the internal face of the mantle (Pl. II. fig. 1, *lpa.*), which form with these the resisting apparatus destined to insure the closure of the pallial chamber while the water is expelled through the funnel. The nuchal cartilage (Pl. I. fig. 5, *d. i.*) on the anterior dorsal margin of the "collar" in the median line has nearly the form of that in *Loligo*, and especially in the Ommatostrephidæ.

The retractor muscles of the siphuncle (Pl. IV. *I.mr.*) and of the head unite laterally, and have their common origin upon the external sides of the last chamber of the shell. The retractile part of the head of these latter muscles is inserted upon the aboral face of the perineural or cephalic cartilage, which forms a capsule enveloping the nervous centres. This cartilage sends, upon the sides, vast prong-like prolongations (Pl. V. fig. 3, *pn.ct*^{4}.) supporting the optic ganglia, and ventrally, in front, the median projection (Pl. V. fig. 3, *pn.c*^{5}.), which (as in *Sepia*) gives attachment to the muscles of the arms. In front, the cartilaginous capsule is continued by the envelope of connective tissue of the junction between the pedal and brachial centres.

4. *Mantle.—a. Pallial Envelope.*—The external surface of the mantle is smooth, as in the other Dibranchiates; the reticulation observed in the form called *Spirula reticulata* does not belong to the superficial portion of the integuments, as will be seen later on.

The border of the mantle, free all round its circumference, offers three anterior protuberances: a median dorsal one, and two symmetrical latero-ventral ones, which limit the "sinus" of the funnel (Pl. I. figs. 2, 3; and Fig. C).

In the Challenger specimen the external surface of the mantle was deprived of its epidermis, and, for the greater part of its extent, of the layer of chromatophores.[1] The chromatophores, however, were present at the aboral extremity (Pl. VI. fig. 14), where the skin was not removed, as well as upon a narrow band of the internal face of the mantle along the margin at this place. The "Blake" specimen was in this respect in the same condition, the chromatophores being preserved only at the aboral extremity (Pl. II. figs. 1, 2) and along the margin of the mantle on the internal face (Pl. II. figs. 1, 2, *cr.*).

The chromatophores are nevertheless spread over the whole external surface of the mantle.[2] In fact there exists in the form called *Spirula reticulata* a general reticulation of this surface given as a character of that form, and due, from what I have seen, to bundles of subcutaneous fibres disposed in such a manner as to form more or less regular polygons.

However, these polygonal spaces with definite limits exist also in an Ommatostrephid, *Illex coindeti*, where on taking away the pallial epithelium, an appearance is observed very similar to that presented by *Spirula reticulata*, and the polygonal spaces are there occupied by chromatophores. In *Illex* it is especially near the free margin of the

[1] It is probably this state which led von Willemoes-Suhm to suppose that the specimen had been swallowed by an abyssal fish and regurgitated when brought to the surface by the trawl.

[2] The coloration of the dead specimens, but freshly taken from the water, is yellowish-white spotted with brown, according to Robert (*Comptes rendus*, t. ii., 1836, p. 362).