Family LXX. LITHOCAMPIDA, n. fam.

Artocorida et Artocapsida, Stichocorida et Stichocapsida, Haeckel, 1881, Prodromus, pp. 437–439.

Definition.—Stichocyrtida eradiata. (Cyrtoidea with an annulated shell, divided by three or more transverse constrictions into four or more annular joints, without radial apophyses.)

The family Lithocampida comprises those Cyrtoidea in which the lattice-shell is composed of numerous (four to eight or more) annular joints, and bears no radial apophyses. It may be divided into two subfamilies, differing in the shape of the terminal mouth. This is a simple wide opening in the Stichocorida (and the united Artocorida), closed by a lattice-plate in the Stichocapsida (and the allied Artocapsida). The phylogenetic origin of the Lithocampida may be found in the Theocyrtida.

The number of species of Lithocampida is very great, and amounts here to more than one hundred and sixty, whilst the total number of Stichocyrtida is about two hundred and forty. They represent, therefore, two-thirds of the whole group, whilst one-third is composed of the Podocampida and Phormocampida. Ehrenberg has already described between forty and fifty species in his genera *Eucyrtidium* and *Lithocampe;* the majority of these were fossils from Barbados.

This large number of species may be easily increased by accurate researches on the great masses of Lithocampida, which are found in the Radiolarian ooze of the Challenger, and as fossils in Barbados. The variety in the number, size, and proportion of the shell-joints and of the lattice-pores is very great, and permits us to distinguish a far greater number of species than are here described. Many species are cosmopolitan, and belong to the most common forms of Radiolaria.

This large number of species requires to be disposed in different genera, but the distinction of these latter is a rather difficult task, since the exterior of the shell, as well as its internal structure, offers no striking differences (compare Pls. 78 to 80). In my Monograph (1862, pp. 312 to 319) I have already pointed out the difficulty of distinguishing between *Lithocampe* and *Eucyrtidium.* The general form of the shell exhibits a continuous series of transformations, from a flat, conical, or nearly discoidal form, through cylindrical to ovate, or spindle-shaped shells, the wide open terminal mouth becoming more or less constricted, and finally (in the Stichocapsida) closed. The absence or presence of an apical horn may further serve for the distinction of genera. A peculiar small group is represented by the Spirocampida (*Spirocyrtis*, *Spirocampe*, Pl. 76, figs. 11 to 17), the transverse latticed girdles separating the single joints, which are usually parallel and horizontal, becoming here partly connected, so that they form a descending spiral.