

attention to the important anatomical characters which separate the articulated Brachiopoda as a group from the inarticulate division.

In conclusion, the author draws a parallel between the Brachiopoda and the Polyzoa, demonstrating the close structural conformity between these two groups.

II. "On the Placenta of the Elephant." By Professor RICHARD OWEN, F.R.S. &c. Received April 1857.

(Abstract.)

In this paper the author gives a description of the fetal membranes and placenta of the Indian Elephant. The chorion forms a transversely oblong sac about 2 feet 6 inches in long diameter, encompassed at its middle part by a placenta of an annular form, 2 feet 6 inches in circumference, from 3 inches to 5 inches in breadth, and from 1 inch to 2 inches in thickness; in structure resembling that of the annular or zonular placenta of the Hyrax and Cat. The part of this placenta which had been detached from the maternal portion occupied a narrow annular tract near the middle line of the outer surface. A thin brown deciduous layer was continued from the borders of the placenta for a distance varying from 1 to 3 inches upon the outer surface of the chorion. Flattened folds of a similar layer of substance, or false membrane, could be raised from some parts of the surface of the placenta; at other parts the substance formed irregular fibrous bands,—the fibres extending in the direction of the circumference of the placental ring. The outer surface of the chorion is for the most part smooth and even shining, but at each of the obtuse extremities of the sac there was a villous subcircular patch, between 2 and 3 inches in diameter, the villi being short and graniform, $\frac{1}{8}$ th of a line in diameter or less. Thus the chief points of attachment of the chorion to the uterus are, at the equator by the annular placenta, and at each pole of the elongated sac by the subcircular villous patch. The umbilical cord was short and rather flattened: it was formed by two arterial and one venous trunks, and by the slender neck of the allantois, with the connecting cellular tissue and the covering of amnios: it measured about 6 inches in

length, before the division of the vascular trunks, and about 3 inches in circumference. The inner surface of the amnios is roughened by brownish hemispherical granules, from 1 line to $\frac{1}{10}$ th of a line in size—commonly about $\frac{1}{2}$ a line; the outer surface is finely wrinkled, but smooth; the amnios is continued from the base of the umbilical cord upon the allantois, which is of considerable size, and is so interposed between the chorion and amnios as to prevent any part of the amnios attaining the inner surface of the placenta. The amnios consists of two layers: one is the granular layer, continued upon the inner or foetal surface of the allantois, and thence upon the umbilical cord; the other is the smooth outer layer, continued upon the outer or chorionic surface of the allantois, and thence upon the inner surface of the chorion. The allantois divides where the amnios begins to be reflected upon it into three sacculi; the disposition of these sacculi is described in detail. The chief peculiarity was the presence, upon the inner layer of the allantois, and chiefly upon the endochorionic vessels, of numerous flattened oval or subcircular bodies, varying in diameter from an inch to half a line: their tissue was compact, structureless, and of a grey colour. On dissecting some of the vessels over which these bodies were placed, the vessel was found to pass on the chorionic side of the body without undergoing any apparent change, the body being developed from the allantois, and from that part which forms the allantoic side of the sheath of the vessel. These bodies were most numerous near the placenta: their free surface was smooth, not villous like the cotyledons of the Ruminantia, from which they likewise differed in projecting inwards towards the cavity of the allantois. The most important modification of the vascular structures connecting the chorion with the uterus, in the Elephant, is their combination of two forms of the placenta, viz. the ‘annular’ and the ‘diffused,’ which have hitherto been supposed to characterize respectively distinct groups of the class Mammalia.

The author concludes by a comparison of the different known forms of the placenta, including those of the *Pteropus* or large frugivorous Bat, and of the Chimpanzee; and by remarks on the value of placental characters in the classification of the Mammalia.