

formed later by the pressure of the shell upon the thinnest points of the pallial envelope ; it is solely on account of this pressure that the mantle has not completely closed and that the openings have therefore persisted. The development of the shell sac of other Cephalopods (*Sepia*, *Loligo*) takes place in an essentially similar manner, except that the edges join not only in one part but throughout their whole length.

The terminal disk is remarkable for the organs which it carries : Fins and Aboral Fossa.

a. Fins.—The fins are relatively small, rounded, almost semicircular, longer in the “ dorso-ventral ” direction than in the cephalo-caudal (Pl. I. fig. 1 ; Pl. II. fig. 2 ; Fig. J in the text). Their muscular mass is not attached to the cartilaginous supports, as in the other Decapods, the fibres being inserted directly on the shell sac. The fins of *Spirula* are characterised by their direction and situation.

* *Direction.*—The fins are parallel to the median sagittal plane, inserted to the right and left of the terminal disk, and not arranged in the same right and left horizontal plane as is the case with other Dibranchiate Cephalopods ; they are thus to the fins of other Dibranchiates much as the tails of fishes are to those of Cetaceans.

** *Situation at the posterior part of the body.*—In the Cephalopods which have been most generally studied (*Sepia*, *Loligo*, &c.), the fins extend in the direction just indicated along a rather considerable length of the sides of the mantle. Nevertheless the disposition presented in *Spirula* cannot be considered as a state of reduction or of retrograde development. In fact in *Nautilus*, where the shell is quite external, there are no fins. In the *Cegopsids*, such as *Ommatostrephes*, the most archaic of living Dibranchiate Cephalopods, the two fins are at the posterior extremity, attached side by side on the median dorsal line (where they cannot be attached in *Spirula*, on account of the opening of the shell cavity), and do not extend so far forward as in the other Decapods, in which the line of attachment is by degrees removed from the median dorsal line (*Loligo*) towards the sides where the fins extend over a greater and greater length (*Sepioteuthis*, *Sepia*). On the other hand, in the development of Decapods with long fins (*Loligo*, *Sepia*), as well as in the others, these organs are found originally situated at the aboral extremity, as in the adult *Spirula*, and are there separated by a space of greater or less extent (Figs. G, H). *Spirula* thus presents the most primitive state of the fins of Cephalopods.

β. Aboral Fossa.—Between the two fins in the middle of the terminal disk is found a rounded opening (Pl. I. fig. 4 ; Pl. II. fig. 3), which in Professor Giard's specimen appears rather elongated across (apparently by deformation, see Fig. I in the text).

This opening leads into a cavity of greater diameter than that of the orifice (Pl. II., *fs.*; Pl. VI. fig. 14). This cavity is occupied by a conical papilla, the summit of which in certain individuals projects a little to the outside (Pl. VI. fig. 14). This papilla presents a peculiar structure, but the state of preservation of the two specimens studied unfortunately prevents a very detailed description. The two figures relative to this