

interest connected with the condition of the permanent pedicle in *Cephalodiscus*. This is a truly homologous process of the posterior body-cavities, and in sections at the base, as already explained, the septum is visible (*vide* Pl. V. fig. 4). It is further placed ventrally in regard to the intestine, and its tip, so far as structure shows, is in all probability also used as a sucker; indeed, the buccal shield and the tip of the pedicle form far more efficient and permanent sucking disks than ever occur at any stage in *Balanoglossus*. It is the disappearance of the "tail" in the latter which alters the character of its reproduction, and confines it so far as known to the sexual process. The presence of this organ in *Cephalodiscus*, again, and its striking activity in bud-formation, open up new fields in homology and assist in bridging over the gaps which formerly existed between apparently isolated groups.

Nervous System.

In the preliminary account of *Cephalodiscus*¹ no distinct nervous system was observed. In *Rhabdopleura* all that the careful observations of Sars could distinguish in regard to a nervous system was that "immediately behind the anal aperture, between the terminal part of the intestine and the dorsal wall of the gullet, which here forms a little concavity, there appeared a clear cellular body (fig. 15, *r*) in which several evident nuclei were visible. I cannot, however, pronounce any decided opinion as to the significance of this object; it can scarcely be a nervous ganglion, as it does not lie in the substance of the body itself, but only in the thin external skin which encloses the body." Lankester, again, considers that it is probable that the "clear cellular body" just mentioned by Sars was a gonad. It is doubtful, however, whether the latter interpretation can be maintained, especially when the condition now known in *Cephalodiscus* is considered. At the base of the plumes in the latter, and situated over the median space existing there—above the mouth—is in section a region (Pl. VI. fig. 3, *nc*; Pl. VII. fig. 3, *nc*), which appears to me to contain the central nervous system of the animal. The area is of considerable proportional size, and is minutely cellular and granular, while fibrous bands stretching from it occur in other views. Its inner face rests on the thick basement-layer bounding the collar-spaces at the base of the arms, and to the opposite wall of which the muscular fibres of the great buccal disk are attached; while its outer covering is formed by a thick layer of hypoderm. This region forms an elevation dorsally between the bases of the arms (Pl. VI. fig. 3, *nc*), and thus is in close communication with these organs, while it is also within a short distance of the pigment of the oviducts, though no branches have been traced to these organs. It extends a considerable distance laterally on each side along the basal region, whence the plumes spring, and for some distance on the dorsal surface of the buccal disk. The relations of the nervous system to

¹ *Ann. and Mag. Nat. Hist.*, ser. 5, vol. x. p. 337, 1882.