

Fibres composed entirely of spicula arranged in accordance with the axis of the fibre, cemented together and thinly coated with keratode." This diagnosis is even more indefinite than that of Vosmaer, which runs as follows:—"Rods smooth or spined. Anchors bi- or tridentate, also palmato-dentate, equiended. 'Keratode-fibre' very conspicuous."¹

Under these circumstances the only thing left for us to do was to take Bowerbank's type of the genus, viz., *Desmacidon fruticosa*, and unite with it those sponges which have a similar spiculation (as given above). We are conscious of the possibility that our diagnosis may prove to be too limited, but there can, we think, be little doubt that whatever sponges fall within its limits will form a natural group, which can scarcely be said of the two previous diagnoses.

The genus, even as above restricted, has a very wide geographical range, being found in British and Australian Seas and off the east coasts of North and South America, and, if we include the subgenus *Homæodictya*, as far south as Kerguelen Island.

Desmacidon fruticosa, Montagu, sp., var. (Pl. XXIII. figs. 10, 10a, 10b, 10c, 10d; Pl. XXX. fig. 1).

1818. *Spongia fruticosa*, Montagu, Mem. Wern. Soc. Edin., vol. ii. p. 112, pl. xiv. figs. 3, 4.

1842. *Halichondria fruticosa*, Johnston, British Sponges, p. 103.

1864. *Desmacidon fruticosa*, Bowerbank, Mon. Brit. Spong., vol. i. p. 200.

With this species we unite, as a variety, an interesting specimen from the south-east of Australia. The sponge (Pl. XXX. fig. 1) arises from a short, stout peduncle, and expands into a broad, somewhat compressed palm; its height is about 62 mm. It agrees with Bowerbank's specimens in having a distinct fibre, and, still more closely, in spiculation. The spicules are oxea (Pl. XXIII. figs. 10, 10a, 10d), tridentate isochelæ (Pl. XXIII. figs. 10b, 10c), and sigmata. The oxeote is of about the same size (about 0.25 mm. long) in both, but in the Challenger variety is perhaps not quite so abruptly pointed and without any marked inequality of the two ends such as is often visible in Bowerbank's specimens. In the Challenger variety, again, the chelæ are slightly larger and of stouter build than in the British form (measuring about 0.038 as against 0.0315 mm.), and the sigmata also appear to attain a slightly greater size (reaching up to about 0.063 mm. in length).

The surface of the sponge is scored with a few deep, broad, longitudinal grooves or channels (Pl. XXX. fig. 1), mostly confined to one side. It is doubtful whether these grooves are natural or whether they have been caused by the sponge growing up against some cylindrical, branching organism.

Locality.—Station 163A, April 4, 1874; lat. 36° 59' S., long. 150° 20' E.; off the south-east coast of Australia; depth, 120 fathoms; bottom, green mud. One specimen.

¹ Notes from the Leyden Museum, vol. ii., 1880, p. 130; see also Porifera, in Bronn's Klass. u. Ordnung. des Thierreichs, p. 350.