

the Brazil coast, off Macio, to the east of the mouth of the San Francisco (Station 124, lat. $10^{\circ} 11' S.$, long. $35^{\circ} 22' W.$), from a depth of 1600 fathoms, and a red mud ground. Several portions of the basal tuft, and of the lateral wall, with vestiges of the external skin, are alone preserved.

For my study of the tissue and the disposition of the various spicules, the specimens collected by Mr. John Murray were especially satisfactory, owing to their excellent preservation in absolute alcohol. These specimens exhibited an ellipsoidal form, and the body measured, exclusive of the basal tuft, 5 cm. in length, and 4 to 5 cm. in maximum breadth. The circular oscular opening at the superior pole is surrounded by a wreath of vertically projecting, marginal spicules, has a diameter of 12 mm., and leads into a smooth-walled, cylindrical, inferiorly truncated gastral cavity, 25 mm. in depth. From the whole external lateral surface, fine, pointed, radial spicules project in loose bundles, 2 to 3 cm. in length. These are, however, irregularly disposed, with the exception of certain closely set, somewhat longer spicules, which form an annular zone, a few mm. in breadth, about 10 mm. below the marginal fringe. On the lower basal end of the sponge, there is a large number of slender (1 to 2 mm. in breadth) tufts of long flexible spicules, 30 to 40 cm. in length, which interlace abundantly in the thick felt-work of the basal tuft. The individual slender bundles are however distinctly separate as they issue from the sponge-body. The external surface of the sponge exhibits a delicate dermal network, marked, especially in the dried specimens, by stellate knots at tolerably uniform intervals (Pl. XLIII. fig. 1).

The *ellipsoidal* shape may be regarded as characteristic of the general form of the body (cf. Pl. XLIII. fig. 1, and Wyville Thomson, *loc. cit.*, pl. lxvii., pl. lxix. fig. 1), although a comparative survey of all the forms before me reveals a slight difference in this, that the larger, and therefore probably older specimens, are somewhat more drawn out longitudinally, the smaller younger forms are approximately spherical, while the very smallest, less than a pea in size, often exhibit, as Wyville Thomson has shown, the form of a hen's egg with an inferior pointed pole (Wyville Thomson, *loc. cit.*, pl. lxxi.).

As is noted in Wyville Thomson's careful investigation of the siliceous spicules of *Pheronema carpenteri*, the parenchyma, which is on the whole only slightly massive but is penetrated by countless lacunæ and wide passages, contains among the larger independent strictly parenchymal spicules, medium-sized, rarely large oxyhexacts, while long, slender, flexible oxydiacts predominate. These are either smooth or thickly beset with appressed uniformly directed barbs, and are for the most part radially disposed towards the external or gastral surface, with the distal pointed end projecting for a variable distance beyond the surface. Besides these, there are in the parenchyma a large number of short, strongly developed uncinates, 0.2 to 0.3 mm. in length, with but short spines or barbs (Pl. XLIII. fig. 5). Finally, there occur in the parenchyma small simple oxyhexacts, with smooth straight rays. That the strong and somewhat large smooth