

the specimen; but this is certain, that most of them are "pseudo-stomata," leading into the canals separating the body of the sponge, and the envelope of whose walls is merely the continued dermal membrane. The properties of the skeleton have been already discussed, and I hope that with the help of the figure given on Pl. VI. its characters will be rendered obvious; its outer surface recalls that of *Hippospongia mauritiana* (Pl. VI. fig. 3), apart from an entire absence of bundles of parallel fibres.

*Colour*.—Outer surface black, parenchyma greyish, skeletal fibres brown.

*Habitat*.—Station 177, off Api, New Hebrides, August 18, 1874; depth 130 fathoms, volcanic mud.

*Cacospongia irregularis*, n. sp. (Pl. VI. fig. 10; Pl. VIII. fig. 5).

The chief peculiarity of this curious species consists in this property of its skeleton, that, in contrast to all other Spongidæ, the bundles of its fibres are so closely and irregularly intertwined that the distinction of primary and secondary ones is entirely impossible; they form a kind of irregular network, its meshes being not represented by internal channels as in *Hippospongia*, but filled by parenchyma. The species is represented in the collection by a single specimen, apparently of irregularly massive form, in reality provided with large internal cavities, so that the sponge can be compared to a casket. The surface is smooth, but not devoid here and there of outgrowths corresponding to the prominent tufts of skeletal fibres, presenting a compact network, and in most cases ending more or less sharply. As to the secondary meshes of the skeleton, they are quite irregular, and my drawing (Pl. VI. fig. 10) will give a better explanation of them than any words. The primary meshes, *i.e.*, meshes formed by the skeletal fibres themselves, are in most cases small, but in others very large, and occasionally a mesh is represented by two bundles forming an acute or obtuse angle and a single usually thick fibre. The thickness and length of the fibres are very variable, but all agree with one another as to their tendency to take in foreign bodies. The specimen proved to be overcharged with filaments, one of which is represented on Pl. VIII. fig. 5.

*Colour*.—Outer surface and parenchyma pale dirty yellowish, skeletal fibres pale grey-yellowish.

*Habitat*.—Station 188, September 10, 1874, lat. 9° 59' S., long. 139° 42' E.; depth 28 fathoms, green mud.

*Cacospongia oligoceras*, n. sp. (Pl. VI. fig. 13).

This species is represented only by a small fragment of massive shape, with the outer surface, where not covered with mussel-shells, stones, &c., provided with low conuli. Its exterior agrees closely with that of *Oligoceras collectrix*, Schulze, but there is a great