the middle numerous small bubbles situated rather far from each other, or somewhat irregularly formed small cells, which, however, when more closely examined (and this is particularly evident in those which lie nearer to the periphery of the disc), show themselves to be external rounded extremities of small inwardly prolonged cylinders, which together appear to form a thick fascicle of incompletely differenced muscular fibres penetrating into the stalk of the buccal shield." He thus does not refer to the structure of the hypoderm of the disk, and yet this is one of its most important features, especially in connection with its functions. In all probability, however, it closely agrees with the hypoderm in the disk of *Cephalodiscus*, and the muscular fibres described by Sars no doubt arise from the basement-tissue connected with the lophophoral arms, and radiate in a fan-like manner into the hypoderm of the præ-oral shield. Further examination of *Rhabdopleura* would also appear to be necessary in regard to the presence or absence of a præ-oral cavity and proboscidian pores as seen in *Cephalodiscus* and *Balanoglossus*.

The buccal disk is apparently the homologue of the epistome in the ordinary Polyzoa. It is also interesting to find paired spaces in the epistome of *Loxosoma*.[1]

The hypoderm of the buccal disk folds evenly over anteriorly to pass backwards and upwards to the pedicle, and as the latter is connected with the basal framework of the arms, this region forms the common ground for the origin of the twelve plumes.[2] On removing the disk, some of the plumes often remain attached to the pedicle, while others in the lateral regions are fixed to the basal tissue in front of the broad apron-like post-oral lamella on each side.

In transverse section the centre of the disk, even in early buds, presents a large median chamber, traversed by the radiate fibres of its muscular system, and communicating with the exterior through the pair of pores occurring in the region of the nervous system. It would thus seem that sea-water could be admitted into the interior, though, perhaps, this is by no means indispensable for the performance of its functions. Mr. S. F. Harmer has drawn my attention to the great similarity between the proboscis of *Balanoglossus* and this organ (buccal shield) in *Cephalodiscus*, though, it is true, only a single proboscis-pore leading through the nerve-ring of the stalk exists in the former, which likewise has a proboscis-gland and the so-called "heart." The functions of the organs differ very considerably, but there can be little doubt as to the nature of the interesting homologies between the two forms.

Branchial Plumes.

From the dorsal edge of the basal region just described, twelve plumes arise almost in linear series, six on the one side of the median line and six on the other. A thickened hypodermic area, with a median fissure, is visible in sections, and the pale region underlying

[1] S. F. Harmer, *Quart. Journ. Micr. Sci.*, vol. xxv., N.S., pl. xx. fig. 18.

[2] Hence the name *dodecalophus*.