

zooids, the absence of all trace of mesenteries, the apparent septa present in the tentacles, the presence of the nematocysts of the form peculiar to Hydrozoa, and in fact every item of histological structure, point irresistibly to the same conclusion. Professor Agassiz considered the Millepores to be allied to the Hydractiniæ, and Claus remarks on their resemblance in some points to the Corynidæ. Both *Hydractinia* and *Podocoryne* resemble *Millepora* in having a cœnosarc which forms a continuous encrusting layer; and in essential structure the cœnosarc of these two genera seems closely to resemble that of *Millepora*. Mr Carter<sup>1</sup> has described a species of *Hydractinia* from the Guinea coast, *H. calcarea*, which has a hard calcareous cœnosteum. The genus *Podocoryne* (Sars) has a "hydrophyton consisting of a continuous adherent expansion formed by adnate inosculating canals, the deeper part, with its component canals, invested by a chitinous perisarc, while a layer of naked cœnosarc spreads over the free surface." In *Millepora* the canals are not adnate, being separated by the stout trabeculæ of calcareous matter which here take the place of the chitinous perisarc. The layer of naked cœnosarc on the surface is probably homologous with the layer in the cœnosarc of *Millepora* described in the present paper as the superficial layer of the ectoderm. The structure of the cœnosarc of *Hydractinia* is essentially similar to that of *Podocoryne*. Distinctive features in the cœnosarc of *Millepora* are the presence in it of the pore-like excavations into which the zooids are retracted, the presence of large main branching canals, and the formation of successive superposed layers of cœnosarc, and consequent formation of lines of growth and tabulæ in the calcareous skeleton. In having zooids of two kinds, mouth-bearing and mouthless, the Millepores resemble *Hydractinia echinata*, which bears likewise alimentary (gastrozooids) and spiral mouthless zooids (dactylozooids). In the form of the zooids, however, and shape and arrangement of the tentacles, and in the nature of the nematocysts,<sup>2</sup> *Millepora* seems to resemble such a form as *Gemmaria implexa*. The real affinities of *Millepora* amongst the Hydroids cannot, however, be determined until the mode of reproduction is discovered.

It is a remarkable fact that the cœnosteum of *Millepora* seems undoubtedly to be generated by the ectoderm. It is thus not homogenous with the corallum of Anthozoa, which is developed from the mesoderm, as appears certain in the latest accounts of the matter from M. Lacaze-Duthiers'<sup>3</sup> researches on *Astroïdes calycularis*, and from those of Kowalewsky<sup>4</sup> on *Astræa* and on *Alcyonium digitatum*. I have, for this reason,

<sup>1</sup> H. J. Carter, F.R.S., On the Close relationship of *Hydractinia Parkeria* and *Stromatopora*, with Descriptions of new species of the former, both recent and fossil, Ann. and Mag. Nat. Hist., vol. xix. p. 44, 4 ser., 1877.

<sup>2</sup> It would seem that a classification and nomenclature of the various forms of thread-cells is much needed, since these forms appear to be of classificatory value in the Cœlenterata. Certain forms are peculiar to Hydroids, e.g., others to Alcyonaria.

<sup>3</sup> H. de Lacaze-Duthiers, Développement des polypes et de leur polypier, Comptes Rendus, 1873, t. LXXVII. (Hoffman und Schwalbe, Jahresbericht, 1875).

<sup>4</sup> A. Kowalewsky, Untersuchungen über die Entwicklung der Cœlenteraten, Nachrichten der kaiserlichen Gesellschaft der Freunde der Naturerkenntniss, der Anthropologie und Ethnographie, Moskau, 1873. (*Ibid.*Y)