

The outer covering of the trunk up to the collar is thickly beset with spicules, which, placed close together, form a continuous sheath. These spicules consist, in the more simple cases, of short thick spindles covered with long and usually branched curved spines placed in several circles. They are 0.3 mm. long and 0.13 mm. in diameter. They are frequently bent and then the convex side is covered with longer spines, like the spicules of many Muriceids; length 0.28 mm., diameter 0.07 mm. There are also club-shaped spicules, whose thicker end is covered with branched prickly spines; size, 0.25 by 0.15 mm. and 1.8 by 0.08 mm. There are, further, double forms, in the shape of a cross, whose rays bear jagged, branching spines; diameter 0.32 mm. The branching spines serve to unite the spicules together by interlocking with one another, and thus to form a continuous armature. Above the collar these forms disappear, and in their place long bent spindles occur in the mesoderm. These are usually placed at right angles to the long axis of the stem and branches, in which they alone occur. Their length reaches 2 to 4 mm. Spaces filled with soft skin are left between them, so that here the outer covering is flabbier than in the lower part of the trunk.

In the finer twigs these spicules are arranged longitudinally and pass into the peduncles of the polyp heads, beyond which they project in the form of fine spines. These spicules are spindle-shaped, they are often bent, so as to become *f*-shaped and truncated at one end; they are covered all over with fine spines. They measure 0.8 by 0.04 mm., 2 by 0.07 mm., 4 by 0.09 mm.; the latter in the bundle of spicules surmounting the head.

The peduncle of the polyp head is heavily armed with large *f*-shaped spicules. The polyp head is surrounded by larger and smaller spicules which radiate from the base to the margin, beyond which eight of them project like spines. These are bent and truncated at the base, or forked and completely covered with sharp little spines. They measure 0.8 by 0.5 mm., 0.7 by 0.038 mm. The smaller spindles, which are either straight or bent, measure 0.26 by 0.03, 0.3 by 0.02, 0.3 by 0.025 mm. Small spicules occur embedded in the tentacles.

The colour of the stem and of the branches and secondary branches is white; that of the terminal twigs and polyps, as also of their spicules, is purple. The polyps of the collar are bright red, in one case white. The tentacles are white.

*Habitat*.—Station 192, off the Ki Islands; lat. 5° 49' 15" S., long. 132° 14' 5" E.; depth, 140 fathoms; bottom, blue mud.

*Spongodes heterocyathus*, n. sp. (Pl. XXXVI. figs. 3a, 3b).

The colony consists of a globular head formed by the rapid ramifications of a short stem, whose terminal twigs bear bundles of polyps. One larger polyp, of special