the end of the two long prehensile arms of the ten-armed Cephalopods (*Sepia*, &c.). It was not so easy, unfortunately, to determine the number of the longer tentacles with a small sucking-cup at the end, as most of these had been torn away. It appears, however, that sixteen longer tentacles (hardly as long as the radius of the umbrella) are inserted under the sixteen uppermost sucking-cups of the first size, and thirty-two shorter tentacles between them below the sucking-cups of the second size (figs. 1, 2). The structure of these tentacular formations is the same everywhere. The principal mass forms a strong, solid axis of large chordal cells (or clear vesicle-like endoderm-cells, *yt*). This is covered by a thin but firm and very elastic fulcral plate, and above this a thin layer of longitudinal muscular fibres. The external epithelium of the ectoderm covering the latter is rich in cnidæ, which are usually accumulated on the abaxial side of the tentacle basis in the form of a thick cushion of cnidæ (figs. 6, *n*; 8, *n*). The sucking-cup at the truncated end of the tentacles is likewise furnished on its enlarged margin with a thick ring of cnidæ, and has a strong muscular plate on its concave surface (fig. 7, *xa*). The mode in which these sucking-cups are very regularly and delicately distributed on the margin of the umbrella will be best understood by comparison of figs. 1 and 2 in Plate III., figs. 4 and 10 in Plate IV. and of the sections of the umbrella margin in figs. 5–8 (comp. the explanation of Pls. III. and IV.). The velum (figs. 2, 3,*v*; 4,*v*), is very broad and powerful, and appears capable of completely closing the umbrella cavity. The internal axial half, whose free margin surrounds the narrow entrance to the umbrella cavity, is much thinner than the strong external or abaxial half; the two halves are divided by a deep annular fold projecting into the umbrella cavity (figs. 3, 4). The muscles of the velum form numerous delicate circular folds. The subumbrella has also very strong circular muscles forming numerous ring-like folds on the whole lower surface of the umbrella. The umbrella cavity is divided (as in *Pectanthis asteroides*) into eight deep funnel-like sections, as eight broad, vertical septa (four perradial and four interradial) stretch across from the eight radial canals and genitalia to the base of the stomach (mesogonia, fig. 3, *wa*).

The central mouth leads into a tube-shaped quadrangular stomach, from whose basis in the bottom of the umbrella eight radial canals pass out (four perradial and four interradial). These bear the sac-shaped genitalia in their proximal half, which are fastened to the subumbrella by the leaf-shaped mesogonia just mentioned. The stomach is a very thick-walled tube with strong muscles, has the form of a quadrate pyramid, is fixed by the narrow basis in the centre of the subumbrella, and hangs down in it nearly to the middle of the height of the umbrella cavity (fig. 3, *gp*). At the quadrate oral opening the four perradial corners of the pyramid (*ak*) pass into four triangular oral lobes (*al*) whose axial internal surface is divided by a (perradial) longitudinal groove into two lips (fig. 2). An interradial thickening of the longitudinal muscle appears sharply defined between each two oral lobes (figs. 2–11). The interradial oral edges which are