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Perinereis (Polychaeta, Nereididae) from Australia, with Redescriptions of Six Additional Species

PAT HUTCHINGS[1], AMANDA REID[2] & ROBIN WILSON[3]

[1]Australian Museum,
PO Box A285, Sydney South, NSW 2000, Australia

[2]Macquarie University,
North Ryde, NSW 2109, Australia

[3]Museum of Victoria,
285-321 Russell Street, Melbourne, Vic. 3000, Australia

ABSTRACT. The genus *Perinereis*, with 56 species worldwide, is represented in Australian waters by 15 species. Eleven Australian species with one or two bars on Area VI are described, and six species not recorded from Australia are redescribed from type material. No new species are described. A key is provided to all 15 Australian species of *Perinereis*. A list of all species of *Perinereis* is provided in an appendix.

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The genus *Perinereis*, comprising 56 species and nominal subspecific forms, is usually informally subdivided on the basis of the number of smooth bar-shaped paragnaths on Area VI of the pharynx. Appendix 1 lists all known species of *Perinereis*, arranged in an informal grouping of similar species. This paper treats 11 Australian species which possess either one or two bars on each side of Area VI (Groups 1 and 2). Six additional species of *Perinereis* with this arrangement of bar-shaped paragnaths on Area VI, but not recorded from Australia are redescribed from type material. Species of *Perinereis* characterised by a distinctive arc of short bars on Area VI (usually numbering 6-14 on each side) (Group 3), and comprising 20 nominal forms worldwide, are revised by Wilson & Glasby (in preparation). A key is provided to all 15 Australian species of *Perinereis*, including those described elsewhere by Wilson & Glasby (in preparation).

This paper is the third in a series describing Australian Nereididae; earlier papers treat the subfamily Gymnonereidinae (Hutchings & Reid, 1990), and the genera *Leonnates*, *Platynereis* and *Solomonereis* (Hutchings & Reid, 1991).

Materials and Methods

This study is based on all available nereidid collections from all Australian State museums. Terminology follows Hutchings & Reid (1990). Largest and smallest specimens in a range are chosen from width measurements. Widths are given as two figures; the first is the width excluding parapodia and the second (in parentheses) if given, refers to the width including parapodia. Synonymies include records from the literature not all of which have been checked against original material, but no new synonymies have been included unless type material has been examined. We felt that in this revisionary paper it would be helpful to include all the previous synonomies as they have never all been published together before. Australian distributions are based on material examined here unless indicated otherwise in the text. Non-Australian distributions are largely based on the literature, however, where overseas material has been examined this is marked with an asterisk. Institution codes referred to are as follows: AM – Australian Museum, Sydney; BM – British Museum (Natural History), London, UK; HZM – Hamburg Zoological Museum, Hamburg, FDR; NMV – Museum of Victoria, Melbourne; NTM – Northern Territory Museum of Arts & Sciences, Darwin; QM – Queensland Museum, Brisbane; SAM – South Australian Museum, Adelaide; TASM – Tasmanian Museum & Art Gallery, Hobart; WAM – Western Australian Museum, Perth; WMNH – Wroclaw University Museum of Natural History, Poland.

All species are figured and all parapodia figured are anterior views.

Taxonomic Characters

Species of *Perinereis* possess a number of qualitative and quantitative characters, some of which have not been made use of in earlier taxonomic studies. The two principal qualitative characters used in the key below are the presence of smooth bars on Area IV of the pharynx and expansion of the dorsal notopodial lobe. These characters also form the basis of an informal species grouping presented in the Appendix. The subdivision of the genus is an artificial scheme intended only to facilitate species-level comparisons and should not be taken to imply phylogenetic relationships.

The primary qualitative character used is the presence of smooth parallel bar shaped paragnaths (in addition to the usual cones) on Area IV of the pharynx. This character was used to distinguish species of *Neanthes* by Wilson (1984) and in the *Perinereis nuntia* species group by Wilson (in preparation) and Wilson & Glasby (in preparation) but is not mentioned in earlier descriptions. In most species, however, presence/absence of bars on Area IV is a constant and useful character. Only *P. camiguinoides*, *P. pseudocamiguina*

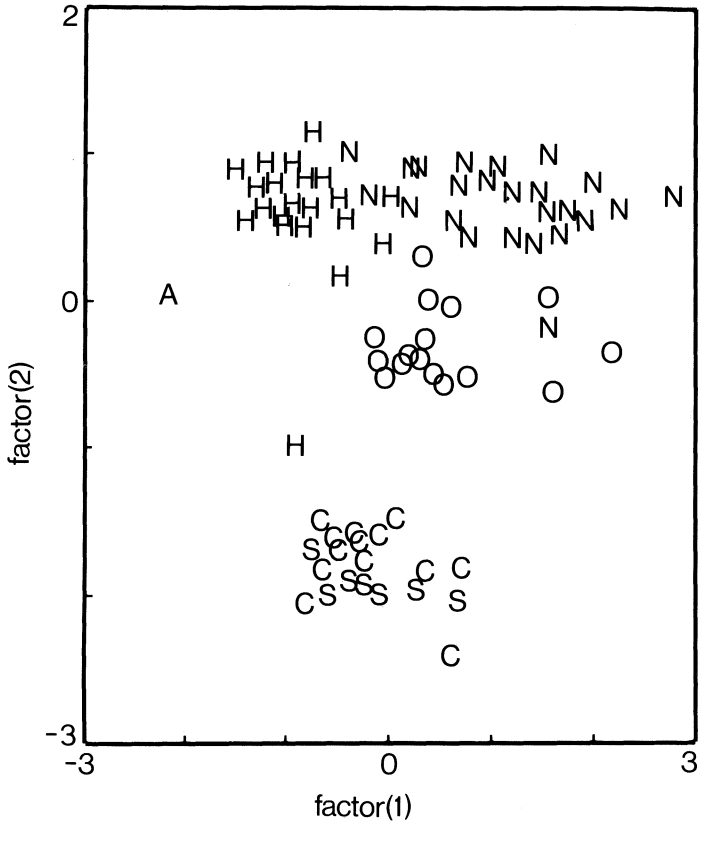

Fig.1. Plot of principal components scores of *Perinereis* spp. with one bar on Area VI. A = *P. amblyodonta*; C = *P. calmani*; H = *P. helleri*; N = *P. nigropunctata*; O = *P. obfuscata*; S = *P. seurati*.

and *P. variodentata* are polymorphic in this respect. The bars on Area IV are usually conspicuous; they are illustrated below in the figure of *P. amblyodonta*.

Expansion of the dorsal notopodial lobe on posterior setigers has been used by most authors to distinguish species. Assessment of the degree of expansion of the dorsal notopodial lobe requires some guide, as there is slight expansion of this lobe posteriorly in most species. By our standards, a specimen is described as having a greatly expanded dorsal notopodial lobe posteriorly only if the dorsal lobe is more than two times as long as the ventral lobe and has the dorsal cirrus tending to be terminally attached (this will usually only be evident in the posteriormost 10-30 setigers). Comparison of dubious specimens with figures referred to in the descriptive accounts below of species with expanded notopodial lobes (e.g., *P. amblyodonta*, Fig.3) and species with unmodified notopodial lobes (e.g., *P. aibuhitensis*, Fig.2) should make this distinction clear. Incomplete or epitokous specimens may, however, be impossible to determine. For a diagram of the structure of the parapodia with all the lobes labelled see Figure 1 in Hutchings & Reid (1990).

Absence of heterogomph spinigers from the ventral neuropodial fascicle in a variable number of anterior setigers is another qualitative character that is evident in some species. This character shows considerable intraspecific variability but may be useful in some instances.

Statistical Analysis

Guidelines for the use of quantitative characters, paragnath counts, in the genus *Perinereis* will be provided by Wilson (in preparation), and are followed here. In univariate comparisons based on each Area of the pharynx, species level differences are only indicated if populations do not (or barely) overlap in paragnath counts. Statistically 'significant' differences alone do not imply the presence of distinct species. Multivariate comparisons (based on counts for all Areas of the pharynx) can be used to indicate species level discrimination if populations are plotted as discrete clusters of points in multivariate space. Wilson (in preparation) is using canonical variates analysis (= multiple discriminant analysis) to compare populations in the absence of *a priori* species determinations. In this paper we have used principal components analysis (PCA), which does not make use of *a priori* designations of groups of specimens, to confirm differences between those Australian species most likely to be confused. These species (with only 1 bar in Area VI; *P. amblyodonta*, *P. calmani*, *P. helleri*, *P. nigropunctata*, *P. obfuscata* and *P. suluana*) are distinguished in the key below using qualitative characters which may be impossible to assess in incomplete material (e.g., expansion of notopodial lobe). PCA of these species based on the quantitative data alone (paragnath counts) confirms the significance of qualitative differences and enables the quantitative data to be summarised in fewer dimensions. The PCA was performed on raw paragnath data of samples of 20 to 30 specimens of each species. The resultant plot of extracted factor scores (Fig.1) separates all species with the exception of *P. calmani* and *P. suluana*. These two species however are distinguished by the absence of paragnaths in Areas VII-VIII and very distinct dorsal pigmentation pattern in *P. suluana* (*P. calmani* has 10-13 paragnaths on VII-VIII) and we retain these as distinct species. The plot of PCA factor scores, and factor score coefficients (Table 1), provide means of estimating the importance of counts for each Area in distinguishing species. Thus, *P. helleri*, *P. obfuscata* and *P. calmani* are separated primarily along factor 2. Table 1 records the highest coefficients for factor 2 as the oral ring Areas V and VII-VIII; counts for these Areas are therefore more taxonomically useful in distinguishing these species. Similarly, factor 1, on which the maxillary ring paragnaths I, II and IV load most strongly, best separates *P. helleri* and *P. nigropunctata*.

Table 1. Factor score coefficients from principal components analysis of Australian *Perinereis* species with 1 bar on Area VI.

	factors		
	1	2	3
I	0.476	0.084	- 0.349
IIL	0.415	- 0.156	- 0.121
IIR	0.432	- 0.182	- 0.127
III	0.143	0.140	0.028
IVLC	- 0.293	- 0.050	0.663
IVRC	- 0.363	- 0.033	0.730
V	- 0.259	0.612	0.039
VII-VIII	0.121	0.423	- 0.181

Key to Australian Species of *Perinereis*

1. Area VI with 1 bar 2

—— Area VI with 2 bars 8

—— Area VI with more than 2 bars 11

2. Area IV with smooth bars in addition to cones 3

—— Area IV with cones only 4

3. Area III with fewer than 10 cones; VII-VIII usually more than 50; expanded dorsal notopodial ligule dorsally convex (Fig.4d) ..... *P. barbara*

—— Area III with more than 10 cones; VII-VIII usually with fewer than 50; expanded dorsal notopodial ligule strap-like, dorsally straight (Fig.3f) ..... *P. amblyodonta*

4. Dorsal notopodial lobe greatly expanded posteriorly (Fig.10c) 5

—— Dorsal notopodial lobe not greatly expanded posteriorly (Fig.9b) 7

5. Area VII-VIII bare ..... *P. suluana*

—— Area VII-VIII with paragnaths 6

6. Area V with 3 paragnaths (rarely 1) ..... *P. nigropunctata*

—— Area V with 1 paragnath (rarely 2) ..... *P. obfuscata*

7. Areas III and VII-VIII with fewer than 14 paragnaths ..... *P. calmani*

—— Area III with more than 14 paragnaths; VII-VIII with more than 20 paragnaths ..... *P. helleri*

8. Dorsal notopodial lobe reduced posteriorly (Fig.2d) ..... *P. aibuhitensis*

—— Dorsal notopodial lobe slightly expanded posteriorly (Fig.18b), dorsal cirrus becoming distally inserted on posteriormost setigers 9

9. Area I with more than 3 paragnaths; III with fewer than 7; bars usually present on IV ..... *P. variodentata*

—— Area I with fewer than 4 paragnaths; III with many more than 6; bars absent on IV 10

10. Area IV with more than 39 paragnaths; VII-VIII with more than 57 ..... *P. vancaurica*

—— Area IV with fewer than 37 paragnaths; VII-VIII with fewer than 57 ..... *Perinereis singaporiensis*

11. Bars present on Area IV of pharynx 12

—— Bars not present on Area IV of pharynx 13

12. Area VI with fewer than 10 bars (usually 6-8) ..... *P.* sp A*

—— Area VI with more than 10 bars (usually 12-16) ..... *P. vallata**

13. Areas I and II without paragnaths ..... *P. caeruleis**

—— Areas I and II with paragnaths ..... *P. nuntia**

* see Wilson & Glasby (in preparation) for descriptions.

Perinereis Kinberg

Perinereis Kinberg, 1866: 175-176.

Type species. *Perinereis novaehollandiae* Kinberg, 1866, by original designation.

Diagnosis. Two pairs of eyes, 1 pair of antennae, 1 pair of palps, 4 pairs of tentacular cirri. Pharynx with conical paragnaths on maxillary ring or both rings. Transverse bars on Area VI. First 2 parapodia uniramous, subsequent parapodia biramous. Notopodia with homogomph spinigers, neuropodia with homogomph and heterogomph spinigers and heterogomph falcigers (after Fauchald, 1977).

Comments. The presence of smooth bar-shaped paragnaths on Area VI serves to diagnose the genus. In *Perinereis aibuhitensis* and *P. suluana* the bars on Area VI are so short as to appear cone-like in some specimens, however, most specimens possess very short bars on Area VI. Care must be taken with these species, which could be incorrectly identified as species of *Neanthes* if sufficient comparative material is not available.

Bar-shaped paragnaths are also found on Area IV (in addition to cones) in some species.

Perinereis aibuhitensis (Grube)

Fig.2a-e

Nereis (*Perinereis*) *aibuhitensis* Grube, 1878: 89-90, pl.5, fig.3.–Horst, 1924: 168-169, pl.33, figs 4-6.
Perinereis aibuhitensis.–Fauvel, 1932: 106.–Fauvel, 1953: 209-210, fig.107a.–Russell, 1962: 6-7.–Wu *et al.*, 1985: 189-193.–Hylleberg & Nateewathana, 1986: 3-5, fig.2A-Q.
Nereis aibuhitensis.–Monro, 1934: 361-362.
Neanthes linea Treadwell, 1936: 268-270, fig.19a-e (fide Hartman, 1938).
Neanthes orientalis Treadwell, 1936: 270-272, fig.19f-i (fide Hartman, 1938).

Material examined. Philippines: Aibuhit, no further data, 1 lectotype and paralectotype (not conspecific, see below; WMNH 302), 1 PARALECTOTYPE ZMB Q3440.

Non-type material. Australia: Western Australia – Admiralty Gulf, Port Warrender, 14°35'S 125°53'E, Oct. 1976, several (WAM 462-86), several (WAM W486-86); Willie Creek, 17°46'S 122°12'E, 2 Oct. 1984, 1 (NTM W2181); Broome, 17°58'S 122°13'E, 2 Oct. 1984, 1 (NTM W2298). Northern Territory – Port Essington, Victoria Settlement, 11°16'S 132°09'E, 12 Nov. 1985, 1 (NTM W3063), 1 (NTM W3278), 1 (NTM W3297), 1 (NTM W3308); Port Essington, Wangewanja Cove, 11°23'S 132°09'E, 13 Sept. 1985 (NTM W3336), (NTM W3340), 1 (NTM W3360), (NTM W3413), (NTM W3415); West Bay, 11°24'S 132°10'E, 14 Sept. 1985, 1 (NTM W3602); Port Essington, Mangrove Point, 11°24'S 132°11'E, 14 May 1983, 5 (NTM W1330), 15 Nov. 1985, 2 (NTM W3185), 1 (NTM W3192), 1 (NTM W3630); Adelaide River, 12°28'S 131°21'E, 22 May 1985, 1 (NTM W2787), 1 (NTM W2808), 21 May 1985, 1 (NTM W2951), 1 (NTM W2960), 22 May 1985, 1 (NTM W2985), 1 (NTM W2989), (NTM W2991), 1 (NTM W3000), 1 (NTM W3003), 23 May 1985, 1 (NTM W3008), 1 (NTM W3009); McArthur River, Black Rocks Landing, 15°53'S 136°35'E, 1 Aug. 1985, 1 (NTM W3736); Minimini Creek, 11°43'S 132°39'E, 19 June 1984 (NTM W1787), 1 (NTM W1789); Buchanan Island, 11°49'S 130°39'E (NTM W436), 18 Nov. 1982, 1 (NTM W438); Annesley Point, 11°24'S 132°51'E, 19 June 1984, 1 (NTM W1758); Darwin, East Arm, 12°30'S 130°55'E, 31 May 1984, 5 (NTM W1814), (NTM W1815), 2 (NTM W2054), 14 Dec. 1984, 1 (NTM W2510), 1 (NTM W2516), 1 (NTM W2523), 4 Feb. 1985, 1 (NTM W2660), 1 (NTM W2664), 1 (NTM W2670), 1 (NTM W2690), 1 (NTM W2692), 1 (NTM W2694), 1 July 1985 (NTM W2866); Wyndham, King River, 15°47'S 128°12'E, 21 Mar. 1985, 1 (NTM W2617). Queensland – Cairns, 16°55'S 145°46'E, 20 Nov. 1984, 1 (NTM W2350), 18 Nov. 1984, 4 (NTM W2376); Cribb Island, Jacksons Creek, 27°21'S 153°07'E, 20 Sept. 1972, 1 (QM G7518), Oct. 1972, 1 (QM G7549), 12 Dec. 1972, 2 (QM G7550), 1 (QM G7551), 1 (QM G7553).

Description. Material examined up to 100 mm length, 4 mm width, 0.6-2.5 mm jaw length, up to 124 setigers. Colour in alcohol, cream-yellow. Prostomium trapezoidal with faint median furrow. Eyes with distinct lenses. Broad, dome-shaped palps with small, rounded palpostyles, short, triangular antennae. Longest tentacular cirri, extending to setiger 3. Jaws robust, heavily sclerotised with 6-8 triangular teeth spread along entire cutting margin. Pharynx with conical paragnaths on both rings and smooth bars present on Area VI arranged as follows: I=1-4 (usually 2); II=6-14, III=12-34 in a patch, 2-5 (usually 2-3) laterally, separate from central patch, IV=8-23, V=3 (rarely 1), VI=2 very short 'bars', VII-VIII=37-48 in 3 irregular rows. Area IV without bars.

Anterior notopodia broad, with triangular dorsal ligules and slightly shorter, subtriangular median ligules, superior lobes reduced or absent. Dorsal cirrus triangular, slightly shorter than dorsal notopodial ligule (Figs 2a,b). Neuropodial lobes slightly longer than notopodial lobes, with indistinct superior lobe, low, rounded inferior and postsetal lobes. Ventral ligule conical. Ventral cirrus short, triangular, approximately half as long as neuropodial ligule. Median and posterior notopodia as for anterior notopodia with lobes reduced in size, triangular rather than conical in shape (Figs 2c,d). Dorsal notopodial ligule reduced in size in far posterior setigers with dorsal cirrus exceeding length of ligule.

Neurosetae with homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph falcigers (Fig.2e) and heterogomph spinigers in subacicular fascicle. Falcigers long bladed (Horst, 1924: pl.33, fig.5). Anal cirri long, tapering.

Remarks. The type material (WMNH 302) includes specimens of two species. One, which agrees well with Grube's original description, we have designated the

lectotype. The other specimen contains one bar only in Area VI and has not been identified to species. A paralectotype is also deposited in ZMB.

Perinereis aibuhitensis is most similar to *P. vancuarica* (Ehlers, 1868) but the two species can be distinguished on the basis of the bars in Area VI, which are very short in *P. aibuhitensis* but long in *P. vancuarica*. *Perinereis aibuhitensis* is also similar to *P. singaporiensis*, but differs in the following characters: *P. aibuhitensis* has short bars in Area VI, dorsal notopodial lobes reduced posteriorly, and has three rows of cones in Areas VII -VIII.

In some specimens of *Perinereis aibuhitensis* the bars in Area VI are so short as to be easily mistaken for cones and the material identified as a species of *Neanthes*. Such specimens would most likely be confused with *Neanthes vaalii* Kinberg, 1866, however, the presence of conspicuous bars in Area IV, notopodial presetal lobes and short bladed falciger in *N. vaalii* readily distinguish this species from P. *aibuhitensis*. In all other characters the Australian material is very similar to the designated lectotype (WMNH 302).

Habitat. Occurs in mangroves, among oyster encrusted rocks and rocky reef.

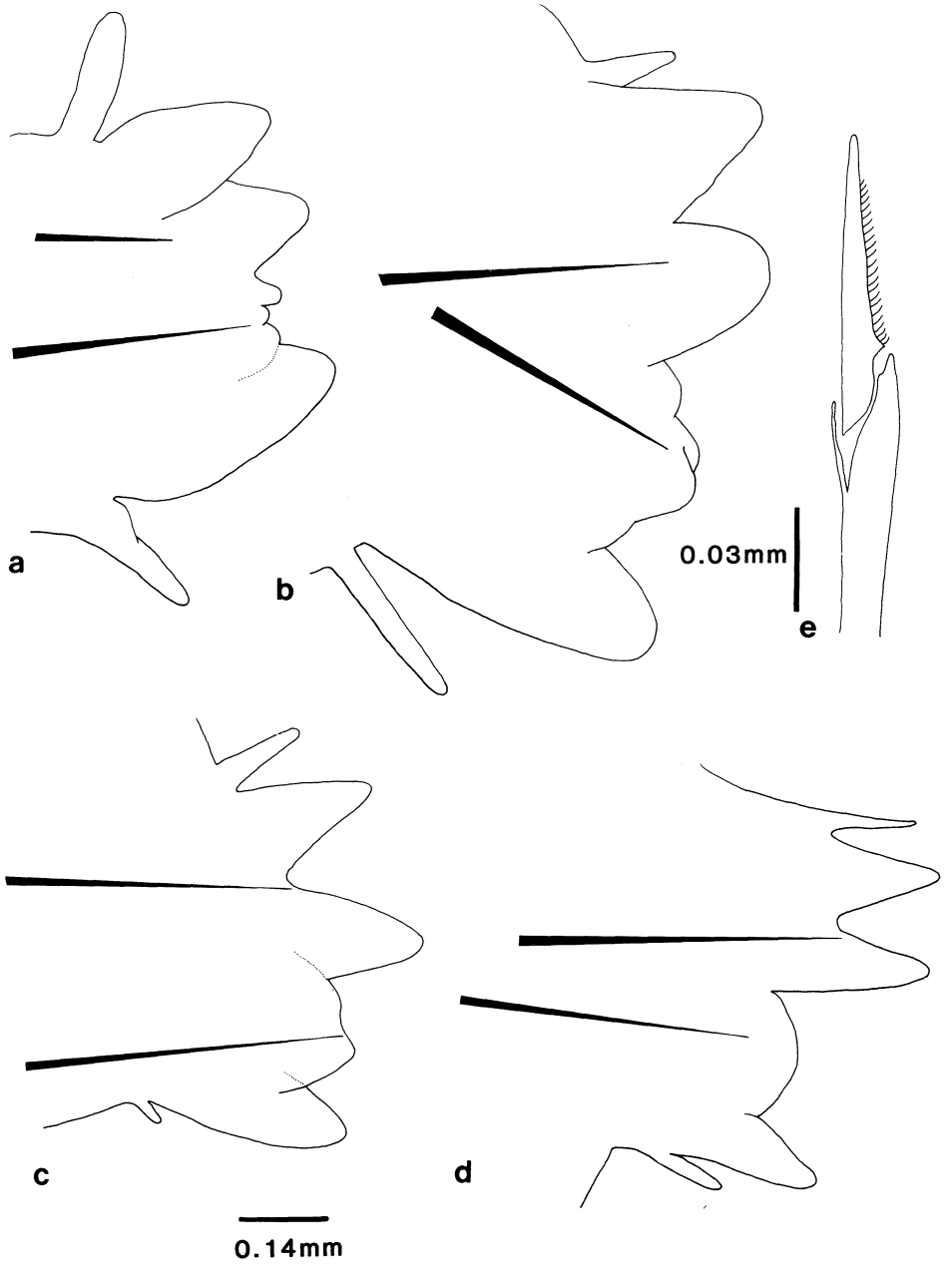

Fig.2. *Perinereis aibuhitensis* PARALECTOTYPE ZMB 3440. (a) parapodium 3; (b) parapodium 10; (c) parapodium 50; (d) parapodium 100; (e) heterogomph falciger, parapodium 20, neuropodium, subacicular fascicle.

Distribution. Australia (north-west Australia from 17°58'S 122°13'E, Broome, WA to 27°21'S 153°07'E, Cribb Island, Qld). Also from China, India, Andaman Islands, Indonesia (Sulawesi, Sumatra, Java), Philippines*.

Perinereis amblyodonta (Schmarda)

Fig.3a-h

Nereilepas amblyodonta Schmarda, 1861: 106, fig.A-B, a-b, K, pl.31, fig.245.

Perinereis novaehollandiae Kinberg, 1866: 175.–Augener, 1924: 342-348.–Augener, 1927: 347.–Pope, 1943: 238, 244.–Knox, 1951: 213, 218, 221-222, pl.48, figs 25-31.

Nereis amblyodonta.–Ehlers, 1904: 28-29.–Ehlers, 1907: 11.

Perinereis amblyodonta.–Augener, 1913: 174-175.–Monro, 1926: 320.–Kott, 1951: 113, fig.6e-g.–Hartman, 1954: 18, 33-34, charts I-IV.–Knox, 1960: 122.–Knox & Cameron, 1971: 28.–Hutchings & Turvey, 1982: 139.–Hartmann-Schröder, 1987: 48.

Material examined. Australia: Queensland – Shute

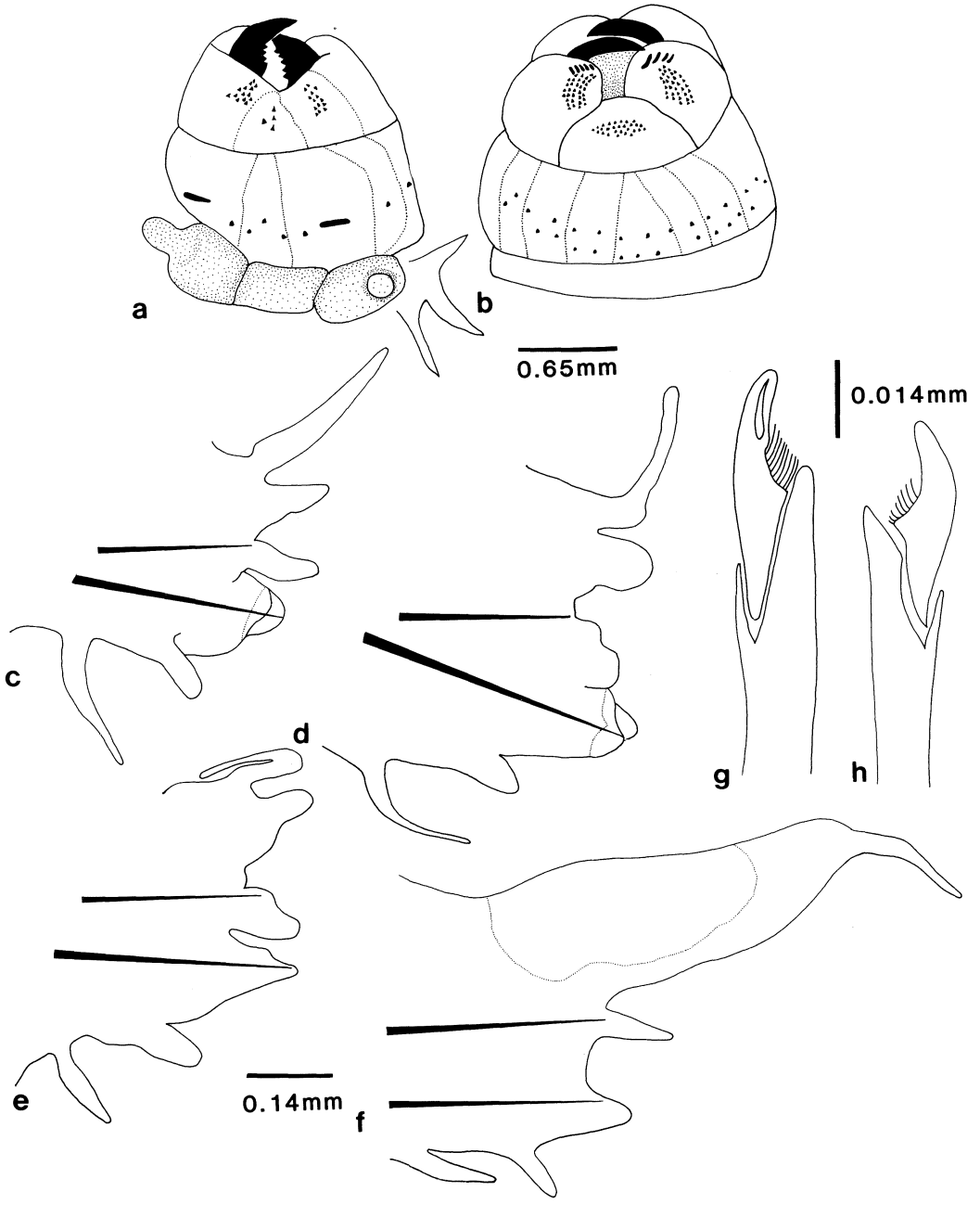

Fig.3. *Perinereis amblyodonta* AM W4859. (a) everted pharynx dorsal view; (b) everted pharynx ventral view; (c) parapodium 3; (d) parapodium 10; (e) parapodium 25; (f) parapodium 72; (g) heterogomph falciger, parapodium 10, neuropodium, subacicular fascicle; (h) heterogomph falciger, parapodium 72, neuropodium, subacicular fascicle.

Harbour, 20°18'S 148°47'E, 27 Sept. 1970, several (AM W4920); Pialba, Hervey Bay, 25°17'S 152°50'E, 30 Mar. 1972, 2 (AM W202787); Caloundra, 26°48'S 153°08'E, 29 Mar. 1972, 2 (AM W202543); Myora, 27°29'S 153°25'E, 19 Dec. 1950, 1 (QM G4090). New South Wales – Lennox Head, 28°48'S 153°36'E, 27 Mar. 1972, 3 (AM W202798); Minnie Waters, 29°47'S 156°16'E, 27 Feb. 1971, 1 (AM W202797), 25 Sept. 1982, 1 (W198490); Coffs Harbour, 30°18'S 153°08'E, July 1976, 3 (AM W203040); Nambucca Heads, 30°39'S 153°01'E, Nov. 1974, 2 (AM W202802); Harbord, 33°47'S 151°17'E, 2 (AM W4858), 29 July 1964, 20 (W202789); Port Jackson, 33°53'S 151°15'E, many (AM W4859), 5 (W202604); Wreck Bay, 35°11'S 150°38'E, 27 Feb. 1976, 6 (AM W202785); Twofold Bay, 37°05'S 149°54'E, 2 (AM W202786); Twofold Bay, Munganno Point, 37°06'S 149°56'E, 1 (AM W202805). Victoria – Mallacoota, Bastion Point, 37°34'S 149°46'E, 1 (AM W202807); Wilsons Promontory, 38°56'S 146°22'E, Jan. 1978, 12 (AM W202791); Lorne, 38°32'S 143°58'E, 27 Mar. 1975, 1 (AM W202811). Tasmania – Flinders Island, Lady Barron, 40°13'S 148°15'E, 10 Apr. 1977, 3 (AM W202821); Darlington, Maria Island, 42°35'S 148°04'E, 14 Apr. 1968, 1 (TASM K997); Flinders Island, 40°01'S 148°02'E, 1 (AM W202822); Eaglehawk Neck, 43°01'S 147°55'E, Mar. 1941, 1 (TASM K996); Dunalley, 42°53'S 147°49'E, 30 June 1965, 6 (TASM K165); Bellerive, 42°52'S 147°22'E, Jan. 1939, 1 (TASM K993); Bicheno, 41°53'S 147°18'E, 6 Feb. 1965, many (AM W4820). South Australia – Beachport, 37°29'S 140°00'E, 9 Feb. 1977, 1 (SAM E2347); Karatta, 35°59'S 136°56'E, 28 Feb. 1978, 2 (AM W202792); Lusby Island, 34°33'S 136°16'E, 27 Feb. 1975, 1 (SAM E2349); Baird Bay, 33°07'S 134°20'E, 29 Jan. 1985, 1 (SAM E2348); Pearson Island, 33°58'S 134°17'E, 24 Nov. 1976, 5 (SAM E2350). Western Australia – Garden Island, 32°12'S 115°40'E, 1950, several (WAM 475-86); Fremantle, 32°03'S 115°44'E, 22 June 1979, 1 (AM W202808); Cape Peron, 25°30'S 113°31'E, 22 Feb. 1952, several (WAM 537-86); Kendrew Island, 20°29'S 116°32'E, 18 May 1973, several (WAM 47-74).

Description. Material examined up to 35 mm length, 1.5-4.0 mm width, 0.9-3.2 mm jaw length. Colour in alcohol green, cream-pink with olive pigmentation on dorsum of anterior and far posterior setigers. Live colouration olive green. Prostomium as broad as long, rectangular, deeply indented anteriorly, eyes with distinct lenses. Robust palps with globular palpostyles, antennae broad based. Tentacular cirri, faintly annulated, longest extending to setiger 4. Jaws robust, heavily sclerotised. Pharynx with conical paragnaths on both rings and smooth bars on Areas VI and IV arranged as follows: I=2-5 (usually 2), II=11-28 in an irregular triangular patch, III=14-36 in an ovoid patch, sometimes with 1-2 cones separate and lateral to main group of cones, IV=a rectangular patch of 18-63 cones in 3-8 rows, 2-4 bars on dorsal-most edge (closest to Area II), V=1-3, VI=1 bar, 2-3 cones, VII-VIII=33-50 in 2 irregular rows (Figs 3a,b).

Anterior notopodia with dome-shaped notopodial and median ligules of equal length, superior lobes present. Dorsal cirrus greatly exceeding parapodial lobes in length. Neuropodia with digitiform superior lobes, dome-shaped inferior lobes and shorter, scalloped postsetal lobes. Ventral ligules also dome-shaped (Figs 3c-e). Ventral cirrus slightly shorter than ventral ligule. Median and posterior parapodia, dorsal ligule greatly elongate, strap-like, flattened, with dorsal cirrus emerging from distal tip as a finger-like extension (Fig.3f). Remaining lobes as for anterior setigers with shape tending to subtriangular rather than dome-shaped. Ventral ligule reduced in size in far posterior setigers.

Neurosetae with homogomph spinigers and heterogomph falcigers in the supra-acicular fascicle, heterogomph falcigers in the subacicular fascicle (Figs 3g,h). Anal cirri very long, slender.

Remarks. Type material of *Perinereis novaehollandiae* (from Port Jackson, NSW) was redescribed by Augener (1922c). Descriptions of other authors (e.g., Hartman, 1954; Hutchings & Turvey, 1982) are in agreement, and the above description is provided for the sake of completeness. The arrangement of cones in the dorsalmost position of the oral ring is typically a central cone towards the maxillary end with a transverse line of four cones arranged behind. These are usually recorded as occurring on Area V, however the cones comprising the transverse row often lie completely or partially on Area VI. An additional cone is often seen in line with these in a position ventral to the single smooth bar on Area VI. *Perinereis amblyodonta* often occurs with *P. barbara* Monro, 1926, and care must be taken to distinguish the two species which can be separated on the basis of the shape of the dorsal notopodial ligules on posterior segments and the numbers of paragnaths on Areas III and VII-VIII (see couplet 3 of the key).

Habitat. Occurs intertidally, under rocks, among barnacles, mussel beds, weed and clumps of the serpulid *Galeolaria*. Also found among algal holdfasts and coralline algae.

Distribution. Australia (southern Australia, from 20°18'S 148°47'E, Shute Harbour, Qld to 17°46'S 122°12'E, Broome, WA). Also from New Zealand and the Philippines.

Perinereis barbara (Monro)

Fig.4a-g

Nereis (Perinereis) barbara Monro, 1926: 316-317, figs 3-5.
Perinereis barbara.–Fauvel, 1953: 204, fig.103d-f.–Hutchings & Murray, 1984: 41-42.

Material examined. Australia: Queensland – Maroochydore, 26°39'S 153°06'E, 1 (AM W202544); Caloundra, 26°48'S 153°08'E, 29 Mar. 1972, 2 (AM W202543). New South Wales – Lennox Head, 28°48'S 153°36'E, 27 Mar. 1972, 2 (AM W202542); Angourie Point, 29°21'S 153°22'E, 1 (AM W202539); Minnie Water, 29°47'S 156°16'E, 1 (AM W202548); Coffs Harbour, 30°18'S 153°08'E, 25 Mar. 1972, 1 (AM W202535), 3 (AM W202537), 10+ (AM W202541); Broken Bay, Box Head, 33°33'S 151°21'E, 11 Apr. 1981,

many (AM W19353), 1 (AM W19355), 2 (AM W19356); Collaroy, 33°44'S 151°18'E, 1 (AM W4425); Long Reef, 33°45'S 151°19'E, Feb. 1940, 3 (AM W3227), 22 Sept. 1968, 3 (AM W4494), 23 Feb. 1971, 11 (AM W4839); Manly, 33°48'S 151°17'E, 20 Dec. 1968, 2 (AM W4320); Port Jackson, 33°49'S 151°18'E, 8 SYNTYPES (BM ZK1926.4.30.107.112), (BM ZK1926.4.30.129); Mosman, Spit Bridge, 33°50'S 151°15'E, 29 Mar. 1972, 2 (AM W202547); Coogee Bay, 33°56'S 151°16'E, Dec. 1921, 17 (AM W4795); La Perouse, 33°59'S 151°15'E, 24 Oct. 1962, 7 (AM W4788); Cape Solander, Kurnell Peninsula, 34°00'S 151°13'E, 12 July 1988, 2 (AM W202819); Port Hacking, 34°05'S 151°10'E, 1 (AM G11263), 6 Feb. 1962, 19 (AM W4792); Bellambie Beach, 34°22'S 150°56'E, 14 Nov. 1971, 1 (AM W202545); Wreck Bay, 35°11'S 150°38'E, 27 Feb. 1976, 2 (AM W202540); Moruya Heads, 35°55'S 150°10'E, 23 May 1960, 1 (AM W4797); Bermagui, 36°25'S 150°04'E, 25 May 1960, 2 (AM W4798); Twofold Bay, Munganno Point, 37°06'S 149°56'E,

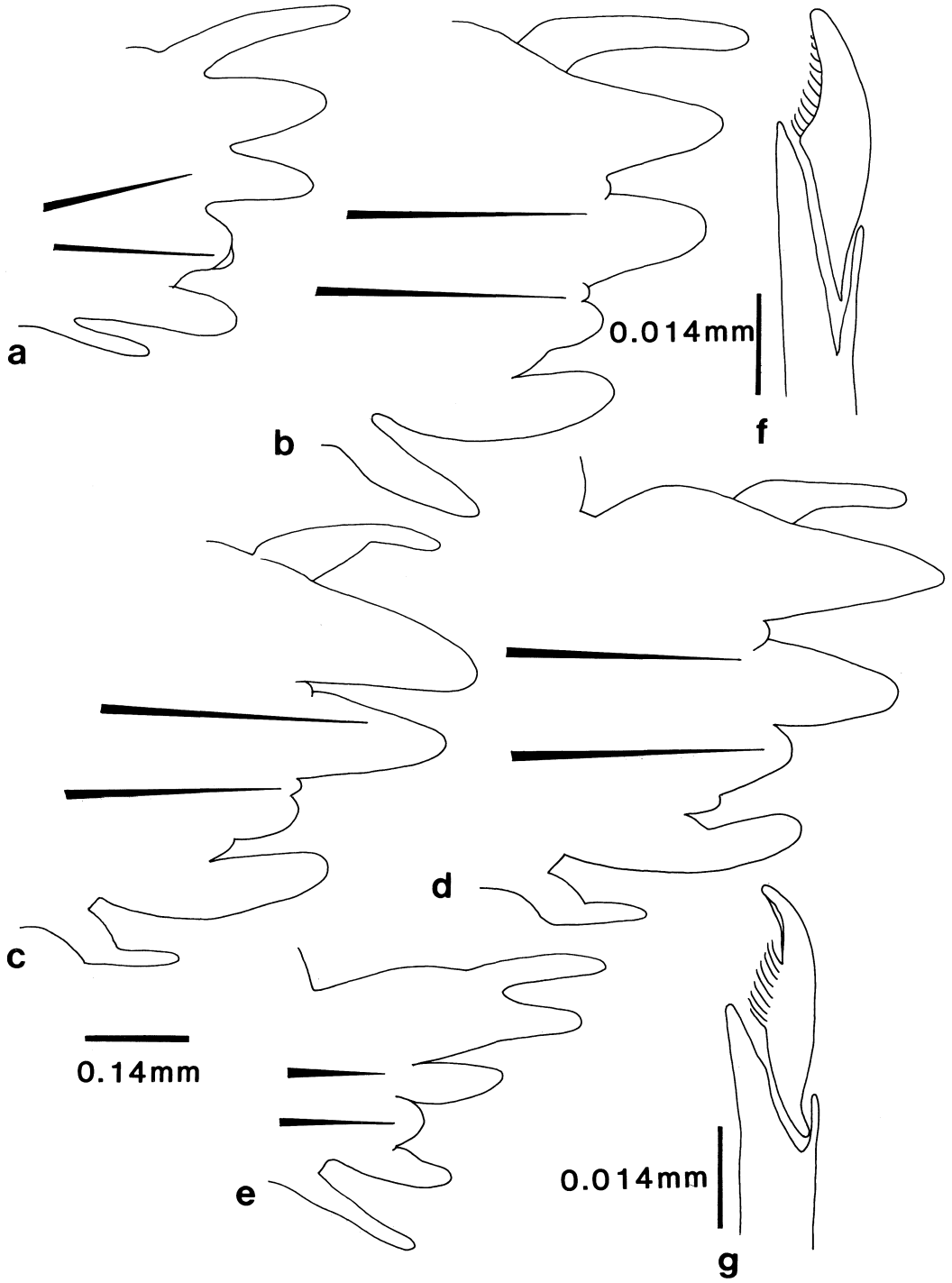

Fig.4. *Perinereis barbara* SYNTYPE BM ZK 1926.4.30.129. (a) parapodium 3; (b) parapodium 10; (c) parapodium 25; (d) parapodia 50; (e) parapodium 80; (f) heterogomph falciger, parapodium 10, neuropodium, subacicular fascicle; (g) heterogomph falciger, parapodium 50, neuropodium, supra-acicular fascicle.

1 (AM W202546). Victoria – Bastion Point, 37°34'S 149°46'E, 1 (AM W202536); Separation Creek, 38°37'S 143°53'E, 27 Oct. 1985, 3 (NMV F56467). South Australia – Murray River mouth, 35°34'S 138°53'E, 31 Dec. 1971, 3 (AM W203022).

Description. Material examined up to 40 mm length, 1.0-4.5 mm width, 1-3.6 mm jaw length. Colour in alcohol, cream-coffee coloured, some specimens with faint pigmentation on prostomium and anterior setigers. Prostomium longer than broad, ovoid anteriorly, eyes large with distinct lenses. Palps large, globular, with elongate palpostyles. Antennae bluntly pointed, triangular, set closely together. Longest tentacular cirri extending to setiger 3. Jaws robust with approximately 7 teeth. Pharynx with conical paragnaths on both rings and smooth bars present on Areas IV and VI arranged as follows: I=0-3 (usually 1-2), II=6-14 in 2 curved rows, III=3-7, IV=9-23 plus 2-3 bars, V=2-7, VI=1 bar plus 1-5 cones (usually 2-3), VII-VIII=45-101 in 2-4 irregular rows.

Notopodial ligules cylindrical in far anterior setigers and of equal length (Figs 4a,b). After first few setigers, dorsal notopodial ligule very robust, dome-shaped and slightly exceeds length of median ligule (Fig.4c). Superior lobes short digitiform and closely abutting median ligule. Neuropodia with digitiform superior lobe, larger digitiform inferior lobe, postsetal lobe low, with scalloped border. Superior lobes positioned posterior to inferior lobes. Ventral ligule conical, similar to median ligule in size and shape. Ventral cirrus slightly shorter than ventral ligule. Aciculum tip projects slightly. Dorsal notopodial ligule gradually becoming subtriangular (Fig.4d), greatly expanded and very broad basally and curved dorsally on median and posterior parapodia. Dorsal cirri becoming more distally inserted on dorsal notopodial lobe on posterior setigers (Fig.4e). Superior neuropodial lobe reduced on median and posterior setigers.

Neurosetae with homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph falcigers in subacicular fascicle (Fig.4f,g). Anal cirri relatively short.

Remarks. *Perinereis barbara* may be confused with *P. amblyodonta* Schmarda, 1861, with which it often occurs. Distinguishing characters of the two species are given in the Remarks section of *P. amblyodonta*. Male epitokous specimens collected from Long Reef, Sydney in September 1968 (AM W4494) and Kurnell, New South Wales in July 1988 (AM W202819) showed modification of parapodia from setiger 14. A female epitoke (AM W4494) was modified from setiger 20 onwards. In life the colour of epitokes is red-dark green.

Habitat. Occurs intertidally, often among the ascidian *Pyura*, algal holdfasts, calcareous algae, or in rock crevices and under boulders.

Distribution. Australia (eastern Australia, from 26°39'S 153°06'E, Maroochydore, Qld to 35°34'S 138°53'E, Murray River mouth, SA). Also from India and Singapore.

Perinereis calmani (Monro)

Fig.5a-e

Nereis (Perinereis) calmani Monro, 1926: 318-320, figs. 6-8.
Perinereis calmani.–Hartman, 1954: 18.–Russell, 1962: 7.

Material examined. Australia: Queensland – Point Vernon 25°15'S 152°49'E, 23 Oct. 1976, 1 (AM W202522), Mar. 1972, 1 (AM W202523), 31 Apr. 1972, 4 (AM W202524), Apr. 1972, 7 (AM W202525); Dunwich 27°30'S 153°24'E, 20 Dec. 1950, 2 (QM G4089), 29 Mar. 1952, 1 (QM G4012). New South Wales – Arrawarra, 30°04'S 153°12'E, 21 Mar. 1978, 2 (AM W202526); South Solitary Island, 30°12'S 153°16'E, 18 May 1972, 4 (AM W202527); Fairlight, 33°48'S, 151°17'E, 23 Oct. 1976, 1 (AM W20252); Port Jackson, 33°49'S 151°18'E, SYNTYPES, 2 (BM ZK1926.4.30.80-81), 4 (BM ZK1926.4.30.92-95); Port Jackson 33°49'S 151°18'E, several (AM W4828); North Head, 33°50'S 151°18'E, 26 Mar. 1972, 1 (AM W6876); Green Patch, Jervis Bay, 34°39'S 135°47'E, 23 Jan. 1973, 1 (AM W202529).

Description. Material examined 11-52 mm length, 1-3 mm width, 0.85-2.8 mm in jaw length, up to 80 setigers. Colour in alcohol yellow-cream, sometimes with mid-dorsal, longitudinal brown pigmentation band. Prostomium about as long as wide, with shallow mid-dorsal depression anteriorly. Eyes large, palps cylindrical, widely spaced, with bluntly globular palpostyles, antennae short, cylindrical. Tentacular cirri annulated, dorsalmost longest, extending to setiger 2. Peristomium relatively long. Jaws robust, heavily sclerotised with 3-4 large teeth. Pharynx with conical paragnaths on both rings and smooth bars on Area VI arranged as follows: I=1-3, II=8-32 in 2-4 curved rows, III=7-13 in 2-3 rows, IV=9-26 in a triangular patch, V=0; VI=1 short bar, VII-VIII=10-13 in 2 irregular rows. Area IV without bars.

Anterior notopodia with short, conical notopodial ligules, slightly longer, conical median ligules, superior lobes short, digitiform, closely apposed and slightly anterior to median ligule, dorsal cirrus relatively short, approximately equal in length to dorsal ligule (Figs 5a,b). Notopodial ligules exceed length of neuropodial ligules throughout. Neuropodia with digitiform superior and conical bluntly-rounded inferior lobes and single, slightly curved postsetal lobe. Superior lobes positioned posterior to inferior lobes. Acicular and postsetal lobes subequal. Ventral cirri as long as ventral neuropodial ligule in anteriormost setigers, reducing to approximately two thirds as long as ventral ligule posteriorly. Median and posterior notopodia similar, however notopodial ligules conical anteriorly, becoming subtriangular posteriorly (Figs 5c,d). Dorsal cirri gradually becoming more distally inserted on dorsal notopodial ligule on posterior setigers. Dorsal notopodial ligule increasing

in size posteriorly, becoming longer than median ligule. Dorsal notopodial lobe becoming very broad and basally glandular in far posterior setigers, but not greatly expanded in length. Neuropodial ligules reduced to short lobe. Neuroaciculae slightly emergent.

Neurosetae with homogomph spinigers and heterogomph falcigers (Fig.5e) in supra-acicular fascicle, heterogomph falcigers and single heterogomph spiniger in subacicular fascicle. Anal cirri long, tapering.

Remarks. A band of dorsal pigmentation may be present or absent. The specimens from Dunwich (QM G4089) are dark brown in colour, and agrees well with previously published descriptions and with the type material.

Habitat. Intertidal among and under rocks, kelp holdfasts and sponges. Often occurs among tubes of the serpulid *Galeolaria* and barnacles.

Distribution. Australia (eastern Australia, from 25°15'S 152°49'E, Point Vernon, Qld to 34°39'S 135°47'E, Jervis Bay, NSW). Also from China.

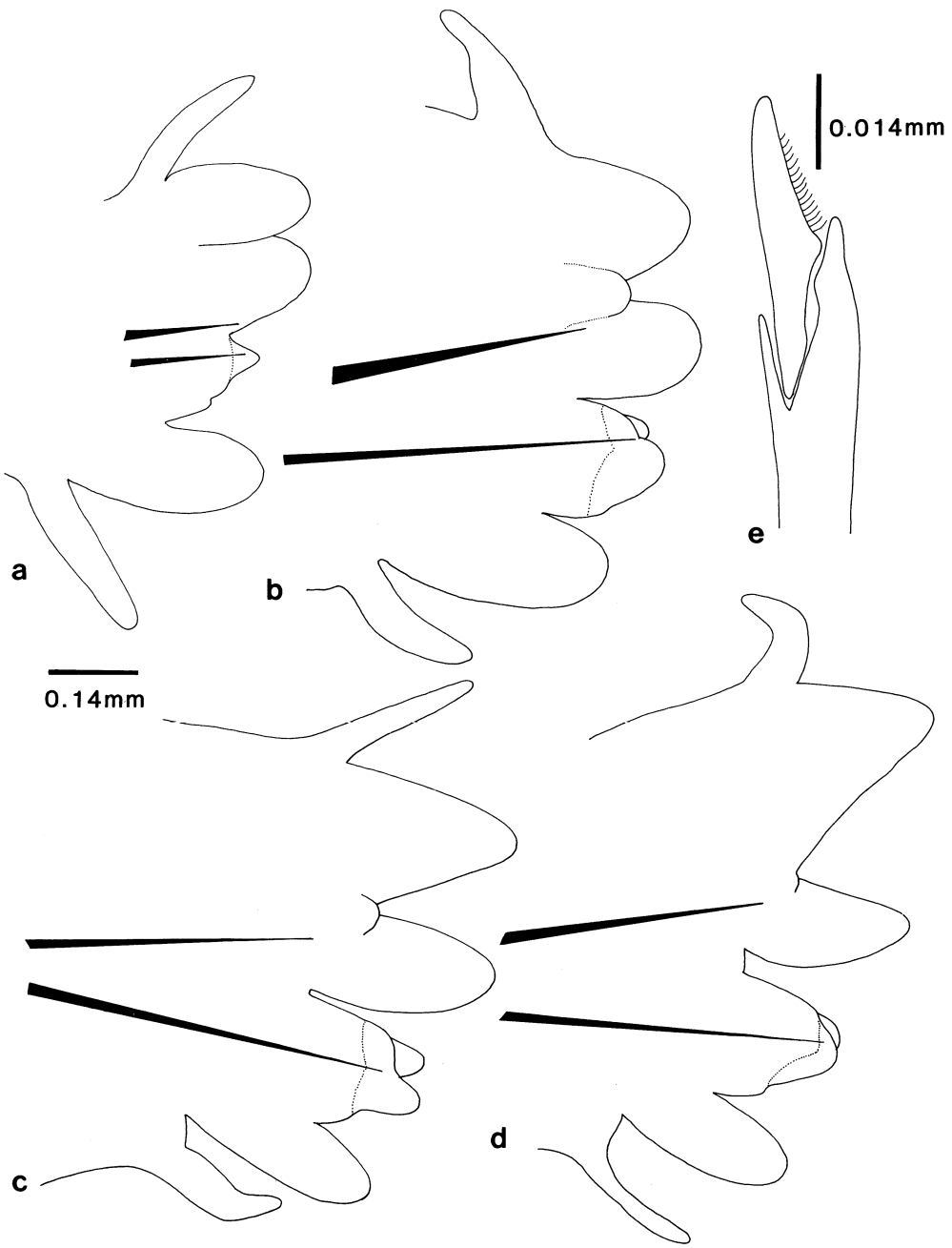

Fig.5. *Perinereis calmani* SYNTYPE BM ZK 1926.4.30.92.95. (a) parapodium 3; (b) parapodium 10; (c) parapodium 25; (d) parapodium 50; (e) heterogomph falciger, neuropodium, supra-acicular fascicle.

Perinereis camiguinoides Augener

Fig.6a-c

Nereis (*Perinereis*) *camiguinoides* Augener, 1922b: 180-183, fig.4a-d, tafelfig. 2.

Material examined. Chile: Juan Fernandez Islands, 34°S 80°W, coll. Plate, 2 SYNTYPES (ZMB 5645).

Description. Entire specimens, both 58 setigers, 24 mm length, 1.1(1.6)-2.0(3.1) mm width. Jaw length 11-18 mm. Eyes black. Prostomium as long as wide. Antennae half as long as prostomium, longest tentacular cirri extend back 3-5 setigers. Jaws with 3-6 lateral teeth. Paragnaths: I=1 large cone; II=6-7; III=5-6 (no lateral groups); IV=13-17 cones, 1-2 bars in one specimen, bars absent in remaining specimen; V=3; VI=2 bars (broken on one specimen, giving appearance of 3 bars on one side); VII-VIII=43-50 in 2 irregular rows. Notopodia anteriorly with 2 equal lobes and short, conical superior lobe, dorsal ligule 2 times ventral ligule on posteriormost 20 setigers. Dorsal cirrus 1.25 times length of dorsal notopodial ligule. Neuropodia with 2 equal lobes throughout, equal to length of notopodia. Ventral cirrus as long as neuropodia (Fig. 6a,b). Anal cirri extend back 3-5 setigers. Neurosetae homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph spinigers and falcigers (Fig.6c) in subacicular fascicle (heterogomph spinigers present from setiger 1).

Remarks. We have provided the above redescription because the original (Augener, 1922b) omits some information that we consider to be of taxonomic value: presence/absence of lateral groups on Area III and of bars on Area IV, and presence of heterogomph spinigers in early parapodia.

Habitat. Unknown.

Distribution. Chile (Juan Fernandez Islands*). Also recorded from New Zealand (Augener, 1924, 1927; Ehlers, 1904).

Perinereis cavifrons Ehlers

Fig.7a-c

Nereis (*Perinereis*) *cavifrons* Ehlers, 1920: 47-49, pl.1 figs 6-10.

Material examined. Indonesia: Java – Nordwachter Eiland, no further data, coll. Brock, HOLOTYPE (ZMB 6740).

Description. Holotype an entire epitoke, 138 setigers, about 60 mm length, 2.5 (5.0) mm width. Jaw length 32 mm. Eyes black. Prostomium three quarters as long as wide, with deep longitudinal median groove on anterior half. Antennae third as long as prostomium, longest tentacular cirri extend back 5 setigers. Jaws with 3-4 lateral teeth. Paragnaths: I=2 large cones; II=8,11; III unknown (damaged); IV=at least 17 cones, no bars (damaged); V=3 large cones in a triangle; VI=1 curved bar; VII-VIII=16 in 1-2 irregular rows. Notopodia anteriorly with 2 lobes, dorsal ligule 1.25 times median ligule. Dorsal cirrus 1.25 times length of dorsal notopodial ligule. Neuropodia with 2 equal lobes equal to length of notopodia. Ventral cirrus three quarters as long as ventral ligule (Fig.7a). Anal cirri extend back

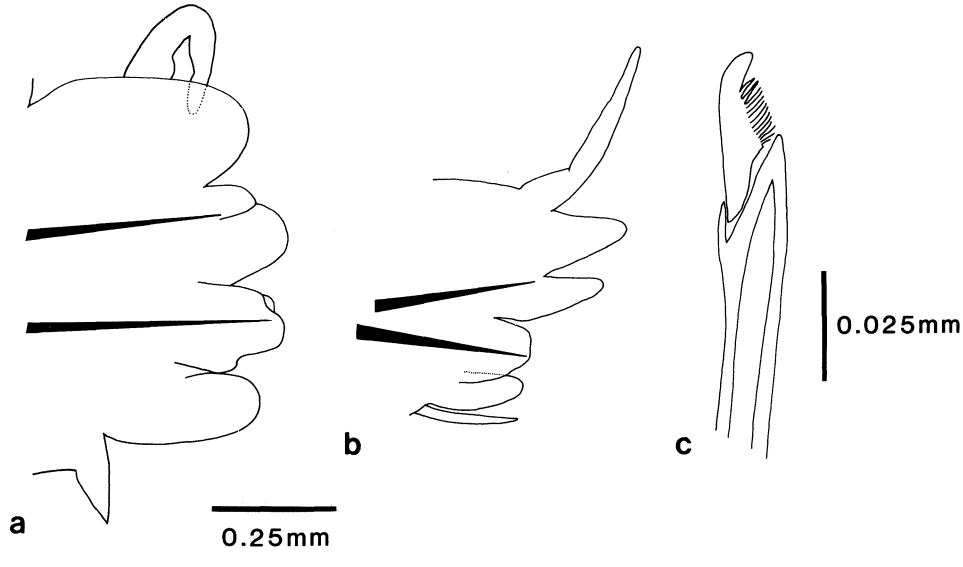

Fig.6. *Perinereis camiguinoides* SYNTYPE ZMB 5645. (a) parapodium 12; (b) parapodium 51; (c) heterogomph falciger, parapodium 12, neuropodium, subacicular fascicle.

4 setigers. Base of dorsal cirri inflated on setigers 1-4, ventral cirri inflated setigers 1-3. Epitokal modifications present from setiger 20 (Fig.7b). Many anterior setae broken, but heterogomph spinigers present from setiger 2 at least. Heterogomph falcigers (Fig.7c) similar to *P. cultrifera* (Grube, 1840) and *P. helleri* Grube, 1878, but have longer blades than those of most other species of *Perinereis*.

Remarks. Fauvel (1932) recorded two atokous specimens of *P. cavifrons* from India, and noted that the posterior parapodia were not modified (i.e., dorsal notopodial lobes not expanded). Fauvel's description is, however, too brief to be sure that his material is conspecific with the holotype. The poor condition of the pharynx of the holotype, and the lack of atokous type material will make it difficult to identify any future specimens as *P. cavifrons*.

Habitat. Unknown.

Distribution. Recorded only from Indonesia (Java*).

Perinereis cultrifera (Grube)

Fig.8a-c

Nereis cultrifera Grube, 1840: 74, fig.6.

Material examined. Mediterranean Sea: Naples, 40°51'N 14°17'E, 19 probable syntypes, ZMB 5653, [label reads "Neapel", no further data].

Description. Entire specimens and anterior fragments, all close to 111 setigers, 85 mm length, 4.5(5.5) mm width. Jaw length 18-30 mm. Faint narrow transverse pigmented bands on several anterior setigers, otherwise lacking pigmentation patterns. Prostomium four fifths as long as wide, eyes black. Antennae one third as long as prostomium, longest tentacular cirri extend back 4-5 setigers. Jaws with about 7 distinct teeth. Paragnaths: I=1-2; II=3-15, usually 5-9; III=5-11, lateral groups present in about half of all specimens; IV=6-20 cones, usually 10-15, no bars; V=2-5, usually 3-4; VI=1; VII-VIII=20-50, usually 30-40. Notopodia with 2 equal lobes anteriorly, and superior lobe on setigers 3-35. Dorsal cirrus as long as dorsal notopodial ligule anteriorly (Fig.8a). Dorsal notopodial ligule expanded up to 2 times length of median ligule on posteriormost 20-30 setigers (Fig.8b), but not greatly expanded. Neuropodia with 2 equal lobes throughout, three quarters as long as median notopodial ligule. Ventral cirrus three quarters length of neuropodium. Heterogomph spinigers present in ventral neuropodial fascicles from setiger 1. Heterogomph falcigers (Fig.8c) similar to *P. cavifrons* Ehlers, 1920 and *P. helleri* Grube, 1878, but have longer blades than those of most other species of *Perinereis*. Anal cirri extend back about 7 setigers.

Remarks. *Perinereis cultrifera* has been reported from most temperate oceans. Taxonomic confusion in *P. cultrifera* dates from the work of Fauvel (1932), who introduced several varieties or subspecies into the literature. Fauvel's own comments show that the supposed varieties do not designate geographically distinct populations and should not be considered of taxonomic significance. ("They are not even local races ... most are found wherever *P. cultrifera* is plentiful ... intermediate forms are frequent ..." Fauvel, 1932: 104.) Among the species synonymised with *P. cultrifera* by Fauvel (1932) are: *Nereis* (*Perinereis*) *floridana* Ehlers, 1868, *Nereis* (*Perinereis*) *perspicillata* Grube, 1878, *Nereis* (*Perinereis*) *striolata* Grube, 1878, *Nereis* (*Perinereis*)

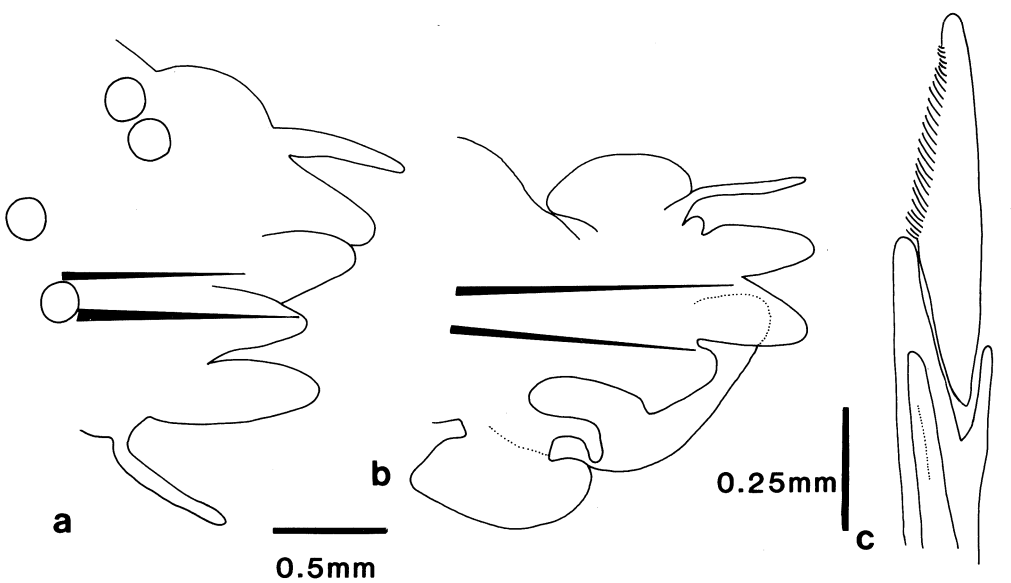

Fig.7. *Perinereis cavifrons* HOLOTYPE ZMB 6740. (a) parapodium 13; (b) parapodium 40; (c) heterogomph falciger, parapodium 13, neuropodium, subacicular fascicle.

helleri Grube, 1878, and *Nereis* (*Perinereis*) *obfuscata* Grube, 1878. *Perinereis hedenborgi* Kinberg, 1866 was synonymised with *P. cultrifera* by Hartman (1948). In this paper we have retained *P. helleri* Grube as a distinct species (see below), but have been unable to re-evaluate all records of *P. cultrifera*. Full revision of this group will require large samples of specimens from throughout the nominal range of the species. Additional distributional records that require verification include Marshall Islands (Reish, 1968), New Caledonia (Rullier, 1972), India (Fauvel, 1932), South Africa and Madagascar (Day, 1967), Japan (Izuka, 1912; Imajima, 1972).

Perinereis cultrifera is a widely used experimental animal in physiological and biochemical studies. In view of the current taxonomic confusion, all workers should include the provenance of experimental material used in all publications.

Habitat. Intertidal.

Distribution. Mediterranean Sea*, English Channel; more widespread records require verification.

Perinereis helleri (Grube)

Fig.9a-c

Nereis Perinereis helleri Grube, 1878: 81-82.–Horst, 1924: 172-173, pl.34, figs 3, 4.
Perinereis helleri Monro, 1931a: 14-15, fig.8a-c.–Russell, 1962: 7.–Rozbaczylo & Castilla, 1973: 220-221.–Hartmann Schröder, 1979: 116.
Perinereis cultrifera var. *helleri* Fauvel 1932: 105-106.
Perinereis camiguina Grube, 1878: 87, pl.4 fig.8.

Material examined. Philippines: Bohol Island 10°S 124'E, HOLOTYPE or SYNTYPE, *Nereis* (*Perinereis*) *helleri*, (WMNH, 310); Camiguin, 9°11'N 124°42'E, coll. Semper, 2 SYNTYPES *Perinereis camiguina* (ZMB Q3464).

Australia: Western Australia – Enderby Island, 20°36'S 116°30'E, 2 Apr. 1987, 4 (AM W203048); Kendrew Island, 20°29'S 116°32'E, 2 May 1973, 1 (WAM 179-86); Broome, 17°58'S 122°13'E, 2 Oct. 1982, 2 (NTM W2319), 30 Sept. 1984, 1 (NTM W2153), 2 Oct. 1984, 1 (NTM W2192), 1 (NTM W2201), 1 (NTM W2306), 1 (NTM W2318), 1 (NTM W2320); Rat Island, 16°24'S 123°07'E, 5 May 1974, 2 (WAM 479-86); Albert Island, 14°31'S 124°55'E, 14 July 1988, 1 (AM W202977); Descartes Island, 14°11'S 125°04'E, 20 July 1988, 2 (AM W202988), 1 (AM W202989); Corneille Island, 14°12'S 125°44'E, 19 July 1988, 2 (AM W202984), 1 (AM W202985), 2 (AM W202987); Careening Bay, 15°06'S 125°06'E, July 1988, 1 (AM W203091); Coronation Island, 15°05'S 124°56'E, 13 July 1988, 3 (AM W202998); Port Keats, 14°06'S 129°33'E, 23 July 1952, 2 (AM W202532); Burford Island, 11°29'S 131°57'E, 13 Oct. 1981, 1 (NTM W13); Port Essington, 11°16'S 132°09'E, 17 May 1985, 10 (NTM W403); Port Bremner, Danger Point, 11°07'S 132°20'E, 30 Apr. 1982, 2 (NTM W214); Oxley Island, 10°59'S 132°50'E, 20 Oct. 1982, 1 (NTM W420), 1 (NTM W421), 22 Oct. 1982, 1 (NTM W423); Annesley Point, 11°24'S 132°51'E, June 1984 (NTM W1772), 16 June 1984 (NTM W1806), 19 June 1974, 2 (NTM W2062); New Year Island, 10°55'S 133°01'E, 18 Oct. 1982 (NTM W412). Queensland – Torres Strait, Prince of Wales Island, 10°41'S 142°09'E, 29 May 1969, 1 (NMV 56466); Thursday Island, 10°35'S 142°13'E, 4 (AM W4842), Sept. 1908, 1 (AM G11246), 29 June 1976, 1 (AM W202533); Lizard Island, 14°40'S 145°28'E, 10 Dec. 1987, 1 (AM W203038), 1 (AM W203039); Low Islets, 16°23'S 145°34'E, Jan. 1917, 10+ (AM W418), Oct. 1931, 1 (AM W2928); Saxon Reef, 16°28'S 145°59'E, 4 May 1971, 1 (AM W202820); Cairns, Michaelmas Reef, 16°35'S 146°02'E, 8 Apr. 1979, 1 (AM W203049); Cairns, 16°55'S 145°46'E, 1 (AM W2356), 1 (AM W2383); Townsville, 19°16'S 146°49'E, 4 Aug. 1981, 1 (AM W202534); Shute Harbour, 20°18'S 148°47'E, 27 Sept. 1970, 1 (AM W4920); Port Molle, 20°20'S 148°51'E, 1 (AM W4829); Heron Island, 23°27'S 151°55'E, 1961, 4 (AM W197105); Gladstone, 23°51'S 151°16'E, 15 Aug. 1951, 1 (QM GH4000); Gladstone, Calliope River, 23°55'S 151°10'E, 1 (AM W199384); Dunwich, 27°30'S 153°24'E, 18 Mar. 1961, 1 (QM G7130). New South Wales – Lord Howe Island, 31°33'S 159°05'E, Nov. 1983, 1 (AM W198421), Nov. 1983, 1 (AM W198422), 1 (AM W198423).

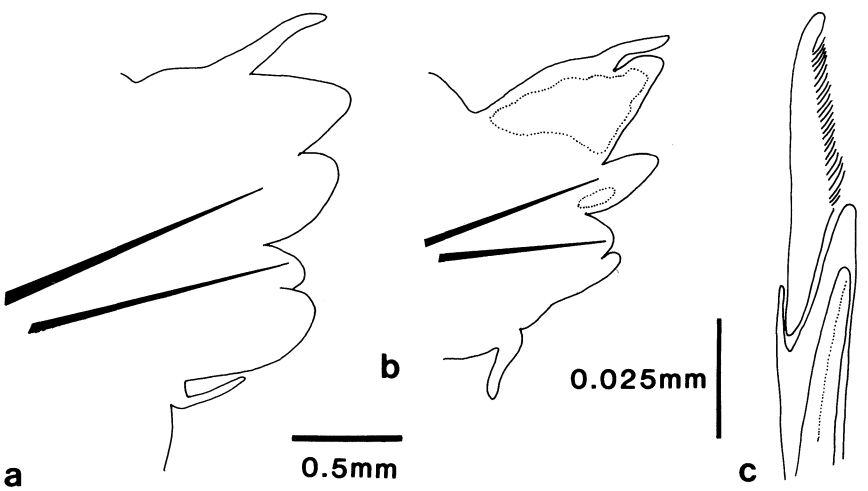

Fig.8. *Perinereis cultrifera* SYNTYPE ZMB 5653. (a) parapodium 15; (b) parapodium 90; (c) heterogomph falciger, parapodium 15, neuropodium, subacicular fascicle.

Description. Material examined up to 75 mm length, 3.5 mm width, 1.0-2.7 mm in jaw length, 155 setigers maximum. Colour in alcohol cream-pink or light brown. Prostomium with deep median furrow. Palps with large dome-shaped, cylindrical palpophores, globular palpostyles. Antennae triangular. Longest tentacular cirri extending to setiger 16 (range 8-16). Peristomium relatively short. Jaws robust, heavily sclerotised with about 8 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Areas VI, arranged as follows: I=2 (occasionally 1); II=4-17, III=11-20 in ovoid-rectangular patch with 2-3 cones displaced laterally, separate from main group, IV=10-19 (1 specimen with 4), V=3; VI=1 long straight bar, VII-VIII=21-40 in 2 rows. Area IV without bars.

Anterior notopodia with subtriangular notopodial ligules, equal to or slightly longer than median ligules (Fig.9a); superior lobes present. Dorsal cirri longer than dorsal ligule on all setigers. Neuropodia with superior lobe not visible, crescent-shaped inferior lobe and slightly shorter postsetal lobe with digitiform projection where aciculum emerges. Ventral ligule sub-triangular, ventral cirrus slightly shorter than ventral ligule. Dorsal notopodial ligule longer than median ligule in far posterior setigers but only slightly enlarged. Ventral ligule reduced posteriorly (Fig.9b). Ventral cirrus longer than ventral neuropodial ligule.

Neurosetae with homogomph spinigers and heterogomph falcigers (Fig.9c) in supra-acicular fascicle; heterogomph spinigers and falcigers in subacicular fascicle. Anal cirrus extend back about 9-10 setigers.

Remarks. We follow Fauvel (1932) in synonymising *Perinereis camiguina* Grube, 1878 with *P. helleri*. A number of epitokous specimens were collected by torchlight and dipnet in November and December of 1985 to 1987 at Lizard Island, Queensland. Two male specimens (AM W203038) were modified from setiger 19 onwards, a female (AM W203039) showed modification from setiger 21 onwards. Russell (1962) also reports the collection of epitokous specimens from Heron Island, Queensland.

Perinereis helleri was described as *P. cultrifera* var. *helleri* by Fauvel, 1932. Fauvel describes *P. cultrifera* as 'a species liable to extensive variation, especially as regards the armature of the pharynx, length of the dorsal cirri and the shape of the dorsal ligule', and his 1932 paper provides a key to six varieties of *P. cultrifera*. The Australian material described here is consistent with the syntypes of *Perinereis helleri*, and differs from the probable syntypes of *Perinereis cultrifera* from the Mediterranean Sea in paragnath counts for Area III (see description of *P. cultrifera* above). *Perinereis helleri* has 11 to 20 paragnaths on Area III, whereas *P. cultrifera* has 4 to 11. We therefore prefer to retain *P. helleri* as a distinct species pending a full revision of *P. cultrifera* and similar species on a worldwide basis.

The length of the dorsal cirri is very variable but always exceeds length of the notopodial ligule. Fauvel (1932) used this character to distinguish *P. helleri* from other taxa in the *P. cultrifera* complex, but our observations suggest that this character is too variable to be useful in this group. The heterogomph falcigers of *P. helleri* are similar to *P. cavifrons* Ehlers, 1920 and *P. cultrifera*, but have longer blades than those present in most other species of *Perinereis*.

The number and arrangement of paragnaths appears to be very consistent within the material examined from a wide range of localities.

Habitat. Occurs among coral rubble and sand, and on reef flats.

Distribution. Australia (northern, north-western and eastern Australia from 20°36'S 116°30'E, Enderby Island, Western Australia to 33°52'S 124°66'E, New Year Island, New South Wales). Also from the Philippines*, Indonesia, Ambon Reef, India, Chile.

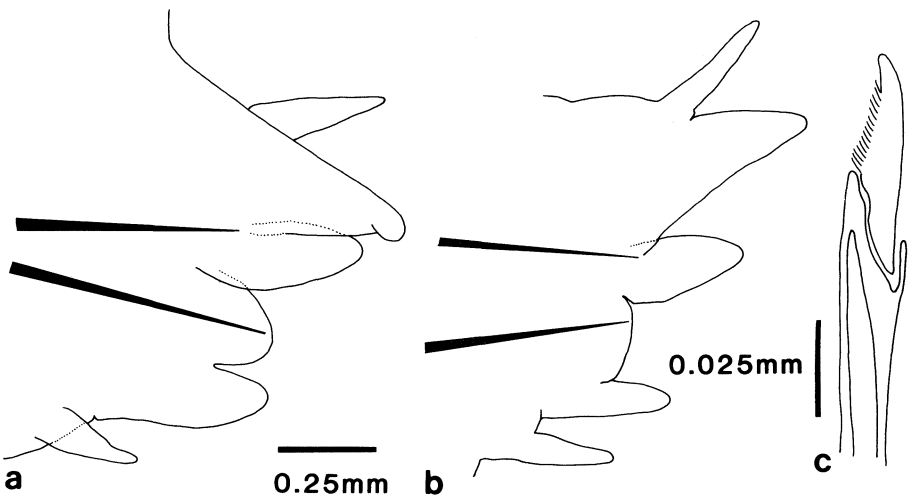

Fig.9. *Perinereis helleri* SYNTYPE ZMB Q3464. (a) parapodium 33; (b) parapodium 130; (c) heterogomph falciger, parapodium 33, neuropodium, subacicular fascicle.

Perinereis nigropunctata (Horst)

Fig.10a-e

Nereis nigro-punctata Horst, 1889: 171, pl.8 figs 1-3.
Perinereis nigro-punctata.–Gravier, 1901: 188-191, figs 190-193, table 2, pl. 11 fig.49.
Perinereis marjorii Southern, 1921: 595-597, figs 7, 8a-c, pl.23 fig.10 A-G.
Nereis (*Perinereis*) *yorkensis* Augener, 1922a: 24, fig.6a-e (fide Hartman, 1959).
Nereis (*Perinereis*) *nigropunctata.*–Horst, 1924: 171.
Perinereis nigropunctata.–Monro, 1931a: 16.–Fauvel, 1932: 107.–Fauvel, 1953: 210, fig.107b-f.–Day 1957: 84.–Day, 1962: 640.–Day, 1967: 337, fig.14.13r-v.–De Silva, 1965: 214.–Wu, 1967: 64-66, fig.9a-d.–Reish, 1968: 218.–Gibbs, 1971: 150.–Ben-Eliahu, 1972: 222.–Rullier, 1972: 90.–Hartmann-Schröder, 1979: 116-117, figs 203-206.
Perinereis striolata.–Hylleberg *et al.*, 1986: 10-13, fig.6A-O. (not Grube, 1878).

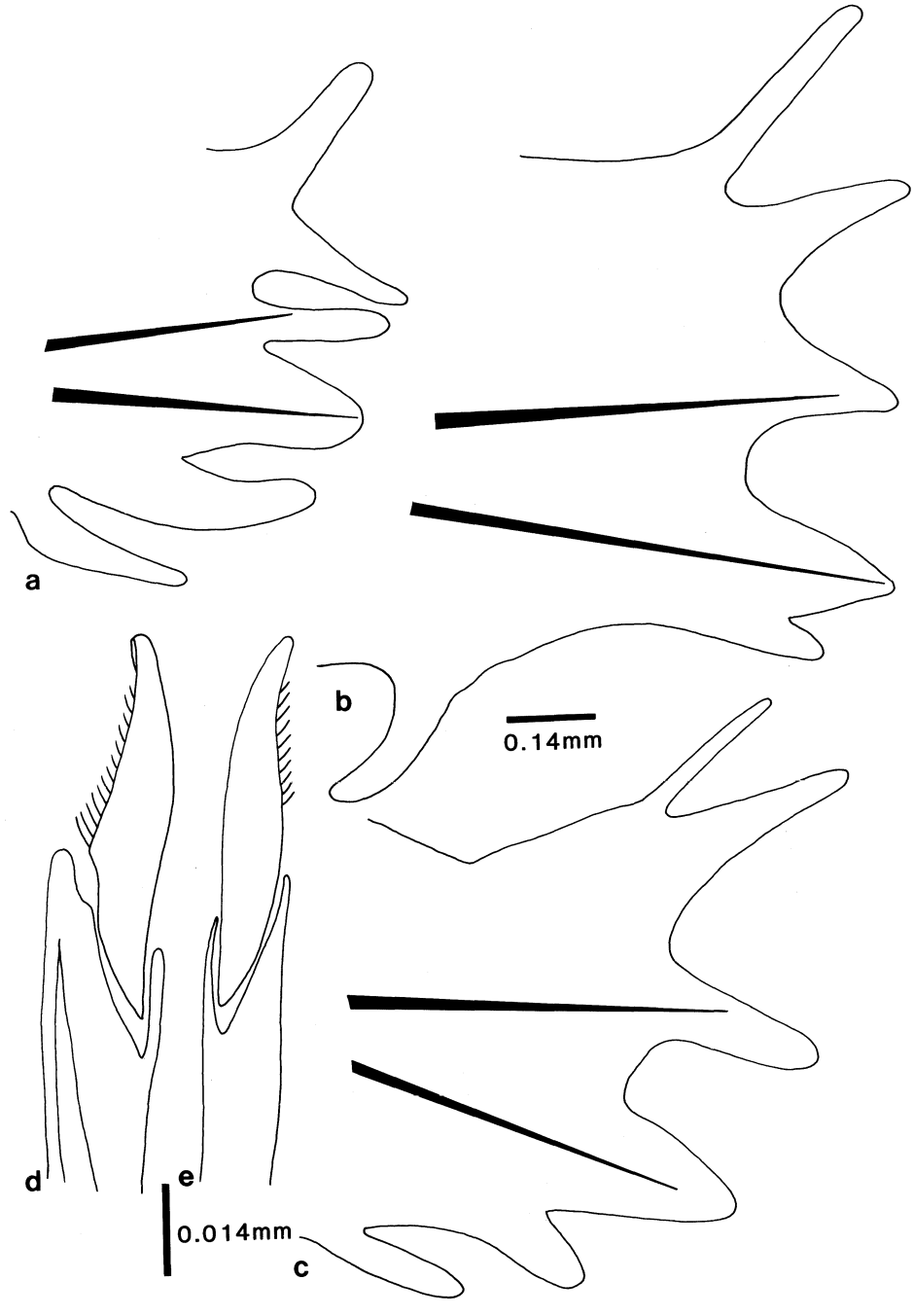

Fig.10. *Perinereis nigropunctata* AM W202565. (a) parapodium 3; (b) parapodium 10; (c) parapodium 50; (d) heterogomph falciger, parapodium 10, neuropodium, subacicular fascicle; (e) heterogomph falciger, parapodium 50, neuropodium, subacicular fascicle.

Material examined. Australia: Queensland – Cape York, SYNTYPE *Nereis* (*Perinereis*) *yorkensis*, 1 (HZM V9320); Western Australia – Dampier, 20°39'S 116°43'E, 26 June 1980, 1 (AM W202561); Gantheaume Point, 17°59'S 122°11'E, 31 July 1982, several (WAM 446-86); Broome, 17°58'S 122°13'E, 31 Oct. 1970, 1 (AM W4958); Willie Creek, 17°46'S 122°12'E, 2 Oct. 1984, 1 (NTM W2176), 20 Oct. 1984, 1 (NTM W2229); Fenelon Island, 14°08'S 125°04'E, 15 July 1988, 2 (AM W202979); East Montalivet Island, 15°06'S 125°18'E, 43 (AM W202982); Condillac Island, 14°06'S 125°33'E, 16 July 1988, 12 (AM W202981). Northern Territory – Buchanan Island, 11°49'S 130°39'E, 18 Nov. 1982, 1 (NTM W434). Queensland – Torres Strait, Prince of Wales Island, 10°41'S 142°09'E, 1 July 1976, 1 (AM W202559), July 1976, 2 (AM W202566), 2 July 1976, 1 (AM W202568); Putta Putta Beach, 10°45'S 142°36'E, 2 July 1976, 4 (AM W202565); Cape Yorke Peninsula, 11°37'S 142°38'E, 10 July 1976, 3 (AM W202560); Lizard Island, 14°40'S 145°28'E, 7 Mar. 1986, 4 (AM W202564); Trinity Inlet, 16°58'S 145°47'E, 9 Oct. 1970, 2 (AM W202567), 10 Dec. 1974, 1 (QM GH3915); Ross River, 19°22'S 146°44'E, 1 Oct. 1970, 1 (AM W4973); Mackay, 21°09'S 149°11'E, 24 Sept. 1970, 1 (AM W4928), 1 (AM W4948); Rockhampton, 23°22'S 150°32'E, Nov. 1917, 4 (AM W449); Gladstone, Calliope River, 23°55'S 151°10'E, 28 Jan. 1978, 1 (AM W202996).

Description. Material examined up to 180 mm length, 5 mm width, 0.7-4 mm in jaw length, 171 setigers maximum. Colour in alcohol cream-coffee brown with brown pigmentation on dorsum of some specimens. Prostomium trapezoidal with deep median furrow anteriorly, eyes small, with distinct lenses. Palps with robust, short palpophores and globular palpostyles. Antennae short, triangular. Longest tentacular cirri usually extend to setiger 3. Peristomium relatively long. Jaws robust, heavily sclerotised with approximately 7 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Areas VI, arranged as follows: I=4-9, II=12-39 in 2 curved rows; III=21-35 sometimes with 2-3 cones displaced laterally, separate from main group; IV=18-42, V=3 in triangle (very rarely 1), VI=1 bar, VII-VIII=32-46 in 2 rows. Area IV without bars. Paragnaths on oral ring tend to be larger than those on maxillary ring.

Anterior notopodia subtriangular, notopodial ligules conical, median ligules with small, superior lobes. Dorsal cirrus as long as dorsal notopodial lobes on anterior setigers, slightly longer than notopodial lobes posteriorly. Neuropodia with digitiform superior lobe; low, rounded inferior lobe; shorter postsetal lobe with straight border. Neuropodia similar in shape throughout all setigers. Ventral ligule elongate, digitiform, longer than remaining notopodial ligules, ventral cirrus approximately half as long as ventral ligule. Dorsal notopodial ligule increasing in length and greatly expanded in posterior setigers with dorsal cirrus distally inserted (Fig.10a,b).

Neurosetae with homogomph spinigers and 1-3 robust heterogomph falcigers in supra-acicular fascicle, heterogomph falcigers and spinigers in subacicular fascicle (Fig.10d,e). Anal cirri narrow, elongate.

Remarks. Male epitokes modified from setiger 16 onwards, females modified from setiger 19. Some specimens with brown pigmentation on dorsum of anterior setigers and prostomium (NTM W2176 and AM W202564).

Examination of type material of *Nereis* (*Perinereis*) *yorkensis* Augener, 1922a confirms the synonymy of that species with *P. nigropunctata*, as proposed by Hartman (1959).

Hylleberg *et al.* (1986) treated *P. nigropunctata* (along with *P. perspicillata* Grube, 1878, *P. obfuscata*, Grube, 1878, *P. marjorii* Southern, 1921, *P. yorkensis* Augener, 1922a and *P. dongalae* Horst, 1924) as a junior synonym of *P. striolata* Grube, 1878, however, as Hylleberg *et al.* did not examine type material we regard these synonymies as requiring verification.

Habitat. Occurs in estuaries, among mangroves, under rocks, sheltered reefs, and among oysters.

Distribution. Australia (northern Australia from 20°39'S 116°43'E, Dampier, WA to 23°22'S 150°32'E, Gladstone, Qld). Also from Singapore, Borneo (Labuan), Madagascar, Marshall Islands.

Perinereis obfuscata (Grube)

Fig.11a-c

Nereis (*Perinereis*) *obfuscata* Grube, 1878: 86-87.–Horst, 1924: 173-174, pl.34, figs 5, 6.
Perinereis cultrifera.–Fauvel 1930: 528.
Perinereis obfuscata.–Monro 1931a: 16-18, fig.10a-d.
Nereis obfuscata.–Ehlers, 1920: 51.
Perinereis striolata Hylleberg *et al.*, 1986: 10-13, fig.6A-O.
Perinereis cultrifera var. *obfuscata* Monro, 1939: 398-399.

Material examined. Philippines: no further data, vial labelled "HOLOTYPE or SYNTYPE" (WMNA 313).

Australia: Northern Territory – Port Bremner, Danger Point, 11°07'S 132°20'E, 30 May 1982, 4 (NTM W217); Port Essington, Coral Bay, 11°11'S 132°03'E, 16 May 1983, 10+ (NTM W401). Queensland – Cape Yorke Peninsula, 11°37'S 142°38'E, 12 July 1976, 1 (AM W202817); Lizard Island, 14°40'S 145°28'E, Jan. 1977, 10 (AM W202571), June 1977, 2 (AM W202572), Jan. 1977, 20 (AM W202814), 1976, 7 (AM W203050), 17 Jan. 1976, 2 (AM W203051), 30 Dec. 1985, 1 (AM W203052); Cooktown, 15°28'S 145°15'E, 26 June 1973, 1 (AM W202816); Mackay, 21°09'S 149°11'E, 24 Sept. 1970, 1 (AM W202570). Western Australia – Dampier, 20°39'S 116°43'E, 3 Mar. 1987, 2 (AM W202815); Irvine Island, 16°05'S 123°33'E, 1 (AM W202991); Port George IV Island, 15°20'S 124°39'E, 12 July 1988, 1 (AM W202978); East Montalivet Island, 15°06'S 125°18'E, 16 July 1988, 8 (AM W202983), Bernoulii Island, 15°00'S 124°47'E, 12 July 1988, 2 (AM W202999); Descartes Island, 14°11'S 125°04'E, 20 July 1988, 1 (AM W202990); Cassini Island, 13°57'S 125°37'E, 18 July 1988, 2 (AM W203090).

Description. Material examined up to 15 mm length, 2 mm width, 0.5-2.0 mm in jaw length, 63 setigers

maximum. Colour in alcohol cream, often with brown pigmentation on prostomium and 3 transverse patches on anterior dorsal setigers. Prostomium trapezoidal with shallow anterior median furrow. Palps with cylindrical palpophores, rounded palpostyles. Longest tentacular cirri extending to setiger 1. Peristomium relatively long. Jaws with approximately 7 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Area VI, arranged as follows: I=2-9, II=7-27 in 2-3 crescent-shaped rows (usually between 10-20), III=13-32, sometimes with 1-2 cones displaced laterally, separate from the main group, IV=10-31, V=1 (very rarely 2), VI=1 short crescent-shaped bar, VII-VIII=22-38 in 2 rows. Area IV without bars.

Anterior notopodia with subtriangular notopodial ligules, slightly shorter, conical median ligules. Superior notopodial lobes present. Dorsal cirrus slightly longer than dorsal notopodial ligule. Dorsal notopodial ligule longer than remaining ligules. Neuropodia with digitiform superior lobe and conical inferior lobe, approximately equal in length. Postsetal lobe slightly convex, shorter than superior and inferior lobes. Ventral ligule conical, ventral cirrus two thirds to three quarters as long as ventral ligule (Fig.11a).

Notopodial ligule of median and posterior notopodia enlarged, triangular, approximately twice as long as superior and inferior neuropodial lobes. Dorsal cirrus distally inserted on posterior setigers, extending slightly beyond tip of notopodial ligule. Ventral neuropodial ligules elongate, triangular, ventral cirrus three quarters as long as ventral ligule (Fig.11b).

Neurosetae with homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph falcigers and few heterogomph spinigers in subacicular fascicle (Fig.11c).

Remarks. Male epitokes are modified from setiger 14 to 15 onwards, and females are modified from setiger 18 to 19. In December 1985 a number of epitokous specimens were collected using a dipnet and torchlight in Lizard Island Lagoon, Queensland (AM W203052). Non-epitokous forms were collected in January 1976 at Lizard Island among encrusting and nestling coral block fauna (AM W203050), (AM W203051).

Monro (1931a) distinguished *Perinereis obfuscata* from *P. cultrifera* by the position of epitokal modification, but subsequently (Monro, 1939) he refers to *P. obfuscata* as a variety of *P. cultrifera*. Until a detailed analysis of geographic variation is carried out, we prefer to retain *P. obfuscata* as a distinct species.

Habitat. Occurs on intertidal mud flats, under rocks and encrusting fauna.

Distribution. Australia (northern Australia from 11°07'S 132°20'E, Port Bremner, NT to 21°09'S 149°11'E, Mackay, Qld). Also from the Philippines*.

Perinereis pseudocamiguina Augener

Fig.12a-c

Nereis (Perinereis) camiguina Augener, 1922b: 183-186, fig.5a-f, tafelfig. 3.

Material examined. Chile: Juan Fernandez Islands, 34°S 80°W, "zwischen röhren von Vermetiden", Jan. 1894, coll. Plate, 17 SYNTYPES, (ZMB 3726); Juan Fernandez, "ex Museum Stockholm", 5 SYNTYPES, HZM V9257.

Description. All syntypes entire, from 45 setigers, 11 mm length, 0.8(1.2) mm width, jaw length 7 mm to 79 setigers, 51 mm length, 2.4(3.3) mm width, jaw length 23 mm. Colour in alcohol pale brown with no obvious pigmentation patterns. Prostomium as long as wide. Antennae half as long as prostomium. Longest tentacular cirri extend to setigers 2-3. Jaws with 4-5 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Area VI, arranged as follows: I=1-2 (usually 2), II=8-16 (usually 10-14), III=7-13 (no separate lateral groups), IV=10-30 cones and 0-2 smooth bars, V=3-4 (usually 3), VI=1 straight bar, VII-VIII=39-54 in 2 rows. Bars are present on Area IV in 6 of 22 specimens.

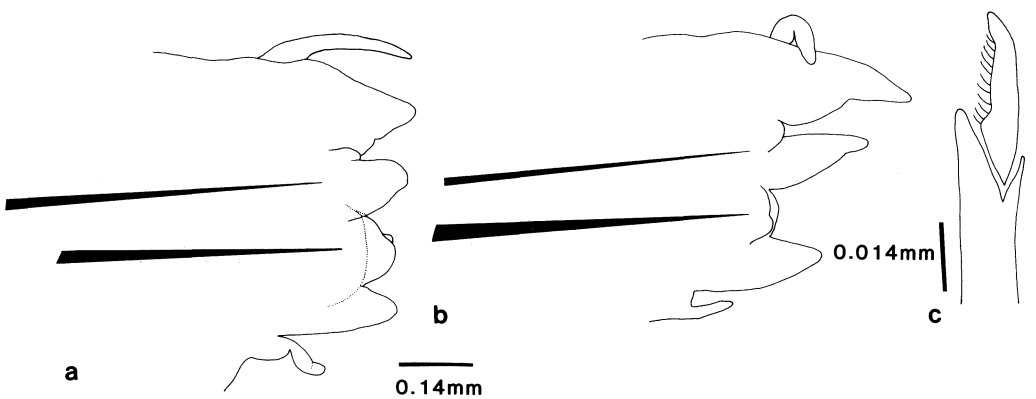

Fig.11. *Perinereis obfuscata* SYNTYPE WMNH 313. (a) parapodium 10; (b) parapodium 50; (c) heterogomph falciger, parapodium 50, neuropodium, subacicular fascicle.

Anterior notopodia with 2 equal subtriangular lobes. Dorsal cirrus about twice as long as dorsal notopodial lobe. Anterior neuropodia with 2 lobes, acicular ligule as long as notopodial lobes and with postsetal lobe. Ventral neuropodial ligule about three quarters as long as acicular lobe (Fig.12a). Ventral cirrus two thirds to three quarters as long as median ligule (Fig.12b). Dorsal notopodial lobe greatly expanded on posterior setigers, about 2-3 times as long as inferior notopodial lobe. Dorsal cirrus distally inserted on posterior setigers, extending beyond tip of dorsal notopodial ligule. Median and ventral neuropodial lobes similar in length. Ventral cirrus three quarters as long as ventral neuropodial ligule.

Neurosetae homogomph spinigers and heterogomph falcigers in supra-acicular fascicle (Fig.12c), heterogomph falcigers and heterogomph spinigers (present from setiger 1) in subacicular fascicle.

Remarks. *Perinereis pseudocamiguinoides* is similar to another Group 1B species (see Appendix), *P. amblyodonta* (Schmarda, 1861), but can be distinguished from that species by having fewer paragnaths on Areas II, III and IV, and in lacking separate lateral groups of paragnaths on Area III.

Distribution. Chile (Juan Fernandez Islands*).

Perinereis pseudocavifrons Fauvel

Fig.13a-f

Perinereis pseudocavifrons Fauvel, 1930: 529-532, fig.5.

Material examined. New Caledonia: "No. 41", 1928, coll. M. Pruvot, 1 SYNTYPE (MNHN UB306); Kuto, Iles des Pines, 1928, coll. M. Pruvot, 1 SYNTYPE (MNHN Bocal A98).

Description. Both specimens anterior fragments, 48-62 setigers, 15 mm length, 1.0(1.5) mm width, jaw length 13 mm. No pigmentation. Prostomium as long as wide. Antennae two thirds as long as prostomium. Tentacular cirri extend back to setiger 3. Jaws translucent amber, with 5-6 lateral teeth. Pharynx with conical paragnaths on both rings, smooth bars also present on Area VI, arranged as follows: I=0-2, II=4-6, III=6-9 (no separate lateral groups), IV=8-11 cones, V=0, VI=1 long bar, VII-VIII=18-24 in 2 rows. Bars absent from Area IV.

Anterior notopodia with 2 lobes similar in length, and dorsal cirri 1.25 times as long as notopodial lobes. Anterior neuropodia with 2 lobes, ventral ligule 1.25 times as long as acicular-postsetal lobes on anterior 20-25 setigers. Ventral cirri about as long as ventral ligule (Fig.13a,b,c). Dorsal notopodial lobe greatly expanded on posterior setigers, 2-3 times as long as median notopodial lobe from about setiger 50 (Fig.13d). Neuropodial lobes similar in length on posterior setigers. Both specimens incomplete posteriorly.

Neurosetae homogomph spinigers and heterogomph falcigers in the supra-acicular fascicle, heterogomph falcigers and heterogomph spinigers (present from setiger 1) in subacicular fascicle (Fig.13e,f).

Remarks. We have provided the above redescription because the original (Fauvel, 1930) omits some information that we consider to be of taxonomic value: presence/absence of lateral groups on Area III and of bars on Area IV on the pharynx, and the presence of heterogomph spinigers in early parapodia.

Habitat. Unknown.

Distribution. New Caledonia*.

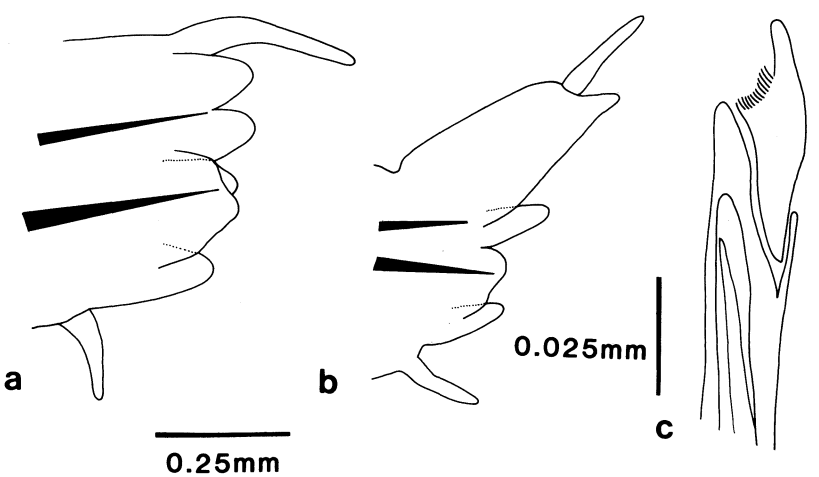

Fig.12. *Perinereis pseudocamiguina* SYNTYPE ZMB 3726. (a) parapodium 10; (b) parapodium 63; (c) heterogomph falciger, parapodium 10, neuropodium, supra-acicular fascicle.

Perinereis seurati Gravier

Fig.14a-g

Nereis (*Perinereis*) *seurati* Gravier, 1905: 243-247.

Material examined. South Pacific Ocean: Gambier Island, Taumotu Archipelago, 23°S 135°E, coll. L.G. Seurat, 1903, 9 PARATYPES, (MNHN Bocal A98 bis).

Description. Size range of paratypes: 86 setigers, 48 mm length, 1.8(3.0) mm width to 122 setigers, 103 mm length, 2.5(3.6) mm width (entire specimens). Prostomium as long as wide, antennae half as long as prostomium. Eyes black. Longest tentacular cirri extend back 9-12 setigers. Jaws dark brown, with about 6 teeth.

Pharynx with conical paragnaths on both rings, smooth bars also present on Area VI, arranged as follows: I=1-2 (usually 2), II=5-10, III=9-13, including 1-2 in separate lateral groups, IV=9-15 cones, V=2-3 (usually 3), VI=1-2 bars, VII-VIII=27-31 in 2 rows. Bars absent from Area IV.

Anterior notopodia with 2 lobes of similar length, dorsal cirrus about 1.25 times as long as notopodial lobes. Neuropodia anteriorly with 2 lobes, ventral ligule about 1.25 times as long as acicular lobe (Fig.14a,b). Superior neuropodial lobe with digitiform presetal and postsetal process on anterior 20 setigers, absent posteriorly. Posterior notopodia with 2 lobes, dorsal lobe barely longer than ventral lobe, dorsal cirrus basally inserted and as long as dorsal lobe. Posterior neuropodia with 2 lobes about equal in size, and about three quarters as long as notopodial lobes (Fig.14c,d). Ventral cirri about three quarters as long as neuropodial lobes throughout. Anal cirri extend back 3-4 setigers.

Neurosetae homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph

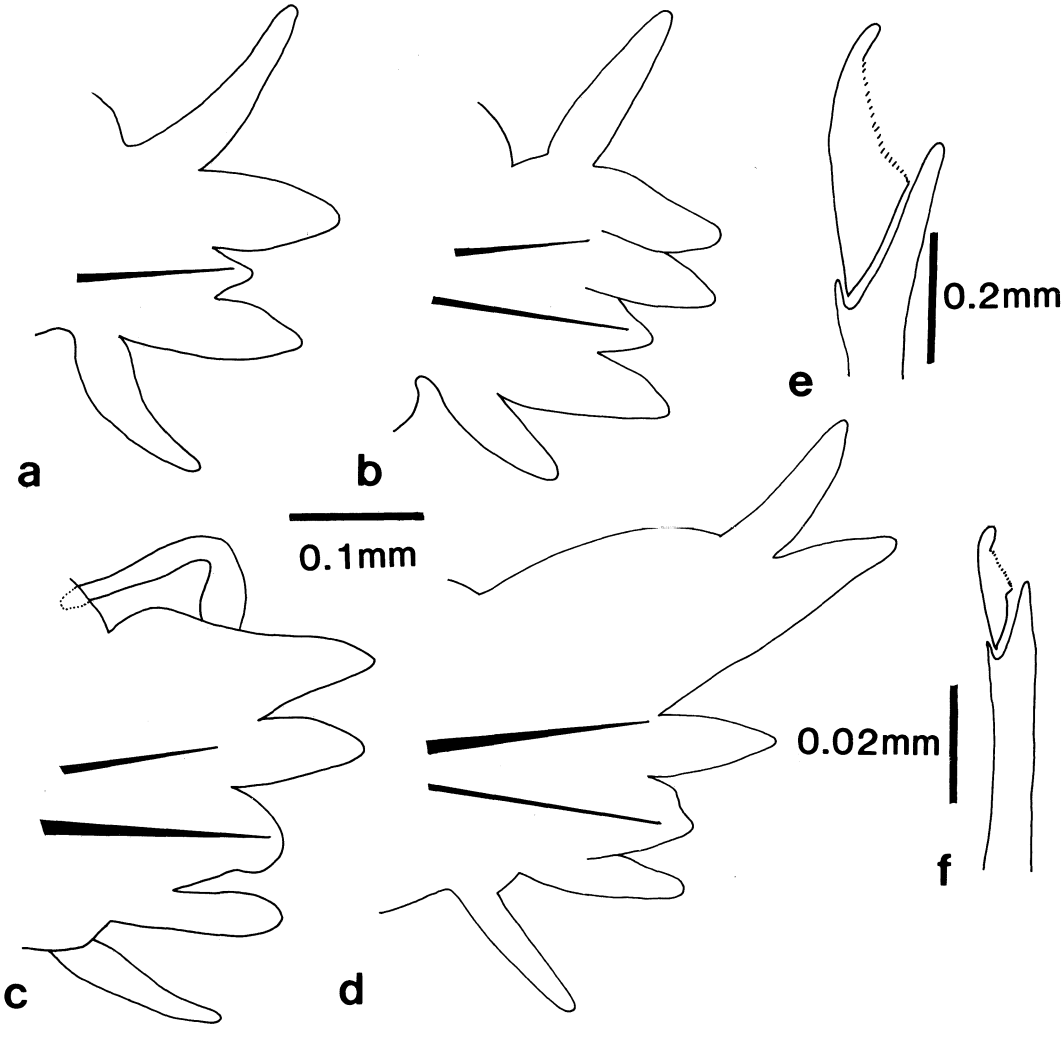

Fig.13. *Perinereis pseudocavifrons* SYNTYPE MNHN Bocal A98. (a) parapodium 1; (b) parapodium 3; (c) parapodium 25; (d) parapodium 47; (e) heterogomph falciger, parapodium 3, neuropodium, subacicular fascicle; (f) heterogomph falciger, parapodium 25, neuropodium, subacicular fascicle.

falcigers and heterogomph spinigers (present from setiger 1) in subacicular fascicle (Fig.14e,f).

Modified parapodia in epitoke commence from setiger 22 (Fig.14g).

Remarks. *Perinereis seurati* is unusual among species of *Perinereis* in that the number of bars present on Area VI of the pharynx is variable, specimens with either 1 or 2 bars being equally

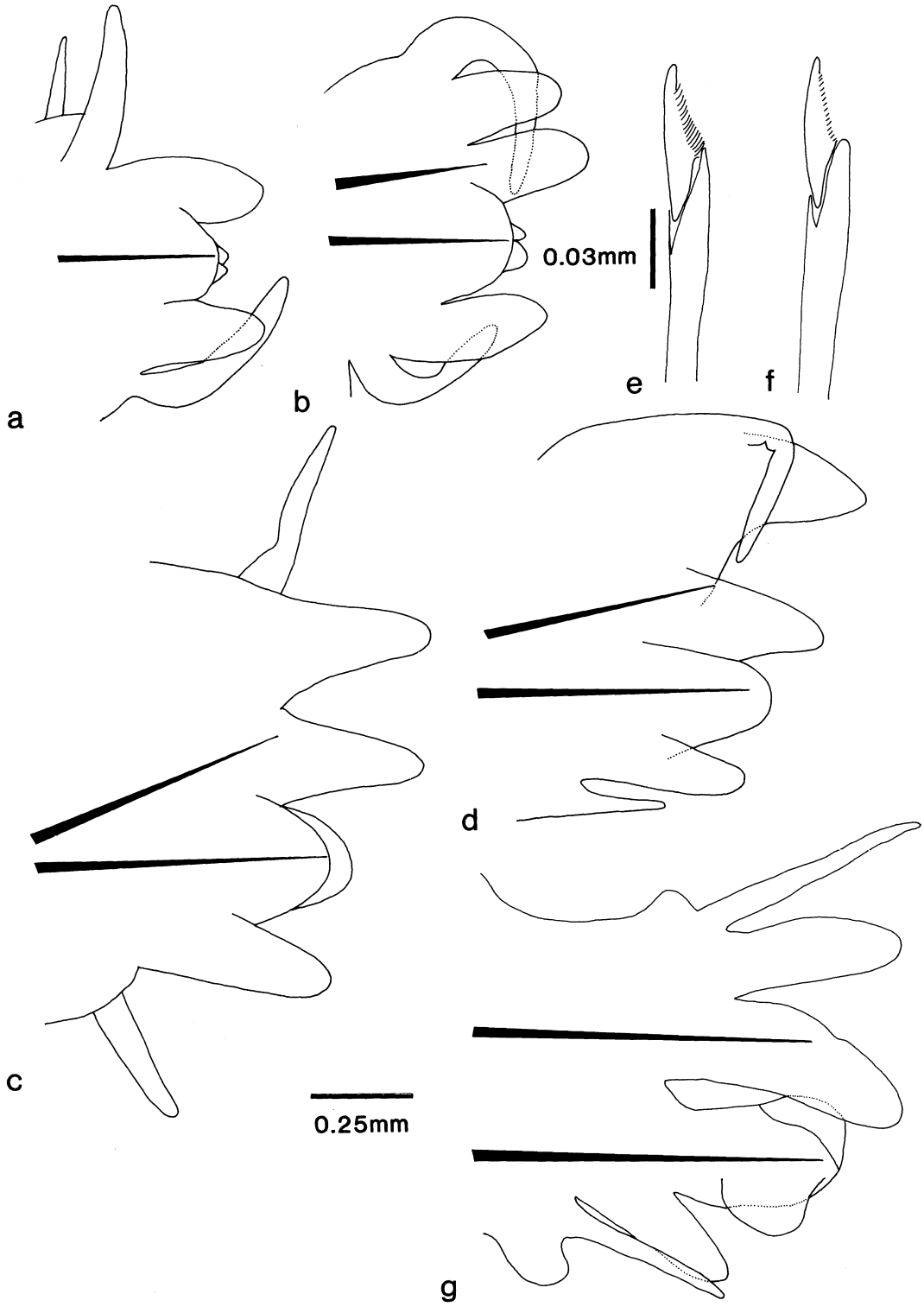

Fig.14. *Perinereis seurati* PARATYPE MNHN Bocal A98 bis. (a) parapodium 1; (b) parapodium 3; (c) parapodium 50; (d) parapodium 110; (e) heterogomph falciger, parapodium 110, neuropodium, subacicular fascicle; (f) heterogomph falciger, parapodium 3, neuropodium, subacicular fascicle; (g) parapodium 49, epitoke.

common.

Augener (1924b) synonymised *P. seurati* with *P. camiguina* Grube, however this species has fewer oral ring paragnaths, particularly on Area II, and also appears to be unique in having either 1 or 2 bars on Area VI. We followed earlier workers in synonymising *P. camiguina* with *P. helleri* Grube (see above), but retain *P. seurati* as a distinct species.

Habitat. Freshwater.

Distribution. Known only from Gambier Island*.

Perinereis singaporiensis Grube

Fig.15a-e

Nereis (Perinereis) singaporiensis Grube, 1878: 84-85.–Horst, 1924: 169-170, pl.34 figs 1-2.

Perinereis singaporiensis.–Pruvot, 1930: 55-56, pl.3 figs 62-64.–Fauvel, 1932: 103.–Wu, 1967: 67-68.–Hylleberg, *et al.*, 1986: 9-10, fig.5A-K.

Material examined. Singapore no further data, 1 type (WMNH 316).

Australia: Northern Territory – Buchanan Island, 11°49'S 130°39'E, 18 Nov. 1982, 1 (NTM W429), 1 (NTM W430), 1 (NTM W435), 1 (NTM W436); Darwin, East Arm, 12°30'S 130°55'E, 21 Oct. 1983, 1 (NTM W1427), 31 Jan. 1984, 1 (NTM W1631), 1 (NTM W1646); Lee Point, 12°20'S 130°54'E, 13 Dec. 1981, 1 (NTM W73); Cape Hotham, Escape Cliffs, 12°04'S 131°18'E, 26 May 1985, 1 (NTM W2877); Adelaide River, 12°28'S 131°21'E, 20 May 1985, 1 (NTM W2901), 1 (NTM W2902), 1 (NTM W2904), 1 (NTM W2905), 23 May 1985, 1 (NTM W3013), 1 (NTM W3014), 1 (NTM W3015), 1 (NTM W3016), 12 Nov. 1985, 2 (NTM W3279); Port Essington, Victoria Settlement, 11°16'S 132°09'E, 12 Nov. 1985, 1 (NTM W3282), 2 (NTM W3284), 1 (NTM W3296),

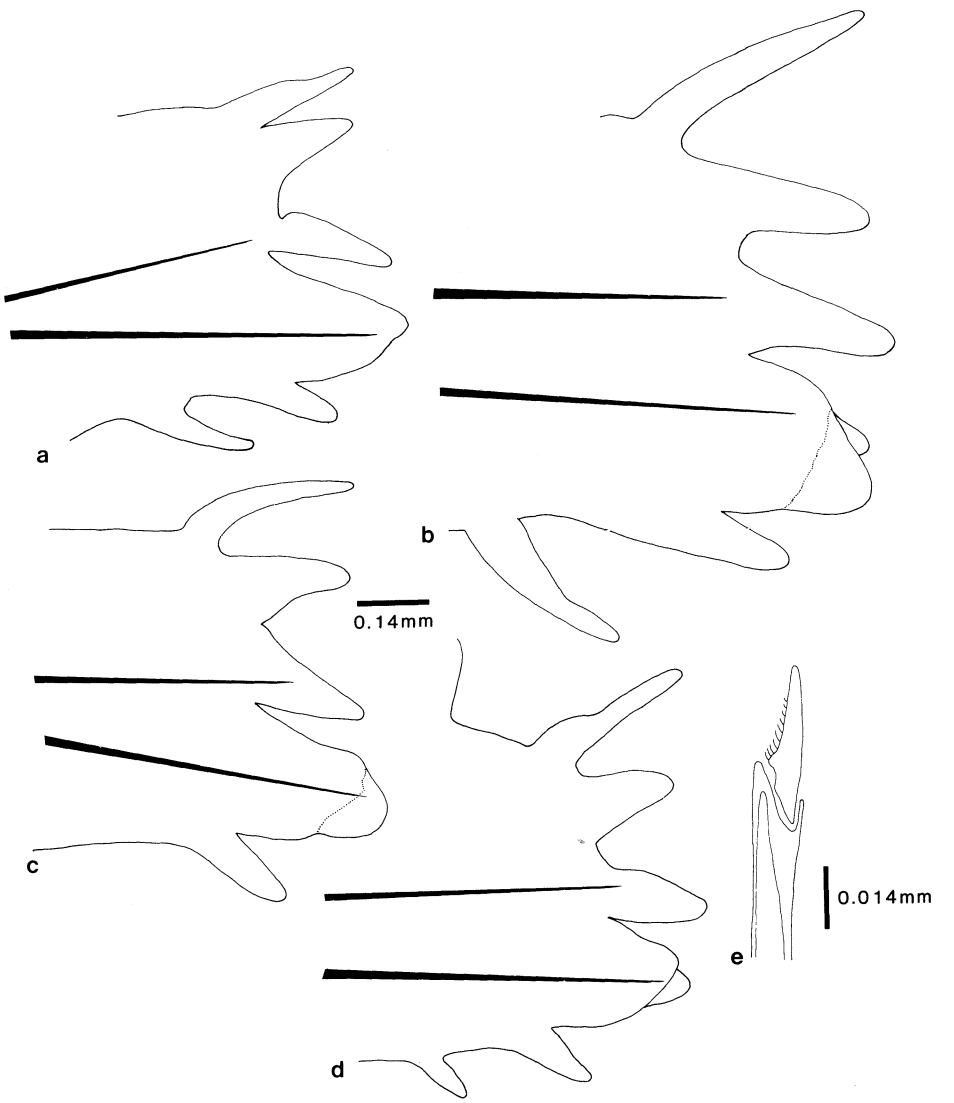

Fig.15. *Perinereis singaporiensis* NTM W2600. (a) parapodium 3; (b) parapodium 10; (c) parapodium 25; (d) parapodium 50; (e) heterogomph falciger, parapodium 10, neuropodium subacicular fascicle.

2 (NTM W3298), 1 (NTM W3304), 1 (NTM W3306); Port Essington, Mangrove Point, 11°24'S 132°11'E, 15 Nov. 1985, 1 (NTM W3201), 1 (NTM W3208); Minimini Creek, 11°43'S 132°39'E, 19 June 1984, 3 (NTM W1786), 1 (NTM W1787), 2 (NTM W1790); Oxley Island, 10°59'S 132°50'E, 20 Oct. 1982, 1 (NTM W425); Annesley Point, 11°24'S 132°51'E, 19 June 1984, 1 (NTM W2062). Western Australia – Shirley Island 16°17'S 123°26'E, 26 July 1988, 1 (AM W203026); Irvine Island, 16°05'S 123°33'E, July 1988, 1 (AM W203025); Wyndham, 15°28'S 128°06'E, 26 Mar. 1985, 1 (NTM W2599), (NTM W2600); Wyndham, Parry Creek, 15°37'S 128°17'E, 24 Mar. 1985, 1 (NTM W2609), (NTM W2626); Coronation Island, 15°05'S 124°56'E, 13 July 1988, 1 (AM W203027).

Description. Material examined 12 mm-58 mm length, 0.5-3.5 mm width, 0.6-2.2 mm, jaw length, 144 setigers maximum. Colour in alcohol cream with a longitudinal brown pigmentation stripe on dorsum of anterior and median setigers, fading posteriorly. Prostomium trapezoidal, elongate, rectangular anteriorly. Eyes with distinct lenses. Palps with small round palpostyles. Antennae triangular. Longest tentacular cirri extending to setiger 4. Peristomium relatively long. Jaws with 6-7 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Area VI, arranged as follows: I=1-2, II=7-21, III=14-41 in a central patch with up to 8 cones laterally placed, separate from this group, IV=14-36, V=3, VI=2, VII=34-56 in 2 rows. Paragnaths on the maxillary edge of the oral ring smaller than those in the oral or posterior position. Area IV without bars.

Anterior notopodia with conical dorsal and median ligules of equal length. Superior lobes absent. Dorsal cirrus slightly shorter than dorsal ligule. Neuropodia with digitiform acicular and slightly shorter, rounded postsetal lobes. Ventral ligule dome-shaped, ventral cirrus one half to two thirds as long as ventral ligule. Median and posterior notopodia with triangular ligules longer than neuropodial lobes. Dorsal notopodial ligule glandular, dorsally convex in posterior setigers, longer than median ligules, but not greatly expanded. Dorsal cirrus shorter than dorsal ligule. Other parapodial lobes posteriorly similar to anterior setigers (Fig.15a-d). Anal cirri fine, tapering, extend back for 6 setigers.

Neurosetae with homogomph spinigers and heterogomph falcigers in the supra-acicular fascicle, heterogomph spinigers and heterogomph falcigers in the subacicular fascicle (Fig.15e).

Remarks. The type material examined was in poor condition and has been dehydrated at some stage. While the type specimen was in too poor condition on which to base the expanded description of this species, the type material does agree with the above description with regards to the paragnath count and distribution, setal types and number of setal lobes, although their shape is indeterminable. Material reported by Horst (1924) from Indonesia, Pruvot (1930) from New Caledonia, Fauvel (1932) from India and Wu (1967) from Taiwan apparently all refer to the same species although this material has not been examined. This is the first record of *P. singaporiensis* from Australia.

A single specimen from Western Australia (AM W203027) was found to possess two cones on Area VI of the pharynx in addition to bars. The same characteristic has been observed in some material by Horst (1924), Pruvot (1930) and Wu (1967).

Distribution. Australia (northern Australia from 16°17'S 123°26'E, Shirley Island, WA to 15°05'S 124°56'E, Coronation Island, NT). Also from India, Indonesia, Philippines*, Taiwan and New Caledonia.

Perinereis suluana (Horst)

Fig.16a-f

Nereis (*Perinereis*) *suluana* Horst, 1924: 175, pl.33 fig.9.-Monro, 1926: 318.
Perinereis suluana.-Fauvel, 1932: 102-103.

Material examined. Australia: Western Australia – Dampier Archipelago, Roly Rock, 20°30'S 116°30'E, 27 Mar. 1987, 1 (AM W203030), 31 Mar. 1987, 9 (AM W203034), 3 (AM W203036), 27 Mar. 1987, 3 (AM W203037); Kendrew Island, 20°29'S 116°37'E, 28 Mar. 1987, 20 (AM W203029), 3 (AM W203032), 25 Mar. 1987, 2 (AM W203035); Brigadier Island, 20°27'S 116°37'E, 3 Apr. 1987, 3 (AM W203028); Port George IV Island, 15°20'S 124°39'E, July 1988, 3 (AM W203089); Lucas Island, 15°16'S 124°29'E, 24 July 1988, 1 (AM W203031); East Montalivet Island, 15°06'S 125°18'E, 15 July 1988, 3 (AM W203033).

Description. Material examined up to 35 mm length, 1.8 mm width, 1.1-1.7 mm jaw length, 70 setigers maximum. Colour in alcohol cream with olive-brown to tan pigmentation on tentacular cirri, anal cirri, edges of prostomium, dorsolateral edges of peristomium and on dorsum of setigers from setiger 2. First setiger without pigment. A darker brown pigmentation patch present in medioventral position on anterior side of first 10-15 parapodia. Dorsal pigmentation consists of 2 transverse bands; anteriormost band narrower than posterior band on each setiger. Transverse bands fade posteriorly, broader posterior band absent from median to posterior setigers, anterior band becoming narrower, persisting as 2 transverse bands in median and posterior setigers. Prostomium narrow, trapezoidal with anterior median furrow. Eyes black with distinct lenses, posterior pair round, anterior pair ovoid. Palps cylindrical, with globular palpostyles. Antennae leaf-shaped. Longest tentacular cirri extending to setiger 3 or 4. Peristomium relatively long. Jaws robust with approximately 6-7 teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Area VI arranged as follows: I=1-4 (usually 2), II=6-17, III=7-21, IV=9-22, V=0, VI=1 short rhomboidal paragnath, VII-VIII=0. Area IV without bars. Paragnaths long and slightly recurved (particularly those on Area II).

Anterior notopodia with triangular dorsal ligules, and

shorter, subconical median ligules, superior lobes absent. Dorsal cirrus as long as dorsal notopodial ligule. Neuropodia with low, rounded acicular and postsetal lobe. Ventral ligule subconical, as long as median ligule, ventral cirrus fine, tapering, three quarters as long as ventral ligule (Fig.16a-c). Median and posterior notopodia with dorsal notopodial ligule greatly expanded, triangular in posterior setigers (Fig.16d). Other parapodial lobes posteriorly similar to anterior setigers.

Neurosetae homogomph spinigers and heterogomph falcigers in the supra-acicular fascicle, heterogomph spinigers and heterogomph falcigers in subacicular fascicle. Falcigers short-bladed with coarsely denticulated blades, particularly in ventralmost position of subacicular fascicle (Fig.16e,f). Anal cirri short, blunt extend approximately 3-4 setigers. Pygidium long, cone-shaped.

Remarks. The Australian material agrees well with previous descriptions. Fauvel (1932) mentions the presence of a very small paragnath on the right side of Area VII of the pharynx. One of our specimens (AM W203029) had a single cone in addition to bar in Area VI. This species is readily identifiable by the absence of paragnaths in Areas VII-VIII and very distinctive dorsal pigmentation. (The only other species of *Perinereis* in which Areas VII-VIII are bare is *P. matthaii* Aziz, 1938 from India; see Appendix.) The variable form of the 'bars' in Area VI, however, indicates that the generic status of this species is questionable (see comments after generic definition). Two male specimens, one collected from Port George IV Island, Kimberley Group, Western Australia in July 1989 (AM W203089), and another from Kendrew Island, Dampier Archipelago in March 1987 (AM W203032) showed epitokal modification from setiger 15 onwards. Dorsal pigmentation varied from dark olive brown to light tan and tended to be very much lighter in small specimens.

Habitat. In dead coral substrate in 10 m depth water.

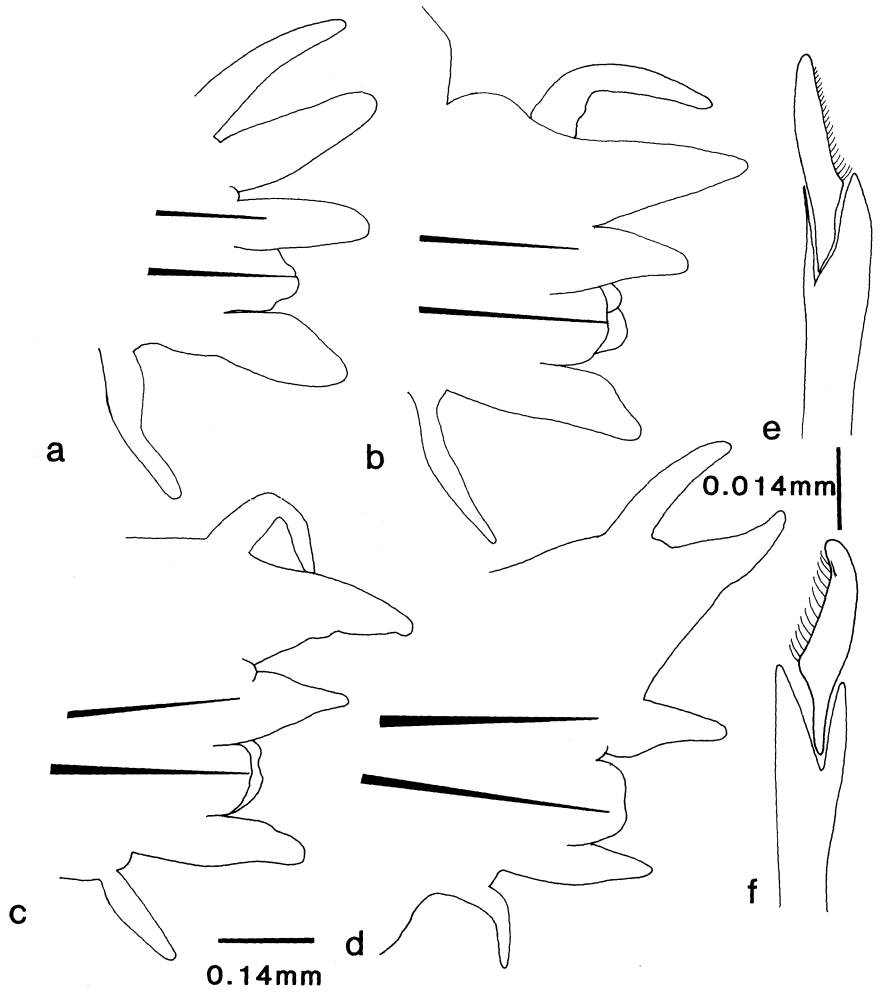

Fig.16. *Perinereis suluana* AM W20328. (a) parapodium 3; (b) parapodium 10; (c) parapodium 25; (d) parapodium 50; (e) heterogomph falciger, parapodium 25, neuropodium, subacicular fascicle; (f) heterogomph falciger, parapodium 50, neuropodium, subacicular fascicle.

Distribution. Australia (north-western WA from Roly Rock, 20°30'S 116°30'E to East Montalivet Island, 15°06'S 125°18'E). Also from Malay Archipelago, Philippines (Sulu Archipelago), Papua New Guinea (Admiralty Islands) and New Caledonia.

Perinereis vancaurica (Ehlers)

Fig.17a-h

Nereis vancaurica Ehlers, 1868: 503, pl.20.–Ehlers, 1904: 25-26.–Fauvel, 1923: 34.

Nereis languida.–Grube, 1868: 15, pl.2 fig.1a-b.

Nereis (Perinereis) vancaurica.–Grube, 1878: 83-84.–Augener, 1922: 23-24.

Perinereis horsti Gravier, 1901: 182, figs 182-184, pl.11 fig.47.

Perinereis vancaurica Monro, 1931a:14.–Monro, 1931b: 38-41, fig.2a-f.

Perinereis vancaurica.–Kott, 1951: 88, 111.–Fauvel, 1932: 103.–Fauvel, 1953: 205-206, fig.105f-g.–Russell, 1962: 7.–Day 1967: 334, fig.14.12k-o.–Wu, 1967: 70-71.–Wu *et al.*, 1985: 195-197, fig.111A-J.–Rullier, 1972: 90-92.–Hartmann-Schröder, 1979: 117, figs 207-210.–Lana, 1984:

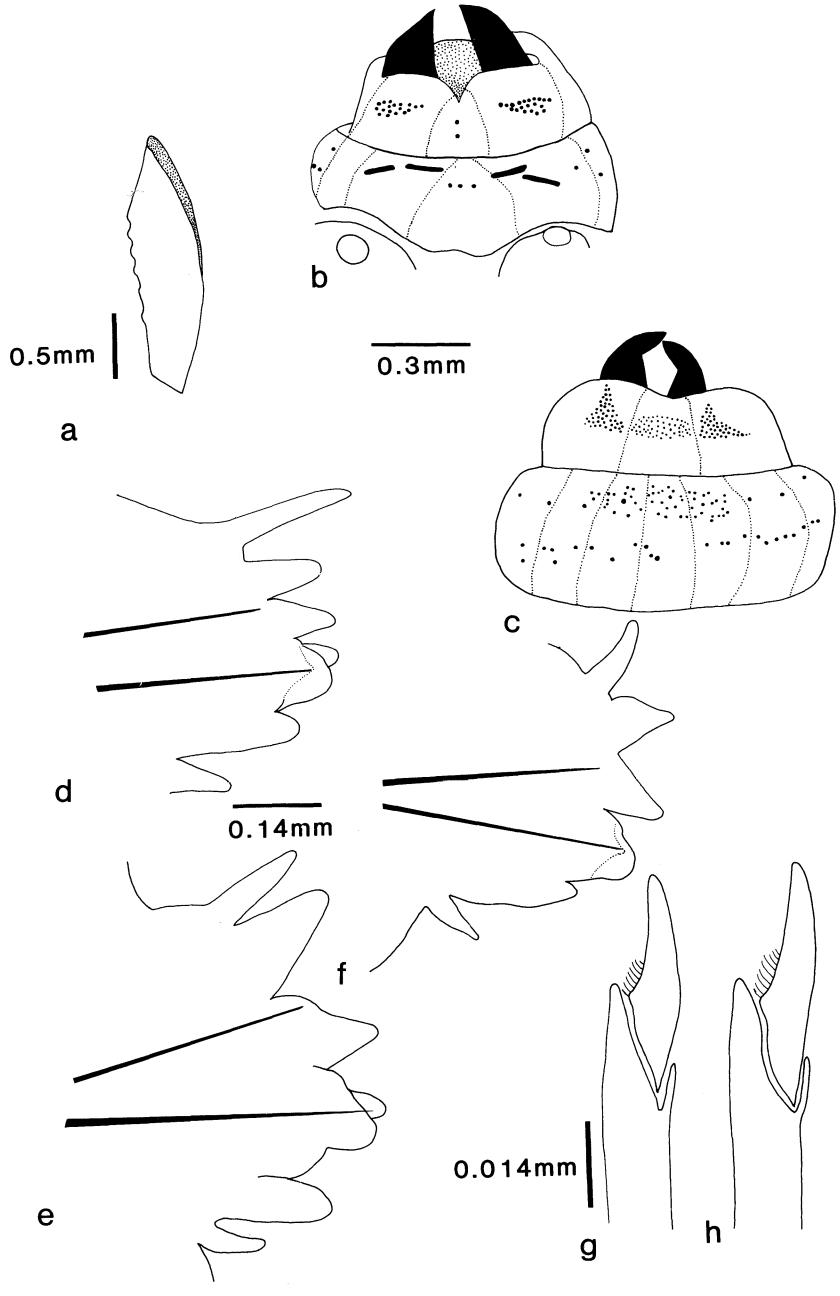

Fig.17. *Perinereis vancaurica* AM W202550. (a) jaw, right side WMNH 418; (b) everted pharynx, dorsal view; (c) everted pharynx, ventral view; (d) parapodium 3; (e) parapodium 10; (f) parapodium 50; (g) heterogomph falciger, parapodium 10; neuropodium, subacicular fascicle; (h) heterogomph falciger, parapodium 50, neuropodium, subacicular fascicle.

121-123.
Perinereis vancaurica indica Bhatt & Bal, 1966: 25.
Perinereis linea.–Wu, 1967: 68-69, fig.10a-d, non Treadwell, 1936.
Perinereis vancaurica tetradentata Imajima, 1972: 86-88, fig.23a-i.
Perinereis sp. Shin, 1982: 164-165, table 1.

Material examined. Philippine Islands, no further data, (WMNH 418, material of Grube, 1878).

Australia: Western Australia – Entrance Island, 15°17'S 124°38'E, 12 July 1988, 2 (AM W20299); Jackson Island, 15°10'S 124°28'E, 11 July 1988, 1 (AM W202980); Cornielle Island, 14°12'S 125°44'E, July 1988, 3 (AM W202825). Northern Territory – Port Keats, 14°06'S 129°33'E, 23 June 1952, 2 (AM W202550); Escape Cliff, 12°08'S 131°15'E, 26 Mar. 1985, 1 (NTM W2876), 26 May 1985, 2 (NTM W2878), 1 (NTM W2879), 1 (NTM W2880); Port Essington, Victoria Settlement, 11°16'S 132°09'E, 12 Sept. 1985 (NTM W3291), (NTM W3293); Port Bremner, Danger Point, 11°07'S 132°20'E, 30 Apr. 1982, 4 (NTM W218); Oxley Island, 10°59'S 132°50'E, 20 Oct. 1982, 1 (NTM W424); Annesley Point, 11°24'S 132°51'E, 19 June 1984 (NTM W1770), (NTM W1776), June 1984 (NTM W1772), 16 June 1984 (NTM W1806), (NTM W1811), 16 June 1984 (NTM W1827); Entrance Island 15°17'S 124°38'E, 12 July 1988, 2 (AM W202995); Vanderlin Island, 15°42'S 136°59'E, July 1923, 2 (AM W4833), (NTM W4834). Queensland – Torres Strait, Prince of Wales Island, 10°41'S 142°09'E, 29 May 1969, 1 (NMV 56468) Cairns, Yorkeys Knob, 16°49'S 145°43'E, 1 (AM W2355), 19 Nov. 1984, 2 (NTM W2361); Hervey Bay, Eli Creek, 25°17'S 152°49'E, 1 (AM W5383); Frazer Island, 25°22'S 153°07'E, 30 July 1975, 1 (QM GH3922). South Australia – Murray River Mouth, 35°34'S 138°53'E, 2 (AM W202549), 31 Dec. 1971, 1 (AM W203023).

Description. Material examined up to 45 mm length, 3.5 mm width, 0.9-2.1 mm in jaw length, 198 setigers maximum. Colour in alcohol, cream with light brown longitudinal, median stripe along dorsum, less distinct posteriorly. Prostomium broad, two thirds as wide as long, with shallow median furrow. Palps large, cylindrical, with small globular palpostyles. Antennae broad based. Longest tentacular cirri extending to setiger 3. Peristomium relatively short. Jaws robust, heavily sclerotised particularly on the outer lateral margin which forms flattened ridge (Fig.17a). Distalmost third of jaw with smooth edge. Cutting edge serrate rather than denticulate proximally. Pharynx with conical paragnaths on both rings and smooth bars on Area VI. Paragnaths arranged as follows: I=1-3, II=16-42, III=32-84, IV=40-88 in triangle, V=3, VI=2 long flattened bars, VII-VIII=58-129 in 2-5 rows. Paragnaths in VII-VIII in 2 bands, band closest to oral end of pharynx consists of large cones in 2 irregular rows. A separate band, (maxillary edge), contains a number of very small paragnaths interspersed with larger paragnaths in midventral position (Fig.17b,c).

Anterior notopodia with conical notopodial ligules, median ligule slightly longer than dorsal ligule, with small superior lobe. Dorsal cirrus slightly longer than dorsal ligule. Neuropodia with superior lobe poorly developed, dome-shaped inferior lobe and smaller digitiform postsetal lobe. Ventral ligule conical, shorter than inferior lobe, ventral cirrus approximately two thirds as long as ventral neuropodial ligule (Fig.17d,e).

Median and posterior notopodia with dorsal ligule triangular, broad-based. In far posterior setigers dorsal notopodial lobe slightly longer than median ligule, broad and glandular. Dorsal cirri becoming distally inserted on notopodial ligule on posterior setigers (Fig.17f). Other parapodial lobes posteriorly similar to anterior setigers.

Neurosetae with homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph falcigers and 1-2 heterogomph spinigers in subacicular fascicle (Fig.17g,h).

Remarks. One female epitoke collected 12 September 1985 from Victoria Settlement, Port Essington, Northern Territory (NTM W3293) was heavily pigmented with patches of dark brown pigmentation on either side of the dorsum in anterior setigers.

Perinereis vancuarica may be confused with *P. aibuhitensis* Grube, 1878, but the former species is distinguished by having longer bars in Area VI and in having a greater number of paragnaths in Areas II, III, IV and VII-VIII of the pharynx than in *P. aibuhitensis*.

Habitat. Occurs intertidally in mangroves and under oyster and barnacle encrusted rocks.

Distribution. Australia (northern Australia from Jackson Island, WA, 15°10'S 124°28'E to Frazer Island, Qld, 25°22'S 153°07'E); two specimens (AM W202549) and (AM W203023) from Murray River Mouth, SA (35°34'S 138°53'E). Also from the Philippines*; widely distributed in the tropical Indian and Western Pacific Oceans.

Perinereis variodentata (Augener)

Fig.18a-c

Nereis (*Perinereis*) *variodentata* Augener, 1913: 179-182, fig.19a-c, pl.3 fig.50u.
Perinereis variodentata.–Kott, 1951: 112-113, fig.6a-g.–Hartman, 1954: 35.–Hartmann-Schröder, 1982: 79-80.–Hartmann-Schröder, 1983: 139.–Hartmann-Schröder, 1984: 29.–Hutchings & Turvey, 1982: 140-141.–Hartmann-Schröder, 1987: 49.

Material examined. Australia: Western Australia – Albany, Princess Royal Harbour, 35°00'S 117°52'E, SYNTYPE (HZM V-7923), Albany, Princess Royal Harbour, 21-22 Aug. 1905, SYNTYPE (ZMB 5276). New South Wales – Port Molle, 20°20'S 148°51'E, 1 (AM W4830); La Perouse, 33°59'S 151°15'E, 24 Oct. 1962, 1 (AM W4791); Twofold Bay, 37°05'S 149°54'E, 9 Oct. 1984, 1 (AM W202556); Twofold Bay, Munganno Point, 37°06'S 149°56'E, 19 Dec. 1985, 2 (AM W202551), 26 Mar. 1985, 1 (AM W202552), 20 Mar.

1985, 1 (AM W202553); Green Cape, 37°16'S 150°03'E, 13 Feb. 1973, 1 (AM W202557). Tasmania – Bicheno, Tinderbox, 41°53'S 147°18'E, 29 May 1974, 1 (TASM K1106); Spring Bay, 42°32'S 147°55'E, 11 Jan. 1939, 1 (AM W3587); Hobart, 42°53'S 147°19'E, 20 Feb. 1909, 1 (TASM K1000). South Australia – West Island, 35°37'S 138°36'E, 18 Jan. 1977, 1 (SAM E2381); Bay of Shoals, 35°37'S 137°36'E, Mar. 1978, 1 (AM W18341); Kangaroo Island, Snellings Beach, 35°40'S 137°05'E, 5 Mar. 1979, many (AM W18335); Hanson Bay, 36°02'S 136°51'E, 4 Mar. 1979, many (AM W18339); Thistle Island, 35°00'S 136°09'E, 11 Jan. 1977, 1 (SAM E2382); Elliston, 33°39'S 134°53'E, 11 Mar. 1979, several (AM W18334); Greenly Island, 34°39'S 134°46'E, 28 Nov. 1976, 1 (SAM E2383); Waldegrave Island, 33°36'S 134°37'E, 25 Oct. 1975, 1 (AM W18489); Baird Bay, 33°07'S 134°20'E, 27 Feb. 1975, 1 (SAM E2384). Western Australia – Frenchmans Bay, 35°05'S 117°57'E, 3 Sept. 1959, 2 (AM W 4831); Yallingup, 33°42'S 115°06'E, 2 Jan. 1972, 1 (AM W18471); Garden Island, 32°12'S 115°40'E, 1950, several (WAM 475-86); Rottnest Island, 32°00'S 115°30'E, 1946 (AM W18575); Cape Peron, 25°30'S 113°31'E, 1946, many (AM W6828); Vancouver Point, 14°50'S 128°12'E, 13 Dec. 1983, 20 (AM W202555).

Description. Material examined up to 47 mm length, 3.5 mm width, 0.6-2.5 mm in jaw length, long maximum number of setigers 81. Colour in alcohol cream with brown, granular, glandular structures visible on dorsum of posterior notopodial dorsal ligules and lateral edges of posterior setigers. Prostomium trapezoidal, slightly indented anteriorly. Eyes large, with distinct lenses. Palps widely spaced, dome-shaped with globular palpostyles. Antennae slightly annulated. Longest tentacular cirri extending to about setiger 9. Peristomium relatively short. Jaws robust, heavily sclerotised, with about 6 proximal teeth, distal third smooth, without teeth. Pharynx with conical paragnaths on both rings and smooth bars also present on Areas VI and occasionally IV arranged as follows: I=4-15, usually in 2 groups, those on maxillary end set in a close cluster, those on oral edge spread out, II=3-12 in 2 rows, approximately in triangle, III=1-6, IV=4-22 (sometimes with 1-2 bars), V=2-3 in a longitudinal row, VI=2 long bars and 2-4 cones, VII-VIII=40-86 in 2 rows laterally, 4-6 rows ventrally.

Dorsal and median notopodial ligules dome-shaped on anterior setigers, becoming subtriangular after the first few setigers and about equal in length. Digitiform superior notopodial lobes present. Dorsal cirrus approximately twice as long as dorsal notopodial ligule. Neuropodia with small, knob-like superior lobe, larger, rounded inferior lobe with slightly shorter low, rounded postsetal lobe. Ventral ligule conical. Ventral cirrus longer than neuropodial ligules (Fig.18a).

Median and posterior notopodial ligules conical to subtriangular with dorsal ligule gradually exceeding median ligule in length to become broader posteriorly, dorsally crescent-shaped with dorsal cirrus more distally inserted. Dorsal cirrus twice as long as notopodial ligule posteriorly.

Neuropodia as for anterior setigers with distinction between superior and inferior lobes not as pronounced posteriorly. Lobes less robust (Fig.18b).

Neurosetae with homogomph spinigers and heterogomph falcigers in supra-acicular fascicle, heterogomph spinigers and falcigers in subacicular fascicle (Fig.18c). Anal cirri long, fine.

Remarks. The cones which are placed on the inner edge of Area VI of the pharynx have usually been reported by other workers as being part of Area V. Specimens from Vancouver Peninsula near Mistaken Island, Albany, Western Australia (AM W202555) are deep rust coloured. Specimen (AM W3587) a female epitoke, modified from setiger 17 onwards, was collected from Spring Bay, Tasmania in January 1939.

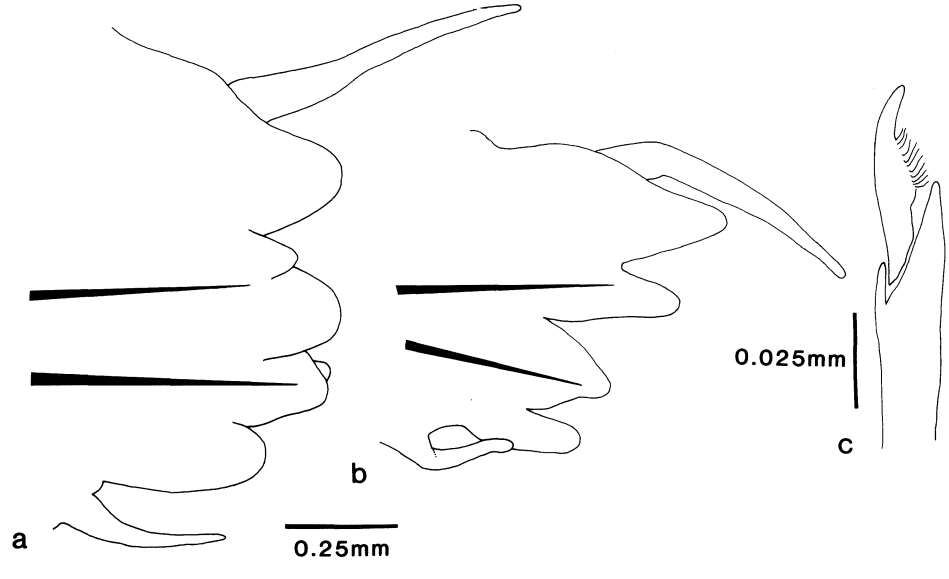

Fig.18. *Perinereis variodentata* SYNTYPE ZMB 5276. (a) parapodium 12; (b) parapodium 60; (c) heterogomph falciger, parapodium 12, neuropodium, subacicular fascicle.

Habitat. Occurs in association with encrusting fauna, among kelp holdfasts, coralline algae and in rock platform crevices.

Distribution. Australia (southern Australia from 20°20'S 148°51'E, Port Molle, NSW to 25°30'S 113°31'E, Vancouver Point, WA).

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APPENDIX

Annotated list of *Perinereis* species.

This list includes an informal grouping of species of *Perinereis* according to a system similar to that proposed for *Neanthes* by Fauchald (1972). The system is as follows:

1 Area VI with 1 bar
  A Dorsal notopodial lobe not greatly expanded
  B Dorsal notopodial lobe greatly expanded on posterior setigers
2 Area VI with 2 bars
  A Dorsal notopodial lobe not greatly expanded
  B Dorsal notopodial lobe greatly expanded on posterior setigers (no species yet recorded)
3 Area VI with 3 or more bars (usually 6 or more in an arc)
  A Dorsal notopodial lobe not greatly expanded
  B Dorsal notopodial lobe greatly expanded on posterior setigers

Descriptive data in this list is based on the original description unless otherwise stated. Also included is original combination, reference to original description and type locality.

GROUP 1A

arabica (*Perinereis arabica* Mohammad, 1971: 291. Persian Gulf).

calmani (*Nereis* (*Perinereis*) *calmani* Monro, 1926: 318-320, figs 6-8. Eastern Australia and China Sea).

cultrifera (*Nereis cultrifera* Grube, 1840: 74, fig.6. Naples, Mediterranean Sea).
Remarks. Redescribed above.

dongalae (*Nereis* (*Perinereis*) *dongalae* Horst, 1924: 174-175, pl.33 fig.8. Celebes).
Remarks. We have re-examined the holotype (ZMA VPOL 1064), which has the pharynx removed. The original description of Horst (1924) indicates that *P. dongalae* can be distinguished from *P. helleri* on the basis of having more paragnaths on Areas I and III. Hylleberg *et al.* (1986) treated *P. dongalae* as a junior synonym of *P. striolata*, however since those authors did not examine type material (which is in any case indeterminate) we prefer to retain *P. dongalae* as distinct.

falsovariegata (*Perinereis falsovariegata* Monro, 1933: 492, figs 4-7. Still Bay, South Africa).

floridana (*Nereis* (*Perinereis*) *floridana* Ehlers, 1868: 503-506. Florida, North America).

helleri (*Nereis* (*Perinereis*) *helleri* Grube, 1878: 81. Philippines).
Remarks. *Perinereis camiguina* Grube, 1878 is a junior synonym. See above.

rullieri (*Perinereis rullieri* Pilata, 1974: 25-37, figs 1-4. Sicily, Catania, Mediterranean Sea).

taorica (*Perinereis taorica* Langerhans, 1881: 110-111, fig. 15a-c. Canary Islands).
Remarks. The description of Langerhans (1881) suggests that *P. taorica* is close to *P. cultrifera* and related species.

tenuisetis (*Perinereis* (*Arete*) *tenuisetis* Fauvel, 1915: 6-9, fig.5a-f. Mediterranean Sea).

villalobosi (*Perinereis villalobosi* Rioja, 1947: 532-534, figs 18-22. Western Mexico).

GROUP 1B

amblyodonta (*Nereilepas amblyodonta* Schmarda, 1861: 106. New South Wales, Australia).

anderssoni (*Perinereis anderssoni* Kinberg, 1866: 175. Brazil).
Remarks. Hartman (1948) redescribed the type specimen. Junior synonyms include: *Nereis bairdii* Webster, 1884 (fide Hartman, 1948; Hartman, 1951); *Nereis minor* Hansen, 1882 (fide Hartman, 1948; Augener, 1934); *Nereis* (*Perinereis*) *melanocephala* McIntosh, 1885 (fide Linero Arana & Vasquez, 1979; Rioja, 1960). *Perinereis ponteni* Kinberg, 1866 was considered a synonym by Hartman (1948) but retained as a distinct species by Lana (1984).

barbara (*Nereis* (*Perinereis*) *barbara* Monro, 1926: 316-317, figs 3-5. New South Wales, Australia).

elenacosoi (*Perinereis elenacosoi* Rioja, 1947: 531-532, figs 8-17. Western Mexico).

falklandica (*Nereis* (*Perinereis*) *falklandica* Ramsay, 1914: 44-46, pl.3 figs 3-10. Falkland Islands).

longidonta (*Perinereis longidonta* Rozbaczylo & Castilla, 1973: 221-225, figs 1b, 3a-f. Chile).

macropus (*Nereis* (*Lipephile*) *macropus* Claparède, 1870: 444-448, pl. 8 fig.1, Naples, Mediterranean Sea).
Remarks. This species is placed in Group 1B based on the description of Ben-Eliahu, 1975: 182.

malayana (*Nereis malayana* Horst, 1889: 167-171, pl. 8 figs 4-7. Malay Archipelago).
Remarks. The placement of *P. malayana* in Group 1B, with dorsal notopodial lobes expanded posteriorly, is provisional since it is based on Horst (1889) who examined epitokes only. Horst's description of posteriormost setigers with parapodia similar to atokous worms seems, however, to fit Group 1B.

marionii (*Nereis marionii* Audouin & Milne-Edwards, 1833 [not seen]. France).
Remarks. The placement of *P. marionii* in Group 1B is based on the description of Nunez *et al.* (1981).

monterea (*Nereis* (*Neanthes*) *monterea* Chamberlin, 1918: 174-175. California).
Remarks. *Nereis spinifera* Treadwell, 1929 (from Puget Sound, Washington) is a junior synonym (Hartman, 1956: 281).

nigropunctata (*Nereis nigropunctata* Horst, 1889: 171-174, pl.8 figs 1-3. Malay Archipelago).
Remarks. See above.

obfuscata (*Nereis (Perinereis) obfuscata* Grube, 1878: 86-87. Philippine Islands).
Remarks. See above.

ponteni (*Perinereis ponteni* Kinberg, 1866: 175. Rio de Janeiro, Brazil).
Remarks. See Remarks for *P. anderssoni.*

pseudocavifrons (*Perinereis pseudocavifrons* Fauvel, 1930: 529-532, fig.5. New Caledonia).
Remarks. Redescribed above.

suluana (*Nereis* (*Perinereis*) *suluana* Horst, 1924: 175, pl.33 fig.9. Sulu Archipelago, Philippine Islands).
Remarks. See above.

tobeloana (*Nereis* (*Perinereis*) *tobeloana* Augener, 1933: 116-118, fig.10. Malay Archipelago).

GROUP 1 – CONDITION OF DORSAL NOTOPODIAL LOBE NOT KNOWN

cavifrons (*Nereis* (*Perinereis*) *cavifrons* Ehlers, 1920: 47-49, pl.1 figs 6-10. Java, Indonesia).
Remarks. Redescribed above.

curvata (*Perinereis curvata* Holly, 1935: 25-27, fig.12a-l, pl.1I. Hawaiian Islands).
Remarks. Hartman (1966) points out that this species is very close to *P. helleri.* Holly (1935) described only epitokes.

perspicillata (*Nereis* (*Perinereis*) *perspicillata* Grube, 1878: 90-91, pl.4 fig.10. Philippine Islands).

striolata (*Nereis* (*Perinereis*) *striolata* Grube, 1878: 85-86, pl.4 fig.9. Philippine Islands).

GROUP 2A

aibuhitensis (*Perinereis aibuhitensis* Grube, 1878: 89, pl.5 fig.3. Philippines).
Remarks. Dorsal notopodial lobe reduced on posterior setigers. See above.

brevicirrata (*Nereis brevicirrata* Treadwell, 1920: 467-468, figs 1-4. Brazil).
Remarks. Hartman (1938) recognised *P. brevicirrata* as a species of *Perinereis.*

camiguinoides (*Nereis* (*Perinereis*) *camiguinoides* Augener, 1922b: 180-183, fig.4a-d, tafelfig. 2. Juan Fernandez Islands).
Remarks. Redescribed above.

kuwaitensis (*Perinereis kuwaitensis*) Mohammad, 1970: 185. Arabian Gulf).

jascooki (*Perinereis jascooki* Gibbs, 1972: 207-208, fig.4a-i. Cook Islands, South Pacific).

singaporiensis (*Nereis* (*Perinereis*) *singaporiensis* Grube, 1878: 84-85. Singapore).
Remarks. Condition of dorsal notopodial lobe not determinable from the type, on Australian material expanded, glandular, dorsally convex in posterior setigers.

vancaurica (*Nereis vancaurica* Ehlers, 1868: 503, pl.20. Nicobar Islands).
Remarks. See above.

variodentata (*Nereis* (*Perinereis*) *variodentata* Augener, 1913: 179-182, fig.19a-c, pl.3 fig.50. South-western Western Australia).
Remarks. See above.

GROUP 2B

As yet no species with this condition have been described.

GROUP 2 – CONDITION OF DORSAL NOTOPODIAL LOBE NOT KNOWN

aculeata (*Nereis aculeata* Hansen, 1882: 12, pl.4 figs 13-17. Brazil).

GROUP 3A

binongkae (*Nereis* (*Perinereis*) *binongkae* Horst, 1924: 175-176, pl. 34 figs 7-8).
Remarks. See Wilson & Glasby (in preparation).

caeruleis (*Heteronereis caeruleis* Hoagland, 1920: 608, pl.47 figs 13-16, pl.48 figs 1-4. Philippines).
Remarks. *Perinereis neocaledonica* Pruvot, 1930 is a junior synonym; see Wilson & Glasby (in preparation).

gualpensis (*Perinereis gualpensis* Jeldes, 1963: 3-10, figs 1-5. Chile; freshwater).
Remarks. Bertran (1980) provided additional descriptive data and a comparison with *P. vallata.*

majungaensis (*Perinereis nuntia* var. *majungaensis* Fauvel, 1921: 11. Madagascar).
Remarks. See Wilson & Glasby (in preparation).

matthaii (*Perinereis matthaii* Aziz, 1938: 29, pl.3 fig.1, pl.6 figs 29-30, pl.7 figs 56-57. Karachi, India).
Remarks. The absence of paragnaths on Area VII-VIII is distinctive.

mictodonta (*Nereis mictodonta* Marenzeller, 1879: 118-119, pl.2 fig.2.
Remarks. Close to *P. nuntia* but status uncertain; see Wilson & Glasby (in preparation).

nuntia (*Lycoris nuntia* Savigny, 1818: 312-313. Gulf of Suez).
Remarks. *Nereis* (*Lycoris*) *quatrefagesi* Grube, 1878, *Nereis* (*Perinereis*) *heterodonta* var. *mictodontoides* Augener, 1913, *Perinereis broomensis* Hartmann-Schröder, 1979, and *P. weijhouensis* Wu, Sun & Yang, 1981 are junior synonyms; see Wilson & Glasby (in preparation).

ponuiensis (*Nereis* (*Perinereis*) *ponuiensis* Augener, 1924: 349-352, figs 5-6. New Zealand).
Remarks. See Wilson & Glasby (in preparation).

rhombodonta (*Perinereis rhombodonta* Wu, Sun & Yang, 1981[1985]: 199-201, fig.113a-j. Guandong and GuangXi, China).
Remarks. See Wilson & Glasby (in preparation).

rumphii (*Nereis* (*Perinereis*) *rumphii* Horst, 1919: 60-62, fig.2. Aru Islands and East Flores, Indonesia).
Remarks. See Wilson & Glasby (in preparation).

vallata (*Nereis vallata* Grube, 1858: 159-160. Chile, Valparaiso).
Remarks. See Wilson & Glasby (in preparation).

GROUP 3B

maindroni (*Perinereis maindroni* Fauvel, 1943: 201-202, fig.1e-i. France).

GROUP NOT KNOWN

aberrans (*Perinereis aberrans* Kinberg, 1866: 176. Type locality not known). *Nomen dubium.*
Remarks. The type material is in poor condition (Hartman, 1948); parapodia "resemble *P. cultrifera*" (i.e. dorsal notopodial lobe not expanded posteriorly?) and the arrangement of paragnaths cannot be determined. We consider this to be a *nomen dubium.*

exsul (*Perinereis exsul* Kinberg, 1866: 175. Type locality unknown). *Nomen dubium.*
Remarks. Hartman (1948) examined the type specimen, which was indeterminable.

NOTE ADDED IN PRESS

Wilson & Glasby (ms submitted to Records of the Australian Museum) describe two new species of *Perinereis* which belong in Group 3A, according to the above scheme.

A forthcoming revision of the subfamily Nereidinae by one of us (Wilson, in preparation) will propose new generic combinations for many species currently placed in the genus *Perinereis*.