

tinellida, they described, in addition to some new species of the genera *Myliusia* and *Aulodictyon*, a new genus *Hyalocaulus*, and gave an explanation of the hollow octahedral nodes which occur so abundantly in fossil Hexactinellida, but less frequently in living forms.

To the communications which Wyville Thomson¹ made in 1877 on some specially noteworthy Hexactinellida from the Challenger material,—such as *Euplectella suberea*, *Hyalonema toxeres*, *Poliopogon amadou*, *Lefroyella decora*, and others,—I will refer at greater length when noting the literature of the genera and species in question.

An important addition to our knowledge of the Hexactinellida was made in 1880 by O. Schmidt.² He gave a description of the forms collected by Agassiz in the Gulf of Mexico, and entered into a discussion of their affinities and other general questions, without, however, undertaking an independent elaboration of the system.

Schmidt does not deny the merit of Zittel's systematic grouping of all known fossil and living species into genera, families, and orders, but while admitting its utility for the practical purposes of the geologist, expresses his doubt whether Zittel's system represents even approximately the natural affinities. He does not therefore feel himself warranted in arranging the genera described in any completely articulated system.

In the living Dictyonina, Schmidt sees only “representatives of the incompletely or altogether unknown fossil Sponges, whose affinities will for ever remain concealed”; the Lyssacina, on the other hand, are “for the most part so closely related to one another, that the boundaries between the genera may be moved quite arbitrarily.” The Euplectellidæ and Hyalonematidæ appear to him genuinely natural families, but he does not give the same credit to Marshall's Holteniadæ.

It is a great pity that some of the genera established by O. Schmidt have been described from fragments but slightly characteristic, and sometimes so shortly that it is difficult to obtain any sufficient conception of their characters. This is especially the case with the new genera *Diaretula*, *Cyathella*, *Diplacodium*, *Pachaulidium*, *Rhabdostauridium*, and *Leibolidium*.

The three genera *Farrea*, Bowerbank, *Eurete*, Marshall, and *Aulodictyon*, Kent, are united by Schmidt into a new genus *Farrea*, of which he found but one species, *Farrea facunda*, represented by numerous and certainly very variable examples. A new genus, *Syringidium*, Schmidt is inclined to refer to the *Lefroyella decora*, Wyville Thomson, figured and briefly described in Wyville Thomson's Atlantic.

Of the genus *Cystispongia*, hitherto only known in the fossil condition, he describes a living representative as *Cystispongia superstes*. The genus *Margaritella*, Schmidt, is supposed to be closely allied to *Cæloptychium*, but it does not possess the perforated

¹ The Atlantic, 1877.

² Die Spongien des Meerbusens von Mexico, ii. p. 33.