

SMITHSONIAN MISCELLANEOUS COLLECTIONS  
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## Johnson Fund

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REPORTS ON THE COLLECTIONS OBTAINED BY THE FIRST  
JOHNSON-SMITHSONIAN DEEP-SEA EXPEDITION  
TO THE PUERTO RICAN DEEP

# NEW POLYCHAETOUS ANNELIDS

(WITH TWO PLATES)

BY

AARON L. TREADWELL

Professor of Zoology, Vassar College



(PUBLICATION 323C)

CITY OF WASHINGTON  
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NEW POLYCHAETOUS ANNELIDS

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(WITH TWO PLATES)

The polychaetous annelids obtained by the First Johnson-Smithsonian Deep-Sea Expedition have been submitted to me for report, and in the collection I have found a number of new species, which are here described and figured.

**MELAENIS** Malmgren

**MELAENIS TROPICUS**, n. sp.

Plate 1, figs. 1-6

A single specimen 33 mm long and 9 mm wide in the greatest diameter. Twelve pairs of elytra completely cover the body. The prostomium is about 1 mm in diameter and carries the cirrophores of the three tentacles from which the styles have been broken. The median cirrophore overlaps the lateral ones. The prostomium (fig. 1) is rounded in outline, its transverse diameter being a trifle greater than its antero-posterior. No eyes are visible. The palps are very long and not very stout.

The first parapodia are small and largely concealed by the bases of the palps. The basal portion of each parapodium narrows distally, and on its anterior border are numerous papillae (fig. 2). Terminally, there is a considerable widening, the main axis continuing into a point, from which the acicula protrudes. On the dorso-lateral surfaces are the cirrophores for the tentacular cirri from which the styles are lost. Antero-laterally there are three tufts of setae radiating in fan shape in each tuft. The second parapodium is also small, its notopodium (fig. 3) rather broad at the base and continuing with the same diameter about half way to the apex, where it narrows asymmetrically and rapidly to a sharp point. A large acicula protrudes from the apex. Antero-dorsally, there is a tuft of setae. Small, rounded vesicles are attached to the body wall between the two parts

of the parapodium. The neuropodium is irregularly ringed at the base and narrows at a rather uniform rate to the apex. The bending of the tip and breaking of the acicula is obviously an accident. A slender ventral cirrus extends beyond the end of the setal portion. Beginning with the third, the parapodia are very large, and the large setae of the third parapodium extends as far as the tips of the palps. In a parapodium from the middle of the body, the notopodium is short and thick but narrows abruptly to an acute tip, from which the acicula protrudes. The neuropodium is slender, longer than the notopodium, and almost circular in cross-section, ending in a blunt point. Just proximal to the end are two blunt lobes, and nearer the body is a third. From each of these protrudes a stout seta. The dorsal cirrus is very long and slender, but the ventral one hardly reaches the end of the setal lobe.

The elytra are large, entirely covering the dorsal surface of the body, and most of them, if not all, overlap in the dorsal midline. They are broadly oval in outline, with the elyrophore attachment nearer one end, the long axis of the elytron being at right angles to that of the body. The elytra are thin, with entire margins and no surface markings. They are mostly translucent, this character being most marked near the margins, for whitish deposits occur near the elyrophore attachment and extend for some distance outward.

In a parapodium from near the middle of the body, the most noticeable setae are those of the notopodium, which curve upward and outward. The largest of these are very heavy and terminate in a point, which has barbs on either side of the end of the shaft (fig. 5). These did not appear in all somites, but this was probably due to accidental causes. The remainder of the dorsal tuft is composed of slightly smaller setae than the above, which end in sharp points and are faintly bilimbate toward the ends. On the surface of their shafts are minute points, giving it a shagreen appearance. A tuft of slender, colorless, sharp-pointed setae lies on the antero-posterior face of the notopodium. The neuropodial setae are very few and heavy (fig. 6). Toward the ends they bend slightly and taper to an acute tip, which carries two or three stout teeth on the outer surface. In the neuropodium is a tuft of setae that have sharp lateral teeth along the shaft (fig. 4).

*Type*.—U.S.N.M. no. 20031, collected at station 101 in the Virgin Islands at latitude  $18^{\circ}40'30''$  N., longitude  $64^{\circ}50'$  W.—latitude  $18^{\circ}45'40''$  N., longitude  $64^{\circ}48'$  W., in 300 fathoms.

## EUPHOLOE McIntosh

## EUPHOLOE ACUMINATA, n. sp.

Plate 1, figs. 7, 8

Only incomplete specimens are present. The type measures 28 mm for the first 50 somites and has a width anteriorly of 6 mm. The head width is 5 mm. This width continues for about the first 10 mm of body length, but behind this there is a decided narrowing. The prostomium (fig. 7) is oval in outline, with the tentacle arising in the middle of its anterior border. Dorsally there are two very indistinct eyes (not shown in the figure), and two others, much more distinct, lie near the ventral surface. The cirrophore of the tentacle is globular and about half as long as the prostomium, but is very thin-walled. Toward the end there is a constriction, so that the style is carried on the end of a very small globular portion. The style is slender and four or five times as long as the prostomium.

The first parapodia are elongated cones, truncated near the ends, and each has a very slender dorsal cirrus near its end (fig. 7). The two parapodia are in contact at their bases and on either side press tightly against the tentacle, each long, slender dorsal cirrus reaching to the end of the tentacle. This arrangement of tentacle and parapodia gives a pointed appearance to the anterior end of the animal. In each parapodium is a dense tuft of setae, which overlap from the two sides and surround the ends of tentacle and cirri. The palps are long and slender, extending beyond the tips of the first parapodial setae. The first pair of elytra carried on the first parapodium are borne on transversely oval elytriphores (fig. 7) and completely cover the prostomium. Between the elytriphores the anterior margin of the first somite protrudes over the prostomium. In one specimen this protrusion is a blunt cone; in the other it has two rounded lobes on its margin. The lower lip is prominent, its surface thrown into longitudinal folds.

As stated, the first pair of elytra overlap. I am uncertain about the second, but behind this there is a definite area of the dorsal surface that is uncovered. Even when elytra have been removed, this clearly shows because of a dusting of fine sand grains on portions of the dorsal surface that had been uncovered by elytra. A similar covering of sand grains appears on the elytra, these grains being coarser on anterior somites. Except where overlapped by other elytra, each elytron carries a row of fine cirri around its margin, and on its outer half there are a considerable number of these on the surface. Except at the point of attachment, each elytron is very thin

and soft. I am uncertain whether the denser appearance at the elytraphore is due to a thickening of the tissue or to a greater accumulation of sand grains at that point. As far as about somite 25 the dorsal exposed portion of the body wall seems to be thin and delicate. Behind this point the body narrows, the sand grains are larger, and the elytra cover more of the surface. The last somites present in the fragments are completely covered. Beyond about somite 25 each has on its dorsal surface three transversely arranged bunches of sand grains, successive somites thus showing three longitudinal rows of sand piles. It is possible that these represent three rows of rudimentary gills, but I was unable to discover any trace of gills in them.

The dorsal appearance of the first parapodium has been given above. On the ventral surface there is a short cirrus near the end of the neuropodium. The setae of this parapodium are of varying sizes but are all essentially the same in structure in that they carry two rows of toothed plates, giving the setae a double saw-tooth effect. The second parapodium carries a whorl of very fine setae, which have minute lateral plates forming spines as in the first. In the neuropodium are a few much larger setae, which are smooth throughout the greater part of their length but toward the end acquire lateral plates. Toward their ends, they widen and then narrow again, forming what one would expect to be a narrow lanceolate apex, but this suddenly ends and forms the basis for a slender and much curved terminal joint (fig. 8). The second parapodium has the form of a truncated cone, is very much annulated on its surface, and has a long cirrus at its apex, together with a bunch of smaller cirri. Except for the absence of the long terminal cirrus, the third parapodium is much like the second. The dorsal setae are like those in the notopodium of the second parapodium, whereas ventral ones are compound but without the lateral teeth. These are continued in later somites, but the terminal joint may be very short. In the third parapodia are also very slender colorless compound setae having long and slender terminal joints.

*Type*.—U.S.N.M. no. 20032. Specimens were collected at station 100, at latitude  $18^{\circ}38'45''$  N., longitude  $64^{\circ}52'45''$  W.—latitude  $18^{\circ}40'15''$  N., longitude  $64^{\circ}50'15''$  W., in 15 fathoms (type specimen); and at station 28, latitude  $18^{\circ}31'40''$  N., longitude  $66^{\circ}12'$  W.—latitude  $18^{\circ}32'$  N., longitude  $66^{\circ}14'45''$  W., in 40 fathoms.



**EUPHOLOE CIRRATA**, n. sp.

Plate 1, figs. 9-12; plate 2, figs. 13-16

A number of specimens are in the collection, but none is entire. Anterior portions containing about 60 somites are 50 mm long. The prostomium is 1 mm in diameter, but if the parapodia which extend along the sides of the prostomium are measured, the total head width is 3 mm. The greatest body width is 4 mm.

The prostomium (fig. 9) is oval in outline its width being about twice its length. No eyes are to be seen, but the dorsal surface is irregularly blotched with purplish patches. The tentacle is very short and slender and is inserted a little back from the anterior prostomial border. The palps are long and slender and not noticeably thickened at the bases. There are no lateral tentacles or tentacular cirri.

The first parapodium (fig. 10) on either side extends forward and, together with the buccal membrane and the bases of the palps, forms the outer boundary of a space lateral to the prostomium. It was very difficult to get a satisfactory dissection of this parapodium, and the drawing is not complete. The setal portion is blunt-ended, and there is a single acicula. From the outer dorsal surface arises a tuft of very slender setae, and on the dorsal surface are numerous cirri of various sizes. No attempt has been made to draw them all, as so great a number would confuse the drawing. One as drawn is much larger than the others and may be the dorsal cirrus; but if so, it is broken, for in another specimen (fig. 11) this cirrus is long and slender. There is a slender ventral cirrus. The second parapodium (fig. 12), is very thick and heavy and extends forward so as to overlap the first, the inner face of the second being slightly concave. Each carries dorsally a small, nearly circular elytra. There is no marginal indentation between the neuropodium and notopodium, and each portion carries an acicula. In the neuropodium is a bunch of very heavy setae, most of which have been broken off at about the level of the body surface. The only notopodial setae are a tuft of slender ones arising at the anterior margin of the elythrophere. A tangle of cirri similar to those of the first parapodium arise from this same position. The ventral cirrus is short and heavy. The second parapodium is larger than the first, and this increase in size continues as far as the eighth.

A parapodium from near the middle of the body (fig. 13), is elongated, and the vertical diameter of its setal portion is much less than that of the body. The neuropodium widens slightly toward the end, where there are a large posterior and two smaller anterior lobes.

The notopodium is smaller than the neuropodium and is more uniform in diameter throughout. Its apex is conical, but dorsal to this is a small lobe, and numerous cirri arise from the ends of both parts. In all somites a heavy gill is attached to the body wall above the parapodium. In somites having elytra this is just ventral to the cirrophore (fig. 13). In other somites the dorsal cirrus is a fleshy lobe resembling a cirrophore but lacking a style (fig. 12).

The anterior elytra are very small, but later ones increase in size so that they overlap on the dorsal surface. Behind the twentieth they are lost in the specimens at hand, but apparently the large size is continued to the posterior end of the body. They are located on somites 2, 4, 5, 7, and on alternate somites behind this. All are roughly oval in outline and have smooth margins and a very delicate translucent appearance. A prominent feature is a brown spot near the elytophore.

The setae of the first parapodium are all very slender and long, some having smooth margins, others finely serrate. In the second parapodium the notopodial setae are like those of the first, but neuropodial ones are shorter and heavier and curve to fine points, the terminal part being camerated (fig. 14). In later parapodia there are several kinds of setae, some like those in the second, others long, slender, and sharp-pointed, distinctly bent and carrying two rows of toothed plates (fig. 15). In the neuropodium there is a ventral bundle of compound setae, whose terminal joints are straight, pointed, and camerated (fig. 16).

*Type*.—U.S.N.M. no. 20033, collected at station 14 at latitude  $18^{\circ}31' N.$ , longitude  $66^{\circ}4'10'' W.$ —latitude  $18^{\circ}30'30'' N.$ , longitude  $66^{\circ}3'15'' W.$ , north of Puerto Rico, at 200-240 fathoms. Others were collected at station 23, latitude  $18^{\circ}32'15'' N.$ , longitude  $66^{\circ}17'45'' W.$ —latitude  $18^{\circ}32' N.$ , longitude  $66^{\circ}21'15'' W.$ , north of Puerto Rico, in 260 fathoms.

#### HYALINOECIA Malmgren

#### HYALINOECIA BRANCHIATA, n. sp.

Plate 2, figs. 17-19

This name is provisionally given to a single incomplete specimen 15 mm long and 2 mm wide, and retaining only 20 somites. Because of the lack of nuchal cirri, it belongs in the genus *Hyalinoecia*. The specific name refers to the unusual amount of gill development.

The prostomium (fig. 17) has a width of about twice its length and carries short tentacles that are obscurely, if at all, ringed on the cirrophores and have slender styles. The style of the median

tentacle is lost; those of the inner paired extend to somite 10, whereas those of the outer paired are hardly more than one-fourth as long as these. The frontal tentacles are broadly oval in outline, their bases being in contact. The palps are large and extend down over the mouth.

On its anterior margin somite 1 is wider than the prostomium, and this width reappears on the posterior margin. In the middle, where the parapodia arise, it is very much wider than this, and the parapodia extend almost to the anterior prostomial border. Each parapodium carries a slender dorsal and a much heavier ventral cirrus, the latter having a heavy basal section and a slender terminal one, the two being of about equal length. Apparently there are three subequal terminal parapodial lobes, but owing to imperfect preservation, it is not possible to be certain. Each parapodium carries three stout hooked setae.

Somite 2 is a trifle wider than somite 1 and less than one third as long, its anterior border being a trifle wider than its posterior. The parapodia extend forward but to a much less extent than in somite 1. Somite 3 assumes a form characteristic of the remainder of the body. Its width is about four times its length, and the lateral margins are uniformly rounded except where they extend out into the bases of the parapodia. In somite 3 the dorsal cirrus is prominent, four or more times as long as the setal lobe. The ventral cirrus is also prominent, but stouter than the dorsal. The fourth, fifth, sixth, and seventh parapodia have large dorsal and ventral cirri, the dorsal being longer than the ventral. After the seventh there is a diminution in length of the cirri, and in later somites, although they are longer than the setal lobes, they are very slender. Gills are composed of several filaments, and on the sixteenth parapodium there are six of them, palmately arranged (fig. 18).

Just dorsal to the insertion of the ventral cirrus, each parapodium carries a tuft of heavy setae and two aciculae. The aciculae are bluntly rounded and end just inside the surface. The setae are of two kinds: heavy ones having stout terminal and subterminal teeth covered by a hood (fig. 19), and slender bilimbate ones reaching as far as the end of the dorsal cirrus. The hooks of the first parapodium are very heavy and have a terminal and a much smaller subterminal tooth.

Since only one specimen appeared in the collection, I did not think it wise to mutilate it by removing the jaws for study and I have no information concerning them. In the gill character this species seems

rather distinctive. Verrill's<sup>1</sup> account of *H. artifex* states that gills first appear on about the twenty-eighth somite and are never of more than one filament.

*Type*.—U.S.N.M. no. 20034, collected at station 84, latitude  $18^{\circ}32'30''$  N., longitude  $65^{\circ}18'30''$  W.—latitude  $18^{\circ}39' N.$ , longitude  $65^{\circ}17' W.$ , in 300 fathoms, north of Culebra Island.

**ALCIOPA Audouin and Milne Edwards**

**ALCIOPA MUTILATA, n. sp.**

Plate 2, figs. 20, 21

This species name is provisionally suggested for a fragment of an *Alciopa* retaining only a limited portion of the anterior body region. Its total length is 7 mm and width at the eyes 1.5 mm. The eyes are very large and almost in contact dorsally, their lenses pointing downward and outward so as not to be visible from a dorsal view. Ventrally, they are more widely separated (fig. 20). The median tentacle (fig. 20) is very short and inconspicuous and is located well forward between the eyes. All frontal tentacles are thick, the dorsal pair being a trifle smaller than the ventral ones. Between the dorsal frontal and the median tentacles is a pair of fleshy lips. The anterior face of the first somite is in contact with the eyes but does not enclose them in a cup effect, as it does in other species.

The parapodia are conical in outline, and a single acicula protrudes at the apex (fig. 21). Only a very few setae are present, most of them having been broken. Those that remain have sharp-pointed ends, and this undoubtedly holds for all.

*Type*.—U.S.N.M. no. 20035, collected at station 6 in latitude  $18^{\circ}30'45''$  N., longitude  $66^{\circ}4'30''$  W.—latitude  $18^{\circ}30'50''$  N., longitude  $66^{\circ}1'15''$  W., north of Puerto Rico, in 100 fathoms.

**Family MALDANIDAE**

**MALDANELLA FIMBRIATA, n. sp.**

Plate 2, figs. 22-24

The collection contains one slender specimen 35 mm long and 2 mm wide, composed of 20 setigerous somites. The anterior margin of the cephalic plate (fig. 22), is broadly rounded but is not continued

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<sup>1</sup>Verrill, A. E., Notice of recent additions to the marine invertebrata of the northeastern coast of America, with descriptions of new genera and species and critical remarks on others. Pt. 5, Annelida, Echinodermata, Hydroida, Tunicata. Proc. U. S. Nat. Mus., vol. 8, pp. 429-431, 1885.

on to the lateral regions. The posterior margin is prominent and is continued forward on either side nearly to the middle of the plate. Between these two portions is a thin membrane drawn out on the right side into three, and on the left into four, sharp-pointed processes. The surface of the cephalic plate is deeply hollowed just in front of the posterior margin and more shallow elsewhere. The median ridge extends only about half the length of the plate and has a cone-shaped outline. Its dorsal surface is marked by transverse lines.

A prominent collar on the anterior margin of the first setigerous somite overlaps the posterior margin of the buccal somite for its entire circumference. The anal funnel (fig. 23), has a prominent bilobed dorsal and a single ventral lip. On the margin of the dorsal lip are a few slender cirri. The first four setigerous somites are short, the next five longer, and the final ones shorter again.

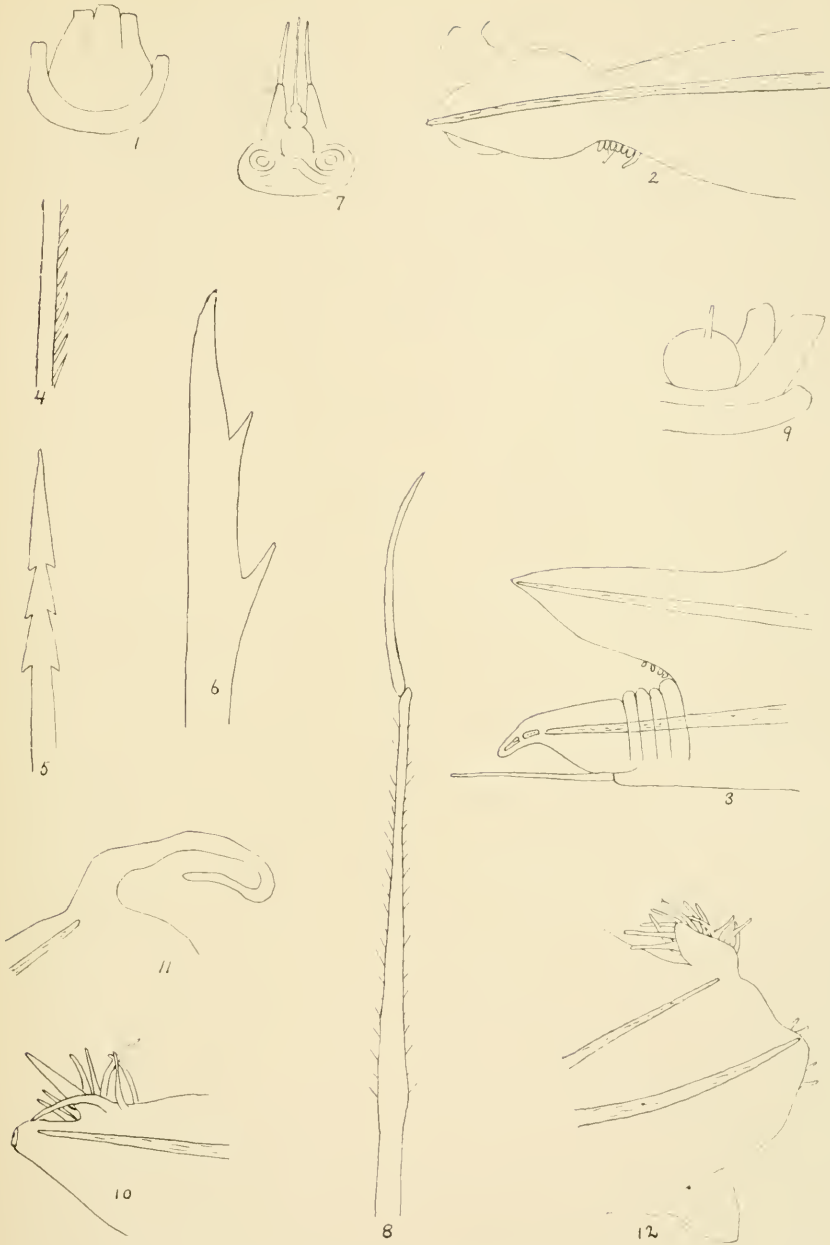
There are two kinds of setae. The first are slender and sharp-pointed, arranged in tufts in which there is great variation as to length. Some are very short, others several times as long. Some at least, and probably all, are narrowly bilimbate. Toward the ends, they narrow rapidly to fine points. The hooks (fig. 24) have very long shafts, enlarged to form a collar at the point where they protrude from the body surface. The distal end is bent to form a "head," which on the lower surface carries a large tooth. Above this is a much smaller tooth and above this several denticulations. A long tuft of subrostral hairs extends beyond the large tooth.

*Type*.—U.S.N.M. no. 20036, collected at station 35, latitude  $18^{\circ} 23'40''$  N., longitude  $67^{\circ} 16'45''$  W.—latitude  $18^{\circ} 24'45''$  N., longitude  $67^{\circ} 14'15''$  W., in 80-100 fathoms.

#### EXPLANATION OF PLATES 1 AND 2

- FIGS. 1-6. *Melaeniscus tropicus*, n. sp. Fig. 1, head,  $\times 13$ ; fig. 2, first parapodium,  $\times 52$ ; fig. 3, second parapodium,  $\times 50$ ; fig. 4, seta,  $\times 340$ ; fig. 5, seta,  $\times 90$ ; fig. 6, parapodium,  $\times 90$ .
- FIGS. 7, 8. *Eupholoc acuminata*, n. sp. Fig. 7, head,  $\times 20$ ; fig. 8, seta,  $\times 60$ .
- FIGS. 9-16. *Eupholoc cirrata*, n. sp. Fig. 9, head,  $\times 10$ ; fig. 10, first parapodium,  $\times 40$ ; fig. 11, dorsal portion of first parapodium,  $\times 40$ ; fig. 12, second parapodium,  $\times 40$ ; fig. 13, posterior parapodium,  $\times 20$ ; fig. 14, seta,  $\times 240$ ; fig. 15, seta,  $\times 90$ ; fig. 16, seta,  $\times 240$ .
- FIGS. 17-19. *Hyalinoccia branchiata*, n. sp. Fig. 17, head,  $\times 5$ ; fig. 18, parapodium,  $\times 40$ ; fig. 19, seta,  $\times 240$ .
- FIGS. 20, 21. *Alciopa mutilata*, n. sp. Fig. 20, head,  $\times 13$ ; fig. 21, parapodium,  $\times 30$ .
- FIGS. 22-24. *Maldanella fimbriata*, n. sp. Fig. 22, head,  $\times 20$ ; fig. 23, anal funnel,  $\times 20$ ; fig. 24, seta,  $\times 90$ .

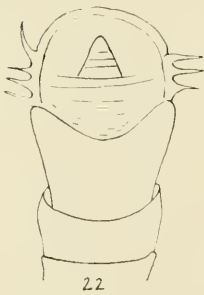
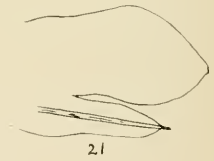
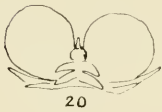
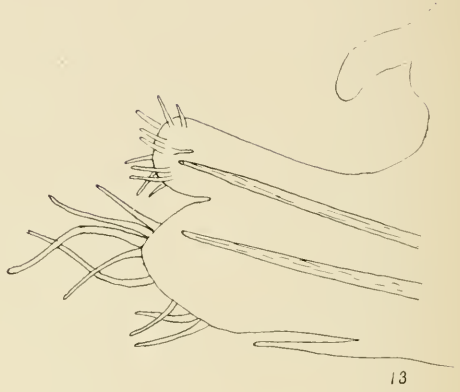
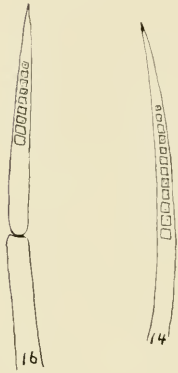
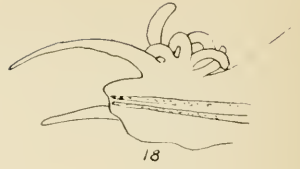
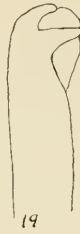




NEW POLYCHAETOUS ANNELIDS

FIGS. 1-12

(For explanation, see p. 9.)



NEW POLYCHAETOUS ANNELIDS

FIGS. 13-24

(For explanation, see p. 9.)