The arrangement of these numerous tentacular plumes differs considerably from that in *Rhabdopleura*, in which only two symmetrical tentacular arms with their pinnæ occur. In certain young buds, however, in which the first pair of plumes far surpass the others in length, a striking resemblance is temporarily produced to the condition in *Rhabdopleura*. The latter and *Cephalodiscus* diverge from the ordinary Polyzoa in this respect, both having mobile plumes that curve gracefully in various directions, instead of the somewhat stiffish corona and straight tentacles of the other forms. In *Cephalodiscus*, besides in all probability branchial functions, they are apparently of great tactile service, and if covered with cilia, as in all likelihood they are, they must aid in providing currents in the cavities of the cœnœcium, and, as Sars and Lankester suggest, may indirectly cause food-currents, that is, bring the minute particles which constitute the nourishment of the species within reach of the currents between the buccal shield and the post-oral collar. The efferent currents again would readily find exit by the gill-slits behind the latter lamella. Both *Rhabdopleura* and *Cephalodiscus* differ from the ordinary Polyzoa in the absence of the tentacular web at the base. Both have very long pinnæ; but *Cephalodiscus* excels the other in this respect, and is further characterised by the remarkable glandular tips to the arms. The plumes are wholly absent as such in *Balanoglossus*, and this constitutes a marked distinction externally. As formerly stated in regard to *Phoronis*,[1] however, there are certain evident homologies between the several forms.

Post-oral Lamella.

In *Rhabdopleura* Sars described "a strongly projecting, nearly semilunar border of skin, ciliated on its edges," and extending from the base of the tentacular arms downwards on each side, thus forming with the buccal shield a narrow half-tube or channel leading to the mouth, through which the nourishment is probably conveyed to the mouth by the ciliated tentacles. The condition in *Cephalodiscus*, however, considerably diverges, since the post-oral lamella (Pl. II. fig. 1) forms a flattened apron-like process, fixed anteriorly to the ventral surface behind the oviducts, and sloping along this margin backwards to the mouth, the surface gently merging into the mucous membrane of the oral cavity. Moreover, a central space—more or less distinct according to the line of section—occurs between its layers. Laterally and posteriorly it forms a somewhat free lamella. In minute structure this lamella presents two layers of hypoderm, each with a fine basement-layer, and having intermediate fibres, chiefly muscular. A strong series of these passes out from the basement-tissue of the post-oral mucous membrane, and radiates to the outer (ventral) layer of the lamella, for the posterior or dorsal has merged into the mucous membrane at the sides. The hypoderm of the two surfaces just mentioned offers certain differences, especially in the free part of the lamella (Pl. VI.

[1] *Proc. Roy. Soc. Edin.*, 1880–81, vol. xi. p. 217.