



1. We have thus explained the affinities of the Cymbuliidæ and *Peracelis*. We may say, then, that the Cymbuliidæ arise from Limacinidæ resembling *Peracelis* which have lost their calcareous shell towards the end of embryonic development, and the two halves of which (cephalic and visceral) have each performed in opposite directions a little less than a quarter of the rotation about their antero-posterior axis, and, lastly, which have acquired by a subepithelial thickening of the pallial integument a "cartilaginous shell," which makes up for the loss of the calcareous shell.

Gleba is more specialised than *Cymbulia* and *Cymbuliopsis*, and in its development passes through a stage closely resembling *Cymbulia*, with a short proboscis and long appendage to the foot; this appendage shortens and disappears, whilst the proboscis elongates; further, in passing from *Cymbulia* to *Gleba* the cartilaginous shell diminishes in importance.

In the same way *Cymbuliopsis* is more specialised than *Cymbulia*, as shown in its more prominent proboscis and the disappearance of the pedal appendage. The shell has retained more importance than in *Gleba*.

2. *Limacina* is more specialised than *Peracelis*; the head has become less distinct, and the tentacles have lost their symmetry; the nervous system is more concentrated, the abdominal ganglion, which is quite distinct and separate in *Peracelis* (Pl. I. fig. 12, *d*), having fused with the "supra-intestinal" ganglion (Pl. I. fig. 8). The *Limacinæ* have become specialised in two different directions—firstly, by elongating the spire of the shell in such a manner as to attain the extreme form of *Limacina bulimoides*.

This mode of specialisation cannot, however, be very favourable, the most advantageous arrangement for a swimming animal being perfect symmetry, which cannot be realised by a coiled shell. Hence, specialisation in another direction is brought about—the uncoiling of the spire in such a way as to give rise to the straight forms, which, though symmetrical only as regards their external appearance, are thus adapted better for pelagic life. Their symmetry is thus secondary, for their primitive asymmetry remains real, complete, and profoundly impressed upon all their internal organisation.

This uncoiling must have acted like that of the caducous embryonic shell of *Gleba*, a large part of which is straight and separated from the spire.¹ This uncoiling must have

¹ Zool. Chall. Exp., part lxxv. pl. ii. fig. 17.