

ruption over the whole outer surface of the sponge, and extends over the external openings of all the prismatic mesh-spaces. In like manner the gastral membrane, which has a perfectly similar structure, extends internally parallel to the former, and covers the inner openings of the prismatic honeycomb-like meshes. Between the two perforated bounding membranes a fine skin extends deeply folded in funnel-shaped fashion; this forms a continuation of the wall of the chambers, which are shaped like the finger of a glove, and lie around and open into the common central space. The latter is provided with an internal large exhalent orifice. This remarkable funnel-shaped expansion of the chamber wall may be supposed to have arisen by amalgamation of some specially large external chambers whose dividing walls projected to some extent even into the excurrent central space (Pl. LXXXIV. fig. 1; Pl. LXXXVI. fig. 2).

The dermal skeleton consists of hexacts, in which each of the projecting outer rays has usually a tree-like appearance, though sometimes reduced to a prickly peg or knob, or even in many cases to a small tubercle, so that finally the spicule in question is no longer to be regarded as hexact but as pentact. Besides these dermal hexacts or pentacts scopulæ with knobbed or pointed terminal rays also occur.

The gastral skeleton consists of diacts which are completely enclosed in the gastral membrane.

Among the loose parenchymalia, there are present in addition to the uncinates which project at right angles to the outer surface, small hexacts and hexasters of various kinds, in variable abundance and irregular distribution.

It is doubtful whether *Aphrocallistes beatrix*, Gray, and *Aphrocallistes bocagei*, Wright, are distinguished by sufficiently marked and sufficiently constant peculiarities to be regarded as distinct species. On the other hand, the new forms which, on account of their figure, I have named *Aphrocallistes vastus* and *Aphrocallistes tubulosus*, I regard as sharply defined "good species."

#### 1. *Aphrocallistes beatrix*, Gray (Pl. LXXXIV. figs. 9, 10).

Since I had an opportunity of examining in the British Museum the original specimen from Malacca on which this species was established by Gray in 1858, I can, in the first place, bear testimony to the correctness of Gray's description and figures of the microscopic structure, and can also confirm those of Wyville Thomson, Bowerbank, and Carter, in regard to the minute structure of the dictyonal framework and the isolated spicules. I may, therefore, refer the reader to these representations.

Among the comparatively insignificant, and hardly qualitative distinctions which have been noted in regard to the microscopic structure of this form as compared with that first described by Perceval Wright (in 1870) from the Atlantic basin, special emphasis is laid on a spicular form which has been spoken of by all observers since Wyville