

bladder-like part often occurs—marked by a close series of longitudinal bands—as well as crossed externally by fine transverse striæ, so that the region has a tessellated appearance. Such an aspect, of course, diverges very much from the eight longitudinal bands in *Edwardsia* and *Cerianthus*, though, as will afterwards be noticed, there is a certain structural resemblance between the muscles of the diverse groups. Even in the somewhat narrower region of *Phoronis*, behind the latter part, traces of these longitudinal bands (the muscular fasciculi) are visible. These are much more distinct than in the smaller species,—though in the latter they were at once recognised and well figured by Professor Allman in his remarks on *Phoronis hippocrepia* in the Fresh-Water Polyzoa. Finally, the body ends in a more or less clavate or bulbous region, which is generally devoid of such markings.

### *Body-Wall.*

- a. *Cuticle and Hypoderm.*
- b. *Basement-Tissue.*
- c. *Muscular System.*

*Cuticle and Hypoderm.*—The contracted anterior region of the body, after its special muscles are fully formed (Pl. I. fig. 3),<sup>1</sup> presents externally in transverse section the delicate cuticula which envelopes the entire animal with the exception apparently of certain parts of its branchial system. The hypoderm (*hp*) underneath—even in fine sections of this region—is almost opaque from the deposit of blackish pigment. This layer seems to have the same intimate structure as in the Annelids and Nemerteans, viz. an areolar stroma with gland-cells and granules. In transverse section it is somewhat regularly and closely streaked vertically. In longitudinal sections, again, it is thrown into a series of closely arranged ridges—each composed of a central area and a somewhat radiate or foliate arrangement of marginal cells. This condition is doubtless due to the very elastic nature of the subjacent basement-tissue, which adapts itself more readily to the muscular contractions, while the less facile hypoderm is thrown into numerous wrinkles. In the posterior or dilated region the hypodermic tissue is somewhat more areolar and lax; and in young specimens it is proportionally thicker all over than in the adults. In those in which the peculiar posterior gland with its external channel is well developed, the hypoderm of the region is massive. This coat, then, is uniformly on a much larger scale than in the smaller Australian or the ordinary European species, and conforms to the type seen in the Annelids and Nemerteans rather than to anything known in the Gephyrea or Polyzoa.

*Basement-Tissue.*—Beneath the foregoing is a translucent and highly elastic

<sup>1</sup> I am indebted to Mr. John Wilson, Demonstrator of Zoology and Lecturer on Botany in the University of St. Andrews, for his kind aid in making sections of *Phoronis*, and, along with Mr. E. E. Prince, for valued assistance in drawing some of the figures.