Subfamily 3. Dictyochida, Haeckel.

Definition.—Cannorrhaphida with a skeleton composed of numerous annular pieces, which lie tangentially scattered on the surface of the calymma. Each piece is either a simple hollow ring or a pileate and reticulate cap, composed of a ring and several connected bars.

Genus 661. *Mesocena*,[1] Ehrenberg, 1841, Abhandl. d. k. Akad. d. Wiss. Berlin, p. 401.

Definition.—Cannorrhaphida with a skeleton composed of simple annular pieces, each of which is a circular, elliptical or polygonal, not fenestrated, ring, with or without radial spines.

The genus *Mesocena* is the simplest form of the Dictyochida, and no doubt the common ancestral form of this subfamily. The siliceous pieces, which are scattered in variable and indefinite number in the calymma, are simple hollow rings, with or without spines on the periphery. Ehrenberg, who first described and figured such rings (found fossil in different Tertiary rocks) has mistaken them for Diatoms. Some species, which I found in the Challenger preparations, leave no doubt that these rings are the siliceous pieces of the skeleton of the simplest Dictyochida. They are scattered in great numbers in the spherical calymma, which surrounds a tripylean central capsule with all the characters of the Phæodaria. In the living body the rings probably always lie in the spherical periphery of the extracapsular jelly-veil, in tangential planes, whilst in some of the Challenger preparations the rings were scattered in hundreds throughout the whole jelly-mass. In a few species the rings are quite simple, circular or elliptical, smooth, and without teeth or spines. In the majority of species some teeth or radial spines, regularly disposed, arise from the periphery of each ring (two, three, four to eight; sometimes sixteen, eight smaller alternating with eight larger spines). In some species small teeth occur on the inner margin of the rings. The number of radial spines seems to be rather constant in all the rings of one and the same individual, with the exception of a few variations. Thus in *Mesocena octogona* I found here and there single rings with seven or nine teeth, instead of the usual number eight. Ehrenberg enumerated sixteen different species of *Mesocena;* many, however, of these are synonymous, being founded on slight variations in the number of the teeth; of others he has given only the name, but neither a figure nor a description (*e.g.*, *Mesocena stephanolithis*, *Mesocena spongolithis*, &c.).

[1] *Mesocena* = Hollow in the centre, annular; μέσον, κενός.