PROC. R. SOC. VICT. vol. 97, no. 3, 129-138, September 1985

NEREIS AND *PLATYNEREIS* (POLYCHAETA: NEREIDIDAE) FROM VICTORIA WITH DESCRIPTION OF A NEW SPECIES OF *NEREIS*

By Robin S. Wilson

Museum of Victoria, 285-321 Russell Street, Melbourne, Victoria 3000

Abstract: *Nereis apalie* sp. nov. is described from Bass Strait. *Nereis parabifida* Hutchings & Turvey is synonomised with *Nereis bifida* Hutchings & Turvey. A systematic account of *Nereis* known from Victoria and a key to species recorded from southern Australia is provided.

During the years 1979-1983 the Museum of Victoria (previously National Museum of Victoria) made extensive collections of soft-bottom benthos as part of a survey of the marine fauna of Bass Strait. This paper reports on nereidid polychaetes of the genera *Nereis* and *Platynereis* collected during that survey and on additional material from the collections of the Museum of Victoria. Previous studies by Wilson (1984 — *Neanthes*) and Hartmann-Schröder (in prep. — *Ceratonereis*) complete the taxonomic description of the nereidid fauna of Bass Strait.

MATERIALS AND METHODS

Sources for the collections used in this study are as follows: BSS prefixes refer to stations occupied during the Bass Straight Survey (Wilson & Poore in press); PPBES prefixes refer to Port Phillip Bay Environmental Study (Poore *et al.* 1975, Poore & Kudenov 1978); CPBS and WBES prefixes refer to studies of Western-port Bay (Ministry for Conservation 1975, Coleman *et al.* 1978); and, SBS refers to the N.S.W. Shelf Benthic Survey (Jones 1977). Registration numbers of material in the Museum of Victoria are prefixed NMV. Paratypes have been deposited in the Australian Museum, Sydney (AM registration numbers). Codes in brackets accompanying AMW material from South Australia, e.g. (04B), refer to collection data from Table 1 of Hutchings and Turvey (1982).

The Australian distribution of each species is based on Hutchings and Turvey (1982) and new records presented here. Full Australian synonomies can be found in Day and Hutchings (1979). A key is provided to all species of *Nereis* known from south-eastern Australia, including four species (denoted in the key by an asterisk) which were recorded by Hutchings and Turvey (1982) from southern Australia but were not encountered in the collections reported on here.

SYSTEMATICS

Genus **Nereis** Linnaeus 1758

Diagnosis: Eversible pharynx with conical paragnaths on both rings, may be few and sparse. Four pairs of tentacular cirri; parapodia biramous. Notosetae include homogomph spinigers and falcigers, the latter in median and posterior setigers; neurosetae include homo- and heterogomph spinigers and heterogomph falcigers (after Fauchald 1977a).

Type Species: *N. pelagica* Linnaeus 1758.

Nereis apalie sp. nov.

Fig. 1A-E

Material Examined: Holotype NMV F50298 Bass Strait, 9 km N of Wynyard, Tasmania, 40°10.9′S, 145°44.3′E, 75 m, muddy carbonate sand, Smith-McIntyre Grab, G. Poore and others on RV Tangaroa, 13 Nov. 1981 (Stn BSS 157). Paratypes NMV F50299, AM W199449-199450), 3 specimens from type locality, epibenthic sled. One paratype NMV F50300, Bass Strait 150 km N of Devonport, 39°48.6′S 146°18.8′E, 82 m, muddy carbonate sand, epibenthic sled.

Description: Holotype an anterior fragment of 90 setigers, 35 mm length, 1 mm width (excluding parapodia) at setiger 10. Colour in alcohol pale yellow-brown with no obvious markings. Prostomial length equal to width. Eyes small (.05 mm diameter), dark red. One pair of palps with palpostyles and one pair of antennae. Four pairs of tentacular cirri, longest extending back to setiger 4. Jaws stout, translucent brown, with 6 teeth. Pharynx with small pale brown conical paragnaths arranged as follows: I, II & III = O; IV = 4, 2; V = O; VI = 1, 1; VII-VIII = O.

Notopodia with two elongate lobes and a dorsal cirrus, all of approximately equal length on anterior 40 setigers. Both notopodial lobes persist in similar proportions posteriorly but with dorsal cirrus becoming proportionally longer than each lobe from about setiger 40. Neuropodia with two lobes, acicular lobe triangular, about three quarters as long as notopodia, ventral lobe more slender and about 1.3 times as long as acicular lobe anteriorly, neuropodial lobes equal in size posterior to setiger 40. Ventral cirrus approximately three-quarters as long as ventral neuropodial lobe throughout (Fig. 1A, B).

Setigers 1 and 2 uniramous, setiger 3 with noto-and neuroacicula but without notosetae. Notopodial homogomph spinigers present from setiger 4, homogomph

KEY TO SPECIES OF *NEREIS* FROM SOUTHERN AUSTRALIA

1. Areas VII-VIII of pharynx with fewer than 30 paragnaths 2
   Areas VII-VIII with more than 40 paragnaths 8
2. Blade of notopodial homogomph falcigers bifid (with a single large lateral tooth of similar size to terminal tooth) 3
   Blade of notopodial homogomph falcigers with 1-3 lateral teeth smaller than terminal tooth or with many fine lateral teeth 5
3. Neuropodial heterogomph falcigers normally in both supra- and subacicular fascicles 4
   Neuropodial heterogomph falcigers replaced entirely by heterogomph spinigers in many anterior parapodia ..... *Nereis spinigera**
4. Oral ring of pharynx bare ..... *Nereis maxillodentata*
   Oral ring of pharynx with paragnaths ..... *Nereis bifida*
5. Area VI with 0-2 paragnaths, Area VII-VIII with 0-3 paragnaths, notopodial lobes of similar proportions throughout 6
   Area VI with 2-9 paragnaths, Areas VII-VIII with 4-22 paragnaths, dorsal notopodial lobe reduced on posterior setigers 7
6. Area VI with 1-2 paragnaths, blade of notopodial falcigers with 3-6 small lateral teeth ..... *Nereis apalie* sp. nov.
   Area VI bare, blade of notopodial falcigers with 1-3 large teeth ..... *Nereis heirissonensis**
7. Blade of notopodial falcigers with 2 or more large lateral teeth, dorsal notopodial lobe reduced on posterior setigers ..... *Nereis denhamensis*
   Blade of notopodial falcigers with very fine lateral teeth (may appear smooth on some specimens), notopodial lobes of similar proportions throughout ..... *Nereis cirriseta**
8. Area III with 10 or more paragnaths, Area V bare ..... *Nereis triangularis**
   Area III with fewer than 5 paragnaths, Area V with 1-8 9
9. Notopodial falcigers not present before setiger 10, dorsal notopodial lobe reduced to a small digitiform process posteriorly ..... *Nereis jacksoni*
   Notopodial falcigers present from setiger 3, notopodial lobes of similar proportions throughout ..... *Nereis cockburnensis*

*These species were not present in the material studied here and are not treated in the systematic text.

falcigers with long, finely-toothed appendage appear in notopodia from setiger 22 (Fig. 1D, E). Neurosetae of all setigers include homogomph spinigers dorsally and heterogomph spinigers ventrally, heterogomph falcigers also present in dorsal fascicle from setiger 4 (Fig. 1C).

VARIATION: Variations not described for the holotype based on four paratypes, anterior fragments size range 46 setigers, 6 mm long, 0.3 mm wide to 53 setigers, 12 mm length, 0.8 mm wide. Small pale conical paragnaths on both rings, arranged as follows: I, II & III = O, IV = 3-5; V = O; VI = 1-2; VII-VIII = 0. Homogomph falcigers appear in notopodia at setiger 13 in the smallest paratype, NMV F50299, otherwise at setigers 18 to 22. None of the specimens examined is complete posteriorly, and none has obvious coelomic gametes.

REMARKS: *Nereis apalie* sp. nov. is one of several species of *Nereis* which show a reduction in the number of oral ring paragnaths, and possess sparsely, coarsely-toothed notopodial falcigers. Tabulated descriptions of this group of species were provided by Hutchings and Turvey (1982). Two of these species, *N. falcaria* (Willey 1905) and *N. panamensis* Fauchald 1977b have anteriorly-indented prostomia which distinguishes them from *N. apalie* in which the anterior margin of the prostomium is entire. *Nereis ovarius* Read 1980 differs by having paragnaths on Areas III and VII-VIII whereas these are bare in *N. apalie*. *Nereis apalie* can be distinguished from all remaining similar species using the characteristics given in Table 1.

ETYMOLOGY: The specific name *apalie* is derived from an Australian aboriginal word meaning "of the sea".

DISTRIBUTION: Known only from two stations in central Bass Strait, southeastern Australia, 75-82 m depth.

HABITAT: Poorly-sorted, muddy-carbonate sediments incorporating much bryozoan skeletal remains.

Nereis bifida Hutchings & Turvey 1982
Fig. 2

1982 *Nereis bifida* Hutchings & Turvey pp. 116-119, fig. 9a-c.

1982 *Nereis parabifida* Hutchings & Turvey pp. 132-133, fig. 15a-c. New synonomy.

MATERIAL EXAMINED: W.A. — Aldritchs Cove, Nornalup, Dec. 1946, 72 specimens, AM W6174.

S.A. — Speeds Pt, Streaky Bay (04B), 14 Mar. 1979, 5 paratypes, AM W18359; Stokes Bay, Kangaroo Is. (20A), 5 Mar. 1979, 10 specimens, AM W18369; American River, Kangaroo Is. (27B), 2 Mar. 1979, 72 paratypes, AM W18365.

Tas. — 42°37′S, 148°20′E, 102 m, 9 Oct. 1983, 10 specimens, NMV F50275; 38°6.2′S, 149°45.5′E, 188 m 14 Oct. 1983, 2 specimens, NMV F50276, 43°25.3′S, 145°39.8′E, 160 m, 3 specimens, NMV F50277.

Bass Strait — Big Green Is, 12 Apr. 1983, 9 specimens, NMV F50253; Pegleg Cove, Deal Is, Apr. 1983, 5 specimens, NMV F50259-F50260. Stn BSS 107 SEB, 1 specimen, NMV F50263; Stn BSS 139 trawl, 2 specimens, NMV F50264; Stn BSS 163 SEB, 1 specimen, NMV F50265; Stn BSS 169 GSM, 1 male epitoke, NMV F50266; Stn BSS 170 GSM, 1 gravid female, NMV F50268; Stn BSS 170 SEB, 75 specimens, NMV F50269; Stn BSS 174 SEB, 7 specimens, NMV F50270; Stn BSS

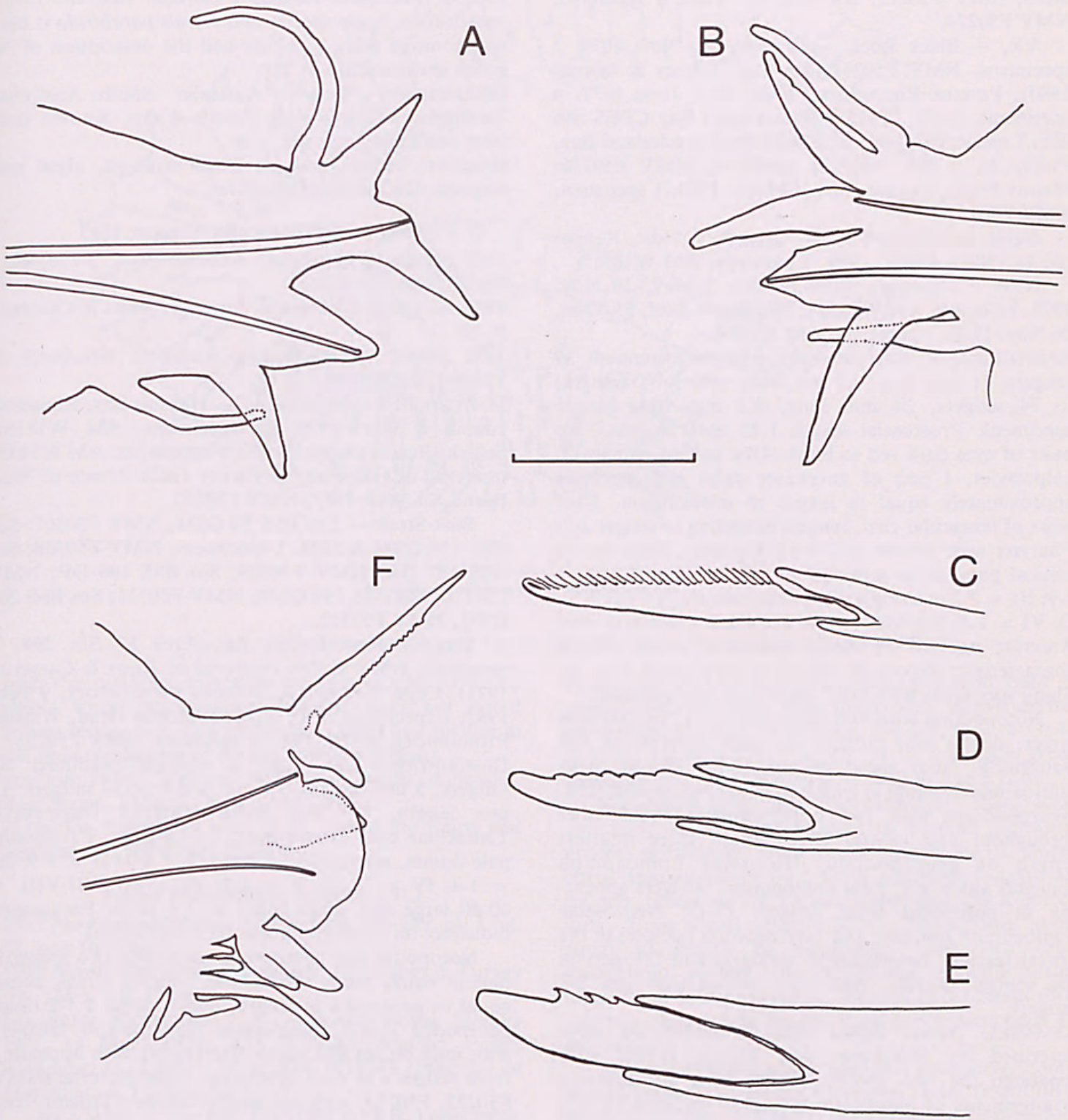

Fig. 1—A-E, *Nereis apalie* sp. nov., holotype NMV F50298. A, anterior view of 5th parapodium. B, posterior view of 74th parapodium. C, heterogomph falciger from dorsal neuropodial fascicle, setiger 5. D, notopodial homogomph falciger, setiger 26. E, notopodial homogomph falciger, setiger 74. F, *Nereis maxillodentata* Hutchings & Turvey 1982 NMV F50281. F, posterior view of 36th parapodium from immature male epitoke. Scale bar = 0.2 mm figs A, B, F; 0.02 mm figs C, D, E.

179 SEB, 1 specimen, NMV F50271; Stn BSS 207 SEB, 4 specimens, NMV F50272; Stn BSS 213 trawl, 10 specimens, NMV F50273; Stn BSS 217 trawl, 1 specimen, NMV F50274.

Vic. — Black Rock, Connewarre, 7 Nov. 1978, 2 specimens, NMV F50261 (Stn 1 of Dorsey & Synnot 1980); Portsea Pier, Port Phillip Bay, June 1977, 4 specimens, NMV F50257; Westernport Bay CPBS Stn 03S, 7 specimens, NMV F50246-50247; Sunderland Bay, Phillip Is, 3 Feb. 1979, 1 specimen, NMV F50256; Manns Beach, Corner Inlet, 19 Nov. 1983, 1 specimen, NMV F50262.

Nereis parabifida S.A. — Cape du Coudic, Kangaroo Is. (30B), 4 Mar. 1979, 1 paratype, AM W18512.

NSW — Sydney, Shelf Benthic Survey, 26 Nov. 1973, holotype, AM W18511; Middleton Reef, 55-73 m, 26 Nov. 1960, 1 paratype, AM W4804.

REDESCRIPTION: Size range of material examined: 39 setigers, 11 mm long, 0.5 mm wide (anterior fragment) to 74 setigers, 24 mm long, 0.7 mm wide (entire specimen). Prostomial length 1.25 times width. Two pairs of eyes dark red to black. One pair of palps with palpostyles, 1 pair of antennae; palps and antennae approximately equal in length to prostomium. Four pairs of tentacular cirri, longest extending to setiger 2-7. Pharynx with brown jaws with 6-8 teeth. Pale brown conical paragnaths arranged as follows: I = O; II = 3-9; III = 0-3 in a single transverse row; IV = 5-10; V = O; VI = 1-3; VII-VIII = 2-8 in a single transverse row. Anterior dorsum of many specimens often with a characteristic pattern of orange to brown bars (Fig. 2). Many specimens with faint pattern or unpigmented.

Notopodium with two lobes anteriorly, ventral lobe larger, dorsal lobe reduced to small tubercle or lost posteriorly, from about setigers 15-25. Dorsal cirrus approximately equal in length to larger notopodial lobe. Neuropodium with two approximately equal lobes throughout and ventral cirrus about three quarters length of neuropodium. Notosetae homogomph spinigers anteriorly, bifid homogomph falcigers appearing in notopodia from setigers 13-17. Neurosetae homogomph spinigers and heterogomph falcigers in the dorsal fascicle, heterogomph spinigers and falcigers in the ventral fascicle. Anal cirri extend over last 5-8 setigers.

REMARKS: *Nereis bifida* and *N. parabifida* were described by Hutchings and Turvey (1982) who separated the two species on the basis of differing arrangements of paragnaths primarily on Area III (O, occasionally 1 for *N. bifida*; 3-5 for *N. parabifida*) and Area VI (1, rarely 0 or 2-3 for *N. bifida*; 2-4 rarely 1 for *N. parabifida*). In respect of parapodia and the bifid homogomph falcigers the two species could not be separated.

The material examined in this study contains many specimens intermediate between the above two species. In addition, many specimens share a distinctive pigmented pattern on the anterior dorsum (Fig. 2). Examples of specimens with this pattern include typical *N. bifida* (*sensu* Hutchings & Turvey 1982): NMV F50258-F50260, F50272; typical *N. parabifida*: NMV F50265, F50271; and intermediate forms NMV F50275, F50276. For these reasons I consider that the forms constitute a single species and *Nereis parabifida* is here synonomised with *N. bifida* and the description of *N. bifida* is expanded.

DISTRIBUTION: Western Australia, South Australia, Tasmania, Victoria, New South Wales. Known only from southern Australia.

HABITAT: Mostly subtidal from sediment, algae and seagrass. Occasionally intertidal.

Nereis cockburnensis Augener 1913

1913 *Nereis cockburnensis* Augener pp. 153-156, pl. 3 fig. 47, text figs 15a-c.

1971 *Nereis cockburnensis* Augener; Knox & Cameron p. 28.

1982 *Nereis cockburnensis* Augener; Hutchings & Turvey pp. 121-124, fig 4b.

MATERIAL EXAMINED: S.A. — Hanson Bay, Kangaroo Island, 4 Mar. 1979, 18 specimens, AM W18351; Sellicks Beach, 16 Mar. 1979, 9 specimens, AM W18355 (material of Hutchings & Turvey 1982). N side of West Island, 21 Mar. 1985, NMV F50313.

Bass Strait — Stn BSS 50 GSM, NMV F50307; Stn BSS 154 GSM & SEB, 2 specimens, NMV F50308; Stn BSS 187 DR, NMV F50309; Stn BSS 196 DP, NMV F50310; Stn BSS 199 GSM, NMV F50311; Stn BSS 201 GSM, NMV F50312.

Vic. — Port Phillip Bay Area 57 Stn 294, 1 specimen, NMV G1786 (material of Knox & Cameron 1971). Cape Wellington, Wilsons Promontory, 9 Feb. 1982, 1 specimen, NMV F50252; Hobbs Head, Wilsons Promontory, 9 Feb. 1982, 1 specimen, NMV F50255.

DESCRIPTION: Size range of material examined: 41 setigers, 5 mm length, 0.3 mm width to 37 setigers, 14 mm length, 1.0 mm width (anterior fragments). Tentacular cirri extend back 4-6 setigers. Paragnaths pale domes, arranged as follows: I = 0-1; II = 6-9; III = 1-4; IV = 12-16; V = 1-3; VI = 4-7; VII-VIII = 40-80 large and small cones in 2-4 rows. Paragnaths indistinct on small specimens (0.3 mm width).

Notopodia and neuropodia each with two approximately equal lobes throughout, ventral cirrus about equal to parapodia in length, dorsal cirrus 1.5-2 times parapodial length. Notopodial homogomph falcigers with long blades and many fine lateral teeth appearing from setiger 3 in most specimens, some material (NMV F50252, F50255) with notopodial falcigers present from setigers 6-9 but with many anterior notosetae broken.

REMARKS: Six specimens from Bass Strait referred here to *Nereis cockburnensis* are too small to determine paragnath counts — identifications of these specimens are based on the presence of typical long-bladed homogomph falcigers in all notopodia commencing at setiger 3 (juveniles of other species of *Nereis* which lack characteristic setae are often indeterminable). No other known species of Australian *Nereis* has this character. All other material (including NMV F50309 from Bass Strait) agrees with the previous published descriptions

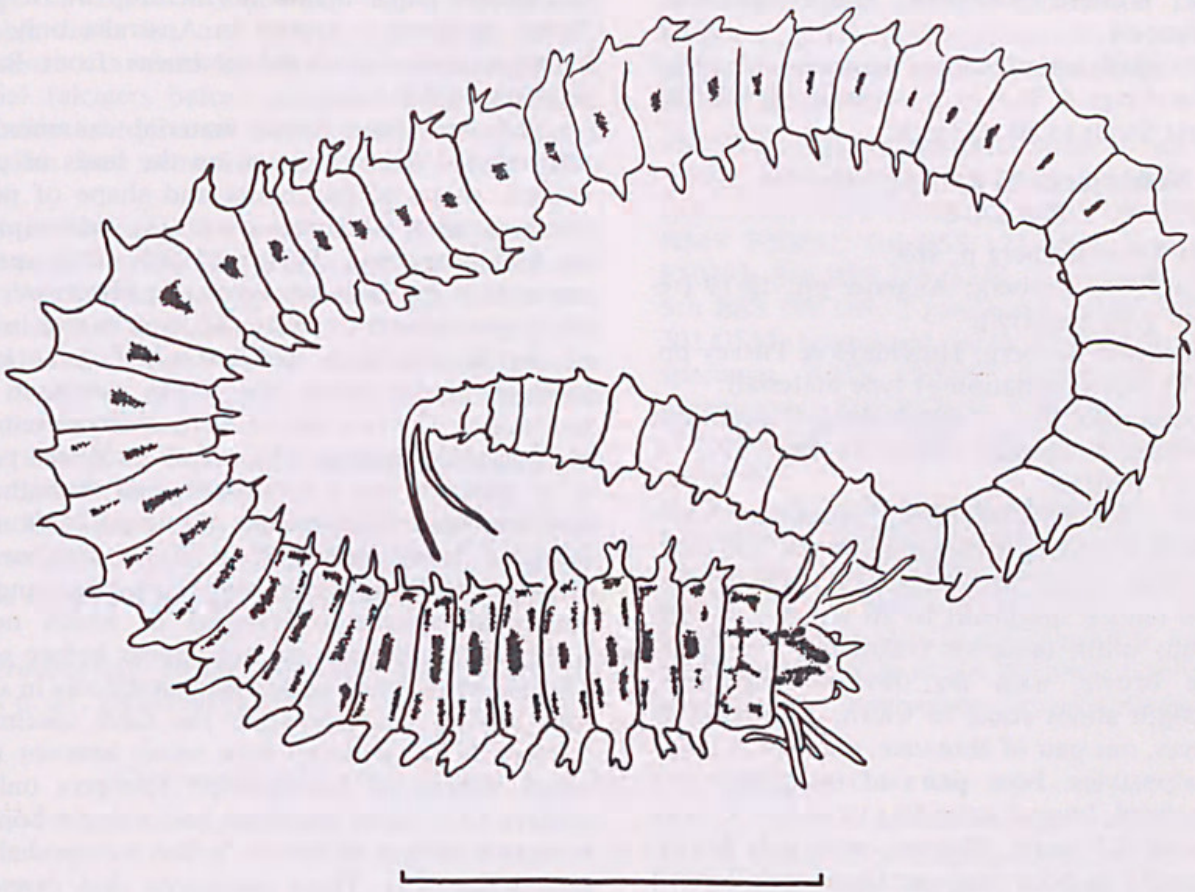

Fig. 2—*Nereis bifida* Hutchings & Turvey 1982. Dorsal view of whole worm, NMV F50258.

with the qualified exception of two specimens noted above where homogomph falcigers were not noted before setiger 6-9. This character is discussed further in the remarks section of *Nereis jacksoni* (below).

DISTRIBUTION: Western Australia, South Australia, Bass Strait, Victoria, New South Wales.

HABITAT: Associated with algae, encrusting fauna and subtidal soft sediments to 79 m.

Nereis denhamensis Augener 1913

1913 *Nereis denhamensis* Augener pp. 156-159, pl. 3 fig. 51, text fig. 16a-b.

1982 *Nereis denhamensis* Augener; Hutchings & Turvey pp. 124-5, fig. 11a-k.

MATERIAL EXAMINED: S.A. — Speeds Point, Streaky Bay, 14 Mar. 1979, AM W18546; Maston Point, Kangaroo Is. 2 Mar. 1979, AM W18548 (Material of Hutchings & Turvey 1982).

Bass Strait — Stn BSS 154 GSM & SEB, 1 specimen, NMV F50301; Stn BSS 159 GSM, 1 specimen, NMV F50302; Stn BSS 185 DR, 2 specimens, NMV F50304; Stn BSS 203 DR, 1 specimen, NMV F50306; Stn BSS 206, 4 specimens, NMV F50303.

Vic. — Wilsons Promontory S of Waterloo Point, 19 m, epibenthic sled, 8 Feb. 1982, 1 specimen, NMV F50305.

DESCRIPTION: Size range of specimens: 24 setigers, 3 mm length, 0.3 mm width (anterior fragment) to 56 setigers, 12 mm length, 0.7 mm width (entire specimen). Tentacular cirri distinctly annulated, extend back to setigers 3-4. Pharynx with small dark brown domed paragnaths arranged as follows: I = 0-5; II = 4-13; III = 0-15; IV = 4-17; V = O; VI = 2-9; each group generally in 2 rows; VII-VIII = 7-22 in 1 to 2 rows.

Notopodia with two approximately equal lobes anteriorly, dorsal lobe reduced to a small digitiform process posteriorly, from about setigers 10-16. Dorsal cirrus approximately 1-1.5 times notopodial length anteriorly, becoming 2-2.5 times notopodial length posteriorly, from about setigers 30-40. Neuropodia about equal in length to notopodia, with two lobes throughout, ventral lobe smaller and reducing posteriorly, from about setiger 30. Ventral cirrus about three quarters neuropodial length. Anal cirri extend back 4-5 setigers.

Notosetae homogomph spinigers anteriorly, homogomph falcigers appearing at setigers 11-18. Dentition of blade of homogomph falcigers variable, small specimens with 3-5 lateral teeth smaller than distal tooth, larger specimens with fewer larger lateral teeth often reducing to a single large lateral tooth on posterior setigers.

REMARKS: The material examined in this study extends the range of variability of *Nereis denhamensis* noted by Hutchings and Turvey (1982). Many specimens are small (less than 0.5 mm wide excluding parapodia) and these specimens account for the low paragraph counts recorded (I = 0-1, III = 0-1). This is the first record of *N. denhamensis* from Victoria.

DISTRIBUTION: Western Australia, South Australia, Bass Strait, Victoria.
HABITAT: Intertidally among algae, seagrasses, sponges and rocks (Hutchings & Turvey material); soft bottom benthos of Bass Strait to 80 m depth.

Nereis jacksoni Kinberg 1866
Fig. 3A-C

1866 *Nereis jacksoni* Kinberg p. 169.
1922 *Nereis jacksoni* Kinberg; Augener pp. 18-19 (re-examination of type material).
1982 *Nereis jacksoni* Kinberg; Hutchings & Turvey pp. 129-130, fig. 13 (re-examination of type material).
MATERIAL EXAMINED: Vic. — Black Rock Connewarre (Stn 3 of Dorsey & Synnot 1980), 11 Jan. 1977, 1 specimen, NMV F50314.

Bass Strait — Stn BSS 166 SEB, 1 specimen, NMV F50315; Stn BSS 178 SEB, 1 specimen, NMV F50316.
DESCRIPTION: Size range: 56 setigers, 12.5 mm length, 0.8 mm width (entire specimen) to 26 setigers, 13 mm length, 1.5 mm width (anterior fragment). Colour in alcohol pale brown with no obvious markings. Prostomial length about equal to width. Two pairs of red to black eyes, one pair of antennae, one pair of palps with large palpostyles. Four pairs of tentacular cirri distinctly annulated, longest extending to setiger 3. Jaws pale brown with 6-7 teeth. Pharynx with pale brown conical paragnaths on both rings, arranged as follows: I = 0-1; II = 8-10; III = 1-3; IV = 12-18; V = 2-7; VI = 4-5; VII-VIII = 43-100 in 2-4 rows, narrowing to 1-2 rows laterally.

Notopodia with two lobes, dorsal lobe smaller and gradually reducing posteriorly from about setigers 15-25 but persisting as a small digitiform process on posterior-most setigers. Dorsal cirrus about 1.5 times notopodial length anteriorly, about 2 times notopodial length posteriorly, from about setiger 20. Neuropodia equal in length to notopodia, consisting of two equal lobes and a ventral cirrus of about equal length, proportions remaining constant on all setigers. Notosetae homogomph spinigers anteriorly, homogomph falcigers appearing at setigers 10-16 and replacing spinigers posteriorly. Neurosetae heterogomph spinigers and falcigers in ventral fascicle, homogomph spinigers and heterogomph falcigers in dorsal fascicle. Homogomph falcigers with long blades and many fine lateral teeth when they first appear, blades becoming shorter and with fewer larger lateral teeth posteriorly (Fig. 3A-C). One pair of anal cirri extending back 5-6 setigers.
REMARKS: Hutchings and Turvey (1982) redescribed *Nereis jacksoni* based on Kinberg's type material (a single specimen to two fragments). They were unable to identify any subsequent records as *N. jacksoni* and referred many subsequent records to a variety of different species. Of the records of *N. jacksoni* cited in Day and Hutchings (1979), four Australian records remain and require verification: Augener (1927), Monro (1936), Monro (1939) and Rullier (1965) [Day & Hutchings give Knox & Cameron (1971) as an additional record of *N. jacksoni*; this is an error as Knox & Cameron's paper makes no mention of *N. jacksoni*]. *Nereis jacksoni* is known in Australia only from the holotype and the three specimens from Bass Strait reported in this paper.

The new Bass Strait material examined here is referred to *Nereis jacksoni* on the basis of paragnath counts, shape of parapodia and shape of notopodial falcigers, all of which agree with the redescription given by Hutchings and Turvey (1982). This species also appears to be close to *Nereis cockburnensis* Augener 1913, particularly in paragnath counts and in the form of the homogomph falcigers which have long fine-toothed blades when they first occur in anterior notopodia. The two species differ in the development of the dorsal notopodial lobe which is reduced posteriorly in *N. jacksoni* but is fully developed throughout in *N. cockburnensis*. The presence of notopodial homogomph falcigers from setiger 3 in *N. cockburnensis* also distinguishes that species from *N. jacksoni* (and all other Australian species of *Nereis*) in which notopodial homogomph falcigers do not appear before setiger 10. This character must be assessed cautiously in specimens with broken setae, however the three specimens here referred to *N. jacksoni* have intact anterior notosetae which consist of homogomph spinigers only before setigers 13-16 (one specimen has a single homogomph falciger at setiger 10 but no further notopodial falcigers until setiger 13). These specimens thus cannot be *N.*

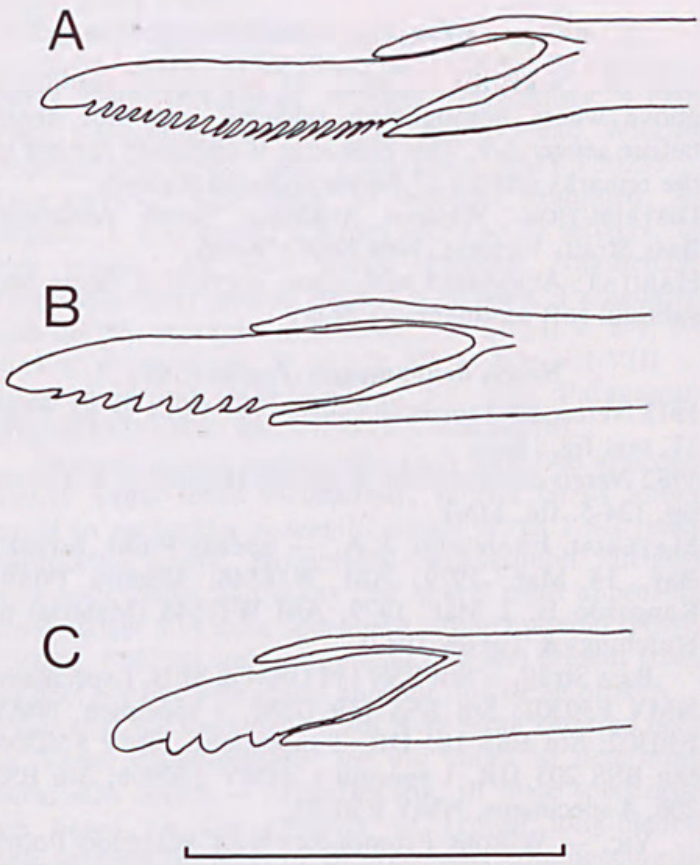

Fig. 3—*Nereis jacksoni* Kinberg 1866 NMV F50315. A, notopodial homogomph falciger, setiger 15. B, notopodial homogomph falciger, setiger 23. C, notopodial homogomph falciger, setiger 52. Scale bar = 0.04 mm.

cockburnensis as presently defined. This character may be variable however, and several specimens of *N. cockburnensis* examined in this study may not possess notopodial falcigers before setigers 6-9 although the determination is equivocal as some anterior notosetae were broken (see remarks section on *Nereis cockburnensis*).

Nereis jacksoni is known only from four records in eastern Australia while *N. cockburnensis* is widespread in South Australia and Western Australia with a few records in eastern Australia. More material is required from south-eastern Australia to clarify the differences between these two species and to determine the exact range of both species.

DISTRIBUTION: Port Jackson, New South Wales (type locality), Bass Strait, Victoria.

HABITAT: Rocky intertidal shores (Port Jackson), rock and soft sediments to 26 m (Bass Strait).

Nereis maxillodentata Hutchings & Turvey 1982
Fig. 1F

1971 *Ceratonereis costae* (Grube 1840); Knox & Cameron p. 27. (misidentification).

1971 *Platynereis australis* (Schmarda 1861); Knox & Cameron, p. 28 (misidentification, in part)

1982 *Nereis maxillodentata* Hutchings & Turvey pp. 130-2, fig. 14a-c.

MATERIAL EXAMINED: Bass Strait — Stn BSS 51 GSM, gravid female NMV F50290; Stn BSS 113 SEB, 2 specimens, NMV F50291; Stn BSS 160 SEB, 1 specimen, NMV F50292; Stn BSS 173 SEB, 2 specimens, NMV F50293; Stn BSS 188 GSM, 1 specimen, NMV F50294; Stn BSS 199 DR, 2 specimens, NMV F50295; Stn BSS 203 GSM, 1 specimen, NMV F50296; Stn BSS 204 DR, 1 specimen, NMV F50297. Additional material, NMV unregistered: Stns BSS 64, 139, 161, 166, 170, 176, 177, 178, 185, 190, 191, 194, 198, 199, 212 (total of about 50 specimens).

Vic. — Black Rock, Connewarre, Stn 3 of Dorsey and Synnot (1980), 1 specimen, NMV F50284. Port Phillip Bay: Portsea Pier, June 1977, 4 specimens, NMV F50257. Port Phillip Survey Area 7 Stn 207 NMV G1903, Area 11 Stn 212 NMV G1763, Area 29 Stn 107 NMV G1760, Area 69 Stn 97 NMV G1898, 5 specimens identified as *Ceratonereis costae* by Knox and Cameron

TABLE 1

COMPARISON OF AUSTRALIAN SPECIES OF *NEREIS* WITH REDUCED ORAL RING PARAGNATHS

	Area II	Area III	Area VI	Area VII-VIII	Condition of notopodial falcigers	Condition of dorsal notopodial lobe	Source of data
N. apalie sp. nov.	0	0	1-2	0	blade with 3-6 small lateral teeth	present all setigers	this study
N. bifida Hutchings & Turvey 1982	0	0-3	1-3	2-8	bifid, blade with a single large lateral tooth	reduced or absent posteriorly	this study, Hutchings & Turvey 1982
N. cirriseta Hutchings & Turvey 1982	2-5	0-1	1-6	4-7	blade with many small lateral teeth	present all setigers	Hutchings & Turvey 1982
N. denhamensis Augener 1913	4-13	0-15	2-9	7-22	blade with 1-5 large lateral teeth	reduced or absent posteriorly	this study, Hutchings & Turvey 1982
N. heirissonensis Augener 1913	0-1	0	0	0-3	blade with 1-3 large lateral teeth	reduced or absent posteriorly	Hutchings & Turvey 1982
N. maxillodentata Hutchings & Turvey 1982	2-7	0-4	0	0	bifid, blade with a single large lateral tooth	reduced or absent posteriorly	this study, Hutchings & Turvey 1982
N. spinigera Hutchings & Turvey 1982	0-3	0	0-1	2-7	bifid, blade with a single large lateral tooth	absent all setigers	Hutchings & Turvey 1982

(1971). Port Phillip Survey Area 5 Stn 53, NMV G1899, Area 14 Stn 175 NMV G1907, Area 31 Stn 10 NMV G1775, Area 40 Stn 101; 6 specimens, part of material identified as *Platynereis australis* by Knox and Cameron (1971). Westernport: Flinders pier, 26 May 1970, 9 specimens, NMV F50249; Crawfish Rock, 13 Oct. 1968, 4 specimens, NMV F50251; CPBS Stn 22N, 1 specimen, NMV F50287; CPBS Stn 32N, 1 specimen, NMV F50288; CPBS Stn 33S, 27 specimens NMV F50289. Corner Inlet: 9.5 km SW Port Albert, 23 Nov. 1983, 9 specimens, NMV F50281; 4 km SW Barry Beach, 24 Nov. 1983, 1 specimen, NMV F50282.

NSW — Burrewarra Point, Apr. 1984, NMV F50280.

DESCRIPTION: Size range of material examined: 41 setigers, 8 mm length, 0.4 mm width to 104 setigers, 23 mm length, 1.2 mm width. Paragnaths brown cones, restricted to maxillary ring, arranged as follows: I = O; II = 1-5; III = 0-2; IV = 2-9. Bifid homogomph falcigers appear in notopodia at setigers 15-19. Several specimens with orange-pigmented bands dorsally on apodous segment and prostomium.

Male epitoke (NMV F50281) with enlarged eyes, dorsal cirri inflated basally over setigers 1-7; ventral cirri inflated over setigers 1-5. Epitokous modifications of parapodia commencing setiger 16. Ventral surface of dorsal cirri crenulate over middle setigers. One large lobe and one small digitiform lobe located ventrally at base of dorsal cirrus. Dorsal notopodial lobe lost, ventral notopodial lobe produced into a roughly triangular lappet. Neuropodium consists of a large lamellar lobe containing the aciculum, and a pair of digitiform lobes ventrally. Ventral cirrus smooth. Two pairs of digitiform lobes located dorsally and ventrally at the base of the ventral cirrus (Fig. 1F). No natatory setae present. One gravid female (NMV F50290) with large eggs (350-400 μm) in coelom. Eyes enlarged, almost touching but no other epitokal modifications.

REMARKS: The material examined in this study agrees with the original description of Hutchings and Turvey (1982) although many specimens, particularly those from Bass Strait, have paragnath counts at the lower limit of the range given above. This species appears to be closely related to *N. bifida* Hutchings & Turvey and several specimens are pigmented on the anterior dorsum in a similar manner to that species (e.g. NMV F50296) however the presence of oral ring paragnaths clearly distinguishes *N. bifida* from *N. maxillodentata*. *Nereis maxillodentata* is the most abundant species of *Nereis* in subtidal to continental shelf soft sediments in south-eastern Australia.

DISTRIBUTION Victoria, New South Wales, Queensland.

HABITAT: Subtidally in algae and encrusting invertebrates, soft bottoms to 115 m.

Genus **Platynereis** Kingberg 1866

DIAGNOSIS: Eversible pharynx with paragnaths on both rings, including cones and pectinate bars. Four pairs of tentacular cirri; parapodia biramous. Notosetae include homogomph spinigers and falcigers, the latter sometimes fused to form simple falcigers; neurosetae include homo- and heterogomph spinigers and heterogomph falcigers (after Fauchald 1977a).

TYPE SECIES: *P. magalhaensis* Kinberg 1866.

Platynereis dumerilii antipoda Hartman 1954

1954 *Platynereis dumerilii antipoda* Hartman pp. 35-36, fig. 33-37.

1971 *Platynereis australis* (Schmarda 1861); Knox & Cameron, p. 28 (in part, see below).

1982 *Platynereis dumerilii antipoda* Hartman; Hutchings & Turvey p. 141.

MATERIAL EXAMINED: W.A. — King George Sound, 4 Apr. 1984, 4 m, red algae, 1 specimen, NMV F50220; Vancouver Peninsula, 8 Apr. 1984, 7 m, *Halophila*, 1 specimen, NMV F50221; Thistle Cove, 11 Apr. 1984, 8 m, brown and coralline algae, 2 specimens, NMV F50222; Lucky Bay, 12 Apr. 1984, 5 m, red algae, 5 specimens, NMV F50223.

Bass Strait — Stn BSS 110 SEB, 4 specimens, NMV F50206; Stn BSS 166 SEB, 1 specimen, NMV F50207; Stn BSS 193 DR, 1 specimen, NMV F50208; Stn BSS 207 SEB, 4 specimens, NMV F50209; Stn BSS 208 SEB, 1 specimen, NMV F50210; Stn BSS 212 SEB, 5 specimens, NMV F50211; Ransonnet Bay, 40°40′S, 145°00′E, 3 Nov. 1980, 1 male epitoke, NMV F50159.

Vic. — Port Phillip Bay: Area 5 Stn 169, 1 specimen, NMV G1902; Area 9 Stn 178, 1 specimen, NMV G1688; Area 42 Stn 38, 4 specimens, NMV G1776; Area 59 Stn 36, 1 specimen NMV G1779; Area 63 Stn 20, 1 specimen, NMV G1906 [material identified as *P. australis* (Schmarda, 1861) by Knox & Cameron, 1971]. Altona, Port Phillip Bay, coll. Sept. 1964, 1 specimen, NMV F50117. Westernport Bay, WPBES: Stn 1704, 3 specimens, NMV F50127; Stn 1709, 3 specimens, NMV F50125; Stn 1723, 1 specimen, NMV F50124; Stn 1735, 3 specimens, NMV F50126. Westernport Bay, Crib Point, CPBS: Stn 03N, 7 specimens, NMV F50212; Stn 11S, 3 specimens, NMV F50213; Stn 31N, 2 specimens, NMV F50214; Stn 100, 2 specimens, NMV F50215. Wilsons Promontory: Hobbs Head, 9 Feb. 1982, 13 m, 1 specimen, NMV F50121; 2 km W of Growlers Ck., 5 Feb. 1982, 21 m, 1 specimen, *Zostera*, epibenthic sled, NMV F50122; bay S of Waterloo Point, 18 Feb. 1982, 19 m, 3 specimens, brown algae, epibenthic sled, NMV F50116. Corner Inlet: 3.5 km SE Port Albert, 22 Nov. 1983, 11 specimens, NMV F50216; Shelter Cove, 23 Nov. 1983, 2 specimens, NMV F50217; 38°43′S, 146°20′E, 24 Nov. 1983, 4 specimens including 1 male epitoke NMV F50218.

N.S.W. — Burrewarra Point, Apr. 1984, 14-17 m, 5 specimens, NMV F50224-5. Woolgoolga, July 1973, kelp holdfasts, 1 specimen, NMV F50226.

DESCRIPTION: Size range: 25 setigers, 4 mm length, less than 1 mm width (entire specimen) to 53 setigers, 31 mm length, 3 mm width (anterior fragment). Pharynx with paragnaths as pectinate bars on both rings, arranged as follows: Area I = O, II = O, III-up to 3 groups of short transverse bars; IV = 3-5 bars, several incomplete, forming a triangular or crescentic patch, V = O, VI-up

to 2 short transverse bars, VII-VIII = 3-5 short transverse bars.

Parapodial lobes globose over setigers 4-10, becoming elongate cones posteriorly. Notopodia from setiger 3 with two approximately equal lobes and basally attached dorsal cirrus about 1.5 times length of notopodia. Neuropodia with two lobes, ventral lobe longer than acicular lobe. Digitiform neuropodial postsetal process present except over setigers 4-10. Ventral cirrus basally attached, about three quarters length of neuropodia. Notosetae homogomph spinigers, homogomph falcigers present also over a variable number of posterior segments. Neurosetae homogomph spinigers and heterogomph falcigers in the dorsal fascicle and heterogomph spinigers and falcigers in the ventral fascicle.

Immature male epitoke (NMV F50218) with epitokal modifications appearing gradually at about setiger 20 but with crenulate dorsal cirri from setiger 15. Bases of dorsal cirri inflated over setigers 1-7 and of ventral cirri over 1-4. Lamellar lobes present dorsally to dorsal cirrus, dorsally and ventrally to ventral cirrus and postsetally in the neuropodium from about setiger 22. Tentacular and anal cirri extend over 16 and 18 setigers respectively. Natatory setae absent.

REMARKS: The material examined in this study agrees with the description of South Australian material by Hutchings and Turvey (1982), notably in the variability of the paragnaths on III which may be reduced or absent (especially on smaller specimens) and in the degree to which the blades of the notopodial falcigers are notched distally. The position at which notopodial falcigers are first present was also found to vary considerably and appears to be independent of size: homogomph falcigers may be present from setiger 25 (in an entire specimen of 49 setigers) or may be present only in the last 6-8 setigers. This is in contrast to the observations of Day (1967, 1975) and Imajima (1972) on a closely-related species, *Platynereis australis* (Schmarda 1861), in which notopodial falcigers are reported to be present in juveniles but are lost in adults. Both Day and Imajima accept that the absence of notopodial falcigers is the major character which distinguishes *P. australis* and *P. dumerilii*, although Hartman (1954) states that these two species also differ in the position at which modified parapodia appear in female epitokes.

All complete specimens examined in this study, including the material from Port Phillip Bay identified as *P. australis* by Knox and Cameron (1971), carried homogomph falcigers on a variable number of posterior notopodia and all are thus referred to *Platynereis dumerilii antipoda* Hartman 1954, following Hutchings and Turvey (1982). Both *Platynereis dumerilii antipoda* and *Platynereis australis* are widely reported from Australia (Day & Hutchings 1979).

DISTRIBUTION: Western Australia, South Australia, Tasmania, Victoria, New South Wales, Queensland. Also known from New Zealand.

HABITAT: Associated with algae and seagrass, usually on sheltered coasts, intertidal to 20 m. Also subtidally (below wave action) on exposed coasts and infrequently from rocky substrates in Bass Strait to 95 m.

ACKNOWLEDGEMENTS

I thank P. Hutchings (Australian Museum, Sydney) for constructive criticism and loan of specimens. I am grateful to C.C. Lu and G. Poore (Museum of Victoria) for much advice and assistance and to M. Harvey (Museum of Victoria) for critical reading of the manuscript. This study was supported by a Marine Sciences and Technologies Grant.

REFERENCES

AUGENER, H., 1913. Polychaeta, I, Errantia. *Fauna Südwest-Aust.* 4: 65-304. Jena.

AUGENER, H., 1922. Revision der Australischen Polychaeten-Typen von Kinberg. *Ark. Zool.* 14: 1-42.

AUGENER, H., 1927. Papers from Dr. T.H. Mortensen's Pacific Expedition 1914-1916. No. 38. Polychaeten von Südost-und Süd-Australien. *Vidensk. Meddr. dansk naturh. Foren.* 83: 71-275.

COLEMAN, N., CUFF, W., DRUMMOND, M. & KUDENOV, J.D., 1978. A quantitative survey of the macrobenthos of Western Port, Victoria. *Aust. J. mar. Freshwat. Res.* 29: 445-66.

DAY, J.H., 1967. *A Monograph on the Polychaeta of Southern Africa.* Part 1. Errantia. British Museum (Natural History) London. Publ. 656: 458 pp.

DAY, J.H., 1975. On a collection of Polychaeta from intertidal and shallow reefs near Perth, Western Australia. *Rec. West. Aust. Mus.* 3: 167-208.

DAY, J.H. & HUTCHINGS, P.A., 1979. An annotated checklist of Australian and New Zealand Polychaeta, Archiannelida and Myzostomida. *Rec. Aust. Mus.* 32: 80-161.

DORSEY, J.H. & SYNNOT, R.N., 1980. Marine soft-bottom benthic community offshore from Black Rock sewage outfall, Connewarre, Victoria. *Aust. J. Mar. Freshwat. Res.* 31: 155-62.

FAUCHALD, K., 1977a. The Polychaete Worms. Definitions and Keys to Orders, Families and Genera. *Los Angeles County Museum of Natural History Science Series.* 28: 1-190.

FAUCHALD, K., 1977b. Polychaetes from intertidal areas in Panama, with a review of previous shallow-water records. *Smithson. Contr. Zool.* 221: 1-81.

GRUBE, A.E. 1840. *Actinien Echinodermen und Würmen des Adriatischen und Mittelmeres.* 88 pp. Königsberg. (not seen)

HARTMAN, O., 1954. Australian Nereidae. *Trans. R. Soc. S. Aust.* 77: 1-41.

HARTMANN—SCHRÖDER, G., (in prep.). Revision der Gattung *Ceratonereis* Kinberg (Nereididae, Polychaeta) (Mit besonderer Berücksichtigung der Arten mit eingeschnittenem Prostomium).

HUTCHINGS, P.A. & TURVEY, S.P., 1982. The Nereididae of South Australia. *Trans. R. Soc. S. Aust.* 106: 93-144.

IMAJIMA, M., 1972. Review of the annelid worms of the family Nereidae of Japan with descriptions of five new species or subspecies. *Bull. Natl. Sci. Mus. Tokyo* 15: 37-153.

JONES, A.R. (ed.), 1977. *An Ecological Survey of Nearshore Waters East of Sydney, N.S.W. 1973-75.* Aust. Mus. Sydney, 320 pp.

KINBERG, J.G.H., 1866. Annulata nova. *Ofvers K. Vetensk Akad. Forh.* Vol. 22: 167-179, 238-258.

KNOX, G.A. & CAMERON, D.B., 1971. Port Phillip survey 1957-1963, Victoria, Australia. Part 2, No. 4 Polychaeta. *Mem. Natn. Mus. Vict.* 32: 21-42.

LINNAEUS, C., 1758. *Systema naturae*. Tenth edition. L. Salvii: Holmiae. (not seen)

MINISTRY FOR CONSERVATION, 1975. *Westernport Bay Environmental Study 1973-74*. Ministry for Conservation, Melbourne.

MONRO, C.C.A., 1936. Polychaeta worms II. *"Discovery" Rep.* 12: 59-198.

MONRO, C.C.A., 1939. Polychaeta. *Rep. B.A.N.Z. antarct. Res. Exped.* 4(4): 87-156.

POORE, G.C.B. & KUDENOV, J.D., 1978. Benthos of the Port of Melbourne: the Yarra River and Hobsons Bay, Victoria. *Aust. J. mar. Freshwat. Res.* 29: 141-155.

POORE, G.C.B., RAINER, S.F., SPIES, R.B. & WARD, E., 1975. The Zoobenthos Program in Port Phillip Bay, 1969-73. *Vict. Fish. Wildl. Pap.* No. 7: 1-78.

READ, G.B., 1980. A new species of *Nereis* (Polychaeta: Nereididae) from Wellington, New Zealand, rock shores. *J. R. Soc. N. Z.* 10: 185-193.

RULLIER, F., 1965. Contribution a la faune des Annelides Polychaetes de l'Australie. *Pap. Dep. Zool. Univ. Qld.* 2(9): 163-210.

SCHMARDA, L., 1861. *Neue Turbellarien, Rotatorien und Anneliden beobachtet und gesammelt auf einer Reise um die Erde 1853 bis 1857.* Leipzig Vol. 1 pt 2: 1-164.

WILLEY, A., 1905. Report on the Polychaeta collected by Professor Herdman, at Ceylon in 1902. *Ceylon Pearl Oyster Fisheries Suppl. Rep.*, pt. 4 pp. 243-324.

WILSON, R.S., 1984. *Neanthes* (Polychaeta: Nereididae) from Victoria with descriptions of two new species. *Proc. R. Soc. Vict.* 96: 209-226.

WILSON, R.S. & POORE, G.C.B., (in press). The Bass Strait survey: biological sampling stations, 1979-1983. *Occ. Pap. Mus. Vict.*