

cephalic ganglia and the nervus lateralis vagi, may suffice for the present. They may severally be brought to bear upon the question of the eventual homology of Vertebrate cephalic ganglia and nervus lateralis, on the one hand, and Vermian paired brain-lobes and lateral nerve-stems, on the other. The parts here compared, being indicated in figs. 1 and 2 of Pl. XVI. with corresponding letters, *Lg* and *ln*, a glance at these figures may further convey a notion of the purport of these speculations.

There is one fact, however, which is not indicated in these figures, which is nevertheless of very high importance for the views here considered, and which I must therefore develop more in detail.

It is the connection between the successive spinal nerves and the ramus lateralis vagi.

The existence of similar connections between the (eminently sensory and cutaneous) dorsal roots and the (similarly sensory and cutaneous) lateral nerve is for the first time mentioned by Ransom and d'Arcy Thompson for *Petromyzon* in the following passage (*loc. cit.*, p. 422):—

“The dorsal rami of the posterior roots pass up (over the lateralis nerve) to the skin of the back, but appear also to send fibres into the lateralis. (For this statement we at present rely only on sections, but we hope shortly to test it by dissections of the large *Petromyzon marinus*.)”

It hardly needs comment that if this observation should be confirmed the fact would be of the utmost importance for the hypothesis under discussion. We should then be permitted to consider these metameric connections between the dorsal roots and the nervus lateralis of *Petromyzon*, as the relics of an earlier stage, still permanent in the Nemertea, where the metamERICALLY consecutive transverse nerve-tracts similarly unite the medullary nerve and the lateral stems.

This connection is, as we know, also brought about in the Nemertea by the plexus, in those parts of it which spread out between the transverse tracts, and it may here be asked if relics of such a plexus between the successive precursors of the spinal nerves are perhaps retained, not only in *Amphioxus* (see above, p. 134, and Rohon, *loc. cit.*, fig. 13), but also in Osseous Fishes in the numerous superficial nerves described and figured by Stannius,¹ or whether we must rather look upon this multiplication of lateral nerves (one of which is called by Stannius the nervus lateralis trigemini, others, rami communicantes of the dorsal branches of spinal nerves, &c.) as derivatives from the nervus lateralis vagi.² This question can, of course, only be solved by careful anatomical and embryological investigations. That the nervus lateralis was often (Stannius) observed in the Petromyzontidæ only along a part of the length of the body (Schneider and Born, according to Ahlborn,³

¹ Das peripherische Nervensystem der Fische, 1849, pls. ii.-iv.

² It should be remembered that Beard is inclined (*loc. cit.*, p. 139) to look upon the superficial longitudinal nerve-fibres, by which the successive epithelial modifications along the lateral line are often connected (Solger, Bodenstein), as such derivatives (by longitudinal fission in its very early stages) of the nervus lateralis.

³ *Zeitschr. f. wiss. Zool.*, Bd. xl. pp. 303 and 301.