

PHYLOGENETIC RELATIONS OF THE GENERA OF GYMNOSOMATOUS PTEROPODA.

In the anatomical part of this Report, I shall show the close affinities that these Mollusca possess to the Tectibranchiate Opisthobranchs.

The zoologists who have carefully studied the organisation of the Thecosomata and Gymnosomata have always recognised the great differences that separate the two groups; and many have thought that they have not had a common origin. Boas, however, was the first who clearly stated this opinion,¹ against which no solid argument can be opposed.

Here I have only to consider the origin of the Gymnosomata. According to my opinion, their origin ought to be found in the group Aplysiidæ, Opisthobranchia which already show a remarkable adaptation to swimming habits. In the anatomical part of this Report I shall show the great and numerous resemblances which exist between the organisation of the Gymnosomata and that of the Aplysiidæ.

With regard to the relations of the different genera of Gymnosomatous Pteropoda among themselves, we find rather primitive genera which have retained much of their resemblance to the primitive stock, and others which are highly specialised. Between these two extremes, there are a whole series of forms, by means of which the evolution of the group could almost be traced, and which are not difficult to arrange in a phylogenetic tree, according to their affinities.

The stage of evolution of the group, which each genus represents, is chiefly characterised by the development of the respiratory organs. Thus, *Dexiobranchæa*, which among all the known genera is the most primitive, only possesses the lateral gill corresponding to that of the Aplysiidæ. *Spongiobranchæa* has, moreover, a very simple posterior gill, a specialisation of the posterior ciliated ring which remains very late in the foregoing genus. *Pneumonoderma* shows a great increase in the complexity of this posterior gill, by the formation of four crests radiating from the posterior quadrangular ring, which corresponds to the membranous ring of *Spongiobranchæa*.

Clionopsis already shows a retrogression, the lateral gill having quite disappeared; and

¹ *Spolia atlantica*, p. 14.