

of each animal communicate freely with the tube in the stem ; and in this they differ from Bryozoans, whose groups have no tubular axis. The ancient *Graptolites* (some of which are represented on page 510) are supposed to have been of this nature. Others secrete calcareous corals of large size, and are called *Millepores* (because the minute cells from which the animals protrude are like pinpunctures in size, and very numerous over the surface of the coral). The Millepores are common in the West Indies and other coral seas. The minute animals of a Millepore have nearly the form represented in Fig. 440, which represents a species of another genus, called *Syncoryne*.

There are hence stony corals made by Polyyps, by Hydrozoans, and by Bryozoans ; and others that are made by sea-plants, as explained beyond.

2. Actinozoans, Anthozoans, or Polyyps.—Fleshy animals, like a flower in form, having above (Figs. 435, 436) a disk, with a mouth at center, and a margin of tentacles ; internally, a radiated arrangement of fleshy muscular plates ; and living for the most part attached by the base to some support. *Ex.*, the *Actinia*, or *Sea-Anemone*, and the animals of ordinary corals.

There are two groups of coral-making Polyyps :—

1. **ACTINOIDS** (*Zoantharia*) (Figs. 435, 436), which make the ordinary corals. The rays or tentacles of the Polyyps are naked, that is, without a fringe of papillæ. In the *Madreporaria*, the number of tentacles is a multiple of 6 ; in the *Cyathophylloids* or *Tetra-coralia*, a multiple of 4.

The coral is secreted *within* the Polyyps, and not outside as in the case of shells. It is usually covered with radiate cells, each of which corresponds to a separate Polyp in the group. The calcareous rays or septa are made in the spaces between the fleshy partitions in the interior of the Polyp. The material is calcium carbonate (limestone) ; and it is taken by the Polyp from the water in which it lives, or from the food it eats.

2. **ALCYONIDS** (*Alcyonaria*) (Fig. 437), or those of the *Gorgonia* and *Alcyonium* corals. The rays of the Polyyps are 8 in number, and fringed. Fig. 437 represents a part of a branch of a *Gorgonia* (Sea-Fan), with one of the Polyyps expanded. The branch consists of a horn-like axis and a fragile crust. The crust is partly calcareous, and consists of the common tissue (cœnenchyma) by which the Polyyps are united together ; the axis is secreted by the inner surface of the crust. The precious coral used in jewelry comes from the shores of Sicily and some other parts of the Mediterranean, and belongs to this Alcyonoid division. It is related to the *Gorgonias*, but the axis is red and stony (calcareous) instead of being horny ; and this stony axis is the coral so highly esteemed. A few species make calcareous corals much like those of the Actinoids without any separate crust.

7. Spongiozoans.

1. The Sponges (Porifera) are mostly complex groups of animals, having internal membranes composed of ciliated cells resembling the collared Flagellate Protozoans. Some simple sponges are of one Zoöid only. The groups secrete, excepting in one tribe,—the gelatinous Sponges, or Halisarcoids,—a framework (1) of horny fibers, or (2) of horny fibers set with siliceous spicules ; or (3) of siliceous spicules or fibers ; or (4) of calcareous spicules or fibers. Of these 4 kinds, the first are the *Corneous* Sponges of commerce ; the second, the *Corneo-siliceous*, a harsh and more brittle kind ; the third, the *Siliceous* ; the fourth, the *Calcareous* or *Calcspongiæ*.

Some of the forms of the spicules of the corneo-siliceous and siliceous sponge-spicules are shown in Figs. 446–460, by Hinde. All these spicules were found by Hinde in powder filling a single small cavity in flint from Norfolk, England. All are much enlarged.

The Hexactinellid Sponges are siliceous and have the framework made up of spicules with rays crossing at right angles, making it 6-rayed at the crossing ; they are mostly from great depths ; Tetractinellids are 4-rayed. But simple forms accompany the more complex. The Sponges occur at all depths in the ocean and are very various in shape.