

size and firm nature of the simple branchial filaments of *Phoronis* are sufficiently diagnostic, as also is the fine, double, convoluted arrangement seen in the Philippine and Australian forms. The skeleton and circulatory system of these organs is much more highly developed than in either *Cephalodiscus* or *Rhabdopleura*. In *Balanoglossus*, again, considerable divergence has happened, for the branchiæ are now arranged in lateral series along the second region of the body, and are supported by an elaborate skeleton of chitinous elements<sup>1</sup> and furnished with numerous gill-slits. Such a modification, however, does not seem very far fetched when a section of the bases of the filaments after entering the axis of the plumes is made in *Cephalodiscus*. In connection with the arrangement of the plumes it is also interesting that in the Eupolyzoa (e.g., as described by Allman<sup>2</sup> in *Paludicella*, Nitsche<sup>3</sup> in *Flustra membranacea*, and Haddon<sup>4</sup> in *Flustra carbasea*) the growing tentacles in the bud present bilateral symmetry.

The *Circulatory System* is evidenced only by the lacunæ (nuchal or collar-spaces) and their connections with the bases of the plumes in *Cephalodiscus*, but it would appear to be more largely developed than in *Rhabdopleura*, for its presence has not yet been indicated in that form. The circulatory system in *Phoronis* attains a much higher degree of complexity, since its large vascular ramifications with the well-marked nucleated corpuscles have no parallel in either. *Cephalodiscus*, however, agrees in that its collar-spaces are in connection with the reticulated or lattice-like centre of the main stem in each plume. The circulatory system in *Balanoglossus*, again, is also largely developed, especially in connection with its branchial system, though the contents of the vessels are less conspicuous. On this head all the foregoing widely diverge from the ordinary Polyzoa.

The *Digestive Apparatus* in both *Cephalodiscus* and *Rhabdopleura* closely agrees with the type in the Polyzoa, all being characterised by the flexure which causes the close proximity of mouth and anus. Moreover, the pyloric differentiation indicated in *Cephalodiscus* is prevalent in the Polyzoa and also in *Phoronis*, and though it has not been described in *Rhabdopleura*, traces of it may yet be found. The environment of the mouth in the latter and *Cephalodiscus* is related, but while the post-oral lamella is connected with the buccal shield in *Rhabdopleura*, it forms a special structure in *Cephalodiscus*. In *Phoronis* the general plan of the digestive system is the same, though the pyloric region of the stomach attains much greater size. In regard to this system all the foregoing closely approach the Eupolyzoa, the oesophagus, stomach, pyloric vestibule, intestine and rectum showing a similar arrangement. When *Balanoglossus*,

<sup>1</sup> Vide Monograph on the Brit. Nemerteans, Ray Society, 1872-73, p. 146.

<sup>2</sup> Fresh-water Polyzoa, p. 36.

<sup>3</sup> Zeitschr. f. wiss. Zool., 1871, Bd. xxi. p. 457.

<sup>4</sup> Quart. Journ. Micr. Sci., 1883, vol. xxiii. p. 518.