

from the organisation of the Polycystina solitaria and composita, were quite erroneous. So also are the definitions of the three families into which he divided the Polycystina solitaria, afterwards (in 1875) called by him "Monodictya nassellaria." These three families were the Halicalyptrina, Lithochytrina and Eucyrtidina. With these were also united the three genera of Botryodea known to Ehrenberg (*Lithobotrys*, *Botryocampe*, *Botryocyrtis*). We entirely separate these here from the true Cyrtida, on account of their lobate or multilocular cephalis.

Whilst Ehrenberg only knew the skeleton of the Polycystina solitaria, the first observations of living Cyrtida were published by Johannes Müller, 1858, in his fundamental treatise. He gave the first description and figures of the central capsule of this group, with the characteristic lobes developed from its basal part; and of the pseudopodia radiating on all sides (*loc. cit.*, Taf. vi.). The forms described by him were all Mediterranean, one Dicyrtid (*Lithomelissa mediterranea*), two Tricyrtids (*Eucyrtidium zancleum* and *Pterocanium charybdeum*), and one Stichocyrtid (*Lithocampe tropeziana*).

In my monograph (1862, p. 272-341) I gave a detailed description of all known and some new Cyrtida, and characterised this family by the fundamental monaxonial form of the shell, with two different poles (an upper apical and a lower basal pole), and by the unipolar growth, beginning from the apical pole. I pointed out also the peculiar structure of the monaxonial central capsule. At that time I divided the Cyrtida into five subfamilies, in which, however, the Spyroidea (=Zygocyrtida), and the Botryodea (=Polycyrtida) were united with the true Cyrtoida (Monocyrtida, Dicyrtida, Stichocyrtida).

The astonishing number of new and interesting forms of Cyrtida which I found in the rich collection of the Challenger (beginning from 1876), and mainly in the Radiolarian ooze of the Central Pacific (Stations 263 to 274), enabled me to give in my Prodrusus, in 1881, a greatly enlarged and amended system of this important group. I separated there the Spyroidea (=Zygocyrtida), and the Botryodea (=Polycyrtida) from the true Cyrtoida by restricted definition, pointing out the essential differences in the structure of the cephalis in these groups of Cyrtellaria. The latter name, as here used, is therefore identical with the "Cyrtida" of my Monograph. In the Prodrusus I divided the true Cyrtida (p. 426) into five subfamilies and thirty tribes, corresponding to the differences in the number of the shell-joints and of the radial apophyses, and in the shape of the closed or open mouth. These groups are here retained, but reduced to four families and twenty-four subfamilies, since the Tetracyrtida are better united with the Stichocyrtida (compare below).

Richard Hertwig in his work Organismus der Radiolarien (1879, pp. 74 to 86) gave the first accurate description of the finer structure of the central capsule of the Cyrtida, and pointed out their character as true MONOPYLEA, with porochora and