5. *Pennatula sulcata*, n. sp. (Pl. II. figs. 3, 4).

General character of *Pennatula rubra* and *Pennatula fimbriata;* colourless, with a deep groove on the dorsal side of the rachis; the leaves are very numerous; ventral and lateral zooids are present, the latter of which are also visible on the dorsal aspect of the rachis. Besides these there is a long row of zooids at the dorsal end of the polypiferous margin of the leaves.

Feather more than twice the length of the stalk.

Pinnules thin, transparent, closely set, twenty-six to twenty-seven in number, lanceolate or triangular. Base of the pinnule attached transversly to the rachis. Ventral and dorsal margin straight, the latter beset with one row of polyp-cells, alternating so as to produce the appearance of two rows, especially near the dorsal end of the border. The polypiferous margin of each pinnule ends in a long narrow ridge, which runs obliquely upon the dorsal side of the rachis, as far as the base of the next pinnule. This ridge is merely a single row of small zooids about twenty-seven in number, and of the size of 0·10 to 0·12 mm., which I call the zooids of the dorsal margin of the pinnules.

Polyp-cells small, crowded, twenty-four to twenty-six on the larger pinnules; and pretty well separated, with eight strong spines.

Rachis with a groove on its dorsal side, which begins shallow between the lowest pinnules, assumes a depth of 3 mm. toward the middle of the feather, and runs out at its upper end. This groove is narrow where it is deepest, and bordered by sharp whitish lips. The calcareous axis lies inside at the bottom of the groove, and shines through the thin integument as a white streak. The ventral side of the rachis is covered on its sides by small zooids, while the middle line is smooth. These ventral zooids are small wartlike or conical bodies, 0·2 mm. in breadth, all of one kind with this exception only, that those near the pinnules have their calcareous needles projecting, and resemble small spines, whilst the others are rather rounded protuberances. These zooids are continuous between the pinnules with very numerous lateral zooids of rounded form, which run up to the dorsal aspect of the rachis, and reach as far as the ridges of the pinnules described above, on the side of which they end with a pointed train. The stalk is short, enlarged in its upper part, and pointed at the end.

With regard to the internal structure I have only to make the following remarks:—The eggs are found in the leaves, and, as it appears, also in the stalk, as in *Pennatula rubra*, if we may judge from the fact that the stalk contains on both sides a crowded mass of eggs along the attachment of the pinnules. Calcareous corpuscles are found in the whole integument. In the polyps short stout needles of 0·11 to 0·20 mm. lie in the stem of the tentacles. The polyp-cells contain needles of 0·86 mm. maximum length, and 0·032 mm. breadth. Those of the lateral and ventral zooids are numerous but smaller, and those of the zooids of the pinnules are smallest, measuring only 0·081 to 0·10 mm. in length. Besides these needles the rachis contains none except at the ventral side, where needles of 0·050 to 0·080 mm. are found in the lips which border the longitudinal groove.