MARIAN H. PETTIBONE

Revision of Some Species Referred to Leanira Kinberg (Polychaeta: Sigalionidae)

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ABSTRACT

Pettibone, Marian H. Revision of some species referred to *Leanira* Kinberg (Polychaeta: Sigalionidae). *Smithsonian Contributions to Zoology* 53: 1–25. 1970.—The numerous sigalionid species described originally as members of the genus *Leanira* Kinberg, or subsequently referred to it, form a heterogeneous group. Among them, two closely related groups are recognized and assigned to two genera: *Leanira* Kinberg, limited, consisting of seven species, one of which is new, and one synonym, and *Ehlersileanira,* new genus, comprising a single species and three synonyms. Definitions of the two genera, with a key to the species of *Leanira,* are followed by redescription of the species, based in large part on examination of the type-specimens.

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Marian H. Pettibone

Revision of Some Species Referred to Leanira Kinberg (Polychaeta: Sigalionidae)

Among the scaled polychaetous annelids of the superfamily Aphroditoidea, some of the sigalionid species that have been referred to the genus *Leanira* Kinberg are reviewed and revised, based on an examination of available type-specimens and other specimens for which there are published records. In addition to the sigalionid collections in the Smithsonian Institution (USNM), material was obtained from the following Museums: British Museum (Natural History), London (BMNH), through J. D. George; Museum of Comparative Zoology, Harvard (MCZ), through H. W. Levi; Naturhistoriska Riksmuseet, Stockholm (NRS), through R. Oleröd; Queensland Museum, Brisbane (QMB), through B. Campbell; Rijksmuseum van Natuurlijke Historie, Leiden (RNHL), through J. van der Land; Zoologische Museum Universiteit van Amsterdam (ZMA), through S. van der Spoel; Zoologisches Museum, Berlin (ZMB), through G. Hartwich; and Zoologisches Staats-museum, Hamburg (ZMH), through G. Hartmann-Schröder.

I take this opportunity to thank the above-mentioned individuals for their cooperation and help in arranging for the loan of the sigalionid material on which this study is based. The manuscript benefited from the suggestions of Horton H. Hobbs, Jr., and Nancy M. Foster, both of the Smithsonian Institution.

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Some thirty-eight sigalionid species have been described as members of the genus *Leanira* Kinberg, 1855, or subsequently referred to it (Hartman, 1959, 1965a—Catalogue). They represent a heterogeneous group of species. Generally those sigalionid polychaetes having spinigerous or distally pointed, camerated or canaliculate, compound neurosetae have been assigned to the genus *Leanira*. Willey (1905: 259) proposed the genus *Sthenolepis* to receive those species in which the median antenna has a distinct ceratophore equipped with lateral auricles or ctenidia, separating them from species of *Leanira* in which the ceratophore is indistinct and lacks lateral auricles. The separation of the two groups has not been generally accepted. Both Horst (1917: 115) and Monro (1936: 106) indicated that the distinction was unjustified. Hartman (1965b) emended the two genera by following Willey (1905) in assigning to *Leanira* those sigalionid species in which the prostomium lacks antennal auricles and the neurosetae are compound, distally pointed, and camerated and to *Sthenolepis* those species with similar neurosetae but with auricles on the ceratophore of the median antenna. Of the species referred to the latter by Hartman (1965a,b), some of them show closer relationships to the type-species of *Leanira*—*L. quatrefagesi* Kinberg, 1855—than they do to the type-species of *Sthenolepis* Willey—*Leanira japonica* McIntosh, 1885. For this group of species, the new genus *Ehlersileanira* is proposed. The species of *Leanira* and *Ehlersileanira* considered here are redescribed. The other

species will be treated in subsequent studies of the Aphroditoidea.

All the species, except *Eupholoe cirrata* Treadwell, which are referred to *Leanira* in this revision were described originally as members of that genus. The genus *Leanithalessa* Hartmann-Schröder, 1965, with type-species *L. antennata* Hartmann-Schröder, is referred herein to *Leanira*. The following species are included in *Leanira* (synonyms in parentheses):

(1) *L. quatrefagesi Kinberg,* 1855. Southwestern Atlantic, off Argentina. (*Leanithalessa antennata* Hartmann-Schröder, 1965. Southeastern Pacific, off southern Chile).
(2) *L. hystricis* Ehlers, 1874. Northeastern Atlantic, off Ireland. (*Leanira laevis* McIntosh, 1874. Nomen nudum. Northeastern Atlantic.)
(3) *L. robusta* Verrill, 1885a,b. Northwestern Atlantic, off New England.
(4) *L. alba* Moore. 1910. Northeastern Pacific, off southern California.
(5) *L. coeca* Horst, 1917. Indo-Pacific, Malay Archipelago.
(6) *L. cirrata* (Treadwell).
(*Eupholoe cirrata* Treadwell, 1934. Northwestern Atlantic, off Puerto Rico.)
(7) *L. adenensis,* new species.
(*L. vulturis.*—Monro, 1937. [Not Horst, 1917.] Gulf of Aden.)

The species referred herein to *Ehlersileanira* were described originally under *Sthenelais* Kinberg by Grube (1877), and Ehlers (1887), and under *Leanira* Kinberg by Horst (1917), and Takahashi (1938). They were transferred to *Sthenolepis* Willey by Hartman (1965a, b). The following species is referred to *Ehlersileanira,* new genus (synonyms in parentheses):

E. incisa (Grube), new combination.
(*Sthenelais incisa* Grube, 1877. Southeastern Atlantic, off West Africa).
(*Sthenelais simplex* Ehlers, 1887. Northwestern Atlantic, off Florida).
(*Leanira vulturis* Horst, 1917. Indo-Pacific, Malay Archipelago.)
(*Leanira izuensis* Takahashi, 1938. Northwestern Pacific, Izu Peninsula, Japan.)

Abbreviations Used in the Figures

ac, aciculum
acL, acicular lobe
au, auricle
a–vB, anterior-ventral bract
br, branchia
buC, buccal cirrus
ci, cirrophore
ct, ctenidia
dTc, dorsal tentacular cirrus
dTu, dorsal tubercle
fTu, facial tubercle
IpaS, inner palpal sheath
laL, labial lobe
lAn, lateral antenna
mAn, median antenna
ne, neuropodium
no, notopodium
nuO, nuchal organ
OpaS, outer palpal sheath
pa, palp
p–lB, posterior lower bract
p–uB, posterior-upper bract
sP, segmental papilla
st, stylode
vC, ventral cirrus
vTc, ventral tentacular cirrus

General Characteristics of Species of *Leanira* Kinberg and *Ehlersileanira,* New Genus

BODY SHAPE.—The body is elongate, with numerous segments, tetragonal, flattened dorsoventrally, and gently tapered posteriorly.

ELYTRA, DORSAL TUBERCLES, BRANCHIAE, and PARAPODIAL CTENIDIA.—The elytra are located on segments 2, 4, 5, 7, on alternate segments to 25 or 27, and on all succeeding segments. The elytra are small and oval on the first few segments, becoming progressively larger, subrectangular to subcordiform in shape, and nearly covering the middorsum; papillae and tubercles are lacking except for occasional minute sensory papillae; some have lateral indentations (Figures 2*a,e–g;* 6*n–q;* 11*g–i*). Dorsal cirri are absent. Conical dorsal tubercles occur on segments 6, 8, and on alternate segments to 24 or 26 (Figures 3*d;* 11*b*). Branchiae and parapodial ctenidia are absent from the anterior region. Cirriform branchiae begin about segment 30 but there may be smaller rudimentary ones on the elytriphores or dorsal tubercles of more anterior segments. The parapodial ctenidia begin at about the same region as the branchiae; they may be inconspicuous, the three ctenidia per parapodium being nearly contiguous (Figures 1*f;* 3*h,i;* 11*f*).

PROSTOMIUM, TENTACULAR (I), and FEW ANTERIOR SEGMENTS (II–III).—The prostomium is oval to subrectangular in shape and partially fused to the ten-

tacular parapodia, which are anteriorly directed in a position dorsal to the long palps (Figures 1*a–c*; 2*a,b*; 10*a–d*). There are three antennae; in *Leanira,* the median antenna, lacking auricles or antennal ctenidia, emerges from a prostomial ridge (Figures 1*a–c*; 2*a,b*), while in *Ehlersileanira,* the ceratophore of the median antenna is distinct and has a pair of rather small lateral auricles or cenidia (Figures 10*a*; 12*a*). The presence or absence of lateral auricles or ctenidia is the principal diagnostic characteristic separating the two genera. The styles of the median antennae are small, subulate and may be 2-articled. The ceratophores of the lateral antennae are fused to the basal parts of the tentacular parapodia. The palps emerge ventral to the tentacular parapodia between large inner and smaller outer palpal sheaths; they are long, extending posteriorly to about segment 15 (10–26). Inner ciliated tentacular lobes are lacking. Medial to the inner palpal sheaths is a bulbous facial tubercle (Figures 5*c*; 10*b*). A pair of small rounded nuchal organs occur posterolateral to the prostomium; they are usually visible only when the pharynx is at least partially extended (Figures 1*a*; 10*a,c*). Each tentacular parapodium is supported by a single aciculum, bears two bundles of capillary setae directed anteriorly, somtimes a few to numerous stylodes, and a pair of tentacular cirri with distinct cirrophores emerging close together; the dorsal tentacular cirrus is much longer than the ventral one (Figures 2*c,d*; 8*a,b*; 10*a–d*).

The parapodia of segments 2 and 3 are directed anteriorly and contribute to the lateral and lower lips. The lateral lips may be provided with accessory labial lobes (Figures 2*b,d*; 4*b*). The ventral buccal cirri of segment 2 are thicker and slightly longer than the following ventral cirri. Segment 3 lacks dorsal tubercles and dorsal cirri. The parapodial lobes and setae are similar to those of the following segments except the parapodial stylodes may be more numerous (Figures 3*a–c*; 10*e–g*).

PARAPODIA.—The biramous parapodia have clavate notopodia which are smaller than the neuropodia (Figures 3*d–j*; 8*f–l*; 11*a–f*). On the posterodorsal sides of the notopodia there are subterminal diagonal bracts provided with stylodes, while larger terminal stylodes are found near the tips of the acicular lobes. The notosetae form a half circle within the subterminal bracts; they are slender, finely to coarsely spinous, tapering to capillary tips. The neuropodia have bilobed posterior bracts formed of large upper lobes directed anteriorly and provided with stylodes; the lower lobes are smaller, directed anteriorly, and provided with stylodes. The anterior acicular lobes are subconical, with low or inconspicuous anteroventral bracts. The neurosetae are compound spinigers; the stems are smooth, the blades canaliculate or camerated and taper to fine tips (Figures 1*e,g*; 10*f*). The neurosetae of the anterior segments are similar to those of the following segments, none being markedly long. The neurosetae are arranged in three series: doubly curved vertical rows anterodorsal to the posterior-upper bracts, subacicular transversely curved rows dorsal to the posterior-lower bracts, and diagonal anteroventrally arched rows within the anteroventral bracts. In addition, there may be a few (2–5) simple spinous neurosetae in the upper parts of the neuropodia (Figures 5*l*; 9*g*; 11*d*). The ventral cirri are slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri.

PHARYNX, PYGIDIUM, and SEGMENTAL PAPILLAE.—The muscular eversible pharynx is equipped with 11 pairs of distal papillae and two pairs of jaws. The pygidium has not been described; presumably it is equipped with a pair of anal cirri. Segmental papillae are found on some species, beginning about segment 30 (23–36); they are elongate, tubular, and located anteromedial to the ventral cirri (Figure 6*j,k*).

Genus *Leanira* Kinberg

Leanira Kinberg, 1855, Type-species: *L. quatrefagesi* Kinberg, 1855, by monotypy. Gender: feminine.

Leanithalessa Hartmann-Schröder, 1965. Type-species: *L. antennata* Hartmann-Schröder, by original designation and monotypy. Gender: feminine. =*L. quatrefagesi* Kinberg.

DIAGNOSIS.—Body elongate, with numerous segments. Prostomium oval, partially fused to tentacular parapodia. Three small subulate antennae; ceratophore of median antenna without auricles or ctenidia; lateral antennae fused to tentacular parapodia. Long palps emerging ventral to tentacular parapodia between large inner and smaller outer palpal sheaths. Bulbous facial tubercle medial to inner palpal sheaths. Tentacular parapodia (I) directed anteriorly, with single aciculum, pair of tentacular cirri, and 2 bundles of capillary setae. Elytra on segments 2, 4, 5, 7, on alternate segments to 25 or 27, and on all succeeding segments. Elytra smooth, lacking tubercles and papillae. Dorsal cirri and dorsal tubercles lacking on segment 3. Cirriform branchiae and elongate platelike ctenidia,

3 per parapodium, from about segment 30 posteriorly. Notopodia with well-developed bracts with stylodes. Neuropodia with bilobed posterior bracts bearing stylodes. Notosetae spinous capillaries. Neurosetae consisting of compound spinigers, with blades relatively short and canaliculate. With or without additional simple neurosetae. Ventral cirri short and tapered. Pharynx with 11 pairs of papillae and 2 pairs of jaws.

REMARKS.—The holotype and six paratypes of *Leanira quatrefagesi* from off La Plata River, Argentina, deposited in the Naturhistoriska Riksmuseet, Stockholm (NRS 431 and 223), and the holotype and three of the paratypes of *Leanithalessa antennata* from off Chile, deposited in the Zoologisches Staats-museum, Hamburg (ZMH 438), were examined. The two species are herein considered to be synonymous.

Key to the Species of *Leanira* Kinberg

1. Tentacular parapodia (I) with numerous stylodes (Figure 8*a,b*). Lateral antennae inserted medially on tentacular parapodia (Figure 8*b*). [Elytra on all segments from 27 posteriorly, with slight lateral indentations (Figure 8*n–p*). Few simple spinous neurosetae (Figure 8*k*). Without distinct labial lobes.] ..... ***L. cirrata*** (Treadwell)

1′. Tentacular parapodia (I) with none to few stylodes (Figures 1*a,b;* 2*a;* 4*a;* 5*a,c,d;* 6*a,c,d;* 7*a;* 9*a*). Lateral antennae inserted dorsally on tentacular parapodia (Figures 1*a,b;* 2*a;* 4*a;* 5*a;* 6*a;* 7*a;* 9*a*) 2

2. With labial lobes (Figures 1*c;* 2*b;* 4*b;* 9*b*) 3

2′. Without labial lobes (Figures 5*b;* 6*b;* 7*b*). [Elytra on all segments from 27 posteriorly, with distinct lateral indentations. (Figures 5*m,n;* 6*p,q;* 7*m,n*)] 5

3. With simple neurosetae (Figure 9*g*). Elytra on all segments from 27 posteriorly, with lateral indentations (Figure 9*l,m,*). [Labial lobes small, globular (Figure 9*b*).] ***L. adenensis,*** new species

3′. Without simple neurosetae. Elytra without distinct lateral indentations (Figure 2*e–g*) 4

4. Neuropodial stylodes relatively few, large, clavate (Figure 4*g–l*). Labial lobes bulbous (Figure 4*b*). Elytra on all segments from 25 posteriorly ..... ***L. hystricis*** Ehlers

4′. Neuropodial stylodes more numerous, digitiform (Figures 1*d,f*; 3*e*). Labial lobes auricular (Figures 1*c;* 2*b*). Elytra on all segments from 27 posteriorly ..... ***L. quatrefagesi*** Kinberg

5. Without simple neurosetae. [With tubular segmental papillae (Figure 7*j*)] ..... ***L. coeca*** Horst

5′. With simple neurosetae (Figures 5*l*; 6*l*) 6

6. With few stylodes on tentacular parapodia (I) (Figure 5*a,c,d*). Without tubular segmental papillae ..... ***L. robusta*** Verrill

6′. Without stylodes on tentacular parapodia (I) (Figure 6*a,c,d*). With tubular segmental papillae, beginning about segment 30 (Figure 6*j,k*) ..... ***L. alba*** Moore

Leanira quatrefagesi Kinberg

FIGURES 1–3

Leanira quatrefagesi Kinberg, 1855, p. 388; 1858–1910, p. 30, pl. 9: fig. 42.—Ehlers, 1901, p. 59, pl. 5: fig. 8.—Monro, 1924, p. 46; 1936, p. 105, fig. 13.—Fauvel, 1941, p. 277.—Wesenberg-Lund, 1962, p. 27.—Hartman, 1965a, p. 51; 1967, p. 40.

Leanira hystricis.—McIntosh, 1924, p.14; 1925, p. 38.—Day, 1963, p. 360; 1967, p. 112, fig. 1.21, a–d. [Not Ehlers, 1874.]

Leanithalessa antennata Hartmann-Schröder, 1965, p. 88, figs. 36–40.

MATERIAL EXAMINED.—South Atlantic, off mouth of La Plata River, Argentina, 91 meters, *Eugenie* Expedition—holotype (NRS 431) and 6 paratypes (NRS 223) of *Leanira quatrefagesi.* Puerto Angusto, Magellan area, South America, 18 meters, 25 March 1896, Nordenskjöld, collector, Ehlers, determined—3 specimens (NRS 1612). Strait of Magellan, 4–58 meters, H. M. S. *Alert*—3 specimens (BMNH 1925: 1: 28: 41–43). Cape of Good Hope, South Africa, McIntosh collection (as *L. hystricis*)—1 specimen (BMNH 1924: 7: 21: 23). South Pacific, off Chile, Station 93, 15 March 1960, mud with fine sand and detritus, 84 meters—holotype (ZMH 438); 1 paratype (ZMH) and 2 paratypes (USNM 40996) of *Leanithalessa antennata.*

DESCRIPTION.—The maximum length and width, including setae, are 185 and 7 mm, respectively, and the maximum number of segments 140. The elytra are thin, transparent, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger and subrectangular to subcordiform in shape posteriorly, nearly covering the middorsum; distinct lateral indentations are lacking (Figures 1*a,b;* 2*e–g*).

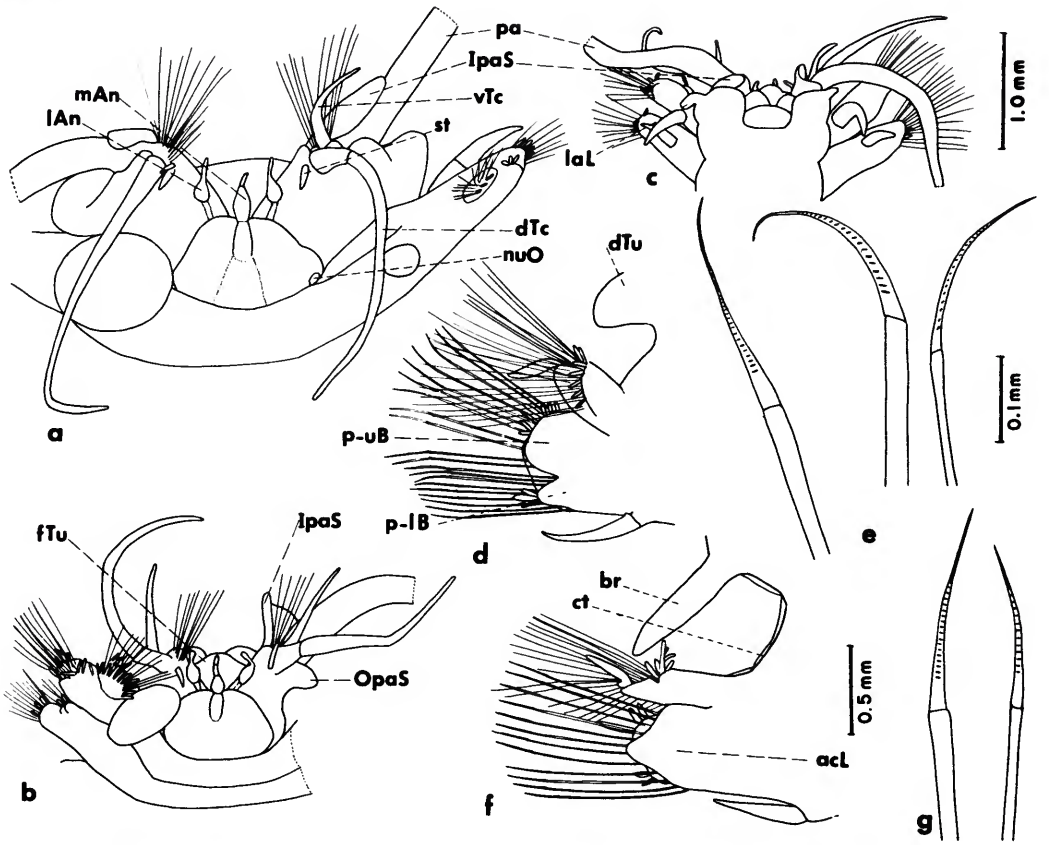

FIGURE 1.—*Leanira quatrefagesi* (*a*, NRS 1612; *b–c*, paratype of *L. quatrefagesi*, NRS 223; *d–g*, holotype of *L. quatrefagesi*, NRS 431): *a*, Anterior end, dorsal view, pharynx partially extended; right elytron removed; *b*, anterior end, dorsal view; left palp missing; right parapodia of II and III not shown; *c*, anterior end, ventral view; *d*, parapodium from anterior region, posterior view; *e*, upper, middle, and lower neurosetae from same; *f*, parapodium from middle region, anterior view; *g*, upper and lower neurosetae from same.

The oval prostomium and tentacular segment (I) are partially fused (Figures 1*a–c;* 2*a–d*). The short subulate median antenna may be 2- or 3-segmented, attached to an indistinct ridge on the anterior half of the prostomium; similar lateral antennae are attached to the inner dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes may be lacking (on types of *L. quatrefagesi;* Figure 1*a,b;* two eyes lateral to the median antenna, according to Kinberg) or there may be two pairs of eyes: a pair of larger rounded spots anteriorly on the prostomium and a pair of small spots in the middle of the prostomium; in addition, there may be darker pigmented areas along the lateral bases of the prostomial ridge (types of *L. antennata;* Figure 2*a*). Small rounded nuchal organs may or may not be visible. The palps extend to about segment 14 (9–26). The inner palpal sheaths are large and subtriangular, the outer ones, short and rounded. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular cirri have distinct cirrophores; the dorsal tentacular cirri are much longer than the ventral ones. There are usually 1–2 short stylodes medial to the cirrophores of the dorsal tentacular cirri or the stylodes may be lacking. There are two bundles of capillary setae directed anteriorly. Auricular labial lobes are found on the lateral lips; they may appear as lateral extensions when the lips are somewhat ex-

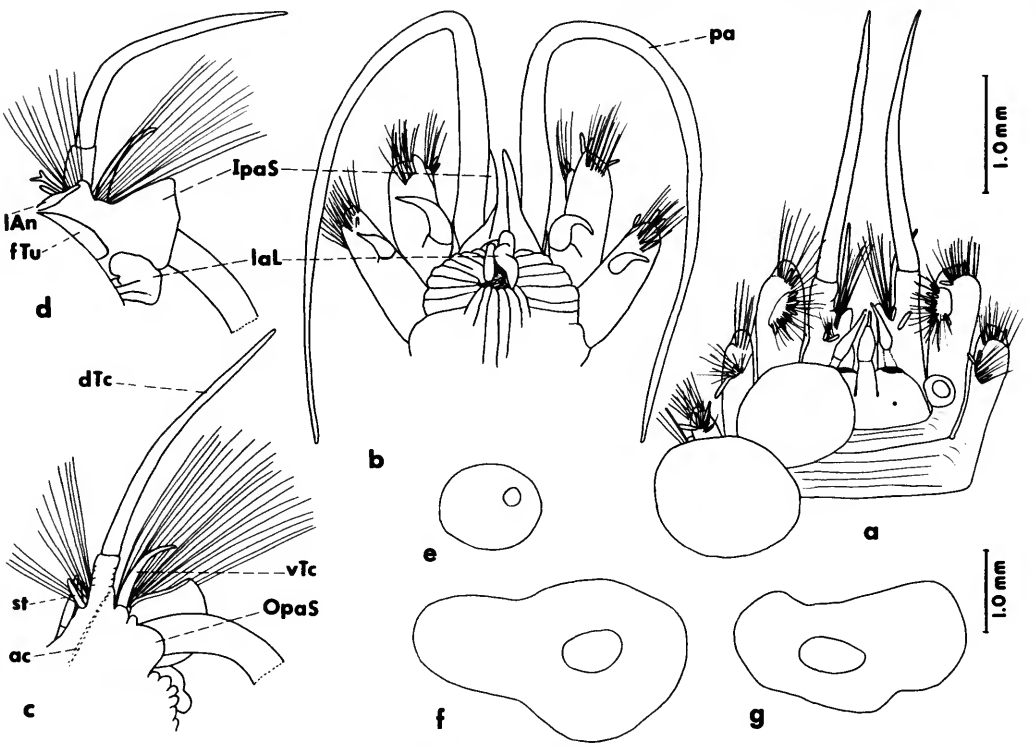

FIGURE 2.—*Leanira quatrefagesi* (paratype of *Leanithalenessa antennata*, USNM 40996): *a*, Anterior end, dorsal view, right elytra removed; palps not shown; *b*, anterior end, ventral view; *c*, right tentacular parapodium (I), lateral or outer view; *d*, left tentacular parapodium, inner view; *e*, right first elytron; *f*, right anterior elytron (seventh); *g*, right middle elytron.

tended (Figure 1*c*) or as medial extensions when the lips are withdrawn (Figure 2*b*). The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following segments; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figures 1*a–c*; 2*a,b*; 3*a–c*).

Branchiae are present from about segment 25 posteriorly, reaching full size about segment 30; occasionally smaller rudimentary branchiae occur more anteriorly. The parapodial ctenidia begin at about the same region as the branchiae; they may be inconspicuous, the 3 ctenidia per parapodium being nearly contiguous (Figures 1*f*; 3*h,i*).

The notopodia and neuropodia are subequal in length (Figures 1*d–g*; 3*d–j*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes, the latter being more numerous in the anterior parapodia. The acicular lobes are subconical with low anteroventral bracts. The neurosetae are all compound spinigers; the blades are canaliculate and taper rather abruptly to fine tips. The neurosetae are arranged in three series: doubly curved vertical rows anterodorsal to the posterior-upper bracts; subacicular curved rows dorsal to the posterior-lower bracts, and ventral arched rows within the anteroventral bracts. The neurosetae of the latter series are more slender than the others. The ventral cirri are slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri.

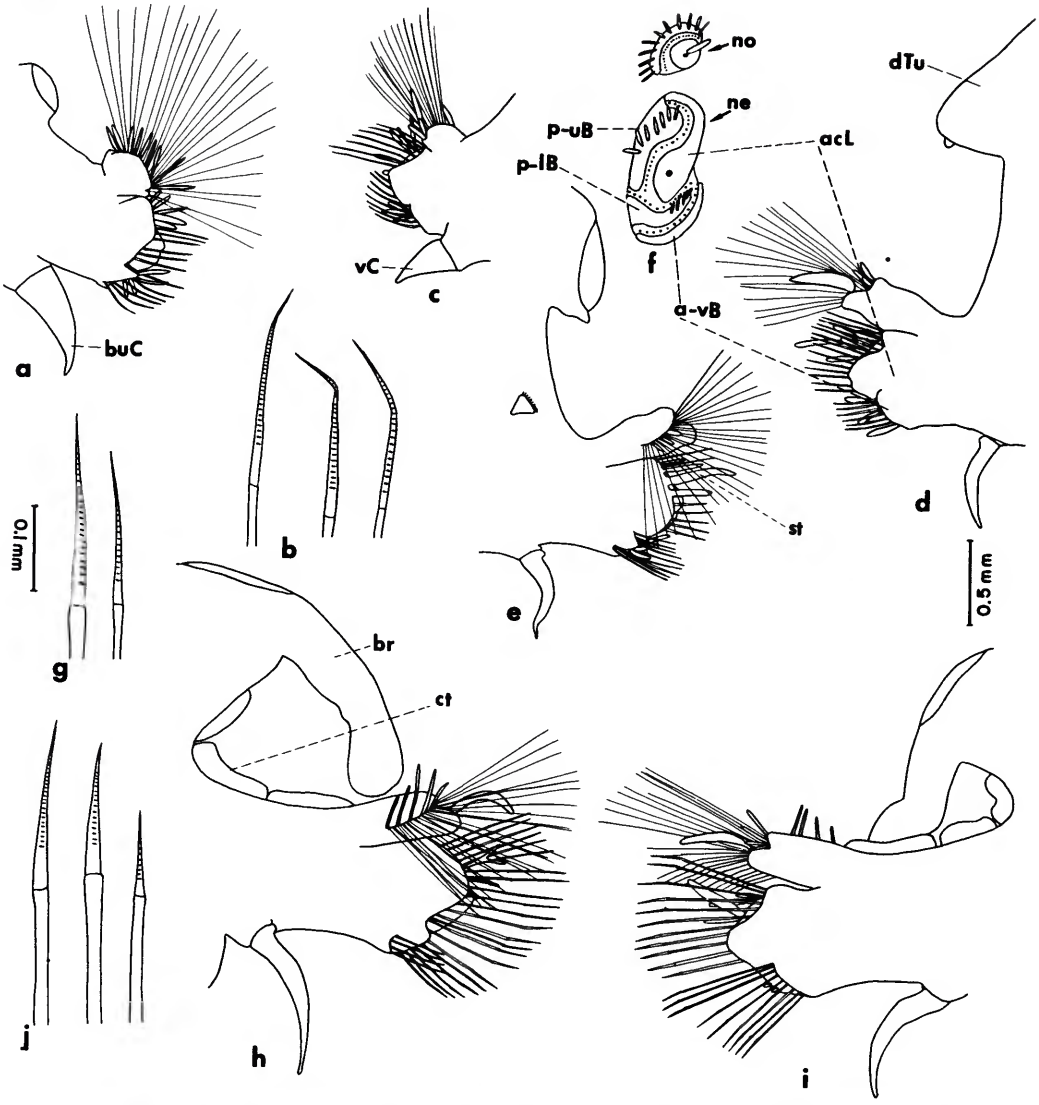

FIGURE 3.—*Leanira quatrefagesi* (paratype of *Leanithalenessa antennata,* USNM 40996): *a,* Parapodium from segment 2, posterior view; *b,* upper, middle, and lower neurosetate from same; *c,* parapodium from segment 3, anterior view; *d,* parapodium from anterior region, anterior view; *e,* same, posterior view; *f,* diagrammatic end-view of same, showing position of bracts and setae; *g,* middle and lower neurosetae from same; *h,* parapodium from middle region, posterior view; *i,* same, anterior view; *j,* upper, middle, and lower neurosetae from same.

DISTRIBUTION.—South Pacific off Chile, South Atlantic off Argentina, Magellan area, Falkland Islands, South Africa, Antarctic. Intertidal to 4758 meters.

Leanira hystricis Ehlers

FIGURE 4

Leanira hystricis Ehlers, 1874, p. 292; 1875, p. 35, pl. 2: figs. 5–11; 1908, p. 55.—McIntosh, 1876, p. 408, pl. 73: figs. 6–8; 1885, p. 155; 1900, p. 434, pl. 28: fig. 17, pl. 31: figs. 12, 13, pl. 42: figs. 20–22.—Fauvel, 1914, p. 84; 1923, p. 118, fig. 43, h–m.—Ditlevsen, 1917, p. 48.
Leanira laevis McIntosh, 1874, p. 268 [Nomen nudum.]

MATERIAL EXAMINED.—Off southwest coast of Ireland, 1478 meters, *Porcupine* Expedition, station 2, 1869, McIntosh collection—3 specimens (BMNH 1921: 5: 1: 653).

REMARKS.—The type-specimens of *Leanira hystricis* Ehlers (1874, 1875), collected by the *Porcupine* Expedition in 1869 in the northeastern Atlantic, in 1214 to 2640 meters, apparently no longer exist. At least they were not found in the Zoological Museum, Berlin; Zoological Institute, Göttingen; or the Zoological Museum, Hamburg (G. Hartwich, P. Kuenzer, and G. Hartmann-Schröder, in litteris). Among the collections of McIntosh, now deposited in the British Museum, are three specimens of the species from the same Expedition, *Porcupine* station 2, and reported by McIntosh in 1876. The specimens are comparatively small, 18 mm in length for 51 segments (incomplete posteriorly) and 2.5 mm in width, including parapodia; all the elytra are now missing and most of the setae are broken. McIntosh (1876: 408) referred *Leanira laevis* McIntosh (1874: 268), *nomen nudum,* to *L. hystricis* Ehlers, 1874.

The specimens from South Africa, reported by McIntosh (1924: 14; 1925: 38) and by Day (1963: 360; 1967: 112) as *L. hystricis,* are referred herein to *L. quatrefagesi.* Whereas Hartman (1942: 105) synonymized *Eupholoe cirrata* Treadwell with *L. hystricis,* the species are here considered to be distinct. Pettibone (1963: 53) considered *L. robusta* Verrill and *L. alba* to be synonyms of *L. hystricis,* but they, too, are now believed to be valid.

DESCRIPTION.—The elytra are thin, transparent, and found on all segments from 25 posteriorly; they are small, rounded to elongate-oval, and do not cover the middorsum; distinct lateral indentations are lacking.

The oval prostomium and tentacular segment (I) are partially fused (Figure 4*a,b*). The short, subulate, median antenna is attached to an indistinct ridge on the anterior third of the prostomium; similar lateral antennae are attached to the inner dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes are lacking (slightly dusky areas are present on the anterior borders of prostomium, according to McIntosh). Nuchal organs were not observed. The palps extend to about setiger 18 (15–19). The inner palpal sheaths are large and rounded, the outer ones, short. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular cirri have distinct cirrophores; the dorsal tentacular cirri are much longer than the ventral ones; stylodes are lacking; setae are few in number or lacking (no setae on specimens examined; none, according to McIntosh; few setae indicated by Ehlers). The lateral lips bear a pair of small bulbous labial lobes (Figure 4*b*). The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of few stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short and subconical; the neurosetae are similar to those of the following segments; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figure 4*a–d*).

Branchiae are present from about segment 30, with smaller rudimentary ones more anteriorly. The parapodial ctenidia begin at about the same region as the branchiae; they are rather inconspicuous, the 3 ctenidia per parapodium appearing nearly contiguous (Figure 4*i–l*).

The notopodia and neuropodia are subequal in length in the anterior region, but the latter surpass the former more posteriorly (Figure 4*e–m*). The small clavate notopodia have a few stylodes on subterminal posterodorsal bracts and a large terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes; the latter are relatively few in number, large and clavate: 1 or 2 stylodes on the posterior-upper bracts and one or no stylodes on the posterior-lower bracts. The acicular lobes are subconical with inconspicuous anteroventral bracts. The neurosetae are all compound spinigers; the blades are canaliculate, tapering to fine tips; the neurosetae of the lower series are more slender than the others. The ventral cirri are

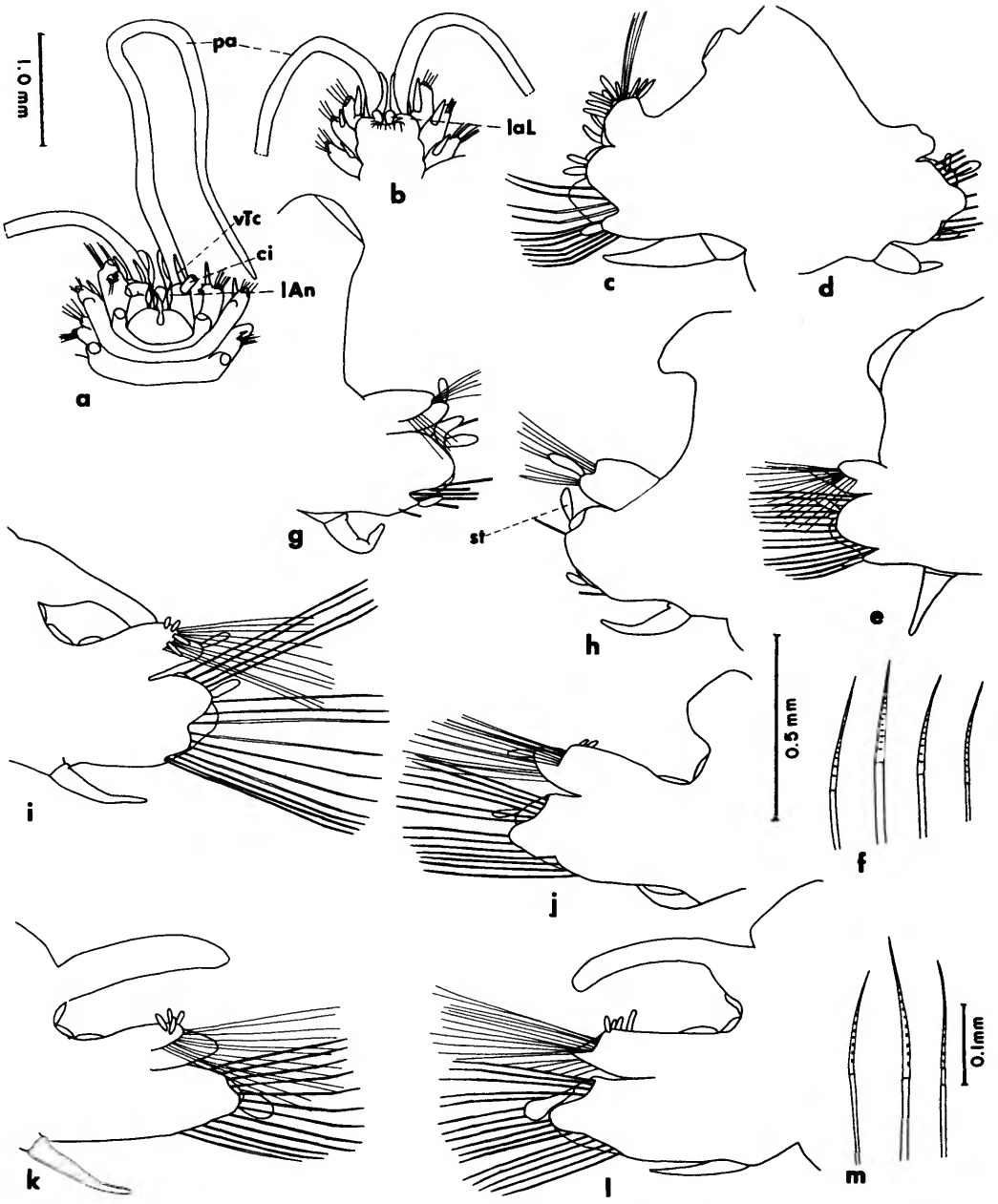

FIGURE 4.—*Leanira hystricis* (BMNH 1921: 5: 1: 653): *a*, Anterior end, dorsal view, styles of dorsal tentacular cirri missing; *b*, anterior end, ventral view; *c*, parapodium from segment 2, posterior view; *d*, parapodium from segment 3, anterior view; notosetae and notopodial stylodes all missing; *e*, parapodium from segment 4, posterior view; *f*, upper, middle, and lower neurosetae from same; *g*, parapodium from anterior region, posterior view; setae mostly broken; *h*, same, anterior view; *i*, parapodium from middle region, posterior view; *j*, same, anterior view; *k*, parapodium from middle fragment, posterior view; *l*, same, anterior view; *m*, upper, middle, and lower neurosetae from same.

slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri.

DISTRIBUTION.—Northeastern Atlantic: south of Iceland, off Great Britain, off Azores. In 957 to 2640 meters.

Leanira robusta Verrill

FIGURE 5

Leanira robusta Verrill, 1885a, p. 682, pl. 40: fig. 175; 1885b, p. 426.—Hartman, 1942, p. 104, fig. 8a; 1965a, p. 51.

Leanira hystricis.—Pettibone, 1963, p. 53 (part). [Not Ehlers, 1874.]

MATERIAL EXAMINED.—Off Martha's Vineyard, Massachusets, 220 meters, *Fish Hawk* station 876, 13 September 1880—2 syntypes (USNM 10320), 5 small syntypes (USNM 10323).

DESCRIPTION.—The length is more than 100 mm, the maximum width 10 mm, including setae, with segments more than 100. The elytra are thin, transparent, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger, and subrectangular to subcordiform in shape, with lateral indentations (Figure 5*m,n*).

The oval prostomium and tentacular segment (I) are partially fused (Figure 5*a–d*). The short subulate median antenna is attached to an indistinct ridge on the anterior third of the prostomium; similar lateral antennae are attached to the inner dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes and nuchal organs were not observed. The palps extend to about segment 14. The inner palpal sheaths are large and subtriangular, the outer ones, short and rounded. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular cirri have distinct cirrophores; the dorsal tentacular cirri are about twice as long as the ventral ones. There are usually 2 or 3 short stylodes medial to the cirrophores of the dorsal tentacular cirri; two bundles of capillary setae are directed anteriorly. The lateral lips lack distinct labial lobes (Figure 5*b*). The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following segments; both dorsal cirri and dorsal tubercles are lacking on segment 3 (a minute papilla may or may not be present; Figure 5*e,f*).

Branchiae are present from about segment 30, with smaller rudimentary ones more anteriorly. The parapodial ctenidia begin at about the same region as the branchiae; they are low and wide, the 3 ctenidia per parapodium appearing nearly contiguous (Figure 5*j,k*).

The notopodia and neuropodia are subequal in length (Figure 5*g–k*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes; the latter are filiform and numerous all along the body; in the neuropodia of the middle region, the posterior-upper bracts are extended anteriorly such that a few presetal stylodes are found (Figure 5*k*). The acicular lobes are subconical with inconspicuous anteroventral bracts. Most of the neurosetae are compound; the blades are canaliculate, and taper to fine tips; those of the lower series are more slender (Figure 5*i*). A few slender, simple spinous neurosetae occur in the upper parts of the neuropodia, beginning in the middle parapodia or more anteriorly (Figure 5*l*). The ventral cirri are slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri.

DISTRIBUTION.—Northwestern Atlantic, off Massachusetts. In 183 to 230 meters.

Leanira alba Moore

FIGURE 6

Leanira alba Moore, 1910, p. 387, pl. 33: figs. 99–104.—Hartman, 1960, p. 82; 1965a, p. 51.

MATERIAL EXAMINED.—Vicinity of San Diego, California, 1181 meters, *Albatross* station 4354, 14 March 1904—holotype (USNM 16883). Off southern California, 32°40′ N., 117°31′ W, 1503 meters, green mud, *Albatross* station 2923, 19 January 1889—1 specimen (USNM 40998).

Southwest mouth Columbia River, Oregon, MS *Commando,* M. S. Alton, collector; 45°56′ N, 124°46.4′ W, 596 meters, 26 May 1962—1 specimen (USNM 40999). 45°58.7′ N, 124°45.5′ W, 457 meters, 9 May 1963—1 specimen (USNM 41000). 45°57.3′ N,

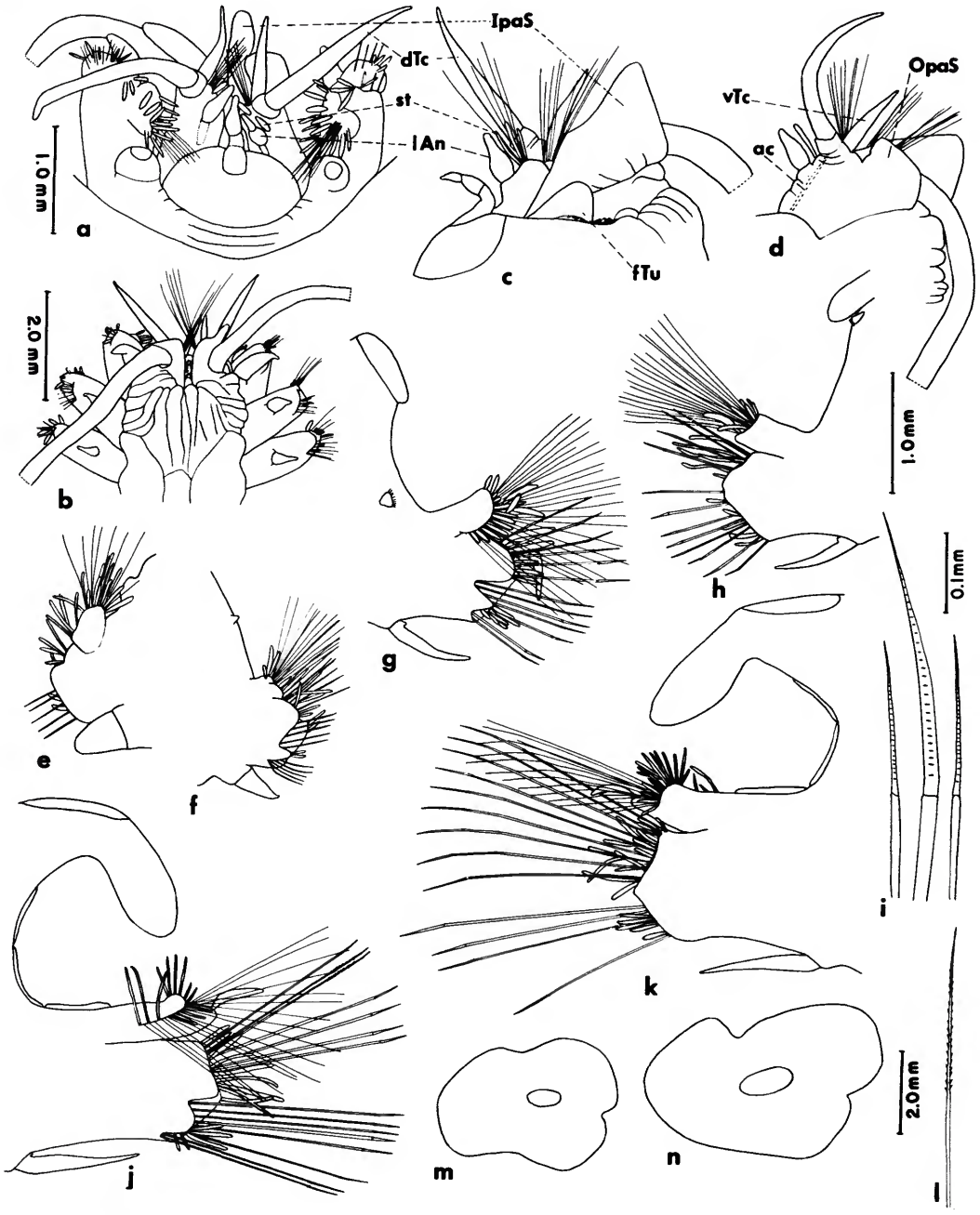

FIGURE 5.—*Leanira robusta* (syntype, USNM 10320): *a*, Anterior end, dorsal view; *b*, anterior end, ventral view; *c*, prostomium and left tentacular parapodium, inner or medial view; *d*, right tentacular parapodium, outer or lateral view; *e*, parapodium from segment 2, anterior view; *f*, parapodium from segment 3, posterior view; *g*, parapodium from anterior region, posterior view; *h*, same, anterior view; *i*, upper, middle,and lower neurosetae from same; *j*, parapodium from middle region, posterior view; *k*, same, anterior view; *l*, upper simple neuroseta from same; *m*, right seventh elytron; *n*, right middle elytron.

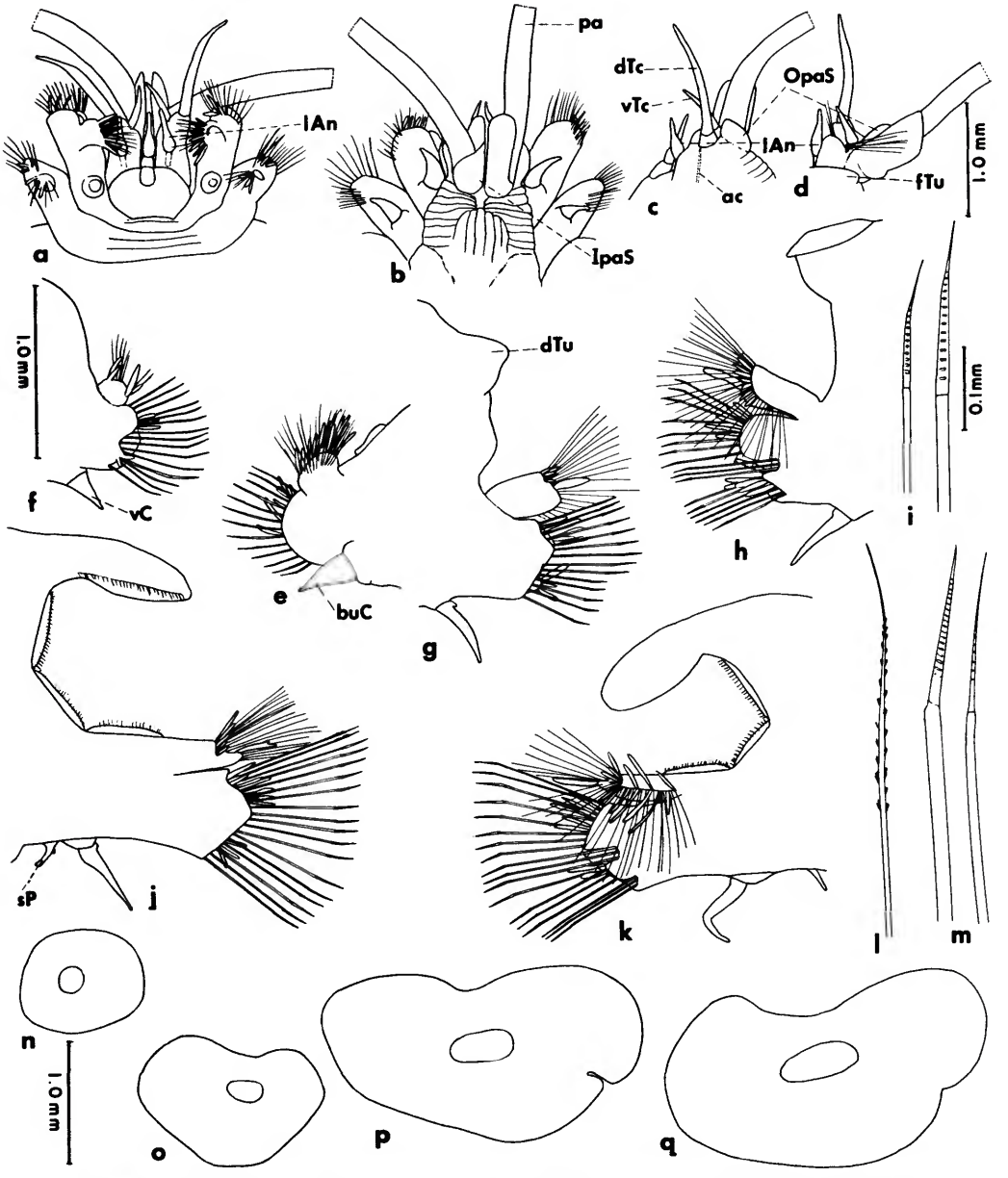

FIGURE 6.—*Leanira alba* (USNM 41001): *a*, Anterior end, dorsal view; *b*, anterior end, ventral view; *c*, tip of prostomium and right tentacular parapodium, outer or lateral view; *d*, left tentacular parapodium, inner or medial view; *e*, parapodium from segment 2, anterior view; *f*, parapodium from segment 3, posterior view; *g*, parapodium from anterior region, anterior view; *h*, same, posterior view; *i*, middle and lower neurosetae from same; *j*, parapodium from middle region, anterior view; *k*, same, posterior view; *l*, upper simple neuroseta from same; *m*, middle and lower neurosetae from same; *n*, right second elytron; *o*, right third elytron; *p*, right elytron from anterior region; *q*, right elytron from middle region.

124°48.7′ W, 596 meters, 10 May 1963—1 specimen (USNM 30914). 45°58.6′ N, 124°47′ W, 553 meters, 23 May 1964—1 specimen (USNM 41001).

DESCRIPTION.—The length is more than 70 mm, the maximum width 7.5 mm, including setae, with segments more than 100. The elytra are soft, flexible, smooth, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger and subreniform to subcordiform in shape, with lateral indentations (Figure 6*n-q*). None of the elytra examined show the bleblike elevations along the lateral margins as noted by Moore for some of them; evidently they were abnormal, as he surmised.

The oval prostomium and tentacular segment (I) are partially fused (Figure 6*a–d*). The short subulate median antenna is attached to the short, free portion of an indistinct ridge on the anterior third of the prostomium; similar lateral antennae are attached to the dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes and nuchal organs were not observed. The palps extend to about segment 14. The inner palpal sheaths are large and subtriangular, the outer ones, short and rounded. Medial to the inner palpal sheaths is a bulbous facial tubercle or ridge. The tentacular cirri have distinct cirrophores; the dorsal tentacular cirri are about three times longer than the ventral ones. The setae of the two bundles are relatively few and delicate, directed anteriorly; stylodes are lacking. The lateral lips lack distinct labial lobes (Figure 6*b*). The notopodia of segments 2 and 3 bear a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following segments; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figure 6*e,f*).

Branchiae are present from about segment 30 posteriorly, with rudimentary ones more anteriorly. Fully developed branchiae are large, digitiform, and inflated. The parapodial ctenidia begin at about the same region as the branchiae; they are low and wide, the 3 ctenidia per parapodium being nearly contiguous (Figure 6*j,k*).

The notopodia and neuropodia are subequal in length in the anterior parapodia (Figure 6*g,h*); more posteriorly, the neuropodia surpass the notopodia (Figure 6*j,k*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes; the latter are filiform to digitiform and are numerous all along the body; in the neuropodia of the middle region, the posterior-upper bracts are extended anteriorly, such that a few presetal stylodes are found (Figure 6*j*). The acicular lobes are subconical, with inconspicuous anteroventral bracts. Most of the neurosetae are compound; the blades are canaliculate and taper rather abruptly to fine tips; those of the lower series are more slender (Figure 6*i,m*). There are as many as 5 slender, simple, spinous neurosetae in the upper parts of the neuropodia, first appearing in the middle parapodia or more anteriorly (about setiger 25, according to Moore; Figure 6*l*). The ventral cirri are slender, tapered, and do not extend to the tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri. Slender, tubular, segmental papillae, situated anteromedial to the ventral cirri, are present from about segment 28 (26–36) posteriorly (Figure 6*j,k*).

DISTRIBUTION.—Northeastern Pacific, from southern California to Oregon. In 553 to 1503 meters.

REMARKS.—The specimen from Australia (QMB G3972), identified by Rullier (1965) as *L. alba,* is a member of the genus *Sthenolepis,* for on examination the ceratophore of the median antenna was found to have two large ctenidia or auricles.

Leanira coeca Horst

FIGURE 7

Leanira coeca Horst, 1917, p. 120, pl. 26: figs. 5–7 (part; not *Siboga* station 211).—Hartman, 1965a, p. 51.

MATERIAL EXAMINED.—Malay Archipelago, *Siboga* Expedition: station 5, 10 March 1899, 07°46′ S, 114°-30.5′ E, 330 meters, mud—syntype (ZMA 524.5); station 178, 2 September 1899, 02°40′ S, 128°37.5′ E, 835 meters, blue mud—syntype (ZMA 524.4); station 271, 21 December 1899, 05°46.7′ S, 134° E, 1788 meters, bluish green mud—14 syntypes (ZMA 524.2), 5 syntypes (RMNH 1170); station 314, 17 February 1900, 07°36′ S, 117°30.8′ E, 694 meters, fine sandy mud—3 syntypes (ZMA 524.1, RMNH 1169, USNM 40995).

DESCRIPTION.—The length is more than 42 mm, the maximum width 6 mm, including setae, with more than 75 segments. The elytra are soft, flexible, smooth, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger and subreniform to subpyriform in shape, with lateral indentations (Figure 7*a,l–n*).

The oval prostomium and tentacular segment (I) are partially fused (Figure 7*a,b*). The short, subulate, median antenna is attached to the short free portion

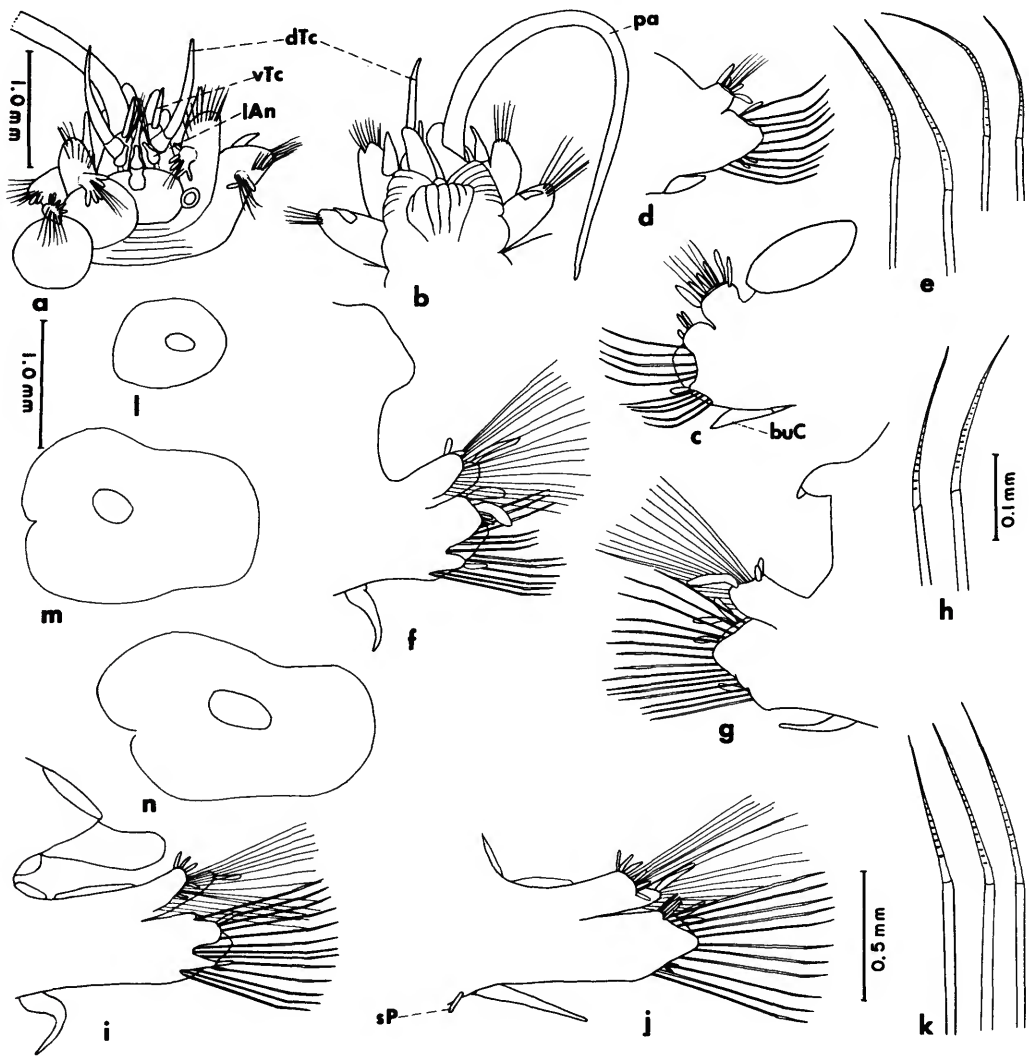

FIGURE 7.—*Leanira coeca* (syntype, ZMA 178): *a*, Anterior end, dorsal view, right palp missing; *b*, anterior end, ventral view; *c*, parapodium from segment 2, posterior view; *d*, parapodium from segment 3, anterior view; *e*, upper, middle, and lower neurosetae from same; *f*, parapodium from anterior region, posterior view; *g*, same, anterior view; *h*, neurosetae from same; *i*, parapodium from middle region, posterior view; *j*, parapodium from posterior region, anterior view; *k*, upper, middle, and lower neurosetae from same; *l*, left second elytron; *m*, left sixth elytron; *n*, left middle elytron.

of an indistinct ridge on the anterior third of the prostomium; similar lateral antennae are attached to the inner dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes are lacking. A pair of small rounded nuchal organs, posterolateral to the prostomium, were observed when the pharynx was fully extended. The palps extend to about segment 16. The inner palpal sheaths are large and subtriangular, the outer ones, short and rounded. Medial to the inner palpal sheaths is a bulbous facial tubercle or ridge. The tentacular cirri have distinct cirrophores; the dorsal tentacular cirri are about three times longer than the ventral ones. The setae of the two bundles are relatively few, delicate, and directed anteriorly; 1 to 3 stylodes are usually present near the bases of the dorsal tentacular cirri. The lateral lips lack distinct labial lobes (Figure 7*b*). The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following setigers; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figure 7*c–e*).

Branchiae are present from segment 30 posteriorly, with smaller rudimentary ones more anteriorly. Fully developed branchiae are large and digitiform. The parapodial ctenidia begin at about the same region as the branchiae; they are low and wide, the 3 ctenidia per parapodium being nearly contiguous (Figure 7*i*).

The notopodia and neuropodia are subequal in length in the anterior and middle regions (Figure 7*f,g,i*); more posteriorly the neuropodia surpass the notopodia in length (Figure 7*j*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes; the latter are filiform to digitiform and are fairly numerous all along the body; in the neuropodia of the posterior region, the posterior-upper bracts are extended anteriorly, such that a few presetal stylodes are present (Figure 7*j*). The acicular lobes are subconical with inconspicuous anteroventral bracts. All the neurosetae are compound spinigers; the blades are canaliculate and taper to short fine tips; those of the lower series are more slender (Figure 7*h,k*). The ventral cirri are slender, tapered, and do not extend to the tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri. Slender tubular segmental papillae, anteromedial to the ventral cirri, are found from about segment 30 posteriorly (Figure 7*j*).

DISTRIBUTION.—Malay Archipelago. In 330 to 1788 meters.

REMARKS.—The syntype from *Siboga* station 211 (ZMA 524.3) differs from the other syntypes and does not agree with the description or figures of *L. coeca* by Horst. There are short, conical, dorsal tubercles on segment 3; the median antenna has a large bulbous ceratophore, with the style broken. The specimen is in such a poor condition that its specific identity cannot be determined.

Leanira cirrata (Treadwell)

FIGURE 8

Eupholoe cirrata Treadwell, 1934, p. 5, pl. 1: figs. 9–12, pl. 2: figs. 13–16; 1939, p. 198, fig. 28.
Leanira hystricis.—Hartman, 1942, p. 105. [Not Ehlers, 1874.]
Leanira cirrata.—Hartman, 1965a, p. 51.

MATERIAL EXAMINED.—North of Puerto Rico, Johnson-Smithsonian Deep-sea Expedition: station 14, 2 February 1933, 18°30′ N, 66°03′ W, 366–439 meters—holotype (USNM 20033); station 23, 4 February 1933, 18°32′ N, 66°21′ W, 475 meters—2 paratypes (USNM 20068).

DESCRIPTION.—The length is more than 90 mm, the maximum width 7 mm, including setae, with more than 110 segments. The elytra are delicate, transparent, with small, opaque areas lateral to their places of attachment to the elytriphores (referred to as brown spots by Treadwell). The elytra are located on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger, and subpyriform to subreniform in shape, with slight lateral indentations (Figure 8*m–p*).

The oval prostomium and tentacular segment (I) are partially fused (Figure 8*a,b*). The short subulate median antenna is attached to the short free portion of an indistinct ridge on the anterior third of the prostomium; slightly more slender, lateral antennae are attached medially on the tentacular parapodia (overlooked by Treadwell, 1934; observed by Hartman, 1942). Eyes and nuchal organs were not observed. The palps extend to about segment 15. The inner palpal

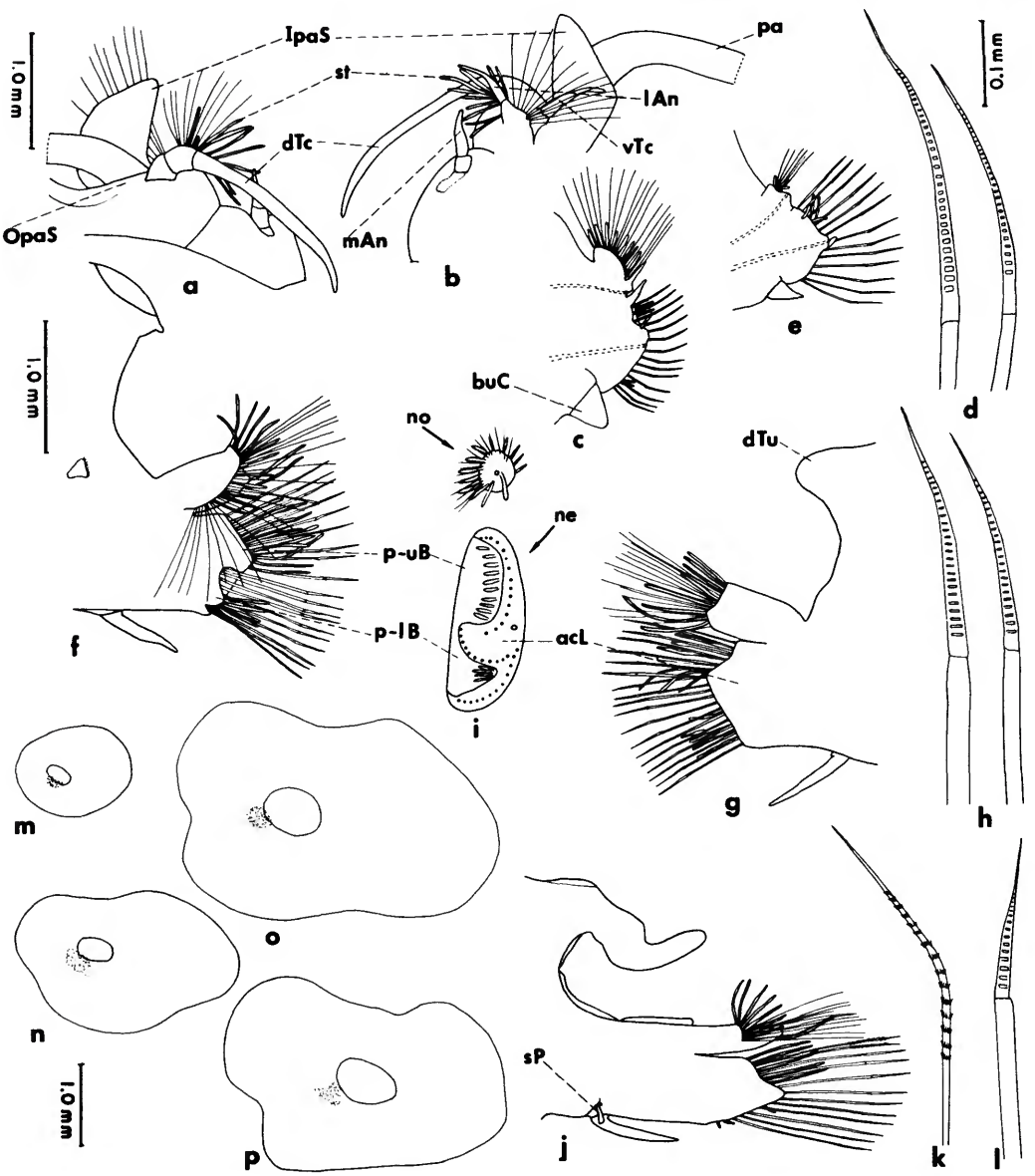

FIGURE 8.—*Leanira cirrata* (holotype of *Eupholoe cirrata*, USNM 20033): *a*, Prostomium and left tentacular parapodium, outer or lateral view; *b*, same, inner or medial view; *c*, parapodium from segment 2, anterior view; *d*, neurosetae from same; *e*, parapodium from segment 3, anterior view; *f*, parapodium from anterior region, posterior view; *g*, same, anterior view; *h*, neurosetae from same; *i*, diagrammatic end view of parapodium from anterior region showing arrangement of setae; *j*, parapodium from middle region, anterior view; *k*, upper simple neuroseta from same; *l*, neuroseta from same; *m*, left second elytron; *n*, left fourth elytron; *o*, left tenth elytron; *p*, left middle elytron.

sheaths are large and subtriangular, the outer ones, low. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular cirri (overlooked by Treadwell) have distinct cirrophores; the dorsal tentacular cirri are about three times longer than the ventral ones. The setae of the two bundles are relatively few, delicate, and directed anteriorly; the tip of the single aciculum is reddish; numerous filiform stylodes are medial to the cirrophores of the dorsal tentacular cirri. The lateral lips lack distinct labial lobes. The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the compound neurosetae are similar to those of the following segments; in some of the neurosetae the articulations appear rather indistinct; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figure 8*c–e*).

Branchiae are present from segment 30, with smaller rudimentary ones more anteriorly. Fully developed branchiae are large and digitiform. The parapodial ctenidia begin at about the same region as the branchiae; they are low and wide, the 3 ctenidia per parapodium being nearly contiguous (Figure 8*j*).

The notopodia and neuropodia are subequal in length (Figure 8*f,g,j*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and 1 to 3 larger terminal stylodes near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with numerous stylodes; the latter are filiform and numerous all along the body; on the neuropodia of the middle region, the posterior-upper bracts are extended anteriorly, such that some presetal stylodes are found (Figure 8*j*). The acicular lobes are subconical with inconspicuous anteroventral bracts. Most of the neurosetae are compound; the blades are canaliculate and taper rather abruptly to fine tips; the shafts are reddish amber-colored; the neurosetae of the lower series are more slender than the others (Figure 8*h,l*). There are a few slender, simple spinous neurosetae in the upper parts of the neuropodia, beginning about segment 30 (Figure 8*k;* overlooked by Treadwell and Hartman). The ventral cirri are slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are present on the outer bases of the cirri. Slender tubular segmental papillae, anteromedial to the ventral cirri, are found in more posterior segments (Figure 8*j*).

DISTRIBUTION.—Northwestern Atlantic, north of Puerto Rico. In 366 to 475 meters.

REMARKS.—Hartman (1942: 105) examined the holotype of *Eupholoe cirrata* and referred the species to *Leanira hystricis*. Later, Hartman (1965a: 51) recognized *L. cirrata* as a distinct species.

Leanira adenensis, new species

FIGURE 9

Leanira vulturis.—Monro, 1937, p. 263. [Not Horst, 1917.]

TYPE MATERIAL.—Gulf of Aden, 274 meters, the John Murray Expedition 1933–34, station 191-holotype and 2 paratypes. [The holotype (BMNH 1937: 9: 2: 61) consists of an anterior and two middle fragments, with a total length of 65 mm, width of 4 mm, including setae, and more than 117 segments. A smaller paratype (USNM 40997) consists of an anterior fragment of 28 mm, width of 3 mm, including setae, and 53 segments. The smallest paratype (BMNH 1937: 9: 2: 62) consists of an anterior fragment of 10 mm, width of 2 mm, including setae, and 33 segments.]

DESCRIPTION.—The elytra are delicate, transparent, smooth, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger and subrectangular to subcordiform in shape, with lateral indentations (Figure 9*k–m*).

The oval prostomium and tentacular segment (I) are partially fused (Figure 9*a,b*). The ceratophore of the median antenna is attached to the anterior fourth of the prostomium; the style is short, subulate, 2-jointed; similar lateral antennae are attached to the dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Two pairs of eyes are faintly visible on the holotype: a large pair on the anterior border and a minute pair in the middle of the prostomium; a pair of semilunar nuchal organs, posterolateral to the prostomium, are visible on the holotype (the pharynx is partially extended, causing the anterior parapodia to be spread apart). The palps extend to about segment 15. The inner palpal sheaths are large and subtriangular, the outer ones, rounded and about half as long. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular

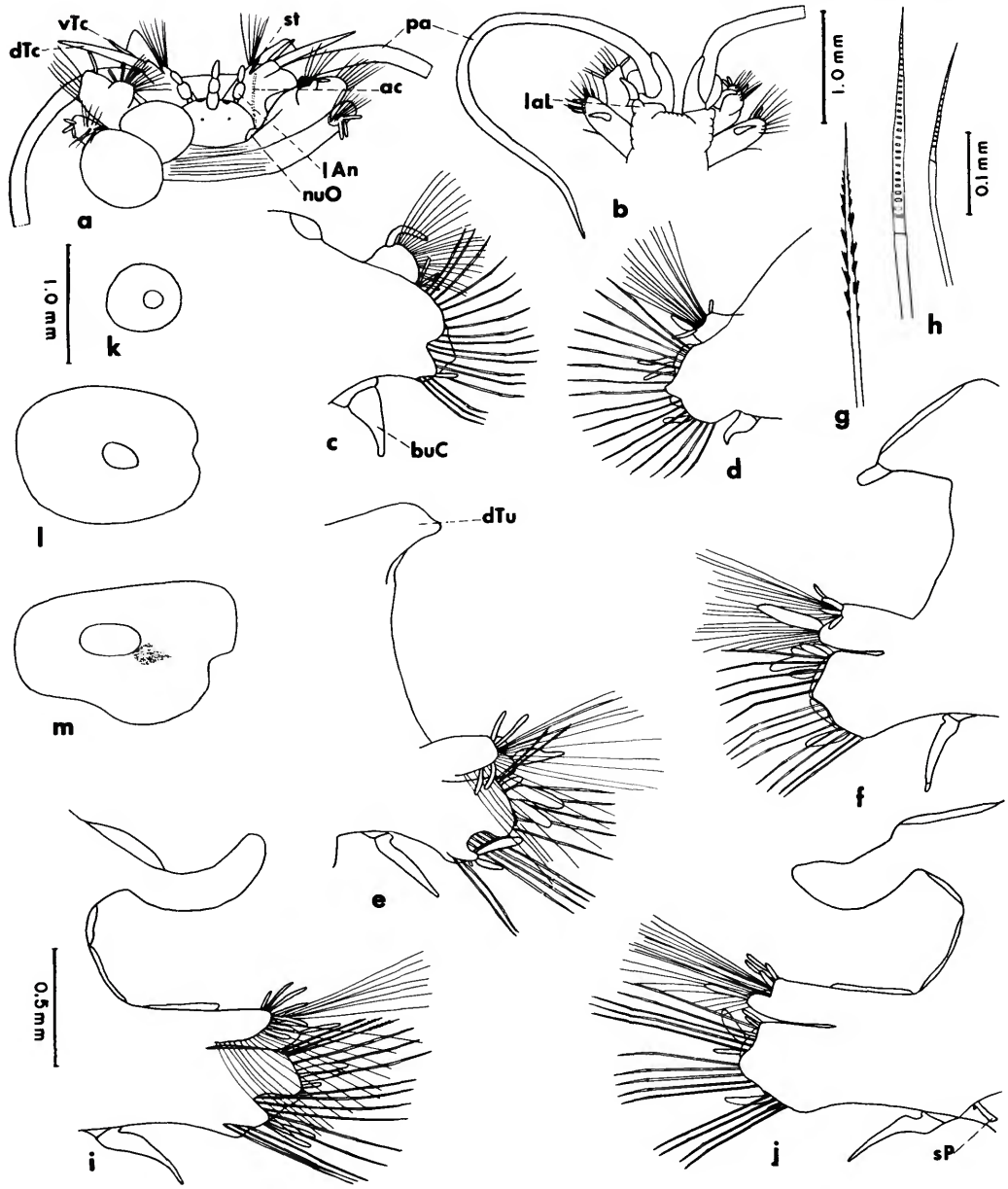

FIGURE 9.—*Leanira adenensis,* new species (*a, c–m,* holotype, BMNH 1937: 9: 2: 61–62; *b,* paratype, USNM 40997): *a,* Anterior end, dorsal view, pharynx partially extended; *b,* same, ventral view; *c,* parapodium from segment 2, posterior view; *d,* parapodium from segment 3, anterior view; *e,* parapodium from anterior region, posterior view; *f,* same, anterior view; *g,* upper simple neuroseta from same; *h,* middle and lower compound neurosetae from same; *i,* parapodium from middle region, posterior view; *j,* same, anterior view; *k,* right first elytron; *l,* right elytron from anterior region; *m,* right elytron from middle region.

cirri have distinct cirrophores; the dorsal tentacular cirri are about three times longer than the ventral ones. The setae of the two bundles are relatively few and delicate, directed anteriorly; stylodes are usually lacking (single one on right tentacular parapodium of holotype). The lateral lips have small globular labial lobes (Figure 9*b*). The notopodia of segments 2 and 3 have a few stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following segments except that the blades are somewhat longer; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figure 9*c,d*).

Branchiae are present from about segment 25 posteriorly, with smaller rudimentary ones more anteriorly. Fully developed branchiae are large and digitiform. The parapodial ctenidia begin at about the same region as the branchiae; they are low and wide, the 3 ctenidia per parapodium being nearly contiguous (Figure 9*i,j*).

The notopodia and neuropodia are subequal in length (Figure 9*e,f,i,j*). The small clavate notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes; the latter are digitiform and fairly numerous all along the body; on the neuropodia of the middle region, the posterior-upper bracts are extended anteriorly, such that a few presetal stylodes are found (Figure 9*j*). The acicular lobes are subconical, with inconspicuous anteroventral bracts. Most of the neurosetae are compound spinigers; the blades are canaliculate and taper to fine tips; those of the lower series are more slender (Figure 9*h*). There are a few (2–5) slender, simple spinous neurosetae in the upper parts of the neuropodia, beginning in the anterior region (about segment 16; Figure 9*g*). The ventral cirri are slender, tapered, and do not extend to the tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri. Slender tubular segmental papillae, anteromedial to the ventral cirri, are present from about segment 23 posteriorly (Figure 9*j*).

DISTRIBUTION.—Gulf of Aden. In 274 meters.

Ehlersileanira, new genus

TYPE-SPECIES: *Sthenelais incisa* Grube, 1877. Gender: feminine.

DIAGNOSIS.—Body elongate, with numerous segments. Prostomium oval, partially fused to tentacular parapodia. Three antennae; ceratophore of median antenna with lateral auricles or ctenidia; style short; lateral antennae short, fused to tentacular parapodia. Long palps emerging ventral to tentacular parapodia between large inner and smaller outer palpal sheaths. Bulbous facial tubercle medial to inner palpal sheaths. Tentacular parapodia (I) directed anteriorly, with single aciculum, pair of tentacular cirri, and 2 bundles of capillary setae. Elytra on segments 2, 4, 5, 7, on alternate segments to 27, and on all succeeding segments. Elytra smooth, lacking tubercles and papillae. Dorsal cirri and dorsal tubercles lacking on segment 3. Cirriform branchiae and elongate platelike ctenidia, 3 per parapodium, from about segment 25–30 posteriorly. Notopodia with well-developed bracts with stylodes. Neuropodia possessing bilobed posterior bracts bearing stylodes. Notosetae spinous capillaries. Neurosetae consisting of compound spinigers, with blades relatively short and canaliculate and additional simple ones. Ventral cirri short and tapered. Pharynx with 11 pairs of papillae and 2 pairs of jaws.

ETYMOLOGY.—The genus is named for the late Professor Ehlers, whose figures of *Sthenelais simplex* are the most detailed and accurate of all those existing for the species referred to the genus.

REMARKS.—*Sthenelais luxuriosa* Grube (1875: 78; 1878: 54), from the Philippine Islands, should perhaps be referred to *Ehlersileanira*. No figures accompanied the original descriptions and type-specimens are no longer extant (G. Hartwich, in litteris). Because of the inadequate description, this combination must be considered a *species inquirendum*.

Ehlersileanira incisa (Grube), new combination

FIGURES 10–12

Sthenelais incisa Grube, 1877, p. 519.

Sthenelais simplex Ehlers, 1887, p. 60, pl. 13: figs. 2, 3, pl. 14: figs. 1–5 (part; not pl. 14: fig. 6).—Treadwell, 1901, p. 187; 1939, p. 193, fig. 23. [Lectotype (MCZ 722) here designated.]

Leanira vulturis Horst, 1917, p. 118, pl. 25: figs. 5–7 (part of *Siboga* station 47).

Leanira incisa.—Augener, 1918, p. 107.—Monro, 1930, p. 70.—Hartman, 1944, p. 13, pl. 1: figs. 1–4, pl. 2: figs.

9–11; 1959, p. 120.—Fauvel, 1953, p. 9.—Rullier, 1964, p. 1081.

Sthenelais luxuriosa.—Treadwell, 1920, p. 592 (part; not *Albatross* station D5257). [?Not Grube, 1875.]

Leanira izuensis Takahashi, 1938, p. 199, pl. 20: fig. C, text-figs. IV, V.—Hartman, 1959, p. 116.

Sthenolepis izuensis.—Imajima and Hartman, 1964, p. 43.—Hartman, 1965a, p. 14.

Sthenolepis vulturis.—Hartman, 1965a, p. 14.

Sthenolepis incisa.—Hartman, 1965a, p. 14.

MATERIAL EXAMINED.—West Africa, mouth of Congo, *Gazelle* Expedition—holotype of *Sthenelais incisa* (ZMB 912). Off St. Paul de Loanda, Angola, 64–65 meters, grey mud, *Discovery* station 274, 4 August 1927—1 specimen (BMNH 1930: 10: 8: 1175). Off Cape Lopez, French Congo, 58–67 meters, mud and fine sand, *Discovery* station 279—1 specimen (BMNH 1930: 10: 8: 1172).

Northwest Atlantic, 28°42′ N, 88°40′ W, 587 meters, *Blake* station 47, 1877–78—lectotype of *Sthenelais simplex* (MCZ 722). South of Tortugas, Florida, W. L. Schmitt, collector: 201 meters, 15 July 1930—5 specimens (USNM 41062); 152–165 meters, 23 July 1932—1 specimen (USNM 41058); 110 meters, 5 August 1932—1 specimen (USNM 41060).

Gulf of Mexico, 29°02′ N, 88°40′ W, 309 meters, *Pelican* station 9, 4 February 1938—1 specimen (USNM 41057). 28°43′ N, 91°49′ W, 29 meters, *Pelican* station 85–4, 12 July 1938—1 specimen (USNM 41061).

Caribbean, Point del Algarrabo, Puerto Rico, 177–220 meters, *Fish Hawk* station 138 (6066), 20 January 1899—2 specimens (USNM 15684). 18°32′ N, 66°21′ W, 475 meters, Johnson–Smithsonian Deep-sea Expedition, station 23, 4 February 1933—1 specimen (USNM 20051). 18°31′ N, 66°12′ W, 256–366 meters, station 21, 4 February 1933—1 specimen (USNM 20053). 18°37′ N, 65°05′ W, 640 meters, station 93, 2 March 1933—1 specimen (USNM 20052).

Southwest Atlantic, east coast South America off Brazil, 23°08′ S, 41°34′ W, 108 meters, blue mud, *Albatross* station 2762, 30 December 1887—1 specimen (USNM 41059).

Malay Archipelago, *Siboga* Expedition: Madura Strait, 07°27.5′ S, 113°08.5′ E, 37 meters, station 1, 7 March 1899—syntype of *Leanira vulturis* (ZMA 529.1). Madura Strait, 07°25′ S, 113°16′ E, 56 meters, station 2, 8 March 1899—2 syntypes (ZMA 529.2). Bay of Bima, 55 meters, station 47, 8/12 April 1899—syntype (ZMA 529.3); 2 syntypes (RMNH 1164). Strait of Makassar, 03°30′ S, 116°33′ E, 30.6 meters, M. P. N. van Kampen, collector—syntype (RMNH 1163).

Vicinity Philippine Islands, *Albatross* stations: Lusaran Light, between Panay and Negros, 10°32′ N, 122°26′ E, 176 meters, soft green mud, station D5183, 30 March 1908—1 specimen (USNM 17503). Tayabas Light, 13°42′ N, 121°50′ E, 196 meters, green mud, 2 March 1909, station D5375—1 specimen (USNM 17516). Tubig Point, Destacado Island, 247 meters, green mud and sand, station D5392, 1 March 1909—1 specimen (USNM 17513). Panalangan Point, Talajit Island, 11°57′ N, 124°10′ E, 245 meters, gray mud, station D5397, 15 March 1909—2 specimens (USNM 17517). Cagayan Island, Jolo Sea, 09°38′ N, 121°11′ E, 929 meters, gray mud, coral sand, station D5423, 31 March 1909—1 specimen (USNM 17514).

REMARKS.—The syntypic series of three specimens of *Sthenelais simplex* Ehlers (MCZ 722) contains three species:

(1) Anterior fragment of about 100 segments, with the pharynx withdrawn. It agrees for the most part with the figures by Ehlers (1887), except for plate 14: figure 6. This specimen is herein selected as the lectotype.

(2) Middle fragment of a different sigalionid. Considered indeterminable.

(3) Anterior fragment, with pharynx extended. The jaws correspond to plate 14: figure 6, in Ehlers (1887) and are of the polyodontid type. The parapodia have spinning glands and the setae are similar to those found in *Eupanthalis*. Obviously, this specimen is a member of the family Polyodontidae.

It is doubtful that the specimen recorded by Augener (1906: 106) as *Leanira simplex*, from *Blake* station 344 (MCZ 2238), was correctly identified. The figure of the prostomium by Augener (plate 1: figure 16) shows no lateral auricles on the ceratophore of the median antenna, such as were illustrated by Ehlers (1887, plate 13: figure 2) for *S. simplex*. The specimen, which was examined in this study, is in such poor condition that it cannot be identified. *Sthenelais simplex* Ehlers, 1887, was declared a synonym of *L. incisa* (Grube, 1877) by Augener (1918: 107).

Of the four syntypes of *Leanira vulturis* from *Siboga* station 47, one proved to be *Pareulepis malayana* (Horst) (see Pettibone, 1969: 12). The specimens from the Gulf of Aden, referred to *L. vulturis* by Monro (1937: 263) were examined and are referred herein to *L. adenensis*, new species.

DESCRIPTION.—The length is more than 330 mm, the maximum width 12 mm, including setae, with segments more than 200. The elytra are rather thick, opaque, and found on all segments from 27 posteriorly; they are small and oval on the first few segments, become progressively larger and subpyriform in shape, with anterior indentations and lateral notches; more opaque spots are found lateral to their places of attachment (Figure 11*g–i*).

The oval prostomium and tentacular segment (I) are partially fused (Figures 10*a–d*; 12*a–d*). The ceratophore of the median antenna, located on the anterior fourth to third of the prostomium, has a pair of lateral auricles, which are joined medially; the style is short, subulate, and 2-articled. Similar lateral antennae are attached to the dorsal sides of the tentacular parapodia, connected by indistinct ceratophores to the prostomium. Eyes may be lacking (Figure 10*a*) or four eyes present—anterior larger pair and posterior pair lateral to the ceratophores of the median antenna (Figure 12*a,c*). Small semicircular nuchal organs may or may not be visible. The palps extend to about segment 16 (10–23). The inner palpal sheaths are large and subtriangular, the outer ones, shorter and rounded. Medial to the inner palpal sheaths is a bulbous facial tubercle. The tentacular cirri have distinct

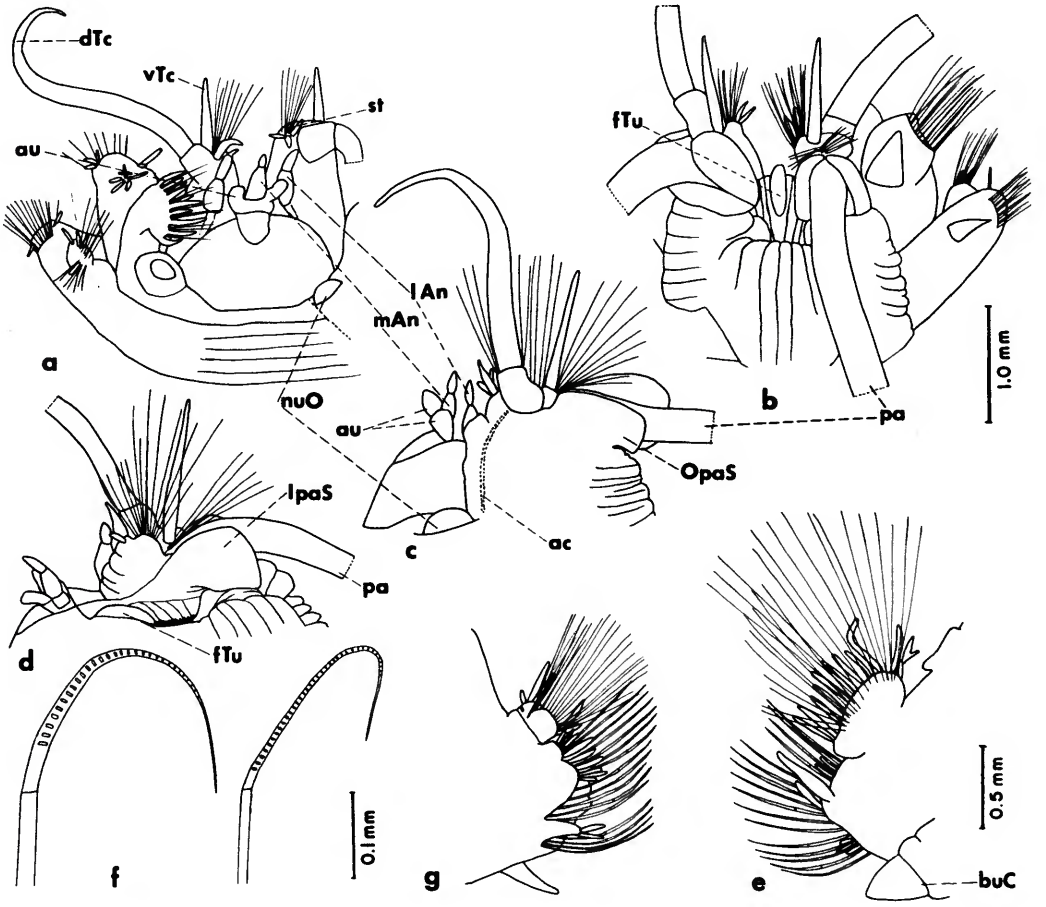

FIGURE 10.—*Ehlersileanira incisa* (holotype of *Sthenelais incisa*, ZMB 912): *a*, Anterior end, dorsal view; right parapodia of segments 2 and 3 not shown; *b*, same, ventral view; only bases of dorsal tentacular cirri and palps shown; *c*, prostomium and right tentacular parapodium (I), outer view; *d*, left tentacular parapodium, inner view; *e*, parapodium from segment 2, anterior view; *f*, middle and lower neurosetae from same; *g*, parapodium from segment 3, posterior view.

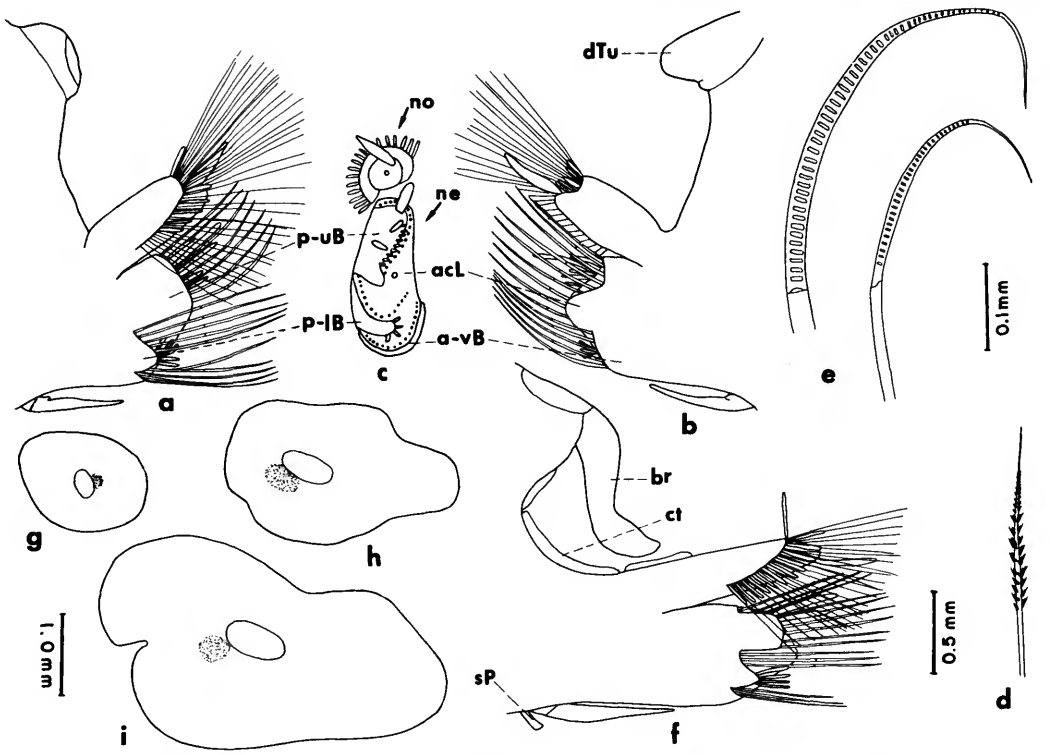

FIGURE 11.—*Ehlersileanira incisa* (holotype of *Sthenelais incisa*, ZMB 912): *a*, Parapodium from anterior region, posterior view; *b*, same, anterior view; *c*, diagrammatic end view of same, showing arrangement of setae and bracts; *d*, simple neuroseta from same; *e*, upper and lower neurosetae from same; *f*, middle parapodium, posterior view; *g*, right second elytron; *h*, left fourth elytron; *i*, left middle elytron.

cirrophores; the dorsal tentacular cirri are much longer than the ventral ones. Few (1–5) short stylodes are usually present medial to the cirrophores of the dorsal tentacular cirri. Two bundles of relatively few capillary setae are directed anteriorly. The lateral lips lack auricular labial lobes (Figures 10*b*; 12*b*). The notopodia of segments 2 and 3 have a circlet of stylodes; the neuropodia have upper and lower groups of stylodes; the buccal cirri of segment 2 and the ventral cirri of segment 3 are short, thick and subconical; the neurosetae are similar to those of the following segments, except that the articulations of the compound spinigers are rather indistinct; both dorsal cirri and dorsal tubercles are lacking on segment 3 (Figures 10*a*,*e*–*g*; 12*a*,*e*–*g*).

Branchiae are present from about segment 30 posteriorly, with smaller rudimentary ones more anteriorly. The parapodial ctenidia begin at about the same region as the branchiae: they are low and elongated, the 3 ctenidia per parapodium being nearly contiguous (Figures 11*f*; 12*k*,*l*).

The small clavate notopodia extend beyond the large neuropodia (Figures 11*a*–*f*; 12*h*–*l*). The notopodia have circlets of stylodes on subterminal posterodorsal bracts and a larger terminal stylode near the tips of the acicular lobes. The notosetae are slender, coarsely to finely spinous, and taper to capillary tips. The large neuropodia have large posterior-upper and small posterior-lower bracts, both equipped with stylodes. The acicular lobes are subconical with low anteroventral bracts. The neurosetae are mostly compound spinigers; the blades are rather long, canaliculate, and taper to fine, flexible tips; the articulations of the blades to the stems are rather indistinct (Figures 11*e*; 12*g*,*j*). The neurosetae are arranged in 3 series (Figure 11*c*): curved vertical rows anterodorsal to the posterior-upper bracts; subacicular curved rows

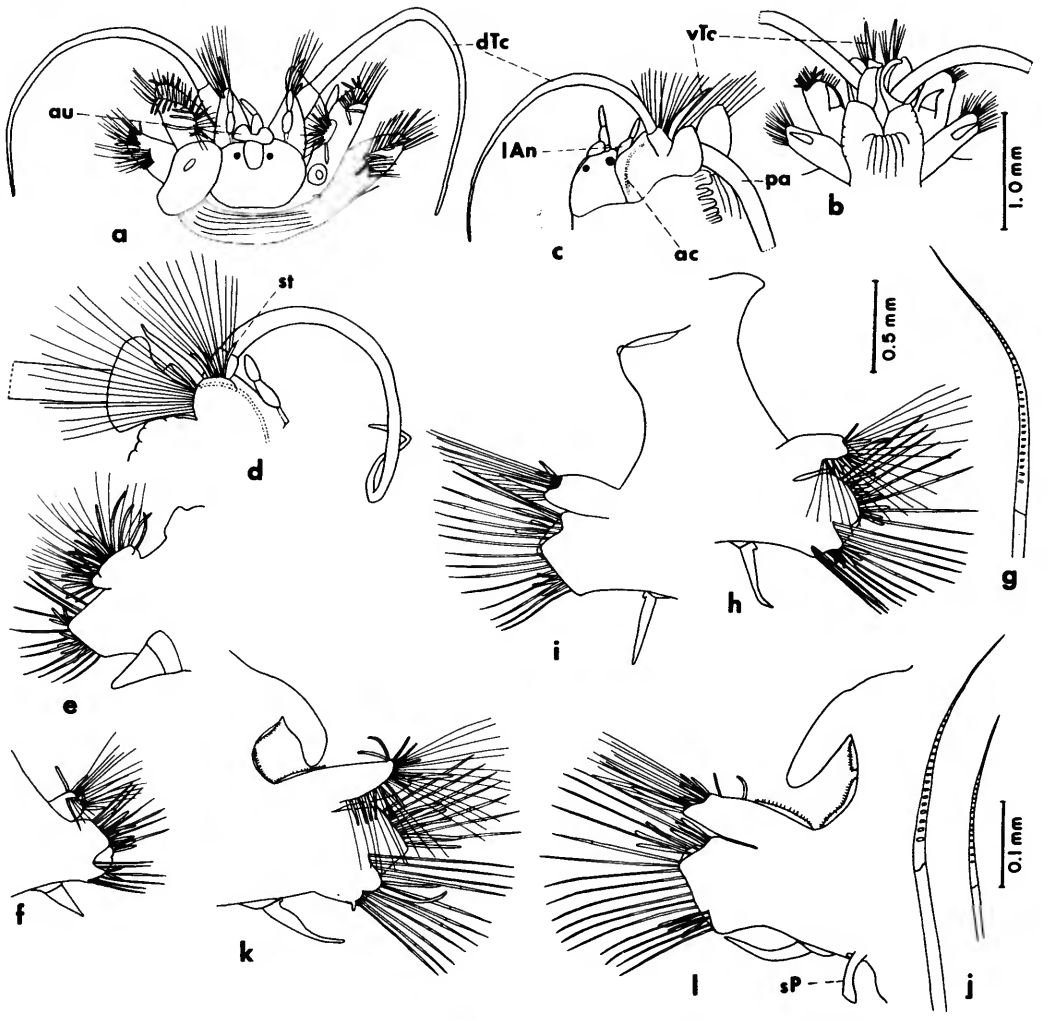

FIGURE 12.—*Ehlersileanira incisa* (syntype of *Leanira vulturis*, ZMA 529.2): *a*, Anterior end, dorsal view; *b*, same, ventral view; *c*, prostomium and right tentacular parapodium (I), outer view; *d*, right tentacular parapodium, inner view; *e*, parapodium from segment 2, anterior view; *f*, parapodium from segment 3, posterior view; *g*, neuroseta from same; *h*, parapodium from anterior region, posterior view; *i*, same, anterior view; *j*, middle and lower neurosetae from same; *k*, parapodium from middle region, posterior view; *l*, same, anterior view.

dorsal to the posterior-lower bracts; and ventral arched rows within the anteroventral bracts. The neurosetae of the latter series are more slender than the others. A few simple spinous neurosetae occur in the upper posterior parts of the neuropodia (Figure 11*d*); they may be lacking in the more anterior neuropodia. The ventral cirri are slender, tapered, and do not extend to the distal tips of the neuropodia; small bulbous lobes are found on the outer bases of the cirri. Tubular segmental papillae, anteromedial to the ventral cirri, begin about segment 26 or more anteriorly (Figures 11*f*; 12*l*).

DISTRIBUTION.—North and South Atlantic: off West Africa, South and Central America, Gulf of Mexico, Florida, West Indies; Malay Archipelago; Philippine Islands; Izu peninsula, Japan. In 15 to 930 meters.

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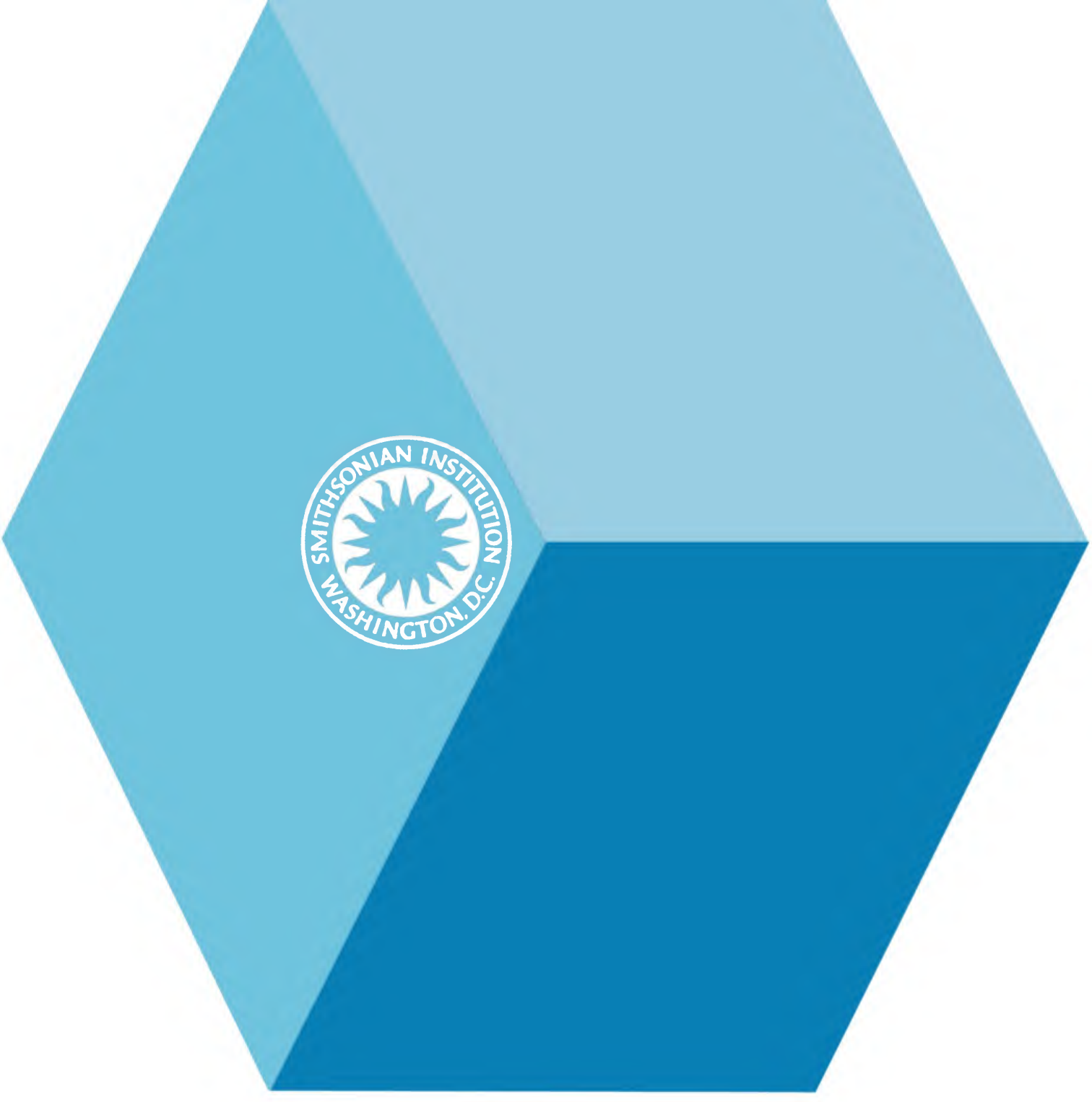
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