

*Gonosome* not present.

*Localities*.—Off Somerset, Cape York, Torres Strait; depth, 8 to 12 fathoms.

Bahia; depth, 10 to 20 fathoms.

This is a graceful plumose form, attaining a height of about three inches, and exceptional among the species of *Desmoscyphus* in having the hydrothecæ which compose each pair in the pinnæ not strictly opposite, but so disposed that a line joining the centres of both will be oblique to the axis of the pinna.

While the hydrothecæ of the pinnæ, notwithstanding this obliquity, are adnate to one another by their opposed sides, those of the stem are widely separate. Here they are alternate and smaller than those of the pinnæ, while every internode carries two on one side and one on the other; one which is somewhat smaller than the others being always borne in the axil of a pinna.

*Desmoscyphus obliqua* was dredged from widely separated localities—Torres Strait, where it occurred at a depth of from 8 to 12 fathoms, and off Bahia, where specimens were brought up from depths of 10 to 20 fathoms.

*Desmoscyphus acanthocarpus*, n. sp. (Pl. XXXV. figs. 2, 2a, 2b, 2c).

*Trophosome*.—Stem monosiphonic, unbranched, carrying alternate pinnæ; stem and pinnæ composed of well-defined internodes, every internode carrying a pair of opposite hydrothecæ which are connate in the pinnæ but disjunct towards the proximal end of the stem. Hydrothecæ deep, tubular, adnate to the front of the internode for nearly their entire height; margin of orifice having at its epicauline side a wide sinus, the edge of which supports a thin, membranous, hood-shaped operculum which arches over the orifice.

*Gonosome*.—Gonangia elongated pyriform, with the axis slightly curved, springing with an alternate disposition each by a very short peduncle from an internode of the main stem just below the base of a hydrotheca, terminating distally in an even circular orifice, and thickly set with minute spines.

*Locality*.—Off Bahia; depth, 10 to 20 fathoms.

*Desmoscyphus acanthocarpus* is a curious and interesting species. The hydrothecæ along the entire length of the pinnately disposed ramuli are all brought to one side of the ramulus, and are here connate to one another for nearly their entire height. Those which are borne by the stem are similarly connate towards the distal end of the stem, but towards the proximal end they become disjunct and more and more widely separated from one another, until ultimately they lie in two exactly opposite marginal series. The stem for some distance from its hydrorhizal end is destitute of hydrothecæ, and here forms a