

*azorica*, Gray. The young forms described by Wyville Thomson in his memoir on *Holtenia*, are in several points suggestive of *Hyalonema*.

Among the numerous *siliceo-fibrous sponges*, which Bowerbank<sup>1</sup> described at the same time in the Proceedings of the Zoological Society, there are also many forms, such as *Caliapsis cidaris*, Bowerbank, *Dactylocalyx heteroformis*, Bowerbank, *Dactylocalyx macandrewii*, Bowerbank, *Dactylocalyx prattii*, Bowerbank, *Dactylocalyx masoni*, Bowerbank, *Dactylocalyx bowerbankii*, Johnson, *Dactylocalyx polydiscus*, Bowerbank, which belong not to the Hexactinellida, but to the Lithistida. With regard to Bowerbank's remarks on the structure of the Hexactinellida, his description of a special skin or cortical layer with peculiar skeletal elements deserves to be noted.

In addition to further descriptions of some new Hexactinellid species,—such as *Eurete simplicissima*, Semper, *Euplectella oweni*, Herklots and Marshall, *Pheronema unnæ*, Leidy, *Semperella schultzi*, Semper, &c.,—protracted discussions on the systematic position of *Hyalonema* and *Euplectella*, and on their mode of attachment, were continued for several years.

Some new genera and species from the Atlantic area were described in 1870 by Oscar Schmidt,<sup>2</sup> who, after very accurate study of the axial relations of the siliceous spicules, was the first, as above noted, sharply to distinguish the Hexactinellida from all other Sponges, and especially from the Lithistida, with which they had been hitherto more or less united.

While the genera *Lanuginella* and *Sympagella*, which were then established by O. Schmidt, are without doubt true Hexactinellida, I cannot say the same of *Placodictyum cucumaria*, O. Schmidt. Preparations of the skeleton which exhibit broken plates and bent knotted rods, were kindly given to me for examination by Prof. O. Schmidt himself, and from these I have been able to convince myself that by the action of acids the elements are dissolved with the liberation of gas, so that they are evidently not of silica, but lime carbonate. It seems probable, in fact, that we have to deal with a Holothurian—*Thyone*—and this supposition is confirmed by the general form of the organism as figured.

By means of microscopic examination—which had been but little applied to the study of fossil Sponges—certain forms belonging to the genera *Scyphia* and *Ventriculites* were indubitably referred by O. Schmidt to the Hexactinellida.

About the same time Saville Kent,<sup>3</sup> who had found on the coasts of Spain and Portugal several little known Hexactinellida, including the new genera *Asconema*, Kent, and *Fieldingia*, Kent, gave a systematic review of all the then known Hexactinellid genera, and distributed them in two suborders, as follows:—

I. CORALLIOSPONGIÆ, Gray. Sponge body supported by an anastomosing or continuous reticulate skeleton. Reproductive gemmules entirely membranous, aspiculous.

<sup>1</sup> *Proc. Zool. Soc. Lond.*, 1868, pp. 118–137; 1869, pp. 66, 323, 389.

<sup>2</sup> O. Schmidt, *Grundzüge einer Spongienfauna des atlant. Gebietes*, 1870.

<sup>3</sup> *Monthly Micr. Journ.*, 1870, p. 241.