

The scales of the calyx have a convex upper edge which is slightly toothed, usually a middle tooth and two lateral teeth are especially developed, more particularly in the uppermost rows. There are five transverse rows of scales present, of which one is ventral. The ventral scales are slightly different from the dorsal ones in size; their lateral edges are covered by the lateral scales; the lower one always covers with its upper edge the base of the next above it, so that the scales can slide over one another when the calyx is bent ventrally.

The opercular scales are short, spear-shaped, with the dorsal and ventral symmetrical, the lateral unequal sided, all grooved in the middle line with expanded base, the lower edge of which is finely toothed. They form, when laid together, a short, obtuse cone.

Scales of the calyx with rough, radially arranged spines, convex upper surface, which is toothed; nucleus central with regard to the arc of the upper edge. Length to breadth—0·2–0·25; 0·15–0·2; 0·23–0·27; 0·23–0·26 mm.

Opercular scales; base of the triangle to height—0·3–0·12; 0·32–0·2; 0·38–0·2 mm.

Scales of the cœnenchyma; upper layer, nucleus excentric. Length to breadth—0·36–0·15; 0·2–0·17; 0·23–0·27; 0·2–0·2 mm.; lower layer—0·1–0·1; 0·12–0·1 mm.

Habitat.—Station 171, off the Kermadec Islands; depth, 600 fathoms; bottom, hard ground.

2. *Thouarella hilgendorfi* (Studer) (Pl. XXI. fig. 4).

Plumarella hilgendorfi, Studer, Monatsber. d. k. preuss. Akad. d. Wiss. Berlin, 1878, p. 648, Taf. ii. fig. 15.

According to the mode of development of the lateral twigs and the form of the calyx scales, this species may be best placed in the genus *Thouarella*. This is especially evident from the Challenger specimens, in which the stem is less branched than is the case in the Japanese specimens. In one specimen the stem rises from a flat, expanded, basal, calcareous lamella. Already at a distance of 2 mm. above its root it forks into two equal branches, which rise up parallel with one another to the same height and bear the lateral twigs, without themselves further bifurcating. In a second colony the main stem gives off from either side lateral branches, which both lie in one plane.

The stem is horny, calcareous, rigid, in all cases oval in transverse section, so that the longer axis is parallel to the direction of the lateral branches. The larger transverse section of the stem near the base reaches 2 to 3 mm. in diameter. The axis is hard, brittle, brown in spirit, in dried specimens more yellowish; the surface has a slight golden glitter. Parallel furrows traverse it longitudinally. The twigs are thin, flexible, at the beginning only 0·5 mm. thick. They arise from three sides of the stem at different heights, and stand off from the stem at nearly right angles. Their points of origin are very close to one another, so that, when superficially examined, they appear to form