

stems leave the brain in corresponding regions of the lower brain-lobe, *i.e.*, along the surface turned towards the proboscidian sheath, and run in the direction of the œsophageal epithelium. This secondary innervation, though different in morphological aspects, is more or less homologous with the facts above disclosed in the case of *Cerebratulus corrugatus*. That the vagus proper—the massive and thick stem—is here turned forwards may be a consequence of the change in the situation of the mouth, which in the Hoplonemertea is no longer behind the brain, but in front of it. This gradual change of position may very possibly have drawn the vagus-stem with it. In concluding our remarks upon the brain I have only to add that the well-known difference between Schizonemertea and Hoplonemertea with respect to the connection between anterior and posterior brain-lobes (side organs) also obtains in the Challenger specimens. The latter are connected in *Drepanophorus* and *Amphiporus* with the brain by one or more fibrous commissures.

Another difference several times observed between the fibrous brain-tissue of these two Hoplonemertean genera on the one hand, and *Cerebratulus*, *Eupolia*, &c., on the other, is a marked increase in compactness of the fibres, so much so that the fibrous character of the central portions of the brain has often more the aspect of Leydig's "Punktsubstanz," and even shows a still more delicate and more compact texture by the appearance in this "Punktsubstanz" of regular patches with very faint outlines, which apparently are still more compact regions of this tissue.

The longitudinal nerve-stems, which are the posterior continuations of the lower brain-lobes, hardly need any special mention. It must only be insisted upon that in them, as well as in the brain-lobes, there is no absolute distinction between the cellular envelope and the fibrous core, but that inside this core nuclei are invariably scattered, which bear testimony to the absence of any such definite boundary. Still, there is generally a homogeneous and very thin layer between the cellular coating and the fibrillar core, a kind of membranous neuroglia, through which the fine processes of nerve-cells may be seen to take their course in groups, which then become lost amongst the fibres of the core. Then, again, certain favourable sections (Pl. XII. fig. 2) very distinctly show the course of nerve-fibres inside this fibrous core that are not longitudinal, and thus punctiform in transverse sections, but that are interwoven at right angles with the latter and continue their way into the nerve-plexus. The transparent sheath of the fibrous core of the nerve-stem is more distinct in *Cerebratulus* than in either Palæonemertea or Hoplonemertea. It is rarely encountered in the brain, where fibrous and nervous elements are more intimately interwoven (*cf.* Pl. VI. figs. 4–8; Pl. XII. figs. 7, 8; Pl. XIV. figs. 7, 8).

Outside of the stems there is another accumulation of homogeneous connective tissue arranged as a protecting envelope round the nerve-stems. This is much more conspicuous in the brain-lobes, and more so in the Hoplonemertea (Pl. XII. fig. 5) than in the Schizonemertea (Pl. XII. fig. 2; Pl. XIV. fig. 2). Still in the latter it is far more