

bodies enclosed, differs obviously both in colour and consistence from the proper parenchyma, and can be easily drawn off. This peculiarity is of course of very doubtful importance. I have very often had occasion to speak of the low systematic significance of similar properties of the skin, and it is sufficient to peruse the lines which F. E. Schulze devotes to the matter in his paper on *Hircinia*¹ in order to become convinced that species based on such characters are very doubtful. The more the dermal membrane is charged with foreign bodies the more easily can it be drawn off, and on the other hand it is obvious that the number of foreign bodies enclosed in the membrane depends on the nature of the surrounding ground.

Of course it cannot be denied that the tendency to form such a cortex of foreign bodies may become hereditary, but still its systematic application appears to me to be rather dangerous; and with respect to my *Cacospongia murrayi*, it is the less necessary as the sponge shows another peculiarity of an undoubtedly more constant character, concerning the structure of the skeleton. In *Cacospongia murrayi* the skeleton is, so to speak, composed of two skeletons. There are vertical primary fibres 0.15 mm. in diameter, and rather finer secondary fibres united to the first-mentioned in a more or less regular horizontal direction, and this system of primary and secondary fibres is enveloped in an irregular network of still finer fibres (0.015 mm. in diameter on an average), originating both from primary and secondary ones, but forming far smaller meshes. Pl. VI. fig. 8, representing the outer surface of a portion of skeleton, when seen against the light, illustrates this peculiarity sufficiently well. The outermost points of the primary fibres are either pretty well developed, and accordingly project from the outer surface into the substance of the cortex, without giving rise, however, to any unevenness on its outer surface, or are very short, and represented only by low thickenings over the intersecting point of the primary and the uppermost secondary fibres. The histological character of the cortex presents no deviations from the usual connective tissue of Keratosa, except that the cellular elements, stellate and fusiform cells, are very scanty; the histological and anatomical structure of the proper parenchyma is that of typical Spongidæ.

The species is named in honour of Mr. John Murray of the Challenger Expedition.

Colour.—Outer surface grey, parenchyma pale greyish, skeletal fibres brownish.

Habitat.—Station 163B, June 3, 1874, off Port Jackson; depth 35 fathoms, hard ground.

Cacospongia vesiculifera, n. sp. (Pl. IV. fig. 2; Pl. VI. fig. 9).

This form, like the one just described, is represented in the Challenger Collection by a single specimen, and is in its turn provided with a special cortex, but here its

¹ *Zeitschr. f. wiss. Zool.*, Bd. xxxiii. p. 14, 1880.