

Spionidae (Annelida, Polychaeta) from Japan  
IV. The Genus *Prionospio* (*Prionospio*)

By

Minoru IMAJIMA

Department of Zoology, National Science Museum, Tokyo

**Abstract** Ten species of the genus *Prionospio* (*Prionospio*) are described from Japanese waters. These include five new species, herein named *Prionospio* (*Prionospio*) *depauperata*, *P. (P.) lineata*, *P. (P.) membranacea*, *P. (P.) paradisea* and *P. (P.) variegata*. *Prionospio* (*Prionospio*) *anuncata* FAUCHALD, *P. (P.) caspersi* LAUBIER and *P. (P.) dubia* DAY are newly recorded from Japan. *Prionospio* (*Prionospio*) *bocki* is redescribed, based on the new material.

During the course of a study on spionids from Japanese waters, ten species including five new species of the genus *Prionospio* (*Prionospio*) were recorded. Of these species, *Prionospio* (*Prionospio*) *bocki* SÖDERSTRÖM, 1920 and *P. (P.) ehlersi* FAUVEL, 1928 are previously reported from Japan. *Prionospio* (*Prionospio*) *anuncata* FAUCHALD, *P. (P.) caspersi* LAUBIER and *P. (P.) dubia* DAY are newly reported from Japan, and the five new species are described. The collection localities mentioned in the text are shown in Fig. 1. The bulk of the collection, including type specimens, is deposited in the National Science Museum, Tokyo.

The author wishes to thank Dr. Nancy J. MACIOLEK, Massachusetts, U. S. A. for reading the manuscript and providing many helpful suggestions; and Ms. Leslie HARRIS, Los Angeles County Museum of Natural History for the loan of material for examination.

Genus *Prionospio* (*Prionospio*) MALMGREN, 1867, (*sensu stricto*)

Prostomium subtriangular, rectangular or oval in shape, with caruncle extending at least to level of setiger 1; eyes present or absent. Peristomium fused with or separated from setiger 1, often forming lateral wings. Parapodia of setiger 1 reduced, noto- and neuropodial lamellae largest in branchial region, reduced thereafter; notopodial lamellae often connected by low to high dorsal crests. Branchiae from setiger 2, numbering 4-5 pairs in various arrangements of pinnate with digitiform pinnules and apinnate branchiae. Interparapodial pouches present or absent. Anterior setae all capillaries; posterior neuro- and notopodial hooded hooks present, bi-, tri- or multidentate. Ventral sabre setae present. Pygidium with anal cirri.

**Key to Japanese Species of *Prionospio* (*Prionospio*)**

1. First and fourth pair of branchiae pinnate, second and third apinnate.....2
- 1'. Pinnate and apinnate branchiae arrangement otherwise.....9
2. Caruncle extending to base of setiger 1.....3
- 2'. Caruncle extending to base of setiger 2.....6
3. Fourth pair of branchiae nearly equal with first pair in length; with developed membranous dorsal crest across setiger 7.....  
..... *Prionospio* (*Prionospio*) *membranacea* sp. nov.
- 3'. Fourth pair of branchiae shorter than first pair in length; with or without dorsal crest .....4
4. Without dorsal crests throughout body.....*P. (P.) dubia* DAY
- 4'. With dorsal crests on anterior or posterior region.....5
5. With orange, rounded speckle on prostomium; first pair of branchia reaching setiger 5; neuropodial hooded hooks from setiger 11; dorsal crests starting on setiger 7, continuing to setiger 14.....*P. (P.) variegata* sp. nov.
- 5'. Without color pattern on prostomium; first pair of branchia reaching setiger 15–20; neuropodial hooded hooks from setiger 24–25; dorsal crests starting on setiger 45–50, continuing to near posterior end...*P. (P.) anuncata* FAUCHALD
6. Dorsal crests appearing from setiger 7; peristomium forming developed lateral wings.....*P. (P.) depauperata* sp. nov.
- 6'. Dorsal crests appearing from setiger 9–11; peristomium forming low lateral wings or not forming.....7
7. With interparapodial pouches on anterior setigers.....*P. (P.) bocki* SÖDERSTRÖM
- 7'. Without interparapodial pouches on anterior setigers.....8
8. Prostomium with two brown, longitudinal bands; with well-developed presetal lamellae on anterior notopodia; dorsal crests continuing to setiger 18.....  
.....*P. (P.) lineata* sp. nov.
- 8'. Prostomium without any color pattern; with normal presetal lamellae on anterior notopodia; dorsal crests continuing to setiger 60.....*P. (P.) paradisea* sp. nov.
9. First 3 pairs of branchiae apinnate, fourth pair pinnate; hooded hooks bidentate; without interparapodial pouches.....*P. (P.) caspersi* LAUBIER
- 9'. First pair of branchiae long, pinnate, second and third pairs shorter, apinnate, fourth pair long, apinnate; hooded hooks multidentate; with interparapodial pouches on anterior setigers.....*P. (P.) ehlersi* FAUVEL

***Prionospio* (*Prionospio*) *ehlersi* FAUVEL, 1928**

(Figs. 2a–e, 3a–l)

*Prionospio ehlersi* FAUVEL, 1928, pp. 10–11, fig. 1a–e; HARTMAN, 1965, pp. 151–152; DAY, 1967, p. 490, fig. 18.9. d–f; GIBBS, 1971, p. 170; BLAKE & KUDENOV, 1978, p. 217, fig. 20 m; TAMAI, 1988, pp. 25–32.

*Prionospio* (*Prionospio*) *ehlersi*: MACIOLEK, 1985, pp. 345–347, fig. 7.

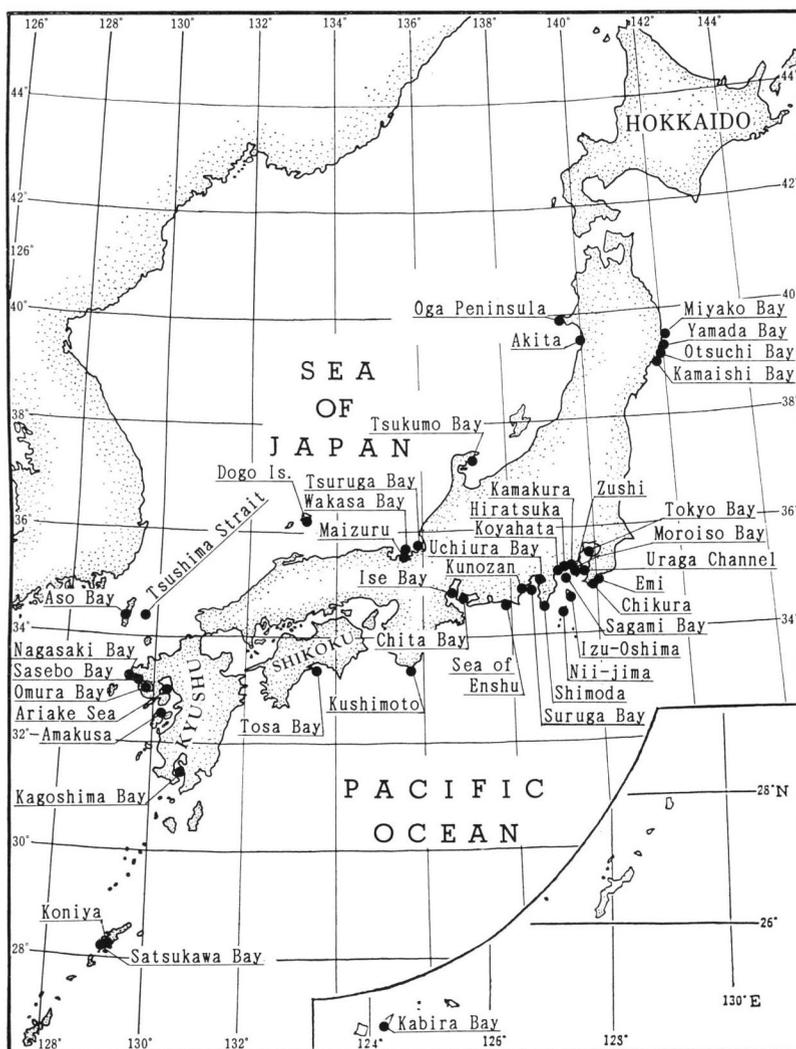


Fig. 1. Map of Japan, showing localities mentioned in the text.

*Material examined.* Miyako Bay,  $39^{\circ}37.4'N$ ,  $141^{\circ}59.1'E$ , in 17 m (3 specimens), VII-1967. Yamada Bay, in 27 m (3), in 60 m (8), in 83 m (5), VII-1967. Otsuchi Bay,  $39^{\circ}20.5'N$ ,  $141^{\circ}57.2'E$ - $39^{\circ}20.6'N$ ,  $141^{\circ}57.4'E$ , in 43-45 m (5), VIII-1979;  $39^{\circ}20.8'N$ ,  $141^{\circ}58.2'E$ - $39^{\circ}21.0'N$ ,  $141^{\circ}58.3'E$ , in 55-58 m (1), V-1984;  $39^{\circ}21.9'N$ ,  $141^{\circ}59.9'E$ - $39^{\circ}21.6'N$ ,  $141^{\circ}59.8'E$ , in 84-85 m (1), VII-1985. Kamaishi Bay, in 29 m (4), in 42 m (5), in 50 m (7), in 53 m (17), in 58 m (4), XI-1973. Uruga Channel,  $35^{\circ}11.4'N$ ,  $139^{\circ}45.3'E$ , in 76 m (1), XII-1978. Off Moroiso Bay, Sagami Bay, in 10 m (2), III-1979. Off Kamakura, Sagami Bay,  $35^{\circ}16.4'N$ ,  $139^{\circ}32.0'E$ , in 20 m

(1), X-1985. Off Zushi, Sagami Bay, 35°16.0'N, 139°32.9'E, in 37 m (2), 35°15.8'N, 139°32.7'E, in 45 m (2), VII-1969. Sagami Bay, 35°07.4'N, 139°28.0'E, in 830 m (1), 35°09.4'N, 139°34.0'E, in 101 m (5), 35°11.4'N, 139°34.0'E, in 37 m (1), 35°13.4'N, 139°30.0'E, in 140 m (4), 35°17.4'N, 139°26.0'E, in 19 m (1), 35°15.4'N, 139°30.0'E, in 64 m (2), VIII-1979; 35°12.4'N, 139°34.5'E-35°12.4'N, 139°34.2'E, in 48 m (6), 35°09.6'N, 139°34.5'E-35°10.2'N, 139°34.5'E, in 84 m (4), 35°14.0'N, 139°32.5'E-35°14.3'N, 139°32.5'E, in 84 m (11), 35°13.2'N, 139°34.1'E-35°13.4'N, 139°34.2'E, in 67 m (6), 35°08.0'N, 139°35.5'E-35°08.1'N, 139°36.2'E, in 62 m (1), IX-1979. Off Hiratsuka, Sagami Bay, 35°17.8'N, 139°22.0'E, in 40 m (1), 35°17.3'N, 139°25.7'E, in 42 m (1), 35°18.0'N, 139°21.2'E, in 34 m (2), 35°17.6'N, 139°23.2'E, in 58 m (1), 35°17.4'N, 139°20.0'E, in 50 m (5), 35°17.5'N, 139°19.2'E, in 40 m (2), 35°17.7'N, 139°21.5'E, in 50 m (2), VI-1982. Off Koyahata, Sagami Bay, in 40 m (4), in 70 m (2), in 80 m (2), V-1966. Near Shimoda, 34°39.7'N, 138°57.0'E-34°39.6'N, 138°56.9'E, in 17-28 m (6), 34°38.1'N, 138°56.1'E-34°38.6'N, 138°56.3'E, in 44-43 m (1), 34°44.9'N, 139°02.2'E-34°45.0'N, 139°01.9'E, in 85-57 m (4), 34°44.8'N, 139°02.0'E-34°44.9'N, 139°02.1'E, in 87-81 m (2), X-1981. Off Kunozan, Suruga Bay, 34°54.4'N, 138°27.7'E-34°54.4'N, 138°28.0'E, in 56-64 m (17), II-1978, KT-78-2. Sea of Enshu, 35°37.4'N, 137°37.2'E, in 60 m (2), V-1967. Chita Bay, 34°43.3'N, 136°59.7'E, in 20 m, VIII-1972 (1), IV-1973 (3). Ise Bay, 34°34.6'N, 136°49.9'E, in 25 m (1), VIII-1972; 34°40.8'N, 136°50.0'E, in 29 m (4), IV-1973. Off Kushimoto, 33°29.2'N, 135°48.4'E-33°29.4'N, 135°49.2'E, in 12-14 m (12), 33°37.2'N, 135°48.5'E, in 47 m (14), 33°29.1'N, 135°51.0'E, in 34 m (12), 33°28.9'N, 135°49.1'E, in 35 m (88), VII-1978. Off Oga Peninsula, 39°49.3'N, 139°52.8'E-39°47.2'N, 139°52.3'E, in 39-42 m (35), 39°49.9'N, 139°53.3'E-39°49.6'N, 139°53.4'E, in 31-33 m (21), 39°45.9'N, 139°49.9'E-39°45.8'N, 139°49.8'E, in 70-72 m (1), 39°52.5'N, 139°44.0'E-39°52.5'N, 139°43.8'E, in 49-62 m (2), 39°48.9'N, 139°51.1'E-39°49.1'N, 139°51.5'E, in 52-48 m (7), 39°47.8'N, 139°54.3'E-39°47.6'N, 139°53.8'E, in 39-42 m (3), 39°49.8'N, 139°47.2'E-39°49.9'N, 139°47.4'E, in 70-65 m (5), 39°48.5'N, 139°50.5'E-39°48.3'N, 139°50.1'E, in 57-62 m (43), 39°53.6'N, 139°42.5'E-39°53.7'N, 139°43.2'E, in 75-68 m (2), VI-1983. Off Akita, 39°47.0'N, 139°54.7'E, in 40 m (1), IV-1983; 39°47.0'N, 139°53.2'E, in 50 m, IV-1982 (3), VIII-1982 (2), IV-1983 (4); 39°47.0'N, 139°51.5'E, in 60 m, IV-1982 (2), VIII-1982 (1), IV-1983 (3); 39°47.0'N, 139°50.0'E, in 70 m (1), 39°47.0'N, 139°48.0'E, in 80 m (1), IV-1982. Tsukumo Bay, in 20 m (34), V-1973. Off Tsukumo Bay, in 25 m (19), in 40 m (4), V-1973. Maizuru Bay, in 11 m (14), in 13 m (1), in 14 m (5), in 15 m (13), in 17 m (24), in 25 m (1), in 27 m (7), in 30 m (17), VIII-1975. Tangokai, Wakasa Bay, in 78 m (3), VII-1976, coll. I. HAYASHI. Off Tosa Bay, 33°23.1'N, 133°37.4'E, in 80 m (5), 33°24.8'N, 133°36.3'E, in 65 m (1), IV-1970. Aso Bay, Tsushima, in 8 m (2), in 32 m (1), in 34 m (2), in 43 m (2), in 45 m (6), in 53 m (4), in 58 m (11), in 65 m (1), VII-1968. Nagasaki Bay, in 25 m (5), in 40 m (17), in 46 m (4), in 48 m (3), in 50 m (3), in 55 m (2), III-1971. Sasebo Bay, 33°05.8'N, 128°44.6'E, in 8 m (1), 33°07.0'N, 128°42.4'E, in 10 m (3), 33°04.1'N, 128°43.2'E, in 18 m (1), 33°07.0'N, 128°43.0'E, in 18 m (3), 33°05.0'N, 128°38.0'E,

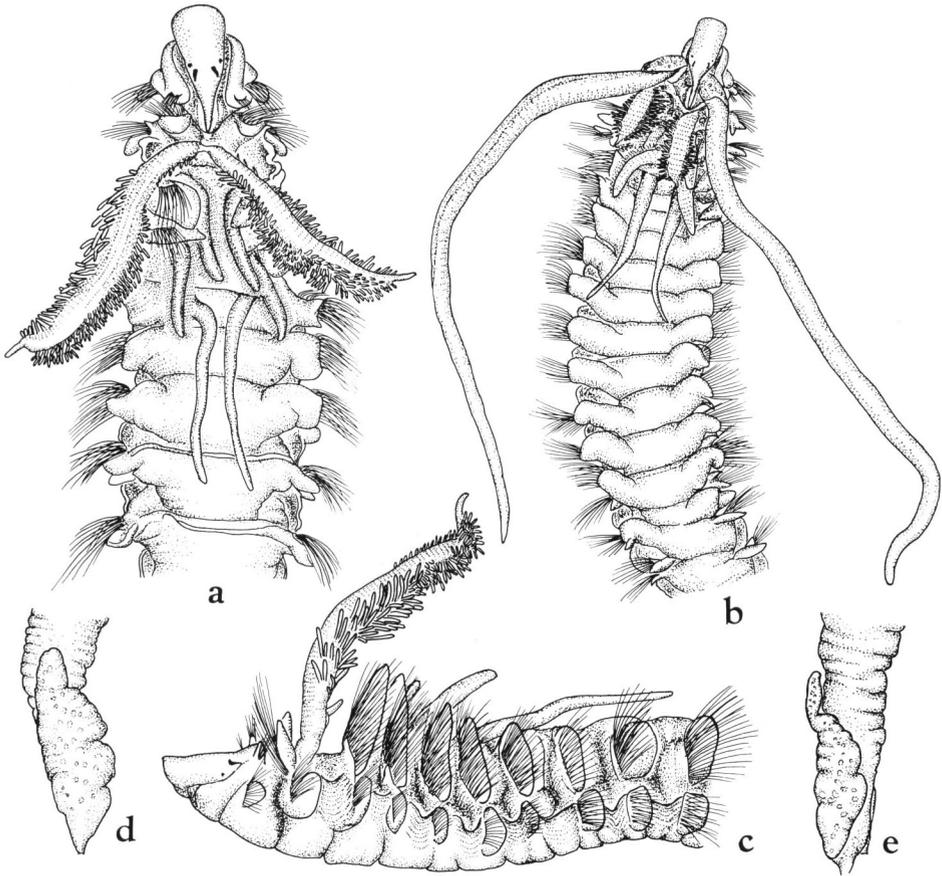


Fig. 2. *Prionospio (Prionospio) ehlersi* FAUVEL. — a-c, Anterior ends, dorsal (a, b) and lateral (c) views, a, c,  $\times 23$ , b,  $\times 20$ ; d, e, bases of palp,  $\times 82$ .

in 35 m (1), V-1972;  $33^{\circ}04.8'N$ ,  $128^{\circ}43.0'E$ , in 30 m, V-1972 (2), XI-1972 (2);  $33^{\circ}06.6'N$ ,  $128^{\circ}40.4'E$ , in 20 m, V-1972 (4), VIII-1972 (4), XI-1972 (1);  $33^{\circ}03.3'N$ ,  $128^{\circ}44.1'E$ , in 5 m (1), VIII-1972;  $33^{\circ}07.5'N$ ,  $128^{\circ}44.0'E$ , in 10 m (1),  $33^{\circ}05.2'N$ ,  $128^{\circ}40.0'E$ , in 30 m (1), II-1973. Omura Bay,  $33^{\circ}03.4'N$ ,  $128^{\circ}49.4'E$ , in 5 m (1), VI-1972;  $33^{\circ}01.0'N$ ,  $128^{\circ}45.2'E$ , in 17 m (1), VIII-1972. Amakusa, Kyushu, in 8 m (9), X-1963; in 10 m, VI-1978 (4), VIII-1978 (5), coll. H. TSUTSUMI. Kagoshima Bay,  $31^{\circ}33.8'N$ ,  $130^{\circ}33.8'E$ , in 50 m (1),  $31^{\circ}20.6'N$ ,  $130^{\circ}34.6'E$ , in 53 m (1), I-1974. Satsukawa Bay, Amami-Oshima,  $28^{\circ}10.6'N$ ,  $129^{\circ}15.0'E$ , in 74 m (3),  $28^{\circ}10.4'N$ ,  $129^{\circ}14.6'E$ , in 68 m (1), IV-1970, KT-70-2. Kabira Bay, Ishigakijima Island, in 12 m (1), in 13 m (1), in 14 m (3), III-1973.

*Description.* Largest complete individual with 99 setigers, measuring 21 mm in length and about 0.8 mm in width including parapodia. Body slender, subcy-

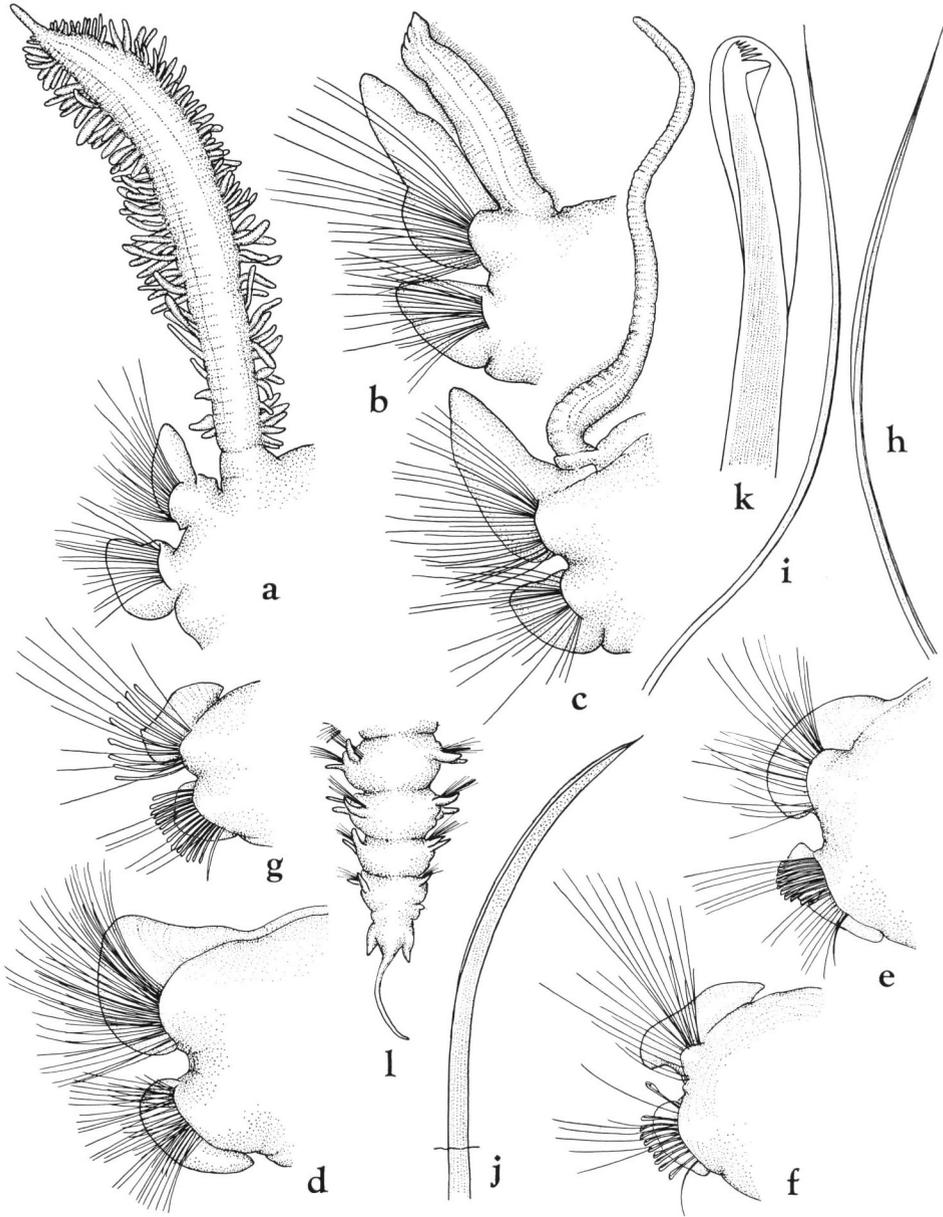


Fig. 3. *Prionospio (Prionospio) ehlersi* FAUVEL. — a, Second parapodium with branchia (first branchial segment), anterior view,  $\times 44$ ; b, third parapodium with branchia, anterior view,  $\times 44$ ; c, fifth parapodium with branchia, anterior view,  $\times 44$ ; d, 12th parapodium, anterior view,  $\times 44$ ; e, 20th parapodium, anterior view,  $\times 44$ ; f, 45th parapodium, anterior view,  $\times 44$ ; g, 70th parapodium, anterior view,  $\times 44$ ; h, i, notopodial setae from anterior parapodium, h,  $\times 225$ , i,  $\times 82$ ; j, ventral sabre seta,  $\times 390$ ; k, hooded hook, lateral view,  $\times 840$ ; l, posterior end, dorsal view,  $\times 840$ .

lindrical, colorless in alcohol.

Prostomium rectangular for greatest portion of length, broadly rounded anteriorly, tapering posteriorly to form narrow caruncle extending to setiger 2 (Fig. 2 a, b); caruncle spurrounded by nuchal organs on either side; two pairs of distinct eyes present, anterior pair spherical, posterior pair bean-shaped. Peristomium ventrally separate from setiger 1, dorsally fused, forming lateral wings (Fig. 2 a, c). Palps very long, tapering distally, extending back to setiger 20, with granular, membranous sheath on anterior side of base (Fig. 2 b, d, e).

Branchiae present on setigers 2–5, pair 1 covered with digitiform pinnules except at apical tip (Fig. 3 a); pairs 2 and 3 subequal in length, both pairs apinnate, elongate, just slightly longer than lamella (Fig. 3 b); pair 4 apinnate, narrower than pairs 2 and 3, extending to setiger 9 (Fig. 3 c).

Parapodia of setiger 1 with lanceolate noto- and neuropodial postsetal lamellae bearing setae. Parapodia of setiger 2 with triangular notopodial lamellae and subrectangular neuropodial lamellae (Fig. 3 a). Notopodial lamellae largest, subtriangular on branchial setigers; neuropodial lamellae broadly triangular (Fig. 3 b, c), decreasing in size thereafter, forming narrow dorsal crests on several setigers after setiger 8 (Fig. 3 d). Noto- and neuropodial lamellae on following setigers flattened throughout (Fig. 3 e–g). Interparapodial pouches beginning between setigers 2 and 3, continuing to mid-region of body (Fig. 2 a, c).

Anterior noto- and neuropodial setae thin, very lightly granulated with sheath (Fig. 3 h, i); setae arranged in three rows in anterior notopodia, and in two rows in anterior neuropodia. Ventral sabre setae from setiger 19 or 20, numbering one per fascicle; each seta short, stout with slight limbation, gently curved ventrally, slightly granulated (Fig. 3 j). Neuropodial hooded hooks from setiger 19–20, numbering up to 14 per fascicle; notopodial hooks from setiger 44–48, numbering up to eight per fascicle (Fig. 3 g); hooks accompanied by capillaries throughout; hooks with five pairs of small teeth above main tooth, with secondary hood (Fig. 3 k).

Pygidium with one long dorsomedial and two shorter ventrolateral cirri (Fig. 3 l).

*Remarks.* The species appears to be very common in the shallow waters in Japan (8 m –) and the Solomon Islands (2–22 m depth), whereas specimens are also known from 1,700 m depth in the North Atlantic Ocean.

*Distribution.* Morocco; Mediterranean Sea; Australia; Solomon Islands; Canary Islands; SW Africa; off New England; Japan; 2–1,700 m.

***Prionospio (Prionospio) caspersi* LAUBIER, 1962**

(Figs. 4a–e, 5a–k)

*Prionospio caspersi* LAUBIER, 1962, pp. 135–148, figs. 1–3.

*Material examined.* Tokyo Bay, 35°38.0'N, 140°00.0'E, in 7 m (1), VIII–1981; 35°30.0'N, 140°00.0'E, in 16 m (9), IX–1981. Sagami Bay, 35°18.1'N, 139°28.3'E, in 8 m (11), 35°17.4'N, 139°27.0'E, in 20 m (6), 35°13.4'N, 139°34.0'E, in 63 m (5),

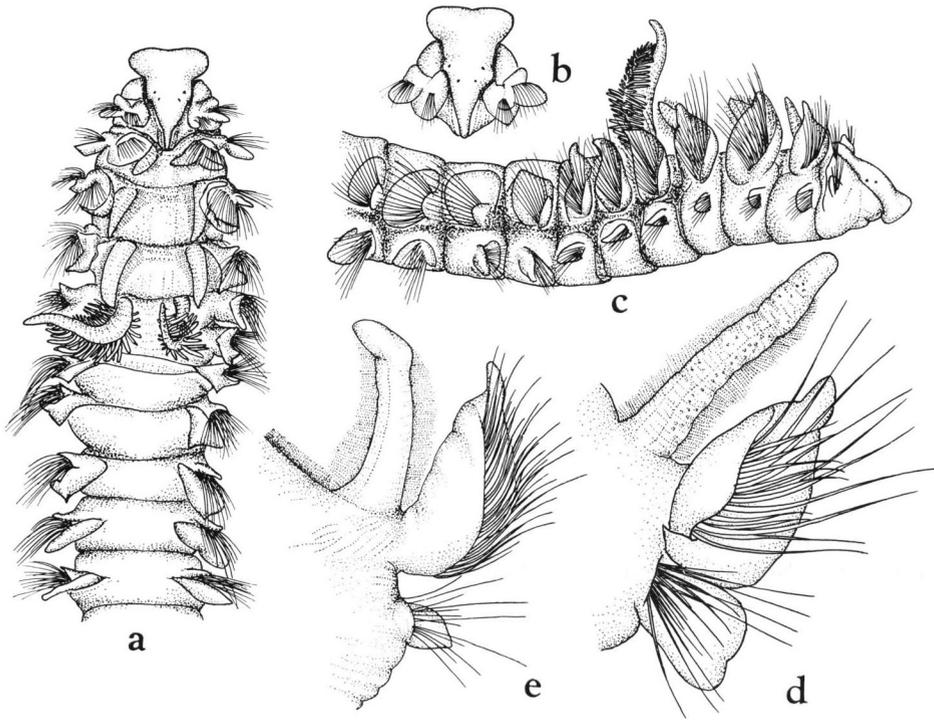


Fig. 4. *Prionospio (Prionospio) caspersi* LAUBIER. — a, Anterior end, dorsal view,  $\times 44$ ; b, prostomium and first setiger, dorsal view,  $\times 44$ ; c, anterior end, lateral view,  $\times 44$ ; d, second parapodium with branchia (first branchial segment), anterior view,  $\times 122$ ; e, fourth parapodium with branchia, anterior view,  $\times 88$ .

VII-1979;  $35^{\circ}18.1'N$ ,  $139^{\circ}23.0'E$ , in 13 m (3), V-1980. Off Koyahata, Sagami Bay, in 22 m (1), V-1966, in 68 m (8), VI-1966. Wakasa Bay, in 5 m (9), VIII-1973, coll. H. YOKOYAMA. Off Yuragawa, Wakasa Bay, in 3 m (4), IV-1976, coll. I. HAYASHI. Tsuruga Bay, in 6 m (1), in 11 m (1), IV-1976, coll. I. HAYASHI. Off Tosa Bay,  $33^{\circ}28.3'N$ ,  $133^{\circ}33.7'E$ , in 23 m (1), IV-1970. Kabira Bay, Ishigakijima Island, in 13 m (2), coll. M. HORIKOSHI.

*Description.* Largest complete individual with 60 setigers, measuring 15 mm in length and 0.5 mm in width including parapodia. Body slender, subcylindrical, colorless in alcohol.

Prostomium triangular, broadly flared anteriorly, with slight medial indentation, with narrow caruncle ending at base of setiger 1; two pairs of small eyes present, arranged in rectangle. Peristomium fused to setiger 1, not forming lateral wings (Fig. 4 a-c).

Branchiae present on setigers 2-5; pairs 1-3 apinnate, elongate, heavily ciliated (Fig. 4 d, e), usually shorter than pair 4; pair 4 with numerous digitiform pinnules

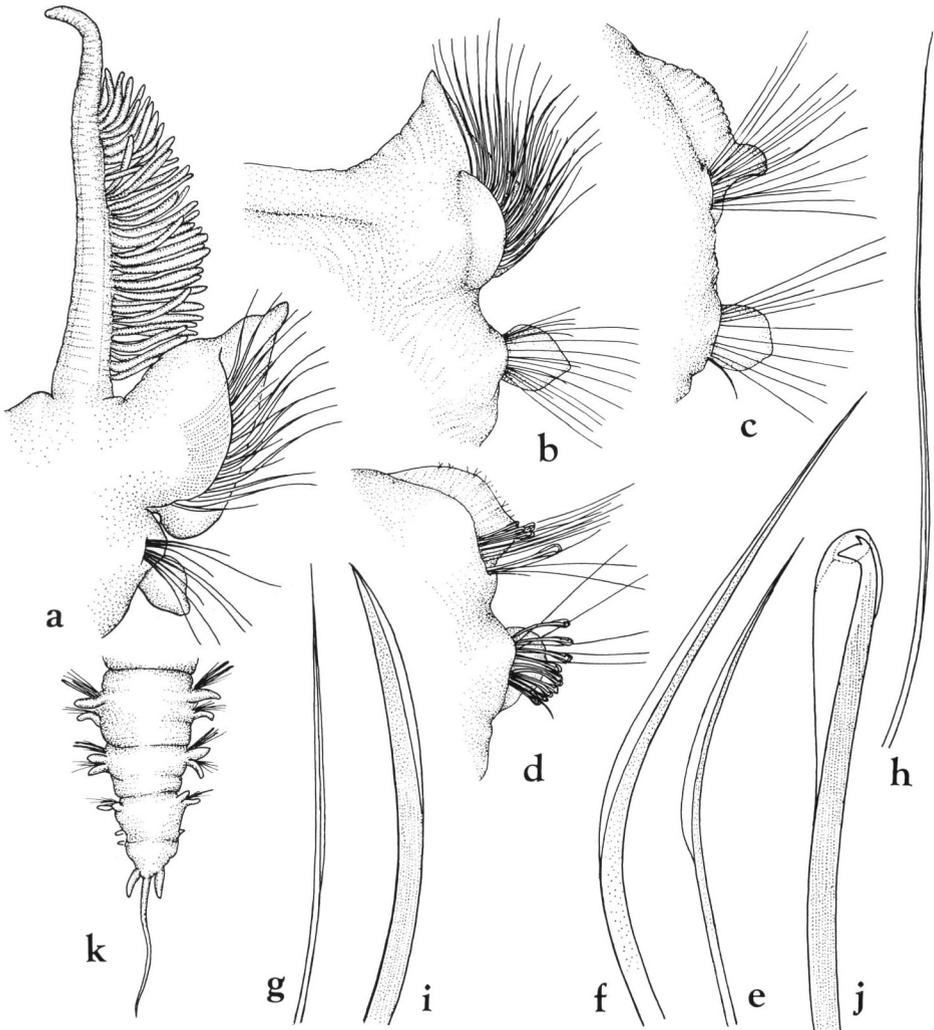


Fig. 5. *Prionospio (Prionospio) caspersi* LAUBIER. — a, Fifth parapodium with branchia, anterior view,  $\times 88$ ; b, seventh parapodium with dorsal crest, anterior view,  $\times 88$ ; c, 20th parapodium, anterior view,  $\times 88$ ; d, 40th parapodium, anterior view,  $\times 88$ ; e, f, notopodial setae from second parapodium,  $\times 353$ ; g, h, notopodial setae from posterior parapodium,  $\times 353$ ; i, ventral sabre seta,  $\times 638$ ; j, hooded hook from median parapodium, lateral view,  $\times 900$ ; k, posterior end, dorsal view,  $\times 44$ .

irregularly arranged on posterior face, not covering apical tip (Fig. 4 f).

Setiger 1 well-developed, with noto- and neuropodial lamellae and setae (Fig. 4 b). Notopodial postsetal lamellae largest in branchial region, lamellae triangular with pointed tip (Figs. 4 d, e, 5 a); neuropodial lamellae lanceolate. Notopodial

lamellae forming high membranous crest across dorsum of setiger 7 (Figs. 4 a, 5 b). Following notopodial lamellae gradually decreasing in size and becoming lower, not forming crests (Fig. 5 c, d); neuropodial postsetal lamellae rounded throughout.

Anterior setae all heavily granulated capillaries with wide sheath, arranged in two rows with setae of anterior row shorter than those of posterior row (Fig. 5 e, f); capillaries of posterior setigers thinner, with narrow sheath (Fig. 5 g, h). Ventral sabre setae from neuropodial setiger 11, numbering one or two per fascicle, each seta exhibiting distinct granulations and wide limbation (Fig. 5 i). Neuropodial hooded hooks from setiger 18–21, numbering up to 10 per fascicle; notopodial hooks from setiger 34–36, numbering up to eight per fascicle; hooks accompanied by capillaries throughout; hooks bidentate in lateral (Fig. 5 j) and frontal views, with small secondary hood.

Pygidium with one long medial and two shorter dorsolateral cirri (Fig. 5 k).

*Remarks.* Four species of *Prionospio* (*Prionospio*), *P. (P.) saldanha* DAY, 1961, *P. (P.) caspersi* LAUBIER, 1962, *P. (P.) vermillionensis* FAUCHALD, 1972 and *P. (P.) tridentata* BLAKE & KUDENOV, 1978, have been described in which the first 3 pairs of branchiae are apinnate and the last (fourth) pair is pinnate. *Prionospio* (*Prionospio*) *caspersi* may be distinguished from the related species in that (1) the anterior margin of the prostomium is weakly concave, (2) notopodial postsetal lamellae on setiger 7 form a well-developed, membranous dorsal crest and (3) hooded hooks are bidentate.

The species is new to the Japanese fauna.

*Distribution.* Adriatic; Japan; 3–68 m.

***Prionospio* (*Prionospio*) *depauperata* sp. nov.**

(Figs. 6a–d, 7a–l)

*Material examined.* Kamaishi Bay, in 53 m (1), XI–1973. Uruga Channel, 35°11.0'N, 139°46.3'E, in 51 m (2), XII–1978. Off Moroiso Bay, in 30 m (10), in 50 m (3), III–1979. Sagami Bay, 35°17.4'N, 139°28.0'E, in 17 m (2), 35°17.4'N, 139°26.0'E, in 19 m (3), 35°09.4'N, 139°37.0'E, in 11 m (1), 35°15.4'N, 139°32.0'E, in 43 m (5), 35°16.4'N, 139°24.0'E, in 270 m (1), VII–1979; 35°13.4'N, 139°30.0'E, in 140 m (1), 35°11.4'N, 139°30.3'E, in 550 m (1), VIII–1979; 35°08.8'N, 139°35.5'E–35°08.1'N, 139°36.2'E, in 62 m (12), 35°09.0'N, 139°35.4'E–35°09.3'N, 139°35.3'E, in 44 m (6), 35°07.4'N, 139°28.0'E, in 830 m (7), IX–1979; 35°07.4'N, 139°24.0'E, in 850 m (2), XI–1979; 35°17.4'N, 139°22.0'E, in 62 m (1), 35°17.4'N, 139°23.0'E, in 60 m (5), V–1980; 35°11.4'N, 139°18.0'E, in 920 m (1), VI–1980; 35°11.4'N, 139°09.2'E, in 83 m (2), 35°16.4'N, 139°16.0'E, in 88 m (1), 35°16.4'N, 139°18.0'E, in 78 m (2), VIII–1980; 35°17.3'N, 139°25.7'E, in 42 m (3), 35°17.7'N, 139°21.5'E, in 50 m (2), 35°17.4'N, 139°20.0'E, in 50 m (2), 35°17.7'N, 139°24.0'E, in 47 m (1), 35°17.6'N, 139°23.2'E, in 58 m (3), VI–1982. Near Shimoda, 34°44.8'N, 139°02.0'E–34°44.9'N, 139°02.1'E, in 87–81 m (2), 34°38.1'N, 138°56.1'E–34°38.6'N, 138°56.3'E, in 44–43 m (1), X–1981. Off Izu-Oshima, 34°42.5'N, 139°27.6'E–34°42.5'N, 139°

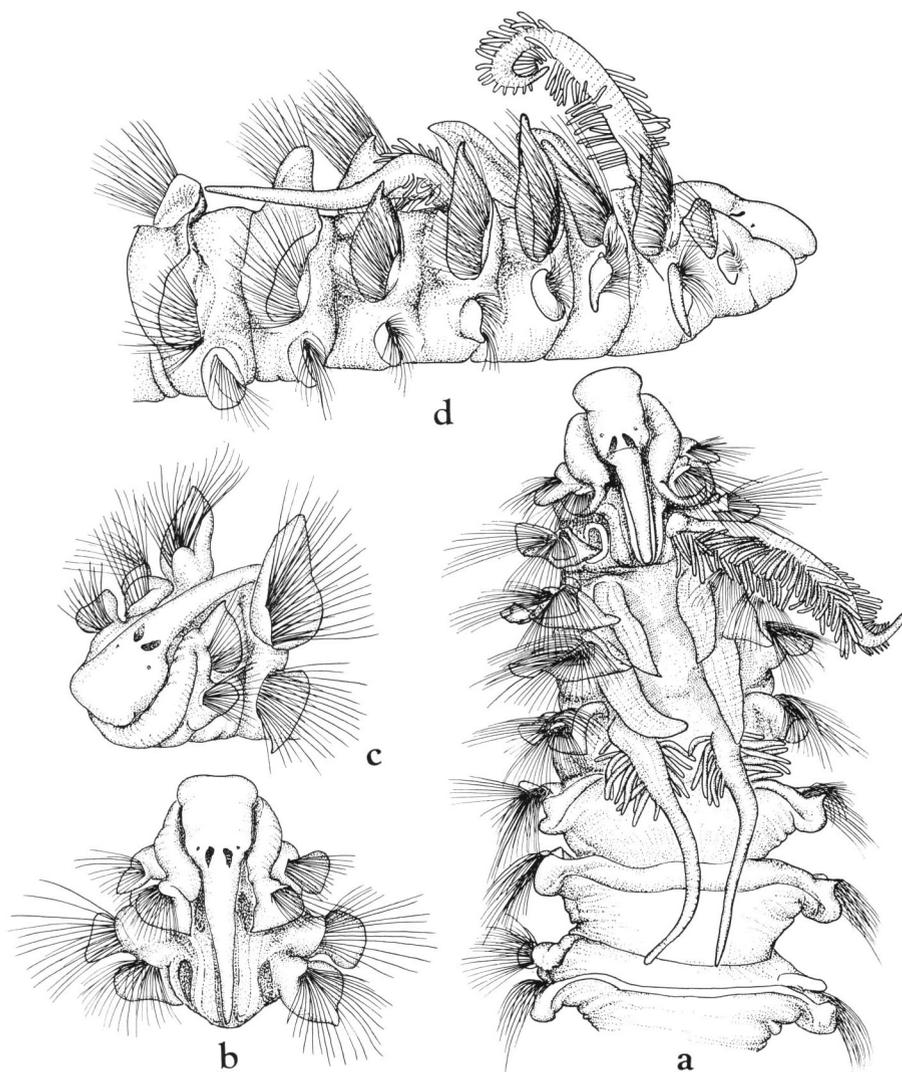


Fig. 6. *Prionospio (Prionospio) depauperata* sp. nov. — a, Anterior end of holotype, dorsal view, palps and first left branchia removed,  $\times 35$ ; b, anterior end of paratype, dorsal view, palps and first branchiae removed,  $\times 36$ ; c, same, antero-lateral view,  $\times 36$ ; d, anterior end of holotype, lateral view, left branchiae omitted,  $\times 35$ .

27.7'E, in 23–65 m (1), VII–1977. Off Koyahata, Sagami Bay, in 49 m (1), in 90 m (2), in 128 m (2), V–1966. Uchiura Bay, Suruga Bay, 35°01.6'N, 138°51.1'E, in 88 m (4), X–1973, KT–73–15. Off Kunozan, Suruga Bay, 34°54.4'N, 138°27.7'E–34°54.4'N, 138°28.0'E, in 56–64 m (18), II–1978, KT–78–2. Sea of Enshu, 35°39.2'N, 137°37.2'E, in 20 m (2), 35°36.4'N, 137°22.9'E, in 30 m (1), 35°37.4'N, 137°37.2'E, in 60 m (2),

V-1967. Around Oga Peninsula, 39°48.5'N, 139°50.6'E-39°48.3'N, 139°50.1'E, in 57-62 m (10), VI-1983. Off Akita, 39°47.0'N, 139°53.2'E, in 50 m (6), IV-1982; 39°47.0'N, 139°51.5'E, in 60 m, VI-1982 (6), IV-1983 (2). Tsukumo Bay, Noto Peninsula, in 20 m (holotype and 13 paratypes), in 25 m (70), in 40 m (9), V-1973. Tsuruga Bay, in 8 m (15), VII-1976, coll. I. HAYASHI. Off Maizuru Bay, in 30 m (1), VIII-1975. Wakasa Bay, in 60 m (1), VIII-1973, coll. H. YOKOYAMA. Tangokai, Wakasa Bay, in 95 m (1), VII-1976, coll. I. HAYASHI. Tosa Bay, 33°23.1'N, 133°37.4'E, in 80 m (1), 33°24.8'N, 133°36.3'E, in 65 m (1), IV-1970. Tsushima Strait, 34°27.6'N, 129°43.8'E, in 100 m (5), 33°57.7'N, 129°11.6'E, in 105 m (2), 33°48.6'N, 130°02.7'E, in 45 m (2), 34°23.1'N, 129°27.5'E, in 85 m (4), VII-1968. Aso Bay, Tsushima, in 8 m (1), in 23 m (2), VII-1968. Sasebo Bay, 33°05.2'N, 128°40.0'E, in 30 m (4), XI-1972; 33°06.0'N, 128°40.7'E, in 10 m (5), II-1973. Amakusa, Kyushu, in 10 m (1), V-1979, coll. H. TSUTSUMI. Kagoshima Bay, 31°20.6'N, 130°34.6'E, in 53 m (2), 31°16.5'N, 130°42.3'E, in 100 m (32), I-1974.

*Description.* Holotype largest complete individual with 96 setigers, measuring 30 mm in length and about 1 mm in width at anterior region including parapodia. Body slender, subcylindrical, colorless in alcohol.

Prostomium truncate (Fig. 6 a) or weakly concave in some paratypes (Fig. 6 b) on anterior margin, as wide at level of eyes as at anterior margin, giving rectangular appearance to anterior portion of prostomium, tapering posteriorly, with narrow caruncle extending to base of setiger 2; four eyes present, anterior pair small and subdermal, posterior pair large, crescentic (Fig. 6 a-d). Peristomium fused dorsally with setiger 1, forming low lateral wings (Fig. 6 a-d).

Branchiae present on setigers 2-5; pairs 1 and 4 pinnate, pairs 2 and 3 apinnate; first pair of branchiae usually larger, extending back to setiger 7, pinnules numerous, irregularly arranged on posterior face, extending to near tip of branchiae (Fig. 6 a, d); pairs 2 and 3 equal in length, shorter than pinnate pairs, heavily ciliated (Fig. 7 b); fourth pair of branchiae subequal in length to first pair, with digitiform pinnules limited to basal 1/3 on posterior face (Figs. 6 a, d, 7 c).

Parapodia of setiger 1 with lanceolate notopodial postsetal lamellae with notosetae and small squarish neuropodial postsetal lamellae bearing neurosetae (Fig. 6 b-d). Parapodia of setiger 2 with erect, triangular notopodial postsetal lamellae and neuropodial lamellae extending ventrally (Figs. 6 c, 7 a). Notopodial lamellae of setiger 3 enlarged, triangular, with pointed tip, slightly folded anteriorly; neuropodial lamellae broadly triangular (Fig. 7 b). Notopodial lamellae of setiger 7 connected in well-developed dorsal crest (Fig. 7 d); thereafter, low crests continuing to about setiger 13. Noto- and neuropodial lamellae on median parapodia low, rounded (Fig. 7 e). Posterior parapodia with small, bluntly triangular noto- and neuropodial lamellae (Fig. 7 f), those lamellae becoming elongated leaf-like lobes in far posterior setigers (Fig. 7 l). Interparapodial pouches lacking.

Anterior noto- and neuropodial setae all sheathed capillaries; setae of anterior row shorter, broadly sheathed (Fig. 7 g), those of posterior row longer, with narrow

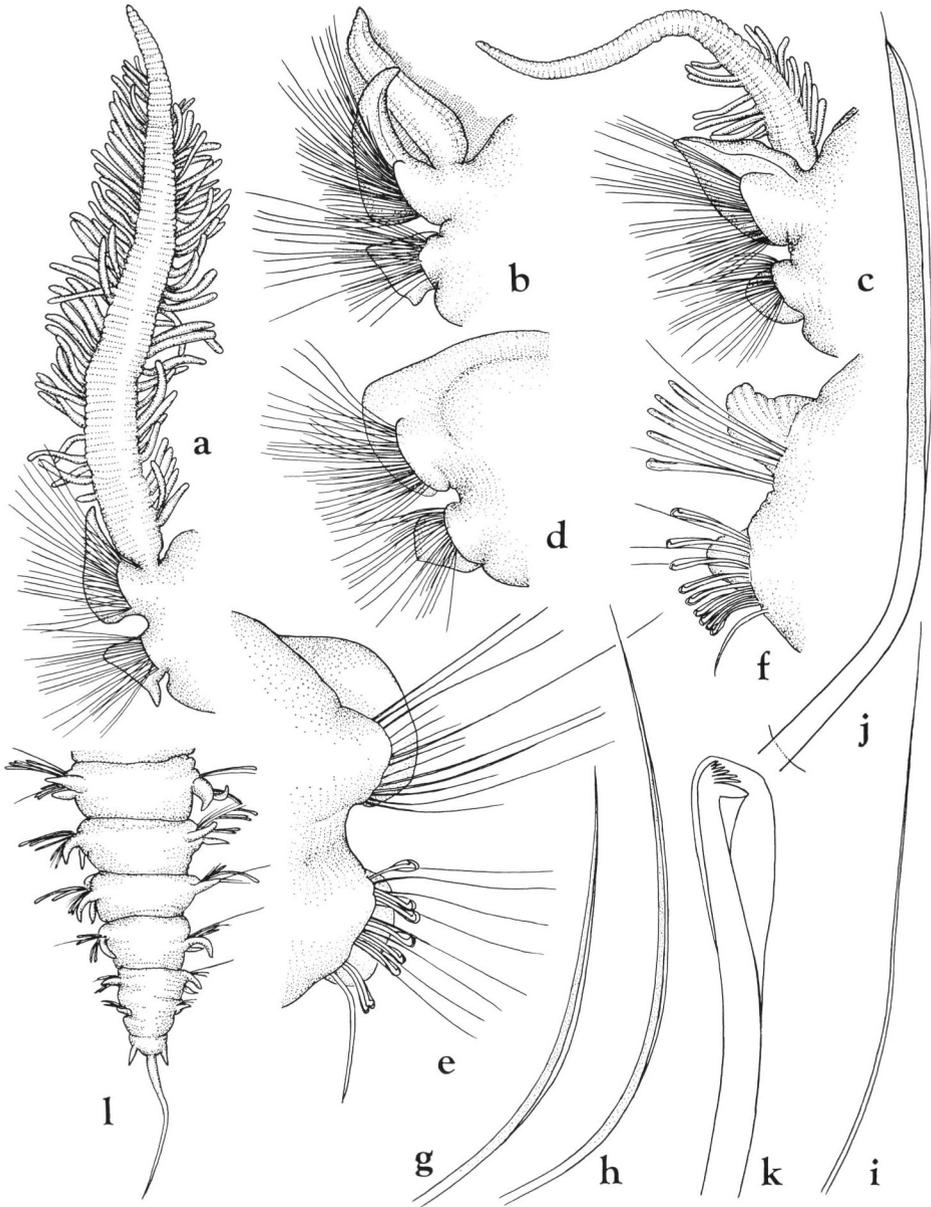


Fig. 7. *Prionospio (Prionospio) depauperata* sp. nov. — a, Second parapodium with branchia (first branchial segment), anterior view,  $\times 47$ ; b, third parapodium with branchia, anterior view,  $\times 47$ ; c, fifth parapodium with branchia, anterior view,  $\times 47$ ; d, seventh parapodium with dorsal crest, anterior view,  $\times 47$ ; e, 32nd parapodium, anterior view,  $\times 88$ ; f, posterior parapodium, anterior view,  $\times 88$ ; g, h, notopodial setae of anterior parapodium,  $\times 180$ ; i, notopodial seta of posterior parapodium,  $\times 180$ ; j, ventral sabre seta,  $\times 480$ ; k, hooded hook from median neuropodium,  $\times 900$ ; l, posterior end, dorsal view,  $\times 38$ .

sheath (Fig. 7 h); all capillaries moderately granulated; capillaries thinner in far posterior setigers (Fig. 7 i). Ventral sabre setae from neuropodial setiger 10, numbering one per fascicle, each seta slender, moderately granulated, with short, distal filament (Fig. 7 j). Neuropodial hooded hooks from setiger 15–16, numbering up to 10 per fascicle; notopodial hooks from setiger 45–47, numbering up to nine per fascicle; hooks accompanied by capillaries throughout; neuropodial hooks on median parapodia with 5–6 pairs of small teeth above main fang (Fig. 7 k), decreasing to 4 pairs of small teeth on posterior parapodia.

Pygidium with one long dorsomedial and two shorter dorsolateral cirri (Fig. 7 l).

*Remarks.* *Prionospio (Prionospio) depauperata* is similar to *P. (P.) steenstrupi* MALMGREN, 1867 from Iceland (as described in MACIOLEK, 1985) in that the prostomial shape is somewhat triangular and the dorsal crests occur from setiger 7 through several setigers. However, *P. (P.) depauperata* differs from *P. (P.) steenstrupi* in the shape of eyes, the arrangement of digitiform pinnules of the fourth pair of branchiae and the number of notopodial hooded hooks (9 vs. 4–7).

*Prionospio (Prionospio) depauperata* is similar to *P. (P.) orensanzi* BLAKE, 1983 from Argentina in the shape of the prostomial eyes, in the dorsal crests appearing from setiger 7 (not setiger 6, see fig. 10 a in BLAKE, 1983) and in the features of neuro- and notopodial hooded hooks and ventral sabre setae. However, *P. (P.) depauperata* is distinguished from *P. (P.) orensanzi* in the arrangement of digitiform pinnules of the fourth pair of branchiae and in the first occurrence of neuro- and notopodial hooded hooks (setiger 15–16 vs. setiger 20 in the neuropodia, setiger 45–47 vs. setiger 36 in the notopodia).

*Type-series.* Holotype, NSMT–Pol. H 308; 13 paratypes, NSMT–Pol. P 309.

*Distribution.* Japan; 8–920 m.

### *Prionospio (Prionospio) dubia* DAY, 1961

(Figs. 8a–e, 9a–h)

*Prionospio malmgreni* var. *dubia* DAY, 1961, pp. 489–490, fig. 3j–n.

*Prionospio (Prionospio) dubia*: MACIOLEK, 1985, pp. 336–339, figs. 2, 3.

*Material examined.* Miyako Bay, 39°37.4'N, 141°59.1'E, in 17 m (2), 39°38.8'N, 142°00.3'E, in 45 m (1), 39°39.2'N, 141°59.8'E, in 49 m (2), 39°39.5'N, 142°00.6'E, in 78 m (1), VII–1967. Otsuchi Bay, 39°22.9'N, 141°59.8'E–39°23.1'N, 141°59.9'E, in 83–85 m (1), VIII–1979. Kamaishi Bay, in 53 m (5), XI–1973. Off Chikura, 34°57.2'N, 140°02.4'E, in 130 m (6), 35°00.5'N, 140°07.5'E, in 150 m (122), IX–1976, KT–76–16. Uruga Channel, 35°09.3'N, 139°49.5'E, in 380 m (1), IX–1979. Sagami Bay, 35°15.4'N, 139°24.0'E, in 320 m (1), 35°12.3'N, 139°35.0'E, in 32 m (1), 35°12.3'N, 139°36.0'E, in 20 m (1), VIII–1979; 35°14.4'N, 139°13.0'E, in 420 m (1), 35°09.4'N, 139°10.0'E, in 115 m (2), 35°10.4'N, 139°09.2'E, in 112 m (10), 35°11.4'N, 139°09.2'E, in 83 m (3), 35°15.4'N, 139°13.0'E, in 250 m (6), 35°13.4'N, 139°10.0'E, in 210 m (4), 35°13.4'N, 139°11.0'E, in 370 m (3), 35°07.4'N, 139°08.0'E, in 94 m

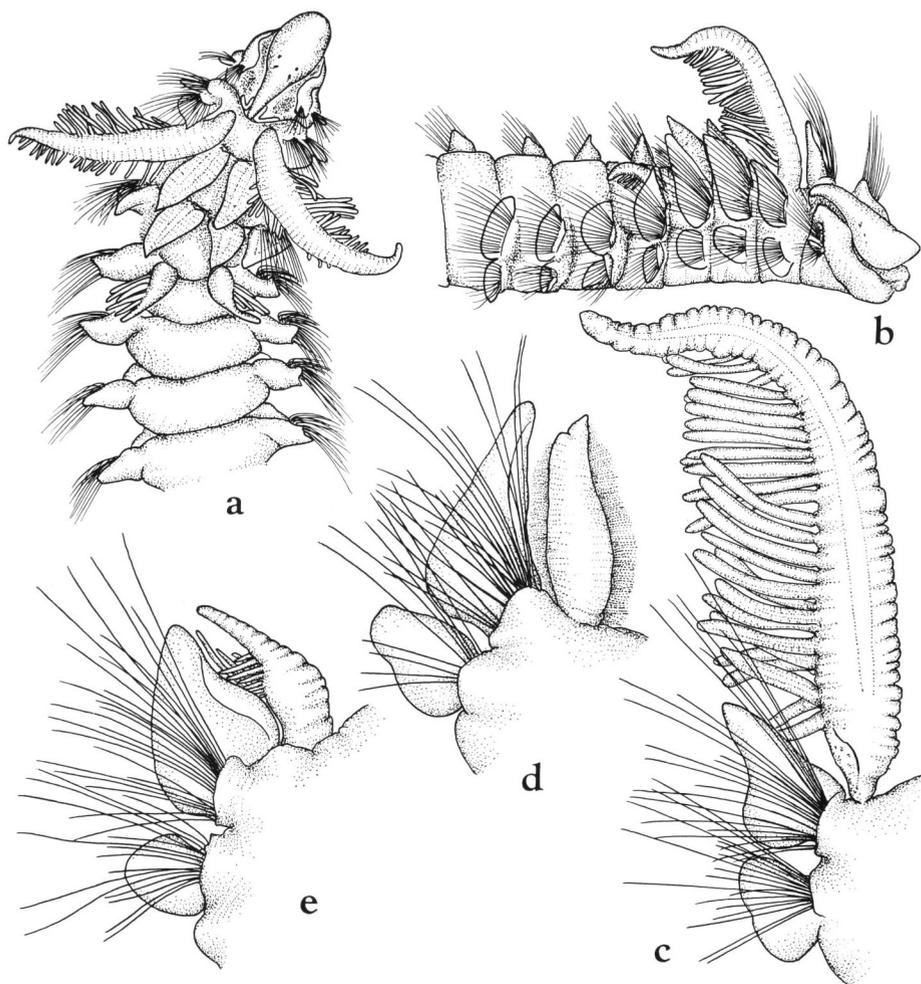


Fig. 8. *Prionospio (Prionospio) dubia* DAY.— a, Anterior end, dorsal view, palps removed,  $\times 38$ ; b, same, lateral view,  $\times 38$ ; c, second parapodium with branchia (first branchial segment), anterior view,  $\times 88$ ; d, third parapodium with branchia, anterior view  $\times 88$ ; e, fifth parapodium with branchia, anterior view,  $\times 88$ .

(2), VIII-1980. Off Zushi, Sagami Bay,  $35^{\circ}16.5'N$ ,  $139^{\circ}33.4'E$ , in 17 m (1),  $35^{\circ}15.8'N$ ,  $139^{\circ}32.7'E$ , in 45 m (5),  $35^{\circ}16.2'N$ ,  $139^{\circ}33.0'E$ , in 28 m (3), VII-1969. Off Koyahata, Sagami Bay, in 49 m (1), in 77 m (1), in 184 m (2), VII-1966. Near Shimoda,  $34^{\circ}45.0'N$ ,  $139^{\circ}02.1'E$ - $34^{\circ}45.1'N$ ,  $139^{\circ}02.1'E$ , in 80-51 m (12),  $34^{\circ}44.4'N$ ,  $139^{\circ}02.0'E$ - $34^{\circ}44.5'N$ ,  $139^{\circ}01.8'E$ , in 100-92 m (3),  $34^{\circ}44.9'N$ ,  $139^{\circ}02.2'E$ - $34^{\circ}45.0'N$ ,  $139^{\circ}01.9'E$ , in 85-57 m (2), X-1981. Suruga Bay,  $35^{\circ}04.0'N$ ,  $138^{\circ}47.4'E$ - $35^{\circ}04.0'N$ ,  $138^{\circ}47.5'E$ , in 252-270 m (2),  $34^{\circ}55.1'N$ ,  $138^{\circ}44.1'E$ - $34^{\circ}54.2'N$ ,  $138^{\circ}44.1'E$ , in 313-304 m (3), X-

1973. Off Kunozan, Suruga Bay, 35°54.8'N, 138°28.3'E, in 40 m (10), VII-1967. Sea of Enshu, 35°36.5'N, 137°37.2'E, in 80 m (25), 35°26.7'N, 137°15.5'E, in 80 m (7), 35°37.2'N, 137°49.8'E, in 60 m (12), 35°35.6'N, 138°01.9'E, in 80 m (2), V-1967. Around Oga Peninsula, 39°45.3'N, 139°48.8'E-39°45.0'N, 139°48.3'E, in 80-83 m (65), 39°48.5'N, 139°50.6'E-39°48.3'N, 139°50.1'E, in 57-62 m (78), 39°48.5'N, 139°45.4'E-39°48.8'N, 139°45.4'E, in 92-91 m (35), 40°06.1'N, 139°45.8'E-40°06.3'N, 139°45.5'E, in 68 m (2), 39°44.6'N, 139°47.8'E-39°44.3'N, 139°47.6'E, in 90-93 m (3), 39°48.5'N, 139°44.5'E-39°48.2'N, 139°44.6'E, in 104-102 m (1), 39°53.6'N, 139°41.5'E-39°53.5'N, 139°42.3'E, in 101-93 m (73), 39°53.6'N, 139°42.5'E-39°53.7'N, 139°43.2'E, in 75-68 m (134), VI-1983. Off Akita, 39°47.0'N, 139°51.5'E, in 60 m, IV-1982 (14), VI-1982 (21); 39°47.0'N, 139°50.0'E, in 70 m, IV-1982 (18), VIII-1982 (5); 39°47.0'N, 139°48.0'E, in 80 m, IV-1982 (11), VI-1982 (9); 39°47.0'N, 139°53.2'E, in 50 m (1), IV-1982; 39°47.0'N, 140°01.8'E, in 10 m (1), VI-1982. Off Tsukumo Bay, Noto Peninsula, in 40 m (3), V-1973. Tangokai, Wakasa Bay, in 95 m (1), VII-1976, coll. I. HAYASHI. Off Tosa Bay, 33°26.6'N, 133°34.8'E, in 45 m (2), 33°24.8'N, 133°36.3'E, in 65 m (2), IV-1970. Tsushima Strait, 34°08.1'N, 130°28.6'E, in 75 m (2), 34°27.6'N, 129°43.8'E, in 100 m (1), VIII-1968. Kagoshima Bay, 31°35.8'N, 130°35.5'E, in 44 m (15), I-1974. Off Koniya, Amami-Oshima Strait, 28°08.0'N, 129°17.6'E, in 63 m (2), IV-1970, KT-70-2. Kabira Bay, Ishigakijima Island, in 13 m (1), III-1974, coll. M. HORIKOSHI.

*Description.* Largest complete individual with 83 setigers measuring 28 mm in length and about 0.8 mm in width including parapodia. Body slender, subcylindrical, colorless in alcohol.

Prostomium rounded on anterior margin, with narrow caruncle reaching to base of setiger 1; caruncle surrounded by nuchal organ; four eyes present, but indistinct (Fig. 8 a). Peristomium dorsally fused to setiger 1, forming low lateral wings (Fig. 8 a, b).

Branchiae present on setigers 2-5; pairs 1 and 4 pinnate, first pair longest, reaching to setiger 7 (Fig. 8 b), with long digitiform pinnules on posterior face, pinnules not covering apical tip (Fig. 8 c); pairs 2 and 3 apinnate, subtriangular, heavily ciliated, not extending past tip of notopodial postsetal lamellae (Fig. 8 d); pair 4 much shorter than first pair (Figs. 8 e, 9 a).

Notopodial and neuropodial postsetal lamellae smallest on setiger 1; notopodial postsetal lamellae erect, subtriangular, largest in branchial region (Fig. 8 c, d). Subsequent parapodia with heart-shaped notopodial lamellae (Fig. 9 b), posterior lamellae low rounded lobes (Fig. 9 c, d). Neuropodial lamellae subrectangular (Fig. 8 c), round (Fig. 9 a) or squarish (Fig. 9 b) anteriorly, smallest in far posterior setigers (Fig. 9 c, d). No membraneous dorsal crests. Interparapodial pouches lacking.

Anterior noto- and neuropodial setae all moderately granulated capillaries with narrow sheath (Fig. 9 e); setae arranged in three rows on anterior notopodia, in two rows on anterior neuropodia (Fig. 9 b). Ventral sabre setae from setiger 13-14, numbering one per fascicle, gently curved ventrally, slightly granulated and with slight

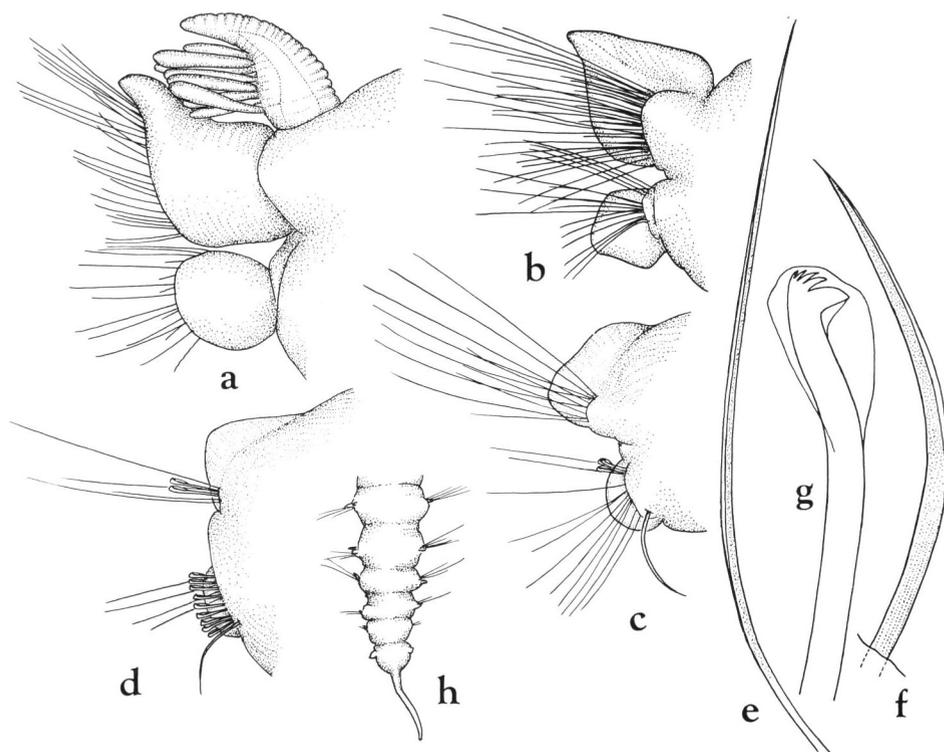


Fig. 9. *Prionospio (Prionospio) dubia* DAY. — a, Fifth parapodium with branchia of another specimen, posterior view,  $\times 88$ ; b, sixth parapodium, anterior view,  $\times 88$ ; c, 20th parapodium, anterior view,  $\times 88$ ; d, 70th parapodium, anterior view,  $\times 88$ ; e, notopodial seta of anterior parapodium,  $\times 240$ ; f, ventral sabre seta,  $\times 578$ ; g, hooded hook from median neuropodium,  $\times 900$ ; h, posterior end, dorsal view,  $\times 38$ .

limbation (Fig. 9 f). Neuropodial hooded hooks from setiger 15–16, numbering up to nine per fascicle; notopodial hooks from setiger 63–65, numbering up to two per fascicle; hooks accompanied by capillaries throughout; hooks with four pairs of small teeth above main tooth, secondary hood present (Fig. 9 g).

Pygidium with one long dorsomedial cirrus and two short ventrolateral lobes (Fig. 9 h).

*Remarks.* The characteristics of specimens from Japanese waters agree well with those from the North Atlantic (MACIOLEK, 1985). However, the Japanese specimens have notopodial hooded hooks from setiger 63–65, rather than from setiger 42–69 and anterior notopodial setae in three rows, rather than in two rows.

The species is newly recorded from the Asian area.

*Distribution.* South Africa; North Carolina; Virginia; Bay of Biscay; Mediterranean Sea; Sweden; Surinam; Japan; 17–2,379 m.

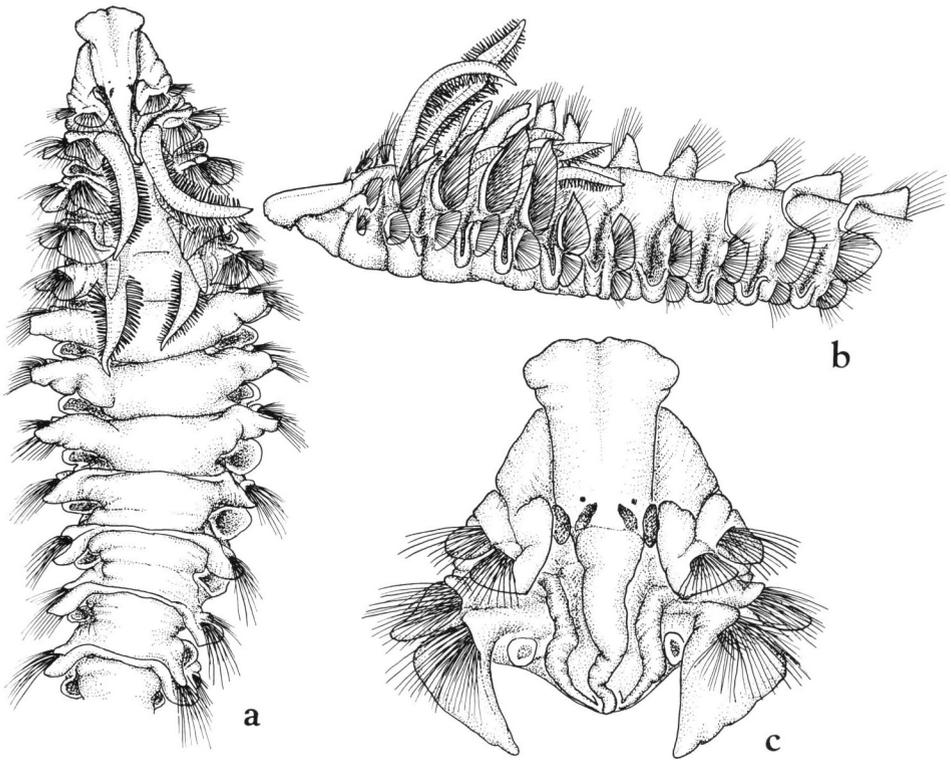


Fig. 10. *Prionospio (Prionospio) bocki* SÖDERSTRÖM. — a, Anterior end, dorsal view, palps removed,  $\times 20$ ; b, same, lateral view,  $\times 20$ ; c, anterior end of another specimen, dorsal view, palps and branchiae removed,  $\times 35$ .

***Prionospio (Prionospio) bocki* SÖDERSTRÖM, 1920**

(Figs. 10a–c, 11a–j)

*Prionospio bocki* SÖDERSTRÖM, 1920, pp. 234–235, figs. 142, 143; DAY, 1967, p. 490; MACIOLEK, 1985, p. 336.

*Material examined.* Uruga Channel, in 94 m (5), VIII–1971, KT-71–12. Sea of Enshu,  $35^{\circ}32.9'N$ ,  $137^{\circ}25.4'E$ , in 80 m (3),  $35^{\circ}35.6'N$ ,  $138^{\circ}01.9'E$ , in 80 m (1),  $35^{\circ}37.4'N$ ,  $137^{\circ}37.2'E$ , in 60 m (1), V–1967. Tangokai, Wakasa Bay, in 70 m (1), VII–1976, coll. I. HAYASHI. Aso Bay, Tsushima, in 50 m (3), VII–1968.

*Description.* All material posteriorly incomplete; largest one measuring 30 mm in length and about 1.7 mm in width for 56 setigers including parapodia; oocytes present in largest specimen.

Prostomium subtriangular, broadly flared on anterior margin, posteriorly tapered with narrow caruncle ending at base of setiger 2; caruncle surrounded by well-developed nuchal organs; four eyes present, posterior pair very large (Fig. 10 a, c). Peristomium

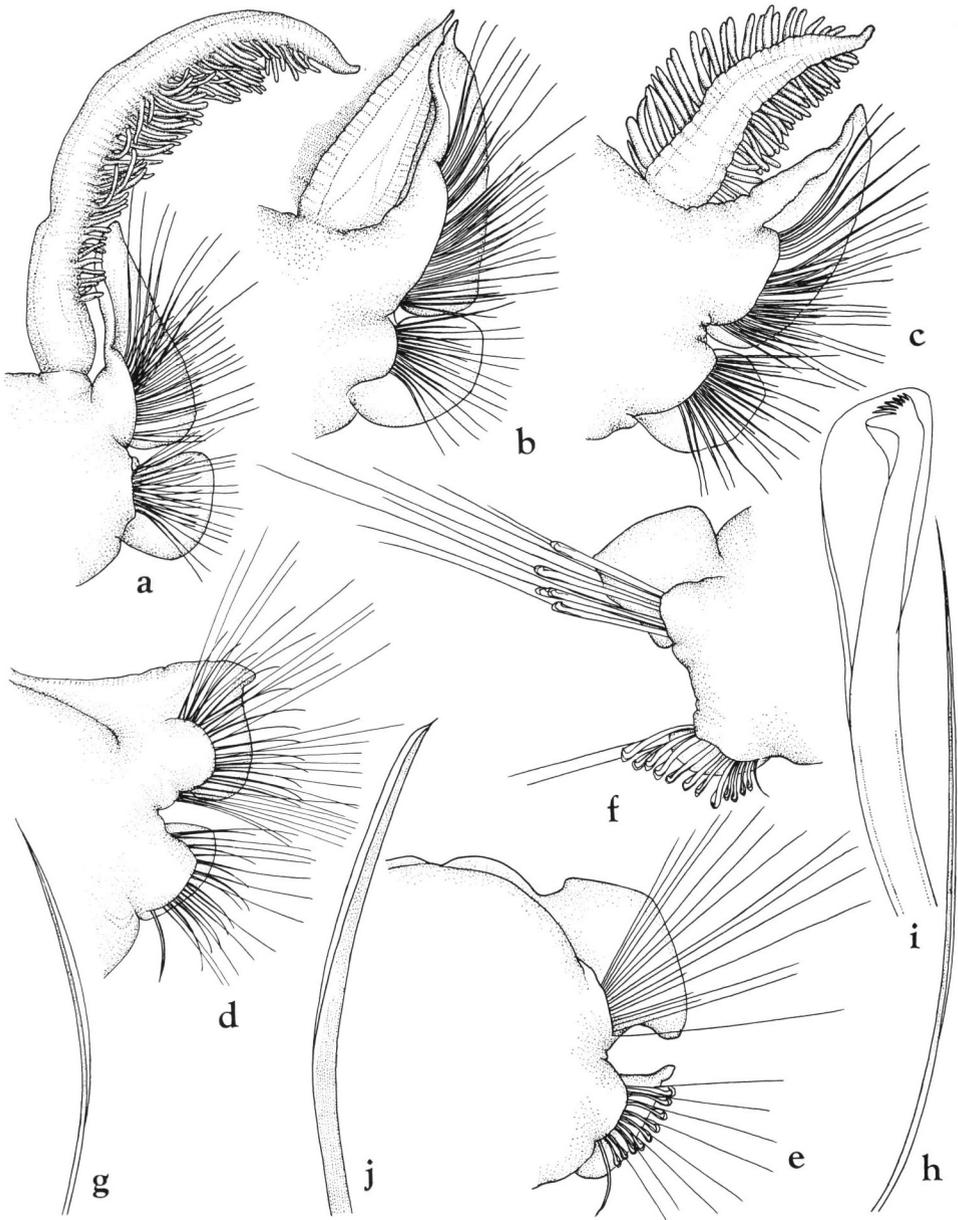


Fig. 11. *Prionospio (Prionospio) bocki* SÖDERSTRÖM. — a, Second parapodium with branchia (first branchial segment), anterior view,  $\times 54$ ; b, third parapodium with branchia, anterior view,  $\times 54$ ; c, fifth parapodium with branchia, anterior view,  $\times 54$ ; d, 11th parapodium, anterior view,  $\times 54$ ; e, 27th parapodium, anterior view,  $\times 54$ ; f, posterior parapodium, anterior view,  $\times 82$ ; g, h, notopodial setae of anterior parapodium,  $\times 170$ ; i, hooded hook from median neuropodium,  $\times 670$ ; j, ventral sabre seta,  $\times 330$ .

ventrally separated from setiger 1, dorsally fused, forming low lateral wings (Fig. 10 b, c).

Branchiae present on setigers 2–5; pairs 1 and 4 pinnate, with digitiform pinnules, first pair about twice in length of pair 4 (Fig. 11 a, c); pairs 2 and 3 apinnate, subtriangular, nearly equal in length, sometimes narrowing abruptly at tip, with cilia on lateral sides (Fig. 11 b).

Setiger 1 well-developed, with noto- and neuropodial postsetal lamellae smaller than on subsequent setigers; notopodial lamellae elongated, triangular, largest in branchial region (Fig. 11 a–c); lamellae smaller, triangular posteriorly (Fig. 11 d–f). Neuropodial lamellae largest in branchial region, rectangular with rounded edges (Fig. 11 a–c); those in posterior setigers low, rounded (Fig. 11 d–f). Dorsal crests beginning from setiger 9–10, continuing to about setiger 25 (Fig. 11 d); thereafter, low crests interrupted at mid-dorsal line continuing to setiger 35 (Fig. 11 e). Interparapodial pouches beginning between setigers 2 and 3, continuing to setigers 13–15 (Fig. 10 a, b).

Anterior setae all moderately granulated, sheathed capillaries (Fig. 11 g, h); notopodial setae arranged in three rows, with setae of anterior row shortest; neuropodial setae arranged in two rows, with anterior row shorter and posterior row longer. Neuropodial hooded hooks from setiger 14–16, numbering up to 11 per fascicle; notopodial hooks from setiger 44–46, numbering up to 5 per fascicle; hooks accompanied by capillaries throughout; hooks with 6–7 pairs of small teeth above main fang, secondary hood small (Fig. 11 i). Ventral sabre setae from neuropodial setiger 10, moderately granulated, numbering one or two per fascicle (Fig. 11 j).

Pygidium unknown.

*Remarks.* *Prionospio (Prionospio) bocki* from Kobe Bay (the type locality) is characterized by having the first and last pairs of branchiae pinnate and also by having lateral pouches from setiger 2–3. However, the original description is rather incomplete and the type material is not present in the collections of the Zoologiska Museet, Uppsala (MACIOLEK, 1985: 336). The material examined differs from the original description in the first occurrence of noto- and neuropodial hooded hooks (12 vs. 14–16 in the neuropodia and 32 vs. 44–46 in the notopodia).

*Prionospio (Prionospio) bocki* was synonymized with *P. malmgreni* by IMAJIMA & HARTMAN (1964) and with *P. steenstrupi* by FOSTER (1971), but was recognized as a valid species by MACIOLEK (1985). The report of *Prionospio bocki* from Onomichi, Hiroshima Prefecture by OKUDA (1937: 242) is questionable.

*Distribution.* Japan; Madagascar; 50–80 m.

### *Prionospio (Prionospio) anuncata* FAUCHALD, 1972

(Figs. 12a–d, 13a–j)

*Prionospio (Prionospio) anuncata* FAUCHALD, 1972, pp. 193–194, pl. 39, figs. a–e.

*Material examined.* Off Chikura, Boso Peninsula, 34°57.2'N, 140°02.4'E–

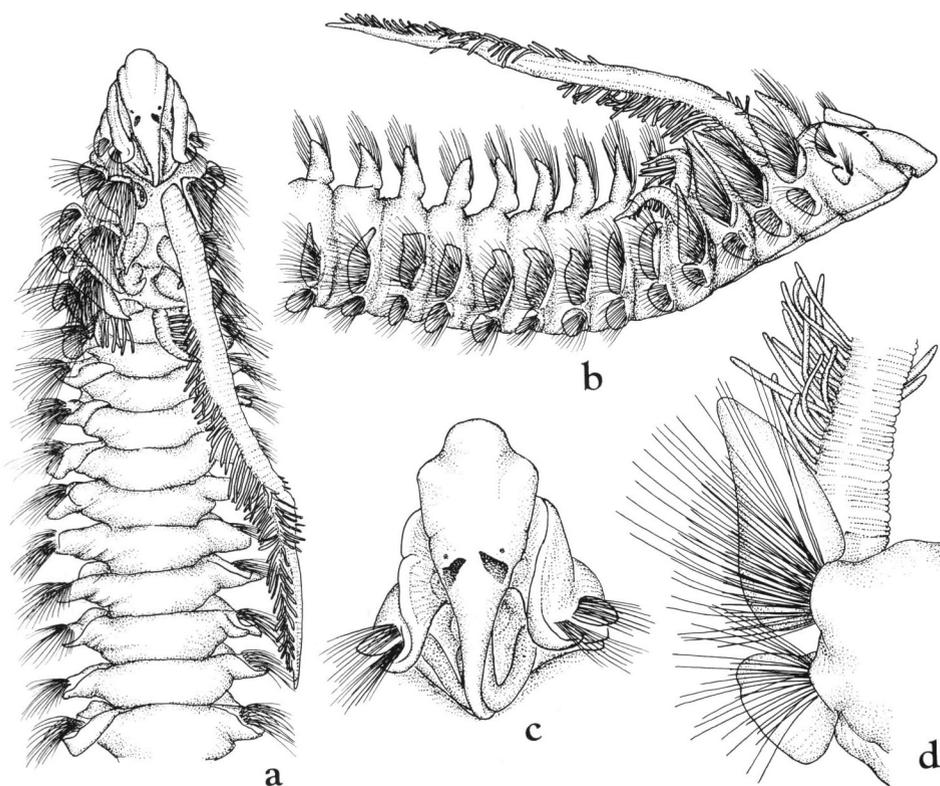


Fig. 12. *Prionospio (Prionospio) anuncata* FAUCHALD. — a, Anterior end, dorsal view, left branchia removed,  $\times 18$ ; b, same, lateral view,  $\times 18$ ; c, prostomium and first setiger, dorsal view,  $\times 38$ ; d, second parapodium with branchia (first branchial segment), anterior view,  $\times 47$ .

34°57.6'N, 140°02.7'E, in 115 m (1), IX-1976, KT-76-16. Off Emi, Boso Peninsula, 35°00.1'N, 140°06.8'E-35°00.5'N, 140°07.5'E, in 145-150 m (2), IX-1976, KT-76-16. Off Koyahata, Sagami Bay, in 261 m (1), V-1966. Sagami Bank, 35°08.7'N, 139°24.1'E in 610 m (1), X-1966, KT-66-23. Sagami Bay, 35°15.4'N, 139°32.0'E, in 43 m (1), VII-1979; 35°13.4'N, 139°30.0'E, in 140 m (1), VIII-1979; 35°16.4'N, 139°18.0'E, in 78 m (1), VIII-1980; 35°15.5'N, 139°25.8'E, in 100 m (1), VI-1982. Suruga Bay, 35°03.1'N, 138°50.6'E-35°02.2'N, 138°50.8'E, in 100-99 m (1), X-1973, KT-73-15; 34°55.8'N, 138°43.8'E-34°56.4'N, 138°43.8'E, in 365-380 m (1), II-1976, KT-76-3. Off Akita, 39°47.0'N, 139°58.0'E, in 30 m (1), IV-1982; 39°47.0'N, 139°54.7'E, in 40 m (1), IV-1983; 39°47.0'N, 139°53.2'E, in 50 m, IV-1982 (2), IV-1983 (8); 39°47.0'N, 139°51.5'E, in 60 m, IV-1982 (4), VI-1982 (10); 39°47.0'N, 139°50.0'E, in 70 m (1), IV-1982; 39°47.0'N, 139°48.0'E, in 80 m, VI-1982 (1), VIII-1982 (1). Around Oga Peninsula, 39°53.6'N, 139°41.5'E-39°53.5'N, 139°42.3'E, in 101-93 m

(1), 39°53.6'N, 139°42.5'E–39°53.7'N, 139°43.2'E, in 75–68 m (1), 39°48.5'N, 139°45.4'E–39°48.8'N, 139°45.3'E, in 92–91 m (2), 39°48.5'N, 139°50.6'E–39°48.3'N, 139°50.1'E, in 57–62 m (8), 39°45.3'N, 139°48.8'E–39°45.0'N, 139°48.3'E, in 80–83 m (7), VI–1983. Off Yuragawa, Wakasa Bay, in 60 m (2), IV–1976, coll. I. HAYASHI. Off Wakasa Bay, in 60 m (1), IV–1975, coll. H. YOKOYAMA. Tangokai, Wakasa Bay, in 115 m (3), VII–1976, coll. I. HAYASHI. Aso Bay, Tsushima, in 34 m (1), VII–1968. Tsushima Strait, 34°37.5'N, 129°50.7'E, in 110 m (1), VIII–1968.

*Description.* Largest complete individual including oocytes, with 117 setigers measuring 50 mm in length and about 1.5 mm in width of anterior body. Body slender, subcylindrical, colorless in alcohol.

Prostomium fusiform, anteriorly convex, tapering posteriorly with slender caruncle extending to base of setiger 1, with V-shaped nuchal organs; two pairs of eyes, anterior pair small and posterior pair crescent-shaped (Fig. 12 a, c); some individuals lacking eyes. Peristomium fused to setiger 1, forming moderate lateral wings distally curled back (Fig. 12 b, c).

Branchiae numbering four pairs, on setigers 2–5, pairs 1 and 4 with long digitiform pinnules on posterior face; first pair longest, extending back to setiger 15–20, measuring 3.5–4.5 mm in length (Fig. 12 a, c); pairs 2 and 3 apinnate, elongate, subequal in length to notopodial lamellae (Fig. 13 a); last pair measuring 0.3 mm in length (Fig. 13 b), pinnules arranged in double row on posterior face.

Notopodial and neuropodial lamellae smallest on setiger 1; notopodial lamellae elongated, triangular, largest in branchial region (Figs. 12 d, 13 a, b); notopodial lamellae of post-branchial setigers triangular (Fig. 13 c) to rounded triangular (Fig. 13 d) and flattened (Fig. 13 e); dorsal crests starting on setiger 45–50 and continuing to near posterior end (Fig. 13 f). Neuropodial lamellae on setiger 1 small, conical (Fig. 12 c); lamellae largest in branchial region (Figs. 12 b, 13 a, b); those of posterior setigers low, rounded (Fig. 13 d–f).

Anterior setae all lightly striated and moderately granulated capillaries, arranged in three rows in anterior notopodia, in two rows in anterior neuropodia; setae of anterior row shorter (Fig. 13 g), those of posterior row longer (Fig. 13 h). Neuropodial hooded hooks from setiger 24–25, numbering up to 8–9 per fascicle; notopodial hooks from setiger 66–75, numbering up to 5 per fascicle; hooks accompanied by capillaries throughout; hooks with 5 pairs of small teeth above main fang (Fig. 13 i). Ventral sabre setae starting on setiger 20–21, numbering one or two per fascicle, each seta moderately granulated, with short filament at tip (Fig. 13 j).

Pygidium with one slender dorsomedial cirrus and two short ventrolateral lobes.

*Remarks.* By courtesy of Ms. Leslie HARRIS, Los Angeles County Museum of Natural History, the holotype of *Prionospio (Prionospio) anuncata* FAUCHALD, 1972 from western Mexico was examined, and the original description of some characters is changed or added to as follows: (1) the first parapodia have rather than lack noto- and neuropodial setae, (2) notopodial hooks occur from setiger 91 in the type material rather than absent, (3) ventral sabre setae are present from setiger 22 and

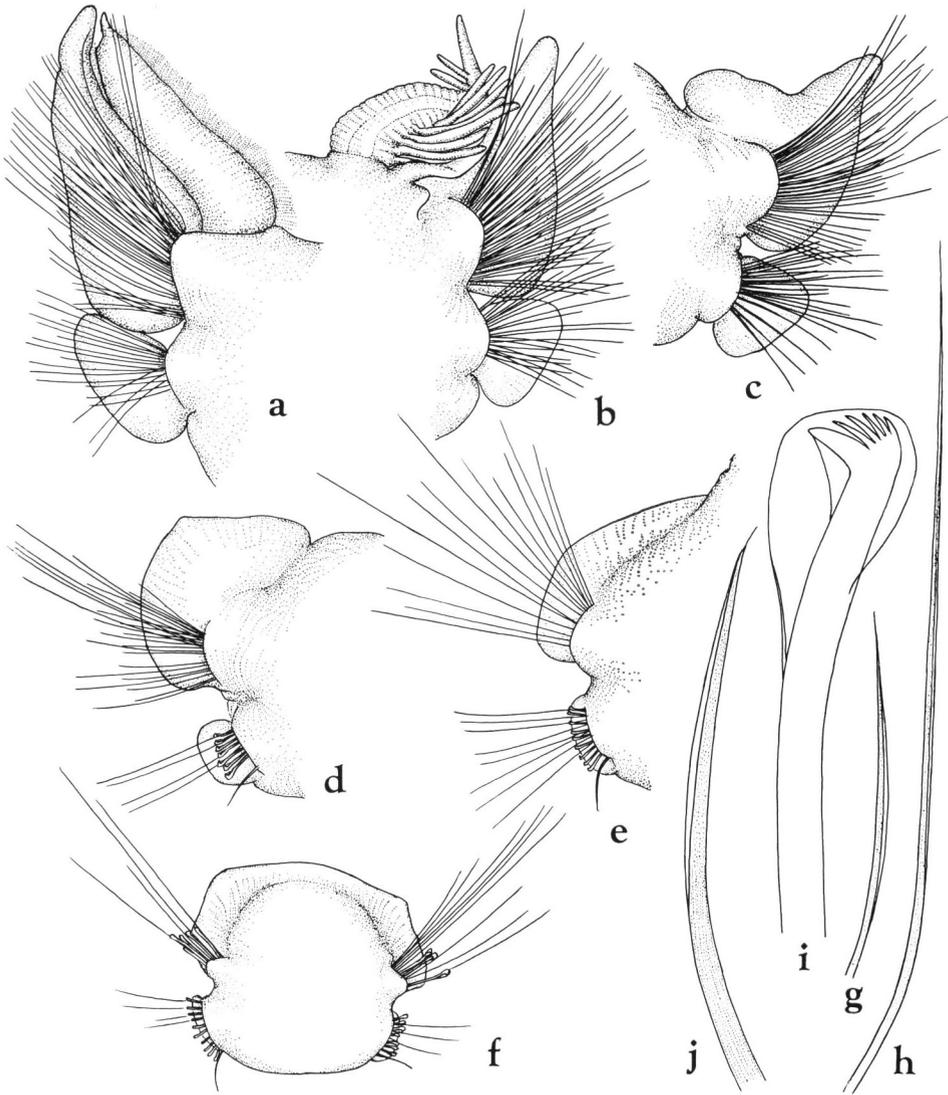


Fig. 13. *Prionospio (Prionospio) anuncata* FAUCHALD. — a, Third parapodium with branchia, anterior view,  $\times 47$ ; b, fifth parapodium with branchia, anterior view  $\times 47$ ; c, sixth parapodium, anterior view,  $\times 47$ ; d, 26th parapodium, anterior view,  $\times 47$ ; e, 45th parapodium, anterior view,  $\times 47$ ; f, 80th parapodium, anterior view,  $\times 47$ ; g, h, notopodial setae of anterior parapodium,  $\times 180$ ; i, hooded hook from median neuropodium,  $\times 900$ ; j, ventral sabre seta,  $\times 353$ .

(4) dorsal crests are present from setiger 85 as a low ridge and are posteriorly developed as a high membrane.

The species is new to the Japanese fauna.

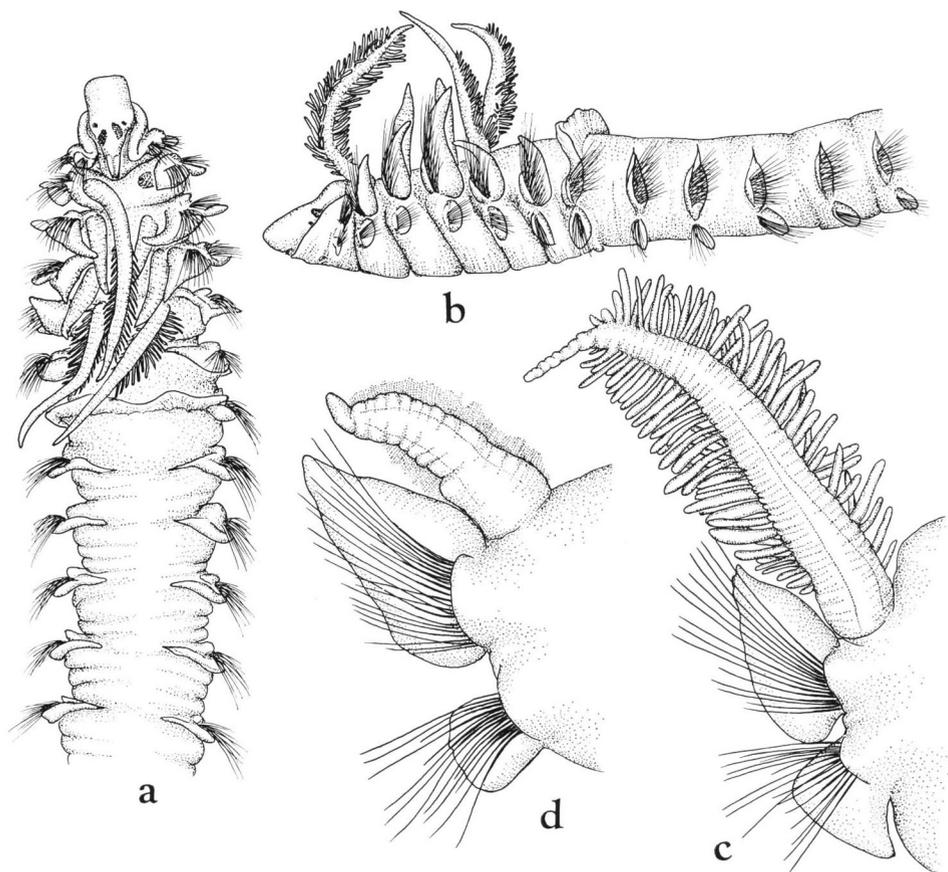


Fig. 14. *Prionospio (Prionospio) membranacea* sp. nov. — a, Anterior end of holotype, dorsal view, right branchia removed,  $\times 47$ ; b, same, lateral view,  $\times 47$ ; c, second parapodium with branchia (first branchial segment), anterior view,  $\times 130$ ; d, fourth parapodium with branchia, anterior view,  $\times 130$ .

*Distribution.* Off western Mexico; Japan; 30–1,000 m.

***Prionospio (Prionospio) membranacea* sp. nov.**

(Figs. 14a–d, 15a–i)

*Material examined.* Otsuchi Bay,  $39^{\circ}20.4'N$ ,  $141^{\circ}55.8'E$ , in 10 m (4),  $39^{\circ}20.6'N$ ,  $141^{\circ}56.6'E$ , in 30 m (1), VII–1985. Uruga Channel,  $35^{\circ}17.5'N$ ,  $139^{\circ}42.5'E$ , in 49 m (2), III–1983. Sagami Bay,  $35^{\circ}12.4'N$ ,  $139^{\circ}34.5'E$ – $35^{\circ}12.4'N$ ,  $139^{\circ}34.2'E$ , in 48 m (1), IX–1979. Off Nii-jima,  $34^{\circ}24.2'N$ ,  $139^{\circ}14.8'E$ – $34^{\circ}24.5'N$ ,  $139^{\circ}15.0'E$ , in 65–80 m (2),  $34^{\circ}25.8'N$ ,  $139^{\circ}15.3'E$ – $34^{\circ}26.0'N$ ,  $139^{\circ}15.4'E$ , in 65–75 m (1), VII–1977. Off Kushimoto,  $33^{\circ}28.3'N$ ,  $135^{\circ}45.1'E$ , in 18–20 m (1), VII–1978. Around Oga

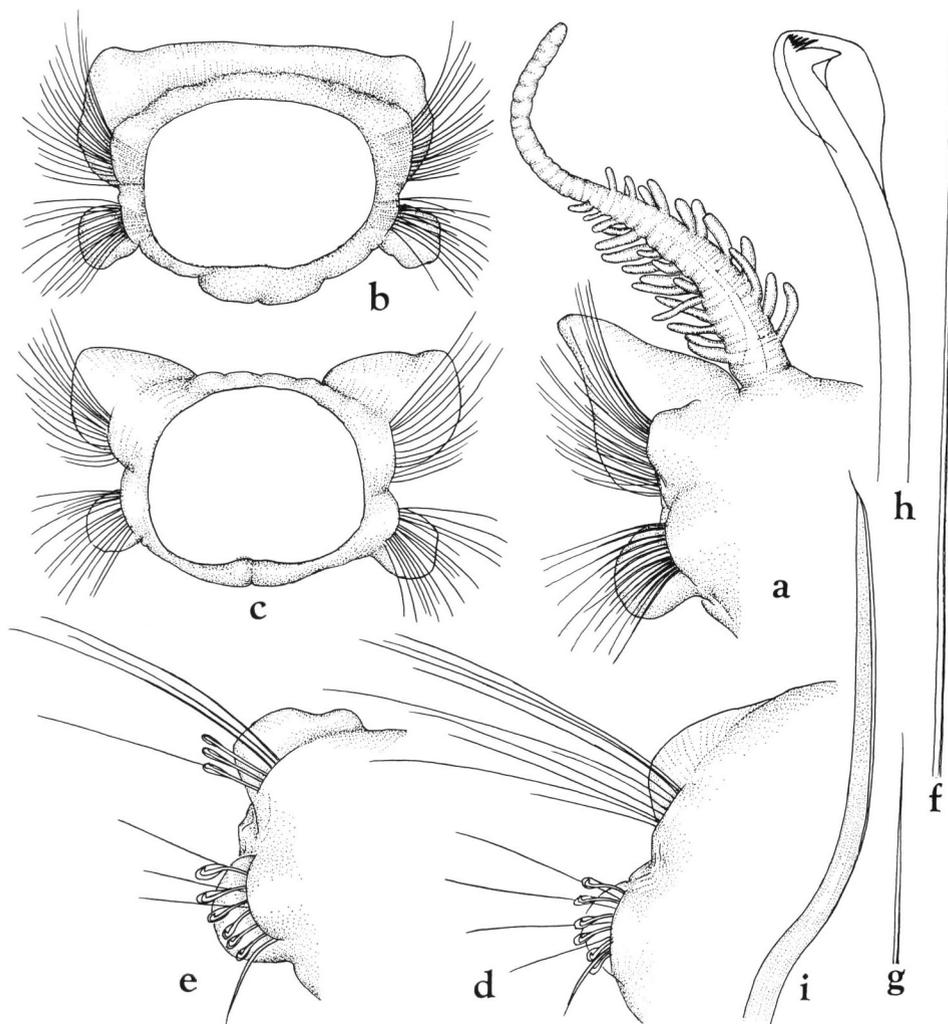


Fig. 15. *Prionospio (Prionospio) membranacea* sp. nov. — a, Fifth parapodium with branchia, anterior view,  $\times 122$ ; b, cross section of seventh parapodium, anterior view,  $\times 88$ ; c, cross section of eighth parapodium, anterior view,  $\times 88$ ; d, median parapodium, anterior view,  $\times 180$ ; e, posterior parapodium, anterior view,  $\times 180$ ; f, g, notopodial setae of anterior parapodium,  $\times 352$ ; h, hooded hook from median neuropodium,  $\times 1,270$ ; i, ventral sabre seta,  $\times 578$ .

Peninsula,  $39^{\circ}49.9'N$ ,  $139^{\circ}53.3'E$ – $39^{\circ}49.6'N$ ,  $139^{\circ}53.4'E$ , in 31–33 m (11),  $39^{\circ}47.8'N$ ,  $139^{\circ}54.3'E$ – $39^{\circ}47.6'N$ ,  $139^{\circ}53.8'E$ , in 39–42 m (2),  $39^{\circ}49.3'N$ ,  $139^{\circ}52.8'E$ – $39^{\circ}49.1'N$ ,  $139^{\circ}52.3'E$ , in 39–42 m (3),  $39^{\circ}48.9'N$ ,  $139^{\circ}51.1'E$ – $39^{\circ}49.1'N$ ,  $139^{\circ}51.5'E$ , in 52–48 m (1),  $39^{\circ}49.8'N$ ,  $139^{\circ}47.2'E$ – $39^{\circ}49.9'N$ ,  $139^{\circ}47.4'E$ , in 70–65 m (2),  $39^{\circ}47.2'N$ ,  $139^{\circ}47.5'E$ – $39^{\circ}47.3'N$ ,  $139^{\circ}47.9'E$ , in 82–78 m (6),  $39^{\circ}50.4'N$ ,  $139^{\circ}45.0'E$ – $39^{\circ}50.3'N$ ,

139°44.7'E, in 90–89 m (8), VI–1983. Amakusa, intertidal zone (holotype and 12 paratypes), XI–1979, coll. H. TSUTSUMI.

*Description.* Holotype largest complete individual, measuring 10 mm in length and about 0.4 mm in width for 69 setigers including parapodia. Body slender, subcylindrical, colorless in alcohol.

Prostomium truncate on anterior margin, as wide at level of eyes as at anterior margin, giving rectangular appearance to anterior portion of prostomium, tapering posteriorly, with narrow caruncle extending to end of setiger 1; two pairs of eyes present, posterior pair very large (Fig. 14 a). Peristomium ventrally separated and dorsally fused to setiger 1, forming moderate lateral wings (Fig. 14 b).

Branchiae present on setigers 2–5; pairs 1 and 4 with digitiform pinnules, elongate, subequal in length; pinnules irregularly arranged on posterior side, not extending to tip of branchiae (Figs. 14 c, 15 a); pairs 2 and 3 apinnate, triangular, heavily ciliated on lateral edges, branchiae as long as notopodial lamellae (Fig. 14 d).

Setiger 1 reduced, with noto- and neuropodial lamellae smaller than on subsequent setigers; notopodial lamellae foliaceous, largest in branchial region (Figs. 14 b–d, 15 a); notopodial lamellae on setiger 7 connected by high membranous dorsal crest (Fig. 15 b); setiger 8 and subsequent setigers without dorsal ridge (Fig. 15 c); lamellae becoming lower in posterior setigers (Fig. 15 d, e). Neuropodial lamellae on setiger 2 with ventral elongation (Fig. 14 c); lamellae square thereafter (Figs. 14 d, 15 a–c) and low, rounded in far posterior setigers (Fig. 15 d, e). Interparapodial pouches lacking.

Anterior setae all capillaries, with narrow sheaths (Fig. 15 f, g), setae of anterior row shortest. Neuropodial hooded hooks from setiger 15 (setigers 13–16 in paratypes), numbering up to seven per fascicle; notopodial hooks from setiger 49 (setigers 49–51 in paratypes), numbering up to four per fascicle; hooks accompanied by capillaries throughout; hooks with 5–6 pairs of small teeth above main fang, secondary hood small (Fig. 15 h). Ventral sabre setae from neuropodial setiger 10, moderately granulated, numbering one per fascicle (Fig. 15 i).

Pygidium with one long dorsomedial and two shorter ventrolateral cirri.

*Remarks.* *Prionospio (Prionospio) membranacea* is clearly related to *P. (P.) cristata* FOSTER, 1971, but is distinctly separable from related species in having a large membranous dorsal crest only on setiger 7, rather than on setigers 7 and 9.

*Type-series.* Holotype, NSMT-Pol. H 310; 12 paratypes, NSMT-Pol. P 311.

*Distribution.* Japan; intertidal to 90 m.

### *Prionospio (Prionospio) paradisea* sp. nov.

(Figs. 16a–e, 17a–m)

*Material examined.* Tokyo Bay, 35°30.0'N, 140°00.0'E, in 16 m (1), IX–1981. Off Aburatsubo, in 30 m (1), IV–1979. Off Miura Peninsula, 35°07.4'N, 139°36.0'E, in 50 m (1), VIII–1978. Off Zushi, Sagami Bay, 35°16.7'N, 139°33.7'E, in 12 m

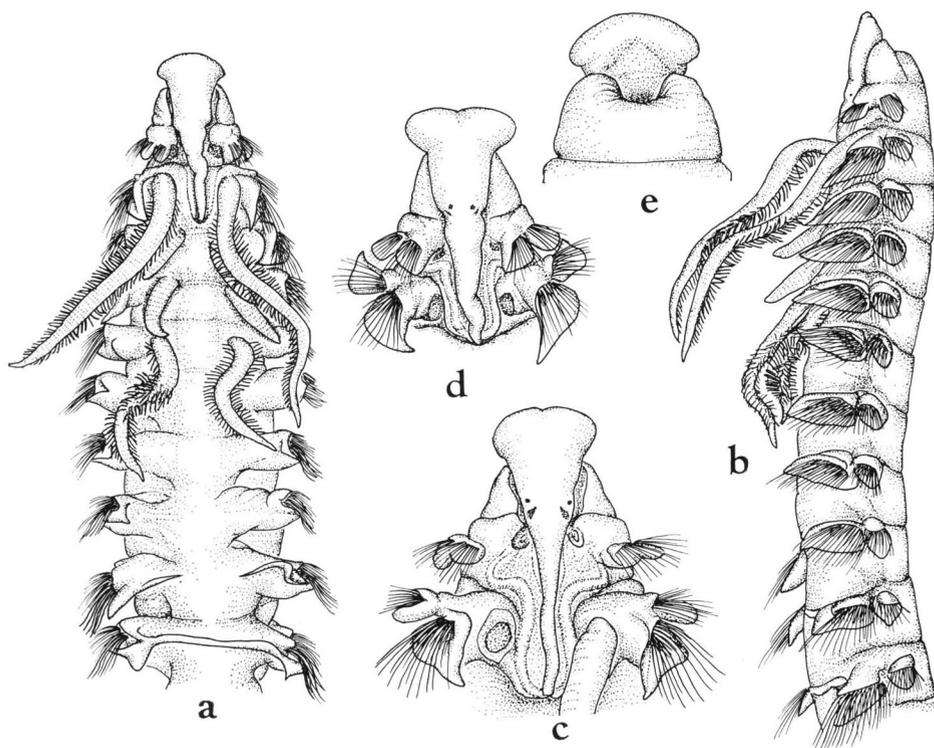


Fig. 16. *Prionospio (Prionospio) paradisea* sp. nov. — a, Anterior end of holotype, dorsal view,  $\times 18$ ; b, same, lateral view,  $\times 18$ ; c, d, anterior ends of paratypes, dorsal view, c,  $\times 38$ , d,  $\times 32$ ; e, anterior end of holotype, ventral view, showing prostomium and peristomium,  $\times 40$ .

(2),  $35^{\circ}16.5'N$ ,  $139^{\circ}33.4'E$ , in 17 m (1), VII-1969. Off Hiratsuka, Sagami Bay,  $35^{\circ}18.2'N$ ,  $139^{\circ}24.0'E$ , in 11 m (9),  $35^{\circ}17.5'N$ ,  $139^{\circ}18.5'E$ , in 14 m (8),  $35^{\circ}17.9'N$ ,  $139^{\circ}20.2'E$ , in 25 m (22),  $35^{\circ}18.5'N$ ,  $139^{\circ}21.0'E$ , in 10 m (2),  $35^{\circ}18.8'N$ ,  $139^{\circ}25.7'E$ , in 11 m (19),  $35^{\circ}18.0'N$ ,  $139^{\circ}21.5'E$ , in 28 m (1), VI-1982. Off Oiso, Sagami Bay,  $35^{\circ}17.4'N$ ,  $139^{\circ}18.0'E$ , in 14 m (3), VIII-1980. Off Koyahata, Sagami Bay, in 68 m (holotype and 3 paratypes), in 124 m (2), V-1966. Off Shimoda,  $34^{\circ}44.3'N$ ,  $139^{\circ}00.9'E$ – $34^{\circ}44.2'N$ ,  $139^{\circ}00.7'E$ , in 30–25 m (1), X-1981. Sagami Bay,  $35^{\circ}18.1'N$ ,  $139^{\circ}28.3'E$ , in 8 m (11),  $35^{\circ}17.4'N$ ,  $139^{\circ}27.0'E$ , in 20 m (1), VII-1979;  $35^{\circ}13.4'N$ ,  $139^{\circ}22.0'E$ , in 730 m (1),  $35^{\circ}18.1'N$ ,  $139^{\circ}23.0'E$ , in 13 m (1), V-1980;  $35^{\circ}08.0'N$ ,  $139^{\circ}07.0'E$ , in 18 m (3), VIII-1980. Off Nii-jima,  $34^{\circ}24.2'N$ ,  $139^{\circ}14.8'E$ – $34^{\circ}24.5'N$ ,  $139^{\circ}15.0'E$ , in 65–80 m (2), VII-1977. Uchiura Bay,  $35^{\circ}02.3'N$ ,  $138^{\circ}51.0'E$ – $35^{\circ}02.7'N$ ,  $138^{\circ}51.1'E$ , in 98–101 m (1), II-1978, KT-78-2. Tsuruga Bay, in 6 m (1), IV-1976, coll. I. HAYASHI. Off Yuragawa, Wakasa Bay, in 20 m (1), VIII-1973, coll. H. YOKOYAMA; in 5 m (1), V-1976, in 10 m (6), coll. I. HAYASHI. Tsushima Strait,  $34^{\circ}37.5'N$ ,  $129^{\circ}50.7'E$ , in 110 m (1), VIII-1968. Aso Bay, Tsushima, in 43 m

(1), in 65 m (2), VII-1968. Off Tosa, 33°28.3'N, 133°33.7'E, in 23 m (2), IV-1970. Amakusa, Kyushu, in 7 m (1), X-1963; in 10 m (1), V-1979, coll. H. TSUTSUMI. Ariake Sea, in 10 m (1), XII-1957.

*Description.* Holotype largest complete individual including oocytes, with 76 setigers measuring 37 mm in length and about 1 mm in width of anterior body. Body slender, subcylindrical, colorless in alcohol.

Prostomium broadly rounded anteriorly, flared on anterior margin in holotype (Fig. 16 a), others including paratypes with rounded anterior margin, sometimes with slight medial indentation (Fig. 16 c, d), with narrow caruncle extending to base of setiger 2; four eyes present, anterior pair small and posterior pair crescent-shaped (Fig. 16 a, c, d). Peristomium clearly separated from setiger 1 (Fig. 16 a-e), nuchal organs surrounding caruncle well developed (Fig. 16 c).

Branchiae present on setigers 2-5; pairs 1 and 4 pinnate, first pair longest, reaching to setiger 7 (Fig. 16 b), with digitiform pinnules on posterior face (Fig. 17 a); pairs 2 and 3 apinnate, subtriangular, heavily ciliated, extending slightly past tip of notopodial postsetal lamellae (Fig. 17 b); pair 4 about half the length of first pair (Fig. 17 c).

Notopodial and neuropodial postsetal lamellae smallest on setiger 1 (Fig. 17 d); notopodial postsetal lamellae erect, subtriangular with tapered ends, largest in branchial region (Fig. 17 a-c). Subsequent parapodia of post-branchial setigers thick, triangular (Fig. 17 e), flattened posteriorly (Fig. 17 f). Pre- and postsetal notopodial lamellae of anterior parapodia dorsally fused with each other, forming an envelope surrounding notosetae (Fig. 17 a-c, e). Neuropodial postsetal lamellae of setiger 2 subtriangular with ventrally tapered ends (Fig. 17 a), thereafter, becoming rounded (Fig. 17 b, c, e) and low, triangular posteriorly (Fig. 17 f, h). Notopodial postsetal lamellae of setiger 10 connected in well-developed dorsal crest (Figs. 16 a, 17 g); large crests continuing through setiger 60 (Fig. 17 f, h).

Anterior setae all moderately granulated capillaries, with clear, narrow sheaths (Fig. 17 i, j); notopodial capillaries arranged in three rows (Fig. 17 c, e) with setae of anterior row shortest; neuropodial capillaries arranged in two rows, with anterior row shorter than posterior row. Neuropodial hooded hooks from setiger 17 (setiger 17-18 in paratypes), numbering up to 16 per neuropodium; notopodial hooks from setiger 44 (setiger 42-44 in paratypes), numbering up to 8 per fascicle; hooks accompanied by capillaries throughout; hooks with 4-5 pairs of small teeth above main fang, secondary hood small (Fig. 17 k). Ventral sabre setae from neuropodial setiger 12 (setiger 10-12 in paratypes), moderately granulated, numbering one or two per fascicle (Fig. 17 l).

Pygidium with one long dorsomedial and two shorter ventrolateral cirri (Fig. 17 m).

*Remarks.* *Prionospio (Prionospio) paradisea* is similar to *P. (P.) steenstrupi* MALMGREN, 1867, *P. (P.) rotalis* MOHAMMAD, 1970, *P. (P.) australiensis* BLAKE & KUDENOV, 1978 and *P. (P.) queenslandica* BLAKE & KUDENOV, 1978 in that the first

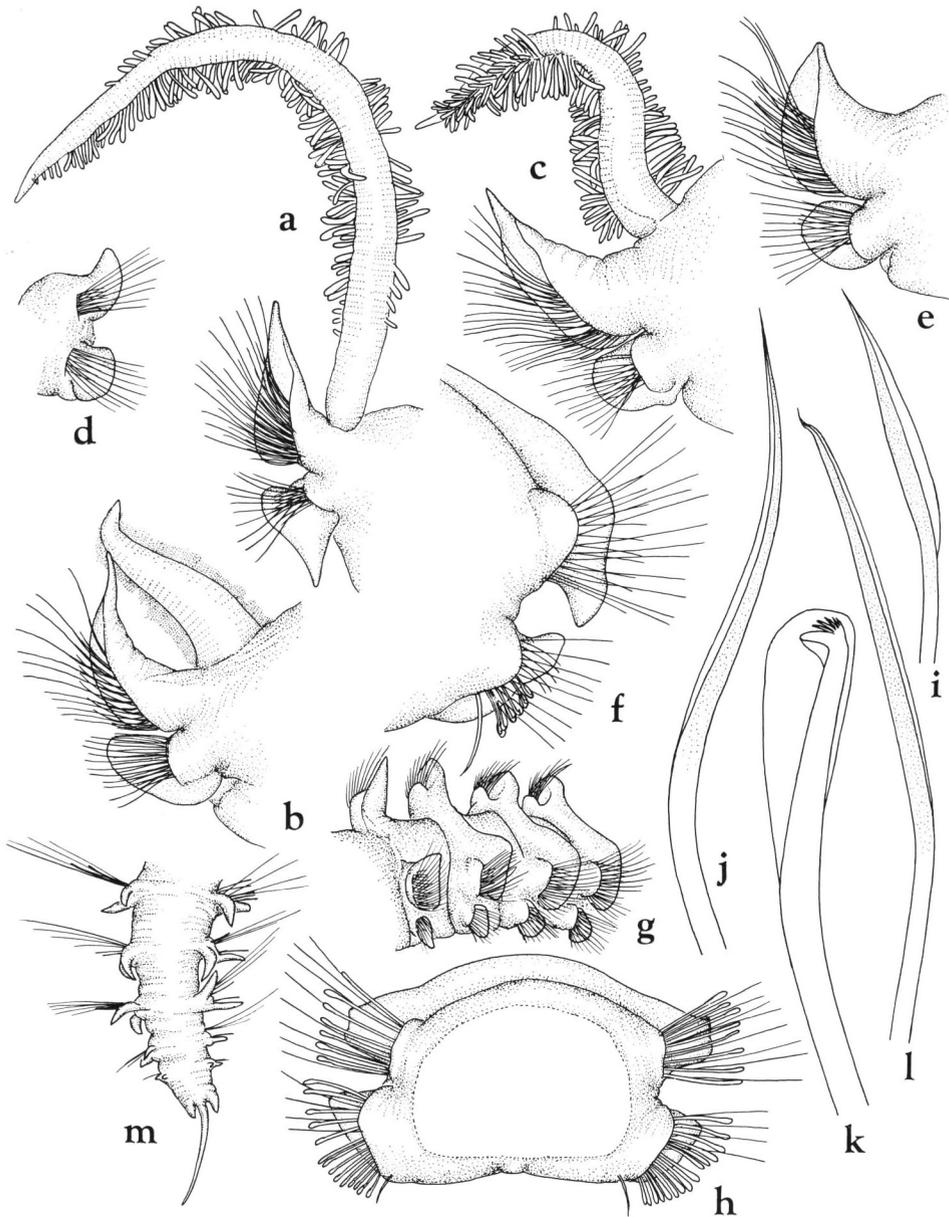


Fig. 17. *Prionospio (Prionospio) paradisea* sp. nov. — a, Second parapodium with branchia (first branchial segment), anterior view,  $\times 44$ ; b, fourth parapodium with branchia, anterior view,  $\times 44$ ; c, fifth parapodium with branchia, anterior view,  $\times 44$ ; d, first parapodium, dorso-lateral view,  $\times 44$ ; e, eighth parapodium, anterior view,  $\times 44$ ; f, 17th parapodium, anterior view,  $\times 47$ ; g, setigers 9 through 12, antero-lateral view, showing dorsal crests,  $\times 18$ ; h, cross section of 55th setiger, anterior view, showing dorsal crest,  $\times 44$ ; i, j, notopodial setae from anterior parapodium,  $\times 240$ ; k, hooded hook from median neuropodium,  $\times 578$ ; l, ventral sabre seta,  $\times 353$ ; m, posterior end, dorsal view,  $\times 38$ .

and last pairs of branchiae are pinnate and the second and third are apinnate, and neuropodial hooded hooks are present from setiger 13–18, notopodial hooks from setiger 35–54 and ventral sabre setae from setiger 10–12. However, *P. (P.) paradisea* is unique in having dorsal crests from setiger 10 through setiger 60, rather than limited to some anterior setigers.

*Type-series.* Holotype, NSMT-Pol. H 312; 3 paratypes, NSMT-Pol. P 313.

*Distribution.* Japan; 5–730 m.

***Prionospio (Prionospio) lineata* sp. nov.**

(Figs. 18a–d, 19a–l)

*Material examined.* Off Hiratsuka, Sagami Bay, 35°17.9'N, 139°20.2'E, in 25 m (1), VI–1982. Off Tsukumo Bay, in 25 m (1), V–1973. Tsuruga Bay, in 7 m (3), IV–1976, coll. I. HAYASHI. Tsushima Strait, 34°31.7'N, 129°35.5'E, in 96 m (1), VIII–1968. Amakusa, Kyushu, intertidal zone, X–1963 (1), V–1964 (1), *Zostera* bed (holotype and 1 paratype), II–1966, coll. T. KIKUCHI.

*Description.* Holotype largest complete individual, measuring 38 mm in length and about 2 mm in width including parapodia for 80 setigers. Body slender, subcylindrical, colorless in alcohol.

Prostomium rounded, broadly flared on anterior margin (Fig. 18 a) or subtriangular, truncate (Fig. 18 b), tapering abruptly to narrow caruncle extending to base of setiger 2 (Fig. 18 a, b); four eyes present, anterior pair small, posterior pair crescent-shaped; one pair of brown, longitudinal bands present (Fig. 18 a–c). Peristomium not fused with setiger 1, distinct ventrally and laterally, lateral wings lacking (Fig. 18 a–c).

Branchiae present on setigers 2–5; pairs 1 and 4 pinnate, nearly equal in length, with digitiform pinnules extending almost to tip of branchia (Figs. 18 d, 19 a); pairs 2 and 3 apinnate, elongate, subequal in length, shorter than pinnate pairs, with cilia on lateral margins (Fig. 19 b).

Notopodial and neuropodial lamellae smallest on setiger 1 (Fig. 19 c); notopodial lamellae foliaceous, largest in branchial region (Figs. 18 d, 19 a, b), following lamellae rounded, triangular (Fig. 19 f, g). Notopodial presetal lamellae well developed on several setigers from setiger 5, anterior margin attaining about same level as postsetal lamella (Fig. 19 d, e). Neuropodial postsetal lamellae rounded, well developed from setiger 2; lamellae low, rounded or subtriangular in posterior setigers (Fig. 19 f, g). Dorsal crests beginning on setiger 11, continuing through setiger 18 (Figs. 18 a, 19 e). Interparapodial pouches lacking.

Anterior noto- and neuropodial setae all moderately granulated capillaries with thin sheath (Fig. 19 h, i); notopodial setae arranged in three rows, with setae of anterior row shortest; neuropodial setae arranged in two rows, with anterior row shorter than posterior row. Neuropodial hooded hooks from setiger 12 (setiger 13 in paratype), numbering up to 15 per fascicle; notopodial hooks from setiger 44, numbering

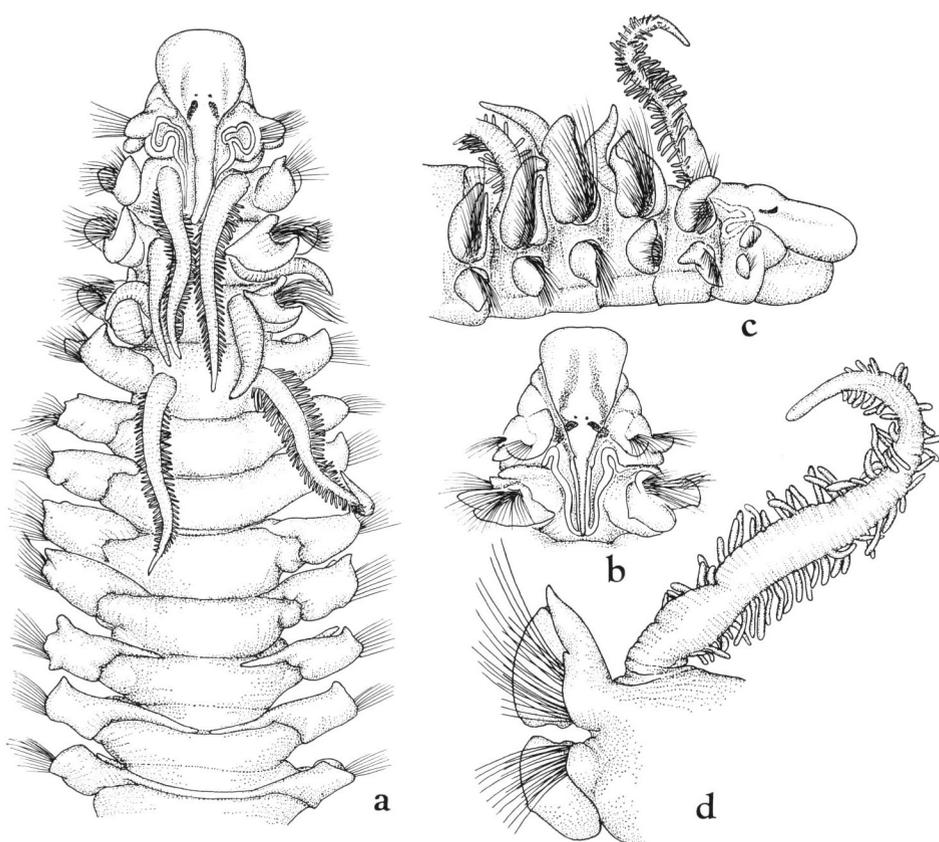


Fig. 18. *Prionospio (Prionospio) lineata* sp. nov. — a, Anterior end of holotype, dorsal view,  $\times 18$ ; b, anterior end of paratype, dorsal view,  $\times 18$ ; c, anterior end of holotype, lateral view, distal part of fourth branchia omitted,  $\times 18$ ; d, second parapodium with branchia (first branchial segment), anterior view,  $\times 36$ .

up to three per fascicle; hooks accompanied by capillaries throughout; hooks with 6 pairs of small teeth above main fang, secondary hood small (Fig. 19 j). Ventral sabre setae from neuropodial setiger 10, moderately granulated, numbering one to three per fascicle (Fig. 19 k).

Pygidium with one short dorsomedial and two shorter ventrolateral cirri (Fig. 19 l).

*Remarks.* *Prionospio (Prionospio) lineata* is distinguished from other species of the genus by having a pair of pigmented bands on the prostomium and by well-developed notopodial presetal lamellae in anterior parapodia.

*Type-series.* Holotype, NSMT-Pol. H 314; 1 paratype, NSMT-Pol. P 315.

*Distribution.* Japan; intertidal to 96 m.

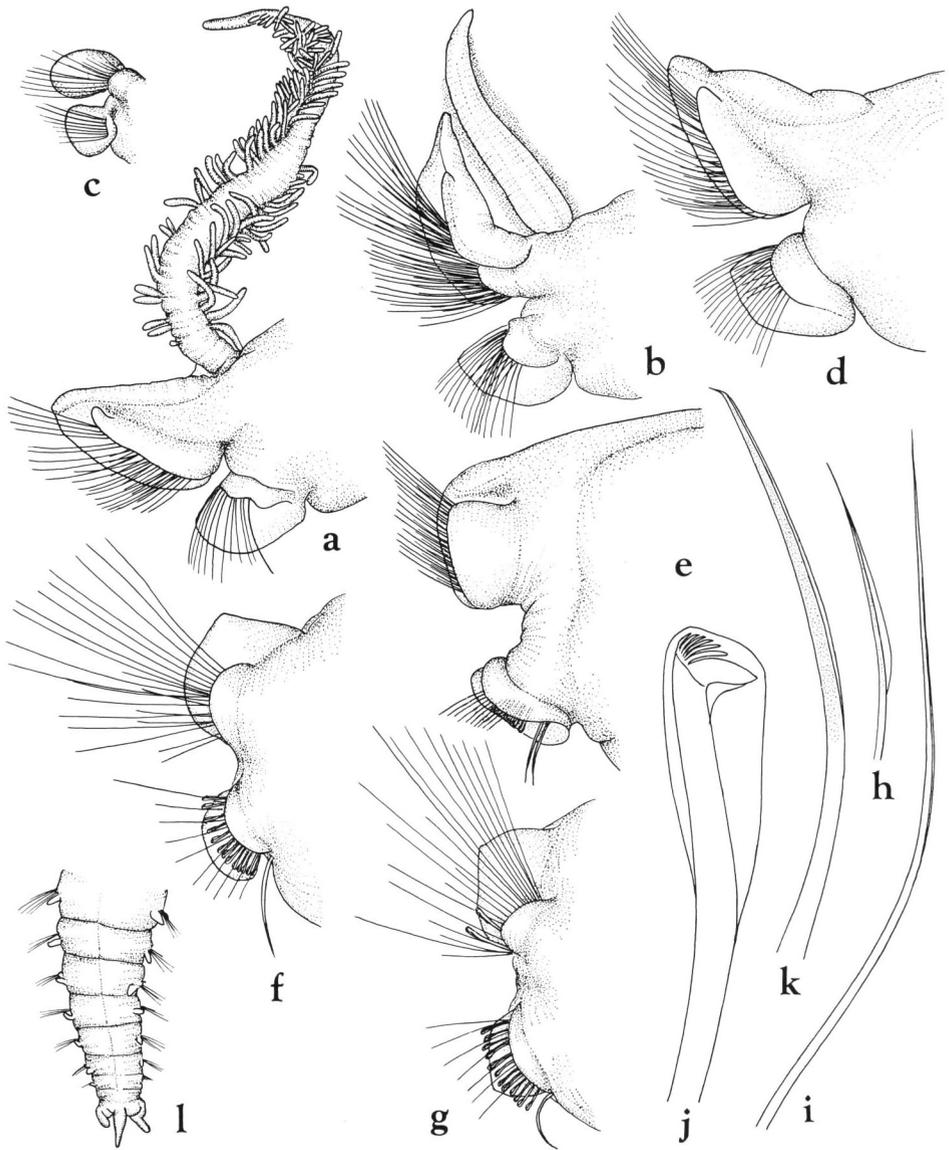


Fig. 19. *Prionospio (Prionospio) lineata* sp. nov. — a, Fifth parapodium with branchia, anterior view,  $\times 30$ ; b, fourth parapodium with branchia, anterior view,  $\times 30$ ; c, first parapodium with branchia, anterior view,  $\times 40$ ; d, seventh parapodium, anterior view,  $\times 40$ ; e, 13th parapodium, anterior view,  $\times 40$ ; f, 35th parapodium, anterior view,  $\times 44$ ; g, 45th parapodium, anterior view,  $\times 44$ ; h, i, notopodial setae from anterior parapodium,  $\times 88$ ; j, hooded hook from median neuropodium,  $\times 480$ ; k, ventral sabre seta,  $\times 188$ ; l, posterior end, dorsal view,  $\times 20$ .

*Prionospio (Prionospio) variegata* sp. nov.

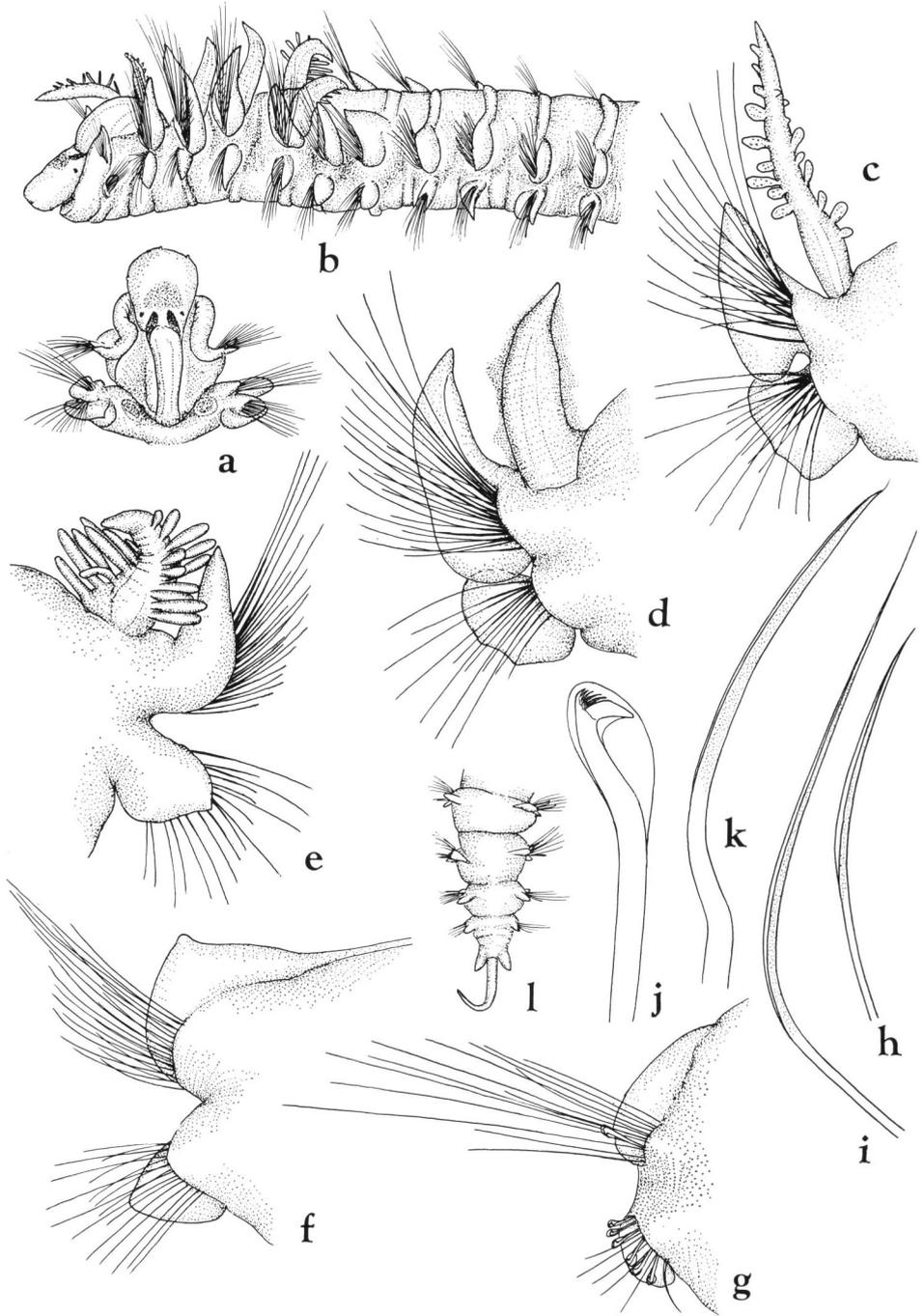
(Fig. 20a-l)

*Material examined.* Off Boso Peninsula, 34°51.2'N, 139°55.6'E–34°51.1'N, 139°55.2'E, in 100 m (1), 35°00.1'N, 140°06.8'E–35°00.5'N, 140°07.5'E, in 145–150 m (1), IX–1976, KT–76–16. Sagami Bay, 35°07.9'N, 139°33.8'E–35°07.7'N, 139°33.7'E, in 100–98 m (1), 35°07.9'N, 139°35.2'E–35°07.7'N, 139°35.1'E, in 84–87 m (2), 35°08.5'N, 139°34.7'E–35°07.9'N, 139°34.6'E, in 88–92 m (holotype and 6 paratypes), X–1979; 35°07.4'N, 139°36.3'E–35°07.2'N, 139°36.1'E, in 46 m (136), 35°11.3'N, 139°34.9'E–35°11.4'N, 139°33.5'E, in 60 m (1), 35°08.0'N, 139°35.5'E–35°08.1'N, 139°36.1'E, in 62 m (13), 35°07.4'N, 139°35.4'E–35°07.5'N, 139°35.2'E, in 73 m (2), IX–1979. Off Shimoda, 34°39.9'N, 139°00.1'E–34°39.6'N, 139°00.0'E, in 70–63 m (2), 34°41.1'N, 139°00.0'E–34°40.9'N, 138°59.8'E, in 59–50 m (6), 34°37.4'N, 138°57.0'E–34°37.2'N, 138°56.7'E, in 64–59 m (11), 34°41.0'N, 139°01.1'E–34°40.7'N, 139°00.6'E, in 102–92 m (6), 34°40.8'N, 139°00.6'E–34°40.6'N, 139°00.5'E, in 91–87 m (4), XI–1981; 34°37.7'N, 138°57.7'E–34°38.0'N, 138°57.9'E, in 71–65 m (1), XII–1986. Off Izu–Oshima, 34°40.6'N, 139°26.8'E–34°40.7'N, 139°26.9'E, in 22 m (28), 34°42.1'N, 139°27.6'E–34°42.2'N, 139°27.7'E, in 30 m (2), 34°40.5'N, 139°27.0'E–34°40.7'N, 139°27.2'E, in 35–37 m (12), 34°42.7'N, 139°27.7'E–34°42.9'N, 139°27.7'E, in 30–75 m (6), 34°41.0'N, 139°27.6'E–34°41.2'N, 139°27.8'E, in 30–60 m (4), 34°40.4'N, 139°27.0'E–34°40.6'N, 139°27.1'E, in 35–67 m (2), 34°43.0'N, 139°20.3'E–34°43.1'N, 139°20.5'E, in 70–90 m (2), VII–1977. Off Nii-jima, 34°24.2'N, 139°14.4'E–34°24.5'N, 139°14.6'E, in 82–94 m (10), 34°25.6'N, 139°15.5'E–34°25.8'N, 139°15.7'E, in 50–75 m (61), 34°24.2'N, 139°14.8'E–34°24.5'N, 139°15.0'E, in 65–85 m (5), 34°25.8'N, 139°15.3'E–34°25.9'N, 139°15.4'E, in 65–75 m (77), VII–1977. Off Kushimoto, 33°27.8'N, 135°47.7'E, in 30–40 m (1), 33°26.3'N, 135°44.9'E, in 45–70 m (9), VII–1978. Off Oga Peninsula, 39°49.9'N, 139°53.3'E–39°49.6'N, 139°53.4'E, in 31–33 m (5), VI–1983. Tsuruga Bay, in 28 m (1), IV–1976, coll. I. HAYASHI. Off Dogo Island, Oki Islands, in 30–42 m (17), VIII–1980. Kagoshima Bay, 31°35.8'N, 130°35.5'E, in 44 m (18), I–1974. Off Koniya, Amami-Oshima Strait, 28°08.0'N, 129°17.6'E, in 63 m (1), IV–1970, KT–70–2. Kabira Bay, Ishigaki-jima, attached on *Pinctada margaritifera* (1), VI–1973.

*Description.* A small species, measuring 0.4 mm in width including parapodia and 8 mm in length for 54 setigers. Body slender, subcylindrical. Holotype includes oocytes.

Prostomium anteriorly rounded, with three small peaks along margin, extending posteriorly as blunt caruncle to base of setiger 1; posterior portion of prostomium surrounded by nuchal organ; two pairs of reddish-brown eyes, posterior pair very large (Fig. 20 a, b); rounded, orange pigmented area anterior to eyes (Fig. 20 a). Peristomium fused to setiger 1, forming low lateral wings distally curled back (Fig. 20 b).

Branchiae present on setigers 2–5 with first pair longest; pairs 1 and 4 with dig-



itiform pinnules on latero-posterior face, pinnules extending almost to tip of branchia (Fig. 20 c, e); pairs 2 and 3 apinnate, subtriangular, heavily ciliated (Fig. 20 d).

Setiger 1 reduced, with noto- and neuropodial lamellae smaller than on subsequent setigers; notopodial lamellae foliaceous, largest in branchial region (Fig. 20 c–e); lamellae low, rounded posteriorly (Fig. 20 f). Dorsal crests low, starting on setiger 7, continuing through setiger 14 (Fig. 20 f). Neuropodial lamellae subrectangular, well developed from setiger 2 (Fig. 20 c); lamellae low, rounded in posterior setigers (Fig. 20 g). Interparapodial pouches lacking.

Anterior noto- and neuropodial setae all moderately granulated capillaries with thin sheath; setae arranged in two rows, with setae of anterior row shorter (Fig. 20 h) than those of posterior row (Fig. 20 i). Neuropodial hooded hooks from setiger 11, numbering up to six per fascicle; notopodial hooks from setiger 25, numbering up to three per fascicle; hooks accompanied by capillaries throughout; hooks with five pairs of small teeth above main fang (Fig. 20 j); secondary hood small. Ventral sabre setae from setiger 10, numbering one or two per fascicle, each seta with distal filament, moderately granulated (Fig. 20 k).

Pygidium with one long dorsomedial and two shorter ventrolateral cirri (Fig. 20 l).

*Remarks.* *Prionospio (Prionospio) variegata* is distinguishable from other species of the genus in that the prostomium has a rounded, orange pigmented area at its center, the caruncle is short and is swollen, the first pair of branchiae is rather short, notopodial hooded hooks are present from setiger 25 and dorsal crests occur on setigers 7–14.

*Type-series.* Holotype, NSMT–Pol. H 316; 6 paratypes, NSMT–Pol. P 317.

*Distribution.* Japan; 10–150 m.

### Literature Cited

- BLAKE, J. A., 1983. Polychaetes of the family Spionidae from South America, Antarctica, and adjacent seas and islands. In KORNICKER, L. (ed.), *Biology of the Antarctic Seas XIV. Antarctic Research Series*, **39**: 205–287. Washington, D.C.: American Geophysical Union.
- & J. D. KUDENOV, 1978. The Spionidae (Polychaeta) from southeastern Australia and adjacent areas with a revision of the genera. *Mem. natn. Mus. Victoria*, **39**: 171–280.
- DAY, J. H., 1961. The polychaet (*sic*) fauna of South Africa. Part 6. Sedentary species dredged off Cape coasts with a few new records from the shore. *J. Linn. Soc. (Zool.)*, **44**: 463–560.
- 1967. *A monograph on the Polychaeta of Southern Africa. Part 2. Sedentaria*. Brit. Mus. (N.H.) Publ., (656): 459–878.

Fig. 20. *Prionospio (Prionospio) variegata* sp. nov. — a, Anterior end of holotype, dorsal view, showing prostomium and two setigers, first branchiae removed,  $\times 56$ ; b, anterior end, lateral view,  $\times 47$ ; c, second parapodium with branchia (first branchial segment), anterior view,  $\times 105$ ; d, fourth parapodium with branchia, anterior view,  $\times 105$ ; e, fifth parapodium with branchia, posterior view,  $\times 105$ ; f, ninth parapodium, anterior view,  $\times 130$ ; g, 28th parapodium, anterior view,  $\times 130$ ; h, i, notopodial setae from anterior parapodium,  $\times 255$ ; j, hooded hook from median neuropodium, lateral view,  $\times 960$ ; k, ventral sabre seta,  $\times 615$ ; l, posterior end, dorsal view,  $\times 55$ .

- FAUCHALD, K., 1972. Benthic polychaetous annelids from deep water off western Mexico and adjacent areas in the eastern Pacific Ocean. *Allan Hancock Monogr. Mar. Biol.*, (7): 1-575.
- FAUVEL, P., 1928. Annélides polychètes nouvelles du Maroc. *Bull. Soc. zool. Paris*, **53**: 9-13.
- FOSTER, N. M., 1971. Spionidae (Polychaeta) of the Gulf of Mexico and the Caribbean Sea. *Stud. Fauna Curacao*, **36**: 1-183.
- GIBBS, P. E., 1971. The polychaete fauna of the Solomon Islands. *Bull. Brit. Mus. (N.H.) Zool.*, **21**: 101-211.
- HARTMAN, O., 1965. Deep-water benthic polychaetous annelids off New England to Bermuda and other North Atlantic areas. *Occ. Pap. Allan Hancock Fdn.*, (28): 1-378.
- IMAJIMA, M. & O. HARTMAN, 1964. The polychaetous annelids of Japan. Part II. *Ibid.*, (26): 239-452.
- LAUBIER, L., 1962. Quelques annelides polychetes de la lagune de Venise. Description de *Prionospio caspersi* n. sp. *Vie Milieu*, **13**: 123-159.
- MACIOLEK, N. J., 1985. A revision of the genus *Prionospio* MALMGREN, with special emphasis on species from the Atlantic Ocean, and new records of species belonging to the genera *Apoprionospio* FOSTER and *Paraprionospio* CAULLERY (Polychaeta, Annelida, Spionidae). *Zool. J. Linn. Soc.*, **84**: 325-383.
- MALMGREN, A. J., 1867. Annulata Polychaeta Spetsbergiae, Groenlandiae, Islandiae et Scandinaviae hactenus cognita. *Oefv. Svenska Vetensk. Akad. Forh.*, **24**: 127-235, pls. 2-15.
- MOHAMMAD, M.-N. M., 1970. A new species of the genus *Prionospio* (Annelida: Polychaeta). *Hydrobiol.*, **36**: 23-26.
- OKUDA, S., 1937. Spioniform polychaetes from Japan. *J. Fac. Sci. Hokkaido Univ.*, **5**: 217-254.
- SÖDERSTRÖM, A., 1920. *Studien über die Polychaetenfamilie Spionidae*. Dissertation zu Uppsala, 286 pp., 1 pl.
- TAMAI, K., 1988. Distribution and life history of *Prionospio ehlersi* FAUVEL, 1928 (Polychaeta: Spionidae) in Japan. *Benthos Res.*, **33/34**: 25-31. (In Japanese.)