

whorls. Their length reaches 30 to 40 mm. In most cases they are simple, they sometimes give off a lateral twig near the base. The calyces are club-shaped, 0.8 to 0.9 mm. long. They are isolated on the main stem, especially towards the point; they are more closely placed on the twigs.

In the first description of the species, from a dried example, it was stated that the calyces arise oppositely in pairs, so that two cells always stand off in a different plane from the two preceding and the two succeeding ones. A fresh examination of the original, with the assistance of the Challenger specimens, shows the condition to be somewhat different. The calicles form around the stem spirals of three, so that the fourth calyx always comes to stand over the first again. But thereby the second is so near to the first and the third to the fourth in its origin, that in many places the calyces appear to stand opposite.

On the outside the calyces are covered with large scales, which form six to eight transverse rows and five longitudinal rows. The scales of the last row bear strong, projecting spines, which extend beyond the opening of the calyx.

The operculum forms a low cone of eight pointed spear-shaped scales, which are toothed on their lateral edges.

The spicules of the cœnenchyma are longish and oval, their lower edge is always covered by the upper edge of the preceding scale.

The form and size of the spicules in the Challenger specimens agree completely with those of the original type.

Scales of the calyx.—The calyx scales of the uppermost row exhibit a convex upper edge, over the middle of which a rough spine rises. The scale without the spine has a length of 0.2 mm., a breadth of 0.15 to 0.2 mm.; the spine projects 0.08 mm. beyond the scale. In the row next below this, the scales are relatively high, almost lancet-shaped, the upper edge pointed, 0.24 mm. high, and 0.2 mm. broad, with strong radial prominences, at the end with single short spines. The lower scales exhibit small prominences, and a smooth, convex upper edge, which is sometimes somewhat incised in the middle. Height to breadth, 0.16–0.21; 0.16–0.2; 0.12–0.19 mm. The opercular scales are broad and lancet-shaped, the lateral and ventral ones truncated at the end. Dorsal, height 0.24, breadth 0.1; lateral, height 0.24, breadth 0.1; ventral, height 0.13, breadth 0.04 mm. The scales of the cœnenchyma are inequilateral three-cornered or four-cornered plates, whose edges overlap one another on opposite sides. Height to greatest breadth, 0.2–0.16; 0.25–0.26; 0.2–0.18; 0.19–0.18 mm.; deeper layer, 0.09–0.07; 0.18–0.12 mm.

*Habitat.*—Station 192; off the Ki Islands, south of Papua; depth, 140 fathoms; bottom, blue mud.

Japan, collected by Dr. Hilgendorf; also collected by Dr. Döderlein.