

The family Tripocyrtida, composed of the Sethopilida and Sethoperida of my Prodromus, comprises those Cyrtoidea in which the lattice-shell is two-jointed and bears three radial apophyses. The two subfamilies differ in the shape of the mouth, which in the Sethopilida is a simple wide opening, but in the Sethoperida is closed by a lattice-plate; the former are here divided into sixteen, the latter into eight different genera. Though probably the two shell-joints are not truly homologous in all Tripocyrtida, we call the first joint here, as in all Dicyrtida, the cephalis, and the second joint the thorax.

Numerous Tripocyrtida, living as well as fossil forms, were formerly described by Ehrenberg. His genera *Dictyophimus*, *Clathrocanium*, *Lithomelissa*, and *Lychnocanium* belong to the Sethopilida, and have the mouth open; his genera *Lithopera* and *Lithochytris* (partly) belong to the Sethoperida, and have the basal mouth closed by a lattice-plate. Many of these Tripocyrtida belong probably to the oldest forms of Dicyrtida, are nearly related to the Phormospyrida, and therefore of special phylogenetic interest, as was demonstrated by Bütschli (1882, *loc. cit.*, pp. 514–519). This near relation to certain Spyroidea (*Tripospyris*, *Aerospyris*, &c.) is particularly striking in some forms of *Clathrocanium*, *Lithomelissa*, &c. Some other Tripocyrtida seem to possess a closer relation to certain Plectoidea (*Plagoniscus*, *Plectaniscus*), so mainly some forms of *Tripocyrtis* and *Dictyophimus*.

The cephalis, or the first joint of the shell, corresponds usually to the whole shell of the Zygospyrida and of numerous Monocyrtida, and exhibits various modifications of shape, which have been already described in these latter families. It is usually subspherical or hemispherical and armed with an apical horn. In a small number of genera the horn is lost, in some other genera multiplied. The cephalis is separated from the thorax not only externally by the collar constriction, but commonly also internally by a transverse horizontal fenestrated septum, which usually exhibits three or four characteristic cortinar pores. The central capsule, originally enclosed in the cephalis, develops usually three or four large pear-shaped cæcal sacs which pass through the cortinar pores and depend into the thorax (Pl. 55, figs. 2–11; Pl. 60, figs. 3–7, &c.).

The thorax in this family exhibits a great variety of interesting modifications, mainly in the development of the three radial apophyses arising from it. These may be either enclosed in the wall of the thorax as ribs, or arise as free wings, very often prolonged over the mouth as three terminal feet. Finally the three terminal feet only remain, whilst the original ribs are lost. The special ornamentation of these three apophyses exhibits an extraordinary variety and elegance of structure, and many Tripocyrtida belong, no doubt, to the most graceful and admirable forms of NASSELLARIA.