

hardened portion, commonly known as the "cartilaginous shell," is neither so much developed nor so thick.¹

The pallial gland is asymmetrical (Pl. IV. fig. 3, *a*) and divided into an anterior and a posterior portion by an asymmetrical transparent band, which presents near its middle a narrow more opaque band.

Neither buccal mass, jaws, radula, nor salivary glands are to be found; the œsophagus is very extensile. As regards the rest of the visceral anatomy, all that has been noticed in *Cymbulia* holds good here also, and I have nothing to add to what has been published by previous authors (van Beneden, delle Chiaje, and chiefly Gegenbaur).

The Central Nervous System (Pl. IV. fig. 4) is constructed on the same plan as that of *Cymbulia*, but it may be noted that the segmentation of the cerebral ganglia (*a*) is more marked than in this latter genus. Besides this, each of the two segments has on its posterior aspect a little globular swelling, of the same structure as the superficial layer of the ganglia, that is to say, composed of large nervous cells. No nerves arise from these swellings.

The ganglionic elements of the visceral commissure (*c*, *d*) are disposed in the same manner as in the typical genus of the family, there being three closely approximated ganglia.

The innervation is quite similar to that of *Cymbulia*. From each cerebral ganglion a nerve (*i*) passes to the tentacle, where it expands into an olfactory or rhinophoral ganglion. From each pedal ganglion are given off laterally the two large nerves which ramify in the fin, and anteriorly a more slender nerve (*h*) which innervates the retractor muscle of the proboscis.

Finally, the nerves from the visceral ganglia are disposed as in *Cymbulia* (3, 4).

PHYLOGENETIC RELATIONS OF THE THECOSOMATA TO EACH OTHER.

From a comparative study of the organisation of the different Thecosomata we ought to be able to ascertain which form has preserved the most traces of the primitive structure of the group, that is, which of the recent species is the most nearly related to the ancestral form from which all the other Mollusca of the group Thecosomata have been derived.

It is our ignorance of this actual primitive form which has led to false conclusions regarding the affinities of the Pteropoda. The knowledge of this form will permit us to attempt the solution of the problem (which we shall do in the second part of this Report)—which of the recent Mollusca are the most nearly related to those forms which have given origin to the group Thecosomata.

¹ Compare the systematic Report, Zool. Chall. Exp., part lxx. fig. 1, p. 97 (*Cymbulia*), and fig. 3, p. 102 (*Gleba*).