

MARIAN H. PETTIBONE

*Revision of the Genus
Euthalenessa Darboux
(Polychaeta: Sigalionidae)*

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ABSTRACT

Pettibone, Marian H. Revision of the Genus *Euthalenessa* Darboux (Polychaeta, Sigalionidae). *Smithsonian Contributions to Zoology*, 52: 1-30. 1970.—The species of *Euthalenessa*, originally described under five different sigalionid genera, are redescribed, based in large part on reexamination of the type-specimens. The study covers four previously described species, one new species, seven synonyms, and one nomen nudum. The general characters of the genus, with a key to the species, are included.

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Marian H. Pettibone

Revision of the Genus *Euthalenessa* Darboux (Polychaeta: Sigalionidae)

In connection with an extended study of the scaled polychaetous annelids of the superfamily Aphroditoidea, the species of the sigalionid genus *Euthalenessa* Darboux are reviewed and revised, based on reexamination of the type-specimens, where possible, and additional published records. In addition to the sigalionid collections in the Smithsonian Institution (USNM), material was obtained from the following Museums: Australian Museum, Sydney (AMS), through E. Pope; British Museum (Natural History), London (BMNH), through J. D. George; Museum National d'Historie Naturelle, Paris (MNHN), through J. Renaud-Mornant; Rijksmuseum van Natuurlijke Historie, Leiden (RNHL), through J. van der Land; Zoölogische Museum Universiteit van Amsterdam (ZMA), through S. van der Spoel; Zoologisches Staats-Museum, Hamburg (ZMH), through G. Hartmann-Schröder; Zoologisches Museum, Berlin (ZMB), through G. Hartwich.

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 F. A. Chace, Jr., and M. L. Jones, both of the Smithsonian Institution.

All but one of the species of *Euthalenessa* Darboux, as herein defined, were described originally under the sigalionid genera *Sigalion*, *Sthenelais*, *Leanira*, and *Thalenessa*. Only *E. insignis* Ehlers, 1908, was described under *Euthalenessa*. This indicates the confusion and lack of agreement that have beset some of the sigalionid genera.

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McIntosh (1885) emended the definition of *Thalenessa* Baird, 1868, to include three new species collected by the *Challenger* Expedition. Although this redefinition excluded *Sigalion edwardsi* Kinberg, 1855, the type-species of *Thalenessa*, it was accepted by Gravier (1901), Moore (1903), Willey (1905), Treadwell (1906), Potts (1910), Izuka (1912), and Benham (1915).

During this same period and earlier, *Sthenelais* Kinberg, 1855, was used for *S. dendrolepis* Claparède, 1868, by Marenzeller (1904), Fauvel (1913, 1914, 1916), and Rioja (1918).

Darboux (1900) proposed the genus *Euthalenessa* (*nomen mutatum*) for McIntosh's three *Challenger* species and described *Leanira giardi*, apparently without recognizing the close relationship between the latter species and those described by McIntosh. In the same publication, Darboux (1900) established the genus *Haswellia* for *Thalenessa microceras* Haswell, 1883, from Australia and placed it in the tribe Peisidiens Darboux, based on Haswell's incorrect description of the arrangement of the elytra. Fauvel (1917, p. 185) pointed out that the species belonged to the Sigalioninae, where Haswell had placed it originally. In her *Catalogue of the Polychaetous Annelids of the World*, Hartman (1959, pp. 111, 122) placed *Haswellia microceras* in the Polyodontidae, which includes Peisidicinae Darboux. The figures and description of *Thalenessa microceras*, even though incomplete and somewhat confusing, indicate that it should be referred to *Euthalenessa*. Reexamination of the holotype confirms this. The species has not been mentioned in subsequent publications dealing with the Australian polychaete fauna. After 1900, *Euthalenessa* Darboux has been used by the majority of polychaete workers, in-

cluding Ehlers (1908), Horst (1917), Augener (1918), Fauvel (1918), Monro (1924), Rioja (1935), Okuda (1939), Wesenberg-Lund (1949), Tebble (1955), Bellan (1959), Knox (1960), and Rullier (1964).

Following a reexamination of the type-species of *Thalenessa* Baird, *Sigalion edwardsi* Kinberg, and the observation of a small median prostomial antenna which had previously been overlooked, Hartman (1949, p. 32) united *Eusigalion* Augener, 1918, and *Thalenessa* Baird, 1868. Later, Hartman (1954, p. 230) added *Sigalion oculatum* Peters, 1854, and *T. tropica* Hartman, 1954, to her previous list of species of *Thalenessa*. In her *Catalogue*, Hartman (1959, pp. 115, 122) further united *Euthalenessa* Darboux with *Thalenessa*, a decision which was evidently followed by Laubier and Paris (1962), Imajima and Hartman (1964), and Day (1967). This interpretation emphasizes, to the exclusion of a number of other differentiating characters, the presence of three small prostomial antennae. Actually, *Thalenessa* Baird shows closer relationships to *Sigalion Delle Chiaje*, 1822, and *Eusigalion* Augener than it does to *Euthalenessa* Darboux.

The species of Sigalionidae, which are referable to *Euthalenessa*, are listed below, along with indications of their type-localities, locations of the type-specimens, subsequent and present designations.

ORIGINAL DESIGNATION	SUBSEQUENT AND PRESENT DESIGNATIONS
1. <i>Sigalion oculatum</i> Peters, 1854: 610; Mozambique, Portuguese East Africa; holotype in Zoological Museum Berlin (ZMB 23).	Holotype reexamined and referred to <i>Euthalenessa oculata</i> (Peters) by Day (1953: 407). Referred to <i>Thalenessa</i> by Hartman (1959: 119). Holotype reexamined; referred herein to <i>E. oculata</i> (Peters), see page 6.
2. <i>Sthenelais dendrolepis</i> Claparède, 1868: 409; Bay of Naples; types not found.	Referred to <i>Euthalenessa</i> by Fauvel (1918: 331). Referred to <i>Thalenessa</i> by Hartman (1959: 120). Specimens from type-locality examined (USNM 5129, 40573-74); referred herein to <i>E. oculata</i> (Peters), see page 6.
3. <i>Leanira festiva</i> Grube, 1875: 78; Philippine Islands; type not found.	Questionable. <i>Leanira festiva</i> Grube (1878: 56). Pacific Ocean, locality? Grube's specimen in Zoological Museum Berlin (ZMB 3259) reexamined; referred herein to <i>E. festiva</i> (Grube), new combination; see page 12.

ORIGINAL DESIGNATION	SUBSEQUENT AND PRESENT DESIGNATIONS
4. <i>Thalenessa microceras</i> Haswell, 1883: 294; Australia; holotype in Australian Museum, Sydney (AMS 11395).	Designated as type-species of <i>Haswellia</i> Darboux, in tribe Peisidiens Darboux, 1900: 116. Referred to Sigalioninae by Fauvel (1917: 185). Referred to Polyodontidae by Hartman (1959: 111, 114, 122). Holotype reexamined and referred herein to <i>E. festiva</i> (Grube); see page 12.
5. <i>Thalenessa digitata</i> McIntosh, 1885: 140; off Admiralty Islands, western Pacific, north of New Guinea; holotype in British Museum (Natural History) (BMNH 1885: 12: 1: 109a).	Referred to <i>Euthalenessa</i> by Darboux (1900: 114). Holotype reexamined; designated herein as type-species of <i>Euthalenessa</i> ; see pages 3, 19.
6. <i>Thalenessa fimbriata</i> McIntosh, 1885: 144; Port Jackson, Australia; holotype in British Museum (Natural History) (BMNH 1885: 12: 1: 112).	Referred to <i>Euthalenessa</i> by Darboux (1900: 114). Referred to <i>E. digitata</i> (McIntosh) by Knox (1960: 97). Holotype reexamined; = <i>E. fimbriata</i> (McIntosh); see page 23.
7. <i>Thalenessa oculata</i> McIntosh, 1885: 142; Bass Strait, between Australia and Tasmania; holotype in British Museum (Natural History) (BMNH 1885: 12: 1: 100).	Secondary Homonym, preoccupied by Peters, 1854. Referred to <i>Euthalenessa</i> by Darboux (1900: 114). Referred to <i>E. digitata</i> (McIntosh) by Knox (1960: 97). Holotype reexamined; referred herein to <i>E. festiva</i> (Grube); see page 12.
8. <i>Leanira giardi</i> Darboux, 1900: 123; Bay of Naples, Mediterranean; type not found.	Referred to <i>Sthenelais dendrolepis</i> Claparède by Marenzeller (1904: 301). Referred to <i>Euthalenessa dendrolepis</i> (Claparède) by Fauvel (1923: 114). Specimens from type-locality examined (USNM 5129, 40573-74); referred herein to <i>E. oculata</i> (Peters); see page 6.
9. <i>Thalenessa djiboutiensis</i> Gravier, 1901: 231; Red Sea; syntypes (2) in Museum National d'Historie Naturelle, Paris (MNHN).	Referred to <i>Euthalenessa</i> by Fauvel (1918: 331). Syntypes reexamined; referred herein to <i>E. digitata</i> (McIntosh); see page 19.
10. <i>Thalenessa imthurni</i> Hornell, in Herdman, 1903: 16; Ceylon; type not found.	Nomen nudum. Referred to <i>Thalenessa digitata</i> McIntosh by Willey (1905: 260). Doubtful; see page 20.

ORIGINAL DESIGNATION	SUBSEQUENT AND PRESENT DESIGNATIONS
11. <i>Euthalenessa insignis</i> Ehlers, 1908: 52; South Africa; syntypes (4) in Zoologisches Museum, Berlin (ZMB 6724).	Referred to <i>E. dendrolepis</i> (Claparède) by Monro (1930: 70). Referred to <i>E. oculata</i> (Peters); see page 6. (1953: 407). Referred to <i>Thalenessa oculata</i> (Peters) by Hartman (1959: 115). Syntypes reexamined; = <i>E. oculata</i> (Peters); see page 6. Types reexamined; referred herein to <i>E. festiva</i> (Grube); see page 12.
12. <i>Thalenessa tropica</i> Hartman, 1954: 228. Marshall Islands, Central Pacific. Holotype and paratype in United States National Museum (USNM 26088-89).	Identified as <i>Thalenessa oculata</i> McIntosh by Treadwell (1906: 1157); see page 24.
13. <i>Euthalenessa chacei</i> , new species; Hawaiian Islands; holotype in United States National Museum (USNM 5469).	

Of the thirteen listed, five are considered in this study to be distinct species of *Euthalenessa*. They include:

- E. oculata* (Peters) [Includes *S. dendrolepis* Claparède; *L. giardi* Darboux; *E. insignis* Ehlers]
- E. festiva* (Grube), new combination [Includes *T. microceras* Haswell; *T. oculata* McIntosh; *T. tropica* Hartman]
- E. digitata* (McIntosh) [Includes *T. djiboutiensis* Gravier]
- E. fimbriata* (McIntosh)
- E. chacei*, new species

Genus *Euthalenessa* Darboux

Thalenessa, Baird, *char. emend.* McIntosh, 1885, p. 139 [Not Baird, 1868, p. 34.]

Euthalenessa (*nomen mutatum*) Darboux, 1900, p. 114. Type species, herein designated: *Thalenessa digitata* McIntosh, 1885. Gender: feminine.

Haswellia Darboux, 1900, p. 116. Type-species, by monotypy and original designation: *Thalenessa microceras* Haswell, 1883; = *E. festiva* (Grube, 1875). Gender: feminine.

REMARKS.—*Euthalenessa* Darboux was established for the following three species from the *Challenger* Expedition described by McIntosh (1885) under the genus *Thalenessa*, Baird, *char. emend.*: *T. digitata*, *T. fimbriata*, and *T. oculata*. The latter name is preoccupied by *Euthalenessa oculata* (Peters, 1854). Knox (1960) considered McIntosh's three species synonymous and referred *T. fimbriata* and *T. oculata* McIntosh to *Euthalenessa digitata* (McIntosh). The latter

species is herein selected as the type-species of *Euthalenessa* Darboux.

Thalenessa microceras Haswell, the type-species of *Haswellia* Darboux, is herein referred to *Euthalenessa festiva* (Grube). See page 12.

DIAGNOSIS.—Body elongate, with numerous segments. Prostomium and tentacular segment (I) fused and withdrawn into few anterior segments; 3 small antennae with ceratophores emerging from anterior border of prostomium and fused to dorsal sides of tentacular parapodia; 2 pairs of large eyes; pair of long tapering palps emerging ventral to tentacular parapodia. Tentacular parapodia (I) directed anteriorly, with single aciculum, pair of short tentacular cirri, and convex inner tentacular bract or ridge; setae usually few or lacking. With bulbous facial tubercle. Elytra on segments 2, 4, 5, 7 . . . 27, then on every segment. Elytra smooth, with lateral fringes of branched papillae. Single pair of dorsal cirri on segment 3. Cirriform branchiae beginning on setigers 4-7. Large cup-shaped ctenidia, 3 per parapodium. Notopodia and neuropodia with well-developed bracts; notopodial bracts with stylodes throughout body. Neuropodia of anterior segments greatly modified, with petal-like stylodes and enlarged anterior bracts enclosing long slender compound neurosetae with multi-articled blades. Notosetae spinous capillaries. Neurosetae compound falcigers with bidentate tips. Ventral cirri short, tapered, Pharynx with 11 pairs of papillae, 2 pairs of jaws, and subdistal V-shaped muscular ridges.

General Characters of the Species of *Euthalenessa*

BODY SHAPE AND COLORATION.—The body is elongate, with numerous segments of nearly equal width, flattened ventrally, arched dorsally, and tapering very gradually posteriorly. The elytra leave the middorsum uncovered. The body is usually pigmented, with darker bands on segment 14 and sometimes beyond, and may be more or less banded. The pigmentation of the elytra may be mottled or confined to posterior and medial areas, often with darker spots on the antero-medial parts.

PHARYNX.—The pharynx is large, muscular, ever-sible, and may extend to about segment 40 (Darboux, 1900). The distal opening is encircled with 11 pairs of papillae and 2 pairs of jaws (Figure 1b). Subdistally on both the dorsal and ventral sides, there is a pair of

diagonal thick muscular ridges; on the dorsal side, the ridges end posteriorly in short free papillar lobes. A conical soft papilla occurs middorsally posterior to the muscular ridges.

PYGIDIUM.—The pygidium is small and has a pair of quite long, filiform anal cirri (Darboux, 1900).

PROSTOMIUM, TENTACULAR (I) AND ANTERIOR SEGMENTS (II-V).—The prostomium and tentacular segment are more or less fused and withdrawn within the greatly modified parapodia of the anterior few segments (Figures 4*a*; 6*a*; 8*a*; 12*a,b*; 15*a*). The prostomium is subcordiform in shape, the anterior visible part appearing subrectangular and wider than long, the posterior part being covered dorsally by the anterior few segments; the posteromedial part has a shallow notch; the anterior part bears 2 pairs of large eyes on somewhat raised ocular areas (Figures 1*a*; 4*a, b*; 6*a*; 8*a*; 11*a*; 12*a*; 14*a*; 15*a*). On its anterior margin the prostomium bears 3 very small, closely approximated antennae; their ceratophores, appearing as slender columns, are fused to the dorsal surfaces of the tentacular parapodia; the ceratophore of the median antenna emerges from a more or less distinct wider area on the prostomium; the ceratophores of the lateral antennae usually extend somewhat beyond that of the median antenna; the styles of the antennae are free, being small, subulate or subconical. Since the antennal ceratophores are attached to the tentacular parapodia, their apparent lengths are effected by the changes in the tentacular lobes associated with the position of the pharynx when withdrawn or extended (Figure 4*a,b*). The palps emerge ventral to the tentacular parapodia between rather short inner and very short outer palpal sheaths; they are long, tapered, smooth, extending posteriorly to about segment 15 (10–20) (Figure 12*b*).

The tentacular parapodia (I) are subcylindrical and directed anteriorly (or diagonally, when the pharynx is extended), supported by a single curved aciculum; they are fused along their medial bases (Figures 1*a*; 4*a, b*; 6*a, b*; 8*a, b*; 11*a*; 12*a*; 13*a*; 14*a*; 15*a*). The 2 pairs of tentacular cirri have short cirrophores and emerge close together; the styles are tapered, moderately short, the ventral tentacular cirrus longer than the dorsal. Medial to the tentacular cirri an inner longitudinal tentacular ridge or convex lamella extends dorsally on the distal part of the tentacular parapodium. The setae are usually few in number or almost completely absent; they are slender, capillary, emerging in two groups near both ends of the ridge.

Segments II and III are fused mediodorsally, where they cover the posterior part of the prostomium; their parapodia are directed anteriorly, lateral to the prostomium (Figures 4*a*; 6*a*; 8*a*; 15*a*). Ventrally they form the upper lip, equipped with a bulbous facial tubercle, lateral lips, usually provided with one or more small labial ctenidia, and lower lip extending to segment V (Figures 6*b*; 12*b*). The facial tubercle is visible as a bulbous lobe between the palpal bases or, when the pharynx is extended, as a bulbous area just anterior to the fused bases of the tentacular parapodia (Figures 1*a*; 4*b*; 6*b*). Dorsally the buccal segment (II) or setiger 2 bears the first pair of small elytra, their elytriphores being anterolateral to the prostomium and encircled with numerous small ctenidia; the ventral buccal cirri are attached basally, with a small ctenidium laterally; the style extends slightly beyond the parapodial tips (Figure 1*c*). The ventral cirri on the following setigers are attached more laterally, with small ctenidia medially. Setiger 3 bears a pair of short tapered dorsal cirri, with distinct cirrophores (Figure 1*e*).

The parapodia of the anterior segments are considerably modified, changing gradually, each succeeding parapodium differing somewhat from the preceding (Figures 1*c, e*; 6*a-c, e*; 8*a-c, e, g*). The notopodia are short, cylindrical, with compact bundles of capillary notosetae. They are nearly encircled with bilobed bracts, the low part being dorsal and forming anterior and posterior parts furnished with variable numbers of fimbriae or stylodes. The neuropodial acicular lobes are provided also with bracts encircling the compound neurosetae which are composed of two types: slender, with long multiarticled blades, and stouter, with short blades. There are four groups of neuropodial bracts: (1) *lower-anterior-ventral*, longest cup-like bracts enclosing the slender neurosetae; longest on setigers 2–4, gradually becoming shorter; (2) *upper-anterior*, shorter cup-like bracts enclosing the stouter neurosetae as well as some longer slender ones; in succeeding neuropodia, the lower distal part develops a more or less distinct rounded to digitiform lobe or ligule, which is directed inward below the distal tip of the acicular lobe; (3) *lower-posterior*, shorter, of variable shape—oval, subconical, goblet- or retort-shaped; (4) *upper-posterior*, rosette of digitiform stylodes, which are more numerous in setigers 2–4; in succeeding neuropodia, the lower stylodes become enlarged and surpass in size the lower-posterior bract; the stylodes decrease in number and, by about setiger 8 (6–15), they have

disappeared; the upper- and lower-posterior bracts are now fused forming a continuous posterior bract, although a distal notch may remain on some of the following neuropodia. The numerous stylodes of the notopodia and neuropodia of the anterior segments give an exceedingly ruffled appearance to the body. The parapodia of setigers 2–5 are the most modified, with a few transitional ones, followed by the more typical anterior parapodia.

ELYTRA, DORSAL TUBERCLES, BRANCHIAE, AND PARAPODIA.—The elytra occur on setigers 2, 4, 5, 7, continuing on alternate segments to 27, and then on all segments. A single pair of dorsal cirri occurs on setiger 3. The dorsal tubercles are found on setigers 6, 8, continuing on alternate segments to 26. Cirriform branchiae occur on the elytriphores or dorsal tubercles on all segments beginning with setigers 4–7.

The elytra leave the middorsum uncovered. The first one or two pairs are small, oval, lacking papillae. The following are larger, subtriangular to subrectangular, then subreniform with deep anterior notches (Figures 1*f–h*; 3*g, h*; 4*e–j*). They are smooth, lacking tubercles but furnished with lateral fringes of papillae, which are irregularly palmately- or dichotomously-branched. The elytra are rather firmly attached to the cylindrical elytriphores. The dorsal tubercles are inflated and slightly bilobed (Figure 2*b*). The branchiae are cirriform and ciliated along their inner borders; there is a small projection near the basal branchial attachment (Figure 2*b*). Large ciliated parapodial ctenidia, 3 per parapodium, occur in the curved areas formed by the parapodia and the inner sides of the body below the branchiae; they are cup- or mushroom-shaped.

The notopodia are small, cylindrical, not widely separated from the larger neuropodia (Figures 2*a–j*; 3*a–f*; 5*a–f*). The bilobed notopodial bracts are provided with a few anterior and posterior stylodes; the stylodes are subconical, digitiform to filiform. The notosetae form rather compact bundles; they are slender, with close-set, spirally arranged spinous rows, tapering to capillary tips.

The neuropodia have subconical acicular lobes, with well-developed anterior and posterior bracts (Figure 2*a–c*). The posterior bracts are C-shaped in cross section, curving anteriorly along their upper and lower ends and enclosing C-shaped rows of neurosetae, the setal gap located anterior to the acicular lobe. Lower-anterior-ventral bracts overlap the lower ends of the posterior bracts and enclose ventral diagonal rows of

neurosetae. Upper-anterior bracts overlap the upper ends of the posterior bracts and enclose dorsal diagonal rows of neurosetae. More or less distinct rounded to digitiform lobes or ligules develop on the lower distal tips of the upper-anterior bracts; they are directed inward and curl around the distal tip of the acicular lobe (Figures 3*a*; 7*b*). In the middle and posterior parapodia, the upper-anterior bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking (Figures 2*i*; 3*d*; 5*d*).

The neurosetae are all compound heterogomph falcigers. The distal tips of the stems are slightly enlarged, with faint to distinct spinous rows. The blades are short to moderately long, the tips hooked and bidentate (Figures 2*d, g, j*). The neurosetae of the upper and lower diagonal rows are usually more slender and have longer blades. The neurosetae of the anterior modified setigers are much more slender, with long, multiarticled blades (Figure 6*d*).

Ventral cirri occur all along the body; they are slender, tapered, extending to the tips of the neuropodia or somewhat beyond.

Abbreviations Used in the Figures

ac, aciculum
br, branchia
buC, buccal cirrus
ct, ctenidia
dC, dorsal cirrus
dTc, dorsal tentacular cirrus
dTu, dorsal tubercle
fTu, facial tubercle
Lct, labial ctenidia
ne, neuropodia
neB, neuropodial bracts
1, lower-anterior-ventral
2, upper-anterior
3, lower-posterior
4, upper-posterior (stylodes)
neLi, neuropodial ligule
no, notopodia
pa, palp
paS, palpal sheath
pB, posterior bract
st, stylodes
tR, tentacular ridge
vC, ventral cirrus
vTc, ventral tentacular cirrus

Key to the Species of *Euthalenessa*

1. Papillae or stylodes on lower-posterior and lower-anterior-ventral bracts of setigers 2-5 (Figures 12*b, c, e*; 13*b*). Three to four pairs of labial ctenidia (Figure 12*b*). Elytral fringe with 1-5 filaments per papilla (Figures 12, 13*h-j*). [Body colorless. Elytra opaque. Eyes moderately large; 3 antennal ceratophores extending to same level on tentacular lobes; tentacular ridges located on distal three-fourths of tentacular lobes (Figures 12*a*; 13*a*). Neuropodial ligules prominent (Figures 12*g, j*; 13*f*). All neurosetal blades rather short (Figures 12*i, k*; 13*e, g*)]. *E. digitata* (McIntosh)
- 1'. Without papillae or stylodes on bracts of setigers 2-5. Single pair of labial ctenidia (Figure 6*b*). Elytral fringe with more than 5 filaments per papilla (Figure 1*f-h*) 2
2. Body colorless. Elytra colorless, delicate, transparent. Three antennal ceratophores extend to same level on tentacular lobes; tentacular setae moderate in number (Figure 15*a*). [Tentacular ridges located on distal fourths of tentacular lobes (Figure 15*a*). Some lower neurosetae with blades 2-3 articulated in anterior region and 4-5 articulated in middle region (Figure 16*c, f*)]. *E. chacei*, new species
- 2'. Body with reddish-brown coloration, more or less banded, with darker bands on segments 14-16. Elytra pigmented, opaque. Ceratophores of lateral antennae extending beyond median antenna; tentacular setae few or absent (Figure 6*a*) 3
3. Blades of all neurosetae rather short, none 3-5 articulated (Figures 2*d, g*; 3*c*; 5*c, f*). [Eyes moderately large; tentacular ridges located on distal halves of tentacular lobes (Figures 1*a*; 4*a, b*)]. *E. oculata* (Peters)
- 3'. Blades of neurosetae short to longer, some 3-5 articulated 4
4. Elytra with 2-9 filaments per papilla (Figures 7*e-h*; 10*a-e*; 11*k, l*). Eyes large, closely approximated; tentacular ridges located on distal third of tentacular lobes (Figures 6*a*; 8*a*; 11*a*). Neuropodial ligules not especially prominent (Figures 7*b*; 9*d*). Neurosetae moderately stout (Figures 7*c, d*; 9*f*) *E. festiva* (Grube)
- 4'. Elytra with 4-14 filaments per papilla (Figures 14*j, k*). Eyes on bulging ocular lobes, anterior pair elongated; tentacular ridges located on distal halves of tentacular lobes (Figure 14*a*). Neuropodial ligules prominent (Figure 14*e, h*). Neurosetae relatively slender (Figure 14*g, i*) *E. fimbriata* (McIntosh)

Euthalenessa oculata (Peters)

FIGURES 1-5

Sigalion oculatum Peters, 1854, p. 610.

Sthenelais dendrolepis Claparède, 1868, p. 409, pl. 4: fig. 4, pl. 5: fig. 1.—Marenzeller, 1904, p. 301.—Fauvel, 1913, p. 30; 1914, p. 84, pl. 4: fig. 20; 1916, p. 44. [Not McIntosh, 1869, p. 409; 1924, p. 13; 1925, p. 36.]

Leanira giardi Darboux, 1900, p. 123, figs. 24-28.

Euthalenessa insignis Ehlers, 1908, p. 52, pl. 1: figs. 10, 11, pl. 2: figs. 1-9.—Augener, 1918, p. 108, pl. 3: fig. 53.

Euthalenessa dendrolepis.—Fauvel, 1923, p. 114, fig. 42, h-o.—Rioja, 1935, p. 18, figs. 27-36.—Bellan, 1961, p. 90; 1964, p. 36.—Rullier, 1965, p. 19.

Euthalenessa [sic] *dendrolepis*.—Monro, 1930, p. 70.

Euthalenessa oculata.—Day, 1953, p. 407 (part).

Thalenessa oculata.—Hartman, 1959, pp. 115, 119, 122.—Day, 1960, p. 294; 1967, p. 107, fig. 1.19, m-q.

Thalenessa dendrolepis.—Hartman, 1959, pp. 120, 122.—Laubier and Paris, 1962, p. 13.

MATERIAL EXAMINED.—South-East Africa: *Inhambane, southeast Mozambique*, 24° S, W. C. H. Peters, collector—holotype of *Sigalion oculatum* Peters (ZMB 23).

South Africa: *Cape Agulhas*, 35° 02' S, 19° 58' E.

80 meters, *Valdivia Expedition*, Station 96—4 syntypes of *Euthalenessa insignis* Ehlers (ZMB 6724). *False Bay*, 34° 12.5' S, 18° 37' E, 48 meters, sand and shell, FAL Station 419L, 15 May 1961, J. H. Day, collector—1 specimen (BMNH 1961: 9: 839).

West Africa: *Cape Palmar, Liberia*, 12.8 meters; *Munford, Gold Coast*, 9 meters, A. Hupfer, collector—7 specimens (ZMH 601, 627-630). Off *Annobon, Gulf of Guinea*, 18-30 meters, *Discovery Station 283*—2 specimens (BMNH 1930: 10: 8: 1412-1413).

Mediterranean: *Zoological Station, Bay of Naples*—2 specimens (USNM 5129). *Marechiaro, Bay of Naples, Posidonia* bed, 26 August 1964, R. Barnes, collector—1 specimen (USNM 40574). Collection of M. le Baron de Saint-Joseph, No. 20, 1911 (as *Leanira giardi* Darboux)—1 specimen (MNHN). Dredged near *Marseille, France*, by J. Picard (1960-1963), from H. Zibrowius—15 specimens (USNM 40573).

TYPE-MATERIAL.—The holotype of *Sigalion oculatum* from Mozambique (ZMB 23) consists of anterior and middle fragments, totaling 42 mm in length, 4 mm in width, including setae, and 97 seg-

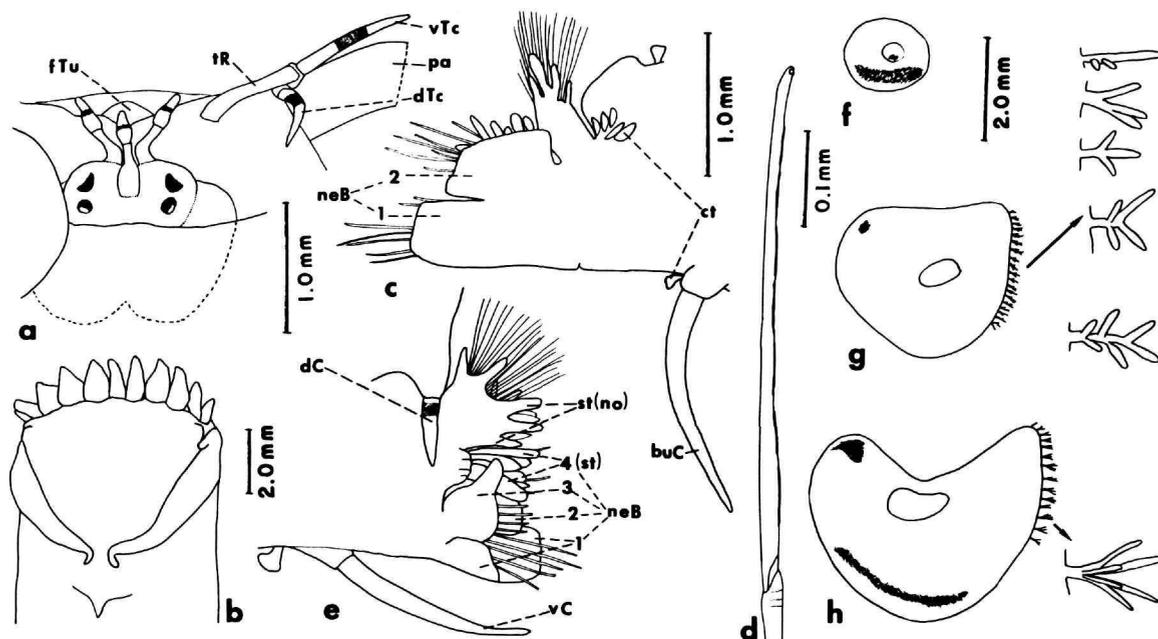


FIGURE 1.—*Euthalenessa oculata* (large syntype of *E. insignis*, ZMB 6724): *a*, Prostomium and right tentacular parapodium (I), dorsal view, base of palp only shown; hidden part of prostomium dotted in; pharynx of specimen fully extended; *b*, distal half of pharynx, dorsal view; *c*, parapodium setiger 2, anterior view; *d*, neuroseta from same; *e*, parapodium setiger 3, posterior view; *f*, first right elytron; *g*, sixth right elytron; *h*, middle right elytron.

ments. The integument is transparent, poorly preserved, and shows no pigmentation.

The type-material of *Euthalenessa insignis* from South Africa (ZMB 6724) consists of 2 large syntypes with a width of 9 mm, including setae; one is complete (in two pieces) with a total length of 170 mm for about 190 segments; the other is an anterior fragment of 35 mm for 39 segments; both specimens have the pharynx completely extended (Figures 1, 2; in Ehlers, 1908, pl. 1: figs. 10*a*, 11 and pl. 2: figs. 3–6, 8, 9). A 3rd syntype is more slender, having a length of 90 mm, a width of 6 mm, and 112 segments, being incomplete posteriorly; the pharynx is partially extended; the prostomial antennae and right anterior segments had been cut off (figured by Ehlers, pl. 1: fig. 10*b*, pl. 2: figs. 1, 2, 7). The 4th syntype is the smallest, with a length of 30 mm, width of 4 mm, and 65 segments, with the posterior end missing (Figure 3). The latter syntype corresponds in size and some other features with the holotype of *Sigalion oculatum*.

Specimens from the Bay of Naples in the Mediter-

ranean, the type-localities of *Sthenelais dendrolepis* Claparède and *Leanira giardi* Darboux, deposited in the Smithsonian Institution (USNM 5129—2 large specimens and USNM 40574—small specimen) and the Paris Museum (MNHN—1 large specimen) were examined. The 3 large specimens measure 145 to 170 mm in length, 7 mm in width, including setae, and have numerous segments (about 200; Figures 4*b–j*; 5). The smaller specimen (a female with large yolky eggs) has a length of more than 70 mm (incomplete posteriorly) and width of 3 mm, including setae (Figure 4*a*).

DESCRIPTION.—The body has a length up to 200 mm, width, including setae, 3 to 9 mm, with numerous segments—up to 200 or more. The body may be variously pigmented with reddish brown coloration, usually with conspicuous darker bands on segments 14–16, followed by lighter pigmentation, which may be more or less banded. The anterior elytra have the pigmentation confined to crescent-shaped bands. On more

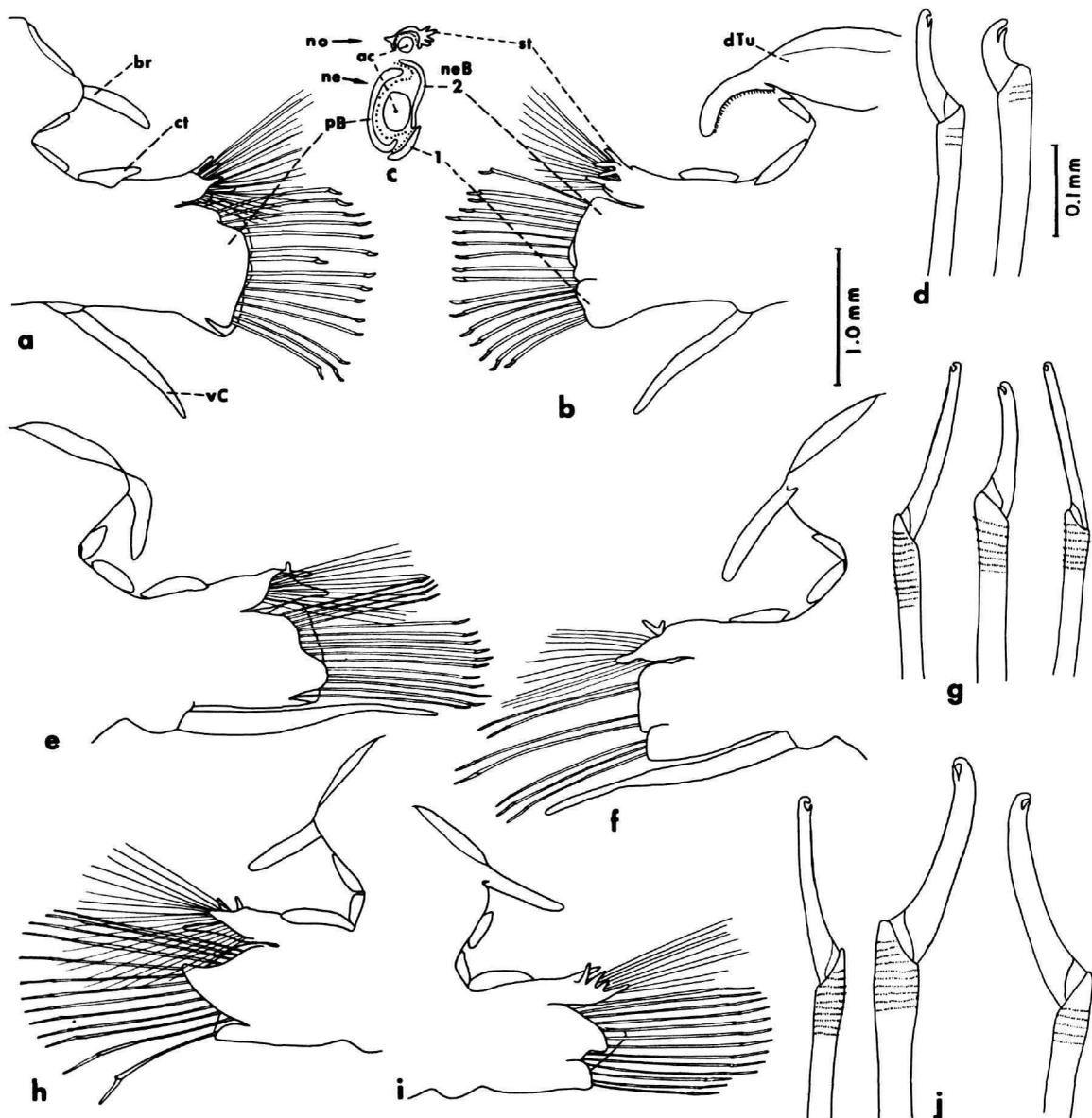


FIGURE 2.—*Euthalenessa oculata* (large syntype of *E. insignis*, ZMB 6724): *a*, Parapodium from anterior region, posterior view; *b*, same, anterior view; *c*, diagrammatic end view of same, showing arrangement of setae and parapodial bracts; *d*, upper and middle neurosetae from same; *e*, parapodium from middle region, posterior view; *f*, same, anterior view; *g*, upper, middle, and lower neurosetae from same; *h*, parapodium from posterior region, posterior view; ventral cirrus missing; *i*, same, anterior view; *j*, upper, middle, and lower neurosetae from same.

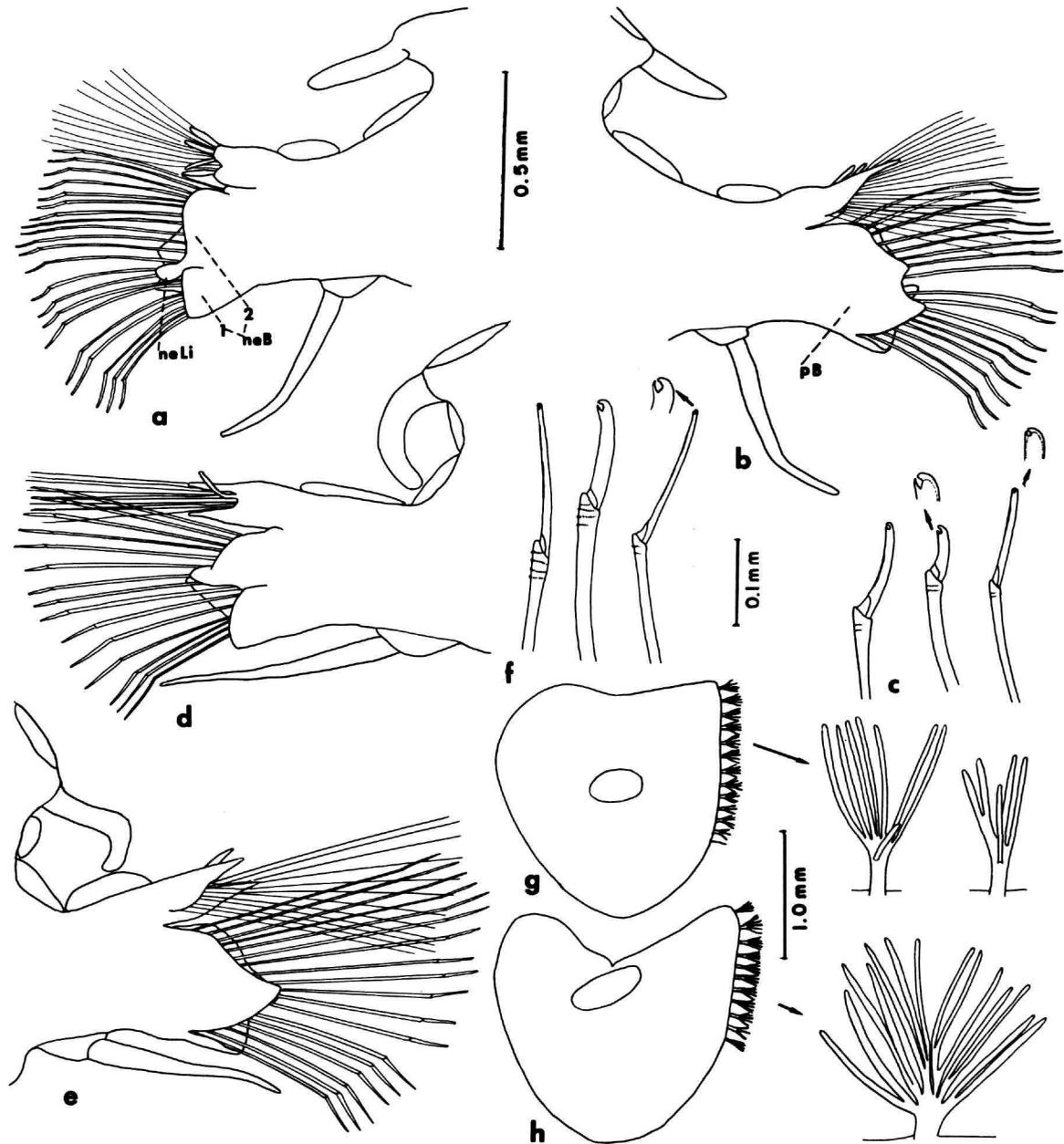


FIGURE 3.—*Euthalenessa oculata* (small syntype of *E. insignis*, ZMB 6724): *a*, Parapodium from anterior region, anterior view; *b*, same, posterior view; *c*, upper, middle, and lower neurosetae from same; *d*, parapodium from middle region (about segment 60), anterior view; *e*, same, posterior view; *f*, upper, middle, and lower neurosetae from same; *g*, right elytron from anterior region; *h*, same, from middle region.

posterior elytra, the pigmentation becomes more diffused, with darker spots anteromedially.

The elytra change in size and shape along the body. At first they are small and oval, then larger, subtriangular, subreniform to subcordiform (Figures 1*f-h*; 4*e-j*). The 1st pair of elytra lack papillae. The anterior elytra have fringes of papillae extending along most of their lateral borders, with 7 to 19 papillae; more posteriorly, the papillae are confined to the anterior halves of the lateral elytral borders, with 14 to 9 papillae. Most of the papillae are irregularly palmately or dichotomously branched, with 2 to 7 filaments per papilla. The small syntype of *E. insignis* has elytral papillae with up to 14 filaments per papilla, perhaps due to a fusion of some of the papillae (Figure 3*g, h*).

When fully extended, the pharynx has a length about equal to the anterior 20 segments of the body (Figure 1*b*),

The fused prostomium and tentacular segment are withdrawn within the anterior few setigers (Figures 1*a*; 4*a, b*). The 2 pairs of eyes are moderately large, located on the anterior slightly raised oval area of the prostomium, the anterior pair being slightly larger than the posterior pair; the posterior two-thirds of the prostomium is covered dorsally by setigers 2-4. The ceratophore of the median antenna extends from a wider median area between the anterior pair of eyes, narrowing more distally where it is fused to the dorsal sides of the fused tentacular parapodia. The ceratophores of the lateral antennae, which are also fused to the dorsal sides of the tentacular parapodia, extend beyond the median ceratophore; the 3 free antennal styles are subequal in size, short, and subulate. The long palps extend posteriorly to setigers 10 to 20. The dorsal tentacular cirri are short and tapered; the ventral tentacular cirri are about twice as long as the dorsal. The inner dorsal tentacular ridges are located on the distal halves of the tentacular lobes, with 2 groups of capillary setae emerging laterally from near both ends of the ridges; the setae are few in number or may be absent. The bulbous facial tubercle is visible anterior to the medial fused parts of the tentacular parapodia, when the pharynx is extended, or medial to the inner palpal sheaths, when the pharynx is withdrawn; a pair of small labial ctenidia are found on the lateral lips.

The parapodia of setigers 2-5 are greatly modified, with well-developed notopodial and neuropodial bracts (Figures 1*c-e*; 4*a, c, d*). The notopodial bracts, encircling the compact bundles of notosetae, are var-

iously slashed, with 1-6 anterior and 2-6 posterior stylodes. The neuropodial bracts consist of the following: (1) lower-anterior-ventral bracts, greatly enlarged and flaring; they are longest on setigers 2 and 3, becoming shorter on setigers 4 and 5; (2) upper-anterior bracts, shorter and wider; the lower distal parts gradually form distinct rounded lobes or ligules, directed inward; (3) lower-posterior bracts, retort-shaped, bulbous basally, narrowing distally and directed upward; (4) upper-posterior bracts, formed of digitiform stylodes in number of 4 to 10. In the following transitional setigers, the lower-anterior and upper-anterior bracts become shorter and truncate, with a notch between; the lower-posterior bracts become shorter and subconical to oval; the upper-posterior stylodes are fewer in number, the lower one becoming greatly enlarged and surpassing in size the lower-posterior bract. By setigers 8-10, the stylodes have disappeared and the posterior bract is continuous, although it may be notched distally. The long slender compound neurosetae of the anterior setigers have multiarticulate blades with 3-9 articles; some of the neurosetae are stouter, their blades shorter, with 1-2 articles; the stems are smooth or have few spinous rows (Figures 1*d*; 4*d*). The dorsal cirri on setiger 3 are short, subulate, borne on short cirrophores; small ctenidia encircle the elytriphores of setiger 2 and the dorsal cirri of setiger 3 (Figures 1*c*; 4*a-c*).

The branchiae begin on setigers 4-6. The parapodial ctenidia are large, cup-shaped, 3 per parapodium. The parapodia of the anterior segments have small club-shaped notopodia and larger neuropodia (Figures 2*a-d*; 5*a-c*). The notopodial bracts have a single posterior stylode and 2-5 anterior stylodes. The notosetae form rather small bundles; they are slender, spinous, and taper to capillary tips. The neuropodial acicular lobes are enclosed in anterior and posterior bracts. The C-shaped posterior bracts are truncate or slightly undulate and enclose the C-shaped row of neurosetae. The smaller lower-anterior bracts are truncate and enclose the lower diagonal row of neurosetae. The larger upper-anterior bracts are rounded, with more or less distinct rounded lobes or ligules on their lower borders; the ligules are directed inward below the tips of the acicular lobes; the upper borders of the bracts curve around the upper diagonal row of neurosetae. The compound neurosetae are stout; the distal tips of the enlarged stems have few faint spinous rows; the blades are all rather short, with bifid hooked tips; the neuro-

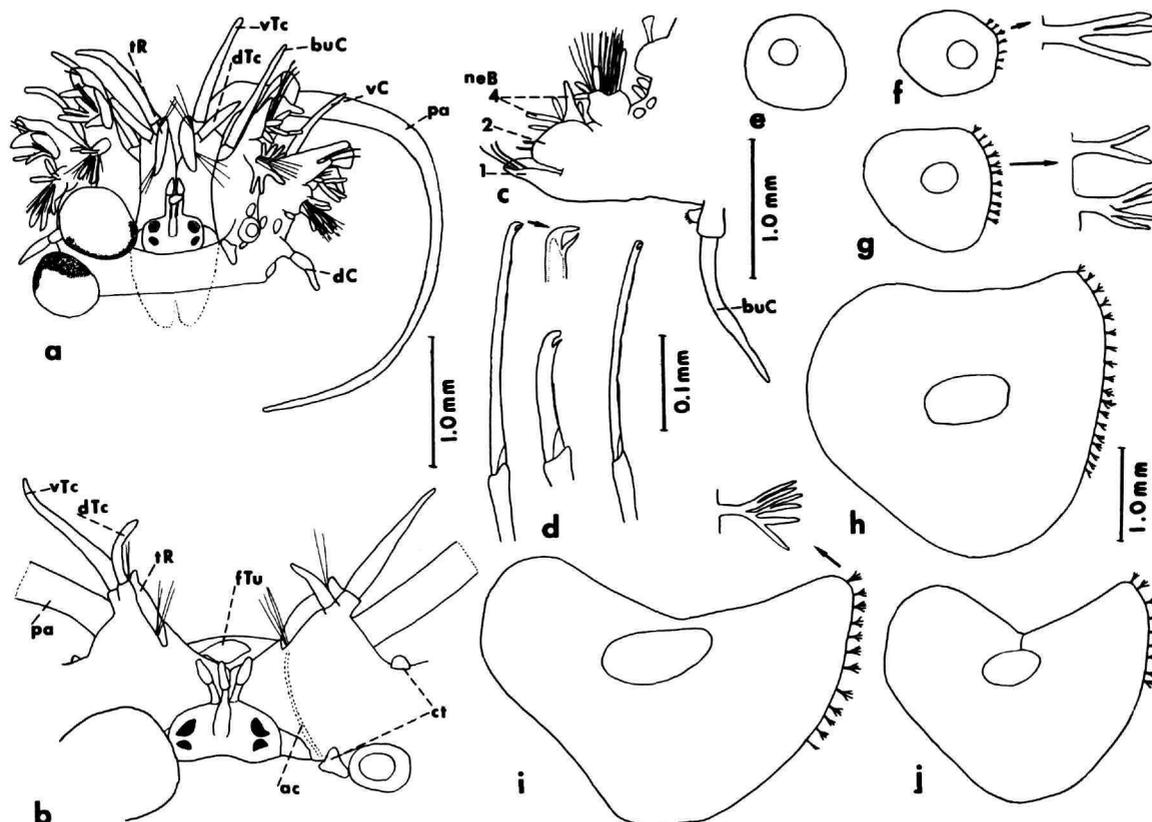


FIGURE 4.—*Euthalenessa oculata* (a, small specimen from Bay of Naples, USNM 40574; b–j, large specimen from Naples, USNM 5129): a, Anterior end, dorsal view; b, anterior end, dorsal view, bases of palps only shown; pharynx fully extended, causing tentacular parapodia to be spread apart; c, parapodium from setiger 2, anterior view; d, upper, middle, and lower neurosetae from same; e, first right elytron; f, second right elytron; g, third right elytron; h, twelfth right elytron; i, right elytron from middle region; j, right elytron from posterior region.

setae of the upper and lower diagonal rows are more slender, with somewhat longer blades (Figures 2*d*; 5*c*). The anterior parapodia of the smaller specimens differ somewhat in appearance (Figure 3*a–c*). The posterior bracts have a shallow notch; the lower rounded lobes or ligules of the upper-anterior bracts are more prominent; the neurosetae are more slender. The ventral cirri are slender, tapering, extending to the distal tips of the neuropodia.

The parapodia of the middle and posterior regions of the body differ in some respects (Figures 2*e–j*; 3*d–f*; 5*d–f*). The notopodia are similar, having a single posterior and 2–5 anterior stylodes. The neuropodia show marked changes, however. The posterior bracts are more elongate and subconical. The upper-anterior

bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking; this includes their lower ligules. The neurosetae are longer; their stems may have more numerous distinct spinous rows and the blades are somewhat longer. The ventral cirri are longer and extend beyond the distal tips of the neuropodia.

BIOLOGY.—The species is very common and abundant in the Mediterranean, where it is localized in biotopes of coarse substrate—fine gravel, coarse sand, with bryozoans, coralline algae, shells, detritus, and where there are strong currents on the bottom (Bellan, 1961, 1964, as *Euthalenessa dendrolepis*). The species has been reported from numerous stations in South Africa on bottoms of sand, mud, rock, gravel, rock, with

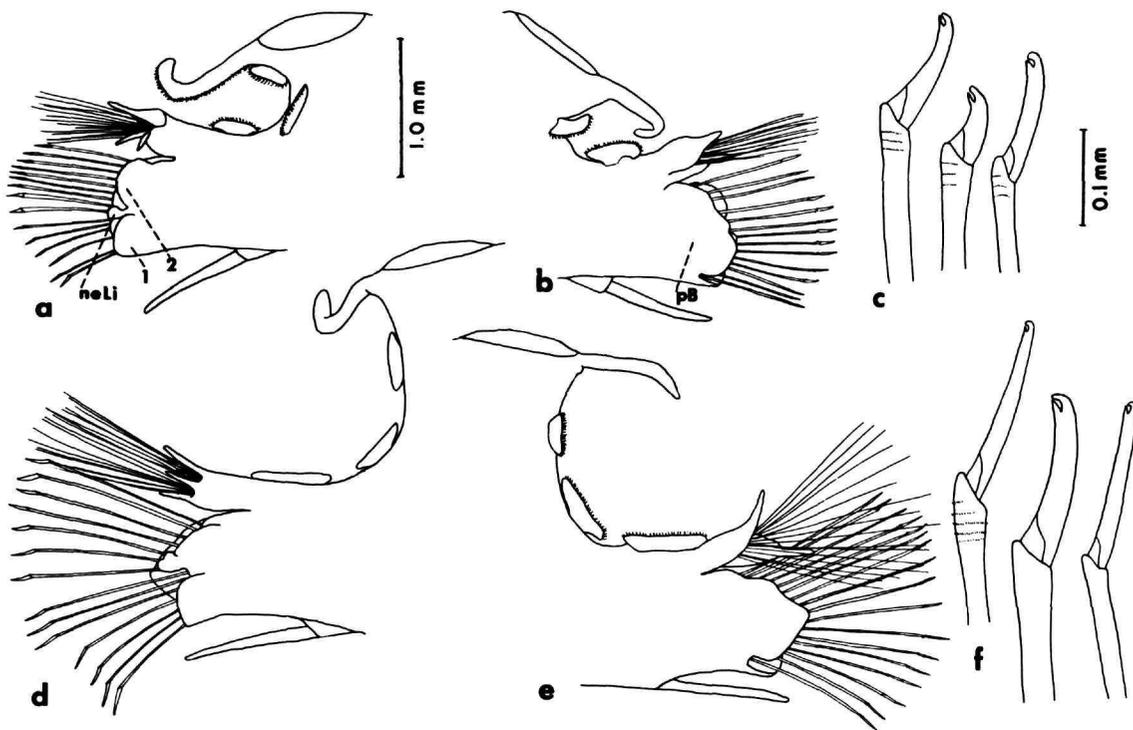


FIGURE 5.—*Euthalenessa oculata* (large specimen from Naples, USNM 5129): *a*, Parapodium from anterior region, anterior view; *b*, same, posterior view; *c*, upper, middle, and lower neurosetae from same; *d*, parapodium from middle region, anterior view; *e*, same, posterior view; *f*, upper, middle, and lower neurosetae from same.

broken shells, *Lithothamnion*, in 13 to 82 meters by Day (1960, as *Thalenessa oculata*). The females form large yolky eggs. Fauvel (1914, as *Sthenelais dendrolepis*) reported that quite large specimens were found swimming at the surface in the Gulf of Gascony.

DISTRIBUTION.—*Gulf of Gascony, Mediterranean, West, South and East Africa*. In 12 to 1250 meters.

REMARKS.—*Leanira giardi* was referred to *Sthenelais dendrolepis* by Marenzeller (1904). *Euthalenessa insignis* was referred to *E. dendrolepis* by Monro (1930). The holotype of *Sigalion oculatum* Peters, deposited in the Berlin Museum, was examined by Day (1953: 407) when he referred the species to *Euthalenessa* and included in its synonymy *Sthenelais dendrolepis* Claparède and *E. insignis* Ehlers. One of the specimens from Day's collection from Table Bay, South Africa, deposited in the British Museum (BMNH 1952: 1: 12: 2) proved to be a species of *Thalenessa*; the observation by Day (1953: 407) re-

garding the type of burrowing apparently applies to the latter species, rather than to *E. oculata*.

Euthalenessa festiva (Grube), new combination

FIGURES 6–11

Leanira festiva Grube, 1875, p. 78; 1878, p. 56.

Thalenessa microceras Haswell, 1883, p. 294.—Fauvel, 1917, p. 185.

Thalenessa oculata McIntosh, 1885, p. 142, pl. 21: figs. 1, 2; pl. 23: fig. 12, pl. 25: fig. 3, pl. 13A: figs. 11, 12.—Izuka, 1912, p. 86, pl. 10: figs. 1–2. [Not *Sigalion oculatum* Peters, 1854.]

Haswellia microceras.—Darboux, 1900, p. 116.

Thalenessa [sic] *oculata*.—Moore, 1903, p. 426.—Benham, 1915, p. 201, pl. 45: figs. 118–123. [Not Peters, 1854.]

? *Euthalenessa oculata*.—Horst, 1917, p. 107, pl. 22: figs. 1–3. [Not Peters, 1854.]

Euthalenessa digitata.—Augener, 1927, p. 124.—Knox, 1960, p. 97, figs. 85–87 (part?). [Not *Thalenessa digitata* McIntosh, 1885.]

Euthalenessa oculata.—Okuda, 1939, p. 226. Wesenberg-Lund, 1949, p. 258, fig. 3. [Not Peters, 1854.]

Thalenessa tropica Hartman, 1954, p. 228, fig. 1, a-d.—Gallardo, 1968, p. 53, pl. 6: figs. 7-12; pl. 7: figs. 1-5.

Thalenessa digitata.—Imajima and Hartman, 1964, p. 46. [Not McIntosh, 1885.]

MATERIAL EXAMINED.—*Pacific Ocean*, exact locality unknown, Heller, collector—1 specimen (ZMB 3259).

Port Molle, Queensland, Australia, 27.5 meters—holotype of *Thalenessa microceras* Haswell (AMS 11395).

Off East Moncoeur Island, Bass Strait, 39° 10' S, 146° 37' E, 70 meters, sand and shells, *Challenger Expedition*, Station 162, 2 April 1874—holotype of *Thalenessa oculata* McIntosh (BMNH 1885: 12: 1: 110).

Off Honshu Island, Japan, 57-75 meters, *Albatross Station* 3702, 7 May 1900—4 specimens (USNM 5335).

Sailus Ketjil, Paternoster Islands, 27 meters, coral and coral sand, *Siboga Station* 37, 30/31 March 1899—1 specimen (ZMA 312.1). *Haingsisi, Samau Island, Timor*, shore exploration, *Siboga Station* 60, 27/28 April 1899—3 specimens (ZMA 312.2). Anchorage off *North Ubian*, 06° 07.5' N, 120° 26' E, 16-23 meters, *Lithothamnion* bottom, *Siboga Station* 99, 28-30 June 1899—1 specimen (ZMA 312.3). Anchorage off *Pulu Tongkil, Sulu Archipelago*, 13 meters, *Lithothamnion* bottom, *Siboga Station*, 109, 5/6 July 1899—3 specimens (ZMA 2035). Anchorage off *Sawan, Siau Island*, 27 meters, stones and *Lithothamnion*, *Siboga Station* 125, 18/19 July 1899—1 specimen (ZMA 2236). 00° 7.2' N, 130° 25.5' E, 59-83 meters, grey muddy sand, shells, and *Lithothamnion*, *Siboga Station* 154, 14 August 1899—1 specimen (ZMA 1779). *Banda anchorage, reef exploration, Siboga Station* 240, 22 November to 1 December 1899—8 specimens (ZMA 312.4; RMNHL 1181; USNM 40575). Anchorage off *Rumah Lusi, Tiur Island*, 54 meters, *Siboga Station* 248, 4/5 December 1899—1 specimen (ZMA 1900). Anchorage east of *Sailus Besar, Paternoster Islands*, up to 36 meters, coral and *Lithothamnion*, *Siboga Station* 315, 17/18 February 1900—1 specimen (ZMA 312.5).

Ralum, Neu-Pommern, New Guinea, 66 meters, Fr. Dahl, collector—1 specimen (ZMB 6544).

Onotoa, Gilbert Islands, August 1951, P. E. Cloud, collector—holotype and paratype *Thalenessa tropica* (USNM 26088-89).

TYPE-MATERIAL.—The type of *Leanira festiva* Grube (1875) from the Philippine Islands no longer exists (Dr. G. Hartwich, in correspondence). The specimen

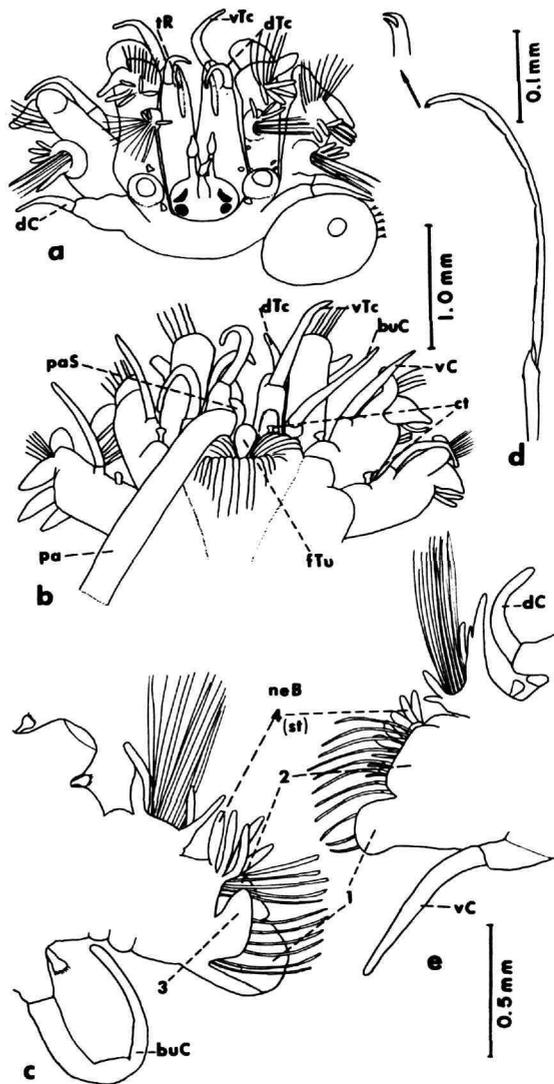


FIGURE 6.—*Euthalenessa festiva* (ZMB 3259): a, Anterior end, dorsal view, first pair elytra missing; b, anterior end, ventral view, left palp missing; basal part of right palp only shown; c, parapodium from setiger 2, posterior view; d, neuroseta from same; e, parapodium from setiger 3, anterior view.

described by Grube (1878) from the Pacific Ocean, exact locality unknown but probably below the equator, is deposited in the Berlin Museum (ZMB 3259) and was used to supplement the description of the species (Figures 6, 7). It consists of anterior and middle fragments, with a total length of 69 mm, width of 6 mm, including setae, and 80 segments.

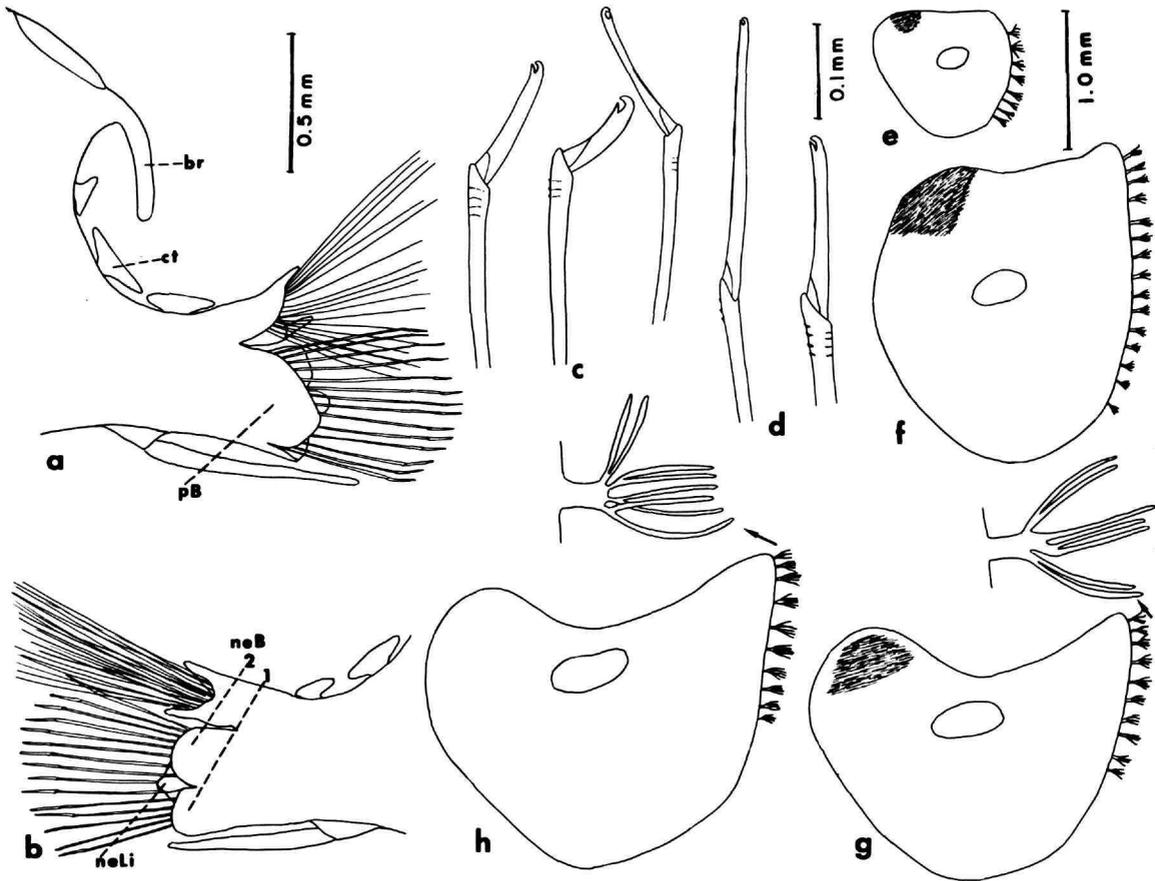


FIGURE 7.—*Euthalenessa festiva* (ZMB 3259): *a*, Parapodium from anterior region, posterior view; *b*, same, anterior view; *c*, upper, middle, and lower neurosetae from same; *d*, lower and middle neurosetae from middle region; *e*, right tenth elytron; *f*, right sixth elytron; *g*, right eighth elytron; *h*, right elytron from middle region.

The holotype of *Thalenessa microceras* Haswell (AMS 11395) consists of an anterior fragment of 65 segments, 40 mm in length, and 4 mm in width, including parapodia. Most of the blades of the neurosetae are broken off.

The holotype of *Thalenessa oculata* McIntosh (BMNH 1885: 12: 1: 110) consists of an anterior fragment and 2 middle fragments, with a total length of 54 mm, 6 mm in width, including setae, and 67 segments (Figure 11). The pharynx is partially extended and the palps are now missing.

The holotype of *Thalenessa tropica* (USNM 26088) is 45 mm long, 3.5 mm wide, including setae, and 78 segments; the specimen is rather flabby and the

pharynx is partially extended. The paratype (USNM 26089) is a small specimen, 15 mm long, 2 mm wide, and has about 40 segments; all of the elytra are missing.

DESCRIPTION.—The body has a length up to 90 mm, width, including setae, 4–6 mm, with numerous segments—up to 180. The body is variously pigmented with rusty brown pigmentation, with prominent darker bands on setigers 14 to 16. The elytra may show mottled pigmentation in the form of brown areolae, with greater concentration on the anterior inner borders.

The elytra change in size and shape along the body. At first they are small and oval, then larger, subtriangular, subquadrangular, subreniform to subcordiform (Figures 7*e–h*; 10*a–e*; 11*k, l*). The 1st pair of

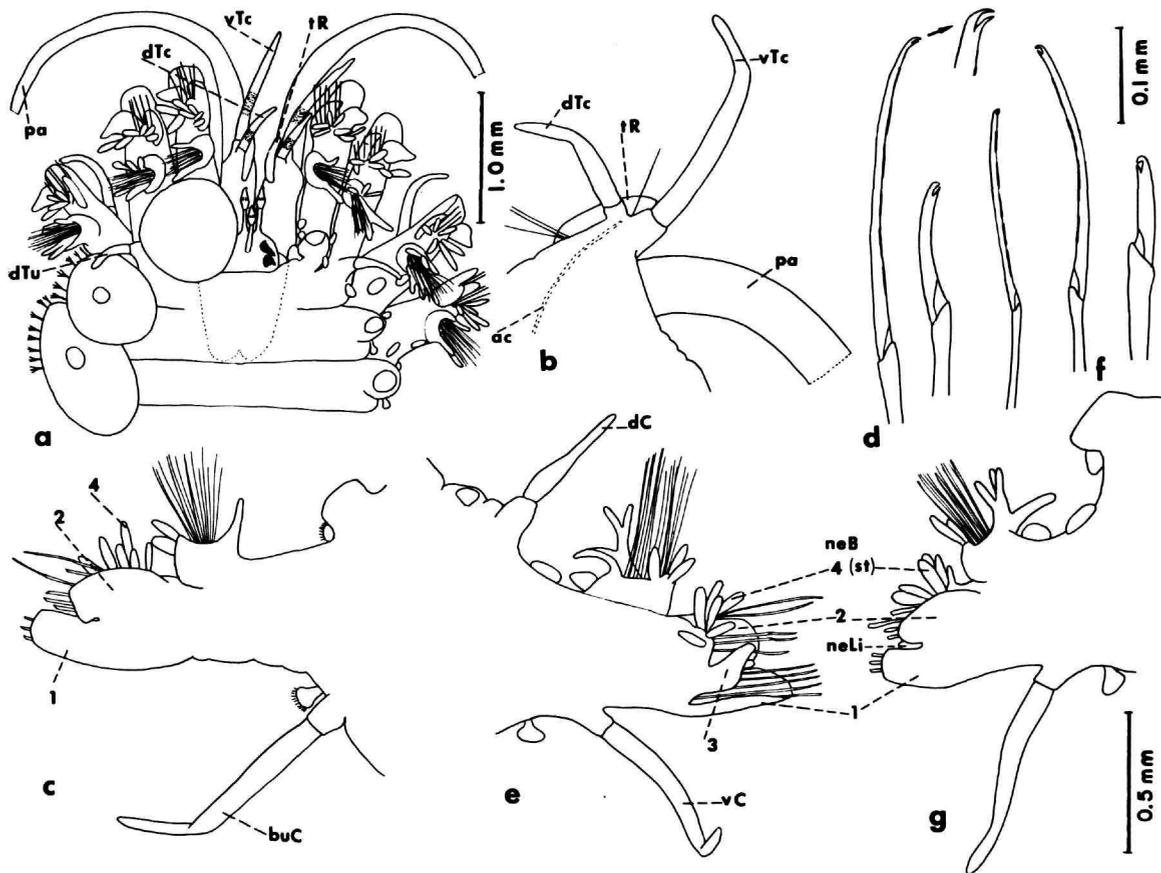


FIGURE 8.—*Euthalenessa festiva* (USNM 5335): *a*, Anterior end, dorsal view, clytra on right side removed; palps not completely shown; *b*, tentacular parapodium (I), outer or posterior view; *c*, parapodium from setiger 2, anterior view; blades of neurosetae mostly broken off; *d*, neurosetae from same; *e*, parapodium from setiger 3, posterior view; *f*, neurosetae from same; *g*, parapodium from setiger 4, anterior view; blades of neurosetae mostly broken off.

elytra lack papillae. The anterior elytra have fringes of papillae extending along most of their lateral borders, with 6 to 15 papillae; more posteriorly, the papillae are confined to the anterior halves of the lateral elytral borders, with 13 to 10 papillae. Most of the papillae are irregularly palmately or dichotomously branched, with 2 to 9 filaments per papilla.

The pharynx was not fully extended on any of the specimens examined.

The fused prostomium and tentacular segment are withdrawn within the anterior few setigers (Figures 6*a, b*; 8*a*; 11*a*). The 2 pairs of eyes are large, closely approximated, located on more or less inflated, raised

ocular areas, the anterior pair being larger than the posterior pair; the posterior two-thirds of the prostomium is covered dorsally by setigers 2–4. The ceratophore of the median antenna extends from a wider median area between the anterior pair of eyes, narrowing slightly more distally where it is fused to the dorsal sides of the fused tentacular parapodia. The ceratophores of the lateral antennae, which are also fused to the dorsal sides of the tentacular parapodia, extend beyond the median ceratophore; the 3 free antennal styles are subequal in size, short, and subulate. The long palps extend posteriorly to about setigers 17–18. The dorsal tentacular cirri are short and tapered; the ven-

tral tentacular cirri are about twice as long as the dorsal (Figure 8b). The inner dorsal tentacular ridges are found on the distal third of the tentacular lobes, with 2 groups of capillary setae emerging laterally from near both ends of the ridges; the setae are few in number or may be absent. The bulbous facial tubercle is visible ventrally between the lateral lips and the inner palpal sheaths; a pair of small labial ctenidia are found on the lateral lips (Figures 6b; 11a).

The parapodia of setigers 2-5 are greatly modified, with well-developed bracts (Figures 6a-e; 8a, c-g; 11b). The anterior and posterior notopodial bracts encircle the compact bundles of notosetae; the bracts are variously slashed with 2-3 anterior and 1-4 posterior stylodes. The neuropodial bracts are as follows: (1) lower-anterior-ventral bracts, greatly enlarged and flaring; they are longest on setigers 2 and 3, becoming shorter on setigers 4 and 5; (2) upper-anterior bracts,

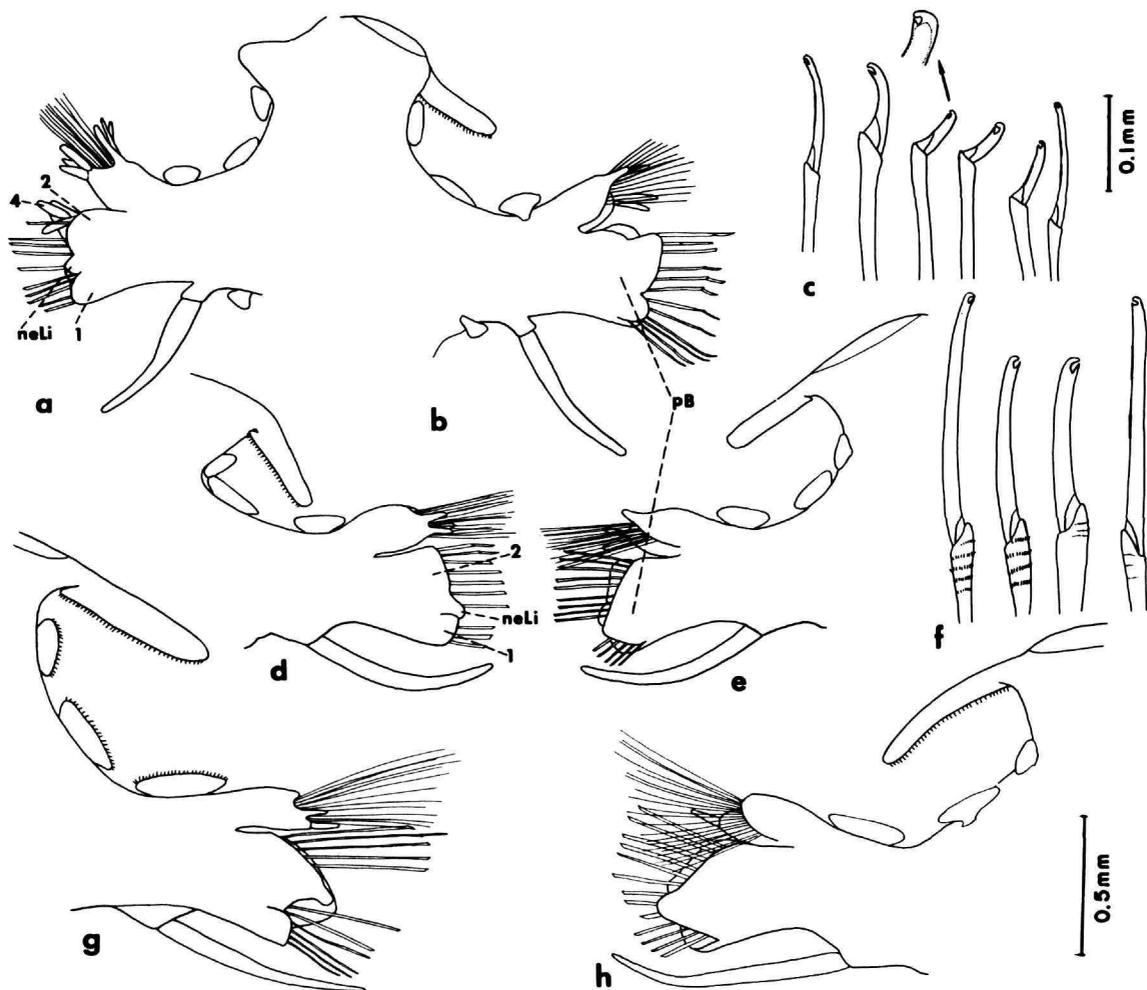


FIGURE 9.—*Euthalenessa festiva* (USNM 5335): a, Parapodium from setiger 6, anterior view; blades of neurosetae mostly broken off; b, parapodium from setiger 7, posterior view; c, neurosetae from same; d, parapodium from anterior region, anterior view; blades of neurosetae mostly broken off; e, same, posterior view; f, upper, middle, and lower neurosetae from same; g, parapodium from middle region, anterior view; blades of neurosetae mostly broken off; h, same, posterior view.

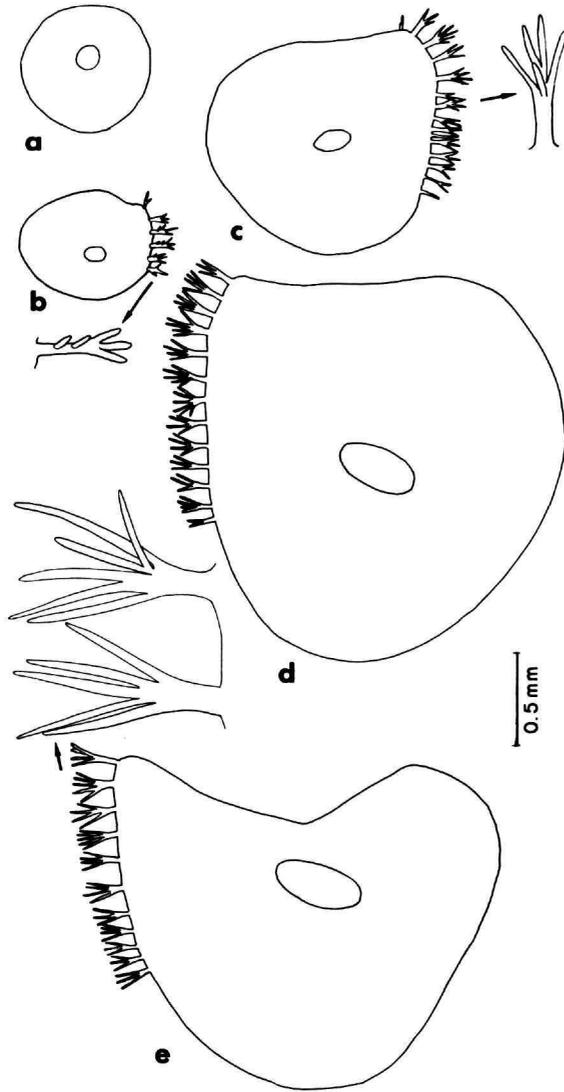


FIGURE 10.—*Euthalenessa festiva* (USNM 5335): *a*, Right first elytron; *b*, right second elytron; *c*, right fourth elytron; *d*, left elytron from anterior region (about setiger 27); *e*, left elytron from middle region (about setiger 50).

shorter and wider; their lower distal parts form more or less distinct rounded lobes or ligules, which are directed inward; (3) lower-posterior bracts, subconical and directed upward; and (4) upper-posterior bracts formed of digitiform stylodes 6–9 in number. In the following transitional setigers, the lower-anterior and upper-anterior bracts become shorter and rounded,

with a notch between (Figure 9*a*). The lower-posterior bracts become shorter and oval; upper-posterior stylodes are fewer in number, the lower one becoming greatly enlarged and surpassing in size the lower-posterior bract (Figure 11*c*). By setigers 7–8, the stylodes have disappeared and the posterior bract is continuous, although there may be a distal notch (Figure 9*b*). The long slender compound neurosetae of the anterior setigers have multiarticulate blades with 4–8 articles; some of the neurosetae are stouter, their blades shorter with 2 articles; the stems are smooth or have few spinous rows (Figures 6*d*; 8*d*, *f*). The dorsal cirri on setiger 3 are short, subulate, borne on short cirrophores (Figures 6*a*, *e*; 8*a*, *e*). Small ctenidia encircle the elytriphores of setiger 2 and the dorsal cirri of setiger 3 (Figures 6*a*, *c*, *e*; 8*a*, *c*, *e*).

The branchiae begin on setigers 4–7. The parapodial ctenidia are large, cup-shaped, 3 per parapodium. The parapodia of the anterior segments have small club-shaped notopodia and larger neuropodia (Figures 7*a–c*; 9*d–f*; 11*e–g*). The notopodial bracts have a single posterior and 1–2 anterior stylodes. The notosetae form rather small bundles; they are slender, spinous, tapering to capillary tips. The neuropodial acicular lobes are enclosed in anterior and posterior bracts. The C-shaped posterior bracts are diagonally truncate and enclose the C-shaped rows of neurosetae. The smaller lower-anterior bracts are truncate and enclose the lower diagonal rows of neurosetae. The larger upper-anterior bracts are rounded, with distinct rounded lobes or ligules on their lower borders; the ligules are directed inward below the tips of the acicular lobes; the upper borders of the bracts curve around the upper diagonal rows of neurosetae. The compound neurosetae are moderately stout; the distal tips of the enlarged stems have few faint to distinct spinous rows; the blades are short to moderately long, the lower ones being 2–3 articulated (Figures 7*c*; 9*f*; 11*d*). The ventral cirri are slender, tapering, extending to the distal tips of the neuropodia or slightly beyond.

The parapodia of the middle and posterior regions of the body are somewhat modified (Figures 9*g*, *h*; 11*h–j*). The notopodia are similar, having 0–1 posterior and 1–2 anterior stylodes. The neuropodia show more marked changes. The posterior bracts are more elongate and subconical. The upper-anterior bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking; this includes their lower ligules, which are directed down-

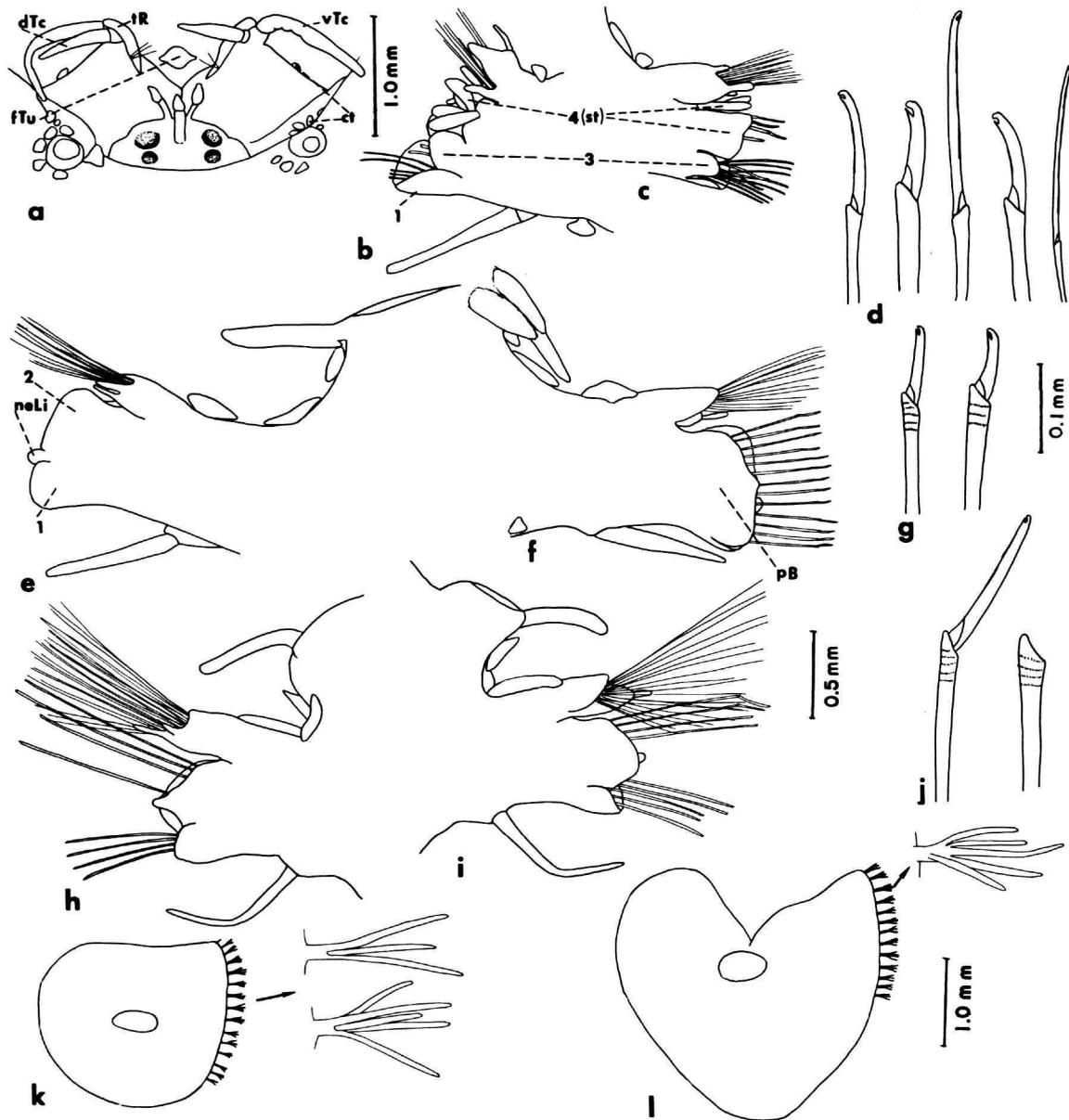


FIGURE 11.—*Euthalenessa festiva* (holotype of *Thalenessa oculata* McIntosh, BMNH 1885: 12: 1: 110): a, Prostomium and tentacular segment, dorsal view; pharynx partially extended; palps missing; b, parapodium from setiger 3, posterior view; dorsal cirrus not shown; c, parapodium from setiger 6, posterior view; d, neurosetae from same; e, parapodium from anterior region, anterior view (neurosetae all missing); f, same, posterior view; g, neurosetae from same; h, parapodium from middle region, anterior view, neurosetae mostly broken; i, same, posterior view; j, neurosetae from same; k, right sixth elytron; l, right elytron from middle region (about segment 60).

ward below the tips of the acicular lobes. The neurosetae are longer; their stems may have more numerous, distinct spinous rows; the blades are somewhat longer, those of the upper neurosetae have 2–3 articles and the lower more slender ones have 3–5 articles (Figures 7*d*; 11*j*). The ventral cirri are longer and extend beyond the distal tips of the neuropodia.

DISTRIBUTION.—Indo-Pacific: Gulf of Iran, Japan, Philippine Islands, Malay Archipelago, New Guinea, Australia, New Zealand, Marshall Islands. Intertidal to 83 meters.

REMARKS.—Knox (1960) combined the 3 *Thalenessa* species of McIntosh (1885)—*T. oculata*, *T. digitata* and *T. fimbriata*—under *Euthalenessa digitata* McIntosh). Based on reexamination of the type-specimens, the 3 species are herein considered to be distinct and *T. oculata* McIntosh is referred to *E. festiva* (Grube). Part of Knox's records of *Euthalenessa digitata* from the Chatham Island questionably may refer to *E. festiva*.

The record of Monroe (1924) of *E. oculata* (McIntosh) from Torres Strait and China Sea is questioned. Nine specimens, deposited in the British Museum (BMNH 1925: 1: 28: 50), were examined. They appear to be a different species but, due to the poor condition of the specimens, they were not studied in detail.

Examination of the holotype of *Thalenessa microceras* allows some corrections of the original description to be made. The elytra are located on segments 2, 4, 5, 7, and alternate segments to 27, then continuing on every segment (not on every second segment, as stated by Haswell). A pair of short dorsal cirri is found on segment 3; branchiae begin on segment 6; dorsal tubercles are found on segments 6, 8, and alternate segments to 26 (branchiae on dorsal tubercles referred to as dorsal cirri by Haswell; branchiae on elytriphores referred to as cirriform appendages). The long palps extend to segments 14 and 17 (called buccal tentacles by Haswell). Except for the first few segments, the parapodia were not described by Haswell; they agree with the description given above.

Euthalenessa digitata (McIntosh)

FIGURES 12, 13

Thalenessa digitata McIntosh, 1885, p. 140, pl. 22: fig. 2, pl. 23: figs. 5–7, pl. 13A: figs. 7–10, pl. 32A: fig. 9.—[?] Willey, 1905, p. 260, pl. 2: figs. 50–52.—[Not Hartman, 1966, p. 178.]

Euthalenessa digitata.—Darboux, 1900, p. 116.—[Not Augener, 1927, p. 124.—Not Knox, 1960, p. 97.]

Thalenessa djiboutiensis Gravier, 1901, p. 231, pl. 7: figs. 114–117, text-figs. 240–248.

[?] *Thalenessa* [sic] *digitata*.—Potts, 1910, p. 351.

Euthalenessa djiboutiensis.—Fauvel, 1918, p. 331.—Wesenberg-Lund, 1949, p. 258.

Not *Euthalenessa* [sic] *djiboutiensis*.—Monro, 1937, p. 264.

MATERIAL EXAMINED.—Off *Admiralty Islands, western Pacific*, 29–45 meters, *Challenger* Expedition, March 1875—holotype of *Thalenessa digitata* (BMNH 1885: 12: 1: 109a).

Djibouti, Red Sea, H. Coutière, collector, 1897—2 syntypes of *Thalenessa djiboutiensis* (MNHN).

TYPE-MATERIAL.—The holotype of *Thalenessa digitata*, now in 4 pieces, has a total length of about 126 mm, width, including setae, 6 mm, and about 160 segments (Figure 12). It is a female, filled with eggs posteriorly.

The 2 syntypes of *Thalenessa djiboutiensis* are incomplete; the larger syntype, with the pharynx fully extended, has a length of 56 mm, width of 6 mm, including setae, and about 100 segments; the smaller syntype is about 40 mm long, width of 4 mm, including setae, and 64 segments (Figure 13).

DESCRIPTION.—The body is colorless. The elytra change in size and shape along the body. At first they are small and oval, then larger, subrectangular, subreniform to subcordiform, with deep anterior notches (Figures 12*l–n*; 13*a, h–j*). The 1st pair of elytra lack papillae. The anterior elytra have fringes of papillae extending along most of their lateral borders, with 11–15 papillae; more posteriorly, the papillae are confined to the anterior halves of the lateral borders, with 12 to 8 papillae. The papillae have 1 to 3 filaments per papilla (up to 4, according to McIntosh; up to 5, according to Gravier).

The pharynx has 11 pairs of papillae and 2 pairs of amber-colored jaws; subterminally a pair of diagonal muscular masses are found both dorsally and ventrally (syntype of *T. djiboutiensis*).

The fused prostomium and tentacular segment are withdrawn within the anterior few setigers (Figures 12*a, b*; 13*a*). The 2 pairs of eyes are moderately large, located on the anterior slightly raised oval area of the prostomium, the anterior pair being larger than the posterior pair; the posterior half of the prostomium is covered dorsally by the anterior segments. The ceratophore of the median antenna extends from a wider

median area between the anterior pair of eyes, narrowing more distally where it is fused to the dorsal bases of the fused tentacular parapodia. The ceratophores of the lateral antennae are short and also fused to the dorsal sides of the tentacular parapodia; they extend to about the same level as the median ceratophore; the 3 free antennal styles are subequal in size, short, and subulate. The long palps extend posteriorly to setigers 11 to 16. The dorsal tentacular cirri are short and tapered; the ventral tentacular cirri are twice as long as the dorsal. The inner dorsal tentacular ridges are found on the distal three-fourths of the tentacular lobes; setae are few or absent. The bulbous facial tubercle is visible ventrally medial to the inner palpal sheaths or anterior to the fused tentacular parapodia when the pharynx is extended; 3-4 pairs of labial ctenidia are present on the lateral lips (Figures 12*b*; 13*a*).

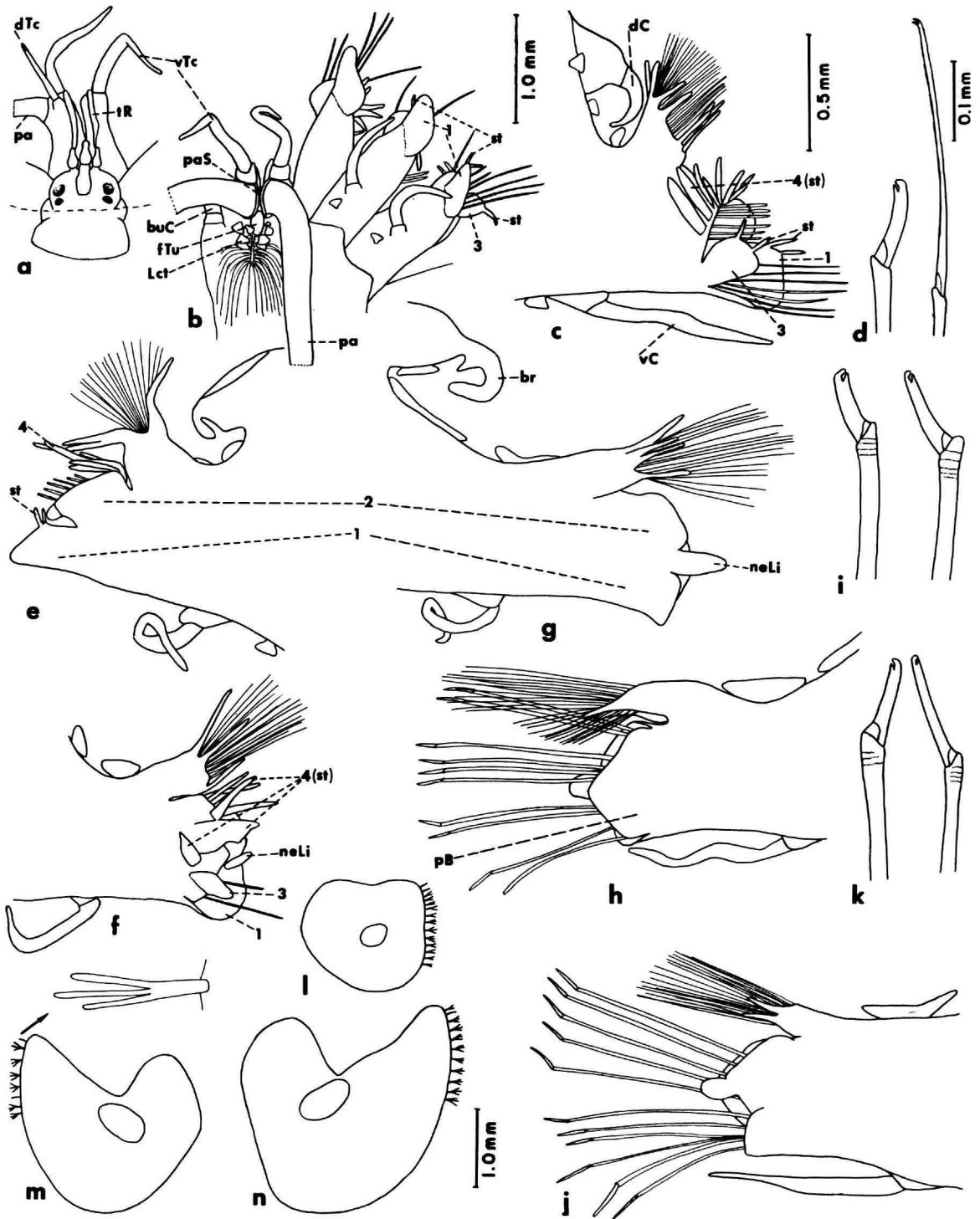
The parapodia of setigers 2-5 are greatly modified, with well-developed notopodial and neuropodial bracts (Figures 12*b-e*; 13*b-c*). The anterior and posterior notopodial bracts encircle the compact bundles of notosetae; they are variously slashed, with 4-5 anterior and 6-9 posterior stylodes. The neuropodial bracts consist of the following: (1) lower-anterior-ventral bracts, greatly enlarged and flaring; they are largest on setigers 2 and 3, becoming shorter on setigers 4 and 5; they have 2-4 papillae or stylodes on their upper distal borders and 0-1 stylodes on their lower distal borders; (2) upper-anterior bracts, shorter and wider; their lower distal parts form distinct rounded lobes or digitiform ligules, directed inward; (3) lower-posterior bracts, oval, with 2-4 distal papillae or stylodes; and (4) upper-posterior bracts formed of 8-10 digitiform stylodes. In the following transitional setigers, the lower-anterior and upper-anterior bracts become shorter and truncate, with a notch between; the lower digitiform ligules of the upper-anterior bracts are prominent; the lower-posterior bracts become shorter, oval, lacking stylodes; the upper-posterior stylodes are fewer in number—4-5 upper and 2 larger lower ones on setiger 6 (Figure 12*f*). By setiger 8 (holotype of *T. digitata*) or setiger 15 (syntype of *T. djiboutiensis*), the stylodes have disappeared and the posterior bract is continuous. The long, slender, compound neurosetae of the anterior setigers have multiarticulate blades with 6-10 articles; some of the neurosetae are stouter, with short blades; the stems are smooth or have few spinous rows (Figures 12*d*; 13*c*). The dorsal cirri on setiger 3 are short, subulate, borne on short cirrophores

(Figures 12*c*; 13*b*). Small ctenidia encircle the elytriphores of setiger 2 and the dorsal cirri of setiger 3.

The branchiae begin on setigers 4-6. The parapodial ctenidia are large, cup-shaped, 3 per parapodium. The parapodia of the anterior segments have small club-shaped notopodia and larger neuropodia (Figures 12*g-i*; 13*d, e*). The notopodial bracts have 1-3 posterior and 2-3 anterior stylodes. The notosetae form rather small bundles; they are slender, spinous, tapering to capillary tips. The neuropodial acicular lobes are enclosed in anterior and posterior bracts. The C-shaped posterior bracts are subtriangular and enclose the C-shaped row of neurosetae. The smaller lower-anterior bracts are truncate and enclose the lower diagonal row of neurosetae. The larger upper-anterior bracts are rounded, with prominent digitiform lobes or ligules on their lower borders; the upper borders of the bracts curve around the upper diagonal row of neurosetae. The compound neurosetae are stout; the distal tips of the enlarged stems have few faint spinous rows; the blades are all rather short, with bifid hooked tips (Figures 12*i*; 13*e*). The ventral cirri are slender, tapering, extending to the distal tips of the neuropodia.

The parapodia of the middle and posterior regions of the body differ in some respects (Figures 12*j, k*; 13*f, g*). The notopodia are similar, having a single posterior and 2-3 anterior stylodes. The neuropodia show marked changes, however. The posterior bracts are more elongate and diagonally truncate. The upper-anterior bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking; the lower ligules are conspicuous, appearing as oval lobes below the tips of the acicular lobes. The neurosetae are similar to the anterior neurosetae, the upper and lower ones having slightly longer blades (Figures 12*k*; 13*g*). The ventral cirri may be somewhat

FIGURE 12.—*Euthalenessa digitata* (holotype of *Thalenessa digitata*, BMNH 1885: 12: 1: 109a): *a*, Prostomium and tentacular segment, dorsal view; dorsal surface of anterior segments cut back showing posterior part of prostomium; right dorsal tentacular cirrus missing; *b*, anterior end, ventral view; right side not completely shown; buccal ventral cirri broken near bases; *c*, parapodium from setiger 3, posterior view; *d*, neurosetae from same; *e*, parapodium from setiger 4, anterior view; *f*, parapodium from setiger 6, posterior view; *g*, parapodium from anterior region, anterior view; *h*, same, posterior view; *i*, neurosetae from same; *j*, parapodium from middle region, anterior view; *k*, neurosetae from same; *l*, right third elytron; *m*, left anterior elytron; *n*, right middle elytron.



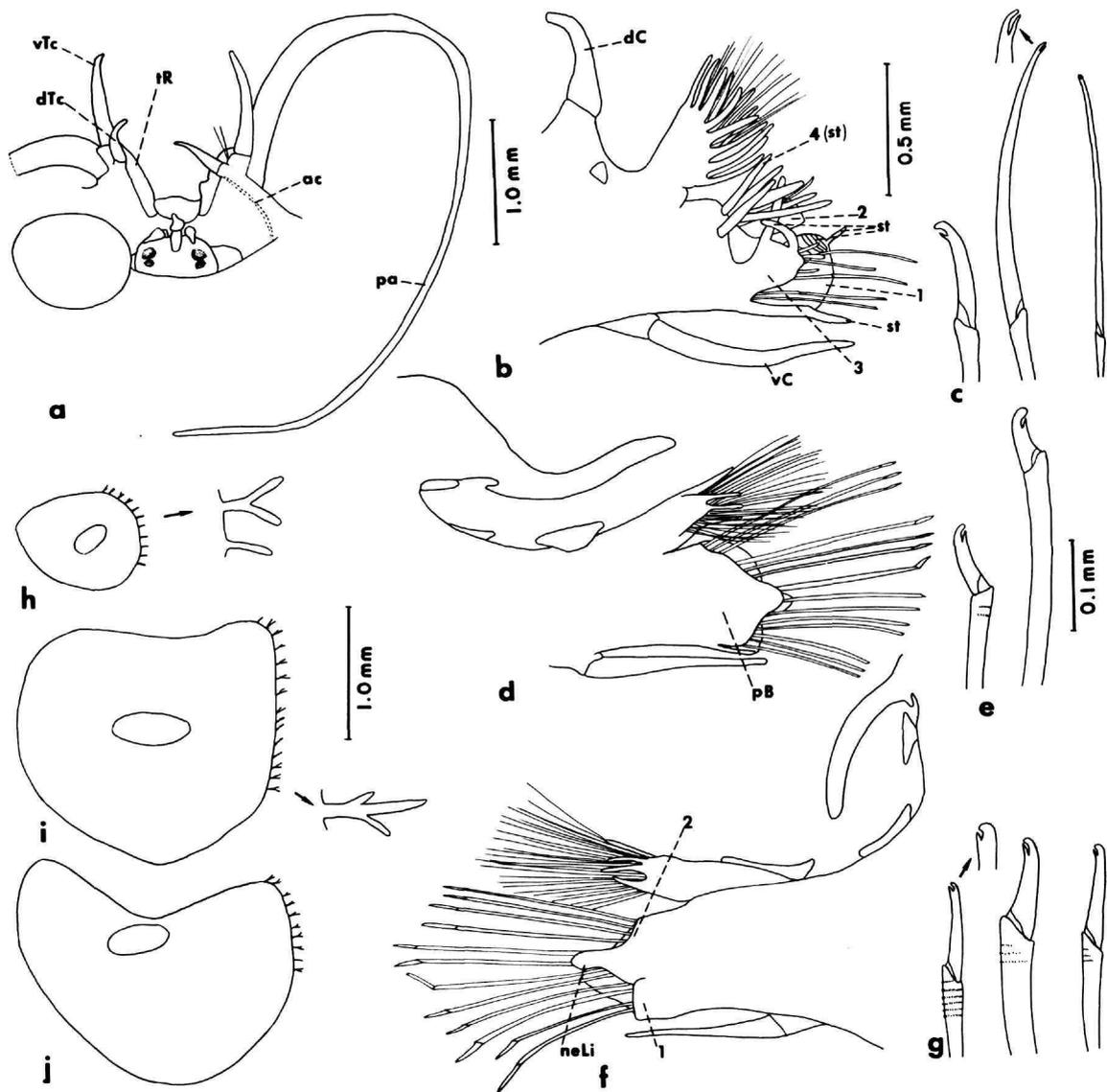


FIGURE 13.—*Euthalenessa digitata* (syntype of *Thalenessa djiboutiensis*, MNHP): a, Anterior end, dorsal view; pharynx extended; b, parapodium from setiger 3, posterior view; c, neurosetae from same; d, parapodium from anterior region (segment 24), posterior view; e, neurosetae from same; f, parapodium from middle region, anterior view; g, neurosetae from same; h, right second elytron; i, right tenth elytron; j, right middle elytron.

longer, extending beyond the distal tips of the neuropodia.

DISTRIBUTION.—Western Pacific Ocean (Admiralty Islands, north of New Guinea), Red Sea, Persian Gulf, and Gulf of Oman, Maldives? Ceylon? In 10 to 45 meters.

REMARKS.—The specimens reported by Willey (1905) from Ceylon and by Potts (1910) from the Maldives, as *T. digitata*, need to be reexamined. The record of *E. djiboutiensis* by Monro (1937) from the Maldives was based on a small specimen in poor condition (BMNH 1937: 9: 2: 68); the specimen was reexamined and the record is considered doubtful.

Euthalenessa fimbriata (McIntosh)

FIGURE 14

Thalenessa fimbriata McIntosh, 1885, p. 144, pl. 19: fig. 10, pl. 23: fig. 4, pl. 24: fig. 5, pl. 25: figs. 1, 2, pl. 13A: fig. 13.
Euthalenessa fimbriata.—Darboux, 1900, p. 114.
Euthalenessa digitata.—Knox, 1960, p. 97 (part?). [Not *Thalenessa digitata* McIntosh, 1885.]

MATERIAL EXAMINED.—Off Port Jackson, Australia, 55–64 meters, hard bottom, *Challenger* Expedition, Station 163B, 3 June 1874—holotype of *Thalenessa fimbriata* (BMNH 1885: 12: 1: 112).

TYPE-MATERIAL.—The holotype consists of a small incomplete specimen, now in 6 fragments, with a total length of about 34 mm, width, including setae, 4 mm, and 77 segments.

DESCRIPTION.—The body has reddish brown, somewhat banded coloration. The elytra are pigmented along their medial and posterior margins. At first they are small and circular, then larger, subtriangular to subreniform (Figure 14 *j, k*). The 1st pair of elytra lack papillae. The anterior elytra have fringes of papillae extending along most of their lateral borders, with about 15 papillae; more posteriorly, the papillae are confined to the anterior halves of the lateral borders, with about 13 papillae. The papillae are irregularly dichotomously branched, with 4 to 14 filaments per papilla.

The pharynx was not extended and was not examined.

The fused prostomium and tentacular segment are withdrawn within the anterior few setigers (Figure 14*a*). The 2 pairs of eyes are located on the anterior oval area of the prostomium, forming bulging ocular lobes; the anterior pair of eyes are elongated, much

larger than the posterior pair; the posterior two-thirds of the prostomium is covered dorsally by the anterior segments. The ceratophore of the median antenna extends as a narrow column between the anterior pair of eyes, continuing onto the dorsal bases of the fused tentacular parapodia. The ceratophores of the lateral antennae extend beyond the median ceratophore, where they are also fused to the dorsal sides of the tentacular parapodia; the 3 free antennal styles are subequal in size, short, and subulate. The palps are long, finely tapered, and smooth (information according to McIntosh; the palps are now missing). The dorsal tentacular cirri are short and tapered; the ventral tentacular cirri are about twice as long as the dorsal. The inner dorsal tentacular ridges extend onto the distal halves of the tentacular lobes; setae are few or nearly absent. The bulbous facial tubercle is visible ventrally, medial to the inner palpal sheaths. A single pair of labial ctenidia is present on the lateral lips.

The parapodia of setigers 2–5 are greatly modified, with well-developed notopodial and neuropodial bracts (Figure 14*b–d*). The notopodial bracts encircle the compact bundles of notosetae; they are variously slashed, with 2–3 anterior and 1–3 posterior stylodes. The neuropodial bracts include the following: (1) lower-anterior-ventral bracts, greatly elongated and flaring; they are largest on setigers 2 and 3, becoming shorter on setigers 4 and 5; (2) upper-anterior bracts, shorter and wider; their lower distal parts form distinct rounded lobes or ligules, directed inward; (3) lower-posterior bracts, subconical, directed upward; and (4) upper-posterior bracts, formed of 5–7 stylodes; on setiger 5, there are 3 upper digitiform stylodes and a lower large subconical one. On the following transitional setigers, the lower-anterior and upper-anterior bracts become shorter and truncate, with a notch between; the lower lobes or ligules of the upper-anterior bracts become more prominent; the lower-posterior bracts become smaller, subconical; the upper-posterior stylodes are fewer in number—a single one in addition to a large bifid lobe on setiger 6. By setiger 7, the stylodes have disappeared and the posterior bract is continuous, with a shallow distal notch. The long slender compound neurosetae of the anterior setigers have multiarticulate blades, with 7–10 articles; some of the neurosetae are stouter, with short blades; the stems are smooth or have few spinous rows (Figure 14*c*). The dorsal cirri on setiger 3 are short, subulate, borne on short cirrophores. Small ctenidia encircle the elytriphores of setiger 2 and the dorsal cirri of setiger 3.

The branchiae begin on setiger 4. The parapodial ctenidia are large, cup-shaped, 3 per parapodium. The parapodia of the anterior segments have small club-shaped notopodia and large neuropodia (Figure 14e-g). The notopodial bracts have a single posterior and 2-3 anterior stylodes. The notosetae form rather small bundles; they are slender, spinous, tapering to capillary tips. The neuropodial acicular lobes are enclosed in anterior and posterior bracts. The C-shaped posterior bracts are diagonally truncate and encircle the C-shaped row of neurosetae. The small lower-anterior bracts are truncate and enclose the lower diagonal row of neurosetae. The larger upper-anterior bracts are rounded, with prominent digitiform lobes or ligules on their lower borders; the upper borders of the bracts curve around the upper diagonal row of neurosetae. The compound neurosetae are relatively slender; the distal tips of the enlarged stems have few faint spinous rows; the blades are short to longer, with 1-2 articles; some of the upper and lower groups are more slender, with longer 3-articled blades (Figure 14g). The ventral cirri are slender, tapering, extending to the distal tips of the neuropodia.

The parapodia of the middle and posterior regions of the body differ in some respects (Figure 14h, i). The notopodia are similar, having a single posterior stylode and 2-3 anterior stylodes. The neuropodia show marked changes, however. The posterior bracts are more elongate and diagonally truncate. The upper-anterior bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking; the lower ligules are conspicuous, appearing as oval lobes below the tips of the acicular lobes. The neurosetae are longer; their stems have more distinct spinous rows; the blades of the middle neurosetae are shorter to longer, with 1-3 articles; those of the upper and lower series have longer blades, with 4 articles (Figure 14i). The ventral cirri are longer, extending beyond the distal tips of the neuropodia.

DISTRIBUTION.—Off Australia, New Zealand? In 55 to 64 meters.

REMARKS.—Knox (1960) referred *E. fimbriata* to *E. digitata*. Based on reexamination of the type-specimens, they are herein considered to be distinct species. At least some of Knox's records of *E. digitata* from the Chatham Islands, New Zealand, in 55 to 283.5 meters, probably refer rather to *E. fimbriata*. The elytral papillae suggest this: the majority of the specimens were stated to have elytral papillae with more than 12 ramifications; this agrees with *E. fimbriata* but

not with *E. digitata*. Knox did not describe the blades of the neurosetae.

***Euthalenessa chacei*, new species**

FIGURES 15, 16

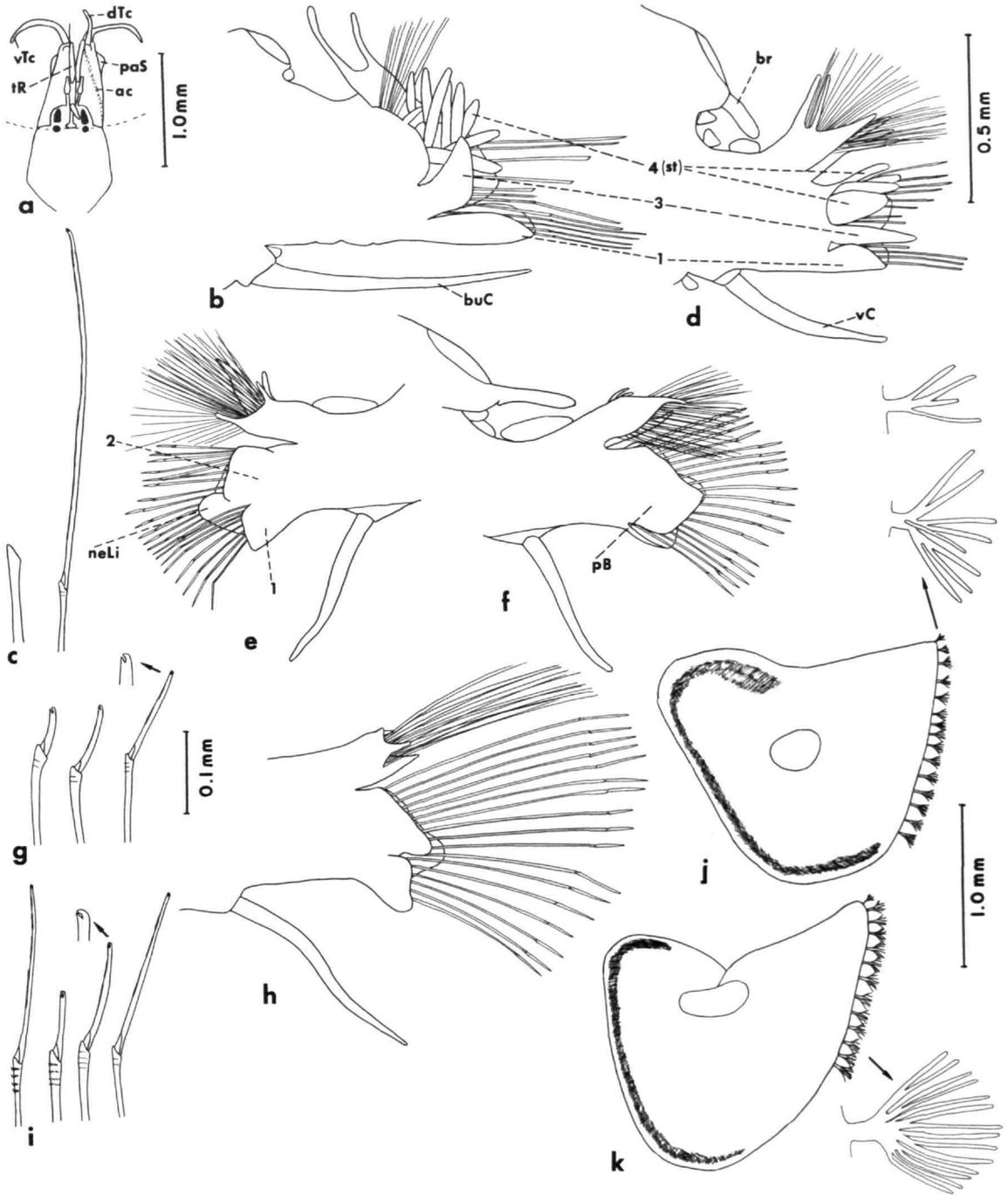
Thalenessa oculata.—Treadwell, 1906, p. 1157 [Not McIntosh, 1885.]

Thalenessa digitata.—Hartman, 1966, p. 178. [Not McIntosh, 1885.]

TYPE-MATERIAL.—Vicinity of Laysan Island, Hawaiian Islands, 114-238 meters, broken shells and corallines, *Albatross* Station 3936, 16 May 1902—holotype (USNM 5469). The species is named for Dr. Fenner A. Chace, Jr., of the Smithsonian Institution, expressing in a small way my appreciation for his help in reviewing my polychaete manuscripts.

The holotype is incomplete, consisting of anterior and middle fragments, with a total length of 23 mm, width of 4 mm, including setae, and 52 segments. It was found occupying a white parchment-like tube encrusted with fragments of coral sand, foraminiferans, and shell fragments. Whether the tube was of its own making or secondarily occupied is not known. Perhaps it was commensal with a tube-living polychaete. The delicate condition of the body and elytra indicates a probable tube-dwelling existence for the species.

DESCRIPTION.—The body lacks color. The elytra are very delicate and transparent. They change in size and shape along the body. At first they are small, oval, then large, subrectangular, subreniform to subcordiform (Figure 15h-k). The first pair of elytra lack papillae. The anterior elytra have fringes of papillae extending along most of their lateral borders, with 8-11 papillae; more posteriorly, the papillae are confined to the anterior halves of the elytral borders with about 8 papillae. Most of the papillae are irregularly palmately or dichotomously branched, with 3 to 9 filaments per papilla.



The pharynx was not extended and was not examined.

The fused prostomium and tentacular segment are withdrawn within the anterior few setigers (Figure

15a). The 2 pairs of pale eyes are moderately large and closely approximated, located on the anterior oval area of the prostomium; the anterior pair is larger than the posterior pair; the posterior two-thirds

of the prostomium is covered dorsally by setigers 2–5. The ceratophore of the median antenna extends from a median area between the anterior pair of eyes, extending onto the dorsal sides of the tentacular parapodia, which are fused along their medial bases. The ceratophores of the lateral antennae, which are also fused to the dorsal sides of the tentacular parapodia,

extend to the same level as the median ceratophore; the 3 free antennal styles are subequal in size, short, and subulate. The long, tapering palps, emerging between low inner and outer palpal sheaths, extend posteriorly to segment 16. The dorsal tentacular cirri are short and tapered; the ventral tentacular cirri are almost three times as long as the dorsal. The inner dorsal

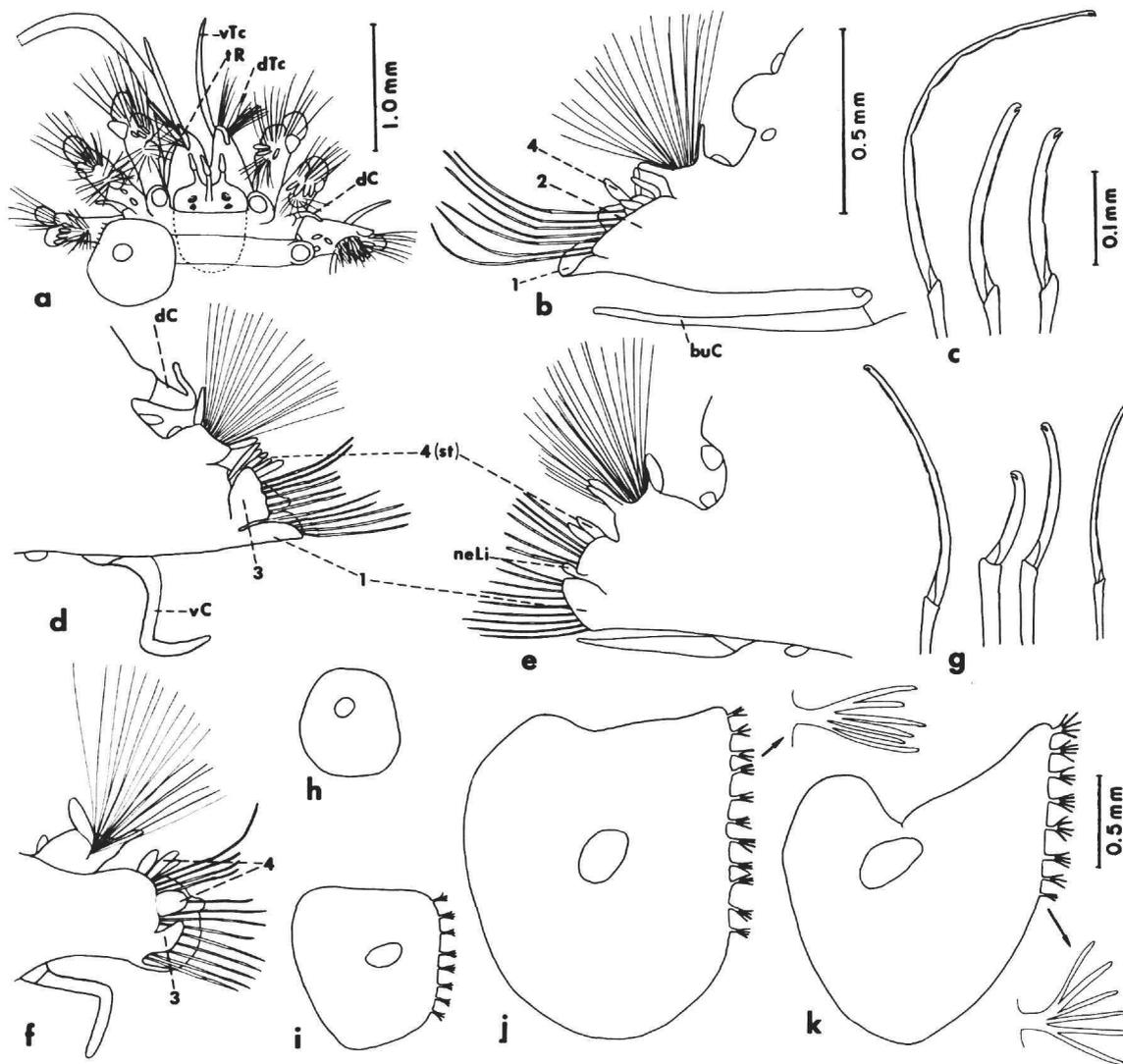


FIGURE 15.—*Euthalenessa chacei*, new species (holotype, USNM 5469): a, Anterior end, dorsal view, posterior part of prostomium dotted—visible through transparent integument of body; b, parapodium from setiger 2, anterior view; c, neurosetae from same; d, parapodium from setiger 3, posterior view; e, parapodium from setiger 4, anterior view; f, parapodium from setiger 5, posterior view; g, neurosetae from same; h, first right elytron; i, second right elytron; j, right elytron from anterior region; k, right elytron from middle fragment.

tentacular ridges are found on the distal fourth of the tentacular lobes, with 2 groups of capillary setae emerging laterally from near both ends of the ridges; the setae are moderate in number. The bulbous facial tubercle is visible medial to the inner palpal sheaths; a pair of small labial ctenidia is found on the lateral lips.

The parapodia of setigers 2-5 are greatly modified, having well-developed noto- and neuropodial bracts (Figure 15b-g). The notopodial bracts encircle the spreading bundles of notosetae; the bracts have 2-3 anterior and single posterior stylodes. The neuropodial bracts consist of the following: (1) lower-anterior-ventral bracts, greatly enlarged and flaring; they are

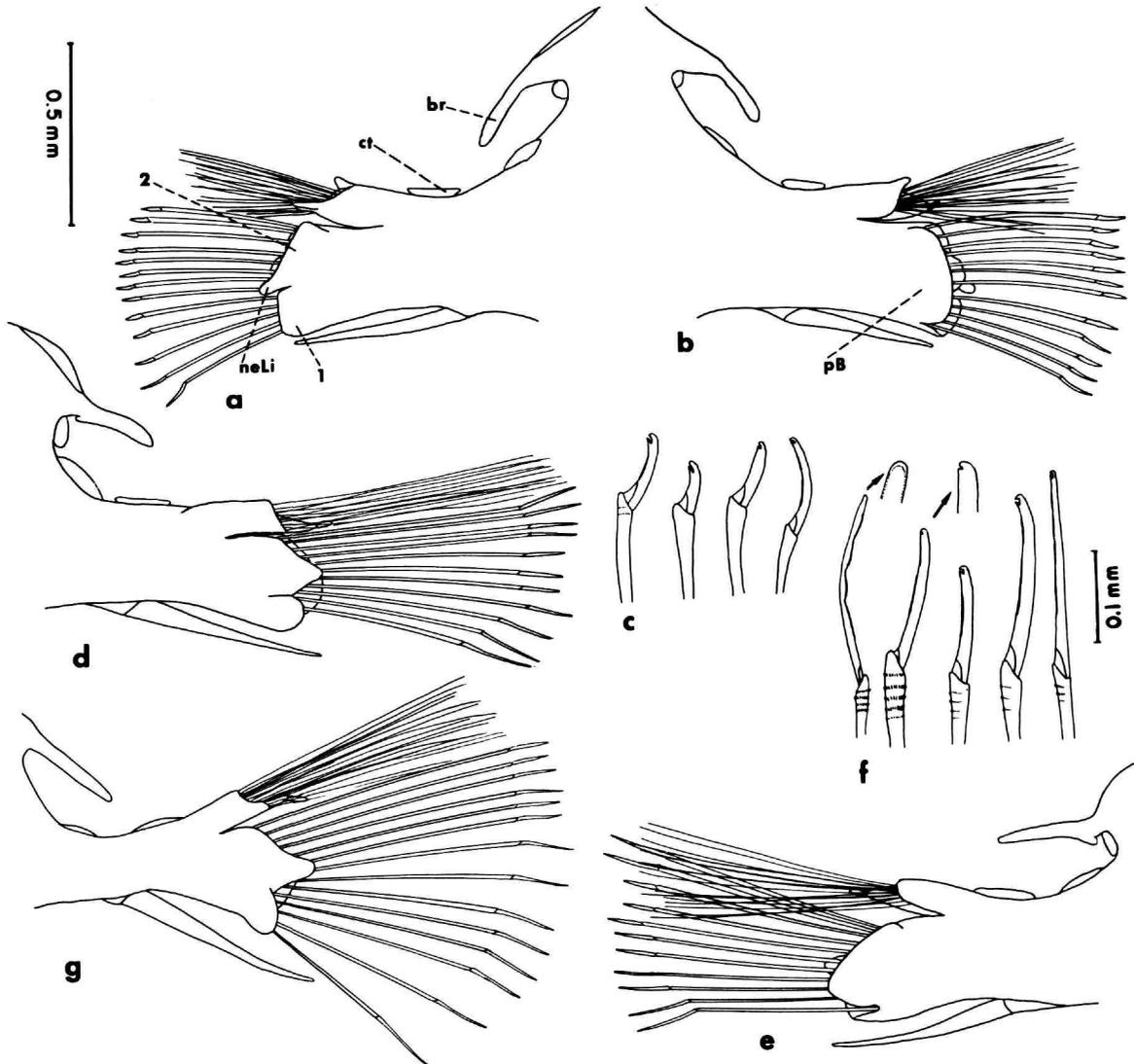


FIGURE 16.—*Euthalenessa chacei*, new species (holotype, USNM 5469): a, Parapodium from anterior region (segment 13), anterior view; b, same (segment 14), posterior view; c, neurosetae from same; d, parapodium from middle region (about segment 35), anterior view; e, same, posterior view; f, neurosetae from same; g, parapodium from middle fragment (about segment 50), anterior view.

largest on setigers 2 and 3, becoming shorter on setigers 4 and 5; (2) upper-anterior bracts, shorter and wider; the lower distal parts form distinct rounded lobes or ligules, directed inward; (3) lower-posterior bracts, subconical and directed upward; (4) upper-posterior bracts formed of digitiform stylodes in number of 4–5; on setiger 5, the lower stylode is much larger than the others, similar in size to the posterior-lower bract (Figure 15f). Setiger 6 is transitional: the lower-anterior and upper-anterior bracts are shorter and truncate, with a notch between and with a short rounded ligule; the lower-posterior bract is small; the upper-posterior stylodes consist of a digitiform upper one and large rounded lower one—much larger than the lower-posterior bract. From setiger 7 on, the upper stylodes have disappeared and the posterior bract is continuous. The long slender compound neurosetae of the anterior setigers have multiarticulate blades with 6–9 articles; some shorter stouter ones have 2–4 articles; both types have bifid hooked tips; the stems are smooth or have faint spinous rows (Figure 15c, g). The dorsal cirri on setiger 3 are short, subulate, borne on short cirrophores; small ctenidia encircle the elytriphores of setiger 2 and the dorsal cirri of setiger 3 (Figure 15b, d).

The branchiae begin on setiger 7. The parapodial ctenidia are large, cup-shaped, 3 per parapodium. The parapodia of the anterior segments have small club-shaped notopodia and larger neuropodia (Figure 16a–c). The notopodial bracts have single subtriangular posterior and 1–2 anterior stylodes. The notosetae form rather small bundles; they are slender, spinous, and taper to capillary tips. The neuropodial acicular lobes are enclosed in anterior and posterior bracts. The C-shaped posterior bracts are diagonally truncate and enclose the C-shaped row of neurosetae. The smaller lower-anterior bracts are truncate and enclose the lower diagonal row of neurosetae. The larger upper-anterior bracts are diagonally truncate, with a more or less distinct rounded lobe or ligule on the lower border; the ligules are directed inward below the tips of the acicular lobes; the upper borders of the bracts curve around the upper diagonal row of neurosetae. The compound neurosetae are rather stout; the distal tips of the enlarged stems are smooth or have few faint spinous rows. Most of the neurosetae have short blades; some of upper neurosetae have longer 2-articled blades; some of the lower ones have 2- to 3-articled blades (Figure 16c). The ventral cirri are slender, tapering, extending to the distal tips of the neuropodia.

The parapodia of the middle region of the body

differ in some respects (Figure 16d–g). The notopodia are similar, having only a single stylode on the acicular lobe. The neuropodia show marked changes. The posterior bracts are more elongate and diagonally truncate. The upper-anterior bracts are smaller and more or less fused with the acicular lobes in the areas where the neurosetae are lacking; this includes their lower ligules. The neurosetae are longer, their stems may have more numerous distinct spinous rows, and the blades are longer; the middle neurosetae are stouter, their blades having 2–3 articles; the upper neurosetae are more slender, their blades having 3–5 articles; the lower neurosetae are slender, their blades having 4–5 articles (Figure 16f). The ventral cirri are longer and extend beyond the distal tips of the neuropodia.

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REMARKS.—The holotype of *E. chacei* was previously identified by Treadwell (1906) as *Thalenessa oculata* McIntosh. The record of *T. digitata* by Hartman (1966) is based on Treadwell's record.

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