Zoology Part XXXIV: Annelida Polychæta. By Professor W.C. M'Intosh. Bound in Volume 12,1885.

The posterior division has very fine slender bristles with much smaller tips than in the first (Pl. XXIVA. fig. 5). The whole region resembles that of the European form, presenting dorsally the long bristles, which retain the characters represented in the figure, and ventrally the soft pads. The bristle-bearing processes have the same clavate tips as in *Spiochætopterus typicus*.

The extreme transparency of the minute hooks on the lateral processes renders their detection difficult, and the serrations on the anterior margin are almost invisible. In shape these hooks resemble those of *Phyllochætopterus socialis* represented by Claparède, though the figure appears to be inverted.

The tubes of this species range from fragments up to 280 or even 380 mm. in length, with a diameter of about 2·5 mm. They are for the most part semiopaline or semi-translucent, and often ringed for considerable distances, *e.g.*, 2 or 3 inches. Some are slightly tinted of a brownish-yellow. Though somewhat brittle they are very elastic, and particles of mud are sent flying considerable distances in tearing the tube, or in other manipulations. So very few of the tubes are perfect that the precise condition of the anterior aperture is uncertain, but it would seem to be slightly everted. Toward the posterior end, again, a very neat diaphragm (Pl. XLV. fig. 10*a*) with a minute aperture in the centre occurs; and above the septum is occasionally a collection of the small ovoid fæcal masses and other debris, so that this region of the tube is rendered opaque.

Many of the tubes are forked, an appearance which is due to the fracture of the tube, and the continuation of the latter, not by the union of the broken ends, but by the secretion of a new piece with which the old tunnel is continuous; while the broken fragment has its channel closed, and it remains adherent apparently as a useless process. This seems to occur both anteriorly and posteriorly, as tubes are found with a diaphragm in each limb of the fork. The bifurcation is thus only apparent, not actual. A few of the tubes show a series of such regenerations, so as to resemble the polypary of a Sertularian.

Structurally the tube is composed of the usual chitinous secretion. Immersion for some hours in caustic potash causes it to shorten and enlarge, as well as to become more opaque and brownish, while similar treatment with hydrochloric acid renders it rather more translucent and softer (the tube being flattened), but does not disorganise it, for its toughness is little altered. Ordinary chemicals, indeed, have comparatively slight effect on it.

Few parasitic structures are attached externally to the tubes. In one instance an Ascidian with a translucent papillose test was fixed to two adjacent tubes; and amongst a group of small yellowish ova were several sand-tubes containing an amphipodous Crustacean, after the manner of the British *Siphonœcetus typicus*, sp. Bate.

Besides the rightful owner of the tube, a commensalistic form, *Polynoë ocellata*, is present in considerable numbers. As a rule, the *Phyllochætopterus* could not be obtained

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