

METHODS EMPLOYED.

The specimens of *Heliopora* and of *Sarcophyton* examined were hardened in absolute alcohol, being placed in it in the living condition. Portions of them were subsequently decalcified in weak hydrochloric acid, imbedded in wax in the usual manner, and cut into sections. The sections were examined partly in glycerine, partly in Canada balsam, after being rendered transparent by means of oil of cloves. Some sections were stained with carmine. Some portions of *Heliopora* were placed whilst living in a solution of chromic acid, and slowly decalcified whilst in the solution by the addition of a few drops of hydrochloric acid from time to time; these yielded some results which were not obtainable from specimens hardened in alcohol and more rapidly decalcified. Sections of small area were also forcibly cut from the undecalcified hardened corals in order to show the relations of the hard parts to the soft, and separate polyps were removed from their calicles with the point of a scalpel and examined whole in glycerine; portions of the tissues of *Heliopora* were also observed in the fresh condition. For examination of the structure of the hard calcareous tissues, fine sections were prepared by grinding in the usual manner.

Observations on *Heliopora cœrulea* in the living condition.

Heliopora cœrulea was found growing in abundance on the reefs fringing the shore of the small island of St Cruz Major, which lies opposite the harbour of Samboangan, Mindanao, Philippine Islands. The coral grew in about two feet of water at low tide. It has a uniform light chocolate-colour when fresh and living. Although I transferred portions of the living coral to a glass vessel under water, so that they never came in contact with the air, I did not succeed in getting the polyps to expand; and I have not seen them in that condition, although directly the coral was left at rest a swarm of a species of *Leucodora*, closely resembling *Leucodora nasuta*, which infests the coral and perforates it all over, expanded themselves at once. Most unfortunately I hardened in spirits portions of *Heliopora* taken from only one colony, as I did not suspect that the animal would prove to form unisexual colonies. This colony proved to be female; and hence I have not seen the male generative organs of *Heliopora*.

Structure of the Corallum of *Heliopora cœrulea*.

The genus *Heliopora* was formed by Blainville (Manuel d'Actin., p. 392). It is thus characterised by Milne-Edwards (Hist. Nat. des Corall., t. iii. p. 230):—"Corallum massive,