

For Vertebrates a plexiform arrangement is known to exist in the embryonic stages of Amphibia, since the researches of Remak and Stricker, and has lately been fully commented upon by Gœtte and Baldwin Spencer.

The last writes :¹—"There may be said to exist in the Amphibian embryo a complete superficially-placed nervous sheath, out of which not only the central nervous system but all the sense organs of both head and trunk are formed, and which gradually disappears as these reach their full development." And further on :—"Along certain lines the cells of the nervous layer proliferate, and it is by this proliferation that the rudiments of the cranial nerves are laid down" (*cf.* p. 133).

The significance of this plexiform arrangement of the embryonic Vertebrate nervous system will be discussed in the chapter devoted to General Considerations, and also the peripheral plexus of the adult *Amphioxus*, which lately has been more fully described by Rohon.²

Hence, since my former publications above cited, the necessity has grown more and more obvious of not looking upon the brain-lobes and the lateral nerve-stems of the Nemertea as *the* nervous system, but, though recognising their significance as more highly developed centres, to admit the presence of a most complicated and intricate network of nerve-tissue, originally—and in the more primitive species still—belonging to the integument. This network is most fully developed in the Schizonemertea. In *Carinina* its situation in the integument makes it more difficult to observe; still I succeeded in demonstrating it both here (*cf.* p. 54) and in the other Carinellidæ. In the Hoplonemertea the plexus has been replaced for the greater part by distinct nerves, of which the majority show a metameric arrangement.

We will now pass to a more detailed description of this network, thereby purposely inverting the natural order by reserving the centres for the last. This apparent discrepancy disappears, however, when we look upon the network as the most ancient nervous arrangement, in which the centres have only gradually come forward.

When once the eye has been trained by repeated observation to notice this particular nervous tissue of the Nemertea, it is comparatively easy to distinguish it from the surrounding tissue. The peculiar punctate striation, the yellowish tint of the fibrous elements, the very pale carmine hue of the nuclear ones, immediately reveal the presence of nerve-tissue in sections, longitudinal or transverse, that have been made through specimens stained with picrocarmine.

And when we take for our starting point, and as a basis for further description, one of the Schizonemertea of the Challenger, *e.g.*, *Cerebratulus corrugatus* (Pl. XIV. figs. 3, 4; Pl. XIII. fig. 6, *pl*), we observe in all transverse sections that the two lateral nerve-stems are in continuous connection with each other by nervous tissue that spreads out all round the circular muscular layer β , both dorsally and ventrally. Immediately outside of

¹ Some Notes on the Early Development of *Rana temporaria*, *Quart. Jour Micr. Sci.*, Suppl., 1885.

² *Denkschr. d. k. Akad. d. Wiss. Wien (math.-nat. Cl.)*, vol. xlv.