

figures of new PHÆODARIA, the names of which (as found by me in 1879 in the corresponding preparations) are the following; (1) *Challengeria naresii*, (2) *Challengeria aldrichii*, (3) *Bivalva compressa* (now = *Conchopsis compressa*), (4) *Tuscarora bellnapii*, (5) *Challengeria circopora* (now = *Circoporus sexfurcus*), and (6) *Hæckeliana porcellana*. A great number of these Challengerida (twenty species) were afterwards figured by Dr. John Murray in the Narrative of the Cruise of H.M.S. Challenger, 1885, vol. i. part 1, p. 226, Pl. A; viz., fourteen species of *Challengeria* and six species of *Tuscarora*.

The most important advance in the knowledge which we had of the peculiar organisation of the PHÆODARIA, was made by the accurate description which Richard Hertwig published, in 1879, of the intimate structure of their central capsule, and mainly of its peculiar openings. He examined living at Messina the following three forms, described in my Monograph; (1) *Aulacantha scolymantha*, (2) *Aulosphæra elegantissima*, and (3) *Cœlodendrum ramosissimum*. Besides, he described an interesting new genus, *Cœlacantha anchorata*; and another new form, which he placed in the Aulosphærida, as *Aulosphæra gracilis*, but which really was a new genus of Sagosphærida, here described as *Sagoscena gracilis*. Finally, Hertwig first discovered that the peculiar bodies, described by Ehrenberg as *Dictyocha* and placed by him in the *Diatomea (Polygastrica)*, were the isolated pieces of the skeleton of a true *Phæodarium*, and that they were scattered loosely in great numbers over the surface of the jelly-sphere, just as are the hollow spicula of *Thalassoplaneta* or *Cannobelos*.

The six species mentioned, of which Hertwig gave a very accurate description and very instructive figures, belong to six different genera, and these represent six different families of PHÆODARIA, viz.; Aulacanthida, Aulosphærida, Cœlodendrida, Cannosphærida, Sagosphærida and Cannorrhaphida. He found that all these six forms, in spite of great differences in the form and structure of their skeleton, were identical in the structure of the central capsule; and since he observed constantly three openings in its double wall (a large main-opening on the oral pole, and a pair of lateral accessory openings on the aboral pole of its main axis) he called them TRIPYLEA (*loc. cit.*, p. 87, 94). But he also pointed out the remarkable shape of their voluminous extracapsular body, and especially the characteristic position, size, colour and composition of the large pigment body, which I had called the phæodium.

The accurate description of the gigantic and elegant skeleton of a new *Phæodarium*, surpassing all other known Radiolaria in its extraordinary size (15 mm.), was published in 1882 by O. Bütschli (in *Zeitschr. f. wiss. Zool.*, vol. xxxvi. p. 486, Taf. xxxi.). He called it *Cœlothamnus davidoffii*, in honour of its discoverer, who had found it floating on the surface of the Gulf of Villafranca, near Nice. He placed it among the Cœlodendrida; it belongs, however, to that part of this group which possesses a nasal tube, and which I afterwards separated under the name Cœlographida.