

in the two specimens by which the species is represented, admitting probably of a tolerably good distinction of the form in question from *Cacospongia spinifera*. It is the appearance of the outer surface, which is here not spinous but provided with rounded tubercles. How far this peculiarity permits the establishment of a new species is difficult to say; at any rate I see at the present time no other course open but to separate the form in question by the establishment of a new species.

Both the specimens proved to be full of filaments, here, however, with heads of a rather different shape from that of the filament-heads in my *Cacospongia spinifera*, being of a more roundish outline, and with an average diameter of 0.055 mm. One of the specimens proved to be quite compact, the other, as in *Cacospongia cavernosa*, was pierced by numerous large internal channels inhabited by Chætopoda.

*Colour*.—Outer surface greyish, parenchyma white, skeletal fibres pale yellow.

*Habitat*.—Station 162, April 2, 1874, off East Moncœur Island, Bass Strait; depth 38 fathoms, sand and shells.

*Cacospongia intermedia*, n. sp. (Pl. VI. fig. 7).

I have already taken occasion to mention (p. 27) this species as presenting to the classifier many difficulties. The meshes formed by its skeletal fibres being rather large, and the fibres themselves thick, the form must be referred to *Cacospongia*; but the fibres are almost all of the same diameter (0.35 mm.), and it is only in the prominences of the outer part of the skeleton that an approximate distinction between primary and secondary fibres is possible. This character recalls the *Coscinoderma* of Carter; on the other hand, the body of the sponge is broken through by numerous canals, the character of the outer surface of the skeleton is that of *Hippospongia*, the distinction between primary and secondary fibres, as already stated, is pronounced only in the tufts; all this would justify the placing of this sponge in the genus *Hippospongia*, provided that one could prove the importance of the characters just mentioned to be greater than that of the skeletal fibres being thick and the meshes formed by them large. So far as to the general position of the form in question. Now it must be mentioned that apart from the thickness of the skeletal fibres and the largeness of their meshes, the sponge recalls vividly *Euspongia vermiculata*. What systematic place is to be assigned to it? Of course merely a provisional one, and accordingly the task of the classifier is reduced to giving a detailed description of it.

The species is represented in the collection by a single specimen of irregularly massive form; the outer surface is smooth and even, the dermal membrane enveloping the skeleton with its external outgrowths in the same manner as in *Hippospongia anomala*. In many spots the dermal membrane is pierced by larger or smaller (2 to 4 mm.) openings, sometimes disposed by threes or fours together, sometimes lying isolated; whether some of these openings are really oscula is difficult to say without a complete destruction of