

family of the Cyrtida, under the name Zygocyrtida, with the following definition:—“Lattice-shell divided by an annular sagittal longitudinal constriction into two neighbouring equal joints or chambers.” I adopted at that time the above five genera of Ehrenberg, only eight species of which were known.

Richard Hertwig gave in 1879 the first accurate description of the central capsule of the Spyroidea, and demonstrated that they possess the same characteristic structure of the capsule, with a porochora and a podocorus, that is common to all MONOPYLEA. He separated the Zygocyrtida from the other Cyrtida, and united them with the Stephoidea (*Lithocircus*) in the family Acanthodesmida. In my Prodrômus (1881, p. 440) I adopted that division and put the “Spyrida or Spyroidea” as a separate family between the Cyrtoida and Stephoidea. I there gave the following definition:—*Monopylaria gemina*, testa silicea clathrata gemina, cameris binis juxta compositis, annulo verticali sagittali contiguus, capsula centrali a testa inclusa. Promorpha dipleura vel laterali, dextro et sinistro antimeris symmetricis, plano sagittali annuloque separatis. Polum superiorem axis verticalis vel principalis plerumque spina apicalis (vel occipitalis) occupat, polum inferiorem ostium clathratum (poris tribus aut quatuor aut pluribus) et spina caudalis (posterior). Ad dextram et sinistram duæ spinæ laterales distant. Ab hac forma tripodæ (Monocyrtida triradiata acuta cum annulo mediano) diversæ Spyridum formæ derivandæ sunt.” I there divided the Spyrida into seven subfamilies and forty-eight genera. Bütschli in 1882 published accurate researches on the Zygocyrtida in his Beiträge zur Kenntniss der Radiolarien-Skelete, insbesondere der der Cyrtida (Zeitschr. f. wiss. Zool., vol. xxxvi. p. 501, Taf. xxxii.). He gave a very exact anatomical description of the skeleton of several fossil Spyroidea of Barbados, and pointed out their close affinity to the Acanthodesmida on the one hand, and to the Cyrtida on the other. Regarding their phylogenetical relation, he supposed that the Zygocyrtida have descended from the Acanthodesmida (our Stephoidea) and are the ancestors of all other Cyrtida. The best part of this valuable paper of Bütschli is his exact description of the sagittal ring and its apophyses, producing the basal plate; and the general conception thus derived of the essential parts of the skeleton in all MONOPYLEA, bearing a sagittal ring. But his general conclusions were partly erroneous, since the fossil Spyroidea and Cyrtoida of Barbados, upon which they were founded, contain only the minority of genera of the large group; and many important and typical forms remained unknown to him.

The numerous new genera discovered in the rich collection of the Challenger, and mainly in the wonderful Radiolarian ooze of the Central Pacific (Stations 263 to 274) throw a new light upon the complicated affinities of the whole group, and manifest a far greater richness in developmental variations and admirable morphological productions than Bütschli could suppose. The following description, however, must remain very incomplete, since the exact and thorough study of all individual forms, in the same manner as