

## Family LII. ZYGOSPYRIDA, n. fam. (Pls. 84–87).

*Definition.*—*Spyroidea* without galea and thorax; the shell consisting of the bilocular cephalis only and its apophyses.

The family *Zygospyrida* is by far the richest among the four families of *Spyroidea*, the number of genera in the whole suborder amounting to forty-five, in the former to twenty-eight; and the number of species in the latter to two hundred and thirty-seven, in the former to one hundred and seventy-two. The number of individuals also found in many species of *Zygospyrida* is far greater than in any species of the three other families. The shell of the *Zygospyrida* is represented by the bilocular cephalis only, and never develops a galea (as in the *Tholospyrida*) nor a thorax (as in the *Phormospyrida* and *Androspyrida*). The three latter families have therefore been derived from the former as their common ancestral group.

The *Zygospyrida* are very similar and nearly related to the *Monocyrtida*, and in both groups the cephalis alone represents the whole shell. Therefore in 1882, Bütschli, in the paper mentioned above (p. 1016), maintained the opinion, that these two groups were identical. But there is this important difference between them, that in the *Zygospyrida* (as in all *Spyroidea*) the cephalis is bilocular, with a sagittal constriction, separating the right and left chambers. In the *Monocyrtida*, however (as in all *Cyrtoidea*), the cephalis is unilocular, forming a quite simple chamber without sagittal constriction. Correspondingly the primary sagittal ring in all *Zygospyrida* is well preserved and usually complete, while in the *Monocyrtida* it is never complete, and often quite absent. Another difference is indicated by the form of the central capsule, which in the *Zygospyrida* is usually bilobed, and more developed in the frontal axis, whilst in the *Monocyrtida* it is commonly ovate, and more developed in the principal axis.

The important questions of the origin and phylogenetical relation of these two similar groups of *NASSELLARIA* form a very complicated and difficult problem, and we do not at present possess the means of solving it. It may be that a part of the *Monocyrtida* has been derived from the *Zygospyrida* (as Bütschli erroneously supposes for all), but the contrary is also possible. A third possibility is the independent origin of both groups from the *Semantida*. But we shall see afterwards, in the description of the *Monocyrtida*, that a great part of this group may with greater probability be derived from the *Plectoidea* than from the *Stephoidea*, and that another part of them has probably been derived quite independently from the *Nassellida*. Regarding the complicated relations of these similar groups, mentioned above (pp. 892–894), it seems hopeless here to discuss further their difficult affinities; but in any case it seems useful or even necessary to separate the *Monocyrtida* from the *Zygospyrida*.