

Their axis rises between the nidamental glands, properly so-called, and the accessory glands. These organs are retained at the internal face of the mantle at the dorsal side of their axis, by a support ("pallio-branchial ligament," Pl. I. fig. 6, *pb.*), upon which no "spleen" or blood-gland is to be observed. In front of the branchial support, and more ventrally, the internal face of the mantle shows a lateral cartilaginous prominence ("button" of the resistance apparatus); an elongated prominence of the same appearance exists (at least in *Spirula reticulata*) on the dorsal side of the internal face of the mantle, on the median line, anteriorly, opposite to the middle of the infundibular collar.

II. NERVOUS SYSTEM.

As in all Cephalopods (including *Nautilus*) the central nervous system is situated around the œsophagus behind the buccal bulb (Pl. III.), and, as in the Dibranchiates, this nervous system is contained in a cartilaginous capsule (Pl. V. figs. 1, 3), which was treated of above.¹

Setting aside the enormous optic ganglia (Pl. V. fig. 2, *o.g.*), which occupy the right and left sides of the central nervous mass, we recognise in this last the following ganglia:—(A) One pair of supra-œsophageal: cerebral ganglia (Pl. V. figs. 1, 2, 3, *g.c.*), and (B) three pairs infra-œsophageal: (*a*) anterior: brachial ganglia (*g.p'*); (*b*) median: pedal ganglia (*g.p.*); (*c*) posterior; pleuro-visceral or "chlamydo-splanchnic" ganglia (*g.ch.s.*).

Besides, it is necessary to distinguish still another little pair, anterior supra-œsophageal, called "superior buccal" (*s.b.g.*), far removed from the cerebral centres, as in the *Ægopsids* (Fig. L, ix), although in the *Sepiidae* they are very much nearer, and in the *Octopods* they are fused with them, forming the anterior part.²

These "superior buccal" ganglia are united to the cerebral ganglia by long connective cords; in the Challenger specimen the left connective cord shows the peculiarity of being double (Pl. V. fig. 2).

The connective cords uniting the superior buccal ganglia to the brachial centres have not been seen and have probably escaped notice; but the cerebro-brachial cords have been observed and are rather long (Pl. V. fig. 4, x).

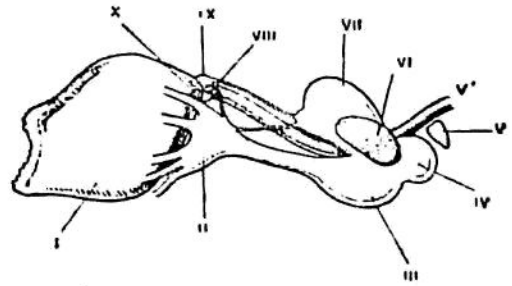


FIG. L.—Central nervous system of *Ommatostrephes pteropus*, left hand side view; magnified. i, buccal mass; ii, brachial ganglion; iii, pedal ganglion; iv, pleuro-visceral ganglion; v, posterior salivary glands; v', œsophagus; vi, section of the optical nerve; vii, cerebral ganglion; viii, stomato-gastric ganglion; ix, "superior buccal" ganglion; x, anterior salivary gland, uncovered.

¹ Ventrally and laterally the central nervous system is surrounded and separated from the cartilage by a glandular looking substance (Pl. III., *ad.*, and Pl. V. fig. 1), as in other Dibranchiates (where it is called "white body"), the microscopic examination of which suggests that it is a blood gland.

² The facts that this segmentation of cerebral centres exists in a form so archaic as *Spirula*, and that the superior buccal ganglia resulting therefrom are very far removed from the cerebral ganglia properly so-called, prove that the disposition presented by the *Octopods* is not the primitive one.