One genus only, and two species, of Aulosphærida have been hitherto known, having been discovered by me in 1859 at Messina, and described in my Monograph in 1862 as *Aulosphæra trigonopa* and *Aulosphæra elegantissima* (*loc. cit.*, p. 357, Taf. x. figs. 4, 5; Taf. xi. figs. 5, 6). The characteristic structure of their central capsule, as true TRIPYLEA, was afterwards, in 1879, described more accurately by Richard Hertwig (Organism. d. Radiol., p. 90, Taf. x. figs. 2, 8, 14). The rich collection of the Challenger has demonstrated that the Aulosphærida belong to the most common and most widely distributed PHÆODARIA; many of them are distinguished by the admirable elegance and astonishing regularity of their large and delicate shell. Nine genera and fifty-six species of this great family are described in the following pages, which, however, may represent only a small part of the numerous forms which are found on the surface as well as in different depths of all oceans and in all zones.

The shell is in the great majority of Aulosphærida a regular sphere or an endospherical polyhedron. Two genera only, both rather rare, exhibit a different monaxonial form, one vertical main axis being developed either more or less than all the other ones of the sphere:—*Aulatractus* is spindle-shaped or ellipsoidal, with prolonged main axis; *Aulophacus* is lenticular or discoidal, with shortened main axis. The former may be compared to the Prunoidea, the latter to the Discoidea, in opposition to the common regular Sphæroidea. The size of the lattice-shell is very considerable in all Aulosphærida, its diameter varying usually between 1 and 3 mm., often it amounts to 4 or 5 mm.; very rarely the diameter is more than 5 or less than 1 mm. The largest form observed is the spindle-shaped *Aulatractus*, in which the vertical prolonged main axis attains 6 to 10 mm., the horizontal equatorial axis 3 to 5 mm.

The network of the lattice-shell exhibits in the Aulosphærida two different types, according to which we distinguish two different subfamilies: Aularida and Aulonida; the former are much more common and richer in remarkable forms than the latter. The meshes of the network are in the Aularida constantly triangular, regular or subregular, and very similar to those of the Sagosphærida; at each nodal point six tangential tubes are usually united, so that the network may be regarded also as composed of regular hexagonal meshes, each of which is divided into six smaller triangular meshes (Pl. 109, figs. 1, 3, 5). The second subfamily, the Aulonida, are much rarer than the former, and are distinguished by the polygonal meshes of the network; these are usually more or less irregular, pentagonal and hexagonal intermingled, more rarely tetragonal, heptagonal, or octagonal; usually three or four, rarely five or more tangential tubes are united at each nodal point (Pl. 111, figs. 1, 3). The size of the meshes is very considerable, and agrees with that of the Sagosphærida; their diameter being usually between 0·1 and 0·3, rarely less or more.

The hollow tubes which compose the loose network are usually cylindrical, straight or slightly curved, smooth (Pl. 111, fig. 2), more rarely somewhat spinulate (Pl. 109,