

This would seem to be a further development of smaller patches of the same kind in the anterior spaces, which form just behind the nerve-centre. These have various epithelial patches or cushions on their inner surfaces, and finally unite and become continuous with the intestinal area in which the apparatus above noted occurs. In longitudinal sections these spaces often show a peculiarly wrinkled appearance anteriorly—from the arrangement of the epithelial bands. Such may represent a kind of sensory apparatus.

No distinct lining-membrane was visible in the spaces of the body-cavity posteriorly, but an endothelium (peritoneum, Caldwell) may be found in fresh examples. All that could be said was that the numerous fibres entangled many free cells and granules in certain regions. The blood-spaces of the anterior region, again, show in many parts a finely arranged epithelium (tessellated), the cells of which, moreover, stand prominently outward like minute villi in lateral views.

The posterior body-cavity is also traversed by the radial muscular fibres, which anteriorly pass towards the centre in definite bands (Pl. I. fig. 4). In young specimens the anterior region of this division is almost wholly occupied by the large gullet, the intestine and the radiate and longitudinal muscular fibres, the body-cavity being limited to the chinks between these.

Metschnikoff mentions that he found many colourless cells in the body-cavity of the young *Phoronis*, the elongated forms especially interesting him from their resemblance to sperms. Dyster, again, states that no perivisceral corpuscles occurred in his specimens.

### *Digestive System.*

The mouth opens at the bottom of the anterior or ventral (and outer) whorl of the branchial apparatus, the basal web of which is continuous from side to side (Pl. III. figs. 1 and 3). The arrangement of the parts forms a spacious funnel, terminating in the mouth. The bases of the outer series of tentacles are continued for some distance into this oral funnel as elevated and ciliated ridges, and thus at a given level this surface differs from the opposite one, where the flap-like extension of the mucous layer occurs. The latter covers the base of the second branchial whorl, and consists of a greatly increased hypodermic layer continuous with that coating the oral chamber. It terminates in a somewhat free margin anteriorly (*i.e.* distally), and the tissue forming the tip has a foliate arrangement in section (Pl. III. fig. 1,  $\alpha$ ). A layer of basement-tissue is continued from the reticulated coat of the gullet (sub-mucous), but this ends at the commencement of the free margin. The mucous lining of the mouth thus passes up the funnel all round to meet the hypodermic investment covering the bases of the tentacles.

The first or pharyngeal part of the alimentary canal has its walls transversely