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THE TYPES OF THE POLYCHAETE WORMS OF THE FAMILIES POLYNOIDAE AND POLYODONTIDAE IN THE UNITED STATES NATIONAL MUSEUM AND THE DESCRIPTION OF A NEW GENUS

By OLGA HARTMAN

A SURVEY of the types of annelids of the families Polynoidae and Polyodontidae in the United States National Museum indicates the necessity of several nomenclatorial changes. The first part of this paper is a discussion of some of these types and a revision of some of the genera concerned. The second part lists all the types in the Museum, with changes of names and new combinations indicated. For convenience, type locality, place of publication, and museum catalog number are given.

Family POLYNOIDAE

Genus IPHIONE Kinberg

IPHIONE FUSTIS Hoagland

FIGURE 35, a

*Iphione fustis* HOAGLAND, 1920, p. 605 (U.S.N.M. no. 18941; Philippine Islands).

The type may be an immature individual, as already stated by Hoagland. The paired prostomial antennae have their cirrophores and cirrostyles subequal. The place of articulation was not indicated by the describer, but the total length is about as shown. Neuropodia are considerably more oblique than Hoagland has shown, and the neuropodial aciculum projects beyond the parapodial lobe; neurocirri are long, digitiform (fig. 35, a).

## Genus LEPIDONOTUS Leach

## LEPIDONOTUS CAELORUS Moore

FIGURE 35. *b-d*

*Lepidonotus caelorus* MOORE, 1903, p. 412 (U.S.N.M. no. 15733; Japan).

*Polynoë spicula* TREADWELL, 1906, p. 1151 (U.S.N.M. no. 5203; Monterey Bay).

*Lepidonotus minutus* TREADWELL, 1936, p. 262 (U.S.N.M. no. 20112; China).

? *Lepidonotus castriensis* SEIDLER, 1924, p. 41.

The type vial of *Polynoë spicula* contains three specimens. Each has 12 pairs of elytophores, inserted as typical of the genus *Lepidonotus*. The prostomium has long anterior peaks and a stout median ceratophore; lateral antennae are inserted terminally (fig. 35, *c*). The scales are ornamented with spines and a marginal fringe (fig. 35, *d*). Neuropodial setae are distally entire and have a stout tooth

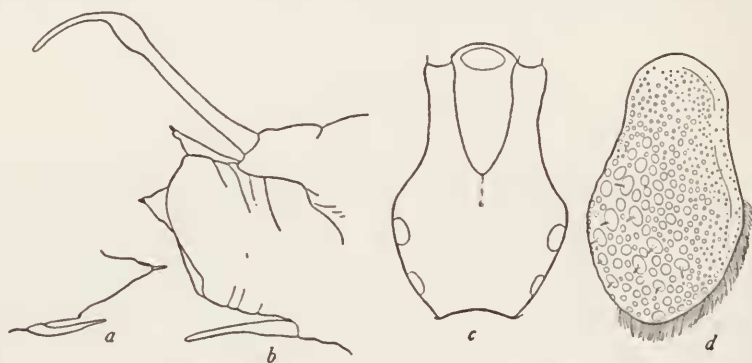


FIGURE 35.—Species of IPHIONE and LEPIDONOTUS

*a*, *Iphione fustis* Hoagland: Fifteenth neuropodium in posterior view,  $\times 45$ .

*b-d*, *Lepidonotus caelorus* Moore (figures based on type of *Polynoë spicula* Treadwell):

*b*, Twelfth foot in anterior view,  $\times 45$ ; *c*, prostomial outline,  $\times 45$ ; *d*, an elytron from posterior third of body,  $\times 28$ .

at the distal end of the toothed region. Parapodia are blunt, truncate (fig. 35, *b*). In both the types of *L. caelorus* and *P. spicula* the posteriormost scales have the most conspicuous spines. Numerous collections show variation, however, in relative sizes of spines.

The type of *Lepidonotus minutus* Treadwell is a small representative of this common north Pacific species. The prostomium is strongly retracted into the peristomial ring, and the posterior margin is thus made out with difficulty. It may be for this reason that the illustration of *L. minutus* shows the prostomium more produced at its posterior margin than is actually the case. The elytra of the type are strongly mottled with dark gray. There is great variation in pigmentation of this species (see also Moore, 1905, p. 546). The lengths of lateral and median antennae in the original descriptions of

*L. caelorus* and *L. minutus* are seemingly reversed, but the degree of variation in this respect has already been commented upon (Moore, 1908, p. 331) and is observable in numerous collections examined.

*Lepidonotus castriensis* Seidler, from northeastern Asia, is close to, if not identical with, *L. caelorus* Moore. The descriptions agree reasonably well. Seidler describes the elytra as beset with large "Schuppen . . . die jede in der Mitte einen Höcker zeigt." The so-called "Höcker" are presumably the spines, shown by Moore (1905, fig. 36, *a-c*). Seidler has not described or illustrated the shape of a typical parapodium, but the setal structures, prostomial proportions, and elytra are similar.

#### LEPIDONOTUS HELOTYPUS (Grube)

*Polynoë* (*Lepidonotus*) *helotypus* GRUBE, 1877, p. 49 (China).

*Lepidonotus robustus* MOORE, 1905, p. 544 (U.S.N.M. no. 5523; Alaska).

(See Seidler, 1924, p. 56, for more complete synonymy.)

Grube's type from China measures 56 mm long; Moore's type from Shelikof Strait, Alaska, measures 45 mm. long. Seidler (1924, p. 56) indicated the possible identity of Moore's type with *L. helotypus* but gave no explanation. It seems that this synonymy may be verified in view of the similarity of the type of *L. robustus* with the description of *L. helotypus* given by Seidler, who examined Grube's type.

#### Genus HALOSYDNA Kinberg, char. emend.

Body moderately short, depressed; number of setigerous segments about 36; number of elytra 18 (rarely 19), distributed on segments 2, 4, 5, 7, 9 . . . 27, 28, 30, 31, 33 (or rarely also on 34). Otherwise as defined by Kinberg.

Type of genus: *Halosydna patagonica* Kinberg, from southern Chile.

The genus *Halosydna*, as restricted above, includes the following species which I believe to be valid:

<i>brevisetosa</i> Kinberg (California).	<i>parva</i> Kinberg (Chile).
<i>laticor</i> Chamberlin (California).	<i>patagonica</i> Kinberg (Straits of Magellan).
<i>nebulosa</i> Grube (China).	<i>leucohyba</i> (Schmarda) (Jamaica).
<i>pissisi</i> (Quatrefages) (Brazil).	<i>virgini</i> Kinberg (Hawaiian Islands).
<i>fuscomarmorata</i> (Grube) (Peru).	<i>marginata</i> (Grube) (Peru).
<i>elegans</i> Kinberg (Galapagos Islands).	<i>samoensis</i> Grube (Samoa).
<i>johnsoni</i> (Darboux) (California).	<i>tuberculifer</i> Chamberlin (California).
<i>mülleri</i> (Grube) (Chile).	

The following names, described in the genus *Halosydna*, all based on specimens from California, seem to be synonyms or species in other genera:

*Halosydna lagunae* Hamilton (1915, p. 235) is a *Lepidonotus*.

*Halosydna leioseta* Chamberlin (1919b, p. 2) is *Arctonoë pulchra* (Johnson).

*Halosydna macrocephala* Essenberg (1917, p. 53) is *H. johnsoni* (Darboux).

*Halosydna succiniseti* Hamilton (1915, p. 234) is *Arctonoë vittata* (Grube).

#### HALOSYDNA LATIOR Chamberlin

*Halosydna latior* CHAMBERLIN, 1919b, p. 1 (California).

*Halosydna obtusa-cirrata* TREADWELL (1937b, p. 143) (Lower California).

*Halosydna obtusa-cirrata* Treadwell, from Lower California, compares favorably with *H. latior* Chamberlin, from southern California. *H. latior* is readily distinguished from other species of *Halosydna* by its broad depressed form and its closely imbricated, broadly reniform scales, which have a conspicuous fringe on the outer lateral border. Another characteristic feature mentioned by Chamberlin, but not described for *H. obtusa-cirrata*, is the elongate nature of the nephridial papillae; they are about three times as long as thick. I have observed this feature in numerous specimens deposited in the collections of the University of California.

Specimens of *H. latior* have been taken in abundance from the deeper waters of southern California by expeditions of the steamer *Albatross*. Many of these collections have not been reported upon. They are deposited in the University of California and the United States National Museum.

#### HALOSYDNA LEUCOHYBA (Schmarda)

*Polynoë leucohyba* SCHMARDA, 1861, p. 309 (Jamaica).

*Halosydna leucohyba* WEBSTER, 1884, p. 309 (Bermuda).

*Halosydna brevisetosa* TREADWELL, 1902, p. 166 (U.S.N.M. nos. 16009-16012) (Puerto Rico); not Kinberg, 1855, p. 385.

Specimens of *H. brevisetosa* Treadwell, from Puerto Rico, are all representatives of *H. leucohyba* (Schmarda) as redescribed by Webster. *H. brevisetosa* Kinberg is thus not known outside of the eastern Pacific.

#### HALOSYDNELLA, new genus

Resembling *Halosydna* Kinberg in prostomium and body contour but longer. Differs from *Halosydna* in having about 45 setigerous segments and 20 to 24 pairs of scales, inserted on segments 2, 4, 5, 7, 9 . . . 23, 25, 28, 29, 32, and on every second or third segment more posteriorly. Ventral setae distally entire or with a subterminal tooth (fig. 36, *e*). Dorsal setae finer than ventral setae and ornamented with transverse rows of spines. Notopodial setae may be absent from some posterior parapodia.

Type of genus: *Halosydna australis* Kinberg, from the La Plata River.

The following species belong to the genus *Halosydnella*:

- Halosydna australis* Kinberg, from the La Plata River.  
*Halosydna brasiliensis* Kinberg, from Brazil.  
*Halosydna fusca* Grube, from Brazil.  
*Halosydna alleni* Day, from False Bay, South Africa.  
*Halosydna grisea* Treadwell, from Argentina.  
*Polynoë punctulata* Grube, from Brazil.  
*Halosydna galapagensis* Monro, from the Galapagos Islands.  
*Halosydna oculata* Treadwell, from Samoa.  
*Halosydna fusca-maculata* Treadwell, from the Barbados.

A comparative study of the types of these species, especially those from the eastern coast of South America, may reveal the identity of some of them.

**HALOSYDNELLA GRISEA (Treadwell), new combination**

FIGURE 36, *d, e*

- Halosydna grisea* TREADWELL, 1929, p. 1 (U.S.N.M. no. 19279; Argentina).  
 ? *Halosydna australis* KINBERG, 1855, p. 385 (La Plata River).

In the type, the lateral margin of the scales of the posterior half of the body is quite smooth, the margin of the anterior scales is successively more ciliate, the scales 2 to 8, at least, being ciliate along their entire free lateral edges, where they do not overlap one another. Neuropodia are distally truncate, extending laterally well beyond the papillate notopodium (fig. 36, *d*). Neuropodial setae number 12 to 15 in a fascicle and are arranged in two more or less irregular vertical ranks. The subterminal tooth is well outdistanced by the terminal fang (fig. 36, *e*). There are 4 to 9 transverse rows of pectinae along the thickened region.

The identity of *H. grisea* and *H. australis* seems likely in view of the similarities that are to be observed in comparing Kinberg's description and figures with the type of *H. grisea*. Both are from Argentina.

**HALOSYDNELLA FUSCA-MACULATA (Treadwell), new combination**

FIGURE 36, *f, g*

- Halosydna fusca-maculata* TREADWELL, 1924, p. 5 (U.S.N.M. no. 20330; West Indies).  
*Halosydna fuscomarginata* TREADWELL, 1924 (in explanation of figures).

The type has 45 setigerous segments and 21 pairs of elytophores. Prostomium and elytra are as indicated by Treadwell. The scales, posterior to the first pair, are tiny and leave the dorsum broadly exposed; those on a side are widely separated from one another by almost the length of a segment. I was unable to detect a subterminal

tooth in the neuropodial setae (fig. 36, *f*). Treadwell reported the presence of a subapical tooth in superior neuropodial setae. These setae have 7 to 10 rows of pectinae, restricted more completely to the outer side than in *H. grisea*. Notopodia are papillar, reduced, typically with only an aciculum (fig. 36, *g*).

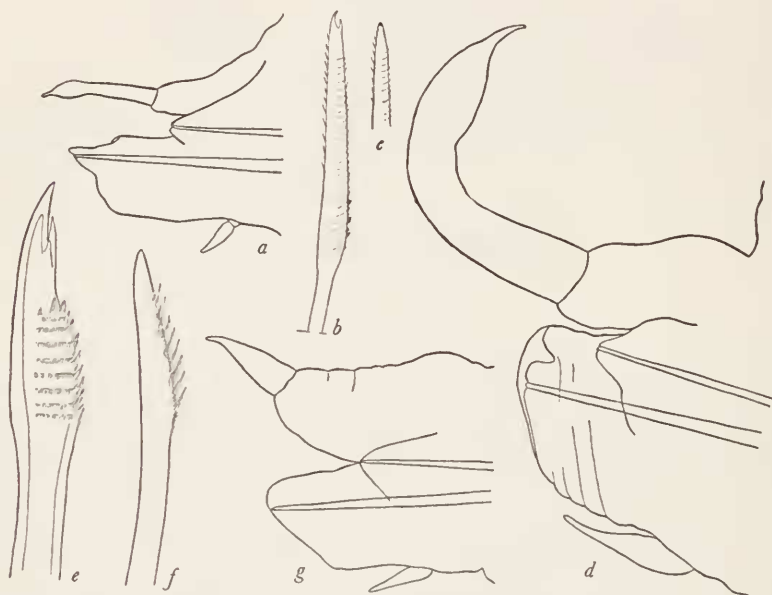


FIGURE 36.—Species of HALOSYDNELLA, new genus

- a-c*, *Halosydnella oculata* (Treadwell): *a*, Twentieth parapodium in posterior view,  $\times 45$ ; *b*, a median neuropodial seta from twentieth parapodium,  $\times 294$ ; *c*, tip of dorsal-most neuropodial seta from twentieth parapodium,  $\times 294$ .  
*d, e*, *Halosydnella grisea* (Treadwell): *d*, Twentieth parapodium in posterior view,  $\times 45$ ; *e*, tip of neuropodial seta from twentieth parapodium,  $\times 294$ .  
*f, g*, *Halosydnella fuscumaculata* (Treadwell): *f*, Neuropodial seta from twentieth parapodium,  $\times 294$ ; *g*, twentieth parapodium in posterior view,  $\times 45$ .

Unidentate neuropodial setae have been described for *H. galapagensis* (Monro, 1928, p. 565). These two differ, however, in the shape of the feet, the dorsal cirrophore is notably stouter in *H. fuscumaculata*, and the notopodium is more reduced.

**HALOSYDNELLA OCULATA** (Treadwell), new combination

**FIGURE 36, a-c**

*Halosydna oculata* TREADWELL, 1926, p. 8 (U.S.N.M. no. 19141; Samoa).

The type consists of a complete specimen with 46 (possibly 47) setigerous segments and has 21 pairs of elytophores, on segments 2, 4, 5, 7, 9 . . . 23, 26, 29, 32, 35, 38, 40, 43, 44, 45 on the right side. A typi-

cal parapodium (20th) has 60 or more neuropodial setae and only 20 or less notopodial setae. The prostomium is unique in that it is broadly subquadrate and the lateral antennae are inserted ventrolaterally (see Treadwell, 1926, fig. 9). There is a nuchal hood extending forward from the peristomium.

Neuropodial setae are long, slender, with distal bladelike portion not much wider than the stem (fig. 36, *b*); terminal end is bifid. The accessory tooth is largest in inferiormost setae (fig. 36, *b*), hardly visible in the superiormost setae (fig. 36, *c*). Transverse rows of pectinae are numerous on the cutting edge but exceedingly fine; these are accompanied with a few heavier teeth on median and ventral bristles; the opposite edge or back, has a row of teeth (fig. 36, *b*). Notopodial setae include a few straight, smooth, acicular rods and more numerous straight setae resembling the superiormost neuropodial setae but apparently entire at the tip, and with fainter rows of pectinae.

#### Genus HYPERHALOSYDNA Augener

##### HYPERHALOSYDNA STRIATA (Kinberg)

*Lepidonotus striatus* KINBERG, 1855, p. 384 (Australia).

*Polynoë platycirrus* MCINTOSH, 1885, p. 111 (Australia).

*Hylosynda carinata* MOORE, 1903, p. 417 (U.S.N.M. no. 15732; "off Japan").

This species has been well described by Moore and by Augener (1922, p. 4; 1927, p. 105). It is present in the tropical and subtropical Pacific.

#### Genus LEPIDASTHENIA Malmgren

##### LEPIDASTHENIA LUCIDA (Treadwell), new combination

##### FIGURE 37 *a-c*

*Polynoë lucida* TREADWELL, 1906, p. 1150 (U.S.N.M. no. 5202; off Hawaiian Islands).

The type is a fragment consisting of the head and 64 setigerous segments; a posterior portion is missing. Lateral antennae are inserted terminally. The notopodia are greatly reduced (fig. 37, *a*), without setae but with a slender aciculum. Neuropodia are elongate, deepest subterminally, with presetal and postsetal lobes broadly triangular and about equally long (fig. 37, *a*).

Neuropodial setae are of two kinds: A few very slender, superior setae (fig. 37, *c*) and a fan-shaped fascicle of numerous thicker setae (fig. 37, *b*). Peristomium has a nuchal hood that extends forward over the prostomium, its anterior margin in line with the anterior margin of the posterior pair of eyes.

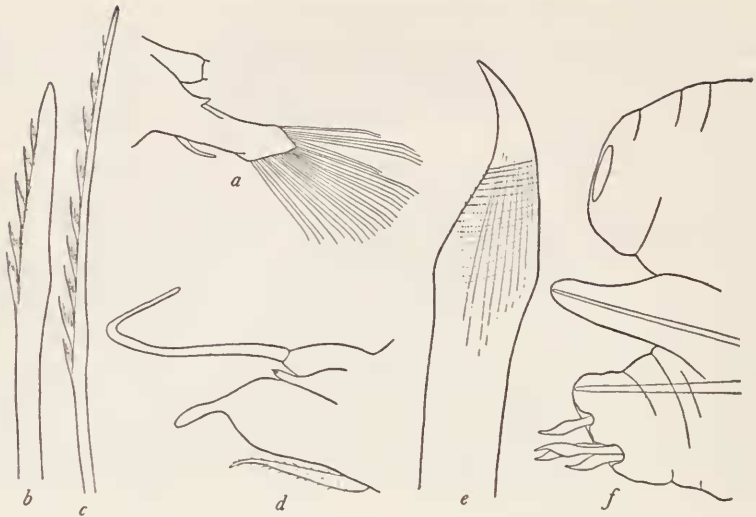


FIGURE 37.—Species of LEPIDASTHENIA, EUNOË, and ARCTONOË

*a-c*, *Lepidasthenia lucida* (Treadwell): *a*, Thirty-fifth parapodium in anterior view, setae diagrammatically represented, dorsal cirrus lost,  $\times 28$ ; *b*, tip of inferior neuropodial seta from thirty-fifth parapodium,  $\times 294$ ; *c*, tip of superior neuropodial seta from thirty-fifth parapodium,  $\times 294$ .

*d*, *Eunoë cura* Chamberlin: Fourteenth parapodium in anterior view,  $\times 28$ .

*e, f*, *Arctonoë tuberculata* (Treadwell): *e*, Tip of neuropodial seta from tenth parapodium,  $\times 294$ ; *f*, tenth parapodium in anterior view, dorsal cirrus lost,  $\times 45$ .

**LEPIDASTHENIA ALBA** (Treadwell), new combination

*Polynoë alba* TREADWELL, 1906, p. 1149 (U.S.N.M. no. 5201; Honolulu).

The type compares favorably with the description given for *L. longicirrata* Berkeley (1923, p. 214) except that the latter has a row of papillae on the feet between the bases of the ventral cirrus and the body wall. *L. longicirrata* Treadwell (1928, p. 460) from west of Peru is probably a *Halosydna* Kinberg. The type is deposited with the New York Zoological Society.

The type of *L. alba* differs, in part, from *L. lucida* (see above) in having shorter, blunter parapodia; also, presetal and postsetal lobes are oblique in *L. alba*, triangular in *L. lucida*.

**LEPIDASTHENIA INTERRUPTA** (Marenzeller)

*Halosydna interrupta* MARENZELLER, 1902, p. 570 (Japan).

*Polynoë semierma* MOORE, 1910, p. 331 (U.S.N.M. no. 15738; Japan).

*Lepidasthenia ocellata* TREADWELL, 1936, p. 264 (U.S.N.M. no. 20113; China).

*P. semierma* Moore has long been considered a synonym of *L. interrupta* (see Moore, 1910, p. 331).

The type and description of *L. ocellata* agree favorably with the description of *L. interrupta*, which has been widely reported from the northwest Pacific.



## Genus EUPHIONE McIntosh

## EUPHIONE CHITONIFORMIS (Moore)

*Lepidonotus chitoniformis* MOORE, 1903, p. 405 (U.S.N.M. no. 15646; Japan).  
 ?*Lepidonotus branchiferus* MOORE, 1903, p. 409 (U.S.N.M. no. 15721; Japan).  
 (See Seidler, 1924, p. 108).

*Lepidonotus chitoniformis* Moore has been transferred correctly to the genus *Euphione* by Seidler (1922, 1924). Seidler, furthermore, considered *L. branchiferus* identical with *L. chitoniformis*. The type specimens, however, differ from one another in the character of the major spines on the elytra. In *E. chitoniformis* these spines are nodular, the 6 to 15 blunt nodes produced about the tip of a club-shaped stalk in which the stem is generally smooth. In *E. branchiferus* the major spines are closely covered with sharp-pointed stellate spinelets, which are continued on the stalk and on the terminal knob. Both types were collected from almost the same depth (49–63 and 34–41 fathoms, respectively) from Sagami Bay.

## Genus ARCTONOË Chamberlin, char. emend.

*Arctonoë* CHAMBERLIN, 1920, p. 6B.

Includes *Halosydnoïdes* SEIDLER, 1924; *Halosydna* KINBERG (pars); *Polynoë* (pars); *Lepidonotus* (pars); *Acholoë* (pars).

Body depressed, moderately long, consisting of a varying number of segments, ranging from 39 [?] to 60 or more. Elytra 18 pairs or more, continued to end of body but often leaving a broad dorsal area exposed, inserted as in *Halosydna* Kinberg on the first 26 segments, insertion more or less irregular more posteriorly. Last few pairs of scales usually small, delicate. Prostomium much as in *Halosydna*, except that the eyes may be reduced or absent and the lateral paired antennae inserted somewhat ventrolaterally.

Parapodia unequally biramous, the smaller notopodium provided with an aciculum and few or no setae; notopodial setae straight, slightly pectinated or quite smooth, distal end blunt, indiscretely bifid. Neuropodia often robust, though short, truncate, each provided with a heavy aciculum and few to many stout, falcate setae, lacking pectinae or with faint transverse rows of teeth. Falcate setae are sometimes accompanied by a few superior neurosetae resembling those of the notopodium. Ventral cirri present on at least the first two segments, those of the first resembling the dorsal cirri, with a subterminal knob, those of the second cirriform. Ventral cirri of other segments moderate to inconspicuous or absent. Dorsal cirri more or less similar throughout.

Elytra soft, translucent, with few or no spines or nodules, lateral margins smooth to greatly frilled, lacking noticeable cilia or hairs.

Commensal, in ambulacral grooves of echinoderms or branchial chambers of mollusks.

Type species: *Arctonoë vittata* (Grube), new combination.

*Discussion.*—The genus *Arctonoë* includes a small group of annelids that differ, by degrees, in the reduction or loss of certain parts, such as the number of notopodial setae, presence or absence of ventral cirri, number of segments and of scales, size of eyes. The habit of commensalism is possibly largely responsible for certain of these reductions or deletions. All known species are similar in that they have the peculiar, heavy, falcate neuropodial setae adapted for attaching to their hosts, and in other respects enumerated above.

The first species of this group, *Polynoë vittata*, was described from Alaska by Grube (1855, p. 82). It has subsequently been delegated to the genera *Lepidonotus* (Baird, 1863, p. 107), *Halosydna* (Baird, 1865, p. 190), *Acholoë* (Marenzeller, 1902, p. 576), and *Halosydnooides* (Seidler, 1921, p. 134). It has been described as *Lepidonotus lordi* Baird (1863, p. 107), as *Halosydna succiniseta* Hamilton (1915, p. 234 [new syn.]), and more recently as *Arctonoë lia* Chamberlin (1920, p. 6B [new syn.]). Since Chamberlin's name *Arctonoë* precedes *Halosydnooides* Seidler (1924), the former is used.

There are now four known species that may be assigned to the genus *Arctonoë*. They are: *Polynoë vittata* Grube (1855, p. 82), *Lepidonotus fragilis* Baird (1863, p. 108), *Polynoë pulchra* Johnson (1897, p. 177), and *Harmothoë tuberculata* Treadwell (1906, p. 1154) (see below). The first three of these have not been reported outside of the north Pacific, and *A. pulchra* and *A. fragilis* are known only in the northeast Pacific. *A. tuberculata* is known only from the Hawaiian Islands (Treadwell, 1906).

An interesting correlation of host species may be observed. All are more or less commensal with asteroids. *A. vittata* is more commonly with fissurellids, though sometimes also on chitons and even in tube of *Thelepus* (Berkeley, 1935, p. 212). *A. pulchra* is more frequently with holothuroids.

#### KEY TO THESE SPECIES OF ARCTONOË

1. Dorsum of each segment with a conspicuous median papilla; notopodial setae absent; neuropodial setae with vestiges of pectinae (fig. 37, c)----- *tuberculata*  
 Dorsum without such papillae; notopodial setae present on at least a few anterior segments though often reduced in size and number; neuropodial setae without pectinae----- 2
2. External margins of elytra greatly ruffled or folded----- *fragilis*  
 External margins of elytra smooth or only slightly ruffled----- 3
3. Some superior neurosetae with bifid tip; dorsum usually with a dark pigment band across segments 7-8----- *vittata*  
 Superior neurosetae resembling inferior ones; dorsum without transverse band of pigment----- *pulchra*

**ARCTONOË TUBERCULATA** (Treadwell), new combination

## FIGURE 37, e, f

*Harmothoë tuberculata* TREADWELL, 1906, p. 1154 (U.S.N.M. no. 5205; Hawaii).

The type is an ovigerous adult, its total length about 15 mm, its greatest width between segments 12 and 14 about 3 mm. All elytra and dorsal cirri have been lost. Ventral cirri of the first two segments remain and are moderately developed, as typical of the genus *Arctonoë*, defined above. The ventral cirri are completely lacking (fig. 37, f). Parapodia are short, broad, thick, similar throughout. The notopodium is reduced to a fingerlike lobe, extending distally beyond the neuropodium (fig. 37, f), provided with a slender aciculum and a few (3 to 6) falcate setae, smooth along their lateral margins except for a few closely set, transverse rows of minute pectinae in the subterminal region (fig. 37, e).

The prostomium is macerated, its anterior appendages not discernible, its posterior margin partly overlapped by a peristomial nuchal hood.

Genus **HARMOTHOË** Kinberg**HARMOTHOË ACULEATA** Andrews

*Harmothoë aculeata* ANDREWS, 1891, p. 278 (U.S.N.M. no. 4876; North Carolina).

The type vial contains several specimens, 7 with anterior ends of which 3 are more or less complete. Total number of setigerous segments varies from 34 to 36. *H. aculeata* resembles the European *H. areolata* Grube; the areolations of the elytra, however, are much less marked in *H. aculeata*, and the spines of the first pair of scales are shorter than those more posteriorly. A characteristic feature is the neuropodial lobe, which is prolonged into a slender, dorsal, attenuated tip (see Andrews, 1891, fig. 3).

**HARMOTHOË VILLOSA** Treadwell

*Harmothoë villosa* TREADWELL, 1926, p. 10 (U.S.N.M. no. 19190; Samoa).

Both dorsal and ventral cirri are hirsute, as are also the prostomial antennae. Palpi are smooth. This species approaches *H. hirsuta* Johnson in the character of its prostomium and appendages, its notopodial and neuropodial setae, and the proportions of the parapodia. The elytra are ciliate along their outer, lateral margins and spiny, but there are no definite polygonal areas such as Johnson first described for *H. hirsuta* (Johnson, 1897).

Ditlevsen (1917, p. 36) assigned *Eucranta villosa* Malmgren (1865, p. 80) to the genus *Harmothoë*. This species is a *Eucranta* Malmgren.

**HARMOTHÖE TRIMACULATA (Treadwell), new combination**FIGURES 38, *a*; 39, *a*, *b**Evarellia trimaculata* TREADWELL, 1924, p. 6 (U.S.N.M. no. 20326; West Indies).

The type of this species has been deposited in the United States National Museum by the University of Iowa. It is being allocated to the genus *Harmothöe* because of the similarity of the neuropodial setae with one another and the anterior position of the eyes. Parapodia are long, extending laterally considerably beyond the scales (fig. 38, *a*). Dorsal and ventral cirri are hirsute. The neuroacicular lobe is prolonged in a papillar lobe. A typical parapodium (12th) is provided with about 12 stout, pectinated notopodial setae (fig. 39, *b*) and about 10 slightly slenderer, bifid neuropodial setae (fig. 39, *a*). The ventralmost neuropodial setae have the pectinated region more limited than those more dorsally; it is only about half as long as that of the dorsalmost setae.

*H. trimaculata* resembles *H. variegata* Treadwell (1917, p. 260) from Florida. I have not seen the type of the latter. The elytral color markings are somewhat different, the anterior eyes much smaller, and the parapodia said to be shorter, but whether these differences are real or of no significance is not certain.

**HARMOTHÖE TENEBRICOSA Moore**

*Harmothöe tenebricosa* MOORE, 1910, p. 351 (U.S.N.M. no. 16877; California).  
*Eunoë exoculata* TREADWELL, 1923, p. 4 (U.S.N.M. no. 19148; Lower California).

*Eunoë exoculata* is identical with *Harmothöe tenebricosa*. The general aspect of *E. exoculata* is darker and the setae are a deeper amber color. A paratype of *H. tenebricosa* (U.S.N.M. no. 17153) is somewhat darker than the type but not so dark as *E. exoculata*. In other respects the two types are very similar. The characteristic neuropodial lobes, setae, and prostomium readily distinguish this species (cf. figures of Moore, 1910, and Treadwell, 1923).

**HARMOTHÖE TRIANNULATA Moore**

*Harmothöe triannulata* MOORE, 1910, p. 346 (U.S.N.M. no. 17154; California).  
? *Harmothöe bonitensis* ESSENBERG, 1917, p. 48 (California).

The description of *H. bonitensis* agrees reasonably well with that of *H. triannulata*. I have seen Essenberg's type at the University of California and Moore's type at the National Museum but have not compared them side by side.

## Genus EUNOË Malmgren

EUNOË (?) CRASSA (Treadwell), new combination

## FIGURE 38, b-e

*Lagisca crassa* TREADWELL, 1924, p. 1 (U.S.N.M. no. 19101, Chile).

The type is a fragment consisting of 32 anterior segments. The last segment is provided with the fifteenth elyrophore. I could discern no bifid neuropodial setae. The dorsalmost resembled the ventralmost (figs. 38, *d*, *e*) except for the decreasing length of blade and the

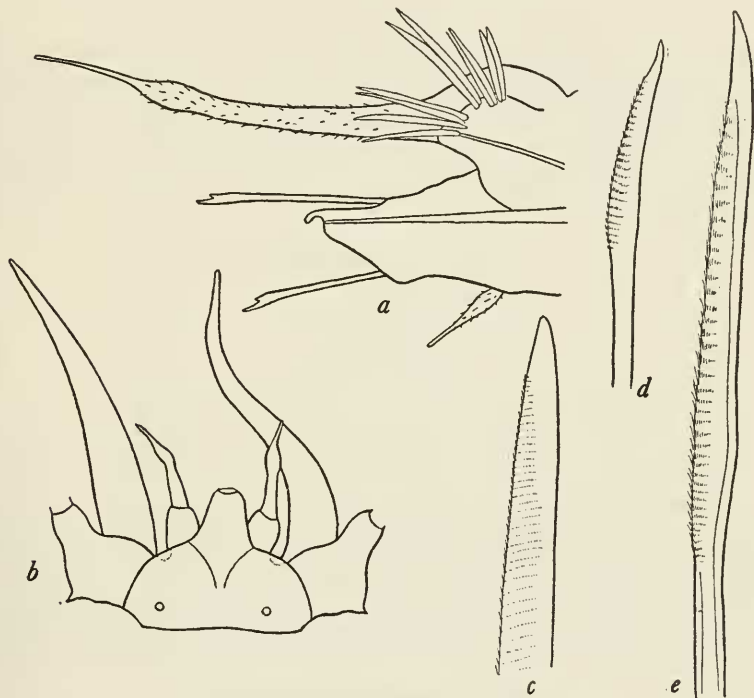


FIGURE 38.—Species of HARMOTHOË and EUNOË

*a*, *Harmothoë trimaculata* (Treadwell): Twelfth parapodium in anterior view, notopodial setae indicated, uppermost and lowermost neurosetae shown,  $\times 38$ .

*b-e*, *Eunoë crassa* (Treadwell): *b*, Prostomium and surrounding parts,  $\times 23$ ; *c*, tip of notopodial seta from a median parapodium,  $\times 75$ ; *d*, inferiormost neuropodial seta from same parapodium,  $\times 75$ ; *e*, superiormost neuropodial seta from same fascicle as *d*,  $\times 75$ .

smaller size of the ventral bristles. The few scales that remain (the left on segments 4, 5, and 7 and a pair on 29) are tough, firmly attached, suborbicular and partly overlain, laterally, by the fascicles of spinelike notopodial setae.

Anterior pair of eyes are directed forward; the base of the paired prostomial antennae is over half as long as the main portion of the style. Palpi, antennae, and cirri are smooth (fig. 38, *b*). Acicula and setae are dark amber, but the distal ends of the acicula are darker and project beyond the acicular lobes. Notopodial setae are entire distally, the transverse rows of pectinae fine, numerous, and extensive in width (fig. 38, *c*).

**EUNOË EURA** Chamberlin

FIGURE 37, *d*

*Eunoë eura* CHAMBERLIN, 1919a, p. 58 (U.S.N.M. no. 19355, Peru).

Notopodial and neuropodial setae are slender, about equally thick, with extensive pectinated region. Acicular lobes of both notopodia and neuropodia are long, digitate throughout (fig. 37, *d*). The notoaciculum emerges near the tip of the lobe, the neuroaciculum about halfway on the free length of the lobe. Ventral cirri are ciliate, dorsal cirri smooth.

**Genus ENIPO** Malmgren

**ENIPO CIRRATA** Treadwell

FIGURE 39, *d, e*

*Enipo cirrata* TREADWELL, 1925, p. 1 (U.S.N.M. no. 19139, Alaska).

Notopodial setae are reduced in number; there are few (5 to 6) in anteriormost parapodia (5 in the third foot), and they decrease gradually in number to the twelfth segment, where only an aciculum is present. Notosetae, where present, are short, stout, finely pectinated, with tip entire (fig. 39, *e*). Dorsal cirri are unusually elongate beyond the bulbous region (fig. 39, *d*). The acicular lobes of notopodia and neuropodia are produced, but the acicula do not extend beyond the fleshy lobes.

**Genus SCALISSETOSUS** McIntosh

**SCALISSETOSUS FORMOSUS** Moore

FIGURE 39, *c*

*Scalissetosus formosus* MOORE, 1903, p. 403 (U.S.N.M. no. 16165, Japan).

It is likely that *S. formosus* and *S. praelongus* Marenzeller (1902, p. 575), from south Japan, are identical. The parapodial and setal outlines are similar except that in *S. formosus* the neuroacicular lobes are somewhat spatulate distally (fig. 39, *c*) and seemingly tapering in *S. praelongus*. Ventral cirri in both are short, inserted proximally on the foot (fig. 39 *c*).

## Genus INTOSHELLA Darboux

## INTOSHELLA COECA (Moore), new combination

*Harmothoë* (*Eunoë*) *coeca* MOORE, 1910, p. 338 (U.S.N.M. no. 17476, California).

The type has two pairs of eyes faintly discernible, an anterior pair at the lateral margins where the prostomium is widest and a posterior pair near the posterior margin of the prostomium. All are pale, small, and about equal in size.

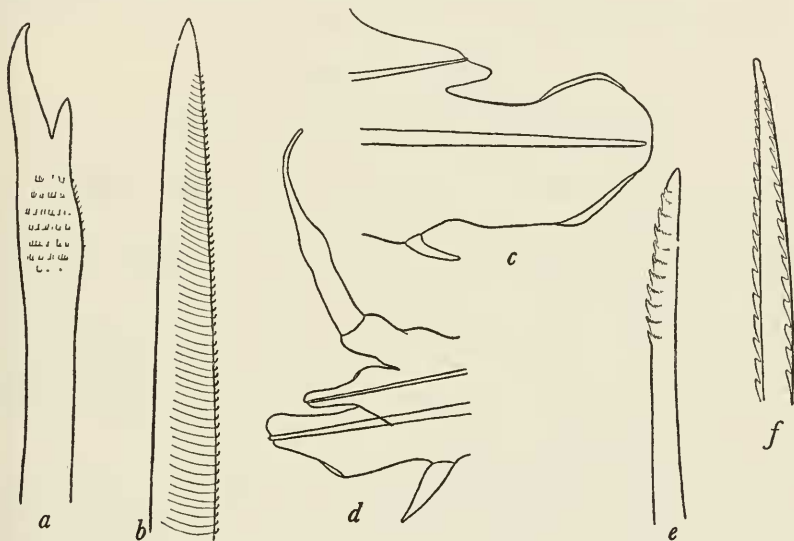


FIGURE 39.—Species of HARMOTHOË, SCALISETOSUS, ENIPO, and MACELLICEPHALA

**a, b**, *Harmothoë trimaculata* (Treadwell): **a**, Inferiormost neuropodial seta from twelfth parapodium,  $\times 245$ ; **b**, one of the stouter notopodial setae from twelfth parapodium,  $\times 245$ .

**c**, *Scalisetosus formosus* Moore: Parapodium, probably from median part of body, in anterior view,  $\times 38$ .

**d, e**, *Enipo cirrata* Treadwell: **d**, Third parapodium in posterior view,  $\times 38$ ; **e**, notopodial seta from third parapodium,  $\times 245$ .

**f**, *Macellicephalo aciculata* (Moore): Notopodial seta,  $\times 245$ .

The genus *Intoshella* has been known for only one species, *I. euplectellae* McIntosh (1885, p. 108) from the Philippine Islands. From that species *I. coeca* differs in the shape of the prostomium and in having the palpi long, tapering, about twice as long as the lateral antennae, and much thicker. *I. coeca* is about 40 mm long; *I. euplectellae* is only about half that long.

## Genus MALMGRENIA McIntosh

## MALMGRENIA NESIOTES (Chamberlin), new combination

*Polynoë nesiotes* CHAMBERLIN, 1919a, p. 72 (U.S.N.M. no. 19460, Lower California).

The type has the following characters, which agree with the genus *Malmgrenia*: Lateral antennae are inserted terminally and they are smaller than the median antenna; there are 15 pairs of scales, covering the dorsum; there are only 34 segments, but the type is in two pieces, and may be incomplete in the midregion. Chamberlin's description is as complete as is possible with the material.

## Genus MACELLICEPHALA McIntosh

## MACELLICEPHALA REMIGATA (Moore), new combination

*Polynoë (?) remigata* MOORE, 1910, p. 365 (U.S.N.M. no. 17220, California).

This species, like the one following, consists of 18 setigerous segments. The prostomium consists of a pair of subglobular lobes, the posterior margin more or less flattened, the dorsoanterior margins each with a minute, papillar, prostomial peak. Lateral antennae are probably absent. Moore (1910, p. 365) mentions the swellings just ventral to the prostomial peaks and says that they "probably represent the bases of the lateral tentacles." They seem, more likely, however, to be fleshy swellings which never had attached antennae.

Neuropodial setae are serrated along one margin only, as in *M. mirabilis* McIntosh. It is likely that *M. remigata* and *M. mirabilis* are identical. The latter has been widely reported (New Zealand, north Atlantic, south Pacific, Hawaiian Islands, etc.). *M. remigata* was dredged off Santa Catalina Island.

## MACELLICEPHALA (?) ACICULATA (Moore), new combination

## FIGURE 39, f

*Polynoë (?) aciculata* MOORE, 1910, p. 367 (U.S.N.M. no. 17405, California).

The single type specimen is considerably macerated. It consists of 18 setigerous segments; the prostomium is strongly bilobed, with a pronounced median fissure. Eyes are lacking, and no trace of lateral antennae can be made out. The notopodium is greatly reduced and the few small dorsal setae are smooth. Neuropodial setae are long, flattened, transparent, and serrated along two sides (fig. 39, f).



Genus *ADMETELLA* McIntosh*ADMETELLA RENOTUBULATA* (Moore), new combination

*Polynoë* (?) *renotubulata* MOORE, 1910, p. 368 (U.S.N.M. no. 16878, California).

Moore has already indicated the relation of this species with those of the genus *Admetella*. The type is notably smaller than those of two other species in the collections of the Museum, *A. dolichopus* and *A. hastigerens* Chamberlin. Also, it has only 35 segments and 14 pairs of scales as against the 60–75 segments and 23–30 pairs of scales usually present. Moore's type may possibly represent an immature specimen.

## Genus Indeterminable

*Polynoë* (?) *filamentosa* Moore (1910, p. 366, U.S.N.M. no. 17221), from California, is unique in its parapodial structures. The notopodium is well developed; notopodial setae are pale amber, heavier than the neuropodials and some quite as long. Neuropodial setae are flat, thin, transparent, somewhat resembling those in *Macellicephalo*. The prostomium is more than twice as broad as long, and apparently without eyes. The median ceratophore is stout, produced between the prostomial lobes and extends distally to the ends of the tiny papillalike prostomial peaks. The single type is fragmentary and does not permit a complete description.

*Polynoë innatans* Chamberlin (1919a, p. 70, U.S.N.M. no. 19459), from near the Galapagos Islands, is perhaps a species of *Eucranta* Malmgren. It is tiny, only 9.5 mm long, translucent, and without indication of sexual products; thus it may be an immature pelagic stage. The type resembles *Eucranta* as defined by Monro (1936, p. 100) in that (1) the notopodial setae are stouter than the neuropodials, (2) the neurosetae are of two kinds, both bidentate distally, and (3) the superior neuropodial setae are long, slender, pectinated, the inferior are stouter, shorter. The prostomium is harmothoid. There are only 26 setigerous segments and 11 (or possibly 12) elytophores.

## Family POLYODONTIDAE

Genus *EUPANTHALIS* McIntosh*EUPANTHALIS MUTILATA* (Treadwell), new combination

## FIGURES 40, a–f

*Polynoë mutilata* TREADWELL, 1906, p. 1152 (U.S.N.M. no. 5204, Hawaiian Islands).  
? *Eupanthalis oahuensis* TREADWELL, 1906, p. 1155 (Hawaiian Islands).

I have not seen the type of *Eupanthalis oahuensis*. There is no record of the deposition of this type in the National collections.

The following description is based on the type of *P. mutilata*. The specimen consists of head and 78 segments, in two pieces. The head

is macerated; the posterior end is lacking. Setae are of four kinds as characteristic of the genus *Eupanthalis*, a typical parapodium has 5 to 12 geniculate pointed setae (fig. 40, *a*) in the ventralmost part of the fascicle, about 10 spinelike aristate setae (fig. 40, *d*), 1 or 2 penicillate setae (fig. 40, *c*), and a few fine capillary setae (fig. 40, *b*) in the superiormost part of a fascicle. The notopodium has a slender aciculum.

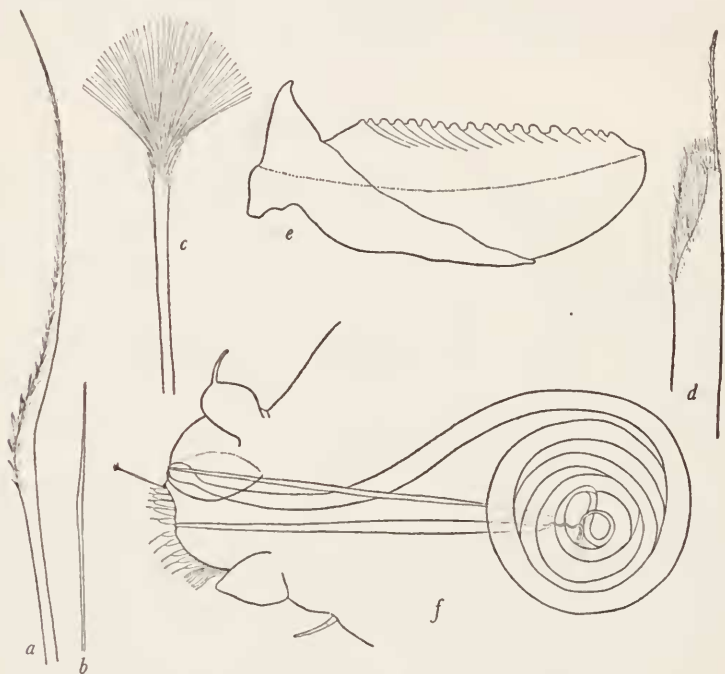


FIGURE 40.—*EUPANTHALIS MUTILATA* (Treadwell)

*a*, Inferior pointed neuroseta,  $\times 294$ ; *b*, superiormost seta,  $\times 294$ ; *c*, bushy-topped seta,  $\times 294$ ; *d*, tip of acicular, bayonet seta,  $\times 294$ ; *e*, lower right jaw piece from inner side,  $\times 50$ ; *f*, tenth parapodium with parapodial cord turned to the side, setae diagrammatically indicated,  $\times 45$ .

The parapodial cord is a long, brown, stiff structure, terminating at its proximal end in a coil of four or five turns within the body wall (fig. 40, *f*). The four jaws are similar, the lower pieces each with about 18 low, lateral teeth in addition to the main fang (fig. 40, *e*). Elytra are pale, translucent, smooth. They are orbicular along their anterior and median sides, but along their posterolateral margin they are turned up so as to form a pouch, open dorsally.

*Polynoë mutilata* was taken from the same station, at the same time, as was *Eupanthalis oahuensis*. The two appear to be identical. The former name is being retained because its type is extant.

**EUPANTHALIS MACULOSA** (Treadwell), new combination

*Macellicephalo maculosa* TREADWELL, 1931, p. 313 (U.S.N.M. no. 19543, Philippine Islands).

The type is a fragment of 64 segments; a posterior piece is lacking. Its setal, prostomial, and parapodial structures align it with the Polyodontidae. The body is long, vermiform. Eyes are sessile; lateral antennae are inserted terminally, and the median antenna is near the posterior margin of the prostomium. Parapodia are provided with glandular fibers. In these respects it agrees with *Eupanthalis*.

**Genus POLYODONTES** Renier**POLYODONTES OCULEA** (Treadwell)

*Panthalis oculca* TREADWELL, 1902, p. 188 (U.S.N.M. no. 15961, West Indies).  
*Polyodontes oculca* MONRO, 1928, p. 572.

This species has been redescribed and assigned to this genus by Monro. Treadwell's illustration of the length of lateral prostomial antennae is practically as in the specimen; hence these appendages are notably longer than those in Monro's specimens. The absence of penicillate setae and the presence of a prostomial caruncle are characteristic of the type.

**Genus EUPOLYODONTES** Buchanan**EUPOLYODONTES ELONGATA** (Treadwell), new combinationFIGURE 41, *a-d*

*Iphionella elongata*, TREADWELL, 1931, p. 315 (U.S.N.M. no. 19544, Philippine Islands).

The prostomium consists of two rounded lobes separated by a median depression. Each half has a large anterior eye directed anteriorly and a smaller dorsolateral eye on the posterior half of the lobe (fig. 41, *a*). Paired antennae are inserted terminally; they are long, slender, with a slight subterminal enlargement (fig. 41, *a*). No nuchal tentacle or papilla has been distinguished. First segment (peristomial) is apparently without setae.

Elytra are broadly orbicular, with a shallow indentation near the anteroectal margin; the margin is entire but slightly ruffled along the median or also the outer edges; the point of insertion is far to the side (fig. 41, *b*). Elytrophores are present as follows: On 2 (first setigerous segment), 4, 5, 7, 9, . . . and on all alternate segments at least to 43.

The lateral extensions of the jaw pieces have teeth as follows: 4 above and 5 below on the right side, and 5 above and 4 below on the left side. Setae are of 3 kinds (description based on a 10th parapodium); A superior fan-shaped fascicle of 30-35 long, pointed serrulated setae and a similar fascicle in the inferior part of the neuropodium, (2) an anterior fan-shaped fascicle of finer, shorter bristled capillaries (fig. 41, *d*) in front of the serrulated setae, and (3) about 8 stout, aristate spines (fig. 41, *c*) in a posterior series. No plumose setae have been observed.

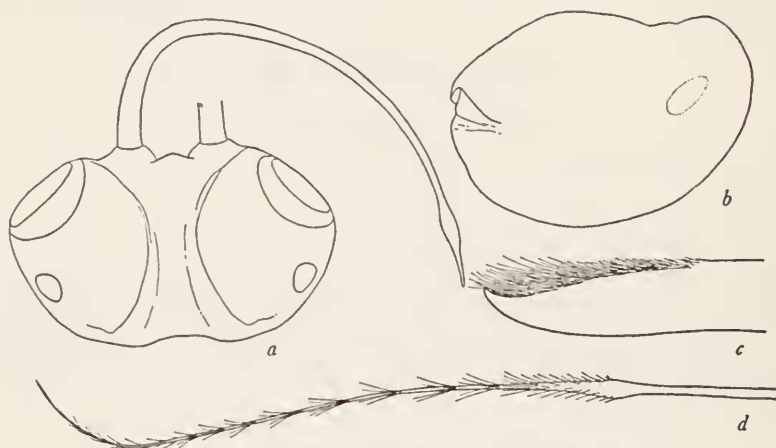


FIGURE 41.—EUPOLYODONTES ELONGATA (Treadwell)

*a*, Prostomium in dorsal view with left lateral antenna turned unnaturally to right,  $\times 45$ ;  
*b*, eleventh right elytron in dorsal view, elytral scar indicated in dotted outline,  $\times 28$ ;  
*c*, tip of stout aristate seta from tenth parapodium, the distal style probably lost,  
 $\times 294$ ; *d*, tip of slender capillary seta in anterior fascicle from tenth parapodium,  
 $\times 294$ .

### Genus PANTHALIS Kinberg

#### PANTHALIS ADUMBRATA Hoagland

*Panthalis adumbrata* HOAGLAND, 1920, p. 606 (U.S.N.M. no. 18944, Philippine Islands).

*Panthalis helleri* HOLLY, 1934, p. 148 (Philippine Islands).

The description of *P. helleri* compares favorably with that of *P. adumbrata*. Holly has given good illustrations of the characteristic elytra as well as the setae.

#### PANTHALIS PANAMENSIS Chamberlin

*Panthalis panamensis* CHAMBERLIN, 1919, p. 86 (U.S.N.M. no. 19431, Panama).

This species resembles *P. adumbrata* in having stalked ommatophores. It is smaller, however, probably less than 50 mm long; the elytra lack the black edges, and the prostomium is widest in the

posterior half instead of having its sides almost parallel as in *P. adumbrata*. The jaw pieces of *P. panamensis* have 5 erect lateral teeth, those of *P. adumbrata* have 7 blunt teeth.

**PANTHALIS EVANIDA (Treadwell), new combination**

*Eupanthalis evanida* TREADWELL, 1926, p. 186 (U.S.N.M. no. 19208, Philippine Islands).

This species has globular ommatophores as characteristic of the genus *Panthalis*. Parapodial glands are present from the eighth setigerous segment as in *P. oerstedii* Kinberg. The two may be identical.

**Family APHRODITIDAE**

**Genus HERMIONE Blainville**

**HERMIONE TROPICUS (Treadwell), new combination**

*Melaenis tropicus* TREADWELL, 1934, p. 1 (U.S.N.M. no. 20031, Virgin Islands).

This was originally described as a polynoid, but the type has the characteristic features of the genus *Hermione*, of the family Aphroditidae. It is colorless except for the pale amber, stout spines. There are 15 pairs of soft, imbricated scales; ventral setae are distally falcate, laterally with a few stout teeth; notopodial setae include some barbed, arrow-headed. The prostomium has a single median antenna and a pair of anterior peduncled eyes. These are indicated in the original figure as the bases of a pair of lateral tentacles.

LIST OF TYPES OF POLYNOIDAE AND POLYODONTIDAE IN THE  
UNITED STATES NATIONAL MUSEUM, WITH CHANGES OF NAME  
AND NEW COMBINATIONS

(Bibliographic source, Museum catalogue number, and type locality are given for ready reference. Synonyms are enclosed in brackets. Species discussed in the first part of this paper are followed by an asterisk.)

- Admetella dolichopus* CHAMBERLIN (1919a, p. 67, pl. 10, fig. 1; U.S.N.M. no. 19325; western Mexico).
- Admetella hastigerens* Chamberlin (1919a, p. 64, pl. 9, figs. 6-8; U.S.N.M. no. 19326; Central America).
- Admetella renotubulata*, new combination, for *Polynoë renotubulata* Moore.\*
- Antinoë anoculata* MOORE (1910, p. 358, pl. 30, figs. 34-40; U.S.N.M. no. 16882; California).
- Antinoë macrolepidia* MOORE (1905, p. 538, pl. 35, figs. 21-23; U.S.N.M. no. 5509; Alaska).
- Arctonoë tuberculata*, new combination, for *Harmothoë tuberculata* Treadwell.\*
- Enipo cirrata* TREADWELL (1925, p. 1, figs. 1-4; U.S.N.M. no. 19139; Alaska).\*
- Enipo gracilis* VERRILL (1874, p. 407, pl. 5, fig. 3; Maine).
- Eunoë* (?) *crassa*, new combination, for *Lagisca crassa* Treadwell.\*
- Eunoë depressa* MOORE (1905, p. 536, pl. 34, figs. 17, 18; pl. 35, figs. 19, 20; U.S.N.M. no. 5590; Alaska).
- Eunoë cura* CHAMBERLIN (1919a, p. 58, pl. 3, figs. 2-6; U.S.N.M. no. 19355; Peru).\*
- [*Eunoë exoculata* TREADWELL] (1923, p. 4, figs. 1-4; U.S.N.M. no. 19148; Lower California). See *Harmothoë tenebricosa*.\*
- Eunoë spinulosa* VERRILL (1879, p. 169; U.S.N.M. no. 7758; Nova Scotia).
- [*Eupanthalis cranida* TREADWELL] (1926, p. 186, figs. 6-12; U.S.N.M. no. 19208). See *Panthalis cranida*.\*
- Eupanthalis mutilata*, new combination, for *Polynoë mutilata* Treadwell.\*
- Euphione chitoniformis* (MOORE); includes *Lepidonotus chitoniformis* and possibly *L. branchiferus* Moore.\*
- Eupolyodontes elongata*, new combination, for *Iphionella elongata* Treadwell.\*
- [*Evannella trimaculata* TREADWELL] (1924, p. 6, figs. 1-3; U.S.N.M. no. 20326; Barbados). See *Harmothoë trimaculata*.\*
- Gattiana scuta* MOORE (1902, p. 259, pl. 13, figs. 1-13; U.S.N.M. no. 5598; Alaska).
- [*Halosydna fusca-maculata* TREADWELL] (1924, p. 5, figs. 5-9; U.S.N.M. no. 20330; Barbados). See *Halosydnella fusca-maculata*.\*
- [*Halosydna fuscomarginata* TREADWELL] (1924, in explanation of figures). See *Halosydnella fusca-maculata*.\*
- [*Halosydna grisea* TREADWELL] (1929, p. 1, figs. 1-6; U.S.N.M. no. 19279; Argentina). See *Halosydnella grisea*.\*
- Halosydna nebulosa* GRUBE (1877, p. 49; China); includes *Halosydna vcrillarius* Moore (see Seidler, 1924, p. 110).
- [*Halosydna vcrillarius* MOORE] (1903, p. 415, pl. 23, figs. 13-15; U.S.N.M. no. 15730; Japan). See *Halosydna nebulosa*.
- Halosydnella fusca-marginata*, new combination, for *Halosydna fusca-marginata* Treadwell.\*

- Halosydnella grisca*, new combination, for *Halosydna grisca* Treadwell.\*  
*Halosydnella oculata*, new combination, for *Halosydna oculata* Treadwell.\*  
*Harmopsides natans* CHAMBERLIN (1919a, p. 48, pl. 6, figs. 1-5; U.S.N.M. no. 19720; Peru).  
*Harmothoë aculeata* ANDREWS (1891, p. 278, pl. 12, figs. 1-5; U.S.N.M. no. 4876; North Carolina).  
[*Harmothoë (Eunoë) coeca* MOORE] (1910, p. 338, pl. 28, figs. 7-12; U.S.N.M. no. 17476; California). See *Intoshella coeca*.  
*Harmothoë (Evarne) fragilis* MOORE (1910, p. 353, pl. 29, figs. 29, 30; pl. 30, figs. 31-33; U.S.N.M. no. 17147; California).  
[*Harmothoë levis* TREADWELL] (1937a, p. 26, figs. 1-5; U.S.N.M. no. 20222; Greenland). See *Harmothoë imbricata*.  
*Harmothoë mexicana* CHAMBERLIN (1919a, p. 54, pl. 1, figs. 1-9; pl. 2, fig. 1; U.S.N.M. no. 19370; western Mexico).  
*Harmothoë scriptoria* MOORE (1910, p. 344, pl. 28, figs. 13-17; U.S.N.M. no. 17156; California).  
*Harmothoë tenebricosa* MOORE (1910, p. 351, pl. 29, figs. 23-28; U.S.N.M. no. 16877; California).  
*Harmothoë triannulata* MOORE (1910, p. 346, pl. 29, figs. 18-22; U.S.N.M. no. 17154; California).  
*Harmothoë trimaculata*, new combination, for *Evarnella trimaculata* Treadwell.\*  
[*Harmothoë tuberculata* TREADWELL] (1906, p. 1154; U.S.N.M. no. 5205; Hawaiian Islands). See *Arctonoë tuberculata*.  
*Harmothoë villosa* TREADWELL (1926, p. 10, pl. 2, figs. 14-18; U.S.N.M. no. 19190; Samoa).  
*Hololepida magna* MOORE (1905, p. 541, pl. 35, figs. 24-29; U.S.N.M. no. 5521; Alaska).  
[*Hylosynda carinata* MOORE] (1903, p. 417; pl. 23, figs. 16, 17; U.S.N.M. no. 15732; Japan). See *Hyperhalosydna striata*.  
*Hyperhalosydna striata* (KINBERG) (1855, p. 384; Australia); includes *Hylosynda carinata* Moore.\*  
*Intoshella coeca*, new combination, for *Harmothoë (Eunoë) coeca* Moore.\*  
*Iphione fustis* HOAGLAND (1920, p. 605, pl. 46, figs. 4-8; U.S.N.M. no. 18941; Philippine Islands).  
[*Iphonella clongata* TREADWELL] (1931, p. 315, fig. 2; U.S.N.M. no. 19544; Philippine Islands). See *Eupolyodontes clongata*.  
[*Lagisca crassa* TREADWELL] (1924, p. 1, figs. 1-4; U.S.N.M. no. 19101; Chile). See *Eunoë crassa*.  
*Lagisca impatiens* WEBSTER (1879b, p. 102, pl. 1, figs. 1-7; U.S.N.M. no. 500; New Jersey).  
*Lagisca irritans* MARENZELLER (1904, p. 92, pl. 1; U.S.N.M. no. 5231; mid-Pacific).  
*Lagisca lamellifera* (MARENZELLER) (1879, p. 115, pl. 1, fig. 5; Japan); includes *Lagisca multisetosa papillata* Moore (see Moore, 1910, p. 341).  
[*Lagisca multisetosa papillata* MOORE] (1908, p. 335; U.S.N.M. no. 5642; Alaska). See *Lagisca lamellifera*.  
*Lepidametria commensalis* WEBSTER (1879a, p. 210, pl. 3, figs. 23-31; U.S.N.M. no. 521; Virginia).  
*Lepidasthenia alba*, new combination, for *Polynoë alba* Treadwell.\*  
*Lepidasthenia curta* CHAMBERLIN (1919a, p. 61, pl. 5, figs. 4-9; U.S.N.M. no. 19399; western Mexico).  
*Lepidasthenia interrupta* (MARENZELLER) (1902, p. 570, pl. 1, fig. 2; Japan); includes *Polynoë semierma* Moore and *Lepidasthenia ocellata* Treadwell.\*  
*Lepidasthenia lucida*, new combination, for *Polynoë lucida* Treadwell.\*

- [*Lepidasthenia ocellata* TREADWELL] (1936, p. 264, fig. 18; U.S.N.M. no. 20113; China). See *L. interrupta*.\*
- [*Lepidonotus branchiferus* MOORE] (1903, p. 409, pl. 23, figs. 7-9; U.S.N.M. no. 15721; Japan). See *Euphione chitoniformis*.\*
- Lepidonotus caelorus* MOORE (1903, p. 412, pl. 23, fig. 13; U.S.N.M. no. 15733; Japan); includes *Polynoë spicula*, *Lepidonotus minutus*, and possibly *L. castricensis* Seidler.\*
- [*Lepidonotus chitoniformis* MOORE] (1903, p. 405, pl. 23, figs. 10, 11; U.S.N.M. no. 15646; Japan). See *Euphione chitoniformis*.\*
- Lepidonotus helotypus* GRUBE (1877, p. 49; China); includes *L. robustus* MOORE.\*
- [*Lepidonotus minutus* TREADWELL] (1936, p. 262, fig. 18; U.S.N.M. no. 20112; China). See *L. caelorus*.\*
- Lepidonotus nesophilus* CHAMBERLIN (1919a, p. 75, pl. 4, figs. 1-7; pl. 5, fig. 13; U.S.N.M. no. 19400; Galapagos Island).
- [*Lepidonotus robustus* MOORE] (1905, p. 544, pl. 36, figs. 32-35; U.S.N.M. no. 5523; Alaska). See *L. helotypus*.\*
- Lepidonotus variabilis* WEBSTER (1879, p. 205; pl. 1, figs. 6-11; pl. 2, figs. 12-14; U.S.N.M. no. 431; Virginia).
- Macellicephala* (?) *aciculata*, new combination, for *Polynoë aciculata* MOORE.\*
- [*Macellicephala maculosa* TREADWELL] (1931, p. 313, fig. 1; U.S.N.M. 19543; Philippine Islands). See *Eupanthalis maculosa*.\*
- Macellicephala remigata*, new combination, for *Polynoë remigata* MOORE.\*
- Malmgrenia nesiotcs*, new combination, for *Polynoë nesiotcs* Chamberlin.\*
- [*Melaenis tropicus* TREADWELL] (1934, p. 1, pl. 1, figs. 1-6; U.S.N.M. no. 20031; Virgin Islands). See *Hermione tropicus*.\*
- Nemidia microlepidia* MOORE (1910, p. 362, pl. 30, figs. 42-44, pl. 31, figs. 45, 46; U.S.N.M. no. 17113; California).
- Panthalis adumbrata* HOAGLAND (1920, p. 606, pl. 46, figs. 9-14; U.S.N.M. no. 18944; Philippine Islands).\*
- Panthalis cranida*, new combination, for *Eupanthalis cranida* Treadwell.\*
- [*Panthalis oculca* TREADWELL] (1902, p. 188, figs. 14-18; U.S.N.M. no. 15961; Porto Rico). See *Polyodontes oculca*.\*
- Panthalis panamensis* CHAMBERLIN (1919a, p. 86, pl. 11, figs. 4-8; U.S.N.M. no. 19431; Panama).\*
- Plotolepis nans* CHAMBERLIN (1919a, p. 40, pl. 7, figs. 3, 4; U.S.N.M. no. 19453; Easter Islands).
- Podarmus ploa* CHAMBERLIN (1919a, p. 45, pl. 6, fig. 6, pl. 7, figs. 1, 2; U.S.N.M. no. 19458; Easter Island).
- [*Polynoë aciculata* MOORE] (1910, p. 367, pl. 31, figs. 57, 58; U.S.N.M. no. 17405; California). See *Macellicephala* (?) *aciculata*.\*
- [*Polynoë alba* TREADWELL] (1906, p. 1149, figs. 4-6; U.S.N.M. no. 5201; Hawaiian Islands). See *Lepidasthenia alba*.\*
- [*Polynoë branchiata* TREADWELL] (1902, p. 186, figs. 5-7; U.S.N.M. 16006; Porto Rico) is identical with *Chaetacanthus magnificus* (Grube) (see Seidler, 1924, p. 97).
- Polynoë* (?) *filamentosa* MOORE (1910, p. 366, pl. 31, figs. 52-56; U.S.N.M. no. 17221; California).\*
- Polynoë* (?) *innatans* CHAMBERLIN (1919a, p. 70, pl. 8, figs. 1-7; U.S.N.M. no. 19459; near the Galapagos Islands).\*
- [*Polynoë lucida* TREADWELL] (1906, p. 1150, figs. 8-10; U.S.N.M. no. 5202; Hawaiian Islands). See *Lepidasthenia lucida*.\*
- [*Polynoë mutilata* TREADWELL] (1906, p. 1152, figs. 12-15; U.S.N.M. no. 5204; Hawaiian Islands). See *Eupanthalis mutilata*.\*



- [*Polynoë nesiotēs* CHAMBERLIN] (1919a, p. 72, pl. 8, fig. 8, pl. 9, figs. 1-5; U.S.N.M. no. 19460; Lower California). See *Malmgrenia nesiotēs*.\*
- [*Polynoë nodosa* TREADWELL] (1902, p. 187, figs. 8, 9; U.S.N.M. no. 16014; Porto Rico) is identical with *Hermenia verruculosa* (Grube) (see Augener, 1925, p. 4, for synonymy).
- [*Polynoë remigata* MOORE] (1910, p. 365, pl. 31, figs. 47-51; U.S.N.M. no. 17220; California). See *Mucellicephalā remigata*.\*
- [*Polynoë renotubulata* MOORE] (1910, p. 368, pl. 31, figs. 59-64; U.S.N.M. no. 16878; California). See *Admetella renotubulata*.\*
- [*Polynoë semierma* MOORE] (1903, p. 402; pl. 23, figs. 2, 3; U.S.N.M. no. 15738; Japan). See *Lepidasthenia interrupta*.\*
- [*Polynoë spicula* TREADWELL] (1906, p. 1151, fig. 11; U.S.N.M. no. 5203; California). See *Lepidonotus caclorus*.\*
- Scalisetosus formosus* MOORE (1903, p. 403, pl. 23, figs. 4-6; U.S.N.M. no. 16165; Japan).\*

## LITERATURE CITED

## ANDREWS, ETHAN ALLEN.

1891. Report upon the Annelida Polychaeta of Beaufort, North Carolina. Proc. U. S. Nat. Mus., vol. 14, pp. 277-302, 7 pls.

## AUGENER, HERMANN.

1922. Revision der Australischen Polychaeten-Typen von Kinberg. Arkiv Zool. Stockholm, vol. 14, pp. 1-42.
1925. Über westindische und einige andere Polychaeten-Typen von Grube (Oersted) Krøyer, Mörch und Schmarda. Publ. Univ. Zool. Mus. Kjøbenhavn, no. 39, 47 pp., 3 figs.
1927. Polychaeten von Südost- und Süd-Australien (Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16, no. 38). Vid. Medd. Dansk Nat. Foren. Kjøbenhavn, vol. 83, pp. 71-275, 17 figs.

## BAIRD, WILLIAM.

1863. Descriptions of several new species of worms belonging to the Annelida Errantia and Sedentaria or Tubicola of Milne-Edwards. Proc. Zool. Soc. London, 1863, pp. 106-110.
1865. Contributions towards a monograph of the species of Annelides belonging to the Aphroditacea, containing a list of the known species, and a description of some new species contained in the national collection of the British Museum. Journ. Linn. Soc. London, vol. 8, pp. 172-202.

## BERKELEY, EDITH.

1923. Polychaetous annelids from the Nanaimo district. Pt. 1. Syllidae to Sigalionidae. Contr. Can. Biol., new ser., vol. 1, pp. 203-218, 1 pl.

## BERKELEY, E. and C.

1935. Some notes on the polychaetous annelids of Elkhorn Slough, Monterey Bay, California. Amer. Midl. Nat., vol. 16, pp. 766-775.

## CHAMBERLIN, RALPH VARY.

- 1919a. The Annelida Polychaeta. Mem. Mus. Comp. Zool., vol. 48, 514 pp., 80 pls.
- 1919b. New polychaetous annelids from Laguna Beach, California. Journ. Ent. and Zool., Pomona College, vol. 11, pp. 1-23.
1920. The polychaetes collected by the Canadian Arctic Expedition, 1913-18. Rep. Can. Arctic Exped., vol. 9, pt. B, 41 pp., 6 pls.

## DITLEVSEN, HJALMAR.

1917. Annelids, I. The Danish *Ingolf*-Expedition, vol. 4, pt. 4, pp. 1-71, 24 figs., 6 pls.

## ESSENBERG, CHRISTINE.

1917. Description of some new species of Polynoidae from the coast of California. Univ. California Publ. Zool., vol. 18, pp. 45-60, 2 pls.

## FAUVEL, PIERRE.

1923. Polychètes errantes. Faune de France, vol. 5, 488 pp., 181 figs.

## GRUBE, ADOLPH EDUARD.

1855. Beschreibungen neuer oder wenig bekannter Anneliden. Arch. Naturg., Jahrg. 21, Band 1, pp. 81-136, 3 pls.
1857. Annulata Örstediana. Vid. Medd. Dansk Nat. Foren. Kjøbenhavn, 1856, pp. 44-62.
1876. Bemerkungen über die Familie der Aphroditeen (Gruppe Polynoina, Acoëtea, Polylepidea). 53ter Jahresber. Schles. Ges. für vaterl. Cultur (1875), pp. 46-72.
1877. Über eine Sammlung von wirbellosen Seethieren, welche Herr Dr. Eugen Reimann dem hiesigen zoologischen Museum zum Geschenk gemacht. 54ter Jahresber. Schles. Ges. für vaterl. Cultur (1876), pp. 48-51.

## HAMILTON, WILLIAM FERGUSON.

1915. On two new polynoids from Laguna. Journ. Ent. and Zool., Pomona College, vol. 7, pp. 234-240, 2 pls.

## HOAGLAND, RUTH AGNES.

1920. Polychaetous annelids collected by the United States Fisheries steamer *Albatross* during the Philippine Expedition of 1907-1909. U. S. Nat. Mus. Bull. 100, vol. 1, pp. 603-634, 7 pls.

## HOLLY, MAXIMILIAN.

1934. Polychäten von den Philippinen, I. Erste Mitteilung über Polychäten. Zool. Anz., vol. 105, pp. 147-150, 2 figs.

## HORST, RUTGER.

1922. On some polychaetous annelids from Curaçao. Bijdr. Dierk. Amsterdam, vol. 22, pp. 193-201, 2 figs.

## JOHNSON, HERBERT PARLIN.

1897. A preliminary account of the marine annelids of the Pacific coast, with descriptions of new species. Pt. 1: The Euprosynidae, Amphinomidae, Palmyridae, Polynoidae, and Sigalionidae. Proc. California Acad. Sci., ser. 3, Zool., vol. 1, pp. 153-198, 6 pls.

## KINBERG, JOHAN GUSTAF HJALMAR.

1855. Nya slägen och arter af Annelider. Öfv. Vet.-Akad. Förh., vol. 12, pp. 381-388.

## MALMGREN, ANDERS JOHAN.

1865. Nordiska Hafs-Annulater. Öfv. Vet.-Akad. Förh., vol. 22, pp. 51-110, 8 pls.

## MARENZELLER, EMIL VON.

1879. Südjapanische Anneliden, I. Denkschr. Akad. Wiss. Wien, vol. 41, pt. 2, pp. 109-154, 6 pls.
1902. Südjapanische Anneliden, III: Aphroditea, Eunicea. Denkschr. Akad. Wiss. Wien, vol. 72, pp. 563-582, 3 pls.
1904. *Lagisca irritans*, sp. nov., ein Symbiont von Hydrokorallen. Bull. Mus. Comp. Zool., vol. 43, pp. 91-94, 1 pl.

## McINTOSH, WILLIAM CARMICHAEL.

1885. Report on the Annelida Polychaeta collected by H. M. S. *Challenger* during the years 1873-76. *Challenger Reports*, Zool., vol. 12, xxxvi+554 pp., 94 pls.

## MONRO, CHARLES CARMICHAEL ARTHUR.

1928. Polychaeta of the families Polynoidae and Acoetidae from the vicinity of the Panama Canal, collected by Dr. C. Crossland and Dr. Th. Mortensen. *Journ. Linn. Soc. London*, vol. 36, pp. 553-576, 30 figs.

1936. Polychaete worms, II. *Discovery Reports*, vol. 12, pp. 59-198, 34 figs.

## MOORE, JOHN PERCY.

1902. Descriptions of some new Polynoidae, with a list of other Polychaeta from north Greenland waters. *Proc. Acad. Nat. Sci. Philadelphia*, vol. 54, pp. 258-283, 2 pls.

1903. Polychaeta from the coastal slope of Japan and from Kamchatka and Bering Sea. *Proc. Acad. Nat. Sci. Philadelphia*, vol. 55, pp. 401-490, 5 pls.

1905. New species of Polychaeta from the North Pacific, chiefly from Alaskan waters. *Proc. Acad. Nat. Sci. Philadelphia*, vol. 57, pp. 525-554, 3 pls.

1908. Some polychaetous annelids of the northern Pacific coast of North America. *Proc. Acad. Nat. Sci. Philadelphia*, vol. 60, pp. 321-364, 4 figs.

1910. The polychaetous annelids dredged by the U. S. S. *Albatross* off the coast of southern California in 1904: 2, Polynoidae, Aphroditidae and Sigaleonidae. *Proc. Acad. Nat. Sci. Philadelphia*, vol. 62, pp. 328-402, 6 pls.

## SEIDLER, HANS J.

1922. Beiträge zur Kenntnis der Polynoiden, I. *Zool. Anz.*, vol. 55, pp. 74-80.

1924. Beiträge zur Kenntnis der Polynoiden, I. *Arch. Naturg.*, vol. 89. (Abt. A, Heft 11), pp. 1-217, 2 pls. (maps), 22 figs.

## SCHMARDA, LUDWIG KARL.

1861. Neue wirbellose Thiere beobachtet und gesammelt auf einer Reise um die Erde 1853-57, vol. 1: Turbellarien, Rotatorien und Anneliden, pt. 2.

## TREADWELL, LOUIS AARON.

1902. The polychaetous annelids of Porto Rico. *Bull. U. S. Fish Comm.*, vol. 20 (for 1900), pt. 2, pp. 181-210, 81 figs.

1906. Polychaetous annelids of the Hawaiian Islands collected by the steamer *Albatross* in 1902. *Bull. U. S. Fish Comm.*, vol. 23 (for 1903), pt. 3, pp. 1145-1181, 81 figs.

1917. Polychaetous annelids from Florida, Porto Rico, Bermuda, and the Bahamas. *Carnegie Inst. Washington Publ.* 251 (Pap. Dept. Marine Biol., vol. 11), pp. 255-272, 3 pls.

1923. Polychaetous annelids from Lower California with descriptions of new species. *Amer. Mus. Nov.*, no. 74, pp. 1-11, 8 figs.

1924. Polychaetous annelids collected by the Barbados-Antigua Expedition from the University of Iowa in 1918. *Univ. Iowa Studies in Nat. Hist.*, vol. 10, no. 4, 23 pp., 2 pls.

1925. A list of the annelids collected by Captain R. A. Bartlett in Alaska, 1924, with a description of a new species. *Proc. U. S. Nat. Mus.*, vol. 67, art. 29, 3 pp., 4 figs.

1926. Polychaetous annelids from Fiji, Samoa, China, and Japan. *Proc. U. S. Nat. Mus.*, vol. 69, art. 15, 26 pp., 2 pls.

## TREADWELL, LOUIS AARON—Continued.

1928. Polychaetous annelids from the *Arcturus* Oceanographic Expedition. *Zoologica*, vol. 8, pp. 449-485, 69 figs.
1929. Two new species of polychaetous annelids from the Argentine coast. *Proc. U. S. Nat. Mus.*, vol. 75, art. 26, 5 pp., 12 figs.
1931. Four new species of polychaetous annelids collected by the United States Fisheries steamer *Albatross* during the Philippine Expedition of 1907-1910. *U. S. Nat. Mus. Bull.* 100, vol. 6, pt. 5, pp. 313-321, 4 figs.
1934. New polychaetous annelids. *Smithsonian Misc. Coll.*, vol. 91, no. 8, 9 pp., 2 pls.
1936. Polychaetous annelids from Amoy, China. *Proc. U. S. Nat. Mus.*, vol. 83, pp. 261-279, 3 figs.
- 1937a. Polychaetous annelids collected by Captain Robert A. Bartlett in Greenland, Fox Basin, and Labrador. *Journ. Washington Acad. Sci.*, vol. 27, pp. 23-36, 16 figs.
- 1937b. Polychaetous annelids from the west coast of Lower California, the Gulf of California and Clarion Island. *Zoologica*, vol. 22, pp. 139-160, 2 pls.

## VERRILL, ADDISON EMORY.

1874. Results of recent dredging expeditions on the coast of New England. Nos. 6 and 7. *Amer. Journ. Sci.*, ser. 3, vol. 7, pp. 405-414, 498-506, 3 figs., 5 pls.
1879. Notice of recent additions to the marine Invertebrata, of the north-eastern coast of America, with descriptions of new genera and species and critical remarks on others, pt. I. *Proc. U. S. Nat. Mus.*, vol. 2, pp. 165-205.

## WEBSTER, HARRISON EDWIN.

- 1879a. Annelida Chaetopoda of the Virginian coast. *Trans. Albany Inst.*, vol. 9, pp. 202-269, 11 pls.
- 1879b. Annelida Chaetopoda of New Jersey. 32d Ann. Rep. New York State Mus. Nat. Hist., pp. 101-128, 7 pls.
1884. Annelida from Bermuda, collected by G. Brown Goode. *U. S. Nat. Mus. Bull.* 25, pp. 305-327, 6 pls.