similarly more or less a repetition of the same arrangement in the body-wall (Pl. XV. fig. 2, α', β', *npl.*, γ').

In addition to the peculiarity just described, there is another morphological consideration which tends to show that this interpretation of the significance of the proboscis is indeed the right one. When we consider a horizontal section through the region of insertion of the proboscis in the head (Pl. III. fig. 5), we see that in *Carinina* the mode of fixation of the proboscis is exceedingly simple, its longitudinal muscular coat being in direct continuity with the longitudinal muscle-layer of the body-wall. Somewhat in front of the transverse cephalic grooves, about on a level with the anterior brain-lobe, we see certain of the fibres of this longitudinal coat, instead of pursuing their course onwards towards the tip of the head, bending inwards, traversing the space which I have termed (**XIII**, **XV**) the archicœle, and then running backwards as the longitudinal fibres of the proboscis. Other fibres, parallel to those just referred to, do not contribute towards the formation of the proboscis, but continuing in their original direction, take part in the formation of the muscular wall of the head (Pl. III. fig. 5). It certainly deserves remark that the same comparatively simple arrangement is met with in the much more highly differentiated Hoplonemertea, as a glance at fig. 3, Pl. X. will show. There, too, the longitudinal musculature (α) of the body-wall is partly continued towards the tip of the head, where it partly bends round and largely contributes to the formation of the muscular layers of the proboscis. I suppose this way of stating the facts is more in accordance with their actual relations, than to say that the longitudinal musculature of the proboscis is internally inserted upon that of the body. Here also the direct continuity of body-wall and proboscidian-wall, the latter appearing merely as an inverted portion of the former, is forced upon our attention, as is in the same way the direct continuity of the exterior integument *J*, through that of the rhynchodæum *Rh* to that which clothes the proboscis itself, and which on the eversion of that organ forms the exterior surface.

We must now consider these different parts more in detail. Commencing with the rhynchodæum (*cf.* p. 8), we find in the Palæonemertea and Schizonemertea its walls bathed by the blood-spaces in the head, as may be gathered from a comparison of the figures in Oudemans' paper (**XXVII**) on the blood-vascular system. This is no longer the case in the Hoplonemertea, where these blood-spaces are replaced by the distinct vascular loops. The proboscidian walls, fusing anteriorly with the musculature and the external epithelium of the head, are different in the different subdivisions. Contractile fibres and cellular elements, the materials of which the rhynchodæum is built up, are present in *Carinina* in quite a different relation from that in which they occur in *Cerebratulus* or *Amphiporus*.

In *Carinina*, as a glance at Pl. III. fig. 5 will show, it is the cellular elements (*APe*) that are extremely preponderant. These cells are vacuolated, more than one layer thick, different in aspect from the true proboscidian epithelium, and held together by a fibrous