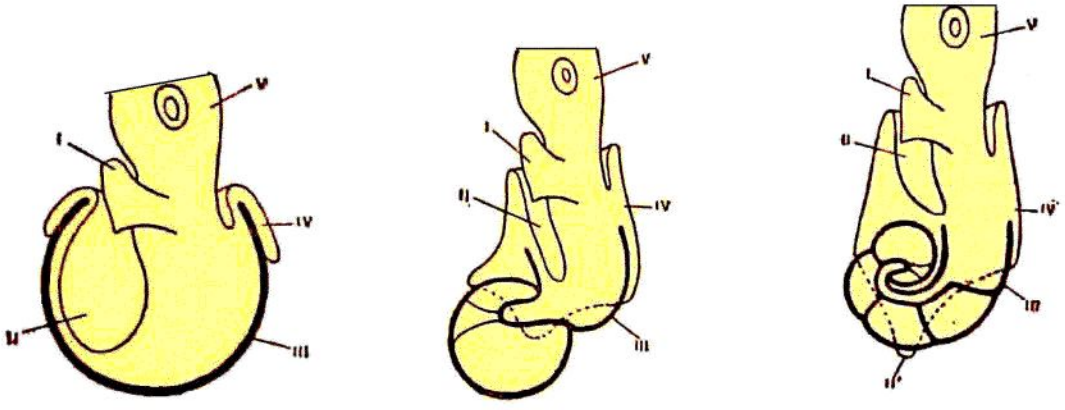
deep (Pl. II. fig. 1; and Figs. C, I, N in the text). However, in the Challenger specimen, the terminal disk, although as thick (Pl. III., P^3), is less distinct from the rest of the mantle (Pl. I. figs. 1–6) than in the two other forms, the furrow above mentioned being in it almost indistinguishable.

This disk is laterally continuous with the rest of the mantle; ventrally and dorsally it limits aborally the shell openings. However, in Professor Giard's smaller specimen (*Spirula reticulata*) this lateral continuity with the mantle does not extend over so great a space as in the larger specimen; the shell openings are there consequently proportionally longer.

Thus in the adult the shell tends to become still more internal than in the young. On the other hand the three forms (*Spirula australis*, *Spirula reticulata*, and *Spirula peronii*) all show an increasing gradation in the encroachment by the mantle on the shell, the minimum dorso-ventral extension of the aboral disk being found in *Spirula australis*,[1] corresponding to the maximum length of the shell openings and



FIGS. D, E, F.—Three schemes of supposed developmental stages of *Spirula*. D, in the embryonic shell; E, with a bilocular shell; F, with a quinquelocular shell.—i, infundibulum; ii, pallial cavity; ii', terminal disk; iii, shell; iv, mantle; v, head.

the maximum of extension of that disk; in *Spirula peronii* (Pl. I. fig. 4) it is more completely fused with the rest of the mantle, and at the same time the shell openings there are smaller than in the two other forms, *Spirula reticulata* (Figs. C, J, N) being in this respect intermediate between *Spirula australis* and *Spirula peronii*.

It is necessary then to suppose that, in the process of development, the free margins of the mantle are reflected over the shell, as in numerous Molluscs (and especially over the dorsal side of the shell in *Nautilus*), since the shell has gradually become more and more covered (Fig. E). The right and left sides of the mantle evidently must send, towards the aboral extremity, prolongations which have united over the median line, giving rise to the terminal disk, which was apparently of small extent at first (Fig. F).

It must not be supposed that the shell might have been completely enclosed at a very early stage, and that the dorsal and ventral openings of the shell cavity might have been

[1] Owen, *Ann. Mag. Nat. Hist.*, ser. 5, vol. iii. pl. i. fig. 3.