

concerned, the evidence of their acalephian nature is hardly less strong than that adduced for the acalephian affinities of the fossil Tabulata. The only difference in the evidence is, that for the Tabulata we have the confirmation of these affinities in the structure of the animal of one of their living members, while that evidence is wanting for the Rugosa. But, as I have already stated, the Coral stock of the Rugosa coincides so far with that of the Tabulata, that it is built up with successive floors, extending uninterruptedly across the bottom of the whole cavity, which was evidently occupied by the animal; while the Coral stock of all genuine Polyyps presents radiating partitions extending uninterruptedly from top to bottom of the cavity occupied by the animal, and the horizontal floors that may exist, stretch only from one of these radiating partitions to the other.

Now, if both Rugosa and Tabulata are Acalephian Corals, it is very desirable that correct views of their affinities with the other Acalephs should be obtained, in order to arrive at correct conclusions respecting the order of succession of the Acalephs in past geological times, and of their connection, through the only known fossil Discophorous Medusa, with the living representatives of the class.

Scanty as is our information of the fossil Acalephs beyond the knowledge of the order of the succession of the Rugosa and the Tabulata, it is already highly interesting, even with these imperfect data, to institute comparisons between all the members of the class respecting their order of succession. We have seen that the Ctenophoræ are the highest order of Acalephs, and that the Discophoræ proper are next to these in standing; while the Hydroids, including the naked-eyed Medusæ and the Siphonophoræ, constitute the lowest order of the class. We have seen, further, that among the Hydroids themselves, those in which the medusoid elements prevail over the hydroid elements should be considered as the superior ones. Taking, now, the only indication we have in Millepora as our guide to an appreciation of the standing of the Tabulata among the Hydroids, it is plain, from the circumstance that these Hydræ communities form large, permanent Coral stocks, living probably for centuries, that they have a character of inferiority as contrasted with the short-lived Hydro-Medusaria, and especially with those which produce free Medusæ in alternate generations. But if the Tabulata stand low in the lowest order of Acalephs, we have in this fact a striking coincidence with the character of the representatives of other classes in earlier periods. Since Crinoids prevail in Palæozoic times, while free Star-fishes and Echinoids make their appearance later;—since Bryozoa and Brachiopods prevail during the same old periods, while Lamellibranchiates become prominent in later geological epochs;—since Trilobites are the earliest Crustaceans, followed by gigantic Entomostraca, and higher Crustacea appear only in the middle geological ages, etc., etc., we should expect that Acalephs also should make their appearance with the representatives