

In the building up of the cœnosteum, which must be deposited, as in *Millepora*, by the ectodermal covering of the cœnosarcal canals, absorption of already formed hard structures must take place during the gradual increase in size of the ampullæ and the widening of canals, which, as shown in the figures, are larger in bore in the deeper than in the younger superficial regions of the cœnosteum. A re-deposit must also take place constantly, for old ampullæ, in the deeper parts of the cœnostea, are to be found in all stages of obliteration. Sometimes in some genera, a rejuvenescence of parts of the cœnosteum takes place; a previously dead area becoming overgrown from its margins by a living lamina, which spreads over and covers it.

#### PARASITES OF THE STYLASTERIDÆ.

The cœnostea of nearly all Stylasteridæ are liable to become much distorted in growth by the presence upon them of parasites of various kinds, each of which appears by the special kind of irritation which it offers to produce a particular form of abnormal growth in the part of the cœnosteum it infests, producing thus, as it were, an animal gall. The commonest distortion is the reduction of the stem of a coral or branch, or of one side of these, into a hollow canal or deep furrow, more or less roofed over by a thin wall. This condition is produced by the adherence to the growing stem of an Aphroditacean Annelid. It has been noticed and described by Pourtalès<sup>1</sup> and Verrill, in *Stylaster erubescens* and *Allopora californica*. I have seen it in *Cryptohelia*, *Stylaster*, *Allopora*, and *Errina*. On *Errina labiata*, a parasitic filiform Nemertean also occurs which twines itself round the tips of the branches in many coils. The branches thus irritated grow out into a burr-like mass of projecting points which are evidently hypertrophied dactylopore prominences, and sometimes assume almost the appearance of the normal spines of *Spinipora*.

The most interesting parasite observed was a form found in the gastric cavities of the gastrozooids of *Pliobothrus symmetricus* contained in small capsules. These capsules were badly preserved, but there seemed little doubt that they contained the remains of larvæ of a Pycnogonid, so that the deep-sea Pycnogonids, which are so abundant, very possibly pass through their early stages in deep-sea Stylasteridæ. The formation of a calcareous cœnosteum has not vitiated the capabilities of the Stylasterid Hydroids as hosts for Pycnogonid larvæ. The gastrozooids containing the larvæ were partly aborted.

#### DISTRIBUTION IN SPACE AND TIME OF THE STYLASTERIDÆ.

The Stylasteridæ range all over the world, and exist at all depths from shallow water on the coasts to great depths in the open oceans. Two species occur close at

<sup>1</sup> Bull. Mus. Comp. Zool., Harvard, vol. vi. p. 136.