

Stichopathes gracilis (Gray) (Pl. XII. figs. 17-19).

Antipathes (Cirripathes) gracilis, Gray, Proc. Zool. Soc. Lond., 1857, p. 291.

? *Antipathes (Cirripathes) setacea*, Gray, Ann. and Mag. Nat. Hist., ser. 3, vol. vi. p. 311.

Gray's description of this species, consisting only of the words "slender, tapering, slightly spinose," is of no value whatever in the identification of the species. The specimen to which he referred is in the British Museum, its identity being made certain by the reference, "Madeira, Mason, 1857," on the label. This specimen appears to have been broken in two. The lower portion bearing the label, though not actually possessing the dilated base of attachment, is probably the lower part of the stem, being covered for three or four inches near the base by parasitic growths, and having a number of bivalve molluscs attached to the axis. This portion is contorted, not spiral, and is 75 cm. long, slightly tapering, and having a diameter of 2.5 mm. near the base. Another specimen, without label, which I take to be the upper portion of the type specimen, has the same wavy outline, and is 1.1 m. long. The diameter of the lower portion of this specimen agrees with that of the apex of the type. The diameter at the apex is only 0.45 mm., and if my surmise be correct, the whole specimen must have measured nearly 2 m. in length.

A more recent specimen (1863) from the same locality is nearly straight, 1.3 m. long, 3 mm. in diameter at the base, and 1.4 mm. at the apex. This specimen has the dilated base attached to a mass of broken shells, &c. In the lower portion of the stem the spines are arranged in seven rows, running almost longitudinally, but twisted in a very open spiral, which requires over three inches to complete one revolution of the axis. Still another specimen of this species is found in the British Museum Collection (Reg. No. 72.6.22.3), but whether regarded by Gray as a specimen of this species or of his *Antipathes setacea*, I am unable to say. (I have been unable to find Gray's type of *Cirripathes setacea*, which was described in 1860, from Madeira—the same locality as that in

which the present species occurs.) The specimen here referred to is attached by thread to a card, which also contains Gray's type of *Cirrhopathes setacea*, var. *occidentalis*. Both specimens bear a register number, but neither are named, the card simply bearing the inscription, "Madeira, J. Y. Johnson." This evidently cannot refer to the var. *occidentalis*, as that came from Turk's Island, West Indies. The other specimen may have been regarded by Gray as a specimen of his *Cirrhopathes setacea*, but certainly it cannot be the type, as the species was described in 1860, and the specimen in question was only received in 1872. This specimen, which is about 30 cm. long and 2 mm. in diameter at the base, agrees in every respect with the specimens of *Stichopathes gracilis*, here described. As I have no means of ascertaining what form Gray actually did regard as *Cirrhopathes setacea*, and as his description of the type contains no characters not applicable to this species, I have queried *Cirrhopathes setacea* as a probable synonym. His *Cirrhopathes setacea*, var. *occidentalis* evidently, from his description, differs very much from the type, and as I find the specimen to differ from any to which I have had access, I have raised it to the rank of a species, under the name *Stichopathes occidentalis* (Gray).

All the Madeira specimens here described agree in having a relatively slender non-spiral axis, on which the polyps are placed in a single longitudinal row.

The spines vary very much in size, shape, and relative frequency in different portions of the axis, but the arrangement on portions of the same diameter is practically the same in the various specimens referred to. In slender portions of the stem the spines are arranged spirally, and also in longitudinal rows (Pl. XII. fig. 17). They are triangular, compressed, and stand out at right angles to the stem, those in one row being about two lengths apart. Most are simple, and have a sharp apex, but a few are forked at the tip. In somewhat older and thicker portions of the stem (Pl. XII. fig. 18) the arrangement of spines is less regular. A few are simple and irregularly arranged, but the majority form double spines, having two divergent apices united by a common swollen base. This appearance is presumably brought about by the further deposition of horny lamellæ over spines which had already become bifid at the tip, each new layer tending to make the bifid character more pronounced. In still older and thicker portions of the stem (Pl. XII. fig. 19), by a still greater increase in the thickness of the sclerenchyma, the bases of the bifid spines become covered over, and in their place a number of simple spines are to be found arranged in pairs close together, each pair having apparently been derived from a primitively simple spine by the process indicated. The majority of the spines are now simple, but some are short and broad, having the apex divided into a number of processes giving a serrate appearance.

Habitat.—Madeira (Brit. Mus.).

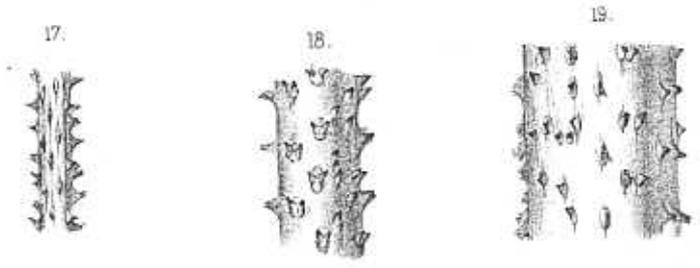


Fig. 17. *Stichopathes gracilis* (Gray), near the apex of a stem, × 8
 Fig. 18. " " " near the middle of a stem, × 8
 Fig. 19. " " " near the base, . . × 8