

arachnoidal veil or mantle, composed of thousands of very fine, hollow, tangential needles. The skeleton therefore is incomplete, without any direct connection between the isolated pieces, just as in the preceding Cannorrhaphida, but the latter never possess the large, hollow, cylindrical, radial tubes, which are characteristic of all Aulacanthida.

The spherical body of the Aulacanthida has usually a diameter of 1 to 2 mm., and including the radial tubes, of 4 to 5 mm. or more. Some species are very common and cosmopolitan, and some genera contain numerous species, distributed widely over all oceans. In spite of their considerable size and wide distribution, only one species of this great family has been hitherto known, having been discovered by me at Messina in 1859, and described in my Monograph as *Aulacantha scolymantha* (1862, p. 263, Taf. ii. figs. 1, 2, and Taf. iv. figs. 1-5). I there founded for it the peculiar subfamily Aulacanthida, and annexed it to the Thalassicollida. The same cosmopolitan species has been subsequently observed at Messina by R. Hertwig, who first recognised the three openings in its central capsule, and therefore united it with his TRIPYLEA (Organism. d. Radiol., 1879, p. 88, Taf. ix. figs. 3, 4; Taf. x. figs. 7, 10). The rich collection of the Challenger has added an astonishing number of new and interesting forms of Aulacanthida, so that I can describe here not less than six genera and fifty-eight species. The majority are inhabitants of the colder parts of the South Pacific and South Atlantic, at great depths, whilst a few species only are found in the tropics.

The structure of the body in all Aulacanthida seems to be similar in all important points, and the differences by which we are enabled to separate this great number of species are mainly produced by differences in the development of the radial tubes, their form and their polymorphous apophyses. The entire body represents a rather firm jelly-sphere of 1 to 2 mm. diameter (rarely less or more); the peripheral layer of the spherical calymma is rather clear and transparent, whilst its central part is dark and opaque, containing the big phæodium and the enclosed central capsule. The diameter of the latter is usually between 0.1 and 0.3, often 0.4 to 0.5, or even more. The gelatinous calymma, in the centre of which the capsule is placed, always contains numerous, large, spherical or roundish alveoles, similar to those of *Thalassicolla*, and between them a delicate network of sarcode (Pl. 102, fig. 1; Pl. 103, fig. 1; Pl. 104, fig. 1).

The spherical surface of the calymma is nearly always protected by that characteristic arachnoidal veil or mantle, which is composed of thousands of very fine tangential needles, densely interwoven in all tangential directions, but never directly connected. They are wanting in a single genus only, in *Aulactinium* (Pl. 101, figs. 6-8). This genus, therefore, may represent a separate subfamily, the Aulactinida, whilst all other genera protected by that mantle constitute the subfamily Aulographida. The tangential needles always seem to have the same shape as I have accurately described, in 1862, of *Aulacantha scolymantha*. They are constantly smooth, very thin and fragile, but also very elastic cylinders of silica, of equal breadth throughout their whole length, and seem