

connected. From this insertion they radiate into the thick central mass of the shield, and some appear to reach the pale ventral region of the hypoderm. Somewhat behind the former region the fibres also arise from the basement-tissue lining the hypodermic investment of the pedicle. This fan-like arrangement of the muscular fibres must confer great mobility on the disk, so that its broad scale-like surface can be applied either as a sucker or in an undulatory or partial manner, indeed enabling it to act as a useful locomotive organ. In this connection also it is probable that the basement-tissue may be highly elastic, especially in the absence of any signs of horizontal or transverse muscular fibres, and in connection with the entrance or exit of fluid by the proboscis pores. The glandular nature of the disk, again, shows that it is a structure with secerning powers of great activity, and in close relation with the remarkable cœcœcium. Superiorly the pedicle of the buccal disk runs into the region at the base of the arms, and in sections a fine layer of longitudinal and oblique muscular fibres occurs on the inner surface of the dorsal wall of the pedicle, though such have not yet been seen anywhere on the inner surface of the shield.

In the centre of the buccal shield is a large mesoblastic cavity through which the radiate muscular fibres before mentioned pass, and which communicates with the exterior by two well-marked pores situated dorsally on each side of the middle line at the great central nervous system. In oblique sections (*e.g.* Pl. VI. fig. 3, *bp*) these pores lie close together in their progress inwards. What relation the ciliated "sense" organ of *Rhabdopleura*, as described by Sars, and also figured by Lankester, may have to the proboscis-pores of *Cephalodiscus* is a feature of moment for future consideration. In *Cephalodiscus* these pores seem to be formed by invaginations of the hypoderm of the region, but their function is as uncertain as the single pore perforating the nervous system in the proboscis of *Balanoglossus*. The proboscis in the latter is much more muscular and has an evident proboscis-gland.

While therefore the buccal disk of *Cephalodiscus* is in all probability the main organ of locomotion, just as in *Rhabdopleura*, which was seen by Professor G. O. Sars drawing itself up to the aperture of its tube, it differs from the shield of the latter by its much greater size.

In the form just mentioned the organ somewhat resembles the truncated and thickened opercular process of certain Annelids, while in *Cephalodiscus* it overlaps the neighbouring parts to a great extent. The intimate structure of the shield in *Rhabdopleura* has only been alluded to by Sars, and he does not appear to have clearly made it out. He says—"On examining more closely this buccal shield we observe in the middle of it an opaque part which seems to contain an interior glandular organ. Continuing the investigation and slightly pressing the animal, we notice, however, that this opaque appearance is not produced by any such internal organ, but by a peculiar and seemingly muscular structure of the shield itself. It exhibits, seen from below, in