

When the two highest authorities in the natural history of Corals, Milne-Edwards and Dana, agree in considering the genus *Millepora* as a member of the class of Polyps, I would not venture to suggest a different view of its affinities, had I not been able leisurely to examine the animal of that kind of Coral, which had never been observed before, and satisfied myself that it has none of the typical characteristics of the Polyps, neither radiating partitions, nor digestive sac hanging in the main cavity, while it agrees so closely with the true Hydroids, and especially with the genus *Hydractinia*, that there can be no doubt left in what direction its natural affinities point. (Compare Pl. XV. *Figs.* 3-13 with Pl. XVI., respecting which more will be found in the sequel.) With these facts before us, *Millepora* must unquestionably be removed from the class of Polyps and referred to that of the Acalephs, as soon as it is conceded that the Hydroids are Acalephs, and not Polyps.

RELATIONS ASSIGNED BY MILNE-EDWARDS TO THE TABULATA AND RUGOSA, AND TO SOME OF THE HYDROIDS IN THE CLASS OF POLYPI, 1850-1852.

1st Sub-class. CORALLARIA.

1st Order. *Zoantharia*.

1st Group. *Malacodermata*. Families: *Actinidae*; *Actininae*, *Thalassianthinae*, *Phyllactinae*, *Zoanthinae*; *Cerianthidae*; *Minyadidae*.

2d Group. *Aporosa*. Families: *Turbinolidae*; *Cyathinae*, *Turbinolinae*; *Pseudoturbinolidae*; *Oculinidae*; *Pseudoculinidae*; *Astridae*; *Eusmilinae*, *Astrinae*; *Pseudastreidae*; *Fungidae*; *Funginae*, *Lophoserinae*.

3d Group. *Perforata*. Families: *Madreporidae*, *Euspammidae*, *Madreporinae*, *Turbinariae*; *Poritidae*; *Poritinae*, *Alveoporidae*.

4th Group. *Tabulata*. Families: *Milleporidae*; *Favositidae*: *Favositinae*, *Chaetitinae*, *Italy-sitinae*, *Pocilloporinae*; *Seriatoporidae*; *Thesidae*.

5th Group. *Tubulosa*. Family: *Auloporidae*.

6th Group. *Rugosa*. Families: *Stauridae*; *Cyathaxonidae*; *Cyathophyllidae*: *Zaphrentinae*, *Cyathophyllidae*, *Axophyllinae*.

2d Order. *Aleyonaria*. Families: *Aleyonidae*; *Cornularinae*, *Telestinae*, *Aleyoninae*, *Tubiporinae*; *Gorgonidae*; *Gorgoninae*, *Isidinae*, *Coralliinae*; *Pennatulidae*.

3d Order. *Podactinaria*. Family: *Lucernaridae*.

2d Sub-class. HYDRARIA. Family: *Hydridae*.

Of these groups I hold that the *Zoantharia*, *Malacodermata*, *Aporosa* and *Perforata*, and the *Aleyonaria* alone, are genuine Polyps; and that the *Tabulata*, *Tubulosa*, *Rugosa*, *Podactinaria*, and *Hydraria* are Acalephs.

Since, from this time forward, the influence of Embryology upon the classifications of Acalephs is more or less distinctly felt, I deem it necessary to introduce here some comparisons between the earlier attempts at a systematic arrangement of these animals and the later systems, in order to render more evident the progress made thus far.