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SOME NEPHTYIDAE (POLYCHAETA) FROM AUSTRALIAN WATERS

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Figures 1-4

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During a stay at the Allan Hancock Foundation, University of Southern California, U.S.A., made possible by a grant from the Norwegian Research Council for Science and the Humanities, I had the opportunity to study a small collection of nephtyids from Australian waters sent to Dr. Olga Hartman by Mr. S. J. Edmonds, University of Adelaide, South Australia, Miss Isobel Bennet, the Australian Museum, Sydney, and Miss Barbara Dew, School of Public Health and Tropical Medicine, Sydney. I wish to express my gratitude to Dr. Olga Hartman for giving me the opportunity to study this collection and for all her help and advice during my stay at the Allan Hancock Foundation. I also wish to thank Mr. Anker Petersen for preparing the drawings.

The following summarizes the reports of nephtyids from Australian waters. The large report of Augener (1913) named only one, *Nephtys gravieri*, from Fremantle, Western Australia. Benham (1915, 1916) reported *Aglaophamus macroua* (Schmarda) 1861 from southern Australia. Augener (1922) reported and redescribed *Aglaophamus dibranchis* (Grube) 1878 from one specimen from southern Australia and later Augener (1927) reported *N. gravieri* and *A. dibranchis?* from Western Port, Victoria, and Disaster Bay respectively.

Key to Australian Species

1. Interramal cirri recurved *Nephtys* 2
Interramal cirri involute *Aglaophamus* 4
2. Proximal surface of proboscis smooth *N. gravieri* Augener 1913
Proximal surface of proboscis with prickles 3
3. Interramal cirri present from setiger 3; median acicular lobes broadly incised (Fig 3) *N. mirocirris* n. sp.
Interramal cirri present from setiger 4; median acicular lobes not incised (Fig. 1) *N. australiensis* n. sp.
4. Superior edge of the anterior neuropodia with a long erect lobe; notopodial cirri digitiform *A. dibranchis* (Grube) 1878
Superior edge of the anterior neuropodia with a small erect lobe; notopodial cirri foliaceous *A. macroua* (Schmarda) 1861

***Nephtys australiensis* n. sp.**

(Figures 1, 2)

Collection.—Holotype: Port Vincent, Yorke Peninsula, South Australia, sand. Paratypes: Port Vincent, Yorke Peninsula, South Australia, sand (5 specimens). Zostera roots, Stansbury, Yorke Peninsula, South Australia (2). Mudflat north of Salt Creek, Yorke Peninsula, South Australia (1). Zostera roots, Port Vincent, Yorke Peninsula, South Australia (1). Marine Biological Laboratory, Cronulla, probably intertidal (1). Camp Cove, Port Jackson, N.S.W., October 10, 1950, in 3 to 4 fms., rubble bottom (1).

The holotype is deposited in the Australian Museum, Sydney; paratypes and others are in the Allan Hancock Foundation, Los Angeles, California, and in the Biological Station, Espesrend, Blomsterdalen, Norway.

The holotype is a complete specimen with proboscis half extruded; it measures 45 mm. in length and 2 mm. in width and consist of 88 segments. The prostomium is pentagonal, longer than wide with the widest part in the anterior third. First antennae are short and blunt; second are about twice as long as the first and digitiform. No eyes could be made out. Nuchal papillae are present but small.

The proboscis, from another specimen, is slightly clavate with 22 rows of subterminal papillae and 5 to 6 papillae in each row. A median dorsal papilla is present. The proximal surface of the proboscis is covered with minute prickles.

The notopodial acicular lobe in the first setiger is conical; the other lobes and the notopodial cirrus are reduced. The neuropodial acicular lobe is short and rounded and the neuropodial cirrus is short and blunt. Fully developed parapodia at the twentieth setiger (Fig. 1) have both acicular lobes symmetrically conical. Both preacicular lobes are small but distinct and rounded. The notopodial postacicular lobe is longer than its corresponding acicular one; it is narrow, rectangular with its longest axis nearly lateral and is placed behind and dorsal to the acicular lobe. In the neuropodium the postacicular lobe is evenly rounded, nearly symmetrically placed behind the acicular lobe and longer than that lobe. The notopodial cirrus is truncate foliaceous, reaching the same length as the postacicular lobe. In the posterior part of the body this cirrus becomes narrower and in the last setigers is slender, digitiform. The neuropodial cirrus is digitiform.

The interramal cirrus is present from setiger 4 and continued to the end of the body. Each is large, thickset, with a well marked basal swelling, but no digitiform lobe. It may fill the space between the notopodium and neuropodium completely.

The setae are of three kinds; the preacicular fascicle has a few barred setae and more numerous geniculate setae with fine denticles at the cutting edge. The postacicular fascicle has only coarsely denticled geniculate setae with the denticles in a single row at the cutting edge (Fig. 2).

N. australiensis differs from *N. gravieri* Augener in the following characters: the proximal surface of the proboscis is covered with prickles in the first, a feature not mentioned for the second. The preacicular lobe is a distinct free lobe in the first and rudimentary in the second. The notopodial cirrus is broad, foliaceous in the first and digitiform in the second. The interramal cirri are large and recurved in the first and short and thickset in the second. Augener (1927) p. 116 described some specimens with "Die Dorsalcirren sind öfter nahezu eiförmig im Umriss"; this may refer to a second species, possibly *N. australiensis*.

Day (1953) described *N. capensis* from South African waters. It differs from both *N. australiensis* and *N. mirocirris* in the shape of the notopodial cirri and in the texture of the proximal part of the proboscis; this is smooth in *N. capensis* and prickled in both *N. australiensis* and *N. mirocirris*.

N. australiensis differs from *N. mirocirris* in the following characters: a median papilla is present on the proboscis in the first, lacking in the second; interramal cirri are present from setiger 4 in the first and from setiger 3 in the second; a small digitiform lobe on the superior edge of the interramal cirri is lacking in the first and present in the second. A unique feature in *N. mirocirris* is the character of the notopodial and neuropodial acicular lobes, which are broadly incised, the aciculum emerging from the inner convexities (Fig. 3).

***Nephtys mirocirris* n. sp.**

(Figures 3, 4)

Collection.—Holotype: Clinton, Yorke Peninsula, South Australia, sand. Paratypes: Clinton, Yorke Peninsula, South Australia, sand, (6 specimens). Corney Point, Yorke Peninsula, South Australia (1).

The holotype is deposited in the Australian Museum, Sydney; paratypes are in the Allan Hancock Foundation, Los Angeles, California, and in the Biological Station, Espesgrend, Blomsterdalen, Norway.

The description is based on the holotype; this is a complete specimen with 95 setigers, about 60 mm. long and 4 mm. wide. The prostomium is rounded rectangular with a nearly straight front. The first antennae are slender; the second about twice as long as the first and slender. There are some dark spots (eyes?) present on the dorsal side of the prostomium. Nuchal papillae are prominent.

The proboscis is cylindrical; the proximal surface is covered with minute prickles. The subterminal papillae are arranged in 22 rows with 5 to 7 papillae in each row. There is no median papilla.

The acicular lobe is conical in the notopodium of the first setiger; pre- and postacicular lobes and the notopodial cirrus are rudimentary. The acicular lobe in the neuropodium is very small and button-shaped; the neuropodial cirrus is well developed and digitiform. The notopodial acicular lobe in the fully developed parapodia is broadly incised with the aciculum emerging from the inferior convexity; both parts of the lobe are of about the same size and conical (Fig. 3). A similar incision is present in the neuropodial acicular lobe, but the inferior convexity is very small compared to the corresponding notopodial convexity. The notopodial preacicular lobe is well developed and rounded; the neuropodial preacicular lobe is rounded oval. The notopodial postacicular lobe is rounded, best developed on the dorsal side. The postacicular lobe in the neuropodium is nearly twice as long as the acicular lobe, somewhat asymmetrically rounded. The notopodial cirrus is rather long, digitiform; the neuropodial cirrus is digitiform. The pre- and postacicular lobes in both neuropodia and notopodia diminish in the posterior part of the body, in the last few setigers they are only small folds on each side of the acicular lobe. The incision in the acicular lobes is only distinct from setigers 15 to 40. The acicular lobes tend to get increasingly pointed in the hindmost setigers.

The interramal cirri are present from setiger 3 and continued to the last setigers. Each is comparatively short and stout, never fills the space between the notopodium and the neuropodium. A small digitiform lobe is present on the superior side near the base of all cirri.

A few barred setae are present in the notopodial preacicular fascicle near the inferior end; corresponding setae are present near the superior end in the neuropodial preacicular fascicle. Besides these both preacicular fascicles consist of slender, slightly geniculate setae with fine denticles. Coarse, slightly geniculate setae with one row of large denticles are present in both postacicular fascicles, besides a few slender setae with fine denticles as in the preacicular fascicles (Fig. 4).

In most respects the specimens agree with *N. gravieri* Augener 1913. They differ from the latter in the presence of the deep incision in the acicular lobes and in the presence of prickles on the proximal surface of the proboscis, both features presumably lacking in *N. gravieri*. See also discussion under *N. australiensis*.

***Nephtys gravieri* Augener, 1913**

Nephtys gravieri Augener 1913, pp. 123-125, Pl. II, fig. 5, Text fig. 6 a-c, Fremantle.

Nephtys gravieri Augener 1927, p. 116, Western Port, Victoria.

No specimens are available. *N. gravieri* is best known through its original description. Fauvel (1932) reported *N. gravieri* from India. His description, though brief, of the interramal cirri shows that he must have found *N. gravieri* or a closely related species. From the same description it is clear that it can have been neither *N. australiensis* nor *N. mirocirris*. Fauvel (1953) repeated the same description and gave, in addition, some drawings. His Fig. 114a of a prostomium was copied from Augener (1913) Pl. II, fig. 5, but his Fig. 114b of a parapodium is not that of *N. gravieri* as given in Augener (1913) Text fig. 6c.

***Aglaophamus dibranchis* (Grube) 1878**

Nephtys dibranchis Augener 1922, pp. 17-20, Fig. 5, south-east Australia, New South Wales.

Nephtys dibranchis Augener 1927, pp. 116-117, Disaster Bay, New South Wales.

Aglaophamus dibranchis Hartman 1950, p. 121, redescription.

No specimens are available. The species is redescribed in Augener (1922) and in Hartman (1950).

***Aglaophamus macroura* (Schmarda) 1861**

Nephtys macrura Benham 1915, p. 176, south of Australia?

Nephtys macrura Benham 1916, p. 130, east-north-east of Babel Island, Bass Strait, 1,200 fms.

Nephtys macrura Augener 1927, p. 116, Bass Strait (Benham).

Aglaophamus macroura Hartman 1950, pp. 118-120, redescription.

No specimens are available. It has been reported from Bass Strait by Benham (1916) in 1,200 fms. The species was redescribed in Hartman (1950).

***Aglaophamus virginis* (Kinberg) 1866**

Aglaophamus virginis Hartman 1953, pp. 30-31, Fig. 7 a-b, redescription.

Collection.—Macquarie Island Stations 57a and 58b (1 specimen from each). A.N.A.R.E. St. G 17/50, Heard Island, Atlas Cove, Camp Beach, August 18, 1950 (5).

This species has not been reported from Australia, but was present in the collection from Antarctic and sub-Antarctic waters. According to Hartman (1953) *A. virginis* differs from *A. macroura*, with which it is closely related, in the following characters: the proximal surface of the proboscis is smooth in the first and finely tuberculated in the second; the superior edge of the neuropodium may be auriculate in the first, but is never developed as an erect digitiform lobe as in the second.

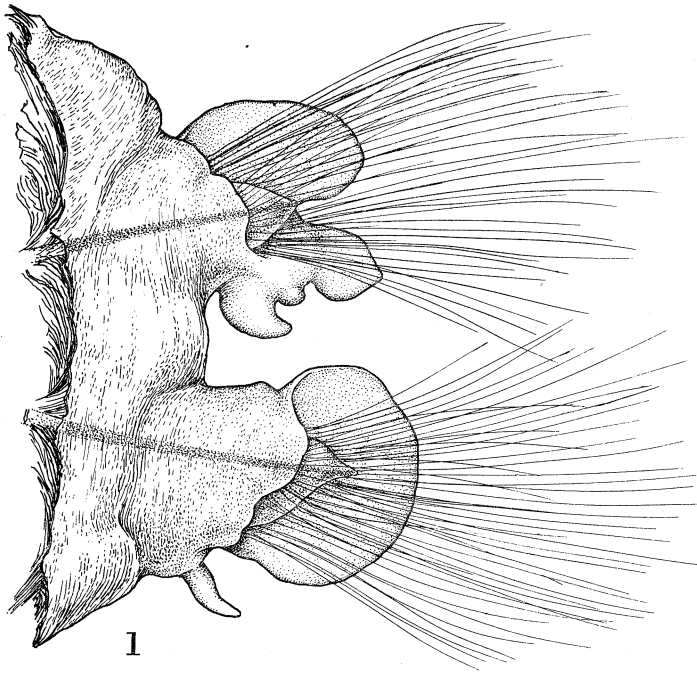
A. virginis seems to have a wide distribution in Antarctic waters. Because it has not been reported from Australia, it was not considered in the key to species.

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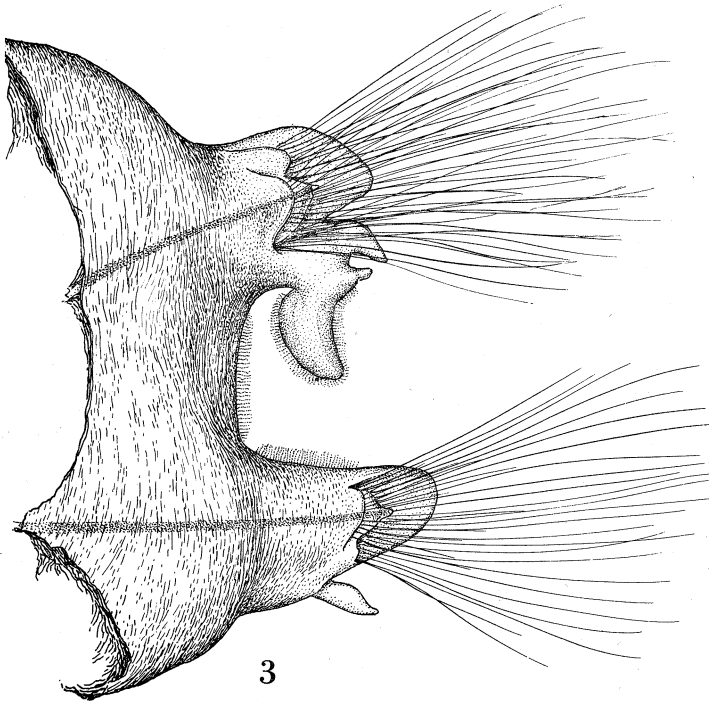
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EXPLANATION OF FIGURES

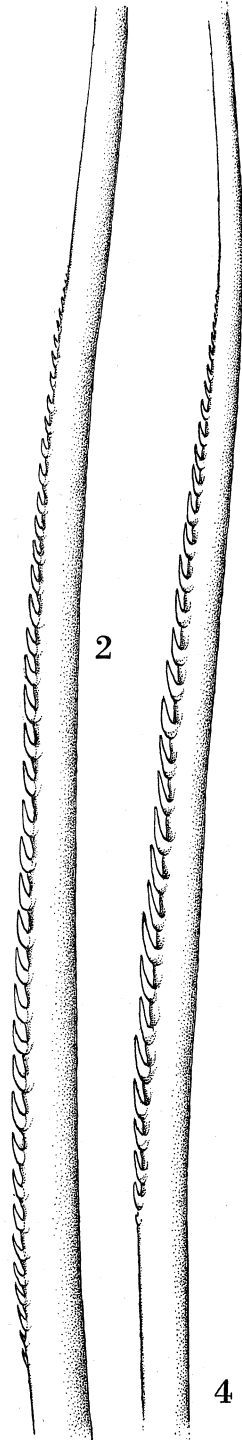
- Fig. 1. *Nephtys australiensis*, n. sp. 22nd parapodium in anterior view, x 41.
- Fig. 2. *Nephtys australiensis*, n. sp. Denticled section of a postacicular seta, from same parapodium, x 437.
- Fig. 3. *Nephtys mirocirris*, n. sp. 22nd parapodium in anterior view, x 68.
- Fig. 4. *Nephtys mirocirris*, n. sp. Denticled section of a postacicular seta, from same parapodium, x 526.



1



3



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