posteriorly, thin threads proceeding towards the heart and the kidneys, and transversely to the right and left a branchial nerve which penetrates into the branchial axis, without swelling, at its base, into an "olivary" ganglion.[1]

As to the pallial nerves, they proceed from lateral portions (pleural ganglia) of the posterior infra-œsophageal mass; they are exceedingly strong (Pl. V. *pl.n.*; Fig. N, x), directed towards the dorsal side, traversing the wall of the "mesosoma" and arriving at the mantle, at the very point where the latter is joined to this mesosoma; at this point they form, as in all the Dibranchiates, "stellate" pallial ganglia, without being bifurcated before entering into these.[2]

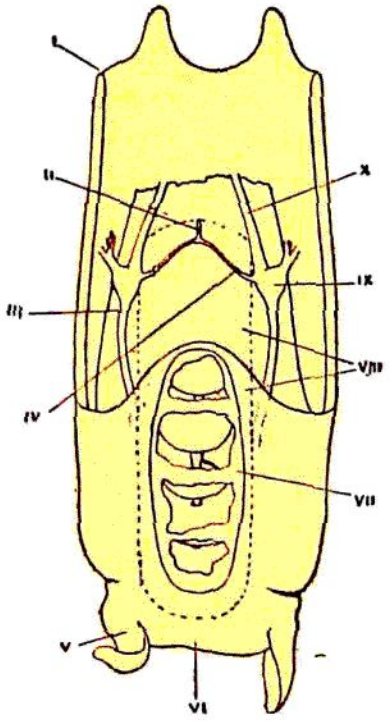

FIG. N.—*Spirula reticulata*, dorsal view, the anterior part of the mantle removed on this side (the internal part of the shell shown by a broken line); × 4. i, mantle edge; ii, median nerve; iii, nerve of the fin; iv, commissure of the stellate ganglia; v, fin; vi, terminal disk; vii, dorsal external part of the shell; viii, internal part of the shell; ix, stellate ganglion; x, pallial nerve.

The two stellate ganglia are united by a curved commissure (with anterior concavity), very thin (Fig. N, iv), but appearing stronger because it is joined to a venous trunk, which the nervous cord accompanies through all its course, passing to the surface of the mesosoma covering the anterior extremity of the shell; from the middle of the curve there arise a vein and a nerve directed forwards (Fig. N, ii), which, passing over the dorsal margin of the shell opening, become recurrent and run along, following the median line, the part of the mantle contained in the last chamber of the shell, the venous trunk emptying itself into the vena cava (see Circulatory System).

This commissure, with its median nerve, ought to be considered as formed by the two original pallial nerves of Cephalopods fused together, and the larger pallial nerves situated beyond the stellate ganglia (innervating especially the fins; Fig. N, iii) are adventitious formations necessitated by the great development of the margins of the

[1] Homologue of the osphradial ganglion of other Molluscs, but not functionally equivalent; in various Cephalopods this "olivary" or branchial ganglion is rather superficial (example, *Eledone*), but it does not send nervous fibres to the subjacent epithelium, and this does not contain any special sensorial cells. The fact that the osphradium has not yet taken its rise in Cephalopods is explained by the presence of the olfactory rhinophoric fossa at the entrance of the pallial cavity on the side where respiratory water enters, which renders a second olfactory organ (osphradium properly so-called) useless. The interbranchial papilla of *Nautilus*, identified by Lankester and Bourne (*Quart. Journ. Micr. Sci.*, vol. xxiii. p. 343, 1883), with the osphradium of Molluscs, is not itself a sensorial organ, and does not contain any ganglion homologue of the osphradial centre. But it appears to constitute simply a protective apparatus of a sensorial region, situated on the portion of the internal face of the mantle immediately anterior to the papilla, which is inclined above it; in this region a branch of the branchial nerve is divided into very numerous twigs, which send a great many bundles to the epithelium.

[2] As well as in "Loligopsis" (*Leachia*), according to Grant (On the structure and characters of Loligopsis, *Trans. Zool. Soc. London*, vol. i., 1833).