

No doubt the Kerguelen specimen forms a connecting link, but we think it advisable to distinguish between two closely allied species, *Petrosia subtriangularis* and *Petrosia similis*, the former characteristic of West Indian seas, and the latter of the seas south of the Cape. Two well-marked varieties of the latter are described below, one of which occurs as far north as the Philippine Islands.

Localities.—Station 142, December 18, 1873; lat. $35^{\circ} 4' S.$, long. $18^{\circ} 37' E.$; south of the Cape of Good Hope; depth, 150 fathoms; bottom, green sand; bottom temperature, $47^{\circ} \cdot 0$. Several specimens.

Station 150, February 2, 1874; lat. $52^{\circ} 4' S.$, long. $71^{\circ} 22' E.$; between Kerguelen and Heard Island; depth, 150 fathoms; bottom, coarse gravel; bottom temperature, $35^{\circ} \cdot 2$. One small piece.

Habitat.—South of the Cape of Good Hope (Challenger); Kerguelen (Carter); between Kerguelen and Heard Island (Challenger).

Petrosia similis, var. *massa* (Pl. II. fig. 11; Pl. III. fig. 6).

Sponge (Pl. III. fig. 6) massively lobose, or consisting of very stout cylindrical branches. The largest specimen is a flattened lobose mass, which, judging from the fact that it bears oscula on both surfaces, has probably grown erect; it is 162 mm. high by about 50 in average breadth (narrowing from above downwards) and 18 mm. thick. *Colour* in spirit greyish-yellow. *Texture* rather soft and spongy. *Surface* smooth but uneven. *Dermal membrane* distinct, in parts with a lace-like reticulate appearance owing to the supporting skeleton reticulation. *Oscula* large, circular; irregularly scattered over the surface (yet with some tendency to form series); about 4 mm. in diameter; commonly surrounded by a slightly prominent rim. *Pores*, rounded openings in the dermal membrane as usual.

This variety differs from the types in its more slender spicules, in the looser skeleton arrangement and less compact and well-developed fibres (hence its soft, spongy character), and in the more irregular arrangement of the oscula. The spicules (Pl. II. fig. 11) measure up to about $0 \cdot 28$ by $0 \cdot 012$ mm. The dermal membrane is not supported on projecting tufts of spicules, but rests directly upon a reticulation of spiculo-fibre, which is, however, only the uppermost layer of the main skeleton. The character of the dermal skeleton in the different species of *Petrosia* seems to be of very little use in separating them.

Locality.—Station 314, January 21, 1876; lat. $51^{\circ} 35' S.$, long. $65^{\circ} 39' W.$; between the Strait of Magellan and the Falkland Islands; depth, 70 fathoms; bottom, sand; bottom temperature, $46^{\circ} \cdot 0$. Several specimens.