Marine Annelida.—*By W. C. M'Intosh, M.D., F.R.S.*

(Plate XV.)

The collection of Marine Annelida made during the stay of the English Transit of Venus Expedition comprises seven species, representing five families, one of which, however, is Nemertean. Six appear to be new. Like the Polyzoa and Cœlenterata they were procured by a grapple in the Laminarian region, from depths of 10 fathoms and under. The Rev. A. E. Eaton states that the shore where he was stationed was somewhat unfavourable for collecting between tide-marks, as it consisted for the most part of ledges of rock without loose boulders, or of a coarse and barren shingle. The mean temperature of the water between tide-marks was 36° F. Mr. Eaton found the same paucity of Annelida in the littoral region at Spitzbergen.

The American Transit of Venus Expedition obtained 4 species.

The tubicolar forms and Polynoidæ occurred on the roots of *Macrocystis*, and some of the young Nereids in the usual silken tubes on the fronds of *Delesseria*. None of the Annelids were found under stones, excepting the Earthworm described by Professor Lankester.

Polynoidæ.

Hermadion longicirratus.

(Plate XV., figs. 1—4.)

Hermadion longicirratus, Kbg. Fregatten Eugen. Resa, &c., p. 22, taf. vi. 33.

This form seems to be identical with Kinberg's species from York Bay, Straits of Magellan, though the scales and bristles differ slightly from the published figures—the former being densely covered with minute spinulose papillæ (fig. 1), and the latter (fig. 2) showing dorsally a less expanded distal region, with a close series of oblique rows of spines (fig. 3). The tip in some is slightly dilated. The ventral bristles, again, have the curve of the terminal hook pronounced, while the spinous region is rather narrow and short (fig. 4). All the bristles are of a deep brownish yellow hue. The antennæ, tentacular cirri, and dorsal cirri have a filiform tip attached to a bulbous region, the latter and the rest of the cirrus beneath being furnished with small clavate papillæ. Much more minute clavate papillæ occur on the palpi. The brownish scales generally have a few whitish touches: the first is circular, the succeeding reniform, and the posterior elongated from before backwards. It is a large and broad form, one specimen being about $2\frac{1}{4}$ inches long.

Hab.—Swain's Bay and Royal Sound, Kerguelen Island (*Eaton*); York Bay, Straits of Magellan (*Kinberg*).

Eupolynoë mollis.

(Plate XV., figs. 5—9.)

M'Intosh, Ann. & Mag. of Nat. Hist. 4th ser., 1876, xvii., p. 319.

This species superficially resembles *Alentia gelatinosa*, Sars, though a close examination shows many points of difference, and leaves a general impression that the form is intermediate in character between the latter and such types as *Harmothoë imbricata*, L.

The head is proportionally larger, and does not exhibit the nuchal process so characteristic of *A. gelatinosa;* while instead of the closely approximated pair of large eyes on each side, the lateral pairs are widely separated, a large one occupying the anterior prominence and a small one being situated at the posterior border. Moreover they nearly constitute a square, whereas in *A. gelatinosa* they lie in the processes of a V. The tentacle is absent; but its basal segment is very large in comparison with the antennæ and tentacular cirri. In *A. gelatinosa* they do not differ much.

The scales appear to be fifteen on each side, and they are nearly as soft as those of *A. gelatinosa*, which they further resemble (though smaller) in shape and smoothness. With regard to the latter, however, a high power shows that there is a limited area, near the outer and anterior border, covered with distinct papillæ which are low and truncate (fig. 5). The dorsal cirrus has a very slight enlargement below the tapering tip (as in *A. gelatinosa*); but, in addition, it has a few minute clavate papillæ. The latter also occur on the ventral cirri.

The feet are as distinctly marked as in *Alentia;* but there is a much greater disproportion between the dorsal and ventral bristles, both of which are pale. The dorsal fascicle consists of a short series of somewhat translucent bristles with distinct spinous rows (almost as well marked as in *Evarne*), and gently tapering to a smooth portion at the tip (fig. 6) the fine longitudinal lines being somewhat wavy. The long ventral bristles, again, consist of two groups, more evidently separated than in *Alentia* or *Eupolynoë anticostiensis*. The superior tuft arises behind the spine, and is composed dorsally of slender bristles (fig. 7) with very elongated and delicately tapered spinous regions, ending in minutely bifid tips like those in *Eupolynoë anticostiensis*.* A gradual change ensues toward the lower bristles (of this tuft), which have a stouter shaft, a shorter spinous region, and a strong hook with a secondary process at the tip (fig. 8). The bristles of the next series have still stronger shafts, shorter spinous regions; and the hook at the tip increases in size, while the secondary process diminishes (fig. 9). Inferiorly, again, there is a tendency to repeat the elongated spinous region and slender forked tip of the upper series.

* Ann. & Mag. Nat. Hist. ser. 4, vol. xiii. p. 265, pl. x. f. 3.

There are nine papillæ on the dorsal border of the extruded proboscis, and as many on the ventral surface. A filiform cirrus occurs under each inferior maxilla.

Hab.—Royal Sound.

NEREIDÆ.

Nereis eatoni.

(Pl. XV., figs. 10—12.)

M'Intosh, Ann. & Mag. of Nat. Hist. 4th ser., 1876, xvii., p. 320.

This species somewhat resembles *Nereis dumerilii*, Aud. & Ed. The head has four large eyes, the anterior pair being somewhat ovoid and by far the larger. When turned backward the long tentacular cirri reach to the fourteenth segment. The maxillæ have about eight distinct teeth behind the point. The paragnathi form, near each maxilla, five long rows and four shorter; and there are besides several interrupted transverse rows between the former on the ventral surface. All are composed of denticulate horny processes of microscopic size. The anterior feet have blunt processes; their cirri are shorter; and the bristles have on the whole shorter tips than in *N. dumerilii*, ranging from those with long tips (fig. 10) to those with short terminal processes (fig. 11). The articulating end of the shaft in the latter organs has also a somewhat wider pit for the terminal process. At the twenty-fifth foot (fig. 12) the superior lingula is rather larger than in *N. dumerilii*, and the outline of the other processes also differs. Towards the posterior extremity (*e.g.* the sixtieth foot), again the superior lingula forms a very prominent elongated process, which is much thicker and less pointed than in the British form; and it also differs from *N. polyodonta*, Schmarda, in this respect.

Hab.—Royal Sound.

[Nereis antarctica.

Nereis antarctica, Verrill, Bulletin U. S. Nat. Mus., 1876, May, iii. 64.

Hab.—Royal Sound, on the beach (Kidder).]

TEREBELLIDÆ.

Amphritrite kerguelenensis.

(Pl. XV., fig. 13.)

M'Intosh, Ann. & Mag. of Nat. Hist. 4th ser., 1876, xvii., p. 321.

A large form with seventeen setigerous tubercles. The cephalic region shows four lobes, viz. the ventral anterior lobe, a large process in front and beneath the first branchia, a fan-shaped lobe, and finally a large fold running from the root of the last branchia downwards. The long branchiæ spring from three short trunks on

each side. There is a prominent papilla below each setigerous tubercle in the first six segments, and in addition a similar process below the second branchia. The ventral scutes appear to be twelve. The hooks (fig. 13) somewhat resemble those of *A. affinis*, Mgrn., but differ in the anterior curvature. The colour of one specimen was purplish brown.

This species forms a heavy tube of fine mud, lined by a thin chitinous secretion; and, from the flattening of the ventral surface, it would appear to lie on the bottom.

Hab.—Royal Sound.

Neottis antarctica.

(Pl. XV., figs. 14, 15.)

M'Intosh Ann. & Mag. of Nat. Hist. 4th ser., 1876, April, xvii., p. 321.

A very large member of the family, differing from *Thelepus* in having three groups of branchiæ on each side, and from *Grymæa* by the fact that the bristle-tufts commence on the third segment, and also by the structure of the hooks. The cephalic lobe is furnished with numerous ocular specks. The bristles resemble those of *Thelepus*, as also do the hooks, which are borne on a thin lateral lamella marked by a band of dark pigment. A single process only appears in profile (fig. 14) above the large tooth of the hook, though two are very evident in oblique views (fig. 15). The brownish body is peculiarly streaked posteriorly by pale transverse lines.

The animal constructs a large chitinous tube of a dark brownish colour, on which Polyzoa, Zoophytes, and Algæ flourish.

Hab.—Royal Sound, very common.

[**Neottis spectabilis.**

Verrill, Bulletin U. S. Nat. Mus. 1876, May, iii., 66.

Hab.—Royal Sound, in 12 fathoms (Kidder).]

SERPULIDÆ.

Serpula, sp.

(Plate XV., fig. 16.)

The softened specimen resembles *S. vermicularis*, L., in external appearance; but the operculum is absent. The branchiæ appear to be about forty in number on each side. The anterior hooks (fig. 16) are larger than in *S. vermicularis*, and form a triangle of quite a different shape. The uncini along the edge of the organ are seven or eight in number, the inferior, as usual, surpassing the rest in size. The posterior hooks present the same structure, and are accompanied by the brush-shaped bristles as in *S. vermicularis*.

The tube resembles that of the latter, even to the double funnels so often seen in front.

The absence of the operculum prevents further definition. The undeveloped left opercular process resembles that in *S. vermicularis*, though it is somewhat longer.

Hab.—Swain's Bay.

NEMERTINEA.

LINEIDÆ.

Lineus corrugatus.

(Plate XV., fig. 17.)

M'Intosh, Ann. & Mag. of Nat. Hist. 4th ser., 1876, xvii., p. 322.

Body (in spirit) flattened, rather abruptly pointed anteriorly, and more gradually posteriorly. The œsophageal region is marked externally by a series of prominent and somewhat regular rugæ, which sweep from the mouth dorsally and ventrally; so that the dorsal view recalls that observed in *Arion ater*.

Colour dark olive throughout, with the exception of a white band, which crosses the anterior border of the snout, and passes backward to the posterior third of the lateral fissure, where it bends dorsally and terminates.

The special characters are the very large mouth, with the prominent rugæ, which show that the animal probably possesses unusual powers of œsophageal protrusion—a supposition borne out by the great development of the external circular muscular fibres (fig. 17 *cm*), the dorsal longitudinal coat, and the other fibres of the organ. The internal glandular lining *j* is also very firm. The outer layers of the proboscis correspond with the type in the Lineidæ; but the internal longitudinal layer *e*, observed in an imperfect condition in *Micrura fusca*,* is largely developed.

Hab.—Swain's Bay.

Explanation of Plate XV.

Fig. 1. Portion of the scale of *Hermadion longicirratus*, Kbg., the inferior edge being slightly turned so as to show the papillæ in profile. × 210 diam.

Fig. 2. Dorsal bristle of the foregoing form. × about 20 diam.

Fig. 3. Tip of another dorsal bristle. × 90 diam.

Fig. 4. Ventral bristle from the middle of the fascicle. × 97 diam.

Fig. 5. Portion of the outer and anterior border of the scale of *Eupolynoë mollis*. On the inferior margin the papillæ are seen in profile. × 210 diam.

Fig. 6. Tip of a dorsal bristle of the same. × 210 diam.

Fig. 7. Tip of a slender bifid bristle from the superior ventral series. × 350 diam.

Fig. 8. Tip of one of the lower bristles from the same tuft. × 350 diam.

* Brit. Annelida, Ray Soc., Pt. i. p. 103, Pl. 20, fig. 4.

Fig. 9. One of the smaller bristles from the middle of the next ventral series. × 210 diam.

Fig. 10. Bristle with a long tip, from the ventral series of *Nereis eatoni*. × 350 diam.

Fig. 11. Bristle with a short tip from the ventral series of the same.

Fig. 12. The twenty-fifth foot of the foregoing form. × about 12 diam.

Fig. 13. Anterior hook of *Amphitrite kerguelenensis*. × 350 diam.

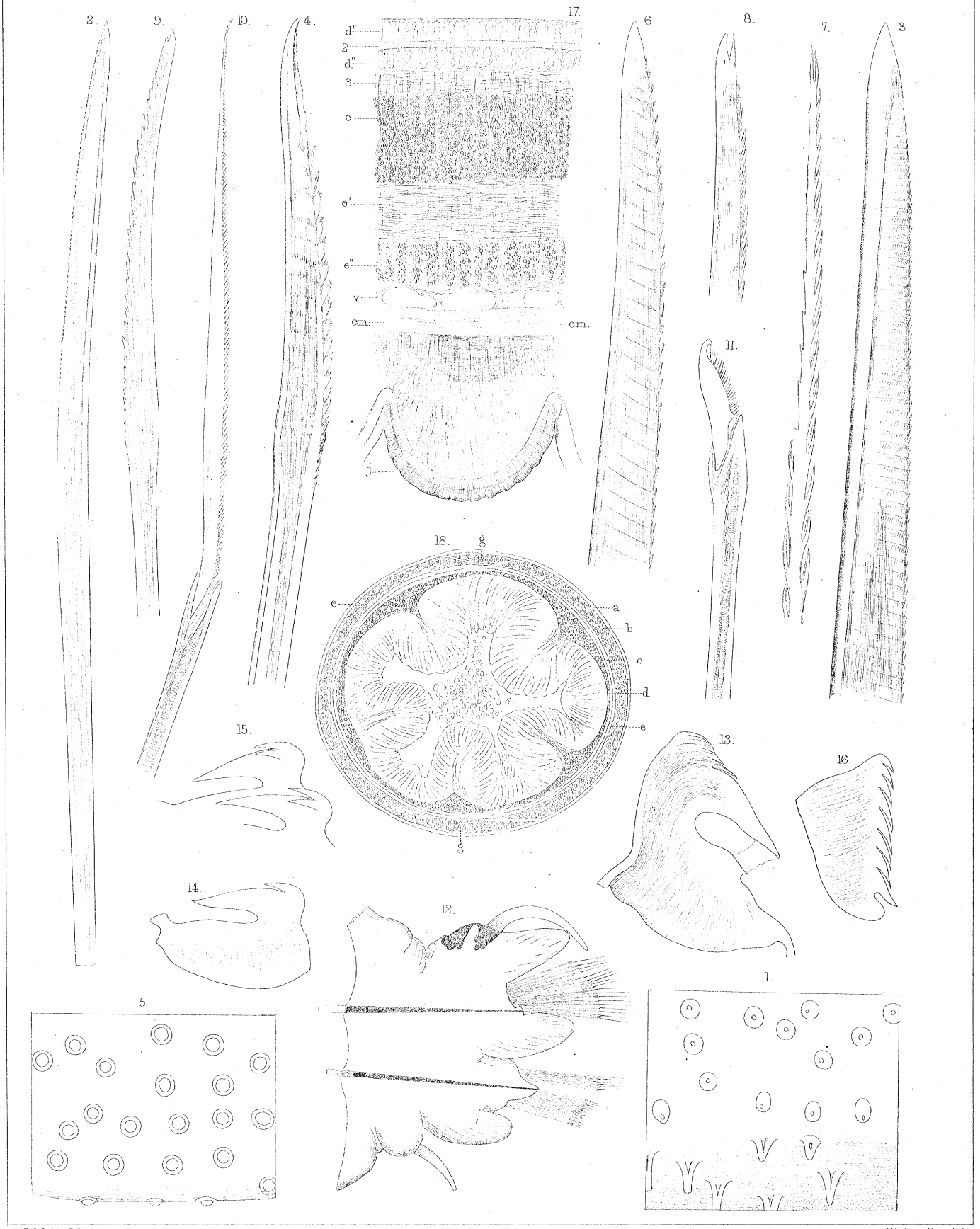
Fig. 14. Anterior hook of *Neottis antarctica*. × 350 diam.

Fig. 15. Tips of two of the former seen obliquely. × 350 diam.

Fig. 16. Anterior hook of *Serpula* ——? × 350 diam.

Fig. 17. Vertical transverse section of the ventral body-wall in *Lineus corrugatus*, showing the thick circular muscular layer (*cm*) enveloping the œsophageal region; *d''*, pigmentary layer divided (as in *Lineus marinus*) by a definite black band (*2*); *3*, curious translucent stratum cut into somewhat regular spaces; *e*, external longitudinal muscular layer of the body-wall; *e'*, circular muscular coat; *e''*, inner (longitudinal) muscular layer; *j*, firm glandular lining of the œsophagus; *v*, vascular meshes around the œsophageal region. × 55 diam.

Fig. 18. Transverse section of the proboscis of the same: *a*, external coat; *b*, great longitudinal muscular layer; *c*, belt of circular muscular fibres; *d*, basement layer; *e*, internal longitudinal muscular layer, specially developed in this form; *f*, glandular lining of the organ thrown into various folds; *g*, lozenge-shaped portion of longitudinal fibres formed by the crossing of two bands from the circular muscular coat; *g'*, separate segment at the other pole of the circle. The two latter are somewhat indistinct. × 55 diam.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