

Observations and experiments on individual species of Reef-Corals are sadly needed in order to bring to light the influences of local conditions upon them, such for instance as—

1. The nature of the surface on which they grow, when sandy, muddy, or rocky.
2. The stillness of the water in sheltered positions, or the motion of currents or running water in exposed positions.
3. The difference in temperature in different positions.
4. The presence or absence of direct sunshine.
5. The saltness or brackishness of the water.
6. The clearness or turbidity of the water.
7. The position on the reef, as to depth from the surface of the water.
8. The position on the reef as to proximity to or distance from the shore or the outer verge of the reef, &c.

It is certainly remarkable to notice the great amount of variation to which apparently one and the same species is liable, as is evidenced where large series of specimens are at hand; and it is probable that such variations are brought about by the influence of one or more of the above conditions. This to a certain extent seems borne out by the fact, observed by Professor Moseley at Bermuda, that certain species seem to thrive best in direct sunshine or in shade, or inside sheltered places like small caverns; from which it seems natural to conclude that the presence of less favourable conditions in each case would be attended with more or less marked changes in the growth of the species.

The reefs at Tahiti, Banda, and Bermuda seem to offer special facilities for the prolonged examination, both by observation and experiment, of individual species under varying conditions.

#### ON CLASSIFICATION.

In the sketch which is given under this head, no detailed account of the families and genera of the Madreporaria has been attempted, for this has been rendered superfluous by Professor P. Martin Duncan's recent work, *Revision of the Families and Genera of the Sclerodermic Zoantharia or Madreporaria*.<sup>1</sup> As, however, considerable light has been thrown on many points of classification by the Challenger Reef-Corals, it was necessary that these points should be stated and considered; and this has been done, generally, in a very brief manner. I believe—and indeed modern investigation forces one to the conclusion—that no satisfactory classification of the Madreporaria is possible until much more is known of the structure of the soft parts of a large number of the genera which have been described from the corallum alone, and until the development of the hard structures, and the relations of the different parts to each other, are much better understood than they are at present.

<sup>1</sup> *Journ. Linn. Soc. Lond. (Zool.)*, vol. xviii.