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CORAL REEFS AS ZONATIONAL PLANT FORMATIONS[1]

IN choosing a meeting of the Botanical Society of America for the presentation of a paper concerning itself with coral reefs, I am acting deliberately and with serious intention of emphasizing a point, to me at least, seemingly fundamental to all coral reef discussion, and that is this: the coral reef, so called, is dominated and controlled by its plant symbionts even where there is a variety of organisms concerned. Furthermore, there are certain reefs, and these even of the complex atoll type, which are so overwhelmingly, even completely, made up of calcareous algae that they clearly merit the appellation of "nullipore" reefs rather than the time-hallowed, popular, but scientifically misleading designation of "coral" reefs.

Coral reefs have suffered from being early connected with a theory in such an intimate and intriguing fashion as to invite attack against the protagonists of theory rather than to stimulate unprejudiced study of reef history from the point of view of a symbiotic entity, such as, for example, its origin, its growth, its capacity for assuming and retaining definite morphologic form, as well as for morphologic change, its ability to regenerate and to reproduce itself. Any symbiotic aggregate, having unity in general habit, controlled by a certain dominant organism or certain dominant organisms, behaves as an ecologic unit and is designated as a formation. When a formation, because of the environmental factors controlling it, borders or encircles, even irregularly, the substratum of its habitat, it becomes a zonal or zonational formation, and it, as has been pointed out by various writers, but by Clements in particular, is an epitome of succession.

Zonal formations are well known in both animal and plant ecology. The "coral" reef, to use the general term in the abstract, but without prejudice, may be made up entirely of calcareous algae, as Rose Atoll or Onoatoa Atoll, or of both, as Funafuti Atoll, the barrier reef about Tahiti, Moorea, etc., or the exposed fringing reefs of Tahiti, Tutuila, etc. It seems impossible to imagine any "coral" reef, other than certain small "reef patches," being constructed absolutely of corals alone, since even the most important of

[1] Delivered before the Pacific section of the Botanical Society of America, at Pomona College, California, June 15, 1928.