

I completely separated the Botryodea (or Botrida) from the other suborders of Cyrtellaria (Spyrida and Cyrtida).

Bütschli gave, in 1882, in his paper on the Cyrtida (*loc. cit.*) a very accurate description of *Lithobotrys geminata*, and pointed out its close affinity to *Lithocorythium* and *Lithomelissa*, and the importance of an oblique septum separating the cephalis into a smaller anterior and a larger posterior lobe. His views on the Botryodea (as a subordinate group of the Cyrtodea) are however incomplete, since the peculiar forms, described in the following pages, were unknown to him.

According to the wide morphological divergence of the different Botryodea, and the numerous peculiar forms developed from it, we here divide the whole group into three families and ten genera, with fifty-five species. These form, however, only a small part of the large and varied mass of closely related forms which are found in the rich collections of the Challenger. The great difficulty of researches on their intimate structure, and the great amount of time required for it, prevented me from giving a more complete and exact description than the one here given. The observation of the small shells from all the different sides is a difficult task, requiring years of work, and its satisfactory explanation would be possible only by means of numerous figures.

The three families of Botryodea, here described, correspond to the three first groups of Cyrtodea. The first family, Cannobotryida, corresponds to the Monocyrtida clausa and to the Zygospyrida; their shell consists of a cephalis only, without subsequent joints. The second family, Lithobotryida, corresponds to the Dicyrtida and Phormospyrida; their shell is composed of a cephalis and a thorax, both joints being separated by a transverse cortinar septum and a collar stricture. The third family, Pylobotryida, has a three-jointed shell, like the Tricyrtida, with cephalis, thorax and abdomen.

The cephalis is the most characteristic part of the shell of the Botryodea and its lobulate and multilocular shape separates them from the Spyroidea and Cyrtodea. It represents the whole shell in the Cannobotryida, and in the young state of the two other families, which afterwards develop a thorax (Lithobotryida) and an abdomen (Pylobotryida). The typical lobulation of the cephalis is probably originally caused by internal septa; and these may be originated by branches of the internal columella, which corresponds either to the central ascending columella of the Plectoidea or to the excentric ascending dorsal rod of the Stephoidea. But afterwards, when the original septa disappear and are lost by reduction, only the external constrictions remain to indicate the limits of the single lobes.

Among the internal septa and the corresponding external constrictions which effect the lobulation of the cephalis, may be distinguished primary or constant septa and secondary or inconstant septa. As primary septa we regard firstly an oblique frontal