

manner, and that the alimentary canal has acquired its adult relations by its partial passage into the ventral protuberance of the body.

Whilst it appears to me easy to compare *Cephalodiscus* and *Balanoglossus*, it does not seem to me impossible that the former may have affinities in other directions as well. For, imagine that the ventral elongation of the body would be conveniently postponed until after the end of a free larval life; the stalk might then be invaginated into the body of the larva in preparation for its evagination when metamorphosis should take place, as actually occurs in *Actinotrocha*. After the metamorphosis of the latter, the alimentary canal has the same dorsal flexure as in *Cephalodiscus*, and this explanation of the metamorphosis of *Phoronis* is in accordance with the suggestions of previous observers.

The following considerations may perhaps indicate some affinity between *Cephalodiscus* and *Phoronis*¹:—

1. The archenteron of *Phoronis* is developed by a well-marked invagination, whilst part of the mesoblast (*vide* Caldwell) is formed by a process of (modified) archenteric pouching (as in *Balanoglossus*).

2. The præ-oral lobe is large in *Actinotrocha*, and is provided with a body-cavity which is completely shut off, by means of a septum, from the body-cavity of the trunk. The post-oral region is prolonged into tentacles, which, although differing in a striking manner from the tentacles of *Cephalodiscus*, may still have some connection with these structures, or with the operculum of the same genus.

3. The "foot" of *Phoronis* has precisely the same relations as the stalk of *Cephalodiscus*.

4. The nervous system of *Phoronis* occurs outside the basement-membrane. The ganglion of the præ-oral lobe of *Actinotrocha* is comparable with a portion of the nervous system of the Hemichordata, whilst the post-oral nerve-ring of *Actinotrocha* (following the line of the bases of the tentacles) may not impossibly be the homologue of the nerve-ring which passes round the posterior border of the collar in *Balanoglossus*. If this were the case, the lophophores of *Actinotrocha* and of *Phoronis* might be regarded as developments of the collar-region.

5. *Phoronis* possesses a complete ventral mesentery, the dorsal mesentery, however (persistent in *Cephalodiscus*), having disappeared in the adult animal. The ovaries and oviducts of *Cephalodiscus* are supported by lateral mesenteries which are apparently arranged in the same manner as the lateral mesenteries in Caldwell's diagram "B."² The oviducts of *Cephalodiscus* do not, however, open into the body-cavity, and it is possible that the collar-pores, rather than the oviducts, may be the homologues of the nephridia of *Phoronis*.

¹ Cf. W. H. Caldwell, Prelim. Note on the Structure, Development, and Affinities of *Phoronis*, *Proc. Roy. Soc.*, No. 222, 1882; and Blastopore, Mesoderm, and Metameric Segmentation, *Quart. Journ. Micr. Sci.*, vol. xxv., 1885.

² *Proc. Roy. Soc.*, 1882.