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

spinous processes pale. The most perfect spines occur amongst the masses of sponge encrusting certain tubes, and are fully 16 mm. in length, of a pale straw colour, and almost entirely composed of secretion and sponge-spicules. It is interesting to notice how neatly the sponge-spicules are ranged longitudinally in these processes, a considerable amount of design being apparent in every instance. From the great number as well as the length of the spines amongst the encrusting sponge, it would appear that a special advantage had been gained, other than is observable in the protective function of the sponge, or that special efforts had been made under the circumstances. The spines have a broad base of attachment, and then are slightly tapered upward to the point, the spicules at the tip being drawn together to form a termination. Besides the spicules, numerous twigs of Polyzoa are attached to the tubes.

The tubes are all simple, the only apparent branching being due to the attachment of a tube belonging to another species, or a smaller one of the same form. The length varies, the longer examples reaching 150 to 160 mm., with a diameter of about 4 mm. Some present a soft flexible prolongation at the posterior extremity.

Microscopically the wall of the tube shows a vast series of sponge-spicules, often laid in close parallel rows, numerous sand-grains, and fine particles of mud. A few Diatoms, bristles of Annelids, and small Foraminifera also are present.

In the interior of one of the tubes are many ova, arranged in a somewhat linear manner, but such may have been due to rupture of the body of the parent and not to any special nidamental disposition. The Annelid was distended with ova in various stages of development.

The sections of the anterior third of the body-wall of this species present a characteristic appearance, since they are more definite and firm than usual in the group (Pl. XXXVIIA. fig. 2). The hypoderm forms a thin coat dorsally, but assumes greater bulk toward the infero-lateral regions. In the ventral median line it constitutes a thick external envelope to the nerve-area. Moreover, in the preparations it seems to have an intimate relation to a large mass of similar structure and of a somewhat foliate aspect, extending between the oblique and ventral muscles, and superiorly almost touching the alimentary canal. This constitutes a great glandular mass, with whitish opaque regions here and there, which must have a special function, probably of secretion. The large and rounded nerve-cords are situated in the outer portion of the median hypoderm, their inner (upper) boundary being the circular muscular coat, while a belt of hypodermic fibres is placed externally. A small neural canal lies between them. The circular muscular coat is of more than average strength. A thin band of longitudinal fibres lies on the inner surface of the latter coat over the nerve-area. Moreover, in what appear to be the interganglionic regions, the same changes in the relationship of the nerve-cords to the circular coat occur as in *Pista abyssicola*. The hiatus between the ventral longitudinal muscles is lessened, the cords

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