

over all seas in a regular manner. Over great tracts the Challenger did not find a single specimen of this order; for instance, in the Atlantic, between Buenos Ayres and Cape Finisterre (Stations 322 to 354), between the Canaries and the West Indies (Stations 1 to 42), between Bermuda, Madeira,¹ and the Cape de Verde Islands,² till near the Equator (Stations 58 to 105).

One *Umbellula* was found at Station 106,³ and then nothing across the Atlantic to Cape St Roque, along the coast to Bahia, and again back across the Atlantic to Station 132, near Tristan d'Acunha. Nothing again on the way to the Cape of Good Hope, and up to Stations 146 and 147, where two *Umbellulæ* were found. From Station 147 to Melbourne, through the South Polar Sea, two *Umbellulæ* were dredged at Stations 156 and 157. No Pennatulidæ were found between Australia and New Zealand (Stations 164 to 168), none between these islands, past the Fiji and New Hebrides groups, to New Guinea (Stations 170 to 180), none between the Philippines and New Guinea, and thence to Japan (Stations 213 to 231), only two forms, an *Umbellula* and a *Scleroptilum* between Japan and the Sandwich Islands, and nothing from Hawaii through the whole Pacific Ocean to Valparaiso, through the Straits of Magellan, past the Falkland Islands to near Buenos Ayres (Stations 237 to 239).

It seems, therefore, reasonable to conclude, so far as our present knowledge goes, that the deeper portions of the Pacific and the Atlantic Oceans, and the South Polar Sea, contain very few or none at all of the Pennatulida at a certain distance from the shore.

I may add that Professor T. H. Studer, of Bern, who went with the German ship "Gazelle" round the world, and dredged in a good many places, found only six Pennatulida, which is the more worth mentioning as he dredged especially in shallow water and along the shore.

As to the horizontal distribution of the families of the Pennatulida, the following may be remarked:—

As I showed in my monograph, the PTEROEIDIDÆ have a well-defined centre in the south-east coasts of Asia, the Sunda Islands, and the Philippines, from which they spread, with few forms, as far as Japan, Australia, New Guinea, New Caledonia, the Carolines, the west coast of Africa and the Red Sea; *Pterocides griseum* of the Mediterranean being quite an exception. The results of the Challenger confirm these data, as they make only three Pteroeididæ from the Philippines, Australia, and Japan.

The PENNATULIDÆ, on the contrary, have a wide distribution along the coast of Europe, the west coast of North America, the coasts of China, Japan, India (south-east coast), Australia, New Guinea, Africa (east coast). No Pennatulidæ are known from the east coast of North America, the west coast of South America, nor the west coast of

¹ Studer found at Madeira, *Cavernularia madeirensis*.

² Studer found here *Vretillum cynomorium*, var. *astyla*.

³ Studer found an *Umbellula* and *Pavonaria africana*, Stud., near Station 97.