

ON A COLLECTION OF POLYCHAETA FROM INTERTIDAL AND SHALLOW REEFS NEAR PERTH, WESTERN AUSTRALIA

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INTRODUCTION

In March 1972, Mr L.M. Joll of the Western Australian Museum at Perth sent me 64 samples of Polychaeta. Most of them were collected around Rottnest Island, but a few were from Cape Naturaliste further south and one came from the Cocos Islands in the tropical Indian Ocean. The specimens were collected on rocks or seaweeds at low tide or a few metres below so that the epifauna of such habitats is well represented but the infauna of soft substrata is missing.

The whole collection included 40 species, of which three, namely *Lepidonotus* (*Thormora*) *jolli*, *Lepidonotus brunneus* and *Phyllodoce* (*Anaitides*) *australis*, are new. The genus *Lepidonotus* was represented by eight species. In order to identify them it was necessary to check the characters of all the 23 species which have been recorded from Australia in 18 publications. As an aid to future workers a table of their diagnostic characters and a summary of locality records has been provided. An attempt has also been made to add to the incomplete accounts of other species described by early workers.

Most of the species recorded here are Australian endemics while others are tropical or cosmopolitan and one, namely *Idanthyrsus armatus*, is subantarctic. The collection is thus a fairly good representation of a subtropical fauna in the overlap between the Damperian and Flindersian faunistic provinces.

I wish to thank Mr L.M. Joll and Dr B.R. Wilson for sending me this well-preserved collection and detailed station data. I am also grateful to Dr Patricia Hutchings of the Australian Museum for help with early references.

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STATION DATA

- Station 1: 30 Jan. 1972; Amongst metamorphic rocks at low tide, Cape Naturaliste; moderate to strong wave action; (coll. L.M. Joll).
- Station 2: 16 Jan. 1972; At base of navigation beacon, Cockburn Sound; approximate depth 13 m; (coll. L.M. Joll).
- Station 3: 7 July 1971; Amongst seaweed on limestone reef platforms, North Point, Rottnest I.; depth about 0.5 m; (coll. L.M. Joll).
- Station 4: 30 June 1971; Amongst seaweed on limestone reef platforms, Green I. and North Point, Rottnest I.; depth about 0.5 m; (coll. L.M. Joll).
- Station 5: 14 June 1971; Amongst seaweed on limestone reef platform, Cottesloe, Perth; depth about 0.5 m; (coll. L.M. Joll).
- Station 6: 13 Feb. 1972; Amongst *Caulerpa* in shallow water, Woodman Pt. groyne, Cockburn Sound; (coll. H. Merrifield).
- Station 7: 13 Feb. 1972; Parmelia Bank, 1.6 km west of Woodman Pt. Cockburn Sound. Washings from *Pinna* shells with *Caulerpa*; depth 2-3 m; (coll. B.R. Wilson).
- Station 8: 13 Feb. 1972; Harding Rock, E. side Garden I., Cockburn Sound; from burrows in old coralline limestone; depth 5-7 m; (coll. B.R. Wilson).
- Station 9: 28 Oct. 1971; In shallow marine aquarium tank, Waterman Bay Marine Laboratory, Perth; (coll. L.M. Joll).
- Station 10: 3 April 1972; Dunsborough, S.W. Australia; on intertidal granite stones; found with an ophiuroid; (coll. B.R. Wilson).
- Station 11: Jan. 1972; Front Reef, Cocos I. Indian Ocean.

The number of specimens of each species is given in parenthesis against each of these numbered collecting stations in the systematic section, e.g. Sta. 5(3).

SYSTEMATIC SECTION

FAMILY POLYNOIDAE

Notes on Australian species of the genus *Lepidonotus*

Descriptions of the numerous species of *Lepidonotus* recorded from Australia are spread through many publications and it is hoped that the table of characters given below will save the time of future workers. A key would be ideal but several of the early descriptions are very incomplete, some of the records are probably based on misidentifications and some of the species may be synonyms. For these reasons the characters of the various species are tabulated in well defined groups and the workers responsible for

the records are listed. Records followed by an asterisk (*) are from this paper.

The genus *Hermenia* is distinguished from *Lepidonotus* by having the spinules on the blades of the neurosetae reduced to two stout spines; the neurosetae are thus really unidentate but appear tridentate. The elytra are small and covered with macrotubercles to the very margin.

The subgenus *Thormora* is distinguished from *Lepidonotus sensu stricto* by the possession of two types of notosetae, i.e. an outer palisade or normal serrated notosetae and a central group of long, very fine and completely smooth notosetae often referred to as *Thormora* setae. The two types of setae are so well marked that several workers have accorded *Thormora* the rank of full genus in spite of the fact that in all other respects it is similar to *Lepidonotus*. As shown in the description of *L. (Th.) jolli*, the *Thormora* setae may be restricted to a few feet or be present in all of them; for this reason *Thormora* is regarded as a subgenus. The distinctions between the several species of *Thormora* are summarised in the remarks under *L. (Th.) jolli*.

Lepidonotus sensu stricto. The very numerous species of this genus may be grouped according to two main characters namely the presence or absence of a fringe of soft papillae on the margins of the elytra and the possession of unidentate or bidentate neurosetae. Usually the four groups distinguished in this way are clear-cut but there are a few difficult species. The marginal papillae may be very small or they may arise near the margin but not actually from it; again the secondary tooth on the neurosetae is occasionally obsolescent.

Many other characters may be used as subdivisions of the four main groups. A few species have only one or two notosetae while the great majority have many. Most species have a subterminal swelling to the antennae and dorsal cirri but a few have not; some have a facial tubercle on the upper lip and some have the posterior part of the prostomium covered by a nuchal fold; probably all these characters are affected by the method of preservation to some degree. Many species have one or two dark bands on the antennae and dorsal cirri, others have dark bars on the dorsum while the elytra may be pale or characteristically marked or uniformly dark. These colour markings are very useful in fresh material but tend to fade on storage. Of all the characters, the most useful are the chitinous tubercles on the elytra but even these must be interpreted with caution. The surface of an elytron is chitinised to varying degrees. If the chitin is thick the tubercles retain their shape and ornamentation even in viscid mounting media and may be smooth, granular, thornlike or spinous like pine cones. However, if the chitin is thin, then transfer to a viscid mounting medium may cause shrinkage and even smooth tubercles become lumpy or develop ridges or starlike projections. It is as well to check the sculpture of the tubercles in the normal preservative before the elytron is transferred to the mounting medium.

SPECIES OF *HERMENIA* RECORDED FROM AUSTRALIA

Species	Diagnostic characters	Records
<i>Lepidonotus acantholepis</i> Grube = <i>Hermenia acantholepis</i> Grube 1875.	Neurosetae unidentate with only two spines; elytra with granular macro-tubercles to margin.	Abrolhos Islands W. Aust. (Fauvel 1922).

SPECIES OF *LEPIDONOTUS* RECORDED FROM AUSTRALIA

Species	Diagnostic characters	Records
Group A: <i>Lepidonotus</i> (<i>Thormora</i>) with two types of notosetae.		
<i>L. (Th.) jukesii</i> var. <i>rubra</i> Augener 1913 = <i>L. (Th.) jukesii</i> Baird 1865. <i>Thormora johnstoni</i> Monro 1931 (non kbg.) = <i>L. (Th.) jukesii</i> Baird.	<i>Thormora</i> setae with spear-shaped tips; tubercles bluntly conical, smooth.	? Australia (Baird 1865, Haswell 1883); Sharks Bay (Augener 1913); Cp. Jau-bert. N.W. Aust. (Augener 1922b); Qld. (Monro 1924, 1931); Sydney and Pt. Hacking (Augener 1927); Rottneest I. (x).
<i>L. (Th.) versicolor</i> Ehlers 1901.	<i>Thormora</i> setae with spear-shaped tips; larger tubercles granular.	Rottneest I., W. Aust. and New South Wales (Augener 1913). Referred to <i>L. (Th.) jukesii</i> by Augener 1927.
<i>L. (Th.) jolli</i> n. sp.	<i>Thormora</i> setae with plain tips; larger tubercles ovoid and spinous.	Cockburn Sound, Rottneest I., Perth, all W. Aust. (x).

Group B1: *Lepidonotus* with fringed margins to the elytra and unidentate neurosetae.

<i>L. aeololepis</i> Haswell 1883.	Elytra with polygonal 'figures' and dark blue spots; neurosetae with few rows of spinules.	Thursday I., (Haswell 1883)
<i>L. adpersus</i> Grube 1878.	Elytra mottled brown and covered with smooth conical microtubercles; no macro-tubercles.	Cape York, N. Aust. (Augener 1922c).
<i>L. bowerbankii</i> Baird 1865 (<i>sensu</i> Fauvel 1917).	Elytra marbled brown; a few smooth conical macro-tubercles best marked on posterior elytra; numerous thornlike and pedunculate microtubercles.	Australia (Baird 1865); Gulf of St Vincent (Fauvel 1917); Perth and Cockburn Sound (x).

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| <i>L. dictyolepis</i> Haswell 1883. | Elytra divided into polygonal areas, some brown others pale; numerous tubercles, the larger smoothly ovoid, the smaller often lobed. | Sydney (Haswell 1883, Augener 1927); Cockburn Sound (x). |
| <i>L. polychromus</i> Schmarda 1861. | Elytra marbled and covered with numerous round or conical microtubercles and a few larger ones. | Fremantle and Koombana Bay (Augener 1913); Tasmania (Monro 1939). |
| <i>L. yorkianus</i> Augener 1922. | Elytra with a dark central spot; surface covered with small to large smooth, ovoid tubercles. | Cape York, Queensland (Augener 1922c). |

Group B2: *Lepidonotus* with fringed margins to the elytra and bidentate neurosetae.

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| <i>L. carinulatus</i> Grube 1870. | Elytra brown or grey; tubercles weakly chitinised, the larger pustulate, the smaller with blunt projections or carina. | Abrolhos Islands W. Aust. (Fauvel 1922); Perth and Cockburn Sound (x). Moreton Bay (Rullier 1965). |
| <i>L. furcillatus</i> Ehlers 1901. | Elytra with a central dark spot; numerous conical microtubercles; few noto-setae. | Shark Bay and Cockburn Sound (Augener 1913). |
| <i>L. jacksoni</i> Kinberg 1855. | Elytra brown with a white patch; tubercles numerous, large ones conical and granular, small ones starlike. | Sydney (Kinberg 1855, Haswell 1883, Augener 1922a); Tasmania (Benham 1915); off New South Wales (Augener 1927). |
| <i>L. torresiensis</i> Haswell 1883. | Elytra grey with a dark spot; tubercles few, prominent, either conical or clavate; neurosetae obscurely bidentate. | Thursday I., (Haswell 1883). |

Group C1: *Lepidonotus* with smooth margins to the elytra and unidentate neurosetae.

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| <i>L. striatus</i> Kinberg 1855 = <i>Hyperhalosydna striata</i> Kinberg. | Holotype broken; complete worm with about 22 pairs of elytra having a girdle of microtubercles (see Augener 1922a). | Sydney (Kinberg 1855 Haswell 1883); Gt Barrier Reef (Monro 1924). New South Wales and Victoria (Augener 1927); Moreton Bay (Rullier 1965). |
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<i>L. argus</i> Quatrefages 1865 = <i>L. (Th.) argus</i> fide Haswell.	Elytra pale with 1-2 dark central marks; macro- tubercles ovoid and sculp- tured like pine cones; mic- rotubercles either spiny or claviform.	Port Western (Western Port, Vic ?) (Quatrefages 1865); Sydney (Haswell 1883); Gulf of St Vincent (Fauvel 1917).
<i>L. brunneus</i> n. sp.	Elytra brown; no macro- tubercles; numerous smooth microtubercles; antennae uniformly taper- ed.	Cockburn Sound, (x).
<i>L. cristatus</i> Grube 1878.	Elytra with tumid bilobed crests; macrotubercles spi- nous; microtubercles stel- late; notosetae with blunt tips.	Torres Straits (McIntosh 1885); Abrolhos Islands (Fauvel 1922); King's Sound, W. Aust. (Monro 1928a).
<i>L. impatiens</i> (Sav.) var. <i>meridionalis</i> Augener 1913.	Elytra speckled brown; a few conical macrotubercles with 1-3 points and numerous microtubercles with 1-4 points; notosetae short with naked, pointed tips.	Koombana Bay (Augener 1913).
<i>L. oculatus</i> Baird 1865.	Elytra speckled and cover- ed with thorn-like micro- tubercles plus a few mush- room-shaped or flaskshap- ed forms; neurosetae stout with blunt tips.	Western Port (Baird 1865; Haswell 1883); Gulf of St Vincent and St Francis Is. (Fauvel 1917); Abrolhos I., W. Aust. (Fauvel 1922); Cp. Jaubert, N. Aust. (Augener 1922b); Pt. Phillip, S. Aust. (Monro 1928a).
<i>L. stephensoni</i> Monro 1931.	Anterior half of elytra with numerous hemispherical microtubercles, usually smooth, sometimes keeled; about 4 weakly serrated notosetae.	Low Isles Queensland (Monro 1931).

Group C2: *Lepidonotus* with smooth margins to elytra and bidentate neurosetae.

<i>L. australis</i> Schmarda 1861 and <i>L. stellatus</i> Baird 1865 = <i>L. glaucus</i> Peters 1854.	Elytra grey to blue with divergent ridges from ely- trophore to posterior mar- gin bearing low carinate tubercles; a few coarsely serrated notosetae.	Australia (Baird 1865, Has- well 1883); Shark Bay and Albany (Augener 1913); Gulf of St Vincent (Fauvel 1917); Cp. Jaubert, N. Aust. (Augener 1922b).
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<i>L. lissolepis</i> Haswell 1883.	Elytra slate brown with the pigment in lobed corpuscles; surface (?) smooth.	Port Stephens (Haswell 1883).
<i>L. melanogrammus</i> Haswell 1883.	Elytra with crescentric brown markings, the pigment cells being in polygonal groups; a small group of microtubercles on the anterior margin; only 1-2 short serrated notosetae.	Port Stephens (Haswell 1883); St Vincent Bay, S. Aust. (Fauvel 1917); Pt Jackson (Augener 1927); Dunsborough, S.W. Aust. (x).
<i>L. hedleyi</i> Benham 1915 = <i>L. purpureus</i> Potts 1910.	Elytra grey to purple with a scattering of clear ovoid microtubercles, sometimes lobed or carinate.	Kingston, S.A. (Benham 1915).
<i>L. simplicipes</i> Haswell 1883.	Elytra delicate 'with a band of very minute processes near the outer border'. Notosetae 'absent'.	Western Port (Haswell 1883).

Lepidonotus (Thormora) jolli sp. nov.

Fig. 1a-f

Type locality:

0.5 m on limestone reef, North Point, Rottnest I., Western Australia; lat. 31° 59' S; long. 115° 30' E.

Holotype

WAM 129-74.

Paratypes

WAM 79-72 (19 specimens); University of Cape Town (2 specimens).

Records

Sta. 2 (2), sta. 3 (5), sta. 4 (4), sta. 5 (1), sta. 6 (5), sta. 7 (10), sta. 8 (1).

Description

Holotype 17 mm long by 4 mm for 27 segments; paratypes 7 mm to 29 mm. Prostomium hexagonal (fig. 1d) with the anterior part grey; anterior pair of eyes larger and more lateral; no nuchal fold; median antenna twice prostomial length with a well marked subterminal swelling and terminal filament; lateral antennae shorter but otherwise similar to median. All three antennae terminal in origin with basal and subterminal dark bands. Palps with six ciliated ridges. Tentacular cirri similar to antennae but slightly longer and with 4-5 setae arising from the cirrophore.

Body oblong, generally pale but with median segmental spots where not covered by elytra. Elytra 12, covering body, broadly oval in outline, not fringed, mottled brown with a darker elevated area over the elyrophore. Elytra of paratypes pale to rust brown with the first pair often paler than the rest. Surface of all elytra covered with numerous tubercles of varying size, the largest more central, the smaller ones scattered over the whole surface. Individual large tubercles (fig. 1e) shaped like pine cones and often bent over; centre brown and surface covered with conical spinules. Small tubercles colourless, bluntly conical and covered with irregular spinules.

Parapodia (fig. 1f) of the usual shape with a small notopodium and a large neuropodium ending in equal presetal and postsetal lips. Dorsal cirrus mounted on a swollen cirrophore; cirrostyle with a dark band, a subterminal swelling and a terminal filament. Ventral cirri abruptly tapered before the terminal filament. Notosetae very numerous, usually including an outer palisade of shorter setae and an inner group of long, fine, smooth *Thormora* setae. *Thormora* setae present on all notopodia of small specimens, reduced in posterior notopodia of some larger specimens and restricted to a few anterior notopodia of one large specimen. Individual setae of outer palisade (fig. 1b) closely serrated apart from a fairly long naked tip. Individual *Thormora* setae (fig. 1a) one third the diameter of the serrated setae, completely smooth and uniformly tapered to the finely pointed tip, without any sign of a spear-shaped end. Neurosetae numerous, almost twice as stout as the serrated notosetae and all similar. Blades of individual neurosetae (fig. 1c) with about 12 rows of spinules and long unidentate tips; rows of spinules coarser distally, the terminal row including two spines.

Remarks

According to Hartman (1959, 1965) who ranks *Thormora* as a full genus, all the species listed below should be referred to *Thormora*. *L. (Th.) jukesii* Baird 1865 (the type species) from New Zealand and the Philippine Islands, *L. (Th.) johnstoni* Kinberg 1885. from Pacific Panama, *L. (Th.) notata* Hoagland from Porto Rico, *L. (Th.) socialis* Kinberg 1855 from Eimeo I., Pacific and *L. (Th.) taeniatus* Ehlers 1887 from Florida. To this list must be added *L. (Th.) versicolor* Ehlers 1901 from Juan Fernandez I. listed by Seidler 1924 and the present species *L. (Th.) jolli*. *L. (Th.) jukesii* var. *rubra* Augener 1913 is clearly no more than a colour variety of the type species.

L. (Th.) jolli differs from all other species of the subgenus in having uniformly tapered tips to the *Thormora* setae instead of spear-shaped tips. Apart from this distinction it comes closest to *L. (Th.) versicolor* which Augener 1913 has also recorded from Rottnest I. off Fremantle. He does not describe the *Thormora* setae but Ehlers' figures of the type show them to be spear-shaped and the larger tubercles are shown as granular, not spinous. Apart from these two differences the two species appear to be identical and Augener reports that in *L. (Th.) versicolor* the number of

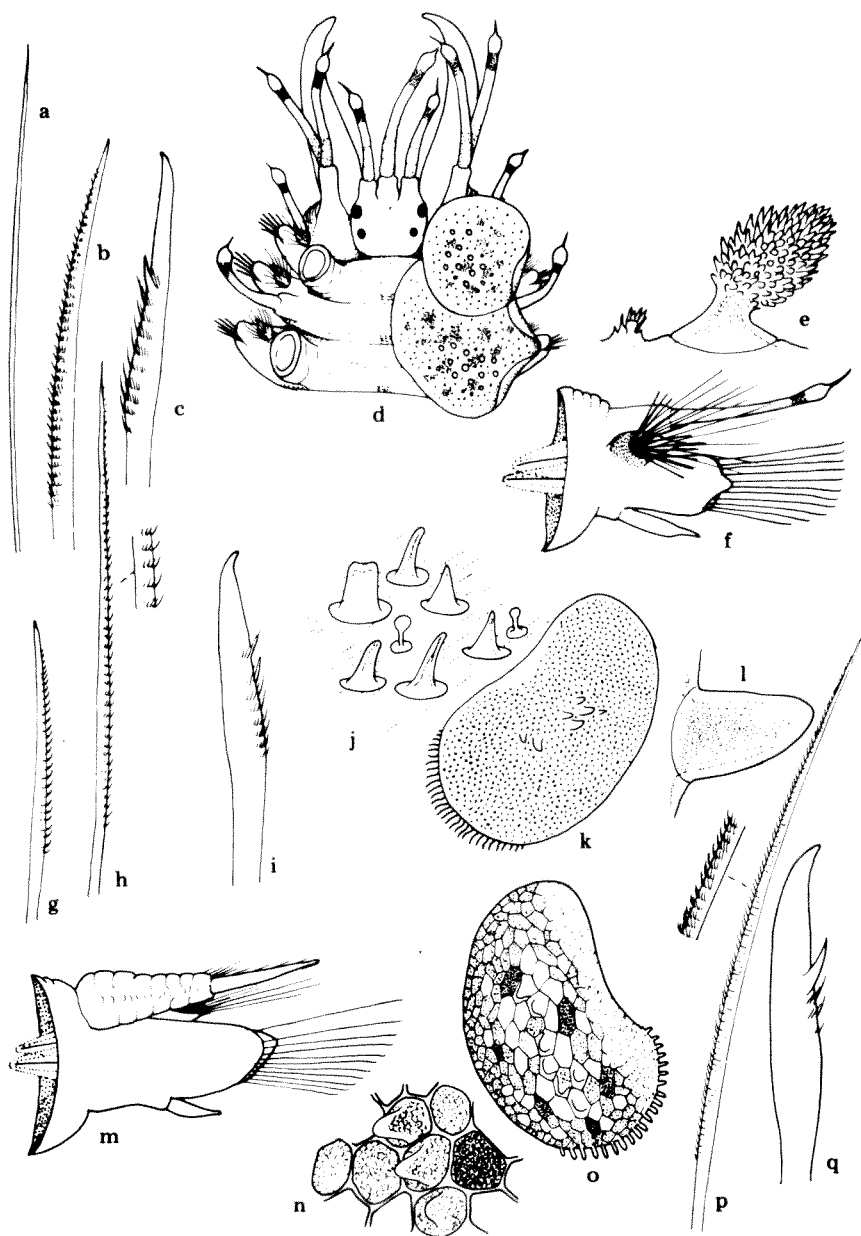


Fig. 1: *Lepidonotus (Thormora) jolli* a *Thormora* seta; b normal serrated notoseta; c neuroseta; d head and anterior segments; e side view of tubercles on elytron; f anterior view of foot. *Lepidonotus bowerbankii* g shorter notoseta; h long tapering notoseta; i neuroseta; j microtubercles on elytron; k posterior elytron; l microtubercles on elytron. *Lepidonotus dictyolepis* m posterior view of foot; n ornamentation on elytron; o elytron; p notoseta; q neuroseta.

Thormora setae varies from one specimen to another. *L. (Th.) notatus* is said to have smooth elytra and so does *L. (Th.) johnstoni* so the two may be conspecific. *L. (Th.) socialis* has a weak marginal fringe on the elytra and *L. (Th.) taeniatum* as redescribed by Seidler (1924) has elytra with strong thornlike tubercles and small rounded ones. It should also be remembered that large specimens of *L. (Th.) jolli* have the *Thormora* setae restricted to a few anterior feet; such a specimen could easily be mistaken for a species of *Lepidonotus sensu stricto*. Haswell (1883) referred *L. argus* to the subgenus *Thormora* and certainly the specimens of *L. argus* described by Fauvel (1917) are very close to *L. (Th.) jolli* apart from the absence of *Thormora* setae.

Lepidonotus (Thormora) jukesii Baird, 1865

Thormora jukesii: Baird, 1865: 199; Haswell: 1883: 277; Monro, 1924: 37.

Lepidonotus (Thormora) jukesii var. *rubra*: Augener, 1913: 107; Augener, 1922b: 11; Augener, 1927: 101.

Thormora johnstoni: Monro, 1931: 4.

Lepidonotus (Thormora) jukesii: Seidler, 1924: 88; Fauvel, 1953: 37, fig. 13 o-r; Day, 1967: 80, fig. 1.13.g-m.

Records

Sta. 3 (1).

Remarks

The single specimen is typical with black segmental marks on the dorsum, dark bands on the antennae and dorsal cirri and dark elytra with a pale area over the elyrophore. The tubercles on the elytra are smooth and bluntly conical and the *Thormora* setae have spear-shaped tips. As Augener (1927) has noted, his variety *rubra* differs only in having reddish brown elytra instead of dark ones, a colour variation which is common in many species of *Lepidonotus*.

Distribution

Indo-west-Pacific from the Red Sea to Japan and Mocambique to New Zealand. Australian records include Port Molle, Queensland, Low Isles, Cape Jaubert.

Lepidonotus bowerbankii Baird, 1865.

(Fig. 1 g-l)

Lepidonotus Bowerbankii: Baird, 1865: 185; Haswell, 1883: 284; Fauvel, 1917: 178, pl. 4, fig. 5-7, text-fig. 6 a-d.

Records

Sta. 5 (1), sta. 6 (2), sta. 7 (8).

Description

Body depressed, oblong to elongate-oval, up to 16 mm long for 25 setigers. Dorsum uniformly pale but elytra variably pigmented; some specimens with pale yellowish elytra, others speckled, others blotched with brown. A well-developed facial tubercle. Prostomium rectangular to hexagonal, sunken, and partly covered posteriorly by a nuchal fold. Eyes lateral with the two pairs rather close together, the anterior pair slightly larger. Median antenna twice prostomial length and only slightly longer than the laterals. All antennae, tentacular cirri and dorsal cirri tapered with only a slight indication of a subterminal swelling but no dark bands. Tentacular cirri longer than antennae and apparently lack setae on their cirrophores. Palps short, hardly longer than antennae with abruptly tapered tips.

Parapodia normally developed with rather small notopodia bearing numerous setae, stout bilabiate neuropodia and well-tapered ventral cirri. Dorsal cirri with rather long cirrophores but tips of cirrostyles seldom reaching ends of neurosetae. Elytra (fig. 1k) fairly large, imbricating and covering dorsum; external margins thickly fringed with soft papillae. Surface arched and pale over elytraphore and usually marked with a central dark spot but colour otherwise variable. Surface with a few macrotubercles and numerous microtubercles but none intermediate in size. Macrotubercles 2-12 in number, usually 4-5 and often larger on posterior elytra. Each macrotubercle (fig. 1l) quite smooth, conical and occasionally curved. Microtubercles (fig. 1j) over whole elytron surface; majority like small blunt thorns but some spherical and pedunculate like captive balloons and a few intermediates with a projecting tip to the sphere.

Notosetae numerous including a superior row of short coarse serrated forms with blunt tips (fig. 1g) and numerous longer forms (fig. 1h) closely serrated and tapering to fine tips. Neurosetae (fig. 1i) all stout with about eight rows of spinules preceding long, unidentate and slightly curved ends; no sign of a secondary tooth.

Remarks

Baird's original description of *L. bowerbankii* which is repeated by Haswell (1883) and Seidler (1924), is too brief to provide certain identification. Monro (1939) who examined Baird's type suggested that it is synonymous with *L. polychromus* Schmarda 1861 from New Zealand. Augener (1913) who examined Schmarda's type of *L. polychromus* and Knox (1956) who examined many specimens from New Zealand do not support Monro's suggestion. The present specimens agree in detail with the specimen identified by Fauvel (1917) as *L. bowerbankii* but, as Fauvel noted, Baird made no

mention of macrotubercles; this is not altogether surprising as the macrotubercles are only obvious on posterior elytra. At my request, Dr David George kindly checked Baird's type in the British Museum and found that macrotubercles are indeed present.

Distribution

Port Jackson, Gulf of St Vincent, W. Australia (Perth and Cockburn Sound).

Lepidonotus dictyolepis Haswell, 1883

(Fig. 1 m-l)

Lepidonotus dictyolepis Haswell 1883: 287, pl. 9, figs. 7, 8; Seidler, 1924: 25; Augener, 1927: 94, text fig. 3.

Records

Sta. 7 (2), sta. 8 (2).

Description

Body depressed and oblong, about 12 mm long for 25 setigers. Dorsum not pigmented but elytra speckled brown. A facial tubercle present. Prostomium hexagonal, anterior eyes lateral and larger than posterior pair. Median antenna twice prostomial length and slightly longer than laterals. Tentacular cirri longer than antennae but otherwise similar. All antennae, tentacular cirri and dorsal cirri simply tapered, there being no subterminal swelling or dark band. Parapodia (fig. 1m) normal with a fair sized notopodium and much larger neuropodium. Dorsal cirri mounted on rather long, somewhat swollen cirrophores with the tips of the cirrostyles barely reaching the tips of the neurosetae. Ventral cirri small. Elytra (fig. 1o) oval to reniform, overlapping in the median line; surface divided into polygonal areas which are larger centrally and smaller peripherally; external margin fringed with short stout papillae. Some polygonal areas chestnut brown, others paler and yet others colourless giving a speckled effect. Several large polygonal areas with smooth, bluntly conical tubercles (fig. 1n) and many small peripheral areas with smaller tubercles either conical or bilobed. All tubercles well chitinised and either colourless or brown. Notosetae (fig. 1p) numerous, slender and densely serrated to their finely tapered tips, the serrations resembling a series of overlapping cusps. Neurosetae (fig. 1q) very stout with only 4-5 rows of spinules which become coarser distally; naked tips slightly curved and unidentate.

Remarks

The beautiful elytra with their polygonal areas, blunt tubercles and stout marginal papillae are quite characteristic. Haswell states that the polygonal

areas are 'divided by narrow cuticular ribs' but this is an error possibly due to the method of preservation. Actually the polygonal areas are covered with thick cuticle and tend to be slightly swollen where not elevated to form tubercles and the divisions between them are slightly sunken. *L. dictyolepis* is allied to *L. aeololepis* Haswell; the main differences are that in the latter no tubercles were seen on the elytra which were marked with blue spots, also there were blue bands on the antennae and blue spots on the ventrum. *L. melanogrammus* Haswell also has the elytra divided into polygonal areas.

Distribution

An Australian endemic; from Sydney along the South Australian coast to South-West Australia.

Lepidonotus carinulatus Grube, 1870

(Fig. 2 a-f)

Polynoe (Lepidonotus) carinulatus: Grube, 1870: 488; 1878: 26, pl. 3, fig. 2.

Lepidonotus carinulatus: Fauvel, 1919: 330; Augener, 1922c: 8, text-fig. 3, 3a, 3b; Seidler, 1924: 72; Fauvel, 1953: 34.

Records

Sta. 5 (1), sta. 7 (3), sta. 8 (1).

Description

Body oblong, up to 16 mm for 25 setigers. A large facial tubercle. Prostomium hexagonal with a small nuchal fold; anterior pair of eyes lateral and larger than posterior pair; median antenna over twice the prostomial length with a subterminal swelling and two brown bands, one basally and one preceding the swelling. Lateral antennae similar but shorter; tentacular cirri similar but longer. Palps stout, abruptly tapered to slender tips. Dorsum not pigmented. Parapodia (fig. 2f) with a small notopodium bearing numerous fine notosetae; neuropodium stout with about 20 strong neurosetae; ventral cirri small and tapered. Dorsal cirri mounted on short swollen cirrophores; cirrostyles extending beyond ends of neurosetae and having a dark band preceding a subterminal swelling and filiform tip. Elytra, oval to reniform, (fig. 2c) arched over elytophore, imbricating over back and completely covering body. External margin with a well-developed fringe: surface covered with low, weakly chitinised tubercles varying in size; larger ones more central but always mixed with numerous smaller ones. Largest tubercles (fig. 2e) smooth and hemispherical like well-raised blisters, smaller ones (fig. 2d) usually with ridges or short blunt projections; all ornamentation accentuated in viscid mounting media, the smaller tubercles becoming starlike and larger

ones often becoming irregular. Intensity of pigmentation of elytra variable; some specimens straw-yellow, some speckled, some rust-brown or dark grey, the pigment occasionally forming a network between the colourless tubercles. Notosetae (fig. 2a) mainly fine and closely serrated to their hair-like tips but a few peripheral ones short with blunt tips. Neurosetae (fig. 2b) stout and bidentate with 5-8 rows of spinules which become coarser distally; one or two inferior neurosetae unidentate.

Remarks

This well-known Indo-Pacific species has been redescribed in some detail because it has often been misidentified and confused with *L. jacksoni*. Augener (1922c) who re-examined Grube's types found that even Grube (1878) when identifying material from the Philippines has misidentified four out of five specimens. I agree with Augener that the specimen described and figured by Horst (1917) as *L. carinulatus* belongs to another species. The reason for the confusion is that the tubercles on the elytra are variable and their ornamentation is affected by the mounting medium. In addition Grube originally described the neurosetae as unidentate.

Distribution

Indo-west-Pacific from the Mediterranean to Madagascar and the Philippines to Australia; Australian records include Perth, Cockburn Sound, Houtman Abrolhos I.

Lepidonotus glaucus Peters, 1854

Polynoe glauca: Peters, 1854: 610.

Lepidonotus glaucus: Day, 1957: 60 with synonymy; Day 1967: 84, fig. 1.14. j-m.

Lepidonotus stellatus: Baird, 1865: 185; Haswell, 1883: 283; Augener, 1913: 98; Fauvel, 1917: 175, pl. 4 fig. 15-17; Augener, 1922b: 6.

Polynoe australis: Schmarda, 1861: 154 (*Homonym*).

Polynoe grisea: Quatrefages, 1865: 250.

Antinoe (?) *grisea*: Haswell, 1883: 288.

Records

Sta. 5 (1 juvenile), sta. 7 (1).

Remarks

As many workers have noted, this species is characterised by bidentate neurosetae and greyish blue elytra which lack a marginal fringe and have a

pair of divergent keels running back from the centre. The keels are beset with low carinate tubercles. This species has often been referred to as *L. stellatus* but Baird's name is predated by Peters' *Polynoe glauca*, the type of which I have examined.

Distribution

Indo-west-Pacific; Australian records include Shark Bay, Albany, Port Jackson, Gulf of St Vincent, Cape Jaubert; Perth and Cockburn Sound.

Lepidonotus brunneus sp. nov.

(Fig. 2 g-k)

Type locality:

Among *Caulerpa*, 0-1 m, Woodman Point, Cockburn Sound, Western Australia; lat. 32° 8' S; long. 115° 45' E.

Holotype

WAM 42-72.

Records

Sta. 6 (1).

Description

Body oblong, depressed, 9 mm long for 25 setigers; no pigmentation apart from the brown elytra. Prostomium (fig. 2h) roughly oblong, retracted back between the anterior pair of parapodia and partly covered by an occipital fold. A large pointed facial tubercle below the median antenna. Anterior pair of eyes larger and lateral in position; posterior pair smaller and partly covered by the occipital fold. All three antennae terminal in origin and smoothly tapered without a subterminal swelling; median twice prostomial length, laterals slightly shorter. Cirrophores of tentacular cirri close against sides of prostomium and without visible setae; cirrostyles similar to antennae but longer. Palps small, smooth and tapered (possibly regenerating). Parapodia (fig. 2i) with rather small notopodia and stout, obliquely truncate neuropodia. Dorsal cirri with rather long cirrophores and tapered cirrostyles similar to antennae and just reaching ends of neurosetae. Ventral cirri normally tapered. Elytron scars 12, but only one elytron still attached to setiger 5. Elytron (fig. 2g) almost oval with a straight anterior margin, brown on exposed part fading to colourless anteriorly where covered by preceding elytron. Margin not fringed. Surface with numerous small tubercles varying in size, all appearing as refringent spots against the brown background; individual tubercles (fig. 2g) hemispherical to bluntly conical, without spinules or granules. Notosetae (fig. 2j) numerous, fine and closely

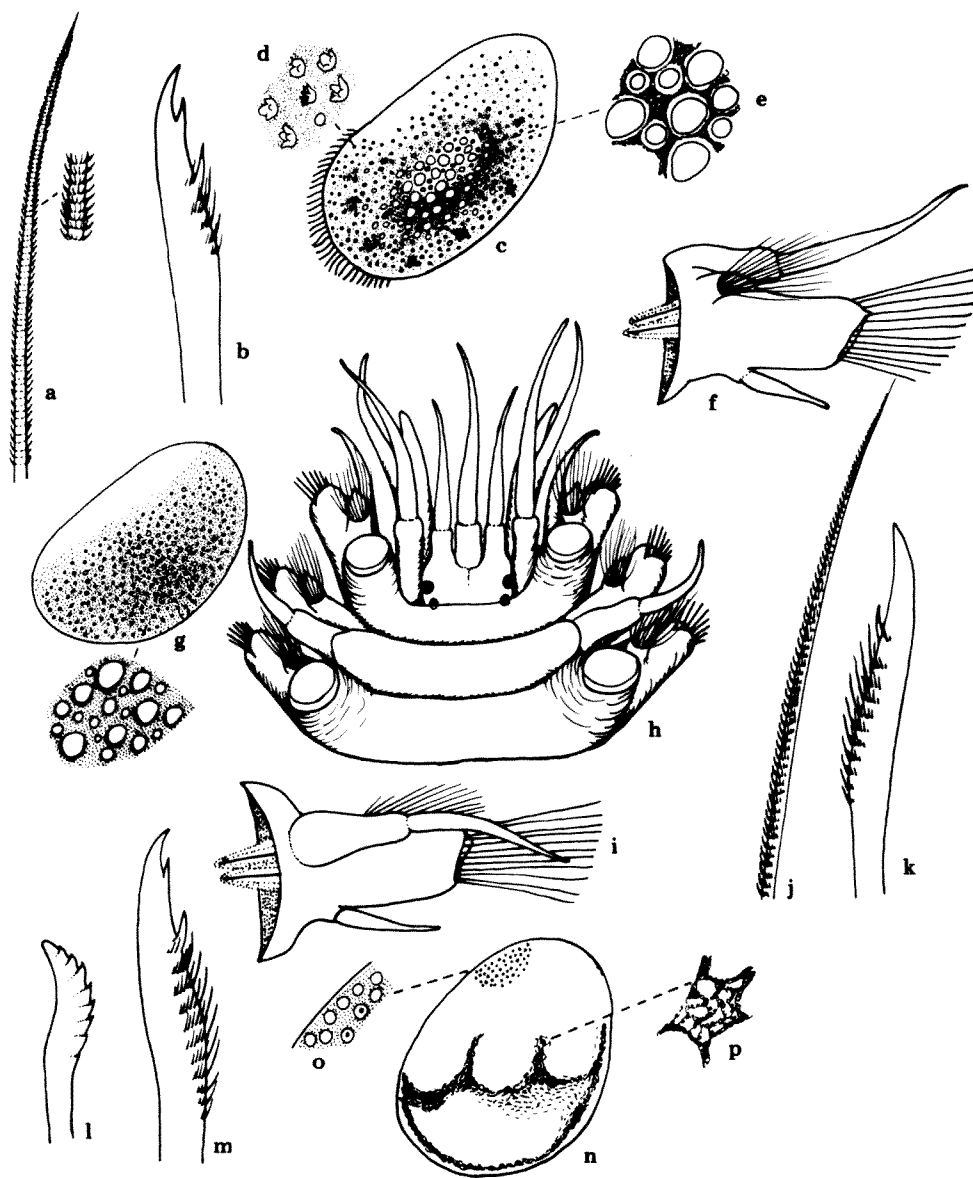


Fig. 2: *Lepidonotus carinulatus* a notoseta; b neuroseta; c elytron; d microtubercles; e macrotubercles; f anterior view of foot. *Lepidonotus brunneus* g elytron with details of tubercles; h head and anterior segments; i posterior view of foot; j notoseta; k neuroseta. *Lepidonotus melanogrammus* l notoseta; m neuroseta; n elytron; o details of tubercles on anterior margin; p pigment pattern.

serrated to their hairlike tips. Neurosetae (fig. 2k) stout with 8-10 rows of spinules which become stronger distally and beyond the spinules a slightly curved unidentate tip.

Remarks

L. brunneus is similar in many respects to *L. lissolepis* Haswell 1883, *L. obscurus* Gravier 1901 and *L. purpureus* Potts 1910 but all three are said to have bidentate neurosetae. I hesitate to erect yet another species of *Lepidonotus* on the basis of a single specimen but none of the species described by Augener (1913), Fauvel (1917), Horst (1917) or Seidler (1924) has similar characters.

Lepidonotus melanogrammus Haswell, 1883

(Fig. 2 l-n)

Lepidonotus melanogrammus: Haswell 1883: 284, pl. 8, fig. 13; Fauvel, 1917: 176, pl. 4 fig. 18-19; Seidler, 1924: 84; Augener, 1927: 97.

Records

Sta. 10 (1).

Remarks

This species is characterised by the possession of only one or two notosetae (fig. 2l), elytra without a marginal fringe (fig. 2n) and only a few microtubercles (fig. 2o) on the anterior margin. There are crescentic brown markings on the elytra with the pigment cells arranged in polygonal groups (fig. 2p). The neurosetae (fig. 2m) are bidentate in anterior feet but the tip is merely flanged in posterior feet.

Fauvel reported that there are no tubercles on the elytra but as there is only a small patch of microtubercles on the anterior margin this is not surprising. Two other very similar species were reported from Australia by Haswell (1883) namely *L. striatus* Kinberg and *L. simplicipes* Haswell. Both have only 1-2 notosetae, bidentate neurosetae and elytra without a marginal fringe. According to Augener (1922a) in his revision of Kinberg's types, the holotype of *L. striatus* is incomplete and the complete worm has 23 pairs of elytra and should be referred to the genus *Hyperhalosydna*. *L. simplicipes* is described by Haswell as having elytra 'with a band of very minute processes near the outer border.' The elytra are not figured but if the minute processes are microtubercles and not soft papillae *L. simplicipes* is indeed close to *L. melanogrammus*.

Distribution

Broughton I., Port Stephens and St. Francis I., Great Australian Bay.

Harmothoe praeclara Haswell, 1883

Antinoe praeclara: Haswell, 1883: 290, pl. 9 figs. 10-12.

(?) *Antinoe ascidiicola*: Haswell, 1883: 291, pl. 9 fig. 16.

Harmothoe waahli (non Kinberg): Augener, 1913: 112, pl. 2 fig. 9; Monro, 1938: 614.

Harmothoe praeclara: Augener, 1922a: 14, fig. 4, 4a, 4b; Augener 1927: 107.

Harmothoe terminoculata: Monro, 1924: 42, figs 5, 6.

Records

Sta. 6 (4), sta. 7 (6).

Diagnosis

Body up to 15 mm long with 37 setigers; greenish brown bars on dorsum and marks on antennae, cirrophores of dorsal cirri and notopodia. Prostomium with well-marked frontolateral peaks and anterior pair of eyes anteroventral. All appendages weakly papillose. Elytra large, delicate, deciduous and speckled brown; surface densely covered with cylindrical to bluntly conical microtubercles and, on the posterior half, with scattered soft papillae. Soft papillae more numerous near margin but actual margin with only a few short papillae. Notosetae numerous, as stout as neurosetae, well serrated up to the fairly long naked and bluntly pointed tip. Neurosetae bidentate with a weak secondary tooth. Anal cirri long; no caudal appendage.

Remarks

Haswell's description is incomplete and *H. praeclara* has been confused with *H. waahli* Kinberg by Augener (1913) and Monro (1938). Augener (1922a) when redescribing Kinberg's type of *H. waahli* corrected his earlier mistake, noting that *H. waahli* lacks soft papillae on the elytra. Monro's description of *H. terminoculata* is identical with the diagnosis given above. As judged by Haswell's very brief description of *Antinoe ascidiicola* it differs only in the occasional presence of pear-shaped vesicles near the posterior margins of the elytra. In this it is similar to the European *H. imbricata*.

Distribution

Shark Bay, Swan River estuary, Warnbro Sound, Port Jackson, Cockburn Sound.

Iphione muricata Savigny, 1818

Polynoe muricata: Savigny, 1818: 308, pl. 3, fig. 1.

Iphione muricata: Gravier, 1901: 226, pl. 9 figs. 129-135; Augener, 1922b: 5; Augener, 1922c: 6; Day, 1967: 43, fig. 1, 3 a-f.

Iphione fimbriata: Quatrefages, 1865: 271; Haswell, 1883: 277.

Records

Sta. 11 (1).

Distribution

Tropical Indo-west-Pacific; Australian records include Bowen and Torres Straits N.A.), Cape Jaubert (N.W.A.), Low Isles (Queensland).

Lepidasthenia michaelsoni Augener, 1913

Lepidasthenia michaelsoni: Augener, 1913: 109, pl. 2 figs. 15-16, text-fig. 4 a-c; Seidler, 1924: 159.

Lepidasthenia terrae-reginae: Monro 1931: 6, text-fig. 3 a-d.

Records

Sta. 7 (3).

Remarks

This species has been well described and figured by Augener. The diagnostic characters include the papillose margin of the nuchal fold, the large elytra with a central dark spot, the lack of notosetae, the presence of 1-4 fine superior notosetae which end in faintly knobbed unidentate tips, the numerous bidentate neurosetae below and the dark pigmentation on the dorsum. This varies from one specimen to another but always decreases in intensity posteriorly. When well developed the anterior dorsum is almost black with six longitudinal stripes almost merging with one another but interrupted every third or fourth segment by a pale segment, so that the whole worm has a series of broad cross bars. Further back the longitudinal streaks are broken to form a checker-board pattern and towards the tail this fades to a greenish brown. The pigment on the dorsum extends on to the elythrophanes and dorsal cirrophores.

Monro maintains that *L. terrae-reginae* is distinguished by the absence of the fine superior neurosetae after the 30th. setiger and the smaller nuchal organ'. However, the fine neurosetae decrease with age and the nuchal fold is often distorted by preservation. *L. michaelsoni* is also close to a specimen described by Fauvel (1917) as *L. comma*, but according to Monro (1924), Fauvel's specimen is not *L. comma* Thomson but a new species which Monro names *L. phillippensis*. It differs from *L. michaelsoni* in the absence of a papillose nuchal fold, in the presence of denticles on the convex side of the apex of the neurosetae and in the decreased size of the posterior elytra.

Distribution

Cockburn Sound (W.A.), Low Isles (Queensland).

FAMILY AMPHINOMIDAE

Eurythoe complanata Pallas, 1766)

Aphrodite complanata: Pallas, 1766: 27.

Eurythoe complanata: Fauvel, 1953: 83, fig. 38 b-m; Day, 1967: 128, fig. 3. 2. a-h.

Records

Sta. 3 (36 juveniles).

Distribution

Circumtropical; in Australia it has been recorded as far south as Rottneest I. on the west coast and Low Isles on the east coast but probably extends much further south.

FAMILY PHYLLODOCIDAE

Eulalia magalaensis Kinberg, 1865.

Eulalia magalaensis: Kinberg, 1865: 241.

Eulalia magalaensis: Ehlers, 1901: 73, pl. 8 figs. 1-8.

Steggoa magelhaensis (sic): Bergström, 1914: 129, fig. 35.

Records

Sta. 6 (1).

Remarks

This species has been well described by both Ehlers and Bergström. The diagnostic features are the long, lancet-shaped dorsal cirri, the three separate and distinct tentacular segments and the tentacular formula: $1 + S_1^1 + S_N^1$.

Distribution

This is a new record for Australia. It is known from Chile, Kerguelen I., New Zealand and Antarctica.

Eulalia sp.

Records

Sta. 3 (1).

Remarks

The single specimen is 25 mm long and a uniform yellowish brown in alcohol. The prostomium is cordate with the median antenna arising well in advance of the eyes. The proboscis is missing. The first tentacular segment is fused to the head and not visible dorsally; the second and third are distinct and separate, the second having a median boss which fits into the concavity of the prostomium. The tentacular formula is $1 + S_1^I + S_N^I$ with V2 flattened and the dorsal cirrus of segment 4 smaller than subsequent ones. The dorsal cirri are cordate with the apex pointed throughout. The setigerous lobe is blunt and the ventral cirri are pointed and equal to the setigerous lobes. The setae have serrated shaft-heads without any enlarged denticles and the blades are short, dagger-shaped and serrated.

These characters agree in general with those of *Eulalia (Eumida) sanguinea* but as the proboscis is missing positive identification is impossible. *E. (E.) sanguinea* has not been recorded from Australia but Augener (1913) records *E. (E.) strigata* Ehlers, the type locality of which is the Magellan area of South America. Neither Ehlers nor Augener describe the proboscis so that reference to the subgenus *Eumida* remains doubtful. Moreover Augener describes the specimens from Shark Bay and Cockburn Sound as having rusty brown dorsal cirri whereas those of Ehlers' type were not.

Phyllodoce (Anaitides) australis sp. nov.

(Fig. 3 a-c)

Type locality

Among seaweeds on limestone reef platform, Cottesloe, Perth, Western Australia; lat 32° S; long 115° 45' S.

Holotype

WAM 78-72; an ovigerous female, about 75 mm long, 1 mm wide with 250 segments; large reddish eggs visible through skin.

Paratypes

WAM 130-74, one adult and two juveniles.

Records

Sta. 4 (1), sta. 5 (1 + 2 juveniles).

Description

A very slender worm with a black collar on segments 4 and 5, three rows of faint spots on subsequent segments, dark dorsal cirri on segment 4, a brownish stain on subsequent ones and paired midventral dots on anterior segments. Adult paratype with only a single row of dorsal spots behind the black collar; juvenile paratype of 15 mm without a black collar.

Prostomium (fig. 3 a) cordate, longer than broad; eyes large, superior frontal antennae longer than the inferior pair; a very small occipital papilla in the posterior notch. Base of proboscis with six lateral rows of small papillae with about 10 papillae per row: distal part of proboscis with six lumpy ridges.

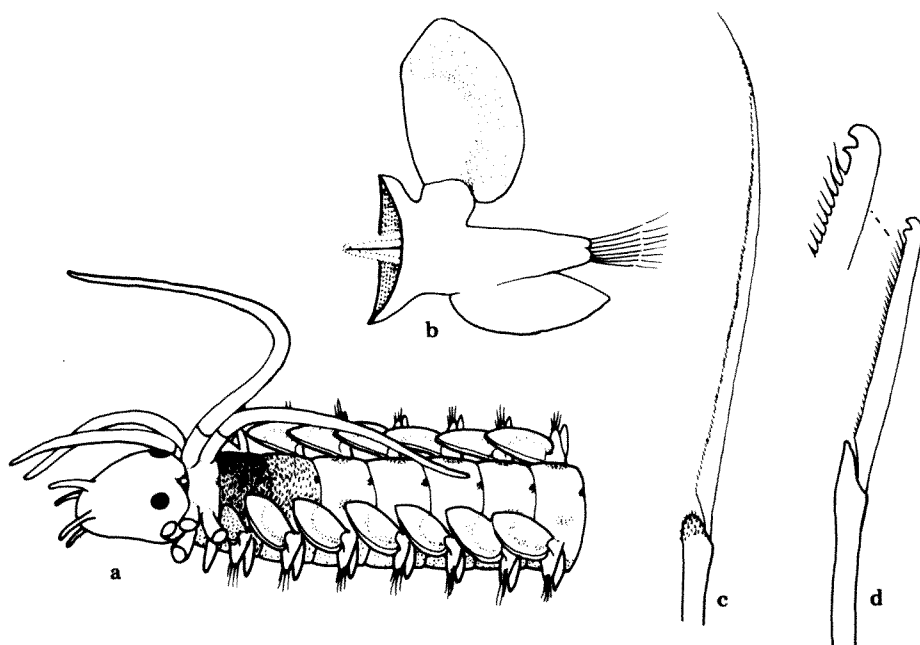


Fig. 3: *Phyllodoce (Anaitides) australis* (a) anterior end; (b) parapodium from mid-region; c seta. *Syllis* sp. B d superior seta.

All three tentacular segments fused dorsally and the first fused to the prostomium; four pairs of cylindrical tentacular cirri; no setae or setigerous lobe on any tentacular segment; tentacular formula: $1 + O_1^1 + O_N^1$. Tentacular cirrus 1 arising from side of head with a small papilla below. Tentacular cirrus D2 dorsal in origin and reaching back to setiger 6 (segment 9); V2 short with a minute papilla below: D3 lateral in origin and V3 a normal lamellar ventral cirrus but smaller than subsequent ones. Dorsal cirrus of segment 4 (setiger 1) dark coloured and smaller than subsequent ones.

Body very slender with segments well arched and three times broader than long. Parapodia long, slightly tapered and end in a pair of subequal blunt lobes. Dorsal cirri mounted on well-developed cirrophores; anterior ones symmetrically oval but later ones almost rhomboidal (fig. 3 b) and tinged with brown. Ventral cirri oval with the pointed apex longer than the

setigerous lobe. Setae (fig. 3 c), about 8 per foot with minutely denticulated shaft-heads and fairly long serrated blades.

Remarks

This species does not fit completely into any of the genera defined by Bergström (1914). The regular lateral rows of papillae at the base of the proboscis suggest *Anaitides* but the fusion of the tentacular segments does not agree. In this respect it is closer to *Paranaites* but this should have setae on the third tentacular segment. I regard the various genera defined by Bergström as subgenera and feel that this species fits best into *Anaitides*.

The dark collar on segments 4 and 5 is reminiscent of *Ph. longipes* but the latter has the superior lobe of the foot long and pointed whereas here the two lobes are subequal and blunt. The proboscis and tentacular formula agree with *Ph. (A.) madeirensis* but the fusion of the tentacular segments and the black collar are quite different. *Ph. (A.) duplex* McIntosh 1885 dredged off S. Australia is incompletely described but seems similar to *Ph. (A.) madeirensis*. Probably *Ph. (A.) australis* comes closest to *Ph. (A.) tenuissima* Grube which was recorded from Australia by Augener (1927). The extreme slenderness of the body, the papillae on the proboscis and the nature of the tentacular segments all agree but again the colour pattern is quite different.

A point of considerable interest is the nature of the small papillae below tentacular cirri 1 and V2. They are certainly not homologous with setigerous lobes and it is presumed that they are sensory; they are easily overlooked.

FAMILY SYLLIDAE

Syllis (Typosyllis) sp. A

Records

Sta. 3 (1).

Remarks

Body 6 mm long, colourless in alcohol apart from brown marks on prostomium and palps. Palps fused at origin; pharynx short with the dorsal tooth one fifth the way back; antennae and dorsal cirri slender, not tapered, distinctly jointed, those of middle segments alternately longer with about 20 joints and shorter with 15 joints. Setae with rather short bidentate blades with the secondary tooth well developed.

Many species of *Syllis* have been recorded from Australia particularly by Augener (1913), Fauvel (1917), Haswell (1920) and Augener (1927). The present specimen is closest to *S. hyalina* but more material is required for definite determination.

Syllis (Typosyllis) sp. B.
(Fig. 3 d)

Records

Sta. 6 (1).

Remarks

Body 8 mm long and colourless in alcohol apart from tinges of brown on the palps. Palps quite separate; prostomium with anterior ocular specks as well as two pairs of eyes. Pharynx with an anterior dorsal tooth and a lobe of the dorsal lip extending back into the mouth. Dorsal cirri of middle segments with 25-30 well marked joints. Falcigerous setae with strongly bidentate blades, the two teeth projecting at right angles to the axis of the blade; blades of 2-3 superior setae (fig. 3 d) longer than usual and having the last few spinules preceding the second tooth elongated.

This specimen has many resemblances to *S. variegata* but lacks the characteristic broken brown bars on the dorsum and the setae are different; they are closer to the setae of *S. augneri* Haswell and *S. bouvieri* Gravier. There are so many species allied to *S. variegata* that more material is required for positive identification.

Syllis (Typosyllis) cirropunctata Michel, 1909

Syllis cirropunctata: Michel, 1909: 318.

Syllis cirropunctata: Fauvel, 1923: 266, fig. 99 n-p; Day, 1967: 250, fig. 12.4 . k-l.

Records

Sta. 4 (1).

Remarks

This is a new record for Australia but the specimen is quite typical. The pigmentation is characteristic with black speckles on the antennae, dorsal cirri and between the parapodia both dorsally and ventrally. The dorsal cirri are stout, hardly tapered and have 35-45 close-set joints. The setae have short unidentate blades and the inferior ones have hooked blades without spinules on the cutting edge.

Distribution

Mediterranean, South Africa.

Opisthosyllis brunnea Langerhans, 1879

Opisthosyllis brunnea: Langerhans, 1879: 541.

Opisthosyllis brunnea: Augener, 1918: 274, text-fig. 25; Day, 1967: fig. 12.5. c-e.

Records

Sta. 4 (2 + 1 juvenile).

Remarks

The diagnostic features are: body stout, easily broken, up to 20 mm long. Surface smooth (no papillae) and pinkish brown: an occipital flap covering half the prostomium: pharynx thick-walled with a posterior dorsal tooth; dorsal cirri markedly tapered and alternate ones have 25 and 40 joints; strong falcigerous setae with short, hooked, unidentate blades.

This is a new record for Australia but the specimens are identical with South African material except that the dorsal cirri have more joints (25-40 vs. 20-28). In this respect they are closer to *O. australis* Augener (1913). The latter, however, has scattered papillae on the dorsum and parapodia and the anterior setae have bidentate blades.

Distribution

Madeira, tropical West Africa, South Africa, Mocambique.

FAMILY NEREIDAE

Nereis (Nereis) cockburnensis Augener, 1913

Nereis cockburnensis: Augener, 1913: 153, pl. 3 fig. 47, text-fig. 15 a-c; Hartman, 1954: 33, figs. 30-32.

Records

Sta. 1 (3).

Remarks

Diagnostic features include: Pharynx with group I = 0-3; V = 1-8; VI = 4-5 in a group; VII+VIII = three to five irregular rows. Anterior feet with two notopodial lobes and posterior feet with the superior notopodial lobe reduced to a long papilla at the base of the dorsal cirrus. Anterior notosetae included both spinigers and homogomph falcigers; posterior notopodial falcigers with 4-5 small teeth on the blade.

Distribution

Endemic to Australia; recorded from Shark Bay (W.A.) along S.A. to Broken Bay (N.S.W.).

Nereis (Neanthes) vaalii Kinberg, 1866

Neanthes vaalii: Kinberg, 1866: 171.

Nereis albanyensis: Augener, 1913: 149, pl. 2 fig. 6, text-fig. 14 a-c.

Nereis vaali: Augener, 1922c: 20.

Neanthes vaali: Augener, 1922a: 20, fig. 6-6b; Hartman, 1954: 27, fig. 22-25.

[Non] *Nereis (Neanthes) albanyensis*: Kott, 1951: 106.

Records

Sta. 1 (7), sta. 3 (5), sta. 7 (1 heteronereid).

Remarks

This common Australian species has no peculiar characters. The pharynx has group I = 1-2 in line; V = 3-4; VI = 3-5 in a group; VII + VIII = two to three irregular rows. There are touches of brown on the prostomium and paired dorsolateral marks on anterior segments. Anterior feet have two notopodial lobes and a longer dorsal cirrus; posterior feet are essentially similar. The notosetae are homogomph spinigers throughout and the neuropodial falcigers have short hooked blades. In the heteronereid phase the first seven dorsal cirri are thickened and natatory setae start on the 15th to 19th foot.

All the specimens recorded here were small, none over 20 mm but Augener (1913) records specimens from Albany up to 43 mm.

Distribution

An Australian endemic known from Fremantle (W.A.) Albany (S.W.A.) to Sydney (N.S.W.).

Platynereis dumerilii Audouin & Milne-Edwards, 1834

Nereis dumerilii: Audouin & Milne-Edwards, 1834: 196.

Platynereis dumerilii: Fauvel, 1923: 359, fig. 141 a-f; Augener, 1927: 138;

Kott, 1951: 110; Day, 1967: 306, fig. 14.4. d-k.

Records

Sta. 4 (1 + 3 juveniles), sta. 5 (21), sta. 6 (1 juvenile).

Remarks

This is a well-known species but Hartman (1954) has recorded a new subspecies *P. dumerilii antipoda* from S. Australia, S.E. Australia and Tasmania so these specimens were examined with particular care. The new subspecies

differs in several minor characters. It has poorly marked paragnaths on group VI, several notopodial falcigers from the middle of the body onwards and there are differences in the parapodial lobes of the female heteronereid which start on setiger 26. *P. dumerilii* has normal paragnaths on group VI, only 2-3 notopodial falcigers from the middle of the body and in the heteronereid the feet change at setigers 22 or 23. No heteronereid was available among these specimens but in other respects they were typical *P. dumerilii* and agree with South African specimens. Augener (1927) noted the presence of 2-3 notopodial falcigers in specimens he reported from New South Wales and Victoria and Kott (1951) recorded numerous specimens from Rottneest Island and Point Peron.

Distribution

Cosmopolitan in temperate and tropical seas; in Australia from Rottneest I., Victoria and New South Wales.

Platynereis australis Schmarda, 1861

Platynereis australis: Benham, 1909: 238, pl. 9 fig. 1; Augener, 1913: 182; Day 1967: 305, fig. 14.4.m.

Platynereis magalhaensis: Fauvel, 1917, 208; Hartman, 1965.

Records

Sta. 5 (1 heteronereid ♂), sta. 6 (1).

Remarks

Both specimens lack notopodial falcigers in posterior feet and in the male heteronereid the first modified foot is the 16th. These characters are mentioned because the synonymy of *P. australis*, *P. magalhaensis* and even *P. dumerilii* is confused. There is no doubt that *P. magalhaensis* lacks notopodial falcigers in posterior feet for Hartman (1948) who re-examined Kinberg's type only found an occasional one in some feet. Most workers regard *P. magalhaensis* Kinberg (1865) as a synonym of *P. australis*, among others Benham (1909) Augener (1924) and Day (1953, 1967). Fauvel (1917) reported a specimen of *P. magalhaensis* from S. Australia and so did Hartman (1934); neither worker reported the presence or absence of notopodial falcigers. Knox (1951, 1960), who agrees with many other workers that *P. magalhaensis* is a synonym of *P. australis*, reports numerous specimens from New Zealand with notopodial falcigers in posterior feet; he also states that in the male heteronereid the modified feet start at setiger 16 and in the female at setiger 31 to 33.

P. australis and *P. magalhaensis* have a similar range in the southern oceans and in spite of some confusion I agree with many workers that they are synonymous.

Distribution

Subantarctic, S. Africa, New Zealand, west and south Australia.

FAMILY EUNICIDAE

Eunice antennata Savigny, 1820

Leodice antennata: Savigny, 1820: 50.

Eunice antennata: Augener, 1913: 270; Fauvel, 1917: 225; Fauvel, 1922: 495; Augener, 1922b: 30; Augener, 1927: 169; Monro, 1931: 21; Kott, 1951: 116; Kott, 1963: 13; Day, 1967: 384, fig. 17. 2.k-q.

Records

Sta. 3 (7 + 3 juveniles) sta. 4 (3 juveniles), sta. 5 (4 juveniles), sta. 9 (1).

Distribution

All warm and tropical seas; all around Australia.

Eunice afra Peters, 1854

Eunice afra: Peters, 1854: 611.

Eunice afra: Monro, 1931: 21; Day, 1967: 392, fig. 17.5.a-e.

Records

Sta. 4 (2 juveniles).

Remarks

There is some doubt about the identification of these juveniles as the branchiae, which start on setiger 23 and extend to the posterior end, are all single filaments. In adults of *E. afra* the gills have 3 to 8 filaments.

Distribution

Tropical Indo-west-Pacific; in Australia it has been recorded from Batt Reef and Low Isles.

Eunice afra paupera Grube, 1878

Eunice afra paupera: Day, 1967: 393.

Records

Sta. 1 (1).

Distribution

Indo-west-Pacific from Mocambique to the Philippine Islands; it has not been recorded from Australia.

Eunice tentaculata Quatrefages, 1865

Eunice tentaculata: Augener, 1913: 275; Fauvel, 1917: 209, text-fig. 17; ? Fauvel, 1922: 495; Day, 1967: 391, fig. 17. 4.s-v.

Records

Sta. 9 (1).

Distribution

Tropical Indian Ocean; west and south Australia, ? Tasmania.

Lysidice ninetta collaris Grube, 1870

Lysidice collaris: Augener, 1913: 286; Fauvel, 1917: 236; Fauvel, 1922: 496; Monro, 1931: 21; Kott, 1951: 123; Day, 1967: 402, fig. 17. 8.a-f.

Lysidice ninetta collaris: Day, 1973: 52.

Records

Sta. 3 (1 + 3 juveniles), sta. 4 (7).

Remarks

Small juveniles of about 30 mm have white bands across setigers 2 and 3; the band on setiger 3 disappears first and then that on setiger 2; specimens of over 40 mm have none. The eyes are always reniform and the antennae hardly reach the front margin of the head.

Augener (1913) recorded *L. brevicornis* Kinberg as well as *L. collaris* and maintained that the former differed by the shorter antennae. I agree with Fauvel that the length of the antennae is affected by preservation and the two are conspecific.

Distribution

Circumtropical; Australian records include W. Australia, S. Australia and Queensland.

Lumbrineris coccinea Renieri, 1894

Nereis coccinea: Renieri, 1804: 35 XIX.

Lumbrineris coccinea: Fauvel, 1923: 432, fig. 172 g-n; Day, 1967: 436, fig. 17. 16.i-m.

Lumbriconereis sphaerocephala Schmarda : Augener, 1913: 288; Augener, 1927: 188.

Lumbrineris sphaerocephala: Knox, 1960: 130.

Records

Sta. 8 (2).

Remarks

These specimens agree with Fauvel's description of European *L. coccinea* and are identical with South African specimens. Augener's descriptions of *L. sphaerocephala* from Australia are also similar as far as they go and the diagnostic characters given by Knox for New Zealand specimens agree perfectly.

Distribution

N. Atlantic, Mediterranean, South Africa, Indian Ocean; *L. sphaerocephala* has been reported from W. Australia, Victoria, New South Wales, New Zealand and the Solomon Islands.

Lumbrineris tetraura Schmarda, 1861

Lumbriconereis impatiens: Fauvel, 1923: 429, fig. 171 a-e.

Lumbrineris tetraura: Day, 1967, 439, fig. 17. 16.u-w.

Records

Sta. 9 (1).

Remarks

This is a new record for Australia but the specimen is typical.

Distribution

Mediterranean, temperate and tropical Atlantic and Indian Ocean.

Arabella mutans Chamberlin, 1919

Cenothrix mutans: Chamberlin, 1919: 330.

Arabella mutans: Day, 1967: 446, fig. 17. 18.f-h.

Records

Sta. 7 (1 juvenile).

Remarks

This is a new record for Australia but although small it has the characteristic asymmetrically winged acicular setae. The better known *A. iricolor* has

also been recorded from West Australia by Augener (1913) under the name *A. multidentata* Ehlers. Augener (1927) recorded another specimen from Port Jackson.

Distribution

Warm N. and S. Atlantic, tropical Indian Ocean, Solomon I., Easter I.

FAMILY ORBINIIDAE

Scoloplos (Scoloplos) cylindrifer Ehlers, 1905

Scoloplos cylindrifer: Ehlers, 1905: 45, pl. 6 figs. 16-19; Augener, 1914: 29, pl. 1 fig. 4.

Haploscoloplos cylindrifer: Monro, 1939: 124, fig. 13; Hartman, 1957: 270.

Scoloplos (Leodamas) dendrobranchus: Hartman, 1957: 291, pl. 33 figs. 1-3.

Records

Sta. 6 (4 + 4 juveniles).

Remarks

The published descriptions of *S. cylindrifer* and *S. dendrobranchus* differ only in the presence of a few small hooks in the thoracic neuropodia of *S. dendrobranchus* and their absence, according to Monro (1939), in *S. cylindrifer*. It was for this reason that he transferred the species to *Haploscoloplos*. At my request Dr David George of the British Museum has recently checked that neuropodial hooks are actually present on Monro's specimens. Augener (1914) makes no comment on the presence or absence of neuropodial hooks. Both species have very characteristic branched branchiae and both are confined to the Australian-New Zealand region; I believe them to be synonymous.

The specimens from station 6 include both juveniles and adults with a maximal length of 40 mm. Diagnostic characters include: Change from thorax to abdomen poorly marked at setiger 15; a single stout foot-papilla on the thoracic neuropodia; branchiae which start on setiger 18 or later, become bifid or trifid on posterior abdominal segments; no intermediate cirrus; no ventral cirri below abdominal neuropodia; notosetae as crenulate capillaries only there being no forked setae; thoracic neurosetae are mainly crenulate capillaries plus a small inferior group of slender, slightly curved and serrated hooks which may be absent from posterior thoracic feet.

In Day (1973) I revised the genera and subgenera of the Orbiniidae. *S. cylindrifer* with branchiae arising subsequent to the 10th setiger is thus transferred from *Scoloplos (Leodamas)* to *Scoloplos (Scoloplos)*.

Distribution

South Australia, Tasmania, New Zealand.

FAMILY SPIONIDAE

Polydora ? ciliata Johnston, 1838

Leucodore ciliatus: Johnston, 1838: 67.

(?) *Polydora ciliata*: Day, 1967: 469, fig. 18. 3. i-j.

Records

Sta. 7 (1).

Remarks

The single specimen is an anterior half and the characters on the posterior half are unknown.

Distribution

Atlantic, Mediterranean and Indo-west-Pacific, *P. ciliata* has been recorded from oysters at Newcastle (NSW) by Haswell (1885).

FAMILY CIRRATULIDAE

Cirriformia filigera Delle Chiaje, 1825

Lumbricus filigerus: Delle Chiaje, 1825: 178.

Audouinia filigera: Fauvel, 1927: 92, fig. 32 h-m; Fauvel, 1953: 331, fig. 173 h-l.

Cirriformia filigera: Day, 1967: 518, fig. 20.4 p-q.

Cirratulus (Timarete) ancylochaeta: Augener, 1914: 53 (partim).

Records

Sta. 6 (8), sta. 7 (2 juveniles).

Remarks

All the specimens are small, mostly broken and partly dried. The largest if complete would measure about 40 mm. The prostomium is broadly conical and lacks eyes, the numerous tentacular cirri form an arc over setigers 4-5 and the branchial filaments are stout and arise as far above the notosetae as the distance between the notosetae and neurosetae.

C. filigera has not been recorded from Australia before but the incomplete description of the many specimens recorded by Augener (1914) under the name *Cirratulus (Timarete) ancylochaeta* suggests that they included *C. filigera* as well as *C. ancylochaeta*; the latter name is a synonym of *C. tentaculata*. Thus he states that the tentacular filaments may arise on any two segments between setigers 4 and 7. He does not mention the shape of the prostomium, the thickness of the branchial filaments or the distance they arise above the notosetae. All these points help to distinguish *C. tentaculata* from *C. filigera*.

Distribution

Worldwide in tropical and subtropical seas.

Cirratulus chrysoderma Claparède, 1868

Cirratulus chrysoderma: Claparède, 1868: 261, pl. 23, fig. 4.

Cirratulus chrysoderma: Fauvel, 1927: 95; Day, 1967: 511, fig. 20. 3.a-d.

Records

Sta. 7 (25 + 2 juveniles).

Remarks

This is a new record for Australia but the specimens agree well with published descriptions. Fauvel noted 2-3 pairs of tentacular cirri but in South African and Australian specimens there may be as many as 8 cirri in distinct groups above setigers 4-7 or 5-8.

Distribution

Mediterranean, South Africa and Indo-west-Pacific.

FAMILY SABELLARIIDAE

Idanthysus armatus Kinberg, 1867

(Fig. 4a)

Idanthysus armatus: Kinberg, 1867: 349.

Pallasia sexungula: Ehlers, 1897: 125, pl. 8 figs. 194-202.

Pallasia armata: Ehlers, 1901: 267.

Idanthysus armatus: Johansson, 1927: 90; Monro, 1930: 177, fig. 73; Hartman, 1966: 73, pl. 24 figs. 2-5.

Records

Sta. 1 (8), sta. 2 (3), sta. 6 (1).

Remarks

It is with some hesitation that I refer these specimens to *I. armatus* and not to *I. pennatus* Peters. The latter has been recorded from Australia by Augener (1914), Fauvel (1917) and Augener (1922c and 1927) while the former is known only from the subantarctic. The small differences between the two species concern the outer paleae and the uncini. The outer paleae of *I. armatus* as figured by Ehlers, Monro and Hartman, have straight shafts with tapering spikes along the sides whereas the paleae of *I. pennatus* are curved with long, slender pinnules along the sides so that the whole palea resembles a feather or palm leaf. The uncini of *I. armatus* have a double row of 5-7 teeth while those of *I. pennatus* have a double row of 7-9.

The present specimens are all small like *I. armatus* with a maximum length of 16 mm. The outer paleae (fig. 4a) are straight or slightly curved and the lateral projections are tapered spikes which become longer than the width of the axis. The uncini have a double row of 6 teeth. It is obvious that the specimens are closer to the description of *I. armatus* but the distinction from *I. pennatus* is slight. Fauvel (1917) has suggested that *I. armatus* is a synonym of *I. pennatus* but all other workers regard them both as valid species. As noted the present specimens are small and they may be juveniles of *I. pennatus*. A larger size range of specimens is needed to settle the question.

Distribution

S. Chile, Magellan area, Falkland Is., S. Georgia.

FAMILY TERESELLIDAE

Thelepus plagiostoma Schmarda, 1861

Thelepus plagiostoma: Augener, 1914: 95; 1922b: 48; Day, 1967: 729. fig. 36.5.o.

Records

Sta. 6 (1 + 1 juvenile).

Remarks

Diagnostic characters typical.

Distribution

Indo-west-Pacific and southern oceans.

Nicolea venustula venustula Montagu, 1818

Terebella venustula: Montagu, 1818: 344, pl. 13, fig. 2.

Nicolea venustula venustula: Day, 1967: 735, fig. h-i.

Nicolea venustula: Day 1973a: 356, fig. 4 h-i.

Records

Sta. 7 (10).

Remarks

This is the first valid record of *Nicolea* from Australia. *Nicolea bilobata* Grube was recorded by Augener (1914) but this has lateral lobes on anterior segments and was referred to *Lanicides* by Hessle (1917). *Nicolea cetrata* Ehlers was recorded by Augener (1927) who said that *Nicolea quadrilobata* Augener (1918) was a synonym. This also has lateral lobes on anterior segments and elongated shafts to the first row of uncini. It was referred to *Pista* by Day (1967); it now becomes *Pista cetrata* Ehlers.

The specimens of *N. venustula* recorded here are typical. I have shown earlier (Day 1973a) that *N. gracilibranchis* Grube is a synonym of *N. venustula* and I agree with Monro (1930) that *N. chilensis* is probably another.

Distribution

Cosmopolitan.

FAMILY SERPULIDAE

Galeolaria caespitosa Lamarck, 1818

(Fig. 4 b-g)

Galeolaria caespitosa: Augener, 1914: 144, text fig. 18; Dew 1959: 35, fig. 11; Straughan, 1967: 236.

Records

Sta. 1 (3).

Description

Tube heavy, adnate and rugose with a flat median ridge which projects as a shelf over the mouth. Body dark, about 12 mm long. Branchial crown formed of two semicircles of about 15 blue radioles with 3-4 white bars. Opercular stalk (fig. 4c) median in origin, short, broad and having a pair of dorsal ridges and wide lateral flanges which terminate in triangular wings on either

side of the operculum. Operculum rounded in outline and formed of a number of separate calcareous ossicles supported by a membranous base with marginal rays (fig. 4b). Central ossicle with an oval base bearing a flattened tooth inclined forwards; inner circle of larger ossicles about 14 in number, petaloid in outline, the anterior 3-4 without projections, the 4-5 lateral ones with bladelike projections and the median posterior one again without projections. In larger opercula (fig. 4c) the projections of the lateral ossicles cover most of the basal plates and develop lateral serrations. An outer semicircle of minute ossicles develop on the marginal rays of the membranous base. Collar with paired lateral lobes and a median ventral lobe. Lateral lobes extend back as thoracic membranes to the end of the thorax and unite ventrally as an apron between thorax and abdomen. Thorax of 7 setigers. Collar setae small but similar to notosetae of setigers 2-7 which are all narrow winged capillaries (fig. 4d) with faint striations. Thoracic uncini (fig. 4e, f) with a single series of 7-9 teeth preceding an expanding and emarginate gouge whose thickened margins may simulate diverging prongs. Abdomen of about 75 segments of which the first 10 are achaetous. Abdominal uncini with 11-15 teeth; abdominal capillaries (fig. 4g) 2-3 per neuropodium, with serrated blades set at an angle to the shaft.

Remarks

Apart from the fact that *Galeolaria* has numerous separate ossicles on its operculum, it is very similar to *Pomatoceros*. There seem to be two valid species: *G. caespitosa* colonising rocks at mid-tide in Australia and Tasmania and *G. hystrix* Mörch at extreme low tide and below in Australia and New Zealand. This latter species lacks a large toothed central ossicle, but has very numerous small calcareous spines arranged in two or three concentric circles as shown by Dew (1959, fig. 128).

Serpula vermicularis Linnaeus, 1867

Serpula vermicularis: Augener, 1914: 133; Fauvel, 1927: 351, fig. 120; Dew, 1959: 21, fig. 3; Straughan, 1967: fig. 3a; Day, 1967: 809, fig. 38.5. a-h.

Records

Sta. 2 (1).

Remarks

The present specimen is typical but it should be noted that Straughan has recorded four more species from eastern Australia.

Distribution

Cosmopolitan.

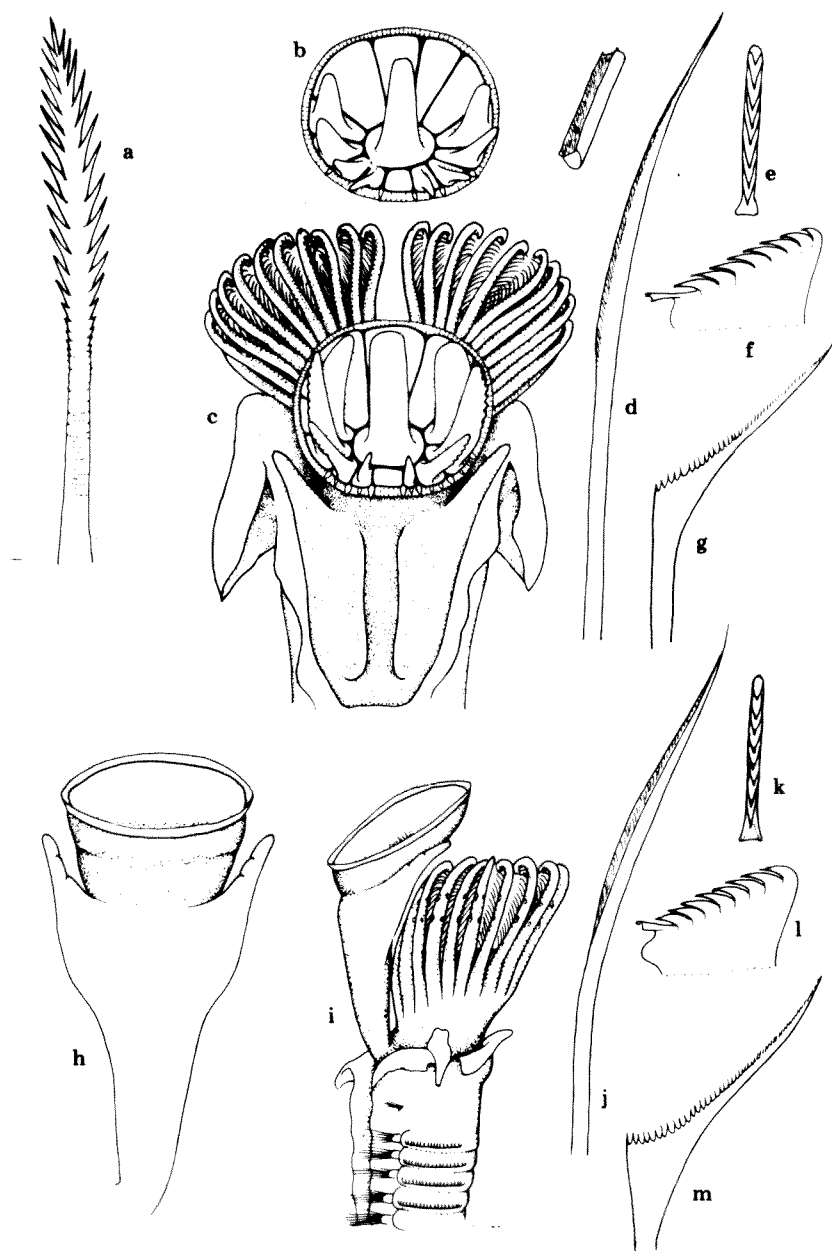


Fig. 4: *Idanthysus armatus* a outer palea. *Galeolaria caespitosa* b operculum of juvenile; c operculum and opercular stalk of adult; d thoracic capillary seta; e, f edge view and profile of thoracic uncinus; g abdominal capillary seta. *Pomatoceros caeruleus* h operculum and stalk; i lateral view of anterior end; j thoracic capillary seta; k, l edge view and profile of thoracic uncinus; m abdominal capillary seta.

Pomatoceros caeruleus Schmarda, 1861
(fig. 4 h-m)

Placostegus caeruleus: Schmarda, 1861: 29, pl. 21 fig. 178 (partim).

Pomatoceros caeruleus: Baird, 1864: 14.

Pomatoceros strigiceps: Ehlers, 1905: 67, pl. 9, fig. 11-19.

Pomatoceros caeruleus: Ehlers, 1907: 30.

Records

Sta. 7(4).

Description

Tube with a sharp median ridge. Body about 12 mm long and uniformly pale in spirit apart from a tinge of blue at the bases of the branchial lobes and 2-4 rows of blue dots on the sides of the radioles. Each branchial lobe with about 13 radioles united by a web for a third their length and ending in short tips. Opercular stalk (fig. 4h) derived from the left side and longer than the radioles, margins flattened and expanded distally forming a pair of triangular wings on either side of operculum. Wings slightly notched in larger specimens. Operculum circular in outline with a fleshy base; surface slightly concave and lightly calcified. Concavity of plate accentuated by a narrow chitinous rim. Collar (fig. 4i) low and trilobed with relatively large fillets between the ventral and paired lateral lobes. Lateral lobes continuous with broad thoracic membranes extending to end of thorax and uniting ventrally to form a short apron at junction of thorax and abdomen. Thorax of seven setigers. Collar setae as a small tuft of smooth-winged capillaries similar to other thoracic notosetae. Notosetae of setigers 2-7 (fig. 4j) all with smooth striated blades; no toothed setae. Thoracic uncini (fig. 4k, l) with a single row of 7-9 teeth preceding a broader emarginate gouge. Abdomen with about 60 setigers and about 4 achaetous segments at junction with thorax. Abdominal uncini with 9 teeth preceding the gouge. Abdominal capillaries (fig. 4m) short, only 2-3 per neuropodium, each with a tapering serrated blade set at an angle to the shaft.

Remarks

I am indebted to Dr H. Zibrowius who has seen many serpulids from both New Zealand and Australia for suggestions regarding the synonymy of this species. Our opinions differ and I am now doubtful whether *P. caeruleus* (Schmarda 1861) is a synonym of *Vermetus cariniferus* (Gray 1843). Gray's species was certainly a serpulid polychaete and not a Mollusc but its generic position is doubtful.

Schmarda's description of *Placostegus caeruleus* was very brief and referred to worms found both in New Zealand and at the Cape of Good Hope, South

Africa. As shown by Baird (1864) and Day (1955) the South African specimens lacked collar setae and were referred to *Pomatoleios kraussi* which is now well known through the warm and tropical waters of the Indo-Pacific. The New Zealand form of *Pomatoceros caeruleus* was first described in detail by Ehlers (1905) under the name of *Pomatoceros strigiceps* Mörch 1863 but in 1907 Ehlers stated that *P. strigiceps* was a synonym of *P. caeruleus*. In the same paper Ehlers also gave a brief account without illustrations of what he called *Spirobranchus* (?) *cariniferus* Gray. His specimens clearly belonged to the genus *Spirobranchus* for he says '... der Form der Borsten, zumal der besonders gestalteten Capillarborsten des ersten thorakalen Borstenbündels als zur Gattung *Spirobranchus* gehörend bezeichnet'. On the other hand the reference to *cariniferus* is, as he says, doubtful for the evidence is slender. He is doubtful of the tube and he says that the opercular plates of all his specimens were missing. Gray stated that *cariniferus* has a rounded horny plate without further details. *Spirobranchus* normally has horny projections arising from the opercular plate. On the evidence at present available I do not believe that Ehlers' *Spirobranchus* was Gray's *cariniferus* so that the generic position of *cariniferus* is open with the possibility that it may be a species of *Pomatoceros*, and possibly identical with *P. caeruleus* as both Hutton (1879) and Baird (1864) believed.

Ehler's (1905) account of the operculum of *P. strigiceps* (= *P. caeruleus*) and Ehler's (1907) account of the operculum of *P. caeruleus* are generally similar but not identical. In 1905 he describes and illustrates the operculum as a bluish calcareous plate encircled by a transparent rim; the plate itself has two small conical projections. In 1907 he states that the two conical projections may be missing and 'die Fläche ist dann auch trichterförmig vertieft.' This description is not illustrated but it would agree with my fig. 4h.

The only other valid species of *Pomatoceros* recorded from Australia is *P. terraenovae* Benham 1927, of which the published type locality is South Trinidad in the tropical Atlantic. Dr Zibrowius in a personal letter informs me that he is strongly of the opinion that the locality labels were confused and that Benham's species is Australian. This appears very probable for Dew (1959) and Straughan (1967) between them have recorded it from Queensland, Victoria, Tasmania and South Australia but there is no record from the Atlantic. Again I am indebted to Dr Zibrowius for the information that *P. terraenovae* is a synonym of *P. taeniatus* Lamarck. It differs from *P. caeruleus* in having a convex instead of a slightly concave opercular plate and Dew (1959, fig. 13B) has illustrated a form of *P. taeniatus* with a small conical projection on the operculum.

Distribution (of *P. caeruleus*) : New Zealand

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