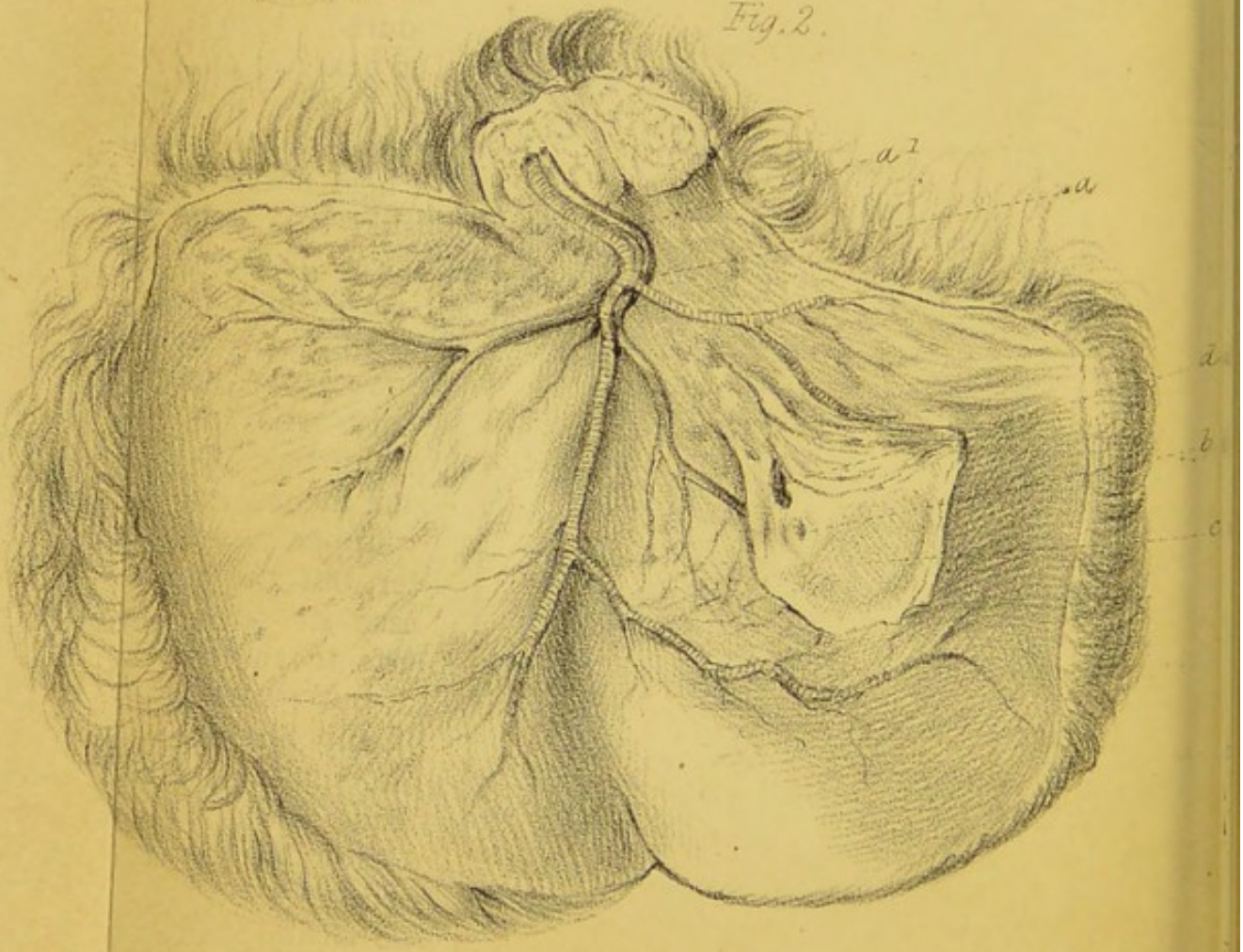

John Gamgee, del. et lith.

Day & Son Lith.

ANIDIAN MONSTERS.

History.—I am indebted to Mr. George Varnell, Assistant-Professor at the Royal Veterinary College, for the specimen which is the basis of this communication. It was sent him by Mr. Bowman of Howden, from whom we have learned that Mr. Scott of Hook, owns the cow which expelled it *per vaginam*, before giving birth to a living male calf, which survived only a few hours. Whether the two were in separate membranes, a fact scarcely to be doubted, cannot be ascertained.

Description.—It is a round, spheroidal production, (see Plate II, fig. 1), covered with red hair, except near its pedicle, *a*, where long white hairs, with a whirl-like disposition occupy a space, *c*, as large as a crown piece. Above the pedicle is a spherical body, *b*, about the size of a walnut. This is separated from the large mass by a slight constriction, and at the back of it is a little lozenge-shaped space destitute of hairs. The whole weighs twenty-five ounces. The large sphere measures six inches from the base of the peduncle to its opposite extremity, and four inches and a half in its straight diameter. The head, or upper globular, portion, measures nearly an inch in diameter, but the long, red and white hairs which cover it, increase its apparent size. The entire mass is elastic, and imparts to the feel a sense of fluctuation from a contained fluid, but which it is evident is not freely floating in a cyst of any dimension. On puncturing the body about the middle, and applying pressure, a somewhat sanious, turbid, and serous fluid flows out. On the incision being freely extended downwards, twelve ounces of this fluid are obtained.

The structure of the growth can now be easily studied, (see fig. 2). Having previously injected its vessels, they

were dissected with care. Only one principal artery and vein are found to exist. The former, *a*, proceeds straight downwards to the opposite part of the growth, ramifying laterally in its course, and lastly, bifurcating; its venous companion, a^1, has a similar distribution. In the right half of the mass, where the arrangement of the vessels is made clear, a little dissection exposes a circumscribed cavity, *c*, which is lined by a clear, glistening mucous membrane of normal structure and appearance, and covered with a layer of tesselated epithelium. Anteriorly, at *d*, it presents a digital prolongation which is manifestly an imperfectly developed channel of communication between the mucous sac and the external surface. Beneath this mucous sac is a nodulated osseous rudiment, *b*, without definite shape, extending from before backwards. Under the microscope, the normal structure of bone in a somewhat imperfect condition, is clearly made out. From it are found to radiate fibrous septa, which may be said to form the bulk of this monstrous production. They are directed outwards, intricately interlacing so as to form a network, in the meshes of which the serous fluid was contained. Externally, these septa are implanted into the inner surface of the common integument, which is in every respect healthy. In various parts of the mass, but especially near the entrance and exit of the blood-vessels is a considerable accumulation of adipose tissue; it is almost the sole constituent of the sessile head or appendix, and into it branches of the blood-vessels freely penetrate.

Notwithstanding the scantiness of historical data, the facts just related afford ample basis for a correct judgment as to the nature of the specimen. Developed as it was in the uterus, composed as it is of organized tissues, to which blood-vessels, obviously in the shape of an umbilical cord, proceed, there can be no question, even apart from a knowledge of other facts, that we have to deal with a fœtal monstrosity, destitute of all definite shape. Happily, we have preserved a record of other cases of a similar nature. The fact, however, of their being uncommon, and of my being able to add the particulars of three specimens to the cases studied by Gurlt, Vrolik, and Geoffroy St. Hiliare, who are the most eminent of teratologists, will, I think, be accepted as sufficient justification for the description I am about to give, as the basis for a few physiological considerations.

Fig. 3 of the plate represents an Anidium which I had occasion to examine in the remarkable museum with which Professor Poletti has enriched the city of Fer-

rara. It was also expelled by a cow, and possesses all the characters of the one above described, with the exception of being much smaller, and lacking the rudimentary mucous cavity, and the signs of a head. The umbilical artery and vein are to be seen at *a*, and a small tubercle of bone and cartilage, which are represented at *b*, add to the already accumulated evidence that even the lowest forms of anomalous productions are never destitute of an attempt at high structural development.

The collection of preparations in Professor Alessandrini's museum in the University of Bologna, I found to be far too extensive to be fully studied in the few weeks of my stay there last spring, and being bent on preparing a large assortment of drawings from morbid specimens, with a view of practically illustrating disease in living animals, I was forced to omit Teratology, and for this reason I cannot reproduce on stone to-day, the very interesting specimen which is thus noted in the catalogue of my venerable master.

"No. 2194. Amorphus, Gurlt; amorphus cephalicus of Alessandrini. A shapeless monster, principally composed of the elements of the head, with few viscera. The veterinary surgeon, Mr. Lugari, on the 14th day of June, 1834, whilst assisting a cow in labour, in the Commune di Spilamberto, Stati Estensi, noticed that after the birth of one live and well-developed calf and its membranes, a slight contraction caused the exit of a globular sac perfectly closed, resembling a fetus in the early stages of development, still invested within its membranes. Having opened the sac a moderate quantity of water escaped with the above-described monster. In addition to an incomplete head, it presents a small portion of a membranous canal, comparable to a portion of intestine, on the mesentery of which are inserted the umbilical vessels."

Ruysch, in his 'Thesaurus Anatomicus,' was the first to describe an *anidium*, and from that time, fifty years elapsed before Dr. Bland, in his 'Midwifery Reports,' published in the 'Philosophical Transactions' for 1781, page 363, in giving a table of the proportion of male to female children, of the number of twins, and of the children that were deficient or monstrous, and of those that were dead born, stated that a woman was delivered of twins, the one well-formed, the other imperfect, which he describes as follows:

"Of this singular production, to which I have not ventured to give a name, the following is the history and description:—The woman who produced it was about twenty years of age; this was her first pregnancy. She was, after

a labour, delivered of a female fœtus, and its placenta, in which nothing uncommon was observed, and although the uterus remained of an unusual size, yet the pains not recommencing, there was no suspicion entertained but that its bulk was occasioned by coagulated blood. On the third day the pains became violent, and this monster was born. Its shape was spherical, but somewhat flattened. It measured eight inches,* and weighed about eighteen ounces. It received its nourishment by an umbilical cord, to which was attached a portion of membranes, and although no placenta was found, it is probable it had a small one, and that it was enclosed in its own involucrum. It was completely covered with a cuticula, and a little above the part where the navel-string terminated, there was a hairy scalp covering a bony prominence, somewhat resembling the arch of the cranium. On dissection, it was found to be plentifully supplied with blood-vessels, proceeding from the navel-string and branching through every part of it. It had a small brain and medulla spinalis continued under a bony theca, with nerves passing from thence through the foramina of the bones, but no resemblance of any thoracic or abdominal viscera. The rest of its bulk was made up of fat."

Vrolik, in his 'Memoirs' of 1822, wrote on 'Acephalic Monsters,' recognizing six classes of them, the fifth consisting of individuals without heads and extremities, or solely composed of a trunk. He thus adopted Tiedemann's subdivision, overlooking the fact that Valisnieri's case, on which Tiedemann had founded the class, possessed heart and arteries, also parts resembling lungs and liver, besides stomach and intestine, so that it will not be considered under the same head as Bland's case above quoted, and which Vrolik himself refers to at length. Tiedemann firmly maintained that no monster, however imperfect, was ever destitute of those primordial portions of intestine which characterise the *anidium* I have above described. Vrolik expressed his satisfaction at being able to publish a case in corroboration of these views, and spoke of a spherical mass which was delivered the morning after the birth of a well-formed female child: he could get to know nothing of the placenta. The mass consisted of skin covered with small hairs. In the centre it bore evident traces of a spinal column, the inferior vertebræ of which were fused into an irregular and shapeless mass; the superior ones

* In the British Museum copy of the 'Philosophical Transactions,' the number five has been written in the margin, and the number eight of the text erased.

were separate, and preserved their rounded aspect. Around the vertebræ were a few muscular fibres, and the spine communicated superiorly with what might be considered an imperfect model of the brain, in which, however, he could not distinguish the cortical from the medullary portion. This imperfect nervous centre was enclosed in a kind of *dura mater*, which was not, however, consolidated by an outer osseous box in the rudimental head. The spinal marrow terminated in a rounded extremity at the point of fusion of the vertebræ; but above this, nerves were given off which passed through the spaces between the vertebræ, and were distributed to the soft parts around. There were, however, no origins of nerves discoverable in the rudimentary brain. Independently of the spinal column were two other irregular bony nodules. This monster also possessed a semicircular and superficial cavity, which, with the exception of umbilical vessels, contained only a short and recurrent intestinal fold, attached by a little loose cellular tissue, and terminating at one end in a *cul de sac*, and in the other losing itself in the cord.

In his 'Tabulæ,' published in 1849, Vrolik refers this specimen to Gurlt's genus Amorphus; and in his 46th plate, not only has he depicted it, but also drawn and described another case from a cow which was simultaneously delivered of another well-formed calf. This specimen also consists of a cutaneous envelope, adipose and cellular tissue, with two regular indurated eminences, and a cylindrical vagina corresponding to a portion of denuded integument. The obtuse end is filled with a gelatinous substance. The primordial intestinal parts are so obscure, that he was unable satisfactorily to distinguish them. There is a rudimentary spinal cord which distributes nervous ramifications. The umbilical vessels are distributed all over the mass for nourishment.

Physiological considerations.—It will have been noticed, in the course of these remarks, that we have practically recognized the principle of classifying monstrosities. This may perhaps seem strange to those who, being accustomed to see their almost infinite variety, may have come to the conclusion that, if there were any class of natural objects in the construction of which all rules seem violated, that class must comprise monstrosities. But this impression of the superficial observer must yield to the one forced upon the mind of the deep thinker, that even in the most marked deviation from the natural order of things, Nature's works present evidence of conformity to fundamental laws. Thus the astronomer and geologist are enabled logically to account for

the convulsions of our own and of other planets; and, thanks to the labours of American mariners in particular, it is now ascertained that even the tempests of the ocean are regulated by laws,—so much so, indeed, as to surpass the anticipation of those most sanguine philosophers, who prosecuted their labours in the belief that they would eventually discover every law entering into the constitution of nature's code. Happily, the anatomist has been no less successful in his investigations, as is proved by the labours of Gurlt, Geoffroy St. Hilaire, and others, who have succeeded in establishing a classification of monsters. True it is that so great is their variety, that specimens are every now and then met with, which it is difficult to arrange under one order in preference to another. For this reason, the eminent teratologist of Amsterdam has expressed a doubt as to the value of a classification; but for a similar reason should we not see many objections to classify any group of natural objects? "Natura non facit saltus" was the very just exclamation of Linnæus. Indeed, so gradual are the steps of nature's changes, as very often to be imperceptible: hence it is that beings which are so easily distinguished as animals and vegetables in their higher forms, are almost impossible of recognition in the lower ones. This is but a proof that all human systems are imperfect. It is surely no objection against recognizing an animal and a vegetable kingdom in particular;—a principle of classification in general. We have dwelt thus at length upon the advisability of classifying monsters, because this is one of the first attempts of the kind in the veterinary profession amongst ourselves. We hope, eventually, to prove the scientific advantages which are to be derived from a cultivation of this system; meanwhile, we give a few reasons in support of the name *Anidium*, which we have adopted for the monsters above described. It was suggested by Geoffroy St. Hilaire, as indicating *absence of specific form;* practically it proves very serviceable, for a class of monsters, as our observations prove, presents itself in which none of the ordinary animal forms are recognizable. Gurlt suggested, and Alessandrini adopted the generic name *Amorphus*, which appears to us more objectionable, because less precise. Employed as it is, commonly by scientific writers, to express absence of structure, it cannot strictly be applied to masses of animal matter, which, however shapeless as a whole, present a high degree of structural development in their constituent parts—*e. g.*, skin, blood-vessels, &c.

Reviewing the cases related in this communication, we are struck by the fact that Dr. Bland's, Vrolik's, Alessandrini's,

and my own, may be distinguished by the specific name *Anidium Cephalicum*, as having a rudimental head; moreover, they present a rudimental alimentary canal. The other specimens described by Ruysch, Vrolik, Gurlt, and Poletti, were absolutely destitute of the latter, and of any signs of a head: hence we would suggest for them the name *Anidium Acephalicum*.

In conclusion, we would advert to the specimen under consideration as illustrating the process of formation from the incubated egg to the perfect animal. With all the changes which are set up in the egg as produced in the female ovary, so soon as it has been acted upon by the prolific secretion of the male, it is not our intention now to deal. Suffice to observe, that those changes gradually progress until the nervous, the vascular, the nutritive, and the locomotive systems, are developed in perfect harmony, and constitute the animal. In this ascent from the simple to the complex, parts may fail, such as a limb or an eye; even organs of the highest importance may be lacking, such as the brain and heart; or, on the other hand, organs or parts may be developed in excess—*e. g.*, double heads, one or more extra limbs, &c. This defect or excess of formation leads to appearances, monstrous, as compared with the common beautifully regular productions of nature, and as such they are popularly designated monstrosities. In reflecting on the varieties, which every practitioner must have observed, he will find that, however strange these forms may be, all are reconcileable with the law of excess or defect—defects of which the Anidia are the simplest examples. They exhibit none of the ordinary forms of animals, yet, from the origin and the perfectness of the structures which enter into their constitution, they must be recognized as ova to which the tendency to development has been communicated, though arrested at so early a stage, that there has been no opportunity for the formation of particular viscera or special parts.

16, Upper Woburn Place;
May, 1855.