

III.—*On the Corals and Coralliform Types of Palæozoic Strata.*

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Among the fossil forms of post-palæozoic date referred to the Anthozoa or Corals proper, very few, if any, occupy a debatable position. Many of the commonly admitted palæozoic corals, on the other hand, are of more or less doubtful character, and have thus been placed by some authorities under other subdivisions. Whilst admitting their uncertain affinities, however, it seems impossible to separate these doubtful types on any really satisfactory grounds from the more distinctly coralloidal forms, into which, indeed, they appear to merge by almost insensible transitions. In this paper, therefore, the term "coral" will include all the generally recognized coralloidal types of palæozoic occurrence.

The great division of the COELENTERATA, to which the corals belong, is usually subdivided into three leading classes:—Hydrozoa, Anthozoa, and Ctenophora. The latter class, represented by a small number of pelagic, ciliated types, is an entirely aberrant group, and is without any known fossil representatives. Living Hydrozoa are distinguished from existing Anthozoa by no very certain characters—many of the supposed distinctions, at one time regarded as characteristic, having been shown of late years to be more or less indefinite; and it is extremely probable, as suggested by the late Professor Agassiz, that the so-called "tabulated corals" should be referred, really, to this class—the Hydrozoic Millepores forming the connecting link. These tabulated corals, again, offer in many cases a complete transition into the tabulated Rugosa,¹ the assumed tetramerous character of the latter being in many instances, as shown farther on, either without foundation or entirely unrecognizable. It would seem advisable, therefore, in place of *three*, to adopt *five* leading subdivisions in the classification of the Coelenterates generally, as in the annexed tabular synopsis:

A.—Without natatory cilia.

A.¹—Stomach cavity completely identical with body cavity:

(i).—Without stony corallum:

CLASS I. *Hydrozoa.*

(ii).—With calcareous (typically tabulated) corallum:

¹ As exemplified, for example, by the following series:—*Favosites*—*Columnaria*—*Amplexus*—*Zaphrentis*—*Cyathophyllum*.