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# TEREBELLIFORM POLYCHAETA OF THE FAMILIES AMPHARETIDAE, TEREBELLIDAE AND TRICHOBRANCHIDAE FROM AUSTRALIA, CHIEFLY FROM MORETON BAY, QUEENSLAND.

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## SUMMARY

Some 24 species of polychaetes of the Terebelliformia group are recorded from Moreton Bay, Queensland, and previous records from Australia are reviewed. In the Ampharetidae one new genus, new species is established *Pseudoamphicteis papillosa* as well as a new species of *Auchenoplax*, *A. mesos*. In the Terebellidae, four new genera, new species are established: *Decathelepus ocellatus*, *Hadrachaeta aspeta*, *Litancyra octoseta* and *Rhinothelepus macer*, as well as three new species of *Pista*: *P. pectinata*, *P. trunca* and *P. trina*. *Artacamella dibranchiata* Knox and Cameron is redescribed and newly assigned to Trichobranchidae.

## INTRODUCTION

The major portions of the terebelliform polychaetes were collected in connection with a two year ecological study, in 1970-1971, of the southern portion of Moreton Bay (Long. 153°15'E, Lat. 27°15'S) south of Peel Island, carried out by Professor Stephenson, and others, of the Zoology Department, Queensland University, and from the Middle Banks area off Tangalooma, in June to December 1972. Additional material from Moreton Bay was collected by Mrs C. Wallace, Queensland Museum. Wherever possible, material from other localities in Eastern Australia was examined in order to extend the range of the species found in Moreton Bay.

A total of 24 species are recorded from Moreton Bay, many of which are new to Queensland. Rullier was sent the collection of polychaetes from Moreton Bay that he reported on in 1965, by Stephenson, and the areas which these polychaetes were collected from were described by Stephenson, et al., (1970). This survey indicated that an area south of Peel Island had a particularly rich fauna and this area was subsequently intensively sampled by Stephenson, et al., (1974). This may explain the difference in the number of species of terebelliform polychaetes that Rullier recorded (5) and the number described in this paper (24).

Some of the material was collected by Stephenson, and others, in a relatively small area south of Peel Island in the southern portion of Moreton Bay. Fifteen sites, in 2-8 metres, were sampled in quintuplicate and repeated at 3 month intervals, from March 1970 to December 1971. This area is figured by Stephenson, et al., (1974). See Table 1.

**Table 1. Station data for material collected in March 1970 to December 1971 by Stephenson from south of Peel Island, in southern part of Moreton Bay, Queensland**

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Area I-mud. 1 mile SE of SW rocks Peel Island.  
 Area II-shell, grit and sand. ½ mile S of SW rocks Peel Island.  
 Area III-sand, mud and shell. 1½ miles S of SW rocks Peel Island.

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Depth of Stations		
Area I	Area II	Area III
IA-6 m	IIA-6 m	IIIA-6 m
IB-5 m	IIB-7 m	IIIB-2 m
IC-4 m	IIC-7 m	IIIC-5 m
ID-4 m	IID-8 m	IIID-3 m
IE-4 m	IIE-8 m	IIIE-4 m

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At each station, 5 samples were taken i.e., IIA1, IIA2, etc., every 3 months from March 1970-December 1971 inclusive.

In addition, some 52 stations were made in Moreton Bay in the area of Middle Banks off Tangalooma Point, in 5-18 metres, by Stephenson, and others in June, September and December 1972. See Figure 1. Sediments at all sampling sites were made up of coarse or medium sand (Stephenson, et al., 1970, figure 3).

The holotypes, part of the paratypes, and most of the other specimens are deposited in the Australian Museum (AM). Some paratypes and a small reference collection were sent to the Queensland Museum (QM). Additional paratypes are deposited in the British Museum (Natural History) (BMNH), and the Smithsonian Institution (USNM). Additional material was received on loan from the National Museum, Victoria (NMV), the Queensland Museum, the Zoologisk Museum, Bergen (ZMB) and Fisheries and Wildlife, Victoria (Marine Pollution Group) (FWV). The station data for sites sampled by Fisheries and Wildlife, Victoria, during the Port Phillip Bay Environmental Study, 1969-71, are given by Poore, Rainer and Spies, (1975).

#### Family **Ampharetidae** Malmgren, 1867

##### List of species reported from Australia

##### Subfamily *Melinninae*

*Isolda pulchella* Müller. Moreton Bay (Stephenson, et al., 1974). See below.

*Isolda warnbroensis* Augener, 1914. Warnbro Sound near Fremantle, SW Australia. See below under *I. pulchella*.

##### Subfamily *Ampharetinae*

*Amphicteis gunneri* (Sars). Moreton Bay (Stephenson, et al., 1974). Referred to *Pseudoamphicteis papillosa*. See below.

*Amphicteis foliata* Haswell, 1883. Bowen, Queensland. Referred to *Phyllamphicteis foliata* fide Augener, 1927.

*Amphicteis philippinarum* Grube. Cape Jaubert, NW Australia (Augener, 1922).

*Amphicteis* sp. Sydney, New South Wales (Hutchings and Recher, 1974).

*Auchenoplax mesos* n.sp. Moreton Bay. See below.

*Auchenoplax* sp. Moreton Bay (Stephenson, et al., 1974). Referred to *A. mesos* n. sp.

*Lysippides* sp. Sydney, New South Wales (Hutchings and Recher, 1974).

*Phyllamphicteis foliata* Haswell. Eden, New South Wales and Melbourne, Victoria (Augener, 1927).

*Pseudoamphicteis papillosa* n.g. n.sp. Moreton Bay. See below.

*Rytocephalus ebranchiatus* Quatrefages, 1865. Jervis Bay, New South Wales. Referred to ?*Amphicteis ebranchiatus* — indeterminate fide Hartman, 1959.

*Samytha* sp. Sydney, New South Wales (Hutchings and Recher, 1974).

#### KEY TO THE SUBFAMILIES AND GENERA OF AMPHARETIDAE FROM AUSTRALIA

- |       |   |                                  |   |
|-------|---|----------------------------------|---|
| 1.    | Segments III-V (or III-VI) with fine acicular neurosetae. No paleae. Post branchial hooks present ..... | <i>Isolda</i> (Subf. Melinninae) |   |
| —     | Segments III-VI without neurosetae. No post branchial hooks. Paleae sometimes present .....             | (Subf. Ampharetinae)             | 2 |
| 2.(1) | Glandular ridges on prostomium .....  |                                  | 3 |
| —     | No glandular ridges on prostomium .....   |                                  | 4 |
| 3.(2) | Oral tentacles smooth .....   | <i>Amphicteis</i>                |   |
| —     | Oral tentacles papillose .....  | <i>Pseudoamphicteis</i> n.g.     |   |
| 4.(3) | Twelve uncinigerous thoracic segments .....   | <i>Auchenoplax</i>               |   |
| —     | Fourteen uncinigerous thoracic segments .....   | <i>Phyllamphicteis</i>           |   |

#### Subfamily **Melinninae**

##### **Isolda** Müller, 1858

DIAGNOSIS: Oral tentacles smooth. Four pairs of gills, 2 pairs smooth, 2 pairs pinnate. Dorsal crest across segment VI. Segments III, V and VI with notopodial capillaries, segment IV with notopodial hooks. Fine acicular neurosetae on segments III-V. Thoracic uncini with a single row of teeth.

##### **Isolda pulchella** Müller, 1858

*Isolda pulchella*. — Augener, 1918: 517, pl. 7, fig. 229, text fig. 88. — Day, 1963: 434-435; 1967: 691-692, fig. 35.1 k-n; 1973: 113, fig. 15d-f. — Stephenson, et al., 1974: 114.

*Isolda warnebroensis* Augener, 1914: 82, pl. 1, figs. 14-15, text fig. 13a-c.

*Isolda sibogae* Caullery, 1944: 102, fig. 83A-H.

MATERIAL EXAMINED: Queensland — Moreton Bay, south of Peel Island, Stephenson, et al., coll., St. II E2. June 1971, 8 m; St. III A3/D1/E3, June/Sept. 1971, 3-6 m. 4 spec. (AM).

DESCRIPTION: Compact prostomium. Oral tentacles smooth with groove along one side. Gills in two groups of 4, inner 2 pairs with 2 rows of long lateral pinnules, outer 2 pairs smooth. Fine acicular neurosetae on segments III-V. Stout notopodial hooks on segment IV. Small notopodial capillaries on segments V and VI. Uncini start on segment VII, 13 thoracic uncinigerous segments, and more than 30 abdominal uncinigerous segments. Uncini with

single vertical series of 5-6 teeth, and a small rostral point and projecting basal prow. Abdominal uncini on square tori, with small rudimentary notopodial pinnule above. Preserved specimens colourless.

REMARKS: The specimens from Moreton Bay agree in all respects with the descriptions given by Day except that the buccal tentacles (dissected) have no colour patterns.

DISTRIBUTION: Australia; South Africa; North Carolina, USA; Brazil; Indonesia.

Subfamily **Ampharetinae**  
**Auchenoplax** Ehlers, 1887

DIAGNOSIS: Prostomium without dorsal glandular ridges. Oral tentacles smooth with a groove along one side. Two pairs of gills. Segments III-VI without neurosetae. Segments V and VI with notopodial capillaries. Twelve uncinigerous thoracic segments and about 12-15 abdominal ones. First row of thoracic uncini on segment VII very long. Thoracic uncini with 1 or 2 series of teeth. Notopodial cirri present.

**Auchenoplax mesos** n.sp.  
Fig. 2a-c

*Auchenoplax* (sic) sp. Stephenson, et al., 1974: 114.

MATERIAL EXAMINED: Queensland — Moreton Bay, south of Peel Island, Stephenson, et al., coll., St. IB5, June 1970, 5 m — holotype (AM W.6780).

Size — holotype, complete specimen 15 mm long, 2 mm wide.

DESCRIPTION: Prostomium a pointed triangular cone, with ventrally a pair of shallow lateral, slightly diverging grooves. Prostomium and peristomium almost completely fused forming a flattened shield like structure, ornamented with narrow vertical grooves. Withdrawn oral tentacles dissected, smooth. Eye spots and pigmentation patterns absent. Paleae and post branchial hooks absent. Eight gill scars arranged in 2 groups of 2 pairs, across a slightly elevated fold. Large median gap between right and left pairs of gill scars, posterior pair slightly displaced ventrally. The one remaining simple gill became detached during examination. Fourteen pairs of notopodia from segment 5, with smooth tipped capillary notosetae. Notopodial cirri absent (fig. 2b). Neuropodial uncini begin on 3rd setigerous segment (segment 7), and continue to last abdominal segment. First row of uncini slightly displaced ventrally but second row much longer, almost midventral in position. Third and subsequent rows, much shorter, arranged laterally, adjacent to notopodia. Uncini arranged in single rows; each uncinus has two vertical rows of teeth, each row consisting of four teeth. Small basal denticle present between 2 rows of teeth. Apical denticle absent (fig. 2c). Abdominal uncini borne on projecting leaf-shaped pinnules, which become more prominent on posterior abdominal segments. Abdominal uncinigerous pinnules occur on longitudinal glandular strips, and appear as rows of beads along sides of abdomen.

Ventral pads absent. Anterior ventral margins of segments slightly elevated and glandular particularly on anterior thoracic segments. Nephridial papillae occur on notopodia of setigers 5-8. Thirteen abdominal segments. Pygidium lacks anal cirri. Lives in flimsy mucous tube sparsely covered with sand grains.

REMARKS: *Auchenoplax mesos* differs from *A. crinita* Ehlers, the only previously described species in this genus, in the shape and dentition of the uncini. *A. crinita* has 2 rows of lateral teeth plus a median and a basal tooth, and the uncini are shorter than those of *A. mesos*. *A. crinita* has been recorded from deep water, 540 and 572 m in Florida Straits off New England (Hartman, 1965a); off Beaufort, North Carolina in 600 m (Day, 1973); North eastern South America and off Morocco in 200-1000 m, whereas *A. mesos* was found in 5 m.

Day (1964), questionably referred *Melinnoides* Benham, 1927 to *Auchenoplax* Ehlers, 1887. Benham described the only species of this genus, *M. nelsoni* from McMurdo Sound in 200 m, and again the uncini differ from those of *A. mesos*. *M. nelsoni* does not have 1 or 2 rows of uncini displaced ventrally like *Auchenoplax* and perhaps *Melinnoides* should not be synonymised with *Auchenoplax*. *Auchenoplax mesos* is therefore described as a new species and represents the first record of this genus from Australia.

***Pseudoamphicteis* n.g.**

DIAGNOSIS: Prostomium with pair of glandular ridges. Papillose buccal tentacles, grooved along one side. Two pairs of simple gills on either side of segment 3. Segment 3 with paleae, segments 4-6 with notopodial capillaries. Segments 3-6 without neurosetae. Fourteen uncinigerous thoracic segments. Notopodial cirri present. Thoracic uncini with single vertical series of teeth. Abdominal segments with uncinigerous pinnules and notopodial cirri.

Type species ***Pseudoamphicteis papillosa* n.sp.**, by present designation  
***Pseudoamphicteis papillosa* n.g., n.sp.**

Fig. 3a-e

*Amphicteis gunneri*. — Stephenson, et al., 1974: 114. Not Sars, 1835.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., south of Peel Island, St. IIC1, Sept. 1970, 7 m — paratype (USNM 52620); St. IID1, Sept. 1970, 8 m — holotype (AM W. 6781); St. III C2/C3, Mar./Sept. 1970, 5 m — 3 spec., (AM W. 6799/6800). Middle Banks off Tangalooma, St. 21, June 1972 — paratypes (QM G.8160; BMNH, ZB 1975-133-138). Port Molle — 1 spec., (AM G. 11277).

Size — holotype, 18 mm long, width at anterior end 3 mm. Length of paratypes 15-24 mm, width at anterior end 1.5-3 mm.

DESCRIPTION: Prostomium spatulate with pair of prominent straight glandular ridges, flared at tips extending onto peristomium. Oral tentacles of 2 kinds, one with 2 distinct rows of fine papillae on one side, others smooth found dorsally around the base of papillose tentacles, which are dominant. Eye spots absent. First 2 segments achaetous. Third segment with two groups of 9-10 paleae. Paleae are straight, stout, narrow winged with slightly curved tips. Two pairs of simple, stout, free unbranched gills on either side of segment III (total of 8 gills), all with slightly bulbous bases. Gills arranged in 2 tiers with distinct median gap between right and left pairs of gills; arise from margin of posterior branchial ridge on segment III, forming slight pocket. Post branchial hooks absent. Notosetae begin on segment IV, continue for 17 segments, and are smooth tipped, pointed, winged capillaries (fig. 3b). Notopodia of segments IV and V small. Neuropodial uncini begin on 4th setigerous segment (segment 7) and continue for 14 thoracic segments. Thoracic uncini arranged on elevated ridges, and abdominal ones on small elevated rectangular pinnules, occurring in single rows throughout. Uncini with a single row of 5 teeth (fig. 3c, d). All neuropodia and thoracic notopodia have well developed cirri; abdominal notopodia with rudimentary cirri, but totally lacking notosetae. Ventral glandular pads absent, although individual segments glandular especially the antero-ventral margins of segments. Distinct ventral median glandular streak on posterior thorax and abdomen. Pygidium has 4 anal cirri. Holotype has nephridial papillae on setiger 4.

REMARKS: This new genus closely resembles the genus *Amphicteis*, in having glandular ridges on the prostomium, 14 uncinigerous segments, 4 pairs of smooth gills and notopodial cirri, but differs in that the oral tentacles are predominantly papillose and not smooth as in *Amphicteis*. Day, in his revision of the Ampharetidae (1964), gives a summary of generic characteristics, used in their classification, which includes the ornamentation of buccal tentacles, and later (1967), he used this in his key, so that this species cannot be grouped with

*Amphicteis*. Similarly other genera, such as *Ampharete*, *Asabellides*, *Pseudosabellides*, *Sabellides*, and *Pterampharete* which have papillose oral tentacles, cannot be grouped with this new species, as they differ in other important generic characteristics, as defined by Day (1964). For this reason a new genus is created, *Pseudoamphicteis*.

As ampharetids are regularly preserved with their oral tentacles completely withdrawn, it is possible that some described species of *Amphicteis* have papillose oral tentacles, and they should be removed to the genus *Pseudoamphicteis*.

#### Family **Terebellidae** Grube, 1851

List of species reported from Australia.

##### Subfamily *Polycirrinae*

*Ammaena trilobata* (Sars). Moreton Bay (Stephenson, et al., 1974). See below.

*Litancyra octoseta* n.g., n.sp. Moreton Bay. See below.

*Lysilla apheles* Hutchings, 1974. Wallis Lake, New South Wales.

*Lysilla pacifica* Hesse. Sydney, Wallis Lake, New South Wales (Hutchings 1974; Hutchings and Recher, 1974). See below.

*Lysilla* sp. Moreton Bay (Stephenson, et al., 1974). Referred to *Lysilla apheles*. See below.

*Polycirrus bohollensis* Grube. West Australia (Augener, 1914). ? Moreton Bay (Rullier, 1965) not Grube, referred to *Lysilla apheles*. See below.

*Polycirrus porcata* Knox and Cameron, 1971. Port Phillip Bay, Victoria.

##### Subfamily **Thelepinæ**

*Decathelepus ocellatus* n.g., n.sp. Moreton Bay. See below.

*Rhinothelepus lobatus* Hutchings, 1974. Wallis Lake, Sydney, New South Wales (Hutchings and Recher, 1974).

*Rhinothelepus macer* n.sp. Moreton Bay. See below.

*Streblosoma amboinense* Caullery. Wallis Lake, New South Wales (Hutchings, 1974). See below.

*Streblosoma gracile* Caullery. Moreton Bay (Stephenson, et al., 1974). See below.

*Streblosoma* sp. Moreton Bay (Stephenson, et al., 1974). Referred to *S. amboinense*. See below.

*Telothelepus* sp. Moreton Bay (Stephenson, et al., 1974). Referred to *Decathelepus ocellatus*. See below.

*Thelepus plagiostoma* (Schmarda). W and NW. Australia (Augener, 1914); Moreton Bay (Rullier, 1965). See below.

*Thelepus robustus* (Grube). Moreton Bay, new record from Australia. See below.

*Thelepus setosus* (Quatrefages). South Australia (Fauvel, 1917); Port Phillip Bay, Victoria (Knox and Cameron, 1971); Sydney, New South Wales (Hutchings and Recher, 1974)

*Thelepus thoracicus* Grube. SW and NW Australia (Augener, 1914, 1922). Referred to *T. setosus* by Fauvel, 1917.

Subfamily **Amphitritinae**

- amphitrite modesta* (Quatrefages). See below under *Terebella modesta*.
- amphitrite rubra* (Risso). St. Vincent's Gulf, South Australia (Fauvel, 1917); Moreton Bay (Rullier, 1965; Stephenson, et al., 1974); Port Phillip Bay, Victoria (Knox and Cameron, 1971). See below.
- amphitrite vigintipes* Marenzeller. Victoria (Augener, 1927). See below under *A. rubra*.
- arabionice harrisoni* (Benham). Port Phillip Bay, Victoria (Knox and Cameron, 1971).
- arabionice polymnia nebulosa* (Montagu). Port Phillip Bay, Victoria (Knox and Cameron, 1971).
- arabionice drachaeta aspeta* n.g., n.sp. New South Wales, Moreton Bay, Queensland. See below.
- arabionice conchilega* (Pallas). Port Phillip Bay, Victoria (Knox and Cameron, 1971); New South Wales — tube only (Augener, 1927); Moreton Bay (Stephenson, et al., 1974). See below.
- arabionice oreoarea haplochaeta* Ehlers. Rottneest Island, S.W. Australia (Augener, 1913, 1914). Referred to *Terebella haplochaeta* by Hartman, 1959.
- arabionice mia nr. ingens* (Grube). Sydney, New South Wales (Hartman, 1966). See below under *L. ingens*.
- arabionice mia ingens* (Grube). Moreton Bay (Stephenson, et al., 1974). See below.
- arabionice mia medusa* (Savigny). N.W. Australia (Augener, 1922); Sydney, New South Wales (Augener, 1927); Moreton Bay (Rullier, 1965; Stephenson, et al., 1974). See below.
- arabionice mia montagui* (Grube). N. Queensland (Monro, 1931). Referred to *L. medusa* by Rullier, 1965.
- arabionice olea cetrata* (Ehlers). Westernport, Victoria (Augener, 1927). Referred to *Pista cetrata* by Augener, 1927, Day, 1967.
- arabionice pectinata* n.sp. Moreton Bay. See below.
- arabionice trina* n.sp. Moreton Bay. See below.
- arabionice trunca* n.sp. Moreton Bay. See below.
- arabionice typha* Grube. Eden, New South Wales (Augener, 1927); Low Isles, Great Barrier Reef (Monro, 1931); Port Phillip Bay, Victoria (Knox and Cameron, 1971); Moreton Bay (Stephenson, et al., 1974). See below.
- sp. 1. Moreton Bay (Stephenson, et al., 1974). Referred to *P. pectinata*. See below.
- sp. 2. Moreton Bay (Stephenson, et al., 1974). Referred to *P. trunca*. See below.
- sp. 3. Moreton Bay (Stephenson, et al., 1974). Referred to *P. trina*. See below.
- arabionice rania nebulosa* (Montagu). Spencers Gulf, South Australia (Fauvel, 1917). Referred to *upolymnia nebulosa* by Hartman, 1959.
- arabionice rania trigostoma* (Schmarda, 1861). New South Wales; West Australia (Augener, 1914); Bowen, Queensland (Augener, 1922); Westernport, Victoria (Augener, 1927). Referred to *Eupolymnia trigostoma* by Hartman, 1959.
- arabionice terebella queenslandia* Hartman, 1963. Heron Island, Queensland.



- Scione harrissoni* Benham, 1916. Off Kingston, South Australia. Referred to *Axionice* by Knox and Cameron, 1971.
- Terebella (Lanice) flabellum* Baird, 1864. Sydney, New South Wales. Referred to *Lanice flabellum* by Hartman, 1959.
- Terebella grubei* McIntosh, 1885. Two Fold Bay, Sydney, New South Wales. Referred to *Eupolymnia trigonostoma* by Hartman, 1959.
- Terebella modesta* Quatrefages, 1865. Jervis Bay, New South Wales (Whitelegge, 1889). Referred to *Amphitrite modesta* by Hartman, 1959.
- Terebella ochracea* Grube, 1878. N.W. Australia.
- Terebella stenotaenia* Grube, 1871. Moreton Bay, Queensland.
- Terebella trigonostoma* Schmarda, 1861. New South Wales.

KEY TO THE SUBFAMILIES AND GENERA OF TEREPELLIDAE  
FROM AUSTRALIA

1.	Gills absent .....	(Subf. Polycirrinae)	2
	Gills present .....		5
2.(1)	Neuropodial uncini absent .....		3
	Neuropodial uncini present .....		4
3.(2)	Abdomen with acicular notosetae .....	<i>Amaeana</i>	
	Abdomen without notosetae .....	<i>Lysilla</i>	
4.(2)	Avicular uncini .....	<i>Polycirrus</i>	
	Long-handled uncini .....	<i>Litancyra</i> n.g.	
5.(1)	Gills, simple, filamentous .....	(Subf. Thelepiniae)	6
	Gills, branched .....	(Subf. Amphitritinae)	8
6.(5)	Notosetae start on segment 2 (1st branchiferous) .....	<i>Streblosoma</i>	
	Notosetae start on segment 3 (2nd branchiferous) .....		7
7.(6)	Uncini from setiger 3 .....	<i>Thelepus</i>	
	Uncini from setiger 6 .....	<i>Rhinothelepus</i>	
	Uncini from setiger 10 .....	<i>Decathelepus</i> n.g.	
8.(5)	Notosetae smooth-tipped .....		9
	Notosetae serrated .....		14
9.(8)	Uncini of first few uncinigerous segments different from following ones (base of uncinus extended posteriorly as long shaft) .....	<i>Pista</i>	
	All thoracic uncini similar .....		10
10.(9)	Gills, 1 pair present .....	<i>Axionice</i>	
	Gills, 2 or more pairs .....		11
11.(10)	Uncini avicular with close set arcs of denticles above main fang .....		12
	Uncini pectiniform with single vertical series of teeth .....	<i>Loimia</i>	
12.(11)	Uncini from thoracic setiger 1 (segment 4) .....	<i>Reteterebella</i>	
	Uncini begin thoracic setiger 2 (segment 5) .....		13

- 13.(12) Uncini set back to back on posterior segments ..... *Lanice*  
 Uncini not set back to back ..... *Eupolyornia*
- 14.(8) Uncini all avicular ..... 15  
 Uncini, long handled hooks on setigers 2-5, following ones avicular .....  
 ..... *Hadrachaeta*
- 15.(14) Lateral lobes present on segments 2, 3 and often 4 ..... *Amphitrite*  
 Lateral lobes absent ..... *Terebella*

**Subfamily Polycirrinae**  
***Amaeana* (Hartman, 1959)**

DIAGNOSIS: Tentacular lobe expanded and tre-foiled, with anterior tongue like lobe, posterior frilled portion with numerous short tentacles. Gills absent. Noto setae start on segment 3, continue for 10-13 thoracic segments. Thoracic neuropodia and neurosetae absent. About five achaetous segments between thorax and abdomen. Abdominal notopodia, with acicular notosetae. Abdominal neuropodia and neurosetae absent. Body swollen anteriorly. Ventral pads restricted to a groove.

***Amaeana trilobata* (Sars, 1863)**

*Amaea trilobata*. — Fauvel, 1927: 285-286, fig. 99a-e.

*Amaeana trilobata*. — Day, 1967; 718-719, fig. 36.3 e-h; 1973: 122, fig. 16d-f. — Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, off Tangalooma Point, Stephenson, et al., coll., St. 5/7/23/25/30/32/35/40/41/47/51/53, Sept./Dec. 1972. Moreton Bay, south of Peel Island, Stephenson, et. al., coll., St. IA1/A2/A4/A5/B3/D2/D3/D5, March 1970/June/July 1971, 4-6 m; St. II C3/E1, Dec. 1971, 7-8 m; St. III A3/B2/B5/C2/D1/D5, June/Sept. 1971, 2-6 m (AM). Kangaroo Island, Mary River, Dec. 1971, Hutchings, coll., (AM W. 5384). Victoria — Port Phillip Bay Environmental Study 1969-1971, St. — 932/122, (FW V. 2520/5041).

DESCRIPTION: Body swollen anteriorly, with glandular areas around thoracic notopodia. Thoracic notopodia, long slender, 10 pairs with fine smooth winged capillary notosetae. Small distinct nephridial papilla at base of each thoracic notopodium. Gonopores on thoracic segments in mature specimens. Five to six achaetous segments between thorax and abdomen. Abdomen with 30-40 pairs of notopodia, five to six, straight acicular notosetae with blunt tips, per notopodia. Colour purple in life.

REMARKS: The specimens from Moreton Bay tend to have more abdominal uniramous segments than indicated by Day (1967), but these specimens were generally larger than those found by Day.

DISTRIBUTION: Australia; Arctic; Norway; North Carolina, U.S.A.; Mediterranean; South Africa; Japan; Solomon Islands.

***Litancyra* n.g.**

DIAGNOSIS: Tentacular lobe, long and expanded. Thoracic notosetae, 8 pairs with frayed tips, beginning on segment 2. Gills absent. Uncini long-handled hooks, restricted to abdomen, borne on elevated tori. Ventral pads absent.

Type species **Litancyra octoseta** n.sp., by present designation

**Litancyra octoseta** n.g., n.sp.

Fig. 4a-d

**MATERIAL EXAMINED:** Queensland — Moreton Bay, Wallace, coll., dredged from Serpentine Creek, St. 25, Sept. 1972, 2 m, sandy, 2.1 km upstream — holotype (AM W.6825). New South Wales — Belmont Beach, Laxton, coll., grabbed Aug. 1972, 22 m — paratype (AM W.8127).

Size — holotype, complete specimen, 9 mm long, width at anterior end 1 mm, paratype, complete specimen, 38 abdominal segments, 21 mm long, width at anterior end 2 mm.

**DESCRIPTION:** Long expanded tentacular lobe forming tongue-like extension with large number of tentacles, varying considerably in size, largest at tip of tongue. Eyespots absent. Gills absent. Prominent projecting notopodia, 8 pairs, beginning on segment 2 (fig. 4b). Notosetae narrow winged capillaries, with frayed tips (fig. 4c). No thoracic uncini. Uncini present on all abdominal segments in single rows on projecting tori. Uncini protruding some distance beyond tip of torus, small, long handled, with several rows of teeth above main fang. No colour patterns on preserved specimen.

Ventral surface of body slightly glandular especially ventro-laterally with ill-defined mid-ventral streak. Mature holotype full of eggs, but nephridiopores not visible.

**REMARKS:** *Litancyra* is placed in the Polycirrinae as it lacks gills and has an expanded tentacular lobe. The classification of the terebellids, established by Hessler (1917), in which all abbranchiate genera with uncini arranged in single rows are placed in the Polycirrinae, was followed by Fauvel (1927) and Hartman (1959), and adopted here. This is in contrast to that adopted by Day (1967), in which all abbranchiate genera, regardless of the arrangement of uncini, are placed in the Polycirrinae.

Within the Polycirrinae (after Hessler *sensu stricto*) all genera have an expanded tentacular lobe. Most of the genera have uncini although they may be completely absent (e.g. *Hauchiella*, *Lysilla* and *Amaeana*), or restricted to posterior segments (e.g. *Polycirrus*). *Litancyra* differs from the previously described genera by having long-handled uncini, although many of the genera have uncini which closely resemble those of *Litancyra*; they only lack the shaft. Finally, *Litancyra* lacks well defined ventral pads, characteristic of Polycirrinae (*sensu stricto*).

#### **Lysilla** Malmgren, 1866

**DIAGNOSIS:** Tentacular lobe expanded, frilly with numerous tentacles around basal margins. Gills absent. Notopodia with notosetae, begin on segment 3, continue for 6-12 segments. Neuropodia and neurosetae absent. Ventral pads narrow, restricted to groove.

#### KEY TO SPECIES RECORDED FROM AUSTRALIA

- Notosetae, simple capillaries ..... *L. apheles*  
 Notosetae barbed ..... *L. pacifica*

#### **Lysilla apheles**, Hutchings, 1974

*Lysilla apheles* Hutchings, 1974: 190-191, fig. 5.

(?) *Polycirrus bohollensis*. — Rullier, 1965: 196. Not Grube, 1878.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. IA5, June 1971, 6 m. Middle Banks off Tangalooma, St. 46/47/54, Sept./Dec. 1972 (AM). F.C.V., coll., Victoria Point, June 1962, Dunwich, midshore, May 1962 (QM).

DESCRIPTION: Short fat swollen body. Ten thoracic notopodia with simple smooth capillary setae, with finely serrated tips. Neurosetae absent. Nephridial papillae present on all setigerous segments, best developed on middle segments. Ventral surface glandular, covered in small warts.

REMARKS: Larger specimens collected in June and September were mature and full of large oocytes, with well developed nephridiopores. Smaller specimens collected in September and December had poorly developed nephridiopores, indicating that size of nephridiopores is not a useful specific character, although it has been used for this genus in the past.

DISTRIBUTION: Australia.

***Lysilla pacifica* Hessle, 1917**

*Lysilla pacifica* Hessle, 1917: 232-233, fig. 66. — Imajima and Hartman, 1964: 348. — Hutchings, 1974: 191.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., Middle Banks off Tangalooma, St. 12/28/29/51/, May/Sept./Dec. 1972 (AM).

DESCRIPTION: Short, fat, swollen thorax and tapering abdomen. Thoracic notopodia, 9-12 pairs with barbed notosetae. Thoracic neuropodia and neurosetae absent. Abdomen asetigerous. Nephridiopores present on all setigerous segments, but individuals vary in their development.

DISTRIBUTION: Australia; Indonesia; South Africa; Japan.

Subfamily **Thelepininae**

***Decathelepus* n.g.**

DIAGNOSIS: Elongated tentacular lobe, numerous simple unbranched gills on segments 2 and 3. Smooth tipped notosetae from segment 3, 15 pairs. Neuropodial uncini from setiger 10 (segment 12), continue onto abdomen. Uncini short based, with subterminal dorsal button just behind prow. Lateral lobes absent.

Type species ***Decathelepus ocellatus* n. sp.**, by present designation

***Decathelepus ocellatus* n.g., n.sp.**

Fig. 5a-d

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. III E5, Sept. 1971, 4 m — holotype (AM W.6782).

Size — 10 mm long, 2 mm wide at anterior end, complete thorax and 3 abdominal segments.

DESCRIPTION: Expanded ventral tentacular lobe, convoluted expanded margins forming a tongue. Numerous grooved tentacles at base of tentacular lobe. Two discrete elongated patches of dorsolateral eye spots. Numerous simple gill filaments, segments 2-3. Approximately 10 gill filaments in each group on segment 2, and 7 filaments on segment 3, with median gap between groups. Gill filaments on segment 2, slightly longer and thicker than those on segment 3. Notosetae start on segment 3 (2nd branchiferous) 15 pairs, of smooth tipped, narrow winged, capillary setae varying in length within each bundle (fig. 5c).

Uncini from setiger 10 and continue posteriorly. Uncini minute, arranged in single rows. Long rows of abdominal uncini on sessile pinnules, at least on 3 remaining abdominal segments. Uncini with an elongated base and subterminal button, with main fang plus 3 rows of teeth above, with 5, 6 and 5-7 teeth respectively (MF:5:6:5-7). Prominent nephridial papillae on setigers 3-5. Lateral lobes absent. Distinct ventral glandular pads absent, individual segments glandular. Anterior margins of early thoracic segments elevated as thickened ridges. Indistinct ventral glandular strip extends posteriorly from mid thorax.

REMARKS: This new genus clearly belongs to the Thelepininae, as it has simple, unbranched gill filaments and the characteristically shaped uncini. Several genera have been described in this subfamily and they are differentiated mainly by the segment on which the noto and neurosetae begin. Other points, such as the presence or absence of lateral lobes and the expansion of the tentacular lobe are also used, but the author considers these to be less important. Since none of the described genera have uncini beginning on setiger 10, a new genus *Decathelepus*, has been erected. It is similar to *Parathelepus* Caullery, which has uncini beginning on setiger 9, but this genus has a compact tentacular lobe. An elongated tentacular lobe is also present in *Telothelepus* Day and *Rhinothelepus* Hutchings. These genera have uncini either completely absent from the thorax or else beginning on setiger 6. The Thelepininae should, however, be re-examined to determine the validity of the distribution of thoracic setae as a generic attribute.

#### **Rhinothelepus Hutchings, 1974**

DIAGNOSIS: Elongated tentacular lobe with numerous oral tentacles. Gills on segments 2-3, simple gill filaments. Notosetae start on segment 3, 15 pairs smooth tipped capillaries. Uncini from setiger 6, continue onto abdomen. Uncini short based with subterminal button. Lateral lobes absent.

#### KEY TO SPECIES RECORDED FROM AUSTRALIA

1. First 2 pairs of notosetae displaced dorsally . . . . . *R. macer* n. sp.
- First 2 pairs of notosetae not displaced dorsally . . . . . *R. lobatus*

#### **Rhinothelepus macer** n.sp.

Fig. 6a-c

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., Middle Banks off Tangalooma, St 1/12/14/19/21/23/24/27/30/32/36/41, Sept./Dec. 1972 — holotype (AM W. 6783), 3 paratypes (QM G. 8161), 5 paratypes (BMNH, ZB. 1975-140-145), 5 paratypes (USNM 52622), 19 paratypes (AM W. 6784-6792).

Size — holotype (incomplete posteriorly) 12 mm long, 1 mm wide, 37 segments, 20 of them abdominal. Paratypes (QM G. 8161) 1 complete, 32 mm long, 1 mm wide, 2 others (incomplete posteriorly), 27 segments. Paratype (BMNH, ZB. 1975-140-145), 5 specimens (incomplete posteriorly). Paratype (USNM 52622) 5 specimens (incomplete posteriorly). Paratypes (AM W. 6784-6792) 16 specimens (incomplete posteriorly).

DESCRIPTION: Tentacular lobe expanded ventrally, convoluted margins forming shield-like projection. Numerous small grooved tentacles at base of tentacular lobe. Two discrete patches of eye spots on dorsal surface of prostomium. Simple gill filaments on segments 2

and 3, arranged almost in straight transverse row. Ten gill filaments on each segment (2,3), small median gap between left and right pairs of gills. Lateral lobes absent. Notosetae begin on 2nd branchiferous segment (segment 3), displaced posteriorly to the gills and continue for 15 segments. Notosetae smooth tipped winged capillaries, wings much wider basally (fig. 6b), arranged in 2 tiers. First 2 pairs of notopodia displaced dorsally with following ones found in typical position. Uncini begin on 6th setiger (segment 8) and continue to pygidium. Thoracic uncini arranged in single rows; abdominal uncini borne on rectangular pinnules, with margins free of body wall. Uncini small, elongated, with subterminal button (fig. 6c). The uncini have a main fang with 3 rows of teeth above, with 4 or 5 and 6 and an indeterminate number of teeth respectively (MF: 4-5:6:∞). Distinct ventral pads absent, individual segments glandular and finely mottled. Indistinct ventral groove on posterior part of thorax. Nephridial papillae not visible. Preserved specimens small, pale and translucent. Some individuals mature with eggs. Lives in flimsy sandy tube.

REMARKS: *Rhinothelopus macer* is placed in the genus *Rhinothelopus* Hutchings based on the extended tentacular lobe, simple gill filaments on segments 2 and 3, notosetae beginning on segment 3 and continuing for 15 segments, and uncini beginning on segment 8 (setiger 6). *Rhinothelopus macer* differs from the other described species in the genus *R. lobatus* Hutchings by having fewer gill filaments with an almost non-existent gap between them, and the first 2 pairs of notosetae being displaced dorsally. In *R. lobatus* the abdominal uncini are borne on thick, partially elevated triangular portions of the body wall, whereas in *R. macer*, the uncini are borne on distinct pinnules which are free of the body wall. The uncini of *R. macer* have a more elongated base and a distinct subterminal button on the prow, in comparison to *R. lobatus*. At the present time this genus has only been recorded from Australia.

#### **Streblosoma Sars, 1872**

DIAGNOSIS: Tentacular lobe short and compact, numerous oral tentacles. Nil to 3 pairs of gills on segments 2-4, unbranched filamentous. Notosetae start on segment 2 (1st branchiferous), smooth tipped capillary notosetae. Uncini start on segment 5 (setiger 4).

#### KEY TO SPECIES RECORDED FROM AUSTRALIA

1. Notosetae range from 24-29 pairs ..... *S. amboinense*  
    Notosetae exceed 50 pairs ..... *S. gracile*

#### **Streblosoma amboinense** Caullery, 1944

*Streblosoma amboinense* Caullery, 1944: 180-181, fig. 144A-D. — Hutchings, 1974: 191-192.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., Middle Banks off Tangalooma, June 1972 — 2 spec. (no station data available) (AM).

DESCRIPTION: Three pairs of gills on segments 2-4, each of 10-12 simple filaments. Notopodia, 24-29 pairs, with 2 kinds of notosetae, long narrow winged capillaries with faintly striated edges, short smooth finely tapered winged capillaries. Uncini start on segment 5 (setiger 4), abdominal uncini borne on low uncinigerous ridges. Dental formulae of uncini MF:2:3, main fang with 2 rows of teeth above with 2 and 3 teeth respectively. Nephridial papillae present on setigers 2-4. Body and gills colourless in preserved specimens; in fresh material gills have green pigment.

REMARKS: Caullery (1944) in his original description did not indicate the number of pairs of notopodia although one of his specimens had more than 40 segments. It is not clear, therefore, whether Caullery's specimens had more than 40 pairs of notosetae, or less. The

specimens from Moreton Bay and those previously described from Wallis Lake, New South Wales (Hutchings, 1974) seem to vary in the number of pairs of notosetae. The type of *S. amboinense* should be examined, but at this stage the Australian specimens are referred to this species.

DISTRIBUTION: Australia; Indonesia.

#### ***Streblosoma gracile* Caullery, 1944**

*Streblosoma gracile* Caullery, 1944: 178, fig. 141 A-C. — Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. II A3, Sept. 1970, 6 m — 1 spec., (AM).

DESCRIPTION: Incomplete specimen of about 50 segments. Eye spots present. Three pairs of gills, each gill of first pair 6 filaments; second pair 4; third 2. Distinct median gap exists between left and right gills. Notosetae start on 1st branchiferous segment, present on all subsequent segments, notosetae winged capillaries with long smooth tapering points, about 10 equal length setae per bundle. Uncini start on setiger 4, always arranged in single rows. Abdominal uncini on narrow rectangular pinnules. Uncini with button placed just behind the prow, main fang with 2 rows of teeth above with 3 and 5 teeth respectively (MF: 3:5). No nephridial papillae visible. Ventral pads ill-defined but individual segments glandular. Indistinct longitudinal glandular streak on ventrum of posterior thorax and abdomen.

REMARKS: The specimens from Moreton Bay agree well with the description given by Caullery (1944), except for the presence of eye spots, but these can easily fade on preserved specimens. Also the specimens of Caullery's were collected from 535 m whereas those from Moreton Bay were collected at 6 m. However at this stage, the specimens from Moreton Bay are referred to *S. gracile*, although Caullery's material has not been examined.

The uncini from the Moreton Bay specimens resemble those figured by Day (1967, fig. 36: 5c, d) for *S. persica* (Fauvel), in having a well developed dorsal button slanting forwards and with the base having a well developed spur. Fauvel (1908, fig. 1) figures two uncini, both of which are more elongated than Day's, without a well developed spur or dorsal button. Day also states that *S. persica* has no eye spots, single type of notosetae, 3 pairs of gills numbering 6 filaments, and 13 well marked ventral pads. Fauvel's description states, several rows of eye spots, more spiral gill filaments than 6 and 2 types of notosetae present. The specimen from Moreton Bay does not therefore agree with the original description of *S. persica*, and is referred to *S. gracile*.

DISTRIBUTION: Australia; Indonesia.

#### ***Thelepus* Leuckart, 1849**

DIAGNOSIS: Tentacular lobe short and collar like, usually with numerous eye spots. Gills on segments 2-4, numerous simple filaments arranged in transverse rows. Lateral lobes absent. Notosetae start on segment 3 (2nd branchiferous), continue for numerous segments, smooth tipped capillaries. Uncini from setiger 3, continue for numerous segments; avicular with prolonged base and attachment button on upper basal surface.

## KEY TO SPECIES RECORDED FROM AUSTRALIA

1. Notosetae terminate halfway along abdomen ..... *T. setosus*  
 — Notosetae continue almost to pygidium ..... 2
- 2.(1) Abdominal uncini and notosetae terminate on the same segment .....  
 ..... *T. plagiostoma*  
 — Abdominal uncini and notosetae do not terminate on the same segment .  
 ..... *T. robustus*

***Thelepus plagiostoma*** (Schmarda, 1861)

Fig. 7a

*Thelepus plagiostoma*. — Augener, 1914: 95-98; 1922: 48. — Fauvel, 1919: 455, fig. 10. — Rullier, 1965: 196.

MATERIAL EXAMINED: Queensland — Moreton Bay, Dunwich mud flats, coll., 1950, mid tide level (QM); T.H. and party, coll., June 1962 (QM G.3976).

DESCRIPTION: Large species with over 150 segments. Three pairs of gills, numerous gill filaments. Notosetae continue almost to pygidium. Uncini in single rows, uncinigerous tori poorly developed. Abdominal notosetae and uncini terminate on same segment, 10-12 achaetous preanal segments.

DISTRIBUTION: Australia; South Africa; Madagascar; Red Sea; Japan; New Zealand; Chile; West coast of U.S.A.

***Thelepus robustus*** (Grube, 1878)

Fig. 7b

*Phenacia robusta* Grube, 1878: 235-236, pl. 12, fig. 8.

*Thelepus robustus*. — Caullery, 1944: 166-167, fig. 131 A-F.

MATERIAL EXAMINED: Queensland — Moreton Bay, Pope, coll., Dunwich, Stradbroke Island, Aug. 1961, intertidal (AM W. 3731, 5103); Rat Island, Port Curtis, Ward and Boardman, coll., July 1929 (AM W. 2753); Thursday Island (AM G. 11199). New South Wales — Port Denison, Sydney, Rainford, coll., (AM W. 5102); Port Jackson, Sydney, Johnston, coll., (AM W. 5104).

DESCRIPTION: Compact prostomium with ring of eye spots. Gills, 3 pairs on segments 2-4, numerous simple gill filaments. Notosetae from 2nd branchiferous segment, continue almost to pygidium, smooth tipped winged capillary setae. Number of setae per bundle, reduced in posterior segments. Uncini from setiger 3, continue beyond notosetae. Uncini with prominent upturned terminal button. No nephridial papillae present.

REMARKS: Caullery (1944), states that eye spots are normally absent, although they are present on one of his specimens, and they are present on all specimens from Moreton Bay.

Both *Thelepus robustus* and *T. plagiostoma* occur in Moreton Bay. *T. robustus* can be distinguished from *T. plagiostoma* by the abdominal uncini not terminating on the same segment as the notosetae, whereas in *T. plagiostoma* they terminate on the same segment.

The uncini of *T. robustus* are also larger, their bases wider and less angular than those of *T. plagiostoma* (fig. 7a-b.).

DISTRIBUTION: Australia; Indonesia; Philippines.



Subfamily **Amphitritinae**  
**Amphitrite** O.F. Müller, 1771

DIAGNOSIS: Tentacular lobe short and compact with numerous oral tentacles. Gills 2-3 pairs on segments 2-4, simple or branched filaments. Lateral lobes present on segments 2-4. Notosetae begin on 3rd branchiferous (segment 4), continue for 13-25 segments. Winged capillary notosetae with finely serrated tips. Avicular uncini from setiger 2, in posterior thorax arranged in double or alternating rows. Well developed ventral pads.

**Amphitrite rubra** (Risso, 1828)

*Amphitrite rubra*. — Fauvel, 1917: 265-267, fig. 27; 1927: 249-250, fig. 85h-l. — Rullier, 1965: 195. — Knox and Cameron, 1971: 36 (part).  
*Amphitrite vigintipes*. — Augener, 1927: 247-248.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. III B4/D1, June 1970/Sept. 1971, 2-3 m (AM). Dredged west side of Moreton Island, 34 m, dredged off S. of Moreton Island, 25 m, May 1961; dredged SW of M3 red beacon, Nov. 1961 (QM) (Rullier, determined, 1965). Victoria — Port Phillip Bay, Environmental Study, 1957-1963, many areas (NMV G. 1682/1706/1708/1714/1716/1718/1719/1721/1815/1816/1817/1819/1822/1837/1841/1842/1856/1857/1858/ (Knox and Cameron, determined, 1971).

DESCRIPTION: Compact prostomium. Eye spots absent. Three pairs, well developed dichotomously branched gills on segments 2-4. Lateral lobes on segment 2, small, partially enclosing tentacles, segment 3, with lobes forming a semicircular flap, and segment 4 with small thickened anterior margins. Notopodia present from segment 4 (3rd branchiferous) continue for 22-24 segments. Notosetae winged capillaries with finely serrated tips. Avicular uncini from setiger 2, arranged in single rows for first 6 uncinigerous segments, following ones in double rows. Abdominal uncini in single rows on small sessile pinnules. Prominent nephridial papillae on segments 3-5.

REMARKS: The specimens from Peel Island have 22-24 thoracic setigers. Fauvel (1917) describes 23 setigers for *A. rubra* but synonymises it with *A. chloraema* (Schmarda), which is described as having 22-25 setigers; later Fauvel (1927), gives a range of 22-24 setigers for *A. rubra* so that the Peel Island specimens fall within this range.

Knox and Cameron (1971) reported *A. rubra* from Port Phillip Bay, Victoria. On re-examining this material, only 1 specimen from Area 16, St. 142 (NMV G.1819) was found to be *A. rubra*; the rest of the material is a new genus close to *Pista*, which is currently being described. Another record of *A. rubra* from this locality has been obtained during the subsequent Port Phillip Bay Environmental Study 1969-1971. (Poore, Rainer and Spies, 1975). All the material of Rullier (1965) has been re-examined, and agrees with his diagnosis except that lot G.3918 is dehydrated, and cannot be positively identified.

DISTRIBUTION: Australia; Mediterranean; Red Sea; Japan; New Zealand; Chile.

**Hadrachaeta** n.g.

DIAGNOSIS: Compact prostomium with thickened outfolded lips, numerous thick grooved oral tentacles. Three pairs of simple gills on segments 2-4. Lateral lobes poorly defined. Notopodia from segment 4 (3rd branchiferous) and continue for 16 segments, with finely serrated capillary notosetae. Uncini from setiger 2, and continue to pygidium. Uncini of 1st, 4 rows, heavily chitinized long handled hooks, following ones avicular.

Type species **Hadrachaeta aspeta** n.sp., by present designation  
**Hadrachaeta aspeta** n.g., n.sp.

Fig. 8 a-d

MATERIAL EXAMINED: New South Wales — Patonga Creek, Broken Bay, W. McCormick, coll., in mud adjacent to seaward margins of mangroves, *Avicennia marina* (Forsk.), Jan. 1973 — holotype and paratype (AM W. 6801/6854); paratype (USNM 52623); 6 paratypes (BMNH, ZB. 1975-133-138). Yamba, W. McCormick, coll., in mud in front of mangroves, March 1973 — 12 paratypes (AM W. 6855/6). Queensland — Moreton Bay, Queensland Museum Party, coll., Serpentine Creek, 3.4 km upstream, transect 3L site V, muddy bank, Aug. 1972 — paratype (QM G. 8165). Brisbane River, C. Wallace coll., from mangroves, transect 3L, site U — paratype (AM W. 6853).

Size — holotype (complete) 25 mm long, 4 mm wide at anterior end. Paratypes (QM G. 8165, USNM 52623) 15 mm long, 2-3 mm wide anteriorly.

DESCRIPTION: Compact prostomium with thickened outfolded lips. Numerous thick, grooved oral tentacles (fig. 8a). Eye spots absent. Three pairs of gills, segments 2-4, each gill consisting of numerous simple unbranched gill filaments borne on a short broad stalk. Lateral lobes poorly defined, present only as slightly raised margins on segments 4 and 5. Notopodia present from segment 4 (3rd branchiferous), continue for next 16 segments. Notosetae arranged in 2 distinct tiers with about 8 large setae in dorsal tier and about 10 shorter ones in ventral tier. Notosetae wing-less capillaries, tips slightly flared and distinctly serrated, tapering to a fine point (fig. 8b). Uncini begin on setiger 2 and continue to pygidium. Length of first 4 rows of uncini slightly shorter than following thoracic rows. Uncini of first 4 rows, heavily chitinized long handled hooks (fig. 8c). Following neurosetae typical avicular uncini with 2 rows of teeth above main fang (MF: 5-7:8), arranged in double rows from setiger 11. In posterior thoracic segments, dorso-lateral portion of uncinal row deflected posteriorly. Abdominal uncini borne on sessile pinnules, the rows and size of uncini become shorter and smaller towards pygidium. First 9 setigerous segments with well marked ventral pads, and tissue surrounding rows of uncini glandular; tissue gradually becoming less glandular posteriorly. Holotype, mature with large yolky eggs. Nephridial papillae on setigers 6-10.

REMARKS: *Hadrachaeta aspeta* is placed in the family Terebellidae, subfamily Amphitritinae, as it has serrated notosetae, distinct ventral pads, compact prostomium, the majority of uncini avicular and generally resembles other members of this subfamily. The first 4 rows of uncini are simple long handled hooks which could be compared to the anterior uncini of *Pista* which have elongated shafts, although they lack the crested head characteristic of *Pista*. These simple hooks do not resemble the thoracic long handled, heavily crested hooks found in the Trichobranchidae. *Hadrachaeta* also shares some characteristics with *Amphitrite* and *Terebella*, in having serrated tipped notosetae, and some species of *Amphitrite* also have simple unbranched gills.

#### **Lanice** Malmgren, 1866

DIAGNOSIS: Compact tentacular lobe, with numerous long oral tentacles and eye spots. Branched gills on segments 2-4. Lateral lobes on segments 1-3. Notosetae start on segment 4, continue for 17 segments, smooth tipped winged capillary setae. Avicular uncini from segment 5, arranged back to back on posterior thorax, in double rows.

#### **Lanice conchilega** (Pallas, 1766)

*Lanice conchilega*. — Hessle, 1917: 168-169. — Fauvel, 1927: 255-257, fig. 88 a-h. — Day, 1967: 743-744, fig. 36. 8 n-r. — Knox and Cameron, 1971: 38.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. II A4/D5, III C2, June/Sept. 1970, 5-8 m (AM). Victoria — Port Phillip Bay Environmental Study, 1957-1963, (NMV G. 1731) (Knox and Cameron, determined, 1971).

DESCRIPTION: Segment 1 with very large ventro-lateral lobes, continuous ventrally forming a sheath for oral tentacles. Lateral lobes absent on segment 2, segment 3 with large square lobes. Three pairs of equal sized branched gills, with short trunks on segments 2-4. Fourteen to 20 ventral pads fused together, tapering to a glandular streak on posterior thorax. Nephridial papillae on segments 3 and 6-9. Avicular uncini with main fang and 2 rows of teeth above, with 2 and 3-6 teeth respectively (MF: 2:3-6). No tubes retained with Moreton Bay material, Victorian material had tubes made of sand and shell fragments.

DISTRIBUTION: Australia; Japan; Iranian Gulf; south and west Africa; Atlantic from Sweden to English Channel; Mediterranean; S. California.

#### ***Loimia* Malmgren, 1866**

DIAGNOSIS: Tentacular lobe short and compact, with eye spots. Lateral lobes present on anterior segments. Branched gills on segments 2-4. Notosetae start on segment 4, continue for 17 segments, smooth tipped capillary setae. Pectinate uncini from segment 5, arranged in double rows on posterior thorax. Ventral pads present.

#### KEY TO SPECIES RECORDED FROM AUSTRALIA

1. Uncini with 4-5 teeth in a vertical row ..... *L. ingens*  
 — Uncini with 6-7 teeth in a vertical row ..... *L. medusa*

#### ***Loimia ingens* (Grube, 1878)**

*Terebella ingens* Grube, 1878: 228-230, pl. 13, fig. 1.

*Loimia ingens*. — Hesse, 1917: 170.

*Loimia nr. ingens*. — Hartman, 1966: 364, pl. 38.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St II B3, Sept. 1971, 7 m (AM); Port Douglas, McCulloch, coll., St. Crispin Reef, outer edge, 1918 (AM W. 7990). New South Wales — Long Reef, Collaroy, Bennett, coll., Oct. 1963 (AM W. 3803), (Hartman, determined, 1966). New Hebrides — Malekula, South West Bay (AM W. 2798).

DESCRIPTION: Tentacular lobe short and compact, with oral tentacles transversely banded with discrete spots of pigment. Well developed lateral lobes on segments 1 and 3. Notosetae, 17 pairs of smooth tipped capillary setae. Pectinate uncini usually with 4 teeth plus rudimentary 5th tooth in a vertical series. Occasionally, 5th tooth well developed in thoracic uncini. Abdominal uncini often only with 4 teeth, (considerable variation in dentition of uncini within individual). All uncini with well developed spur. Uncini in double rows from 8th setiger.

REMARKS: Hartman (1966) recorded *Loimia nr. ingens* from Long Reef, Collaroy, Sydney, New South Wales and was doubtful of the species because the number of uncinal teeth varied between 3-5. There is also some confusion in the literature, as Grube in the original description states 3 teeth but figures 4. All the specimens examined have two well developed lateral lobes on segments 2 and 3 which distinguishes it from *L. medusa*, which is also present in Moreton Bay. At this stage these 2 specimens from Moreton Bay are referred to *L. ingens*.

DISTRIBUTION: Australia; Philippines.

**Loimia medusa** (Savigny, 1818)

*Loimia medusa*. — Augener, 1922: 46-48; 1927: 253-254. — Rullier, 1965: 195-196. — Day, 1967: 743, fig. 36. 9 a-e.

*Loimia montagui*. — Augener, 1926: 465-466. — Monro, 1931: 29.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. IC4/D4 June 1970/1971, 4 m, St. II A5/B1 March/Sept. 1971, 6-7 m, St. III A4/B2/B3/D2/D4/D5/E2/E3/E4 June/Dec. 1970, June/Sept. 1971, 2-6 m; Middle Banks off Tangalooma, St. 33/42/44/46/48/49/52/56/57 June 1970 (AM). Dredged SE of Peel Island, Nov. 1961, south end of Moreton Island, April 1961, 34 m, Redland Bay, April 1961. Hailstone and party, coll., Rainbow Channel, June 1962. (QM G. 3916, 3925, 3927, 3954), (Rullier, determined, 1966).

DESCRIPTION: Tentacular lobe short, with oral tentacles banded with purple. Three pairs of similarly sized branched gills. Buccal segment with large membranous lower lip. Segments 2 and 3 with large fused lateral lobes. Pectinate uncini with 6-7 teeth in a vertical row (variation within an individual), 7th tooth not always rudimentary. Double rows of uncini from setiger 8. Discrete ventral pads extend to setiger 9 or 10. Nephridial papillae present on segments 6-8.

REMARKS: Day (1967) commonly found that the 1st pair of gills was the largest, whereas the specimens from Moreton Bay had equal sized gills.

DISTRIBUTION: Australia; Solomon Islands; India; Red Sea; S. Africa; English Channel; N. Carolina and California, U.S.A.; Japan.

**Pista** Malmgren, 1866

DIAGNOSIS: Compact tentacular lobe, numerous oral tentacles. Lateral lobes on segments 2-4. One to three pairs of gills. Notosetae from segment 4, continue for 17 pairs, smooth tipped capillaries. Uncini start on segment 5, uncini on anterior thoracic segments with posteriorly elongated bases, following uncini avicular, arranged in double rows.

## KEY TO SPECIES RECORDED FROM AUSTRALIA

- |       |  |                            |
|-------|--|----------------------------|
| 1.    | Gills, 2 pairs .....                                     | 2                          |
| —     | Gills, 3 pairs .....                                     | 3                          |
| 2.(1) | Gills tufted .....                                       | <i>P. trunca</i> n. sp.    |
| —     | Gills club-shaped .....                                  | <i>P. typha</i>            |
| 3.(1) | Gills short tufted .....                                 | <i>P. trina</i> n. sp.     |
| —     | Gills with short branches along one side of main stem .. | <i>P. pectinata</i> n. sp. |

**Pista pectinata** n.sp.

Fig. 9 a-g

*Pista* sp. 1 Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. I B5, Dec. 1971, 5 m, St. II A1/B2/C5/D5 March/June/Dec. 1970, June/Dec. 1971, 6-8 m — holotype (AM W. 6795), paratypes (QM G. 8163), (BMNH. ZB.H. 1975 — 139), (USNM 52622), (AM W. 6796, 6797).

Size — holotype (incomplete posteriorly) 55 mm long, 71 segments, 50 of them abdominal. Paratype (QM G. 8163) (incomplete posteriorly) 10 mm long; paratype (BMNH, ZB. 1975-139) (incomplete posteriorly, some gills absent) 8 mm long, 27 segments; paratype (USNM 52622) (incomplete posteriorly, 1 gill of 1st pair absent) 15 mm long, 28 segments.

DESCRIPTION: Tentacular lobe thick and convoluted, pigmented brown. Eye spots absent. Three pairs of gills on segments 2-4, 1st pair extend back to setiger 10, 2nd pair to setiger 8 and 3rd pair to setiger 3. Gills have long main stems, with short branches of approximately same length, coming off along one ridge of stem (fig. 9 a), side branches divided. Lateral lobes present on branchial segments 2-4. First pair on segment 2, large and semicircular, fused midventrally forming ventral collar, not extending as far dorsally as following pair. Second pair separate and rectangular, overlapping base of first pair. Third pair smaller and ovoid. Seventeen pairs of notopodia with smooth tipped narrow winged capillary setae from segment 4 (third branchiferous segment) (fig. 9 b). Uncini begin on setiger 2 and present on all remaining abdominal segments. Rows of thoracic uncinigerous tori surrounded by distinctive glandular tissue. Thoracic uncini arranged in double rows from 8th setiger; with similarly developed, short, blunt, moderately well chitinized shafts (fig. 9c-f), and crested head with at least 3 rows of teeth above main fang, (MF: 5: 5: 3-2), and with fibrous tuft on mid-basal surface. Short rows of abdominal uncini borne on rectangular elevated tori. Abdominal uncini much smaller than thoracic ones, the shaft is virtually absent with 5 secondary teeth above main fang and at least 2 rows of numerous smaller teeth above secondary teeth (fig. 9g). Well developed glandular ventral pads present. Lives in fairly rigid sandy mud tube, with shell fragments embedded in walls.

REMARKS: *Pista* is a large genus with over 40 described species, although some of the descriptions are inadequate. (The generic description given at the beginning of this section is based upon Hesse (1917), description of the type species *P. cristata*.) The genus is in need of revision, which is in preparation. Useful specific characters are the number and type of gills, the shape of the lateral lobes and the thoracic uncini, especially those of the first few rows. Six previously described species of *Pista* have 3 pairs of gills; *P. cretacea* (Grube); *P. elongata* Moore; *P. foliigeraformis* Annenkova; *P. pacifica* Berkeley and Berkeley; and *P. indica* Fauvel. The last species should probably be removed from this genus as it has serrated notosetae. The gills of all these species do not in any way resemble the distinctive gills of *Pista pectinata*. Another distinguishing feature is the presence of moderately well developed shafts on all thoracic uncini, in *P. pectinata*, in contrast to many species where the shaft is restricted to the anterior uncinigerous segments. Four other species of *Pista* have shafts on all thoracic uncinigerous segments; *P. brevibranchia crassa* Caullery; *P. fasciata* (Grube); *P. intermedia* Webster and Benedict; and *P. microlobata* Hesse; these species have 2 pairs of gills, with different arrangement of gill branches. These two distinctive features, together with the presence of large lateral lobes, the 1st pair being fused midventrally, characterize *P. pectinata*.

***Pista trunca* n.sp.**

Fig. 10 a-f

*Pista* sp. 2 Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. II B5/C2/E3 Sept./Dec. 1970, Dec. 1971, 7-8 m — holotype (AM W.6973), paratype (QM G.8162) (AM W.6794).

Size — holotype 35 mm long, paratype (QM G. 8162) 28 mm long, with 1 gill, paratype, (AM W. 6794), specimen with no gills.

DESCRIPTION: Tentacular lobe with thickened trumpet shaped lips, and a few thick, strongly grooved tentacles. Eye spots absent. Two pairs of dichotomously branched gills with short thick stalks on segments 2 and 3, first pair the largest (fig. 10a). Buccal segment with a pair of large semicircular lobes meeting midventrally at distinct notch, encompassing tentacles. Lateral lobes on segments 2-4; laterally thickened with narrow ridges, expanding ventrally, meeting midventrally in depression on segment 2; large semicircular, slightly fluted and ridged, extending dorsally to notopodia and ventrally to margins of ventral pads on segment 3; narrow, rectangular with interconnecting raised strip across dorsum on segment 4. Seventeen pairs of notopodia with smooth tipped winged capillary notosetae, beginning on segment 4 (fig. 10b). Uncini begin on setiger 2, arranged in double rows from setiger 8. All thoracic uncini have poorly chitinized shafts, although those on posterior thorax not as well developed (fig. 10c-e). Thoracic uncini have 3 rows of teeth above main fang (MF:3:6:10). Abdominal uncini on prominent projecting pinnules, also with 3 rows of teeth above main fang (MF:3:6:8-10), lacking shafts (fig. 10f). Anterior ventral pads poorly developed, posteriorly restricted to narrow slightly elevated midventral streak. Posterior margin of ventral pad wider than anterior margin.

REMARKS: Four described species of *Pista* have 2 pairs of gills and thoracic uncini with shafts: *P. brevibranchia crassa* Caullery; *P. fasciata* (Grube); *P. intermedia* Webster and Benedict; and *P. macrolobata* Hessle. *P. trunca* can be distinguished from *P. brevibranchia crassa* and *P. intermedia* by the arrangement of the gills, arranged in whorls in the former and in a slow ascending spiral in the latter. *P. trunca* has similar gills to *P. macrolobata* and *P. fasciata* but can be distinguished by the arrangement of the lateral lobes and thoracic uncini. *P. macrolobata* has very weakly developed shafts on thoracic uncini, although the figures of Hessle (1917: fig. 36c) and Fauvel (1932: fig. 39a) do not agree, even though Fauvel states that his specimens agree with those of Hessle. *P. macrolobata* also differs in the arrangement of the lateral lobes; they are absent on segments 2 and 4; *P. fasciata* lacks lateral lobes on segment 4, and the thoracic uncini lack well developed shafts. However, the dental formulae of the uncini of *P. fasciata* (MF: 4: 7ca 12, Day, 1967) and *P. trunca* are similar.

***Pista trina* n.sp.**

Fig. 11a-e

*Pista* sp. 3 Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson et al., coll., south of Peel Island, St. IIE, Sept. 1971, 8 m; Middle Banks off Tangalooma, St. 22 Sept. 1969 — holotype (AM W. 6798), paratype (QM G. 8164).

Sizes — holotype (AM W.6798) 145 mm long, 11 mm wide across thorax. Paratype (QM G.8164) (incomplete posteriorly) 50 mm long, 10 mm wide across thorax, 38 segments, 17 of them abdominal.

DESCRIPTION: Compact tentacular lobe, buccal segment with small, thickened, trumpet shaped lower lip with fluted edges. Eye spots absent. Three pairs of dichotomously branched gills on short stout stalks, on segments 2-4. Thick branches arise from main stem, each branch with short, compact feathery appendages. First pair of gills slightly larger (fig.11a). Lateral lobes on segments 2 and 3. Both pairs of lateral lobes arising at acute angle of 60° to body surface and pointing towards tentacles. Lobes of segment 2, semicircular extending from midlateral body wall to midventrum, but not fusing; segment 3, large, pinnate lobes extending from ventral pads to notosetae. Seventeen pairs of notopodia with smooth tipped winged capillary notosetae of 2 lengths, present from segment 4 (3rd branchiferous) (fig.11b). Uncini begin on setiger 2, arranged in double rows from uncinigerous segment 7. Uncini of anterior thoracic segments have long chitinized shafts; by uncinigerous segment 6, shafts are small and tapered (fig.11c-d). In posterior thoracic

segments, shafts reduced to a tapering ligament. Uncini arranged in short rows up to uncinigerous segment 6, then gradually increase in length until the 15th, they almost extend to midventrum. Thoracic uncini have 3 rows of teeth above main fang (MF: 1:2-3:5). Abdominal uncini, smaller, borne on raised, rectangular pinnules, with 3 rows of teeth above main fang (MF: 2:3:4) (fig. 11e). Ventral pads of first 6 segments, fused forming a single slightly raised corrugated pad; following ones much narrower, restricted to ventral groove, continuing on abdomen. Single nephridial papilla clearly visible on one side of segment 5 between noto and neuropodia on holotype. Gonopores not visible and mature gametes absent. Lives in firm substantial tube several mm's thick, composed of sand and shell fragments.

REMARKS: *Pista trina* is closest to *P. cretacea* (Grube), described from the Mediterranean, but it differs in the following points. *P. cretacea* has a prolonged cephalic lobe with an upper elevated lip and the buccal segment forming a lower lip, both of which are poorly developed in *P. trina*. Fauvel (1927) reported that the lateral lobes on segment 2 are triangular and located just below the mouth in *P. cretacea* whereas these lobes are semicircular and ventrolateral in position in *P. trina*. The arrangement of the ventral pads also differs. Finally, *P. cretacea* has uncini with elongated shafts on only the first 3 thoracic uncinigerous segments in contrast to *P. trina*, where shafts, though considerably reduced, are still present on uncini from the 6th uncinigerous segment. *P. trina* differs from other described species which have 3 pairs of gills, in the structure of the gills and thoracic uncini (for a discussion of these species, see under remarks, *P. pectinata*).

### ***Pista typha* Grube, 1878**

Fig. 12a-b

*Pista typha*. — Hesse, 1917: 155. — Augener, 1927: 254-257, fig. 17. — Monro, 1931: 30, fig. 15a-c. — Knox and Cameron, 1971: 38. — Stephenson, et al., 1974: 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St II A4/C4/C5/D4/D5, 6-8 m, St. III A2/E1/E3/E5, June 1970/June/Sept./Dec. 1971, 4-6 m (AM). Victoria — Port Phillip Bay Environmental Study, 1969-1971, Area 28(286) (NMG.1717) (Knox and Cameron, determined, 1971).

DESCRIPTION: Compact prostomium. Eye spots absent. Two pairs of long stalked club-shaped gills with branches coming off main axis in tiers, on segments 2-3. First pair of gills much larger than 2nd pair. Large semicircular lateral lobes on segments 2 and 3, and very small lobes on segment 4. First and 2nd segment twice width of 3rd. Notopodia from segment 4, continuing for 17 segments, notosetae winged capillaries with smooth tips. Uncini from segment 5, arranged in single rows for first 6 uncinigerous segments, following thoracic uncinigerous segments have double rows. Uncini of 1st uncinigerous segment with long fairly heavily chitinized shafts (fig. 12a), this shaft gradually reduced, by 6th uncinigerous segment absent (fig. 12b). Abdominal uncini avicular, arranged on small pinnules. All uncini have strongly crested heads, with 4 rows of teeth above main fang (MF: 4:5:6:6). Twenty well delineated ventral pads tapering off to a distinct glandular groove continuing onto abdomen. Nephridia present on setigerous segments 6 and 7, with very long tubercles.

REMARKS: Hesse (1917), in his description of *P. typha* does not indicate which thoracic uncini have shafts. Fauvel (1953), figures an uncini from the 6th uncinigerous segment (setiger 7) indicating that at least the first 6 rows of uncini have shafts. However, the specimens examined from Port Phillip and Moreton Bay had virtually lost the shaft by the 6th uncinigerous segment.

*Pista typha* has been recorded from Low Isles, Great Barrier Reef by Monro (1931), although he states that he found it difficult to distinguish *P. typha* from the widely distributed *P. cristata*. Material of *Pista cristata* from near the type locality (Herdla, Hordaland, Norway in 90-95 m, ZMB, AM) was examined and agrees with the description given by Hesse. His description can be expanded however, to include the fact that the dendritic branches of the gills are spirally distributed around the main axis. The specimens from Norway also differ from *P. typha* in the shape of the lateral lobes and by having uncini with much stronger chitinized shafts (fig. 12c-e). The shaft is still obvious on the 5th uncinigerous segment, but by the last thoracic segment is barely visible. The uncini have 4 to 5 rows of teeth above the main fang (MF: 5:5:5:6). So that the 2 closely related species *P. typha* and *P. cristata* can be differentiated by the arrangement of the gill branches and the degree of chitinization of the shaft of the anterior thoracic uncini.

*Pista typha* is also closely related to *P. brevibranchia* Caullery and *P. brevibranchia crassa* Caullery, and it is likely that *P. brevibranchia* could be synonymised with *P. typha*, as the arrangement of the gills is similar. The shaft and the margins of the uncini from the anterior segments of *P. brevibranchia* are well chitinized, and the shaft diminishes on uncini of more posterior segments, again similar to *P. typha*. *P. brevibranchia crassa* however, differs from the other two species as the shaft of the uncini of anterior segments is hardly chitinized. Caullery also erected *P. typha aequibranchia* which he distinguished from the stem species, by having both pairs of gills almost equal in size, these gills are unequal in size in *P. typha*. The sub-species also has weakly developed shafts on the uncini of the anterior segments, which suggests that this sub-species should be considered a species in its own right. These problems cannot be resolved until Caullery's material is re-examined.

DISTRIBUTION: Australia; Solomon Islands; Indo-West Pacific; Philippines; India; Japan; Indonesia.

#### Family **Trichobranchidae** Malmgren, 1866

##### List of species reported from Australia

*Artacamella dibranchiata* Knox and Cameron, 1971. Port Phillip Bay, Victoria. Referred to Trichobranchidae. See below.

*Terebellides stroemii* Sars, 1835. Westernport; Port Phillip Bay, Victoria (Knox and Cameron, 1971); Sydney, New South Wales (Augener, 1927); Moreton Bay (Rullier, 1965; Stephenson, et al., 1974).

*Terebellides* sp. Cockburn and Warbro Sound, Western Australia (Augener, 1914).

*Trichobranchus glacialis* Malmgren, 1866. Moreton Bay, Queensland (Stephenson, et al., 1974). Referred to *Artacamella dibranchiata*. See below

#### KEY TO THE GENERA OF TRICHOBRANCHIDAE FROM AUSTRALIA

1. Single branchial trunk distally divided into 4 lamellate lobes . . . *Terebellides*  
Gills, simple filaments . . . . . *Artacamella*

#### **Artacamella** Hartman, 1955

DIAGNOSIS: Prostomium inconspicuous lobe, ventral part of peristomium, forms conspicuous ridged proboscis. Upper part of peristomium forms a three-lobed membrane, with tentacles. Simple unbranched gills, 2-3 pairs on segments 1-3. Notopodia from segment 5, 15 pairs with smooth tipped notosetae. Uncini from segments 4 or 5, continuing for many segments. Thoracic uncini long handled hooks, abdominal ones avicular.



**Artacamella dibranchiata** Knox and Cameron, 1971.

Fig. 13a-c

*Artacamella dibranchiata* Knox and Cameron, 1971: 36-38, figs. 32-35.*Trichobranchus glacialis*. — Stephenson, et al., 1974: 113. Not Malmgren, 1866.

MATERIAL EXAMINED: Victoria — Port Phillip Bay — holotype and paratype (NMV G.1758/9). Port Phillip Bay Environmental Study 1969-1971, St. 931/962, sand and clay, 15-24 m (FWV 1661). Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. II E2 Dec. 1971, 8 m (AM).

DESCRIPTION: Prostomium compact, peristomium small, strongly ridged longitudinally to form proboscis. Proboscis divided into 2 parts; strongly ridged triangular superior cone, with base curved ventrally; smaller less strongly ridged glandular fold arising inferiorly from base. Tripartite frilly dorsal membrane completely encompassing expanded upper lip. Margins of upper lip covered with short thin tentacles. Transverse line of pigment spots occur at dorsal base of tentacles. Two pairs of simple, unequal gill filaments on segments 1-2. Segments 1 and 2 with thickened anterior margins, perhaps lateral lobes. Segment 3 achaetous. Uncini present from segment 4, occasionally 5, and on all abdominal segments present (ca 35), in single rows throughout. Thoracic uncini long handled hooks with 1 row of secondary teeth above main fang (MF: 3-4). Abdominal uncini, avicular with fluted edge, and crested head, above main fang (fig. 13b-c), on small projecting pinnules. Notopodia begin segment 5, continue for 15 segments, notosetae simple smooth tipped winged capillaries, variable in length, arising from prominent setal sacs. Ventral pads absent, individual segments glandular. Nephridial papillae or nephridiopores not visible, even though some specimens mature with gametes.

REMARKS: Knox and Cameron (1971) reported that thoracic uncini and notosetae begin on the same segment, but most of the specimens examined (10) including the types from Port Phillip Bay, had thoracic uncini beginning on segment 4 and notosetae from segment 5; the other 2 specimens differed, one had uncini and notosetae both beginning on segment 5, and the other had uncini beginning on segment 4 on one side and segment 5 on the other. These 2 specimens did not differ in any other way from the type material. The single specimen from Moreton Bay had uncini and notosetae both beginning on segment 5, indicating the variability found in this species with respect to where the uncini begin. Knox and Cameron reported that the abdominal uncini were long handled hooks like the thoracic ones, whereas they are avicular.

The genus *Artacamella* was erected by Hartman (1955) for *A. hancocki* and placed with *Artacama* Malmgren, in the subfamily Artacaminae (F. Terebellidae) as the ventral part of the peristomium is modified to form a conspicuous proboscis. However, *Artacama* has avicular uncini, resembling those of other terebellids, whereas *Artacamella* has thoracic uncini which are long handled hooks. The only terebellid with some thoracic uncini modified as long handled hooks is *Hadrachaeta aspeta* Hutchings, but these hooks have only 1 row of secondary teeth above the main fang, whereas those of *Artacamella* have strongly crested hooks. Thoracic uncini resembling those of *Artacamella* are found among all members of the family Trichobranchidae, except for *Filibranchus* Malmgren, for which it is not known. Other similarities between *Artacamella* and the 7 described genera of trichobranchids exist, such as the presence of simple gill filaments in 4 genera. Also most of them have some expansion of the peristomium, e.g. *Novobranchus* Berkeley and Berkeley, *Terebellides* Sars and *Unobranchus* Hartman, and in the other genera some expansion may be present but there is considerable confusion in the literature regarding the terminology of the anterior structures. For all these reasons *Artacamella* is removed from the Terebellidae and put into the Trichobranchidae. Within the trichobranchids, *Artacamella* is closely related to *Trichobranchus*, but they differ in the possession of a compact proboscis and expanded tentacular lobes respectively.

**Terebellides Sars, 1835**

DIAGNOSIS: Tentacular lobe large, deeply grooved, peristomium modified as prominent lower lip. Single gill on a stout trunk bearing 4 lamellate lobes. Winged capillary notosetae from segment 3, 18 pairs neurosetae from setiger 6, thoracic uncini long shafted hooks, abdominal uncini avicular.

**Terebellides stroemii Sars, 1835**

*Terebellides stroemii*. — Hesse, 1917: 137-138. — Augener, 1927: 258. — Fauvel, 1927: 291-292, fig. 100i-q. — Rullier, 1965: 197. — Stephenson, et al., 1970: 491. — Knox and Cameron, 1971: 34. — Stephenson, et al., 1974: 87, 102, 113.

MATERIAL EXAMINED: Queensland — Moreton Bay, Stephenson, et al., coll., south of Peel Island, St. I A1/A3/A4/A5/B3/B4/C5/E1, 4-6 m, St. II A2/C1/D2/D3, 6-8 m, St. III C1/C2, 5 m, June 1970/June/Sept. 1971; Middle Banks off Tangalooma, St. 28/31/33/34/35/40/41/49/51/52/53/56/57, Sept./Dec. 1972 (AM), (QM). Victoria — Port Phillip Bay, Area 37 (48), (NMV) (Knox and Cameron, determined, 1971).

DESCRIPTION: Tentacular lobe expanded with numerous short oral tentacles. Prominent lower lip. Eye spots absent. Single gill arises from segments 2-4, with stout trunk bearing 4 partially fused lamellate lobes, outer pair larger than inner one. Notopodia with smooth tipped capillaries from segment 3, continue for 18 segments. Uncini begin on setiger 5 or 6, according to size; specimens 8-21 mm, uncini from setiger 5, and from setiger 6 on larger specimens. First row of uncini, stout unidentate slightly bent acicular setae, subsequent thoracic uncini, thinner long handled hooks with crested heads. Abdominal uncini avicular, on projecting pinnules; about 30 uncinigerous abdominal segments. Prominent glandular folds on setigers 1-5.

REMARKS: Rainer (pers. comm.) has found similar variations with size, and the segment on which the uncini begin, in the population from Port Phillip Bay.

Within the Moreton Bay populations, a considerable range of sizes was found, one of the smallest complete individuals was 10 mm long and full of oocytes, and another incomplete individual was 32 mm long, with 16 setigers, suggesting that the worms breed several times during their life.

DISTRIBUTION: Cosmopolitan.

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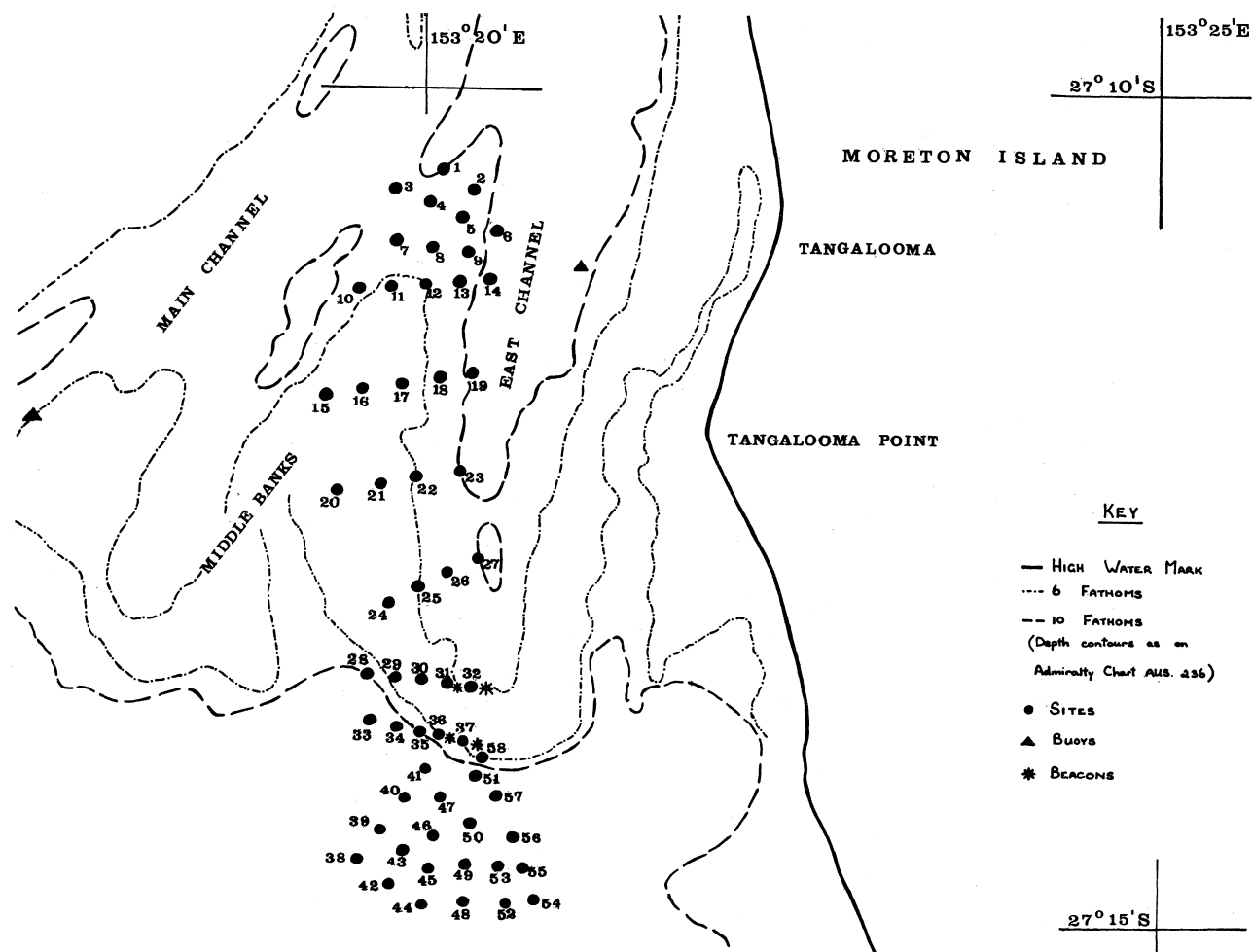


Fig. 1. Map of Middle Banks off Tangalooma, Moreton Bay, showing location of sampling sites.

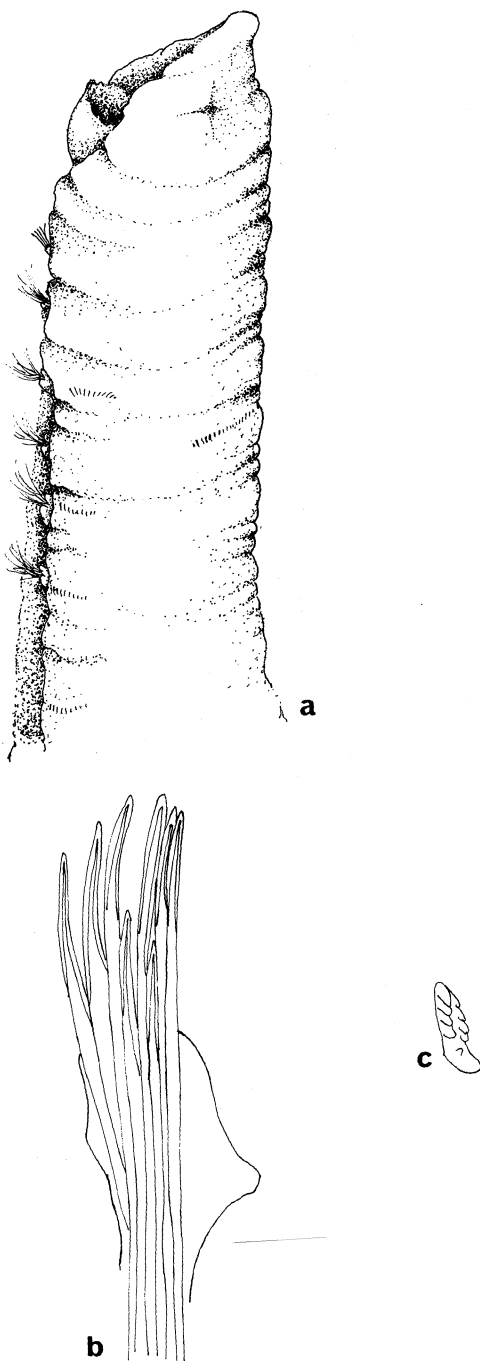


Fig. 2. *Auchenoplax mesos* n.sp. a. Ventrolateral view of anterior end. b. Posterior thoracic notopodium. c. Face on view of thoracic uncinus.

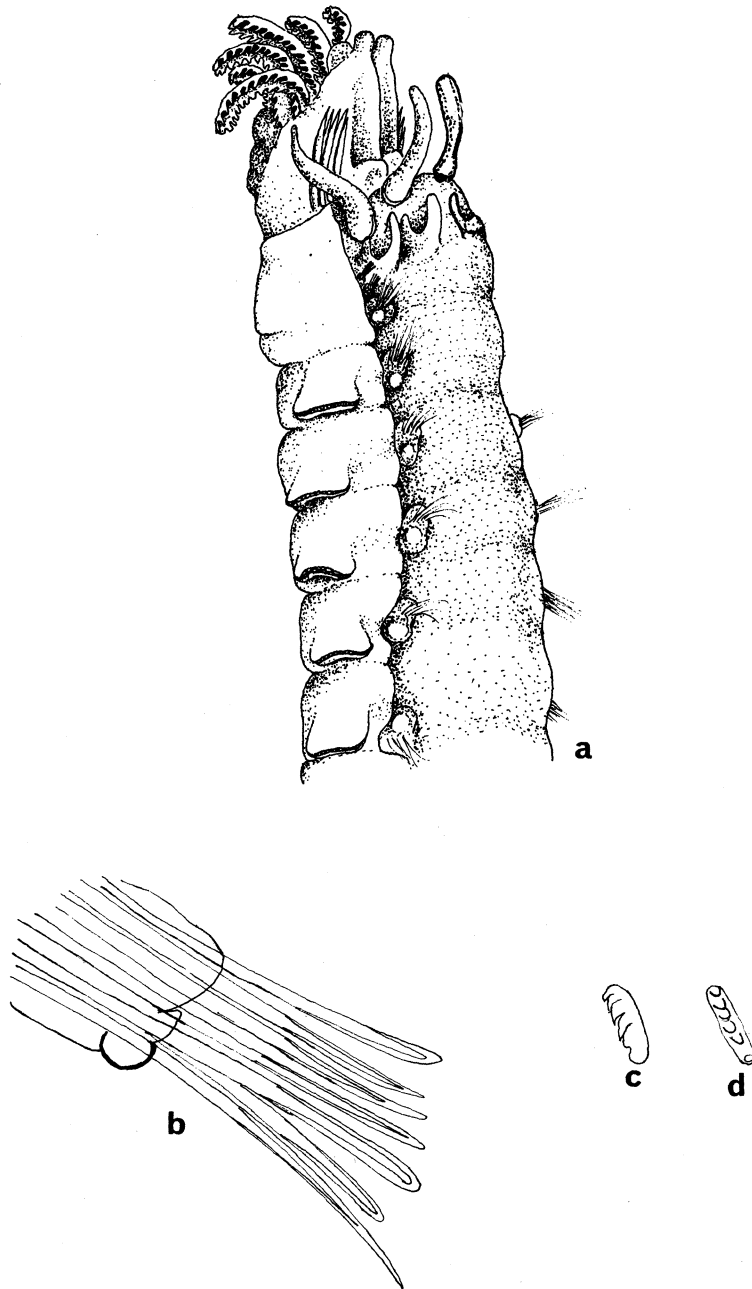


Fig. 3. *Pseudoamphicteis papillosa* n.g., n.sp. a. Dorsolateral view of anterior end. b. Thoracic notopodium. c,d. Views of thoracic uncinus. e. Abdominal nuropodia and notopodial cirrus.

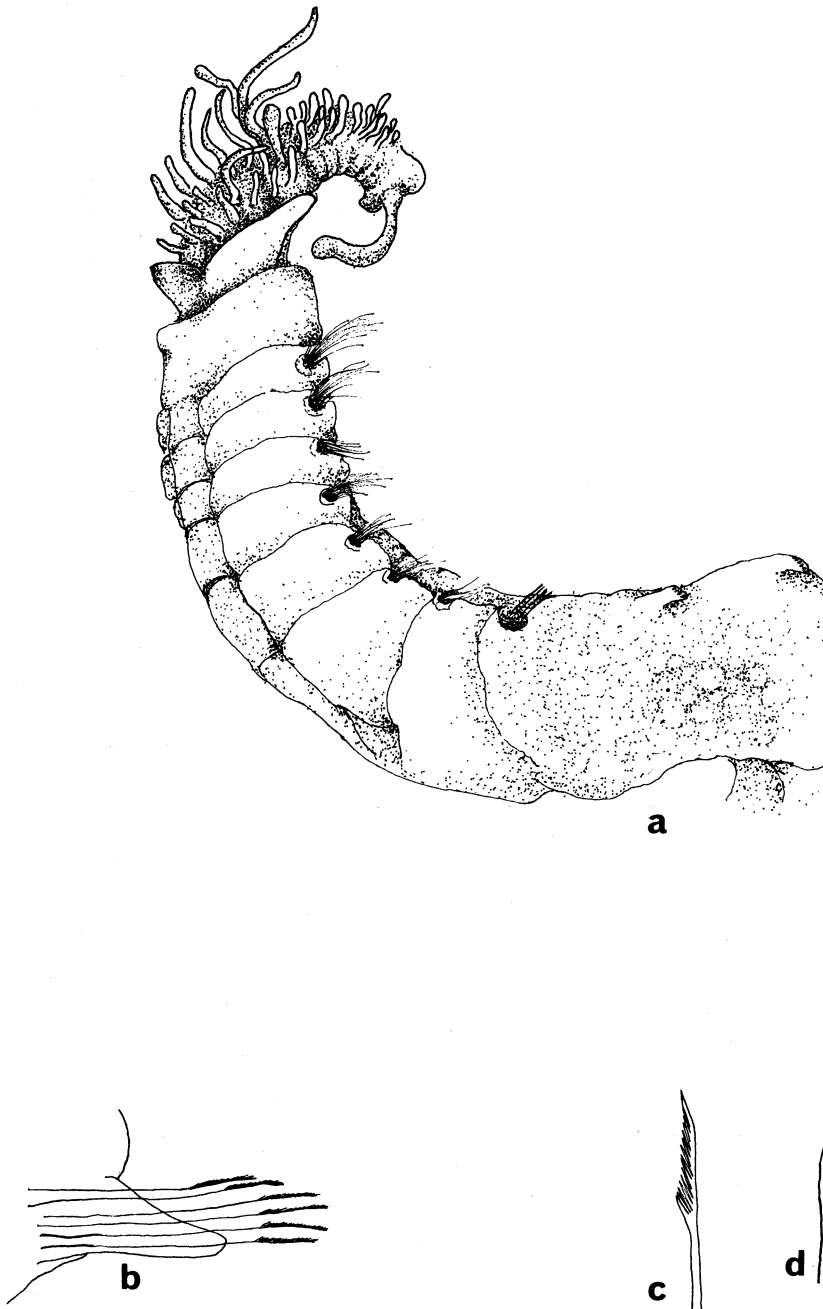


Fig. 4. *Litancyra octoseta* n.g., n.sp. a. Ventrolateral view of anterior end. b. Thoracic notopodium. c. Tip of thoracic notoseta. d. Abdominal uncinus.



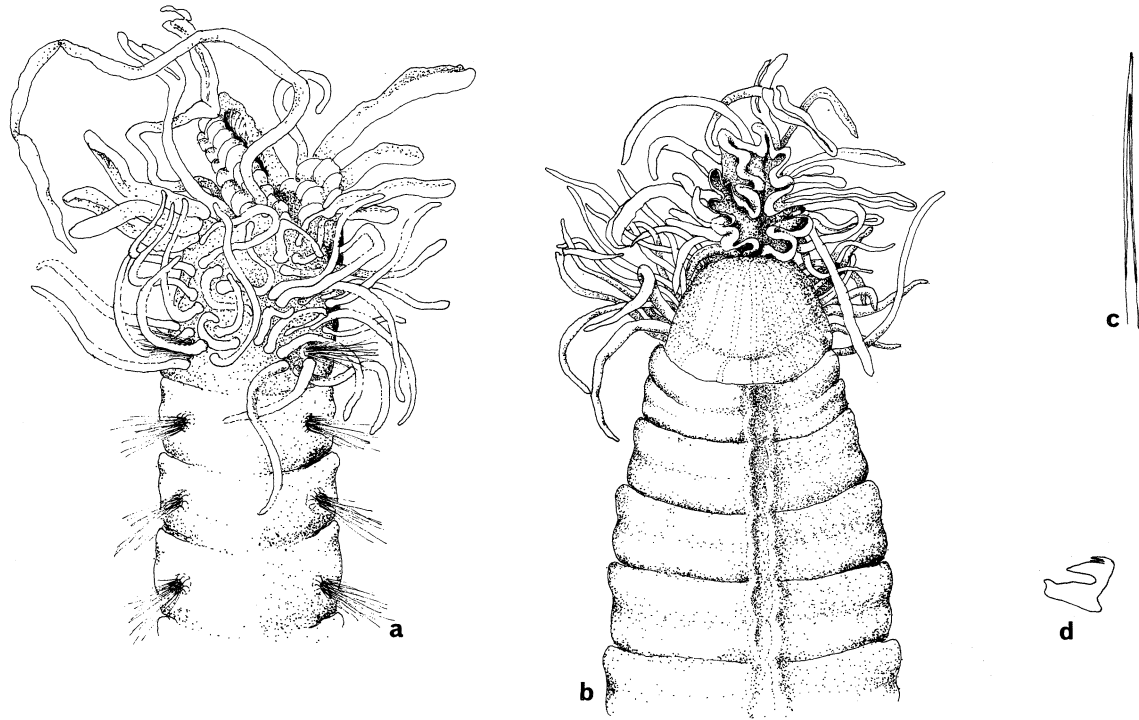


Fig. 5. *Decathelepus ocellatus* n.g., n.sp. a. Dorsal view of anterior end. b. Ventral view of anterior end. c. Thoracic notoseta. d. Thoracic uncinus.

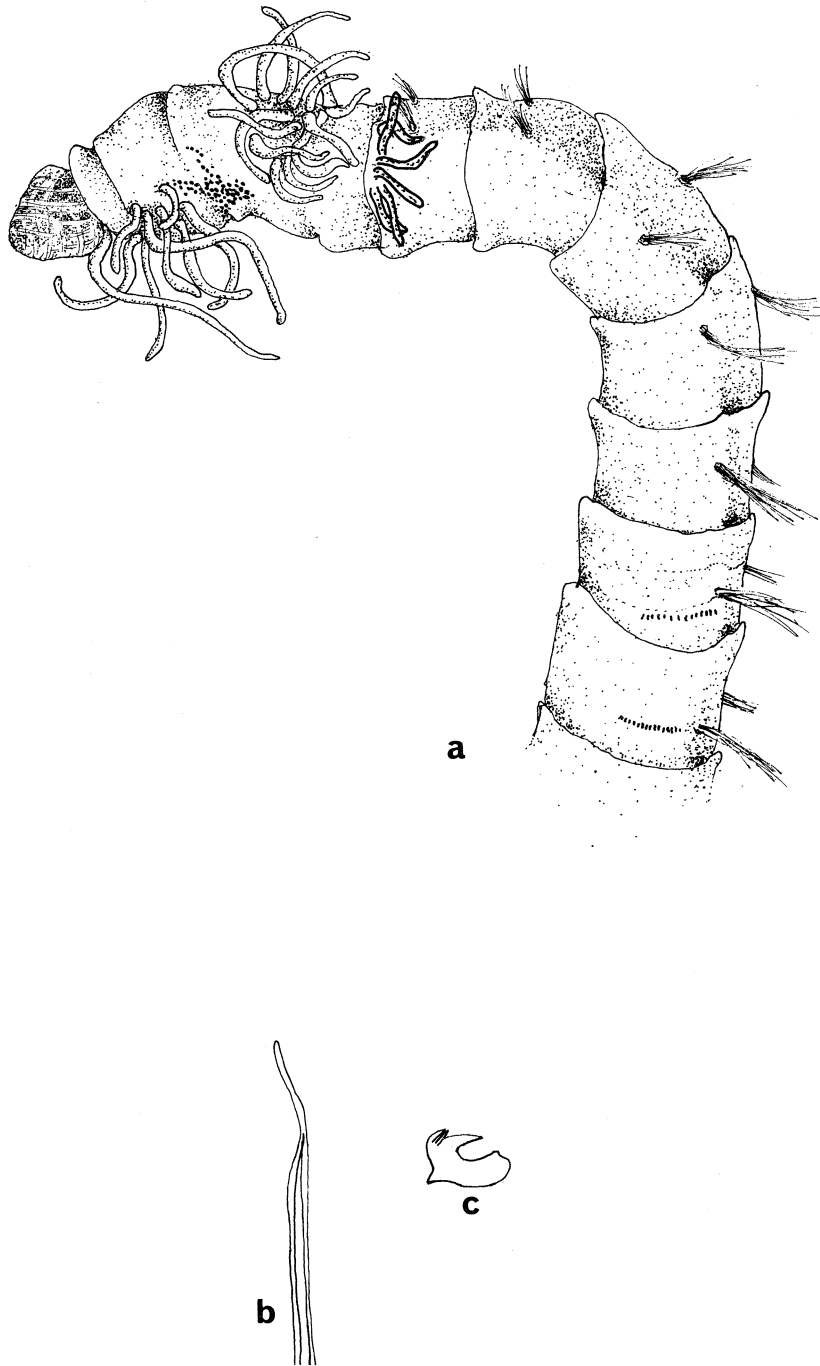


Fig. 6. *Rhinthelepus macer* n.sp. a. Dorsolateral view of anterior and thoracic segments. b. Thoracic notoseta. c. Thoracic uncinus.

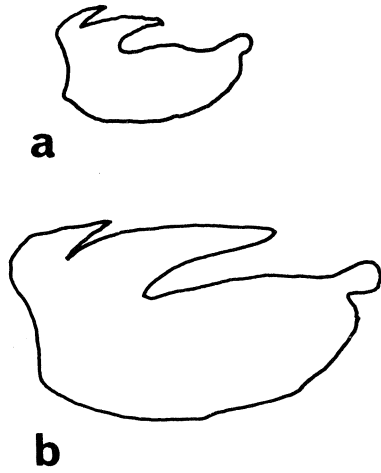


Fig. 7. *Thelepus plagiostoma* a. Lateral view of thoracic uncinus. *Thelepus robustus*. b. Lateral view of thoracic uncinus.

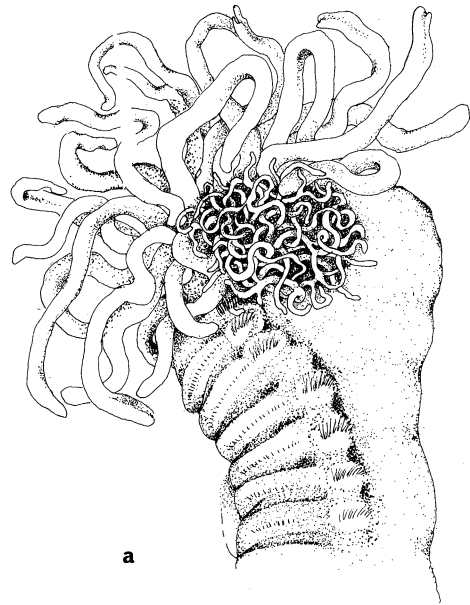
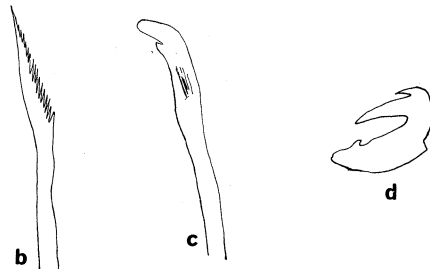


Fig. 8. *Hadrachaeta aspeta* n.g., n.sp. a. Lateral view of anterior end. b. Notoseta. c. Uncinus from 1st thoracic uncinigerous segment. d. Avicular uncinus.



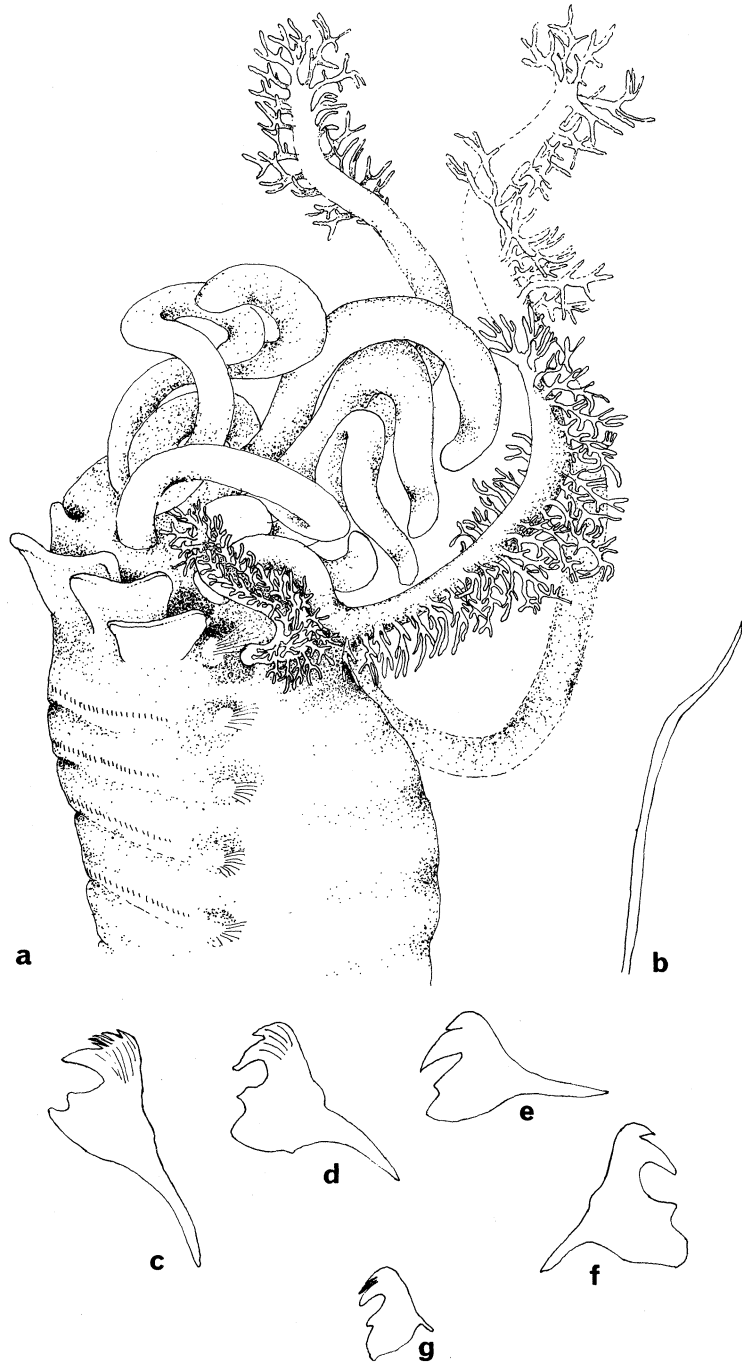


Fig. 9. *Pista pectinata* n.sp. a. Lateral view of anterior end. b. Thoracic notoseta. c. Uncinus from 1st uncinigerous segment. d. Uncinus from 6th uncinigerous segment. e. Uncinus from 10th uncinigerous segment. f. Uncinus from last thoracic segment. g. Uncinus from 1st abdominal segment.

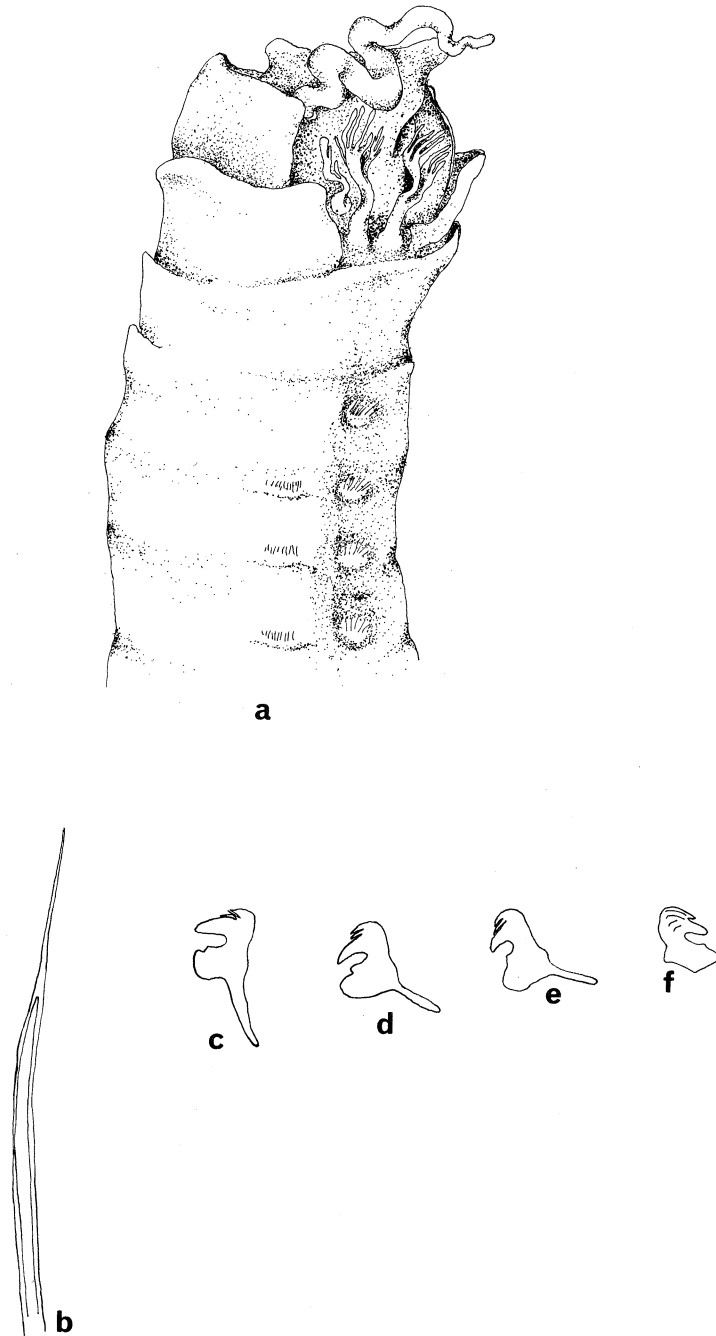


Fig. 10. *Pista trunca* n.sp. a. Dorsolateral view of anterior end. b. Capillary notoseta. c. Uncinus of 1st thoracic uncinigerous segment. d. Uncinus of 6th uncinigerous segment. e. Uncinus of last thoracic segment. f. Uncinus of 1st abdominal segment.



Fig. 11. *Pista trina* n.sp. a. Lateral view of anterior end. b. Capillary notoseta. c,ci. Lateral and face on views of uncinus of 1st thoracic uncinigerous segment. d. Uncinus from 6th uncinigerous segment. e. Uncinus from 1st abdominal segment.

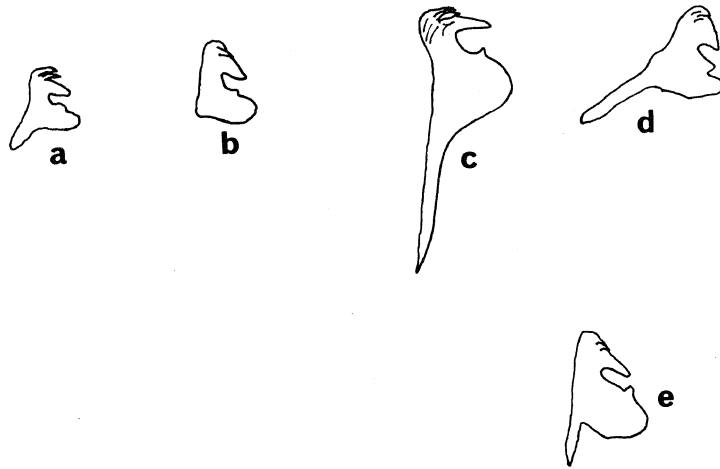


Fig. 12. *Pista typha* a. Uncinus of 1st thoracic uncinigerous segment. b. Uncinus of 6th uncinigerous segment. *Pista cristata* c. Uncinus of 1st thoracic uncinigerous segment. d. Uncinus of 10th uncinigerous segment. e. Uncinus of last thoracic segment.

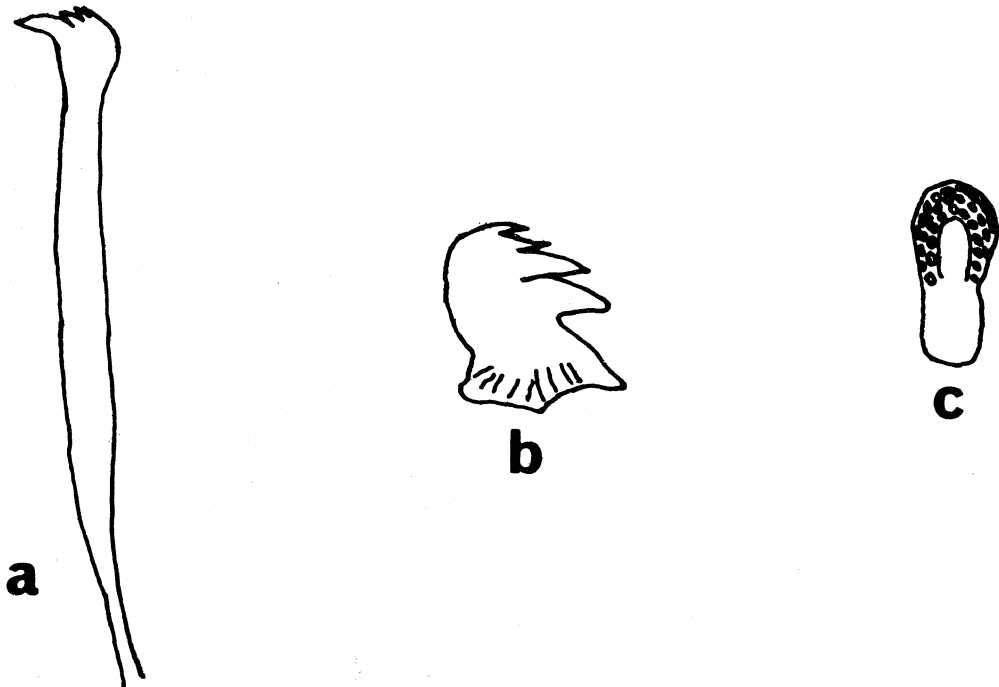


Fig. 13. *Artacamella dibranchiata* a. Posterior thoracic uncinus. b,c. Lateral and face on view of abdominal uncinus.