

that which is continued into the lateral nerve-stems, *i.e.*, an incipient distinction between a pair of upper and a pair of lower lobes, respectively limited by the dorsal and ventral brain commissure; the whole forming a ring round the proboscis and its sheath. A side view of the brain of *Carinina*—reconstructed from a series of sections—is given in the accompanying woodcut, in which the very thin dorsal commissure is not indicated. A comparison with figs. 4 and 7 of Pl. V. will at once show the relation of this stage of differentiation to that to which *Eupolia* has attained. In the Schizonemertea the separation between upper and posterior lobes is more marked still than in *Eupolia* (Pl. XIV. fig. 6); in the Hoplonemertea they are definitely separated, and only connected by one or more nerve-strands (Pl. IX. fig. 10), their situation being then sometimes behind, and even sometimes before the rest of the brain.

The ciliated canal penetrating into the posterior lobe of *Carinina* is simple (not divided in two as in certain Hoplonemertea), and provided with a high, ciliated epithelium of its own. It is figured in figs. 1 to 3 of Pl. VI. Certain glandular cells, *gl. br.*, are seen in this same figure to have become specially developed in connection with this posterior lobe and its ciliated canal. Similar glandular cells also form a characteristic feature of the posterior brain-lobes of Schizonemertea and Hoplonemertea. In *Carinina* it is evident that these glandular cells are derivatives, or at least morphological equivalents, of the deeper glands *Gi*, of the integument.

The nerve-cells themselves, out of which the brain is built up, still undoubtedly belong to the integument, and it is exceedingly difficult, if not impossible, to draw a sharp distinction between the outermost brain-cells and the surrounding integument-cells. In the figures just cited this difference has been artificially very much accentuated in order to bring out more distinctly the outline of the brain; for the same reason, the integument in this figure was on purpose not fully worked up.

The inner core of the brain is fibrous, so is the core of the longitudinal stems, where, however, the attempt at a distinction between nerve-cells and cells of the surrounding integument is equally hazardous (Pl. III. fig. 8). This fibrous core is in direct continuity with the nerve-plexus, that spreads out in the deeper integumentary layers.

A vagus nerve passing from the lower portion of the brain on both sides towards the œsophagus is also distinct in *Carinina* (Pl. VI. fig. 1, *Nv*). The passage of contractile fibres through the brain-substance is unmistakable, though less evident than in *Carinella*.

Passing on to the description of the nerve-centres of *Eupolia*, we immediately recognise the difference resulting from the fact that here the brain is imbedded inside the muscular layers, as is also the case in all Schizonemertea.

Our description of the brain of *Eupolia* may be based upon the figures of Pl. V., which were obtained not *de visu*, but by reconstruction from a series of sections.<sup>1</sup> Figs. 1–4

<sup>1</sup> For the making of these and many other series of sections, and for assistance in the reconstruction above alluded to, I am indebted to the kindness of Dr. Oudemans, my former assistant, now director of the Zoological Garden at the Hague.