the pedicle is extended (Pl. III. fig. 1) the ventral surface is nearly straight and continuous with the pedicle, which leaves the body posteriorly at the ventral edge, while the kidney-shaped mass of the body projects dorsally. The pedicle in contraction is shorter than the body, is nearly cylindrical, and terminates in either a rounded or somewhat flattened end; but in extreme elongation (Pl. III. fig. 1) its appearance is much more attenuate. It is marked ventrally by various longitudinal striæ from the muscular bands.

The anterior region of the body curves somewhat suddenly downwards and backwards, and forms a flattened surface on which the great buccal disk or præ-oral lobe rests.

Buccal Disk.

The great buccal disk (Pl. II.; Pl. VI., fig. 2, *bs*) forms a thin plate with two slight and generally bilaterally arranged elevations in the centre anteriorly, and is divided into two regions by a notch at each side, the anterior moiety being the larger and thicker. The surface of the latter is marked by an arch of brownish pigment-grains, which are densest in the centre of the curve, and shade off gradually on each side; while a very conspicuous and well-defined deep brownish-red band commences in the posterior division at the notch, and runs with a backward curve to the opposite side. Between this and the posterior margin a brownish pigment-belt—less developed than in front—occurs. The two bands just mentioned form, when completed, a somewhat flattened ring. In many specimens, however, the brownish pigment has been entirely removed by the spirit, leaving only the well-defined reddish band posteriorly.

In intimate structure (Pl. VI. figs. 2, 3, *bs*) [1] the disk is found to consist of a ventral plate, the superficial characters of which have been described, and a pedicle. In section the former presents the features of a great hypodermic shield somewhat similar in structure to the Nemertean or Annelidan skin, and the surface of which in life is probably clothed with cilia, as indeed Professor G. O. Sars found in *Rhabdopleura*, though no distinct cuticular layer is visible in the preparations. This hypodermic tissue is marked in section by vertical striæ, which in the thick anterior central region assume a somewhat radiate aspect. The free parts of the shield present dorsally a firm basement-tissue under the cuticle, while ventrally, that is, on the secreting surface, the granular glandular tissue terminates in a translucent smooth edge. As the pedicle is approached, a narrow reticulated region appears within the basement-tissue strengthening the dorsal region of the disk, and the inner as well as the outer wall of this region assumes a firm structure—so as to resemble the basement-tissue. In the centre of the pedicle this region is traversed by a radiate series of muscular fibres, which spring from the firm tissue, constituting a kind of skeleton strengthening the basal part with which the plumes are

[1] I am much indebted to my assistant, Mr. John Wilson, B.Sc., for making a series of finely stained sections of *Cephalodiscus*. These have enabled me to determine features not fully seen in unstained sections made in cork by the hand.