

*Habitat.*—Carter states that this sponge occurs in the West Indies, Australia (excavating *Millepora alcicornis*), the South Seas (in *Stylaster sanguineum*), and the Seychelles (in rooting fibres of *Euplectella cucumer*).

*Remarks.*—I owe to the kindness of Mr. Carter a mounted slide bearing spicules of an Australian example of this species; as in all other cases in which the sponge has been observed, it occurs in association with spicules, some of which are certainly foreign to it, and possibly all. The amphitriænes and sigmaspires are evidently proper to the sponge, but tylostyles are associated with these both in Mr. Carter's specimen from Australia and that of the Challenger from Bahia. Mr. Carter regards these tylostyles as derived from an associated *Cliona*; but there is just a possibility that this may not be the case; and if they really are proper to the *Samus*, this Bahian example would have to be assigned to a different species from the Australian ones, since in this latter the tylostyles measure 0.29 by 0.015 mm. in length and breadth, the tylus being 0.015 mm. in diameter, and in the former they measure 0.142 by 0.008 mm., with a tylus about 0.01 mm. in diameter. Associated with the spicules from Australia, I found a tylocladus derived probably from some species of *Acanus* (Gray), but resembling the tylostyles in all respects except for the presence of the four cladi. The amphitriænes vary considerably in dimensions, hence there is some little difficulty in comparing by means of measurements those from different localities; a careful comparison of the Australian examples with those from Bahia showed, however, complete identity between the two.

There seems to be some little confusion attaching to Carter's stated measurements, they do not agree with those obtained from his figures, which are accurately drawn to scale. Thus, measurements made from the drawing of the amphitriæne give the following; rhabdome 0.067 by 0.0267 mm.; cladi 0.08 by 0.02 mm.; chord 0.16 mm., but, according to the text, the spicule is 0.28 mm. long by 0.11 mm. across the head. This is probably explicable as an accidental inversion of statement; it should, I think, read 0.11 mm. long, by 0.28 mm. across the head. The heteropolar amphitriæne is said to measure 0.042 mm. in diameter across the trichocladome; this is no doubt an average dimension, but I found one exceptionally large example, with a rhabdome 0.0276 by 0.0118 mm.; simple cladi 0.0474 mm. in length, and trichotomate cladi with the protocladus 0.0237 mm., and the deuterocladus 0.0276 mm. in length.

The length of the sigmaspire is given by Carter as 0.0083 mm., this is an average measurement also, the maximum length is the same as that of the similar spicules in the Bahian specimens, viz., 0.0118 mm. The minute spination of these forms and of the heteropolar amphitriænes described by Carter is not visible under a Zeiss's objective D. and is a character of no importance.

Amongst the very small, young amphitriænes I found two interesting examples which may throw some light on the origin of this form of spicule; one of them presented a slender rhabdome bearing two cladi at each end, those of the one end lying in the