

cœnenchyma of the stalk contains many spiny warty spindles, large and small, the warts often coarse and distant; also warty cylinders about half as broad as long, with thickly warted double spindles.

*Sarcophytum tongatabuensis*, n. sp. (Pl. XLI. fig. 10).

The colony has been torn from its basal attachment, but is nearly perfect; it consists of a sterile columnar portion, and of a mushroom-like capitulum, bearing dimorphic polyps.

The columnar portion, which has been slightly injured, is hard and compact, 26 mm. high, and of a flattened oval form. In section its basal diameters are 16 and 10 mm., and from this tapering to diameters of 11 to 7 mm. just under the head. There is a slight constriction of the column at a height of 10 mm. from the base; below this the surface is rough with large spiny spindles, while above it is smooth, though somewhat wrinkled.

The capitulum is mushroom-shaped, dense, and of a hard consistency. After it rises from the stalk it folds over, forming a deep gutter-like channel surrounding the latter, which is 4 mm. wide. From the edge of this projecting portion it rises into a convex oval head, the extreme measurements of which are 30 by 20 mm. in width and breadth, and from 7 to 8 mm. in height.

The autozooids are scattered over the whole of the edge and upper surface of the capitulum, being more numerous and closer together on the rim of the edge. They are completely retractile, within pit-like depressions in the cœnenchyma, the walls of which can contract over the polyps when these are withdrawn. On the withdrawal of the body of the polyp, the tentacles seem to be simply folded together against one another, and then also they are drawn in.

The siphonozooids are numerous, scattered all over the surface of the capitulum, which is not occupied by the autozooids, the largest measure quite 0.5 mm. in diameter they are slightly depressed below the surface of the cœnenchyma. The colour of the column is a dull brown; of the capitulum a lighter hue.

The spicules of the sterile stem measure:—The curved spiny spindles 1.3–0.3; 1–0.2 mm. The straight spiny spindles 1.06–0.2; 1.3–0.2; 1–0.2 mm. The irregular branching forms 1.2–0.3; 0.9–0.3 mm. The four-rayed forms 0.8–0.5; 0.76–0.2; 0.6–0.4 mm. In the polyps the spiny spindles measure 0.6–0.1; 0.8–0.06; 0.5–0.06 mm. In the tentacles some slender curved and straight spiny spindles occur 0.16–0.02 mm.; and some with broader heads 0.24–0.04 mm.

*Habitat*.—Station 272, off Nukalofa, Tongatabu; depth, 18 fathoms.

*Sarcophytum atlanticum*, n. sp. (Pl. XLII. fig. 3).

The colony consists of a sterile short stem, and a large deeply folded and spreading capitulum, bearing the dimorphic polyps; the total height of the colony is 70 mm.