mantle which have overrun the shell. This union of the two primitive pallial nerves explains the origin of the "commissure" of the stellate ganglia, so well developed in all the Œgopsids,[1] already reduced in *Loligo*,[2] and still more so in the adult *Sepiola* (better marked in the embryos[3]), and finally disappearing in the Sepiidæ and Octopods; by the disappearance of the pallial siphon and the primitive mantle, the median nerve has been lost, the "commissure" not being then any longer carried forward by this nerve has not preserved its curvature, has become more posterior, and has passed into the mantle where it joins the two ganglia in a straight line.[4]

Behind the stellate ganglia, the pallial nerves, preserving sensibly their diameter (Pl. V. figs. 1, 2, 6, *f.n*; Fig. N, iii), are directed posteriorly in running along the wall of the shell-sac, but, immediately on leaving the ganglia, they give rise to a thinner latero-ventral trunk (Pl. V. fig. 6), innervating the mantle, and to another much larger one, which arrives at the fins, where it expands by dividing to an extraordinary extent, without, however, presenting ganglionic swellings (Pl. V. fig. 6).

Stomato-Gastric System.—In the Challenger specimen (the only one examined which was provided with a head), the "inferior buccal" ganglia, or stomato-gastric ganglia, have not been seen; they were apparently situated under the superficial muscular layer of the buccal bulb (as they are in some degree in certain Ommatostrephidæ). There can be no doubt of their existence; two parallel stomato-gastric nerves run along the ventral face of the œsophagus and end in the large gastric ganglion (Pl. VI. figs. 2, 3, *gl.*).

Sense Organs.—The olfactory pits, the otocysts, and the eyes are well developed.

A. The *olfactory pit* is situated quite at the back of the ocular prominence, at the junction of the lateral and ventral faces of the head (Pl. I. fig. 6, *ol.*; Pl. II. fig. 1, *ol.*). It is limited by a slightly elevated margin in the interior of which the bottom projects in the form of a papilla, the whole having thus the aspect of a "circumvallate papilla" of the tongue of mammals (Pl. VI. fig. 11).[5]

B. The *otocyst* is situated between the wings of the "cranial" cartilage and the

[1] For example, in *Ommatostrephes* (Hancock, *op. cit.*).

[2] Von Jhering, Vergleichende Anatomie des Nervensystemes und Phylogenie der Mollusken, p. 257, 1877.

[3] Joubin, Recherches sur la coloration du tégument chez les Céphalopodes (*Arch. de Zool. Expér.*, sér. 2, t. x. p. 306, 1894).

[4] The pallial nerves may then be joined to one another on the dorsal side of the digestive tube, as they are likewise in the Lamellibranchs, behind and at the back of the rectum; this enables us to understand the supra-rectal commissure of the Amphineura (*Chiton*, &c.), in the identification of which were found certain difficulties (see especially Lang, Lehrbuch der Vergleichenden Anatomie, p. 711, 1892; Bouvier and Fischer, Recherches et considérations sur l'Asymétrie des Mollusques univalves [*Journ. de Conchyl.*, t. xxxii. pp. 200, 201, 1892]; Grobben, Zur Kenntniss der Morphologie, der Verwandtschaftsverhältnisse und des Systems der Mollusken [*Sitzungsber. Akad. Wiss. Wien*, Math. Naturw. Cl., Bd. ciii. p. 85, 1894]). It is only a junction like that of the pallial nerves and in no way homologous to the visceral commissure; the Amphineura thus re-enter into the common plan of organisation of the Molluscs.

[5] The central prominence is probably the point of departure of the rhinophore in form of papilla of certain Œgopsids (*Chiroteuthis*, *Doratopsis*).