large open spaces in the latticed discoidal shell, which reappear in a similar shape among the Larcoidea in the Pylonida (*Tetrapyle*, &c.). We get the best understanding of this peculiar formation if we return to *Archidiscus*, probably the common ancestral form of all Cyclodiscaria, of the Porodiscida as well as of the Pylodiscida and Spongodiscida. In some species of *Archidiscus* (*Archidiscus hexoniscus*, *Archidiscus pyloniscus*, &c.) the small lenticular shell is composed of a spherical latticed central chamber and of a concentric equatorial girdle composed of six such chambers, either all six equal, or alternately larger and smaller. This latter form is nearly identical with *Triodiscus*, and if we imagine the lattice-work of only three ring-chambers complete, whilst that of the three alternating chambers is reduced to the marginal ring, we get *Triopyle*, by loss of this ring *Triolene* (a disk composed of four simple lattice-chambers, lying in one plane, three radial around one central spherule). The genera mentioned form together the subfamily of Triopylida. In the second subfamily, Hexapylida, the same formation is doubled; here three double arm-chambers are separated by three double spaces (two in each radius). Also here the three distal spaces may be either quite open (*Pylolena*), or half closed by the marginal girdle (*Hexapyle*), or quite loosely latticed (*Pylodiscus*). If the margin of this latter form become surrounded by a perfect chambered equatorial girdle, we get *Discozonium*, and if this acquire a peculiar marginal ostium (surrounded by a corona of spines) we arrive at *Discopyle*. These two latter genera form the third subfamily, the Discopylida. The eight genera of Pylodiscida represent therefore a continuous phylogenetic series.

The Spongodiscida are the sixth and last family of the Discoidea, differing from the five other families in the irregular, spongy structure of the discoidal skeleton; both surfaces of the flat disk (upper and lower) are here principally covered with a rough, spongy framework, whilst in the five other families they are covered by the flat and smooth porous plates or sieve-plates. Nevertheless there is no sharp boundary between the Spongodiscida and the closely allied Porodiscida. In these latter also the discoidal shell becomes often more or less spongy (mainly in the peripheral part, *e.g.*, in *Myelastrum*, Pl. 47); but at least the central part of the disk here remains constantly covered by sieve-plates. The massive skeleton of the Spongodiscida is either of perfectly irregular structure, only composed of innumerable fine branched siliceous threads, interwoven in all possible directions; or only the outer part of the disk is composed of such spongy framework, whilst the central part is more or less distinctly composed of concentric chambered rings, as in the Porodiscida. These latter forms indeed exhibit an immediate transition to this family, and were formerly (in 1862) separated by me as Spongocyclida. Also the polymorphous shape of the disk margin in the Spongodiscida is quite analogous to that of the Porodiscida. Whilst in the first subfamily, the Spongophacida, the margin is quite simple; in the second, the Spongotrochida, it is armed with solid radial spines; and in the third, the Spongobrachida, it is provided with two, three,