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Maldanidae (Annelida: Polychaeta) from Japan

(Part 2)

By

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Subfamily Euclymeninae ARWIDSSON, 1906

Genus *Clymenella* VERRILL, 1873

Key to Japanese Species of *Clymenella*

1. Cephalic plate with two lateral notches, and posterior margin smooth; with one or two reduced uncini on first three neuropodia 2
1′. Cephalic plate otherwise; with one acicular spine on first three neuropodia.... 3
2. Pygidium funnel-shaped with marginal cirri alternately long and short ..... *C. enshuense*
2′. Pygidium conical with a protruded anal cone ..... *C. collaris*
3. Cephalic plate well defined with two lateral and one posterior notch..... *C. koellikeri*
3′. Cephalic plate flat without rim, with a deep, transverse groove across plate.... *C. complanata*

Clymenella complanata HARTMAN, 1969

(Fig. 20, a–k)

Clymenella complanata HARTMAN, 1969, pp. 435–436, figs. 1–3.

Material examined. Fukaura, Aomori Pref., in 5 m (2). K. KONNO coll.

Description. The largest specimen measures 35 cm in length and 5.4 mm in width, and consists of 22 setigerous segments, three asetous preanal segments and a pygidium. The collar on the fourth setiger is deep, membranous and encircles the body, overlapping the preceding segment (Fig. 20, a).

The cephalic plate is flat but with a slight elevation at the median part without flange; the rim is lacking. The nuchal organs are short and parallel, only about

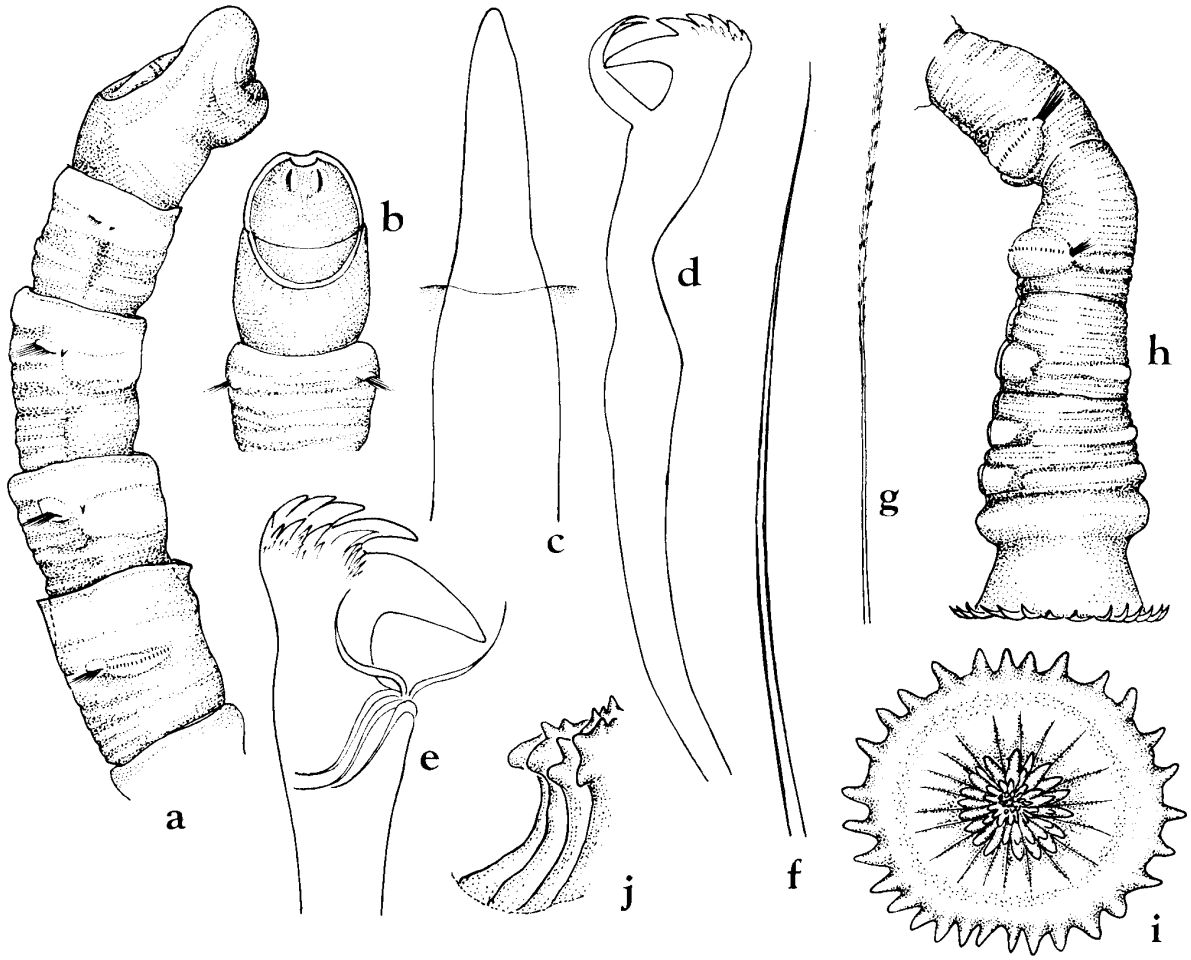


Fig. 20. *Clymenella complanata* HARTMAN. a, anterior end, in lateral view, ×3; b, cephalic plate, in dorsal view, ×3; c, acicular spine from the first setiger, ×120; d, rostrate uncinus from median setiger, ×175; e, distal end of median uncinus, ×330; f, limbate capillary seta from median setiger, ×55; g, part of spinous capillary seta, ×55; h, posterior end, in lateral view, ×5; i, anal plate, viewed from the rear, ×7; j, part of anal pore, showing small flesh papillae, ×18.

one-fourth the length of the plate. Behind the nuchal organs there is a deep, transverse groove across the middle of the plate (Fig. 20, b).

The first three neuropodia have a stout ampoule-shaped acicular spine (Fig. 20, c); the following neuropodia have 16 to 28 rostrate uncini with five large teeth in a row and small accessory teeth above the main fang, and with gular bristles (Fig. 20, d, e). Notosetae are slender limbate capillaries (Fig. 20, f) and slender spinous setae (Fig. 20, g).

The last setiger is followed by three short segments without setae but with elevated tori, and the last one has a thick flange (Fig. 20, h). The pygidium is a funnel, slightly flaring posteriorly, with a concave bottom in the centre of which the anus is situated; it terminates in about 30 marginal papillae; all of the same lentgh and shape

(Fig. 20, i). The anus is bounded by a circlet of many small flesh papillae (Fig. 20, j).

The species is new to the Japanese fauna.

Distribution. San Mateo County, intertidal and off Point Conception light, in 12 fms., California; Japan.

Clymenella collaris sp. nov.

(Fig. 21, a–n)

Material examined. Otsuchi Bay, Iwate Pref., in 60 m (18); Kamaishi Bay, in 19–42 m (120); Banzu, Chiba Pref., intertidal zone (33); Tokyo Bay, in 18–38 m (166), Tokyo Bay, 35°23′N, 139°45′E, in 20 m (holotype and 14 paratypes), KT-71-19; Nagaura Bay, Yokosuka, in 12–34 m (107); off Koyahata, Sagami Bay, in 30–200 m (402); off Tagonoura Harbor, Suruga Bay, in 85 m (21).

Description. Many specimens (about 880 individuals) were collected from sandy shoals in each locality. The holotype measures 75 mm in length and 1.3 mm in width in the anterior region; it consists of 39 setigerous segments and a pygidium. The body is cylindrical and has a membranous collar on the fourth setigerous segment. The collar is located beneath the uncinigerous tori of the segment. It is one-third the length of the segment, and has a notch on the mid-ventral edge. Its anterior margin does not extend as far as the uncinigerous tori of the preceding segment (Fig. 21, a, b, c).

The cephalic plate is broadly oval. The rim is entire and smooth; its anterior part at the level of the posterior end of the nuchal organs is rather broad and the posterior rim is very low, perfectly smooth without notch posteriorly. The prostomium is blunt with a rounded tip. The nuchal organs are straight, nearly parallel to each other and extend for about half the length of the plate; there are no ocelli (Fig. 21, d, e). The cephalic plates of some of the paratypes are depressed anteriorly on both sides (Fig. 21, f).

The first three neuropodia have a single reduced uncinus with only three minute teeth above the main fang and without gular bristles (Fig. 21, g). The notopodial setae on the first three segments are short or long limbate capillaries (Fig. 21, h). The following neuropodia have transverse rows of rostrate uncini (10 or more in each row); each uncinus has five large teeth in a row and some accessory teeth above the main fang with gular bristles (Fig. 21, i, j, k). Notopodial setae are of two kinds: capillaries with long, thread-like smooth tips, and setae with long laterally hirsute tips (Fig. 21, l). Both are basally limbated.

The pygidium is about twice the length of the last setiger; it is a low funnel with an annulate rim. The anal cone is rather long and ends in a little, blunt soft papillae, at the dorsal side of which the anus is situated (Fig. 21, m, n).

Remarks. Clymenella collaris resembles *C. cincta* (SAINT-JOSEPH, 1894) from France, in the form of the prostomium. However, it can be distinguished from it by the following characteristics: the collar on the fourth segment present beneath

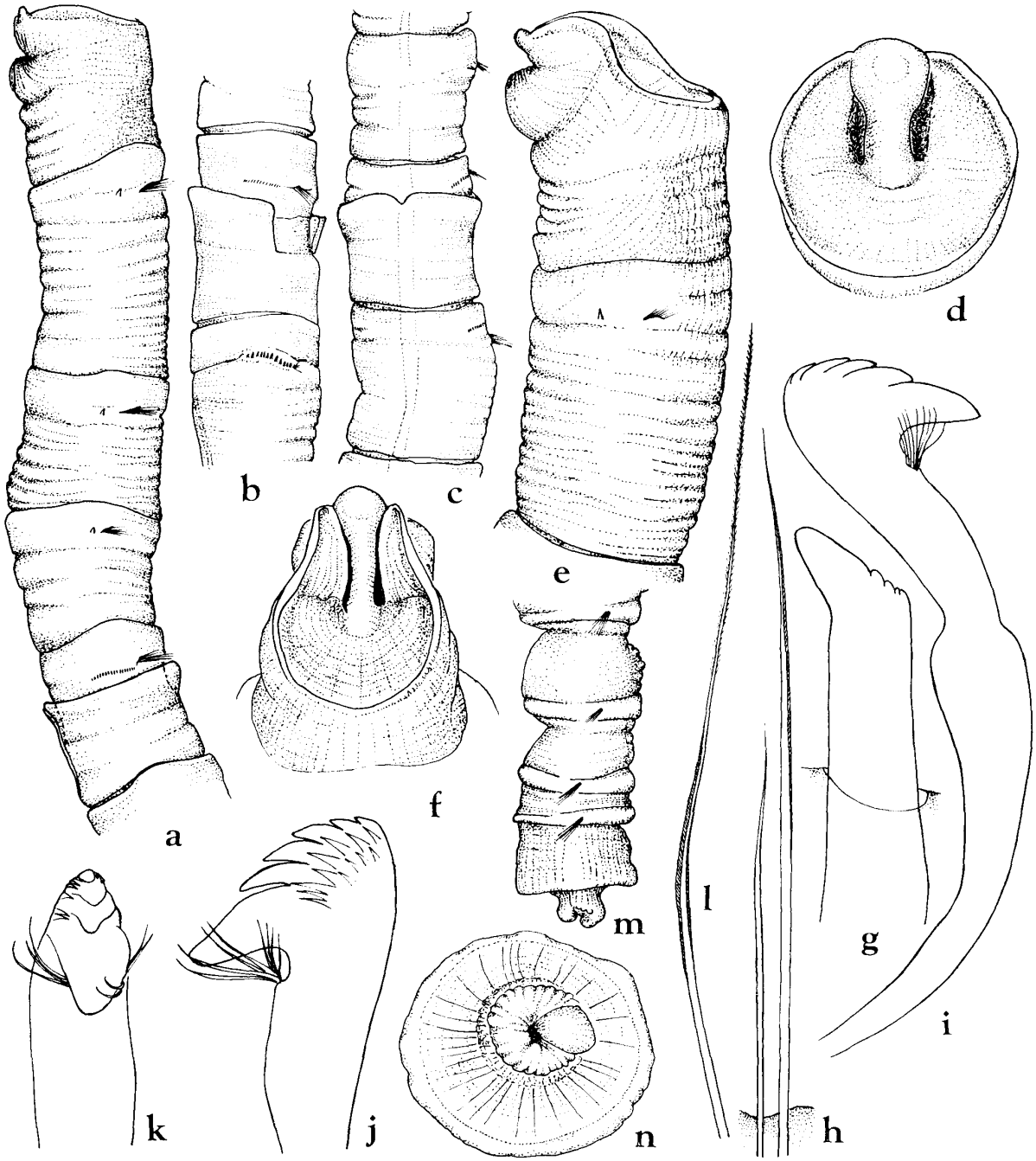


Fig. 21. *Clymenella collaris* sp. nov. a, anterior end, in lateral view, ×18; b, setigers of the 4th and 5th, showing collar partly cut out, in lateral view, ×18; c, setigers of the 3rd to 5th, in ventral view, ×18; d, cephalic plate, in frontal view, 35; e, cephalic plate, in lateral view, ×28; f, cephalic plate of paratype, in frontal view, ×25; g, reduced uncinus from the first setiger, ×640; h, limbate capillaries from the first setiger, ×175; i, rostrate uncini from median setiger, ×940; j, k, distal ends of median uncini, ×1120; l, hirsute capillary seta from median setiger, ×175; m, posterior end, in lateral view, ×18; n, anal plate, viewed from the rear, ×35.

the uncinigerous tori of the segment; the first three segments each have a single reduced uncinus, and the pygidium is a funnel with a protruding anus.

Type-series. Holotype, NSMT-Pol. H 161; 40 paratypes, NSMT-Pol. P 162.

Distribution. Japan.

Clymenella enshuense sp. nov.

(Fig. 22, a–j)

Material examined. Enshu-nada, 35°37.6′N, 137°49.5′E, in 40 m (holotype and 7 paratypes), 35°35.6′N, 138°01.9′E, in 80 m (1).

Description. The holotype measures 20 mm in length and 0.5 mm in width

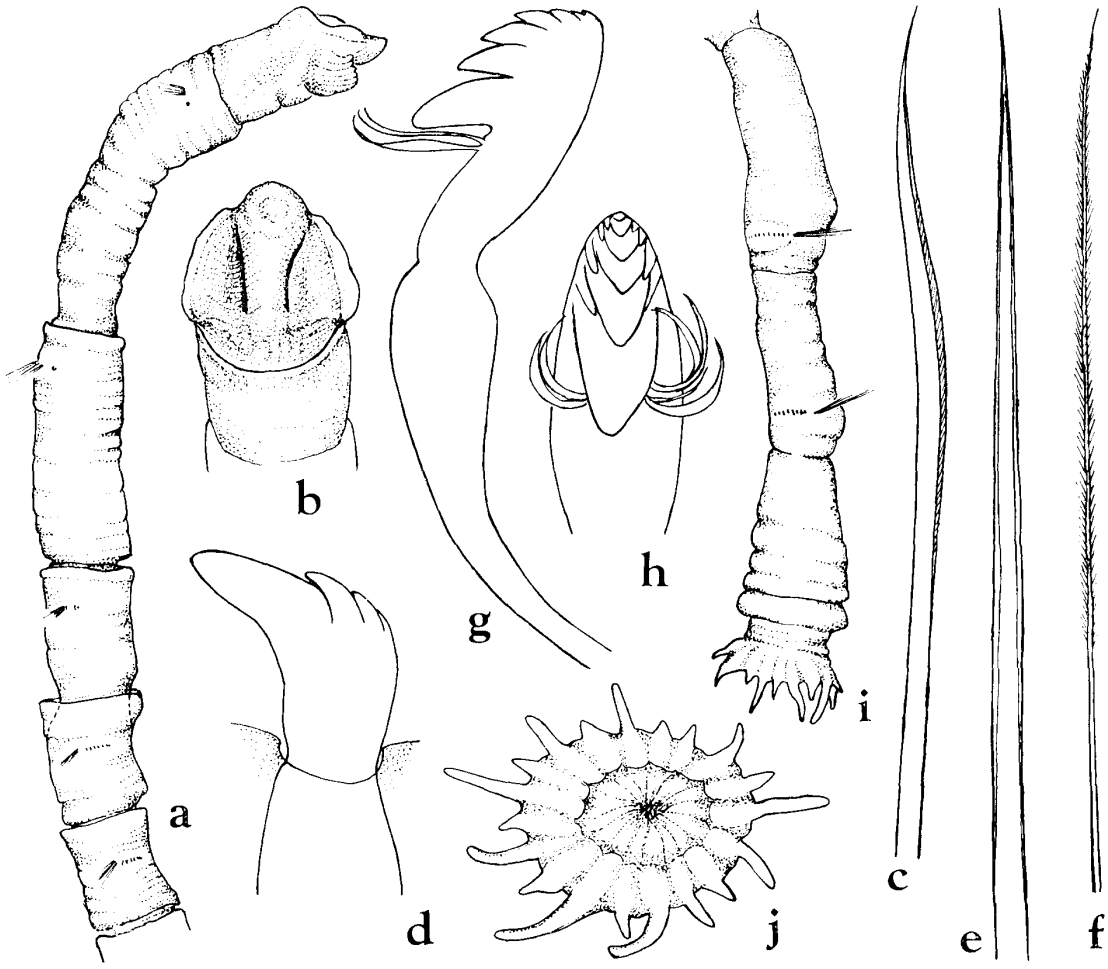


Fig. 22. *Clymenella enshuense* sp. nov. a, anterior end, in lateral view, ×23; b, cephalic plate, in frontal view, ×45; c, limbate capillary seta from the first setiger, ×730; d, uncinus from the first setiger, ×1280; e, limbate capillary seta from median setiger, ×730; f, feathered capillary seta from median setiger, ×730; g, rostrate uncinus from median setiger, ×1070; h, distal end of median uncinus, ×1290; i, posterior end, in lateral view, ×23; j, anal plate, viewed from the rear, ×45.

anteriorly; the body is uniformly slender. It consists of 20 setigerous and five apodous preanal segments and a pygidium. The fourth setiger has a deep, membranous collar; it encircles the body and overlapes the posterior part of the preceding segment. The first two setigers are about three times as long as wide (Fig. 22, a).

The cephalic plate is broadly oval and has a rather narrow rim, with two lateral notches exactly at the level of the posterior ends of the nuchal organs. The posterior rim is perfectly smooth without notch. The cephalic keel is long and rather high. The nuchal organs are straight, nearly parallel to each other and about half as long as the plate; there are no ocelli (Fig. 22, b).

Each of the first three setigers has bundles of notopodial limbate capillary setae (Fig. 22, c) and one or two heavy, reduced uncini with three small teeth in a row above the main fang, without gular bristles (Fig. 22, d). Posterior to these the notopodial setae are limbate capillaries (Fig. 22, e) and hirsute capillaries (Fig. 22, f). The rostrate uncini number about 10 per parapodium; each has six large teeth in a row and some accessory small teeth above the main fang with gular bristles (Fig. 22, g, h).

The total length of all preanal segments are subequal to the last setiger; the first preanal segment is longer than the following ones (Fig. 22, i). The anal plate is fringed at its outer margin; there are about 10 long, filamentous lobes that alternate fairly regularly with an equal member of short lobes (Fig. 22, i).

Remarks. Although *Clymenella enshuense* closely resembles *C. minor* ARWIDSSON, 1911 from the Falkland Islands, it can be distinguished from the latter as follows: the posterior margin of the cephalic plate is smooth and the prostomium lacks ocelli, instead of having a distinct posterior incision and a patch of small ocelli.

Type-series. Holotype, NSMT-Pol. H 163; 1 paratype, NSMT-Pol. P 164.

Distribution. Japan.

Clymenella koellikeri (MCINTOSH, 1885), new combination

(Fig. 23, a–h; Fig. 24, a, b)

Praxilla köllikeri MCINTOSH, 1885, pp. 402–403, pl. 46, fig. 6; pl. 25A, fig. 2; pl. 37A, figs. 3, 8.

Material examined. Kashima Sea, 36°07.5′N, 140°51.1′E–36°08.3′N, 140°50.9′E, in 118–119 m (2), 36°08.4′N, 140°55.0′E–36°09.5′N, 140°54.7′E, in 189–200 m (1), 36°34.9′N, 140°55.6′E–36°35.6′N, 140°56.2′E, in 120–122 m (4), KT–79–13; off Boso, 34°57.2′N, 140°02.4′E–34°57.6′N, 140°02.7′E, in 115 m, KT–76–16 (1); Suruga Bay, 34°45.9′N, 138°42.3′E–34°46.5′N, 138°42.4′E, in 314 m, KT–73–15 (1); Tsushima Strait, in 75 m (8); Kagoshima Bay, 31°16.5′N, 130°42.3′E, in 100 m (6).

Description. All of the specimens collected are anterior fragments. The largest one is about 28 mm in length, and about 1 mm in width for 9 setigerous segments. The fourth setigerous segment has a deep collar arising near the uncinigerous tori. The collar overlaps the posterior part of the preceding segment and its margin is slightly annulated or entire (Fig. 23, a). The fifth setiger has a broad band of deep purple pigment. The following setigers are also pigmented but less deeply than that of the

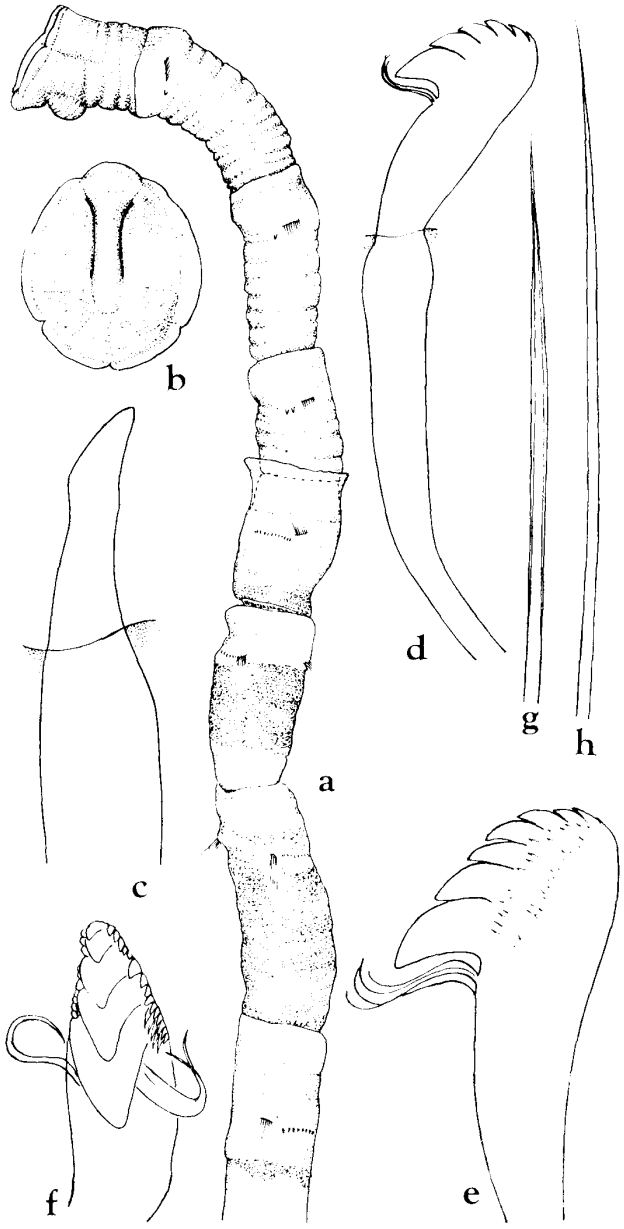


Fig. 23. *Clymenella koellikeri* (McIntosh). a, anterior end, in lateral view, ×8; b, cephalic plate, in frontal view, ×15; c, acicular spine from the first setiger, ×280; d, rostrate uncinus from median setiger, ×545; e, f, distal ends of median uncini, ×960; g, bilimbate capillary seta from the first setiger, ×150; h, bilimbate capillary seta from median setiger, ×150.

fifth setiger in preserved specimens. The glandular belts are distinct in the anterior part of each segment.

The cephalic plate is broadly oval. The rim is everywhere smooth and entire; it is separated into four parts by a pair of small lateral notches and a posterior notch. The nuchal organs are two longitudinal furrows reaching backwards to the middle of the cephalic plate; they are straight, nearly parallel to each other, and slightly di-

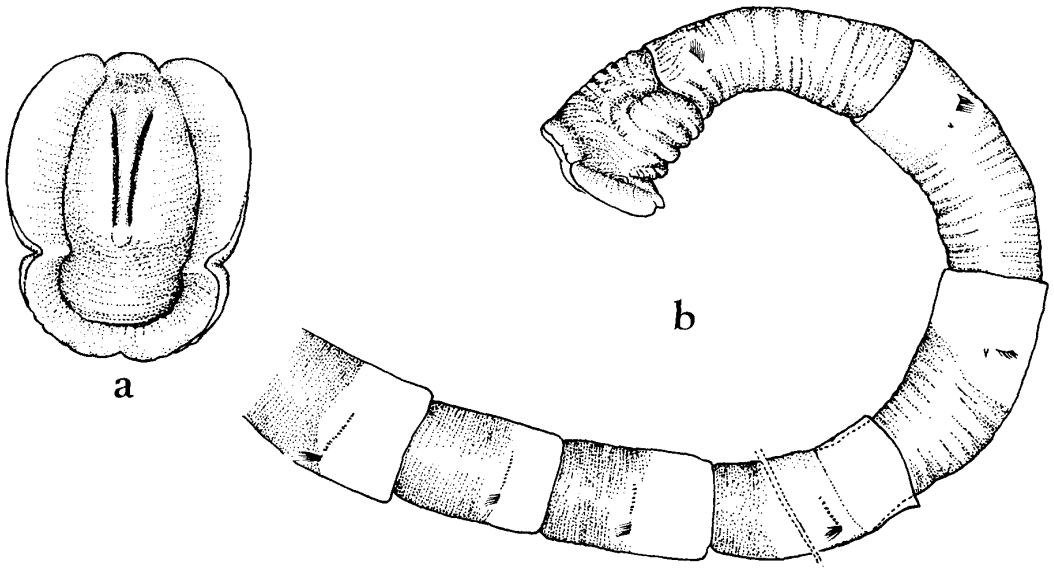


Fig. 24. *Clymenella koellikeri* (McINTOSH), from holotype of *Praxilla köllikeri* McINTOSH, 1885. a, cephalic plate, in frontal view, ×22; b, anterior end separated into two parts, in lateral view, ×10.

vergent anteriorly. The nuchal ridge between the furrows is slightly developed (Fig. 23, b). There are no ocelli.

The first three setigers each have one to two neuropodial thick, yellow acicular spines with slightly bent tips (Fig. 23, c). Neuropodial setae further back along the body are rostrate uncini with six to seven teeth in a row and accessory teeth above the main fang, with gular bristles (Fig. 23, d, e, f). Notopodial setae are of two kinds: thick limbate capillaries and thinner hirsute capillaries (Fig. 23, g, h). The pygidium is unknown.

Remarks. The holotype of *Praxilla köllikeri* McINTOSH, 1885 collected from south of the Fiji Island, 19°6′S, 178°14′E, in 140 fms. deposited in the British Museum (Natural History), was re-examined.

The anterior body consisting of the first seven setigerous segments is divided into two pieces. The cephalic plate has a well developed lateral rim which is divided by two lateral notches and one posterior notch. The nuchal organs are about half as long as the cephalic plate, and diverge somewhat anteriorly (Fig. 24, a). The fourth setigerous segment has a deep, whitish collar which projects forward over the posterior part of the third setiger (Fig. 24, b). This arrangement is characteristic of the genus *Clymenella*. So that *Praxilla köllikeri* McINTOSH, 1885 is transferred to *Clymenella*.

Distribution. Fiji Island; Japan.

Genus ***Maldanella*** McINTOSH, 1885

Key to Japanese Species of *Maldanella*

1. Cephalic plate with a high, unnotched, rim; nuchal organs less than half of

cephalic length ..... *M. harai*

1'. Cephalic plate with a high, middorsally notched, rim; nuchal organs more than half of cephalic length ..... *M. niijimense*

Maldanella harai (IZUKA, 1902)

(Fig. 25, a–h)

Clymene harai IZUKA, 1902, pp. 111–113, pl. 3, figs. 9–12.

Maldanella harai: FAUVEL, 1914, pp. 260–261, pl. 23, fig. 1; 1927, p. 186, fig. 64, i–n; 1953, pp. 383–384, fig. 199, i–n; USCHAKOV, 1955, p. 342, fig. 126, E–G; IMAJIMA & HARTMAN, 1964, pp. 319–320.

Axiothea campanulata MOORE, 1903, pp. 485–487, pl. 27, figs. 97–99.

Maldanella robusta MOORE, 1906, pp. 236–239, pl. 11, figs. 31, 32.

Material examined. Otsuchi Bay, in 73–99 m (11); Kashima Sea, 36°09.3′N, 140°56.6′E–36°10.0′N, 140°56.1′E, in 280–295 m (5), 36°09.8′N, 141°01.5′E–36°08.5′N, 141°02.5′E, in 498–517 m (7), 36°12.7′N, 141°18.1′E–36°15.0′N, 141°18.7′E, in 975–1020 m (1), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (5), KT–79–13; Sagami Bay, 35°08.5′N, 139°35.8′E, in 54 m (4), 35°07.8′N, 139°35.5′E, in 73 m (1); Sagami Bay, 34°54.5′N, 139°19.7′E–34°54.5′N, 139°20.0′E, in 1450–1650 m (2), 35°00.6′N, 138°44.1′E–35°00.3′N, 138°44.4′E, in 560 m (1), 35°09.2′N, 139°30.4′E–35°08.9′N, 139°29.5′E, in 590 m (1), 35°02.1′N, 139°22.0′E–35°02.3′N, 139°22.4′E, in 1360–1340 m (2), KT–66–12; 34°44.6′N, 139°13.0′E–34°44.0′N, 139°13.6′E, in 580 m, KT–65–34 (1); 35°09.1′N, 139°23.3′E–35°09.1′N, 139°23.9′E, in 478–490 m, KT–76–3 (3); Suruga Bay, 35°01.66′N, 138°51.14′E–35°02.51′N, 138°50.64′E, in 83–99 m, KT–75–15 (1), 34°54.8′N, 138°45.2′E–34°54.4′N, 138°45.3′N, in 162–180 m, KT–76–3 (2); Korea Strait, in 125 m (2).

Description. The body measures 50 to 185 mm in length and 2 to 6 mm in width; it consists of a smooth peristomial ring, 19 setigerous segments, 2 preanal asetigerous segments, and a funnel-shaped pygidium. The first five to six segments are rather short; the length of each is about equal to the width (Fig. 25, a).

The cephalic plate is elliptical in outline; the rim is entire without any incisions; it becomes gradually deeper and more erect dorsally. The prostomium is short and broadly rounded. The nuchal organs are deeply curved; the inner shanks of the curves are nearly parallel to each other, and less than half the length of the cephalic plate; the outer shank is about as long as the inner. The cephalic keel is broad and low and stretches a little further back than the nuchal organs (Fig. 25, b). There are no ocelli.

The first setigerous segment has only capillary setae. The notopodial setae are of two kinds: slender capillaries with narrow wings (Fig. 25, c) and capillaries with a more slender distal part (Fig. 25, d). The neuropodial rostrate uncini are first present from the second setiger. They number 14 to 30 in each row; each uncinus has five teeth in a row and accessory small teeth above the main fang, with gular bristles (Fig. 25, e, f, g). The pygidial funnel is campanulate and terminates in 23 to 27 short,

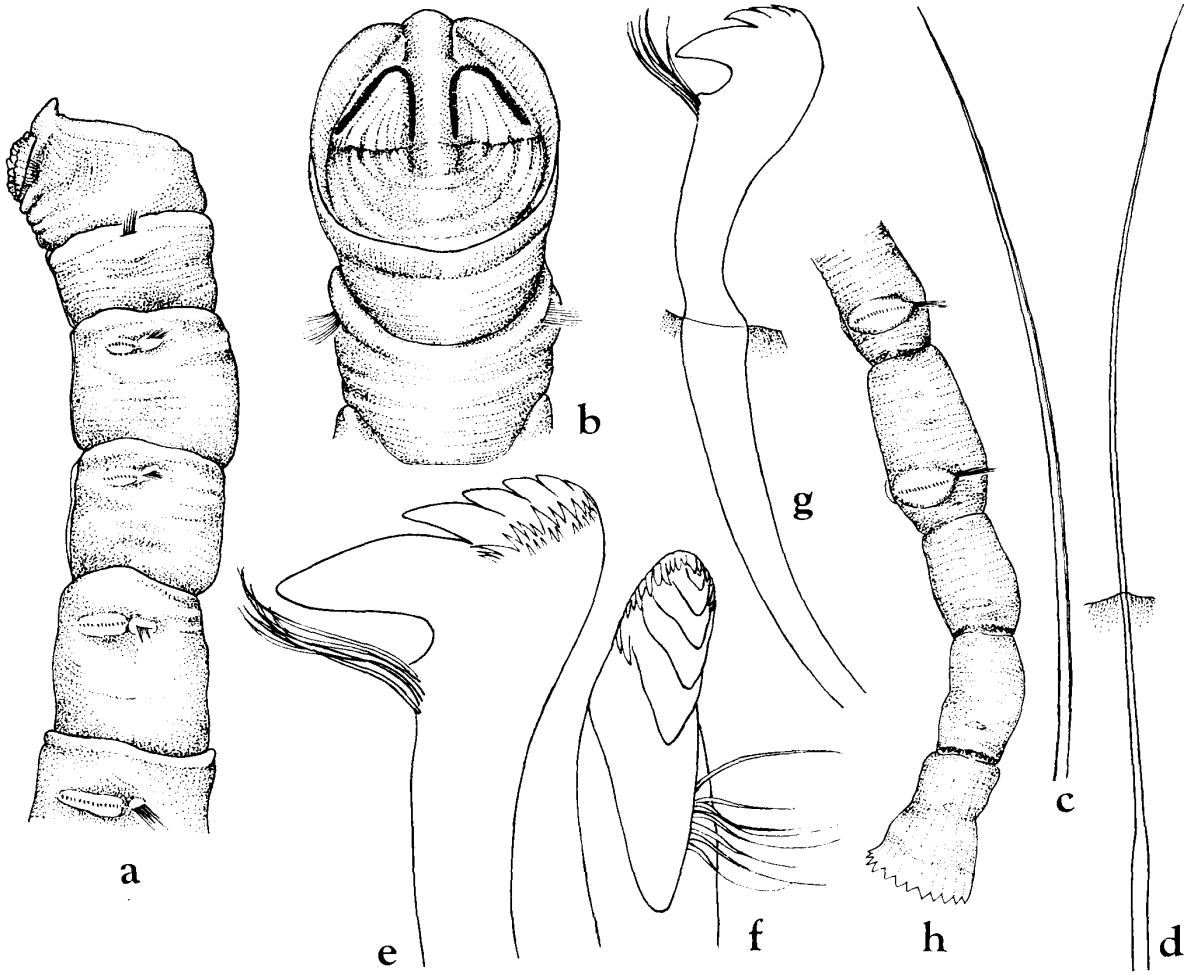


Fig. 25. *Maldanella harai* (IZUKA). a, anterior end, in lateral view, ×3.5; b, cephalic plate, in frontal view, ×18; c, d, notopodial capillary setae, ×80; e, f, uncini from the second setiger, ×545; g, uncinus from median setiger, ×220; h, posterior end, in lateral view, ×5.

subequal cirri. The anal cone is generally sunken in the funnel, sometimes it projects slightly outwardly, but not beyond the margin of the funnel (Fig. 25, h).

Distribution. Japan; Atlantic and Indian Oceans; Okhotsk Sea.

Maldanella niijimense sp. nov.

(Fig. 26, a–k)

Material examined. Off Nii-jima, Izu Islands, in 30–65 m (holotype).

Description. The holotype measures 43 mm in length and 2.5 mm in width; it consists of 18 setigerous, two preanal asetigerous segments and a pygidial funnel. The body is whitish yellow in spirit. Each of the anterior six setigers has a glandular band on its anterior region (Fig. 26, a).

The cephalic plate is elliptical; the rim is wide and smooth laterally, but has a distinct middorsal notch. The nuchal organs are straight, long and parallel, extending for most of the cephalic length and bending outwards slightly anteriorly. There is a compressed cephalic keel. The prostomium is rather large and conical, and has many, minute ocelli (Fig. 26, b).

The first setigerous segment has only a pair of notopodial capillary setal bundles; there are slender bilimbate capillaries (Fig. 26, c) and capillaries with cilia-like hairs distally (Fig. 26, d, e). The notosetae on a median setiger are similar but longer than those of the first setiger. The rostrate uncini first appear from the second setiger. They number 12 in the second, 14 in the third, 20 in the fourth and 32 in the fifth setiger. Uncini are fully developed rostrate in the second setiger, with four teeth in

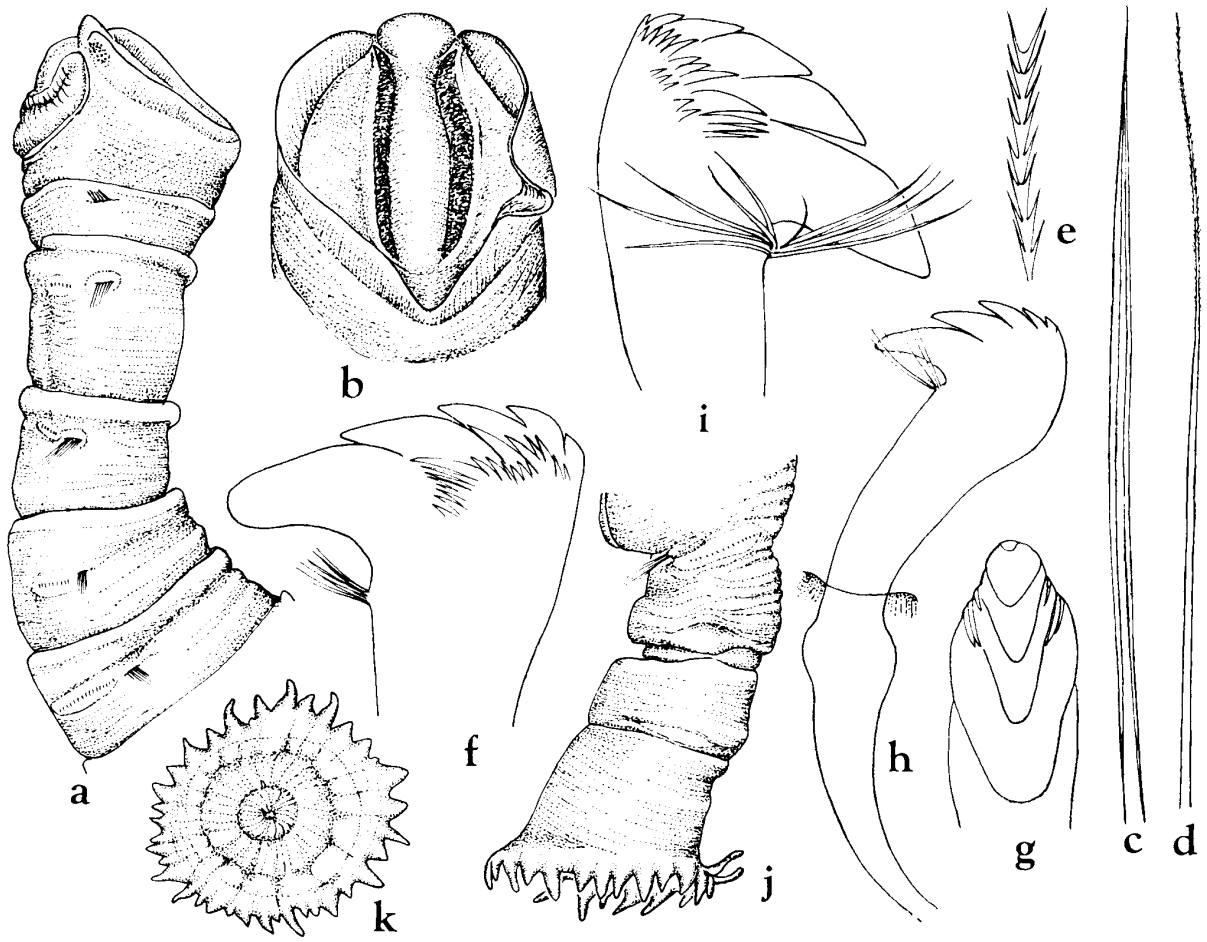


Fig. 26. *Maldanella niijimense* sp. nov. a, anterior end, in lateral view, ×10; b, cephalic plate, in frontal view, ×13; c, bilimbate notopodial seta from the first setiger, ×175; d, notopodial seta with cilia-like hair distally, ×175; e, distal part of same seta, ×1120; f, g, uncini from the second setiger, in lateral (f) and frontal (g) views, ×1120; h, uncinus from median setiger, ×640; i, distal end of same uncinus, ×1120; j, posterior end, in lateral view, ×10; k, pygidial funnel, viewed from the rear, ×10.

a row and small accessory teeth above the main fang, and gular bristles (Fig. 26, f, g). The median uncini have five teeth in a row above the main fang and the necks are bent backwards in a wide curve (Fig. 26, h, i).

Both of the two preanal segments are shorter than the width; there is a pair of rudimentary parapodia. The pygidial funnel is deep and the floor of the anal plate is completely withdrawn, with the anus situated in its center. The funnel is rimmed with 34 shortish cirri of varying length (Fig. 26, j, k).

Remarks. *Maldanella niijimense* is characterized by its cephalic plate structure, which is clearly distinct from that of other species in the genus.

Type. Holotype, NSMT-Pol. H 165.

Distribution. Japan.

Genus ***Praxillella*** VERRILL, 1881

Key to Japanese Species of *Praxillella*

1. Cephalic rim with two lateral and one posterior incisions 2
1′. Cephalic rim with one posterior incision ..... *P. praetermissa*
2. Prostomium bluntly rounded at anterior margin 3
2′. Prostomium prolonged forward as a finger-like projection ..... *P. gracilis*
3. With three posterior achaetous segments; first three neuropodia with reduced rostrate uncini ..... *P. affinis*
3′. With four posterior achaetous segments; first three neuropodia with thick distally bent spines ..... *P. pacifica*

Praxillella pacifica BERKELEY, 1929, stat. nov.

(Fig. 27, a–l)

Praxillella affinis var. *pacifica* BERKELEY, 1929, pp. 313–314; BERKELEY & BERKELEY, 1952, pp. 49–50, figs. 97–100; HARTMAN, 1969, pp. 475, 476.

Material examined. Off Samani, in 60 m (8), Usu Bay, in 1.5 m (3), Hokkaido; Mutsu Bay, in 4–39 m (18); Miyako Bay, in 20–49 m (80), Otsuchi Bay, in 60–89 m (13), Kamaishi Bay, in 34 m (1), Iwate Pref.; Nagaura Bay, Yokosuka, in 12 m (4); Uraga Channel, in 34 m (2); off Mito-hama, Miura Peninsula, 35°10.1′N, 139°34.8′E, in 85 m (11); Sagami Bay, 34°54.3′N, 139°44 5′E–34°54.0′N, 139°44.6′E, in 74 m (14), 34°54.5′N, 139°19.7′E–34°54.5′N, 139°20.0′E, in 1450–1650 m (2), 35°00.9′N, 139°35.7′E–35°00.7′N, 139°36.0′E, in 1060–990 m (2), KT-66-12; Sagami Bay, 35° 09.42′N, 139°37.00′E, in 11 m (2), 35°12.36′N, 139°36.30′E, in 8 m (5), 35°07.42′N, 139°34.00′E, in 98 m (2), 35°09.42′N, 139°34.00′E, in 101 m (5), 35°17.00′N, 139° 34.00′E, in 6 m (3), 35°16.42′N, 139°32.00′E, in 20 m (1), 35°13.42′N, 139°32.00′E, in 130 m (1), 35°13.42′N, 139°30.00′E, in 140 m (3), 35°16.42′N, 139°27.00′E, in 57 m (7); 35°13.42′N, 139°18.00′E, in 810 m (2), 35°09.42′N, 139°12.00′E, in 670 m (1), 35°07.42′N, 139°10.00′E, in 65 m (1), 35°11.42′N, 139°09.18′E, in 83 m (2), for

survey of Kanagawa Fish. Exper. Sta.; off Koyahata, Sagami Bay, in 45 m (1); Sea of Enshu, 35°37.4′N, 137°37.2′E, in 60 m (7); Tsukumo Bay, Noto Peninsula, in 20–25 m (36); Tsushima Strait, in 110 m (1).

Description. The largest specimen measures 103 mm in length and about 3 mm

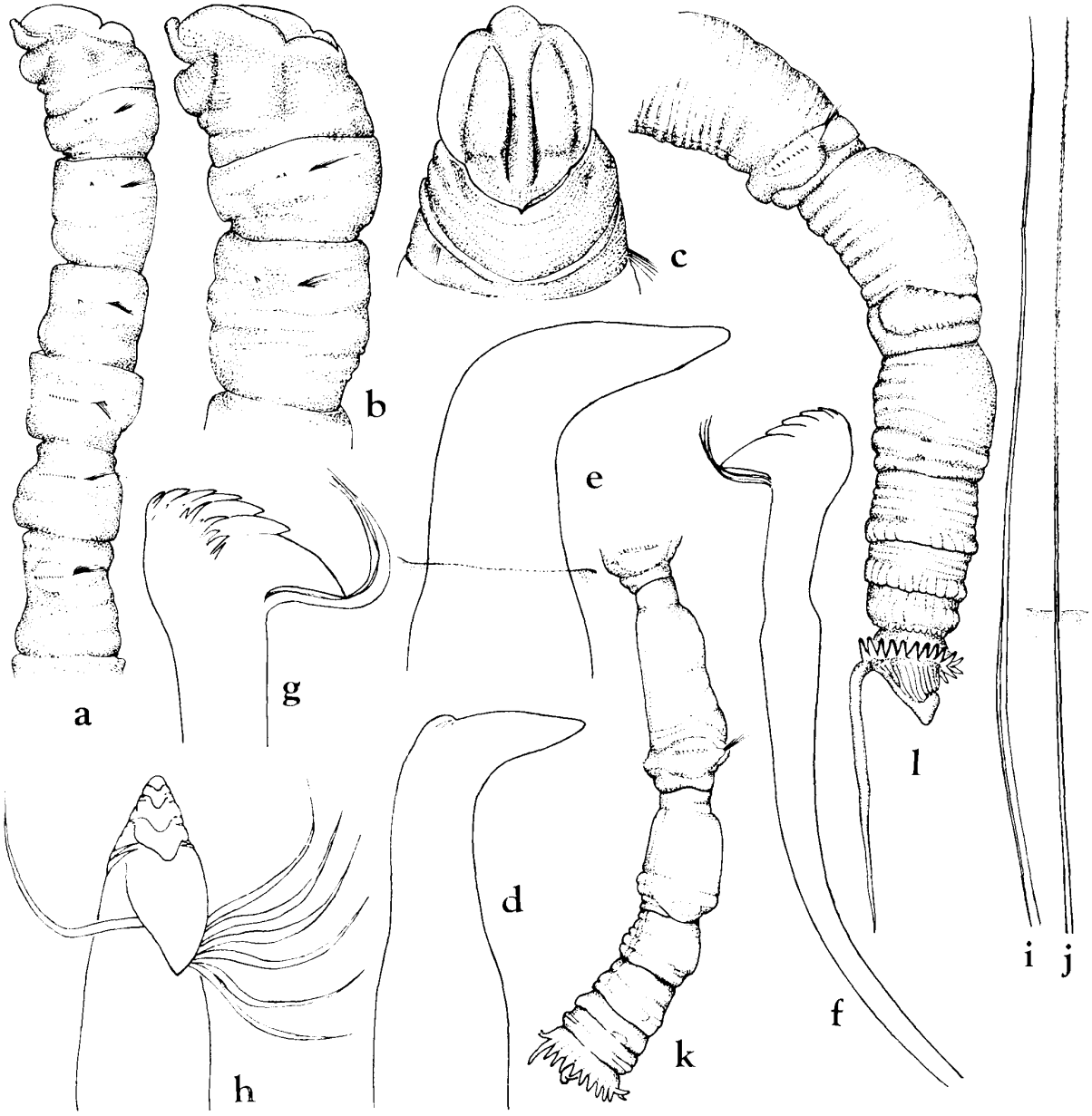


Fig. 27. *Praxillella pacifica* BERKELEY. a, anterior end, in lateral view, ×10; b, cephalic plate, in lateral view, ×13; c, the same, in frontal view, ×18; d, thick spine from the first notopodium, ×330; e, thick spine from the second notopodium, ×330; f, uncinus from median neuropodium, ×330; g, h, distal ends of uncini from median neuropodium, ×545; i, notopodial capillary seta, ×175; j, laterally hirsute seta, ×80; k, posterior end, in lateral view, ×10; l, posterior end from different specimen, in lateral view, ×13.

in width; it consists of 18 setigers, four asetous posterior segments and pygidium. The first five to seven setigerous segments are comparatively short, as long as the width, and the following segments are nearly twice as long as the anterior ones (Fig. 27, a).

The cephalic plate is elliptical; the well developed rim is membraneous, with a middorsal cleft and a pair of deep postlateral incisions. The prostomium is semicircular in front; there are many, minute ocelli ventrally. Nuchal organs are straight, long and parallel, but slightly curved outwards anteriorly; they extend through most of the cephalic length, and compress a cephalic keel (Fig. 27, b, c).

Each of the first three setigers has one or two thick, neuropodial spines with fangs bent almost at right angles to the shafts. The first spines are more slender than the second and third ones, and have a few small teeth on the bent neck to the shaft (Fig. 27, d). The second and third ones are thick, with no crown of small teeth (Fig. 27, e). The remaining setigers have developed rostrate uncini, numbering 10 to 26 in a torus; each uncinus has six teeth in a row and small accessory teeth above the main fang, and long gular bristles (Fig. 27, f, g, h). Notopodial setae include slender capillaries with a narrow wing (Fig. 27, i) and laterally hirsute setae (Fig. 27, j). The 10th notopodial fascicle has very many hirsute setae only. There are four asetous segments in front of the pygidial funnel. The posterior end is strongly constricted immediately in front of the pygidial funnel; the funnel margin is fringed by a circlet of 24 to 27 marginal cirri and a long midventral one, which is about twice as long as the others (Fig. 27, k). However, some specimens have a much longer midventral cirrus (Fig. 27, l). The anal cone projects beyond the funnel and has an anal pore above a midventral flap.

Praxillella affinis var. *pacifica* BERKELEY is here newly transferred to specific rank, because the stem has three posterior asetous segments, instead of four; the pygidium has a smooth appearance, instead of being strongly constricted immediately in front of the anal ring of cirri, and the uncini on the second and third setigers are somewhat reduced rostrate, instead of thick spines with fangs bent almost at right angles to the shafts, with no crown of small teeth.

The species is new to the Japanese fauna.

Distribution. Southern California north to western Canada; Japan.

Praxillella affinis (SARS, 1872)

Praxillella affinis: OKUDA, 1937, pp. 55–56, pl. 2, fig. E, text-fig. 4; IMAJIMA & HARTMAN, 1964, p. 320.

Diagnosis. The body is 26 to 58 mm in length and has 18 setigerous and three preanal asetous segments. The cephalic plate is oval and has a well developed rim, which is divided by two lateral and one posterior notch. The cephalic keel and nuchal grooves are long. The prostomium is short and round. The first three setigerous segments each have one or two ventral acicular setae terminating distally in a main fang surmounted by two to five small teeth. Notopodial capillary setae are of two kinds. The pygidium has an anal funnel fringed by 14 to 16 cirri, of which a mid-

ventral one is much the longest. The anal cone protrudes posteriorly.

This species has been reported from Onagawa Bay by OKUDA (1937). The specific identity is somewhat questionable because OKUDA makes no mention of the pygidium.

Distribution. Western Europe; Atlantic and Pacific Oceans; Japan (Onagawa Bay).

Praxillella gracilis (SARS, 1861)

(Fig. 28, a–k)

Praxillella gracilis: ARWIASSON, 1906, pp. 183–191, pl. 4, fig. 153–155; pl. 5, fig. 156–158; pl. 9, fig. 302–307; pl. 12, fig. 367; FAUVEL, 1927, pp. 178–179, fig. 62, m–p; MESNIL & FAUVEL, 1939, pp. 4, 5, fig. 1; BERKELEY & BERKELEY, 1952, p. 50, figs. 101, 102; HARTMAN, 1969, pp. 477, 478.

Material examined. Off Samani, Hokkaido, in 60–80 m (97); Mutsu Bay, in 4 m (2); Kashima Sea, 36°09.3′N, 140°56.6′E–36°10.0′N, 140°56.1′E, in 280–295 m (40), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (2), 36°09.8′N, 141°01.5′E–36°08.5′N, 141°02.5′E, in 498–517 m (9), KT–79–13; off Sirahama, Boso Peninsula, 35°00.1′N, 140°06.8′E–35°00.5′N, 140°07.5′E, in 145–150 m, KT–76–16 (3); Sagami Bay, 34°54.5′N, 139°19.7′E–34°54.5′N, 139°20.0′E, in 1450–1650 m (8), 35°09.0′N, 139°14.2′E–35°09.6′N, 139°14.2′E, in 890–1140 m (8), 35°09.2′N, 139°30.4′E–35°08.9′N, 139°29.5′E, in 590 m (3), 35°00.9′N, 139°35.7′E–35°00.7′N, 139°36.0′E, in 1060–990 m (3), 34°54.3′N, 139°44.5′E–34°54.0′N, 139°44.6′E, in 74 m (9), KT–66–12; 35°09.2′N, 139°23.6′E–35°08.8′N, 139°23.8′E, in 480–550 m (1), 35°09.1′N, 139°23.3′E–35°09.1′N, 139°23.9′E, in 478–490 m (43), 35°05.7′N, 139°23.8′E–35°06.1′N, 139°23.7′E, in 1188–1220 m (4), 35°01.2′N, 138°24.8′E–35°01.2′N, 138°25.35′E, in 1260–1290 m (4), 35°04.1′N, 139°31.5′E–35°04.2′N, 139°32.1′E, in 750–870 m (5), KT–76–3; Sagami-nada, 34°56.2′N, 139°15.0′E–34°56.9′N, 139°15.2′E, in 1310 m (17), 34°45.0′N, 139°38.0′E–34°44.6′N, 139°38.1′E, in 1500 m (2), 35°02.4′N, 139°14.6′E–35°03.2′N, 139°14.4′E, in 1340 m (24), 35°04.3′N, 139°23.9′E–35°04.6′N, 139°25.2′E, in 1270 m (41), KT–65–34; Sagami Bank, 35°09.5′N, 139°23.7′E, in 465 m, KT–66–23 (1); Sagami Bay, 35°13.42′N, 139°23.00′E, in 590 m (1), 35°11.42′N, 139°23.00′E, in 950 m (3), 35°15.42′N, 139°20.00′E, in 640 m (1), 35°13.42′N, 139°18.00′E, in 810 m (1), 35°07.42′N, 139°16.00′E, in 1200 m (1), 35°13.42′N, 139°12.00′E, in 540 m (1), 35°11.42′N, 139°12.00′E, in 760 m (1), 35°09.42′N, 139°10.00′E, in 115 m (1), for survey of Kanagawa Fish. Exper. Sta.; off Koyahata, Sagami Bay, in 100 m (1); Suruga Bay, 34°36.4′N, 138°36.0′E–34°35.1′N, 138°35.8′E, in 2520–2500 m, KT–66–22 (1); 34°52.2′N, 138°26.8′E, in 660 m, KT–67–2 (2); 34°52.7′N, 138°37.6′E–34°53.3′N, 138°37.5′E, in 1500–1480 m (34), 34°46.2′N, 138°42.6′E, in 277 m (1), KT–73–6; 34°54.2′N, 138°38.1′E–34°54.3′N, 138°38.1′E, in 1600–1540 m, KT–76–16 (36); 34°47.0′N, 138°30.4′E–34°47.0′N, 138°30.3′E, in 435–590 m, KT–78–2 (2); Enshu-nada, 35°38.3′N, 137°49.3′E, in 15 m (2); Korea Strait, in 210 m (2); Tsushima Strait, in 64–96 m (3).

Description. The largest specimen measures 90 mm in length and 3 mm in

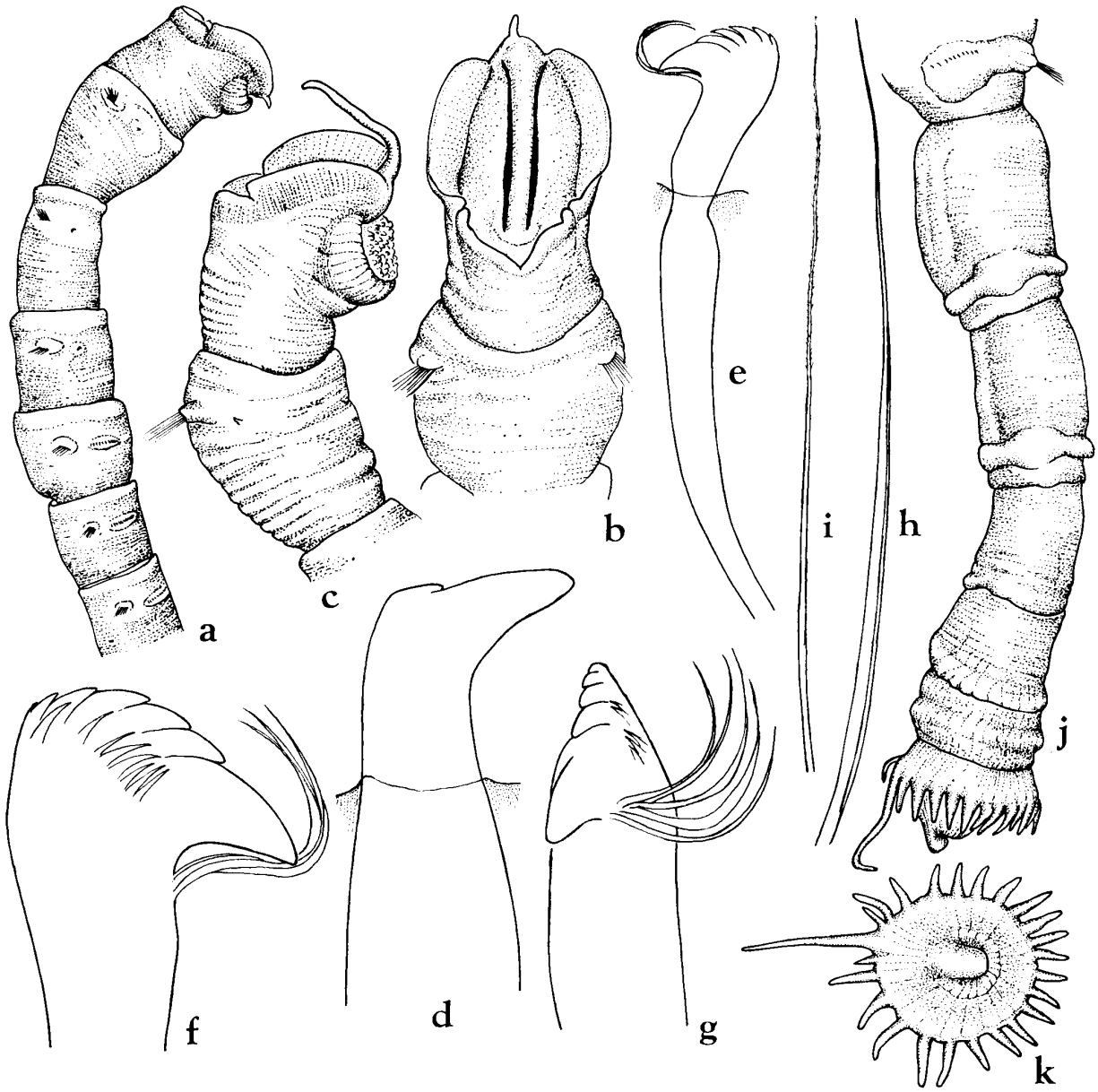


Fig. 28. *Praxillella gracilis* (SARS). a, anterior end, in lateral view, ×5; b, cephalic plate, in frontal view, ×10; c, anterior end showing prostomium with long finger-like projection, ×13; d, thick spine from the first neuropodium, ×330; e, uncinus from median neuropodium, ×330; f, g, distal ends of uncini from median neuropodium, ×805; h, limbate capillary seta from median notopodium, ×55; i, laterally hirsute seta from same notopodium, ×175; j, posterior end, in lateral view, ×8; k, pygidial funnel, viewed from the rear, ×10.

width; it consists of 18 setigerous, four asetous posterior segments and pygidium.

The cephalic plate is elliptical and has a well developed membraneous rim, with a middorsal cleft and a pair of deep postlateral incisions. The prostomium is subconical and extendes into a finger-like projection (Fig. 28, a, b); the longest filament is about two-thirds as long as the cephalic plate (Fig. 28, c). The nuchal organs are

straight, long and parallel, slightly curved outwards anteriorly; they extend through most of the cephalic length, and compress a cephalic keel.

The first three neuropodia each have one to two thick spines with fangs curved almost at right angles to the shafts; the first neuropodial spines have a small secondary tooth, no gular bristles (Fig. 28, d). The remaining setigers have well-developed rostrate uncini, numbering 12 to 20 in a torus; each uncinus have five teeth in a row and small accessory teeth above the main fang, and long gular bristles (Fig. 28, e, f, g). Notopodial setae include slender capillaries with narrow wings and laterally hirsute setae (Fig. 28, h, i).

There are four asetous segments in front of the pygidial funnel. The posterior end is distally constricted anteriorly to the pygidium (Fig. 28, j). The margin of the funnel is fringed by a circlet of 23 to 24 elongated cirri and a much longer midventral filament (Fig. 28, k). The anal cone extends beyond the funnel and has an anal pore above a midventral flap.

The species is new to the Japanese fauna.

Distribution. Southern California north to western Canada, north Atlantic and western Europe; north Atlantic and western Europe; Mediterranean Sea; Japan.

Praxillella praetermissa (MALMGREN, 1866)

(Fig. 29, a–n)

Praxilla praetermissa MALMGREN, 1866, p. 191.
Praxillella praetermissa: ARWIDSSON, 1906, pp. 192–204, pl. 4, fig. 136a–143; pl. 9, fig. 294–296; pl. 12, fig. 361–363; DAY, 1967, pp. 642–644, fig. 30. 7. i–l.
Clymene (*Praxillella*) *praetermissa*: FAUVEL, 1927, pp. 179–180, fig. 62, a–e.

Material examined. Kamaishi Bay, in 29–58 m (1); off Boso Peninsula, 34° 57.2′N, 140°02.4′E–34°57.6′N, 140°02.7′E, in 115 m, KT–76–16 (6); Sagami Bay, 35°09.1′N, 139°23.3′E–35°09.1′N, 139°23.9′E, in 478–490 m, KT–76–3 (13); Suruga Bay, 34°52.7′N, 138°37.6′E–34°53.3′N, 138°37.5′E, in 1500–1480 m, KT–73–6 (1); Korea Strait, in 205–210 m (27); Tsushima Strait, in 115 m (7).

Description. The largest specimen measures 19 mm in length and 0.8 mm in width, and consists of 19 setigerous segments, four asetous, preanal segments and pygidium. The body is cylindrical, and the first two segments are longer than next few segments (Fig. 29, a).

The cephalic plate is elliptical; the rim is foliaceous, especially widest in the median part; the lateral flanges have slight notches or are folded in such a way as to simulate notches. There is a distinct middorsal notch. The nuchal organs are nearly parallel to each other, about two-thirds as long as the cephalic plate and are curved outwards anteriorly. The prostomium is large and conical, without ocelli (Fig. 29, b, c).

The first three setigerous segments each have one or two rudimentary uncini; these uncini have four small teeth in a row above the main fang, and may be with or

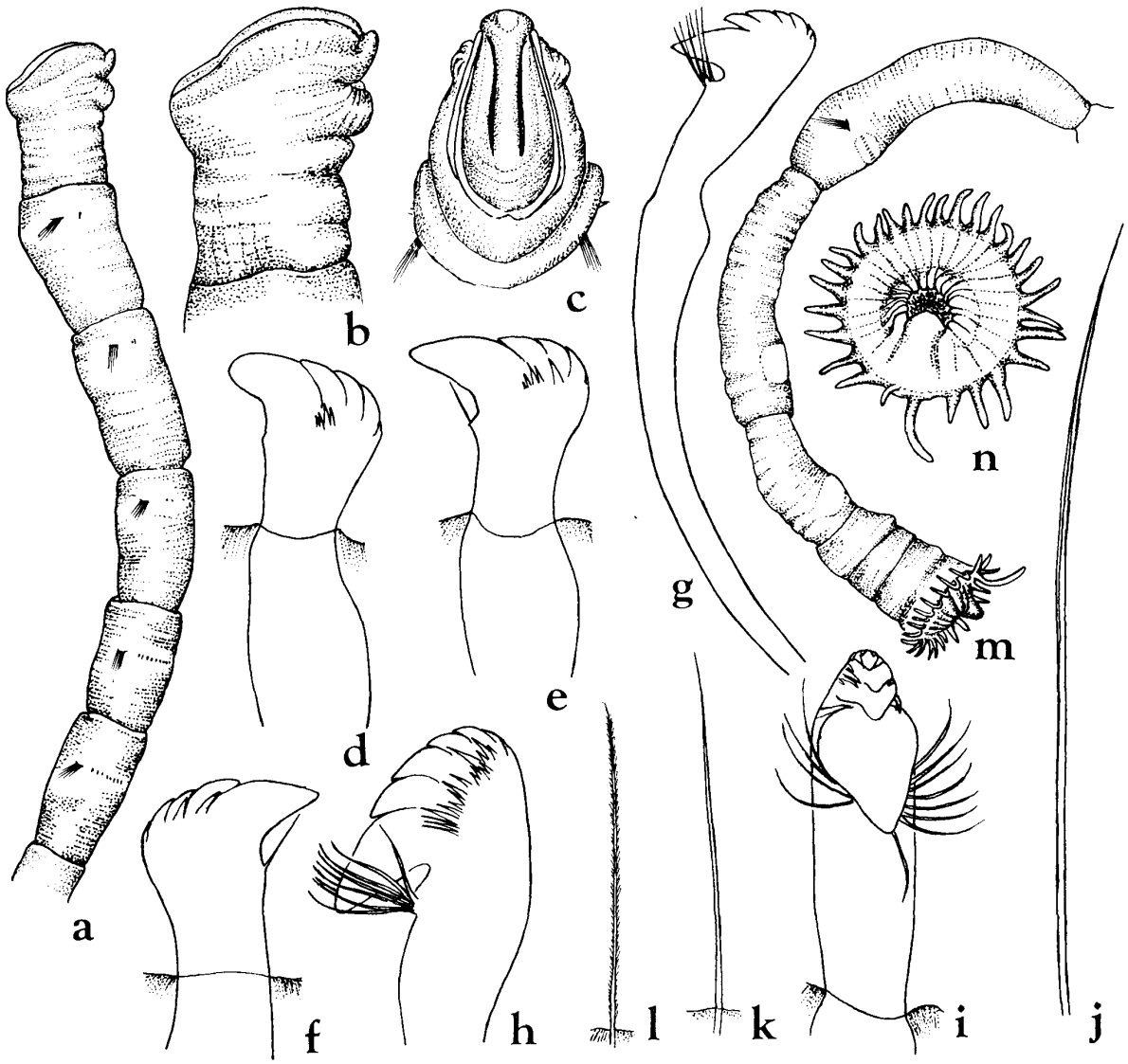


Fig. 29. *Praxillella praetermissa* (MALMGREN). a, anterior end, in lateral view, ×11; b, c, cephalic plates, in lateral (b) and frontal (c) views, ×20; d, e, uncini from the first setiger, ×730; f, uncinus from the third setiger, ×730; g, uncinus from median setiger, ×530; h, i, distal ends of same uncinus, ×920; j, k, notopodial capillary setae, ×200; l, pinnate filiform capillary seta, ×200; m, posterior end, in lateral view, ×11; n, pygidial funnel, viewed from the rear ×20.

without a gular bristle below (Fig. 29, d, e, f). The following uncini are well-developed rostrate, with six teeth above the main fang in a vertical series and gular bristles below; they number 6 to 13 in a torus (Fig. 29, g, h, i). The notopodial setae are slender winged capillaries (Fig. 29, j, k) and pinnate filiform ones (Fig. 29, l).

The posterior end terminates in a funnel surrounded by a circlet of 27 subequal cirri and a long ventral one. The anal cone extends back beyond the funnel, and

has a large ventral valve (Fig. 29, m, n).

The species is new to the Japanese fauna.

Distribution. Arctic; North Atlantic from Norway to Spain; Mediterranean Sea; Japan.

Genus *Microclymene* ARWIDSSON, 1906

Microclymene caudata sp. nov.

(Fig. 30, a–o)

Material examined. Off Ohmu, Hokkaido, 44°49′N, 143°00′E, in 100 m (7); Miyako Bay, in 65 m (3); Kamaishi Bay, in 31–53 m (9); Kashima Sea, 36°09.3′N, 140°56.6′E–36°10.0′N, 140°56.1′E, in 280–295 m (592), 36°12.4′N, 141°09.5′E–36°12.8′N, 141°08.8′E, in 690–710 m (3), 36°30.1′N, 141°12.5′E–36°30.8′E, 141°13.5′E, in 690–704 m (2), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (2), KT–79–13; off Boso Peninsula, 35°00.1′N, 140°06.8′E–35°00.5′N, 140°07.5′E, in 145–150 m, KT–76–16 (1); Sagami Bay, 35°09.2′N, 139°30.4′E–35°08.2′N, 139°29.5′E, in 590 m (1), 35°09.0′N, 139°14.2′E–35°09.6′N, 139°14.2′E, in 980–1140 m (4), 35°00.9′N, 139°35.7′E–35°00.7′N, 139°36.0′E, in 1060–990 m (32), KT–66–12; 35°12.2′N, 139°12.6′E–35°12.0′N, 139°12.9′E, in 825–825 m, KT–70–4; (holotype and 3 paratypes); 35°09.1′N, 139°23.3′E–35°09.1′N, 139°23.9′E, in 478–490 m (20), 35°04.1′N, 139°31.5′E–35°04.2′N, 139°30.8′E, in 750–870 m (2), 35°01.2′N, 138°24.8′E–35°01.2′N, 138°25.35′E, in 1260–1290 m (2), 35°05.7′N, 139°23.8′E–35°06.1′N, 139°23.7′E, in 1188–1220 m (1), KT–76–3; Sagami Bank, 35°10.5′N, 139°20.0′E, in 1070 m, KT–66–23 (1); Suruga Bay, 34°50.5′N, 138°37.4′E–34°51.2′N, 138°37.8′E, in 1650 m (1), 35°05.7′N, 138°38.6′E–35°06.1′N, 138°38.4′E, in 360 m (1), KT–66–22; 34°47.0′N, 138°30.4′E–34°47.0′N, 138°30.3′E, in 435–590 m, KT–78–2 (24).

Description. The holotype from Sagami Bay is the largest complete specimen; it measures 42 mm in length and 1 mm in width and consists of 33 setigerous segments and pygidium. The body is slender and cylindrical; the first two setigerous segments are longer than the following segments. The anterior margins of the second to fourth setigers are produced into a low collar; the ventral upper margin of the second setiger protrudes anteriorly (Fig. 30, a, b).

The cephalic plate is almost circular. The rim is entire all around, but it tends to be lower middorsally. The prostomium is large and conical in front. The nuchal organs are straight and parallel. They are about three-quarters of the length of the cephalic plate, and compress a cephalic keel (Fig. 30, c).

The first three neuropodia each have one thick acicular seta; the first one is slightly bent distally (Fig. 30, d), and the second and third ones are boldly bent obliquely (Fig. 30, e). The remaining setigers have well-developed rostrate uncini, numbering 10 to 15 in a torus; each uncinus has five teeth in a row and small accessory teeth above the main fang, and gular bristles (Fig. 30, f, g, h). The setal fascicle of the first notopodium includs thick, long capillaries and slender, short ones (Fig. 30, i, j). The

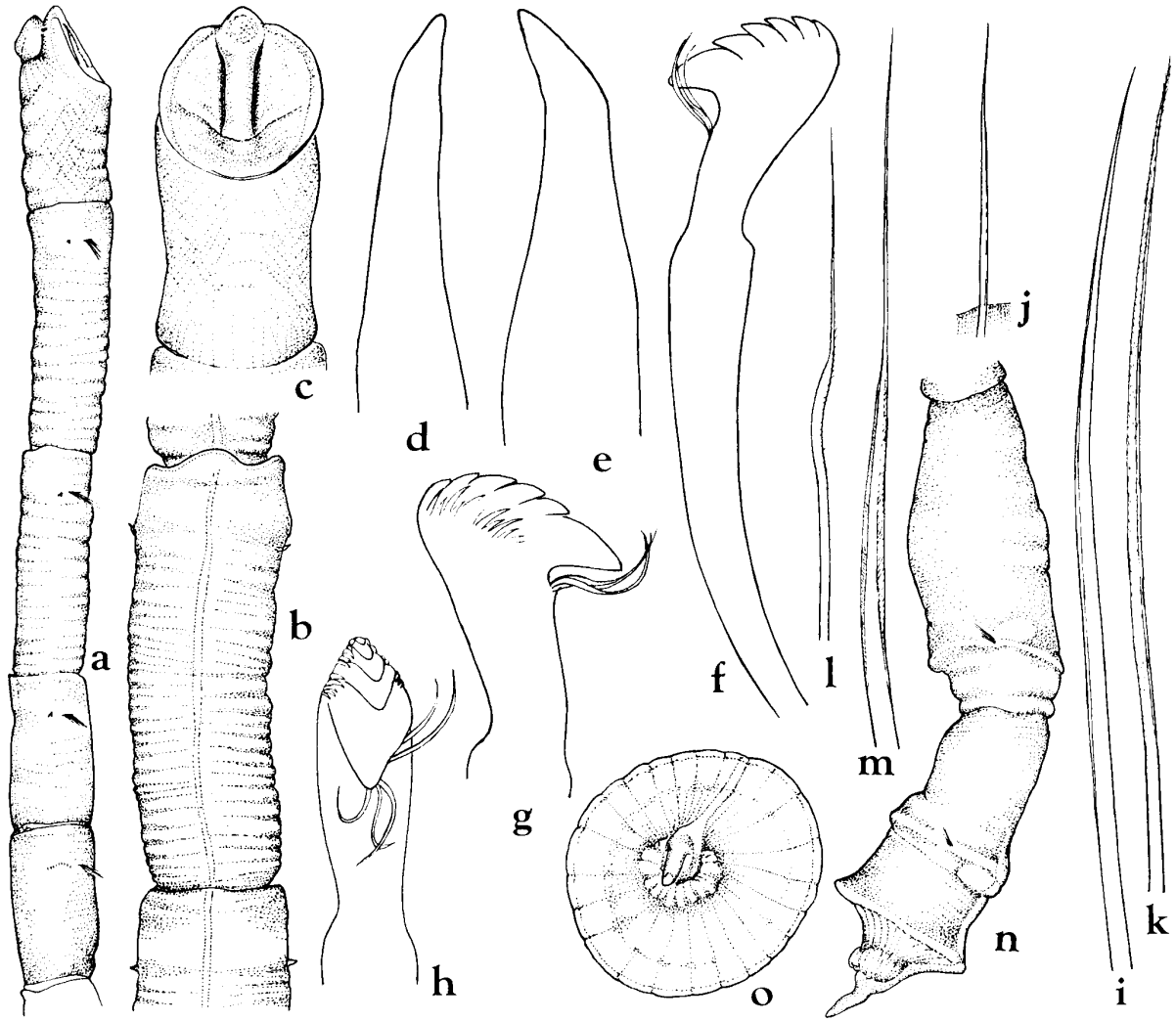


Fig. 30. *Microclymene caudata* sp. nov. a, anterior end, in lateral view, ×10; b, the second setiger, showing an elevation in anterior margin, in ventral view, ×18; c, cephalic plate, in frontal view, ×18; d, acicular spine from the first neuropodium, ×330; e, acicular spine from the third neuropodium, ×330; f, uncinus in median neuropodium, ×640; g, h, distal ends of median uncinus, ×805; i, j, longer (i) and shorter (j) capillary setae from the first notopodium, ×330; k, l, m, notopodial capillary setae from median parapodium, ×330; n, posterior end, in lateral view, ×18; o, pygidial funnel, viewed from the rear, ×30.

fascicles of the median parapodia have three kinds of capillaries: limbate setae bearing closely packed minute hairs (Fig. 30, k), geniculate setae with slender distal tips bearing minute hairs (Fig. 30, l) and bilimbate setae with slender distal tips (Fig. 30, m).

There is no asetous preanal segment. The pygidium is funnel-shaped with a smooth posterior margin. The anal cone is conspicuous, extending back beyond the funnel, and the pore opens subdorsally. A short cirrus arises from the ventral side

of the funnel, and extends beyond the anal cone; its largest part is fused with the side of the anal cone (Fig. 30, n, o).

Remarks. *Microclymene caudata* closely resembles *M. acirrata* ARWIDSSON, 1906 from Norway, but the first differs from the second in having a caudal cirrus extending along the anal cone.

The genus and species are new to the Japanese fauna.

Type-series. Holotype, NSMT-Pol. H 166; 3 paratypes, NSMT-Pol. P 167.

Distribution. Japan.

Genus *Axiothella* VERRILL, 1900

Key of Japanese Species of *Axiothella*

1. With well-developed erect rim on cephalic plate; neuropodia with rostrate uncini ..... *A. rubrocincta*

1′. With low bank-like rim on cephalic plate; neuropodia with avicular hooks.... ..... *A. quadrimaculata*

Axiothella quadrimaculata AUGENER, 1914

(Fig. 31, a–k)

Axiothella quadrimaculata AUGENER, 1914, pp. 70–72, pl. 1, fig. 10, text-fig. 10; DAY, 1967, p. 629, fig. 30.3.1–o; HARTMAN, 1966, p. 61, pl. 20, fig. 1.

Material examined. Matsumae, Hokkaido, from *Zostera* bed (53); Hachijo-jima, intertidal zone (6), off Nii-jima, in 65–80 m (2), Izu Islands.

Description. The body is cylindrical and the longest specimen measures 12 mm in length and 0.4 mm in width; it consists of 23 setigerous segments and a pygidial funnel. However, a few specimens have an asetous preanal segment. The head and anterior segments are marked by brown bars (Fig. 31, a).

The cephalic plate is elliptical and truncated. It has a poorly defined bank-like rim, diminishing dorsally. The nuchal organs are about half as long as the plate and diverge outwards anteriorly. The cephalic keel protrudes in an arc. There are many ocelli (Fig. 31, b, c).

Notopodial setae are of two kinds: slender capillary setae covered by minute cilia (Fig. 31, d) and capillary setae tapered terminally, with mucronate tips (Fig. 31, e). Neuropodial hooks are avicular with five or six teeth in a vertical series above the main fang, with gular bristles; their shafts are short and S-shaped with a large swelling (Fig. 31, f, g, h). They number one or two on the first four setigers, and 11 on median setigers. The posterior margin of the pygidial funnel is divided into eight to nine semicircular lobes; the anus is placed at its center (Fig. 31, i, j, k).

The species is new to the Japanese fauna.

Distribution. South-west Australia: New Zealand; Southern Africa; Japan.

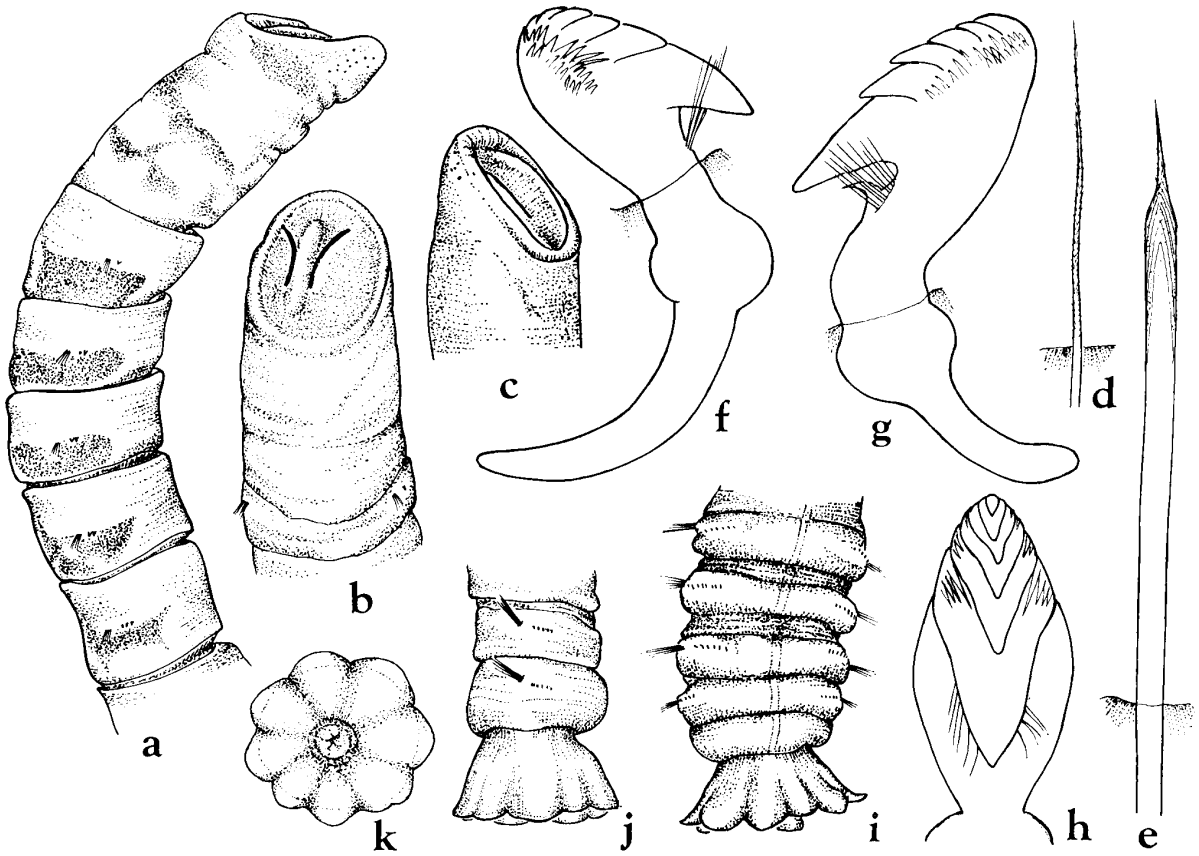


Fig. 31. *Axiothella quadrimaculata* AUGENER. a, anterior end, in lateral view, ×35; b, anterior end, in dorso-lateral view, ×40; c, cephalic plate of different specimen, in lateral view, ×40; d, notopodial seta, ×460; e, notopodial seta with mucronate tip, ×460; f, uncinus from the first setiger, ×1120; g, uncinus from median notopodium, ×940; h, distal part of uncinus, in frontal view, ×1120; i, posterior end, in ventral view, ×40; j, posterior end of different specimen, in lateral view, ×40; k, pygidial funel, viewed from the rear, ×40.

Axiothella rubrocincta (JOHNSON, 1901)

(Fig. 32, a–k)

Clymenella rubrocincta JOHNSON, 1901, p. 418.
Axiothella rubrocincta BERKELEY & BERKELEY, 1952, pp. 51–52, figs. 105, 106; HARTMAN, 1969, pp. 431, 432.

Material examined. Kashima Sea, 36°09.3′N, 140°56.6′E–36°10.0′N, 140°56.1′E, in 280–295 m, KT–79–13 (3); off Boso Peninsula, 35°00.1′N, 149°06.7′E, in 150 m (4), 34°57.0′N, 140°02.9′E, in 130 m (1), KT–76–16.

Description. A complete specimen measures 40 mm in length and 1.5 mm in width anteriorly; it consists of 18 setigerous, and two asetigerous preanal segments and a pygidial funnel. The fourth setiger has a thick, raised anterior edge, simulating a collar (Fig. 32, a).

The cephalic plate is elliptical. The rim is wide and has two shallow lateral incisions and a deep middorsal incision. The nuchal organs are long, nearly parallel to each other, about three-quarters as long as the cephalic plate; they diverge outwards anteriorly. The prostomium is large and conical; there are many, minute ocelli on its under side. The cephalic keel extends through most of the cephalic length, and is compressed by the nuchal organs (Fig. 32, b).

The first notopodial fascicle has slender bilimbate capillaries (Fig. 32, c). Median notopodia have thick bilimbate capillaries covered by minute cilia (Fig. 32, d), slender capillaries (Fig. 32, e) and capillaries with minutely bipinnate tips (Fig. 32, f). Uncini number 4 in each of the first three setigers, and 12 in the fourth neuropodium. The first uncini are somewhat reduced, with four teeth in a row above the main fang, lacking gular bristles (Fig. 32, g). The uncini in median neuropodia are rostrate in shape

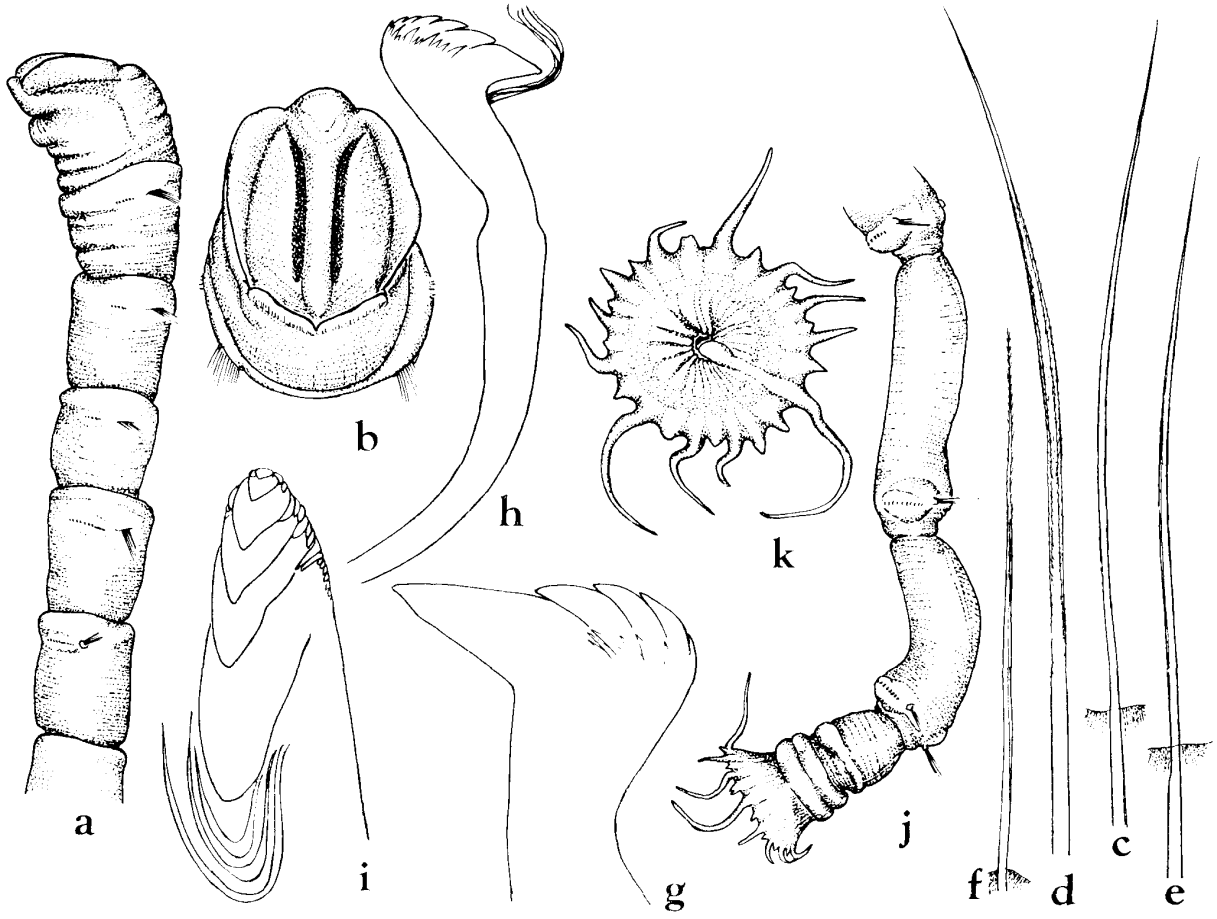


Fig. 32. *Axiothella rubrocincta* (JOHNSON). a, anterior end, in lateral view, ×10; b, cephalic plate, in frontal view, ×18; c, bilimbate capillary seta from the first setiger, ×175; d, e, f, thick limbate (d), slender capillary seta (e), capillary seta with minutely bipinnate tip (f) from median setiger, ×175; g, distal end of uncinus from the first setiger, ×1120; h, uncinus from median neuropodium, ×460; i, distal end of same uncinus, in frontal view, ×1120; j, posterior end, in lateral view, ×10; k, pygidial funnel, viewed from the rear, ×18.

with six teeth in a row above the main fang, with gular bristles (Fig. 32, h, i).

The pygidial funnel is campanulate and rimmed with 24 to 26 cirri tending to be alternately long and short, and one long ventral cirrus (Fig. 32, j, k). The anus is at the bottom of the funnel.

The species is new to the Japanese fauna.

Distribution. Puget Sound, Washington; Western Canada south to California; Japan.

Genus *Euclymene* VERRILL, 1900

Key to Japanese Species of *Euclymene*

1. Cephalic plate with crenulate dorsal rim; pygidium rimmed with subequal, triangular cirri ..... *E. uncinata*
1′. Cephalic plate with smooth, entire dorsal rim; pygidium rimmed with cirri varying in length ..... *E. oerstedi*

Euclymene uncinata sp. nov.

(Fig. 33, a–l)

Material examined. Kashima Sea, 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1005–1050 m, KT–79–13 (1); off Boso Peninsula, 34°57.0′N, 140°02.9′E, in 130 m (1), 34°57.1′N, 140°02.2′E, in 120 m (holotype), KT–76–16.

Description. The holotype in a complete specimen measures 62 mm in length and about 2 mm in width; it consists of 19 setigerous, and two asetigerous preanal segments and a pygidial funnel. The second and third setigers are slightly longer than the first and fourth setigers (Fig. 33, a).

The cephalic plate is broadly oval. The rim is divided by a middorsal cleft and a pair of postlateral incisions. The lateral rims are well developed and foliacious. The dorsal rims have each four to six marginal crenations. The prostomium is semicircular. The nuchal organs are straight and parallel, slightly curve outwards anteriorly; their lengths are about half as long as the cephalic length (Fig. 33, b).

The first three neuropodia each have one to two rostrate uncini, with four teeth in one row and accessory teeth above the main fang; the first uncinus has no gular bristles (Fig. 33, c). The remaining neuropodia have 10 to 18 developed uncini in a torus, each uncinus having six teeth in one row and accessory teeth above the main fang, and with gular bristles (Fig. 33, d, e, f). The setal fascicle of the first notopodium includes bilimbate slender capillaries (Fig. 33, g) and capillaries with a slender distal tip (Fig. 33, h). The fascicles of the median parapodia have geniculate setae with a slender distal tip bearing minute hairs (Fig. 33, i) and feather like capillaries (Fig. 33, j).

The pygidial funnel is campanulate and fringed by a circlet of 25 subtriangular cirri, and the anus is at the bottom of the funnel (Fig. 33, k, l).

Remarks. *Euclymene uncinata* is differentiated from known species of *Euclymene*

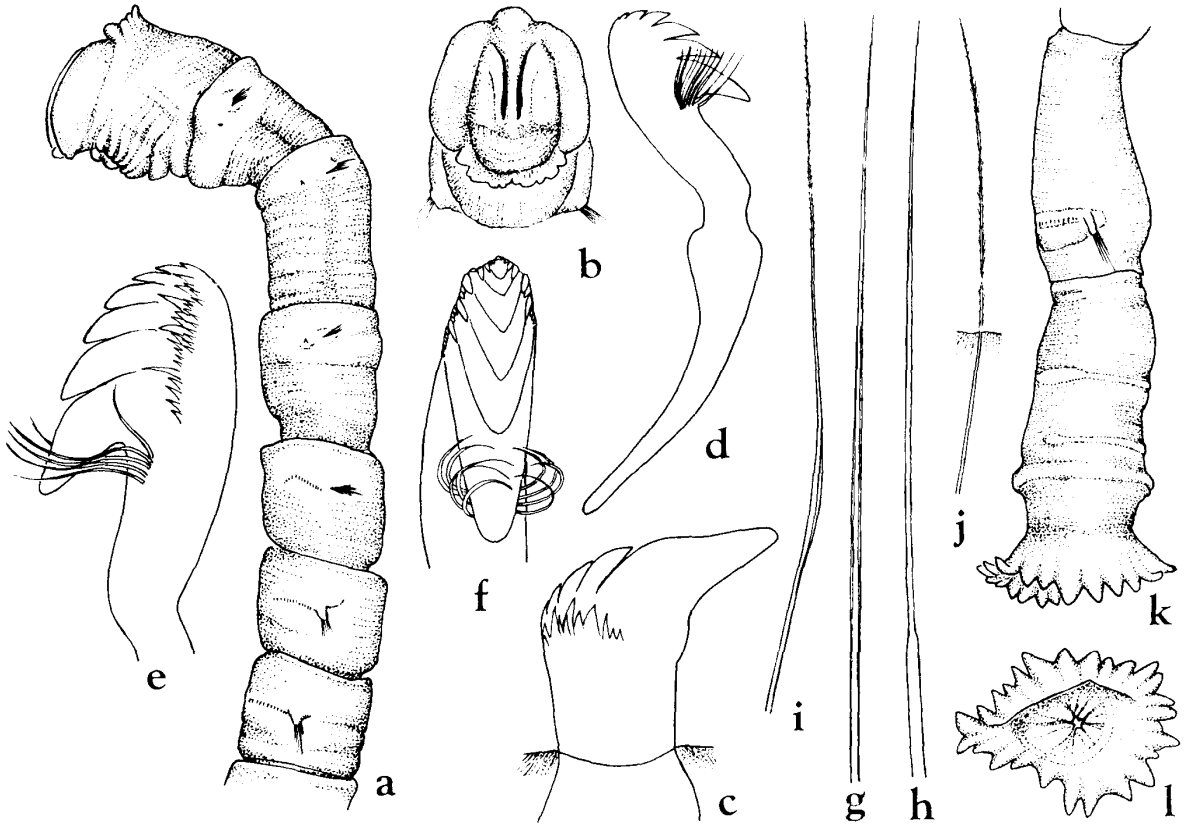


Fig. 33. *Euclymene uncinata* sp. nov. a, anterior end, in lateral view, ×8.5; b, cephalic plate, in frontal view, ×10; c, uncinus from the first neuropodium, ×640; d, uncinus from median neuropodium, ×460; e, f, distal ends of uncini from same neuropodium, ×805; g, bilimbate capillary seta, ×175; h, capillary seta with slender distal tip, ×120; i, j, notosetae from median parapodium, ×80; k, posterior end, in lateral view, ×8.5; l, pygidial funnel, viewed from the rear, ×10.

by the following: the cephalic plate has a thick rim with well marked crenulations posteriorly and the first three setigerous segments have one or two uncini, not stout acicular setae. The known species of *Euclymene* with a crenulated rim all have acicular setae on the first three setigers.

Type. Holotype, NSMT-Pol. H 168.

Distribution. Japan.

Euclymene oerstedi (CLAPARÈDE, 1863)

(Fig. 34, a–n)

Clymene oerstedii CLAPARÈDE, 1863, p. 28, pl. 13, figs. 8–13.
Clymene (*Euclymene*) *oerstedii*: FAUVEL, 1927, p. 173, fig. 60, a–i.
Euclymene oerstedi: DAY, 1967, p. 635, fig. 30.5.o–q.

Material examined. Sagami Bay, 35°07.42′N, 139°26.00′E, in 1100 m (1); off

Motimune, Suruga Bay, 34°54.39′N, 138°22.41′E, in 13 m (1), coll. M. OGURA; Sea of Enshu, 35°38.3′N, 137°49.3′E, in 15 m (3).

Description. The largest specimen measures 25 mm in length and about 0.6 mm in width; it consists of 19 setigers, two aseters posterior segments and pygidium. The first two setigerous segments are about 1.5 times as long as the following ones (Fig. 34, a).

The cephalic plate is elliptical. The rim is rather low with a pair of slight lateral notches; the dorsal margin is entire. The palpode is blunt and rounded. The nuchal organs are straight, nearly parallel to each other and about half as long as the plate. The ocelli are not distinct (Fig. 34, b).

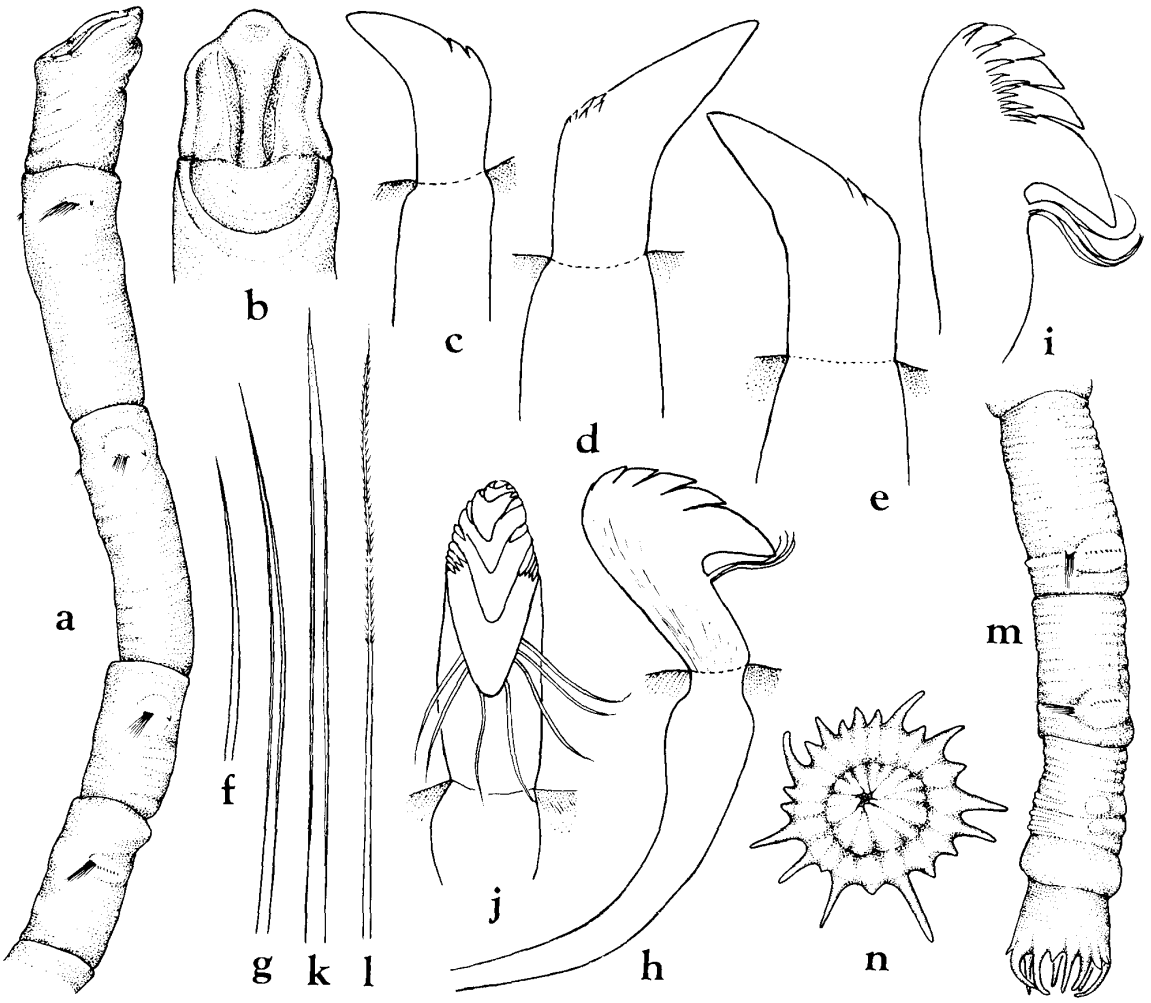


Fig. 34. *Euclymene oerstedi* (CLAPARÈDE). a, anterior end, in lateral view, ×18; b, cephalic plate, in frontal view, ×35; c, d, e, uncini from the first (c), second (d) and third (e) neuropodia, ×640; f, g, capillary setae from the first setiger, ×330; h, uncinus from median neuropodium, ×640; i, j, distal ends of uncini from same neuropodium, ×1120; k, bilimbate capillary seta, ×460; l, capillary seta with cilia-like hairs distally, ×640; m, posterior end, in lateral view, ×20; n, pygidial funnel, viewed from the rear, ×35.

The first three setigerous segments have reduced neuropodial uncini, one or two in each parapodium, with two or three small teeth above the main fang, and no gular bristles (Fig. 34, c, d, e). The ordinary capillary setae are slender, with very narrow wings (Fig. 34, f, g). Posterior to these there are six to eight uncini per uncinigerous torus, each uncinus having five large teeth in one row and small accessory teeth above the main fang, with gular bristles (Fig. 34, h, i, j). The notopodial setae are of two kinds: narrow limbate capillary setae (Fig. 34, k) and slender capillaries with cilia-like hairs distally (Fig. 34, l).

The two short preanal segments have small tori, but no setae (Fig. 34, m). The pygidium is a deep funnel rimmed with cirri varying in length; the ventral cirrus is by far the longest of them all; there are eight digitate cirri of medium size with one to three triangular cirri between them. The floor of the anal plate is completely withdrawn, and the anus is centrally placed within it (Fig. 34, n).

The species is new to the Japanese fauna.

Distribution. Naples; western Africa; Japan.

Genus *Isocirrus* ARWIDSSON, 1906

Isocirrus planiceps (SARS, 1872)

(Fig. 35, a–j)

Isocirrus planiceps: ARWIDSSON, 1906, pp. 137–143, pl. 3, fig. 98–107; pl. 8, fig. 276–280; pl. 11, fig. 348, 351.

Material examined. Kashima Sea, 36°09.8′N, 141°01.5′E–36°08.5′N, 141°02.5′E, in 498–517 m (1), 36°12.4′N, 141°09.5′E–36°12.8′N, 141°08.8′E, in 690–710 m (5), 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1005–1050 m (2), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (10), KT–79–13; Sagami Bay, 35°09.2′N, 139°30.4′E–35°08.9′N, 139°29.5′E, in 590 m, KT–66–12 (21); Suruga Bay, 34°47.0′N, 138°30.4′E–34°47.0′N, 138°30.3′E, in 435–590 m, KT–78–2 (4).

Description. The complete specimen measures 42 mm in length and 1 mm in width; it consists of 23 setigerous, two preanal asetigerous segments and a pygidial funnel. The anterior margins of the first three segments are surrouned by somewhat collar-like bands covering the base of the anterior segment (Fig. 35, a).

The cephalic plate is oval and truncated, and has a broad bank-like rim in the anterior half; the posterior rim is low, smooth and fleshy. The prostomium is fused posteriorly to the anterior rim. The nuchal organs are deeply curved; the inner shanks of the curve are parallel to each other, and less than half the length of the cephalic plate. There are no ocelli. Behind the nuchal organs there is a transverse groove across the middle of the plate (Fig. 35, b).

The first three neuropodia each have two to three stout acicular spines with blunt tips (Fig. 35, c); the following neuropodia have 6 to 14 rostrate uncini with six small teeth in one row and accessory teeth above the main fang, and with gular bristles

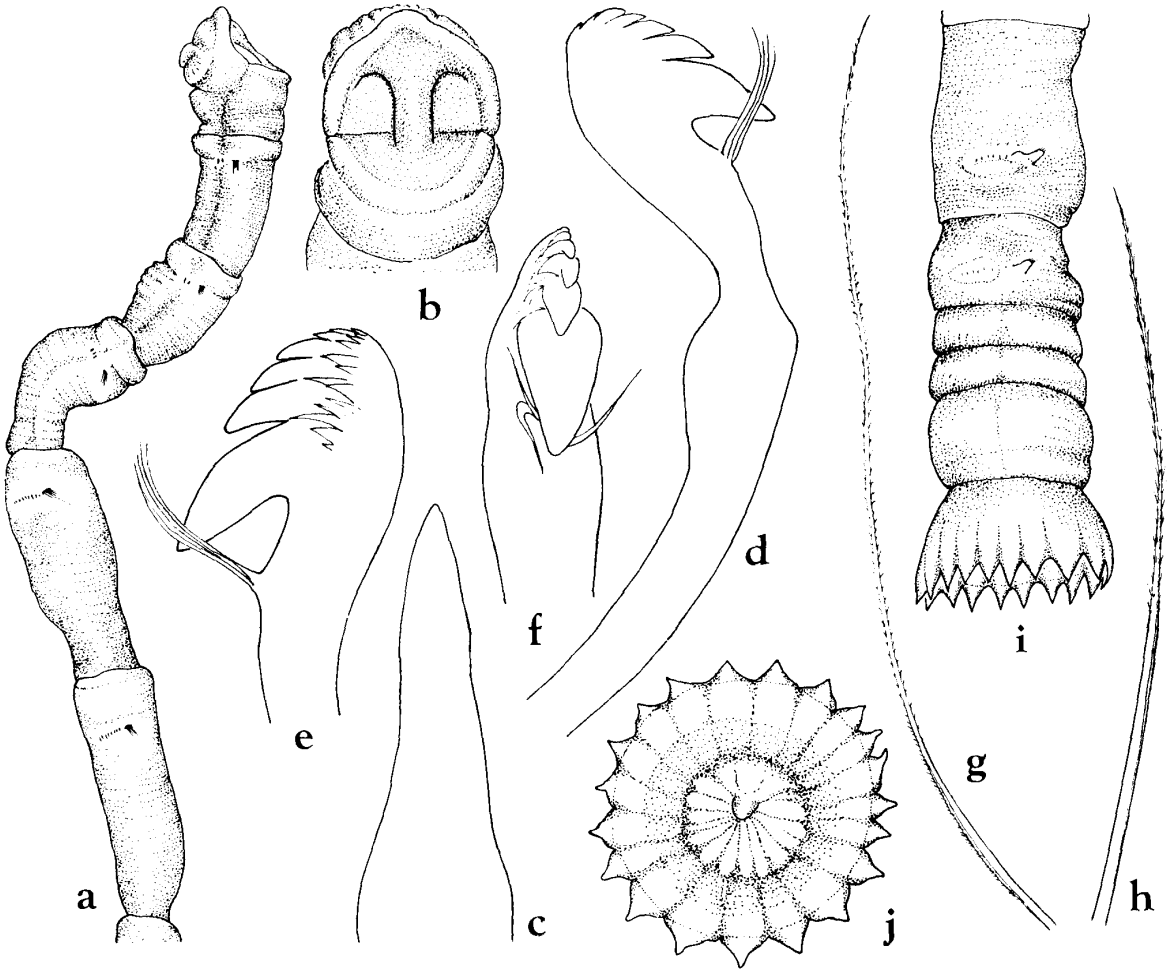


Fig. 35. *Isocirrus planiceps* (SARS). a, anterior end, in lateral view, ×10; b, cephalic plate, in frontal view, ×20; c, acicular spine from the first setiger, ×460; d, uncinus from median parapodium, ×640; e, f, distal ends of uncini from same parapodium, ×805; g, spinous seta from median notopodium, ×55; h, spinous seta from the first notopodium, ×330; i, posterior end, in lateral view, ×20; j, pygidial funnel, viewed from the rear, ×30.

(Fig. 35, d, e, f). Notosetae are long limbate capillaries and slender spinous setae (Fig. 35, g), but these are shorter in the first notopodium than the median ones (Fig. 35, h).

The pygidial funnel is campanulate and rimmed with 20 subtriangular cirri almost equal to each other in size. The anal cone is at the bottom of the funnel (Fig. 35, i, j).

Remarks. Specimens examined differ slightly from ARWIDSSON's description as follows: the nuchal organs are J-shaped, instead of straight, and there are preanal two asetigerous segments, instead of only one.

The genus and species are new to the Japanese fauna.

Distribution. Norway; Japan.

Subfamily Maldaninae ARWIDSSON, 1906

Genus *Asychis* KINBERG, 1867

Key to Japanese Species of *Asychis*

1. Cephalic plate with smooth lobeless lateral rims ..... *A. pigmentata*
1′. Cephalic plate with cirriform or denticulate lobes on lateral rims 2
2. Cephalic plate with slender, digitate cirri on lateral rim; anal plate divided into large, dorsal flaring part with tapering marginal cirri and ventral part with undulating margin ..... *A. gotoi*
2′. Cephalic plate with round or triangular lobes on lateral rim; anal plate otherwise 3
3. Anal plate surrounded by greatly extended rim consisting of two lobes with smooth margin; the ventral one forming a hood over the plate ..... *A. disparidentata*
3′. Anal plate surrounded by rim with round or triangular lobes ..... *A. biceps*

Asychis gotoi (IZUKA, 1902)

(Fig. 36, a–l)

Maldane gotoi IZUKA, 1902, pp. 109–111, pl. 3, figs. 1–8.
Maldane coronata MOORE, 1903, pp. 483–485, pl. 27, figs. 94–96.
Asychis gotoi: FAUVEL, 1932, p. 205; 1953, p. 387, fig. 200, a–b; OKUDA, 1938, p. 100; 1939, p. 239; MESNIL & FAUVEL, 1939, pp. 16–17, fig. 11; USCHAKOV, 1955, p. 345, fig. 127, A–D; IMAJIMA & HARTMAN, 1964, p. 317; IMAJIMA, 1972, p. 13.
Asychis shaccotanus UCHIDA, 1968, pp. 603–604.

Material examined. Off Samani, Hokkaido, in 40–80 m (84); Otsuchi Bay, in 65–115 m (9), Kamaishi Bay, in 53 m (1), Iwate Pref.; Kashima Sea, 36°07.5′N, 140°51.1′E–36°08.3′N, 140°50.9′E, in 118–119 m (3), 36°34.9′N, 140°55.6′E–36°35.6′N, 140°56.2′E, in 120–122 m (38), 36°08.4′N, 140°55.0′E–36°09.5′N, 140°55.7′E, in 198–200 m (6), 36°09.3′N, 140°56.6′E–36°10.0′N, 140°56.1′E, in 280–295 m (5), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (5), 36°09.8′N, 141°01.5′E–36°08.5′N, 141°02.5′E, in 498–517 m (7), 36°30.1′N, 141°12.5′E–36°30.8′N, 141°13.5′E, in 690–705 m (1), 36°12.7′N, 141°18.1′E–36°15.0′N, 141°18.7′E, in 975–1020 m (1), KT–79–13; Sagami Bay, 35°09.2′N, 139°30.4′E–35°08.9′N, 139°29.5′E, in 590 m, KT–66–12 (2), 35°11.4′N, 139°30.0′E, in 550 m (1), 35°15.4′N, 139°30.0′N, in 64 m (2), for survey in Kanagawa Fish. Exper. Sta.; Sagami Bank, 35°10.6′N, 139°24.5′E, in 704 m, KT–66–23 (1); Suruga Bay, 34°46.2′N, 138°42.6′E, in 2770 m, KT–73–6 (1), 34°56.3′N, 138°44.5′E–34°56.9′N, 138°44.5′E, in 286–302 m (6), 35°01.6′N, 138°51.1′E–35°02.5′N, 138°50.6′E, in 83–99 m (1), 34°55.0′N, 138°44.0′E–34°54.2′N, 138°44.1′E, in 313–304 m (4), 34°45.9′N, 138°42.3′N–34°46.4′N, 138°42.4′E, in 314–320 m (2), KT–73–15, 34°55.8′N, 138°44.4′E–34°56.6′N, 138°44.9′E, in 192–207 m (1), 34°54.55′N, 138°44.1′E–34°55.1′N, 138°44.1′E, in 290–305 m (2), KT–75–15, 34°54.8′N, 138°45.2′E–34°54.4′N, 138°45.3′E, in 162–180 m (1), 35°04.65′N, 138°

47.70′E–35°04.70′N, 138°47.70′E, in 345–375 m (2), KT–76–3, 34°55.1′N, 138°44.2′E–34°55.6′N, 138°44.4′E, in 294–300 m (1), 35°03.6′N, 138°47.2′E–35°03.2′N, 138°46.2′E, in 245–315 m (2), KT–76–16; Korea Strait, in 140 m (1), in 205 m (8); Ariake Sea, in 40 m (1); Kagoshima Bay, 31°27.0′N, 130°42.0′E, in 100 m (1).

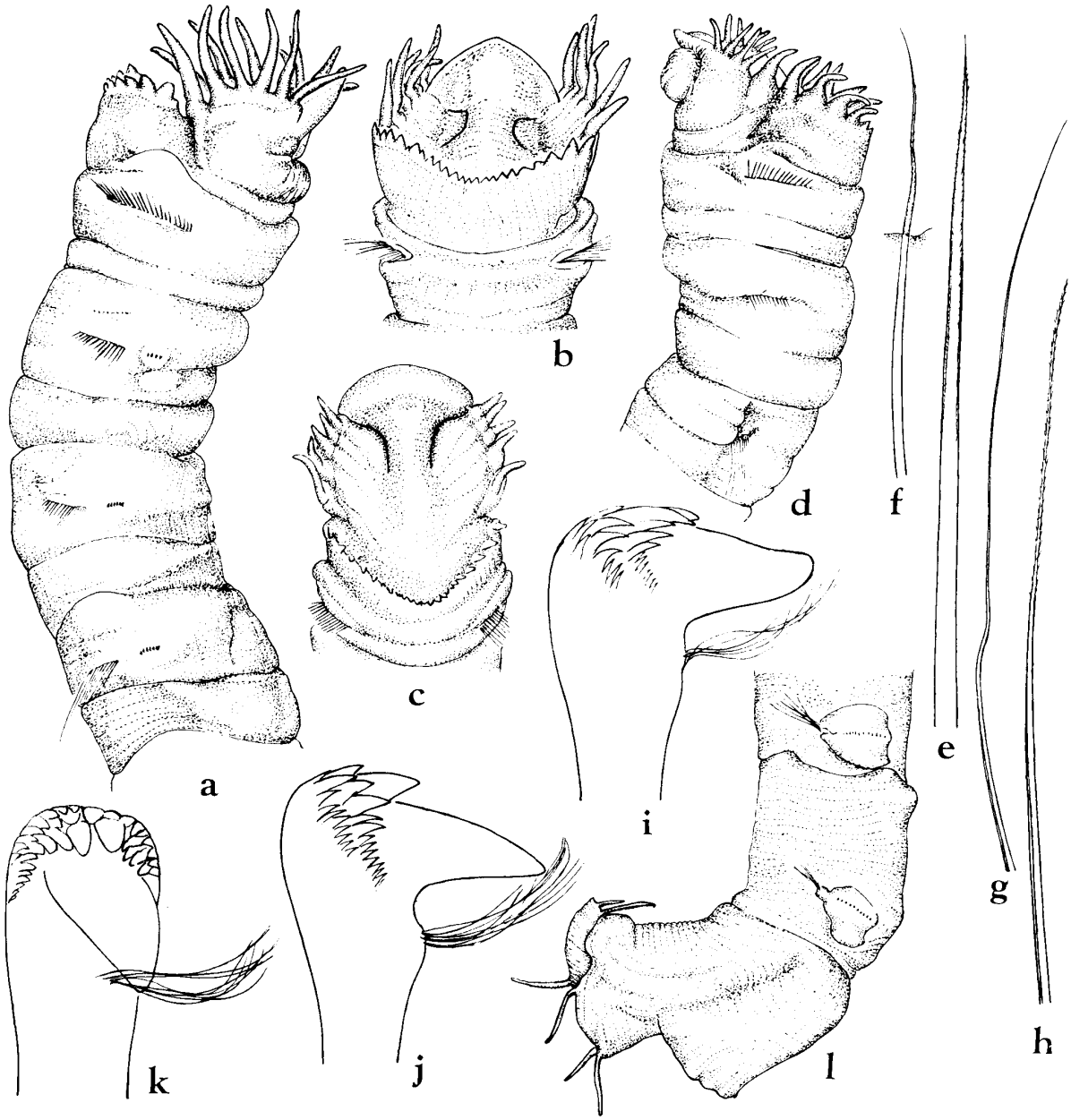


Fig. 36. *Asychis gotoi* (IZUKA). a, anterior end, in lateral view, ×7; b, cephalic plate, in dorsal view, ×7; c, cephalic plate of other specimen, in frontal view, ×5; d, anterior end of other specimen, ×8; e, f, capillary setae from the first setiger, ×80; g, limbate capillary seta with fine distal end, ×55; h, spinous capillary seta, ×80; i, distal end of uncinus of the first setiger, ×805; j, k, distal ends of median uncini, ×545; l, posterior end, in lateral view, ×7.

Description. The largest specimen collected from the Otsuchi Bay, in 115 m measures 110 mm in length and 6 mm in width; it consists of an anterior asetiger, 19 setigerous segments, a preanal asetiger and pygidium. The first setigerous segment is biannulate and has a low collar ventrally. The following five segments, which have no collar, are also biannulate dorsally but triannulate ventrally (Fig. 36, a).

The cephalic plate is elliptical; the prostomium is broad and triangular or rounded, almost as broad as the plate (Fig. 36, b, c), The cephalic rim is divided into three lobes by deep lateral notches; the lateral rims have five to seven digitate cirri of subequal lengths. The posterior rim has 14 to 20 irregular serrations, largest at sides and smallest medially; however, a specimen from Ariake Sea has four long cirri resembling those of the lateral rims and two serrations at each side of the posterior rim (Fig. 36, d). The cephalic keel is very broad, flat and short (Fig. 36, c). The nuchal organs are broadly open semicircles, the concavities of which turn laterally; they commence anteriorly just behind the first lateral incision, curve inward, and are parallel to the median ridge for a short distance. From the lateral incisions a deep furrow runs backwards on the peristomial segment, to the border between the peristomium and the first setiger.

The first setigerous segment has two kinds of capillary setae: thick and slender limbate setae (Fig. 36, e) and more slender capillaries (Fig. 36, f). From the third notopodium there are slender limbate setae with smooth fine distal parts (Fig. 36, g) and with distally bipinnately arranged spine-like hairs in the slender terminal portion (Fig. 36, h). Uncini appear from the second setigerous segment; these number five, and are typical rostrate uncini, with three transverse arcs of many teeth (Fig. 36, i). There are six uncini in the second setiger, seven uncini in the third setiger and about 30 uncini in the following setigers. The median uncini have a thick, major fang and three transverse arcs of small teeth; the two median teeth in the first arc are much larger than the others (Fig. 36, j, k).

The anal plate is large, and divided into a larger dorsal, flaring part with six to 13 long, tapering marginal cirri, and a ventral half with an undulating margin (Fig. 36, l). The anal pore is present dorsally on the plate.

Asychis shacotanus UCHIDA, 1968 from Hokkaido, in 70–80 m is referred to the present species.

Distribution. Japan; Indo-Pacific areas; Adriatic Sea; California.

Asychis biceps (SARS, 1861)

(Fig. 37, a–t)

Asychis biceps: ARWIDSSON, 1906, pp. 263–271, pl. 6, fig. 200–207; pl. 10, fig. 339–344; WESENBERG-LUND, 1948, pp. 52–56, figs. 27–29; 1950, p. 45.
Asychis lacera MOORE, 1923, pp. 235–237.
Asychis lobata FAUCHALD, 1972, pp. 256–258, pl. 52, figs. a–f.

Material examined. Kashima Sea, 36°30.1′N, 141°12.5′E–36°30.8′N, 141°13.5′E,

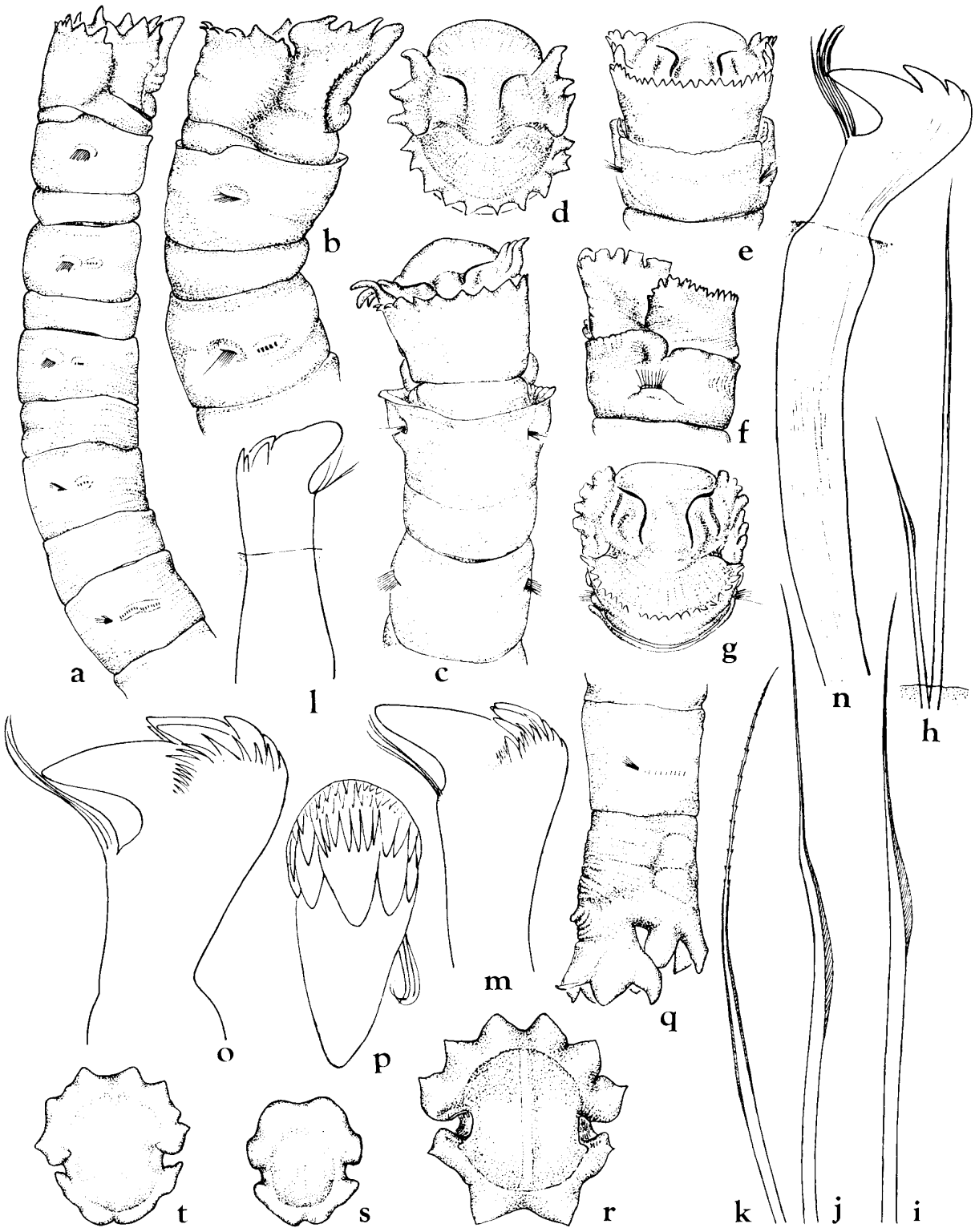
in 690–705 m (1), 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1005–1050 m (1), 36°12.4′N, 141°09.5′E–36°12.8′N, 141°08.8′E, in 690–710 m (1), 36°09.8′N, 141°01.5′E–36°08.5′N, 141°02.5′E, in 498–517 m (3), KT–79–13; Sagami Bay, 34°45.0′N, 139°38.0′E–34°44.6′N, 139°38.1′E, in 1830 m, KT–65–34 (1), 34°54.0′N, 139°37.1′E–34°53.9′N, 139°37.0′E, in 815–1070 m, KT–66–12 (1), 35°13.4′N, 139°26.0′E, in 420 m (1), for survey in Kanagawa Fish. Exper. Sta.; Suruga Bay, 35°05.7′N, 138°38.0′E–35°05.7′N, 138°37.8′E, in 260–215 m, KT–66–22 (2), 34°45.9′N, 138°42.3′E–34°46.4′N, 138°42.4′E, in 314–314 m, KT–73–15 (1); Korea Strait, in 145 m (1).

Description. The body measures 15 to 105 mm in length and about 0.5 to 6 mm in width, and consists of 19 setigerous, and two short, preanal apodous segments. It is of a dark, yellowish colour with lighter glandular girdles in front of the parapodial ridges, especially from the sixth to the eighth setiger, and with a broad white-shimmering ventral nerve-cord. The first seven segments are distinctively biannulate (Fig. 37, a). The anterior margin of the first setigerous segment is extended into a collar which is more prominent ventrally than dorsally (Fig. 37, b).

The cephalic plate is almost circular and is divided into three regions by deep furrows. The prostomium is very broad and rounded with a smooth margin. The posterior rim has 10 to 14 triangular lobes of similar size (Fig. 37, c, d). However, the largest specimen of 105 mm in length has 22 triangular lobes on the posterior rim (Fig. 37, e, f, g). The lateral rims are considerably more elevated and have three prominent lobes on each rim (Fig. 37, b, d), but have five or six irregular lobes (Fig. 37, f, g) in the largest specimen. The nuchal organs are broadly open semicircles, the concavities of which face laterally. They curve inward posteriorly before reaching the level of the lateral incisions. The nuchal keel is broad and short reaching neither the anterior nor the posterior border of the plate; there are no ocelli (Fig. 37, d, g).

The first notopodial setae are either short or long limbate capillaries (Fig. 37, h, i) arranged in two rows. The median fascicles have short, geniculate capillaries (Fig. 37, j) and long, distally spinous setae (Fig. 37, k). The neuropodial uncini occur from the second setiger; those of the first three neuropodia number four or five in linear series and the median neuropodia have 16 to 30 uncini in a linear series. The first uncini in the specimen of median size are of the reduced type; the main fang is

Fig. 37. *Asychis biceps* (SARS). a, anterior end of a medium sized specimen, in lateral view, ×16; b, c, anterior ends of another medium sized specimen, in lateral (b) and dorsal (c) views, ×23; d, cephalic plate of same specimen, in frontal view, ×23; e, f, anterior ends of largest specimen, in dorsal (e) and lateral (f) views, ×4.5; g, cephalic plate of same specimen, in frontal view, ×4.5; h, capillary seta from the first setiger, ×75; i, limbate capillary seta from same setiger, ×430; j, geniculate capillary seta from median setiger, ×430; k, spinous capillary seta from same setiger, ×200; l, distal end of reduced uncinus from the first setiger of medium sized specimen, ×600; m, distal end of uncinus from the first setiger of largest specimen, ×510; n, rostrate uncinus from median setiger, ×600; o, distal end of median uncinus, ×750; p, the same, in frontal view, ×750; q, posterior end of medium sized specimen, in lateral view, ×28; r, anal plate of same specimen, viewed from the rear, ×23; s, t, anal plates of young specimens, viewed from the rear, s, ×37, t, ×32.



coarse, stout and rounded with two rows of small teeth and a few gular bristles (Fig. 37, l). However, the largest specimen has developed uncini similar to more posterior ones (Fig. 37, m). More posterior uncini have rather short necks and their main fangs are angled acutely, with small teeth in three or four rows and accessory teeth and gular bristles (Fig. 37, n, o, p).

The anal plate is circular, with two deep lateral incisions; it has four prominent triangular lobes in the ventral half and six rather foliaceous lobes dorsally; all lobes are subequal in size (Fig. 37, q, r). The form and number of lobes in the dorsal half of the anal plate are variable in juveniles (Fig. 37, s, t).

Remarks. The holotype of *Asychis lacera* MOORE, 1923 from California deposited in the National Museum of Natural History, Smithsonian Institution, was re-examined, and the species was referred to *A. biceps.*

The species is new to Japanese waters.

Distribution. Iceland; Greenland; Scotland; Atlantic coast of Europe; California; western Mexico; Japan.

Asychis disparidentata (MOORE, 1904)

(Fig. 38, a–k)

Asychis disparidentata MOORE, 1904, pp. 494–496, pl. 38, figs. 28–31; TAKAHASHI, 1938, pp. 209–211, text-fig. 12; BERKELEY & BERKELEY, 1952, pp. 46–47, figs. 89, 90; IMAJIMA & HARTMAN, 1964, pp. 316–317; HARTMAN, 1969, p. 423.

Material examined. Off Samani, Hokkaido, in 60 m (2); Otsuchi Bay, in 65–70 m (1); Sagami Bay, 35°17.4′N, 139°27.0′E, in 20 m (1), for survey in Kanagawa Fish. Exper. Sta.; Tsukumo Bay, Noto Peninsula, in 22 m (16).

Description. The largest specimen measures 110 mm in length and 5 mm in width; it consists of 19 setigerous segments and an apodous preanal segment and pygidium. The anterior margin of the first setigerous segment is extended into a collar limited to the ventral side. The first five setigerous segments are biannulate (Fig. 38, a). The peristomium and the first three setigerous segments are somewhat uniformly glandular, and the fourth to sixth setigers have broad ventral glandular pads. The setigers following have large raised glandular tori.

The cephalic plate is broadly oblong. The prostomium is broad and semicircular with a smooth margin. The rim is divided into three parts by a pair of deep lateral incisions; the lateral lobes have five to seven large rounded lobes (triangular in juvenile individuals), and the posterior lobe has 15 to 22 rounded or triangular lobes. The nuchal organs are short and turn laterally; they do not reach to the median part of the plate. The nuchal keel is very broad and about two-thirds as long as the length of the plate (Fig. 38, b, c).

Notopodial capillary setae are of two kinds; several anterior bundles have thick, limbate setae (Fig. 38, d) and slender capillaries (Fig. 38, e), and the following bundles have slightly limbate capillaries (Fig. 38, f) and spirally fringed setae (Fig. 38, g).

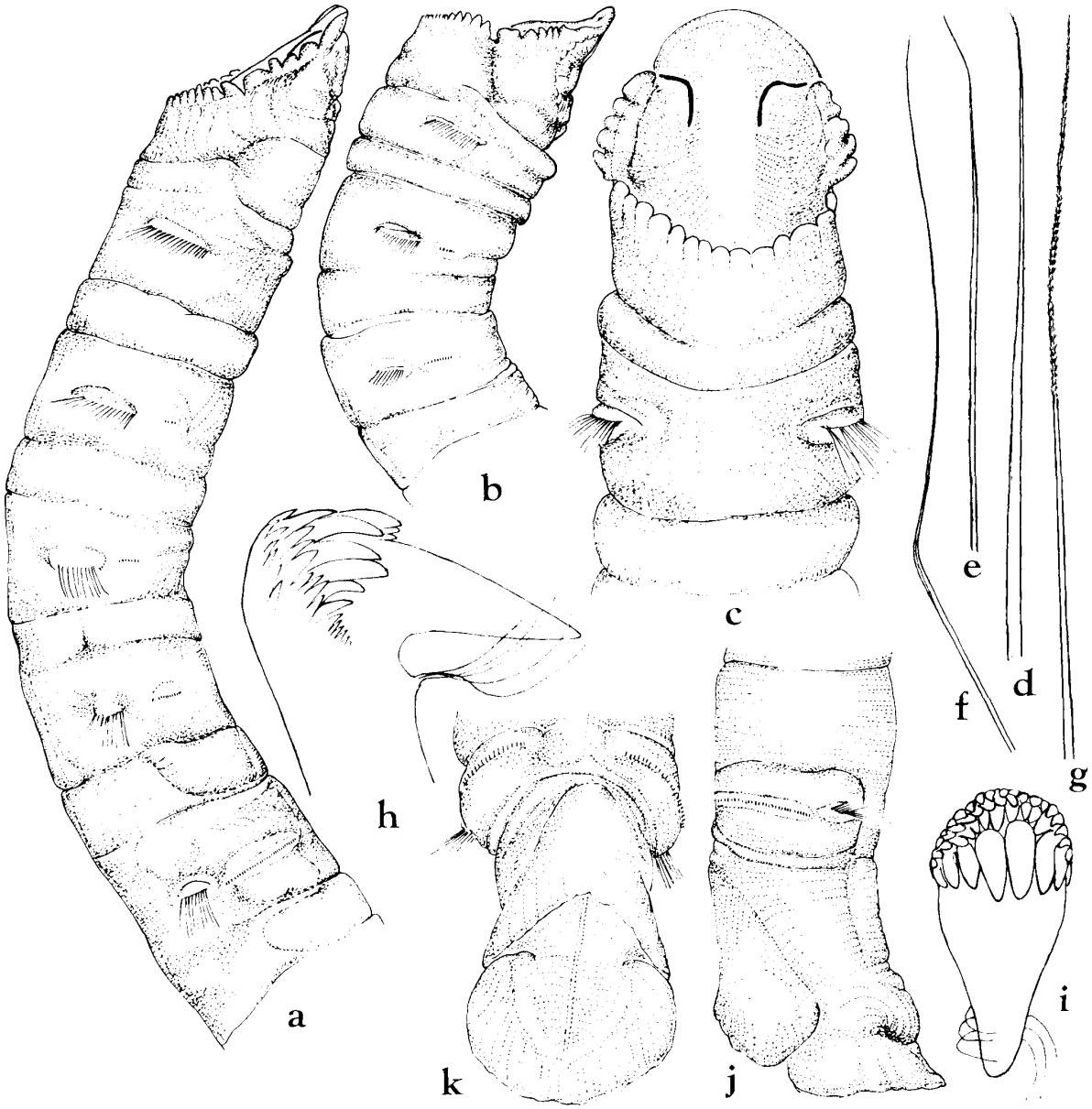


Fig. 38. *Asychis disparidentata* (MOORE). a, anterior end, in lateral view, ×5; b, anterior end of different specimen, in lateral view, ×4; c, cephalic plate, in dorsal view, ×7; d, e, limbate capillary setae from the first setiger, ×55; f, limbate capillary seta from median setiger, ×55; g, spirally fringed seta from median setiger, ×55; h, i, distal ends of median uncini, ×805; j, posterior end, in lateral view, ×5; k, pygidium, viewed from the rear, ×5.

Neuropodial uncini first appear from the second setigerous segment; those of the first setiger number four in a transverse row, and they increase to 40 posteriorly. Median uncini have three to four transverse rows of many teeth above the main fang; the anterior teeth are larger than the others (Fig. 38, h, i).

The pygidium has a greatly extended rim which is divided into two lobes sur-

rounding the oval plate; the ventral lobe forms a pocketlike process over the anal plate and the dorsal one flares beyond the anus which is located on the dorsal surface (Fig. 38, j, k).

Distribution. Western Canada south to southern California; Japan.

Asychis pigmentata sp. nov.

(Fig. 39, a–k)

Material examined. Mutsu Bay, in 6–38 m (87); Otsuchi Bay, in 43–45 m (5), in 65–70 m (2); Kashima Sea, 36°34.9′N, 140°55.6′E–36°35.6′N, 140°56.2′E, in 112–122 m (holotype and 2 paratypes), 36°08.4′N, 140°55.0′E–36°09.5′N, 140°55.7′E, in 198–200 m (2), KT–79–13; Sagami Bay, 35°17.00′N, 139°34.00′E, in 6 m (4), 35°15.42′N, 139°30.00′E, in 64 m (1), 35°16.42′N, 139°24.00′E, in 270 m (1), for survey in Kanagawa Fish. Exper. Sta.; Suruga Bay, 34°44.4′N, 138°28.6′E, in 290–240 m, KT–76–2 (1), 34°57.1′N, 138°44.3′E–34°57.9′N, 138°44.4′E, in 310–343 m, KT–73–6 (1), 35°01.66′N, 138°51.14′E–35°02.51′N, 138°50.64′E, in 83–99 m (7), 35°04.00′N, 138°47.39′E–35°04.00′N, 138°47.47′E, in 252–270 m (2), 34°45.9′N, 138°42.3′E–34°46.5′N, 138°42.4′E, in 314 m (7), 34°51.88′N, 138°26.79′E–34°51.67′N, 139°27.03′E, in 1680 m (3), KT–73–15, 34°41.2′N, 138°29.0′E, in 300 m, KT–68–2 (1); Korea Strait, in 145 m (4); Tsushima Strait, in 60–96 m (5); Kagoshima Bay, 31°16.5′N, 130°42.3′E, in 100 m (3), 31°20.6′N, 130°34.6′E, in 50–55 m (2), 31°33.8′N, 130°33.8′E, in 50 m (3).

Description. The holotype is a largest specimen and measures 61 mm in length and 2 mm in width; it consists of 19 setigerous, and one preanal asetigerous segment and pygidium. It is marked with small brown spots on the anterior body. The anterior segments are distinctly biannulate (Fig. 39, a).

The cephalic plate is subtriangular. The cephalic rim is divided by a pair of lateral incisions; each rim is low and completely smooth. The cephalic plate is broad and slightly convex without a distinct keel. The nuchal organs are short and curved in a semicircle (Fig. 39, b).

The first setigerous segment lacks neuropodial setae. The first notopodial setae are either limbate capillaries (Fig. 39, c) or bilimbate capillaries with a spinose distal part (Fig. 39, d). In more posterior notopodia these setae are more or less transformed in shape, generally possessing more slender tips (Fig. 39, e, f). Uncini are typical rostrate, with large teeth in a transverse arc and several rows of small teeth above the main fang; five to six teeth in the first arc are much larger than the others (Fig. 39, g, h, i).

The posterior end is cylindrical and posteriorly truncated. The rim of the anal plate is smooth except for a pair of lateral incisions; the median part of the plate has a low keel dorso-ventrally and forms a shallow depression in the ventral side. The anal pore is present dorsally to the plate (Fig. 39, j, k).

Remarks. *Asychis pigmentata* closely resembles *Asychis brasiliensis* (KINBERG,

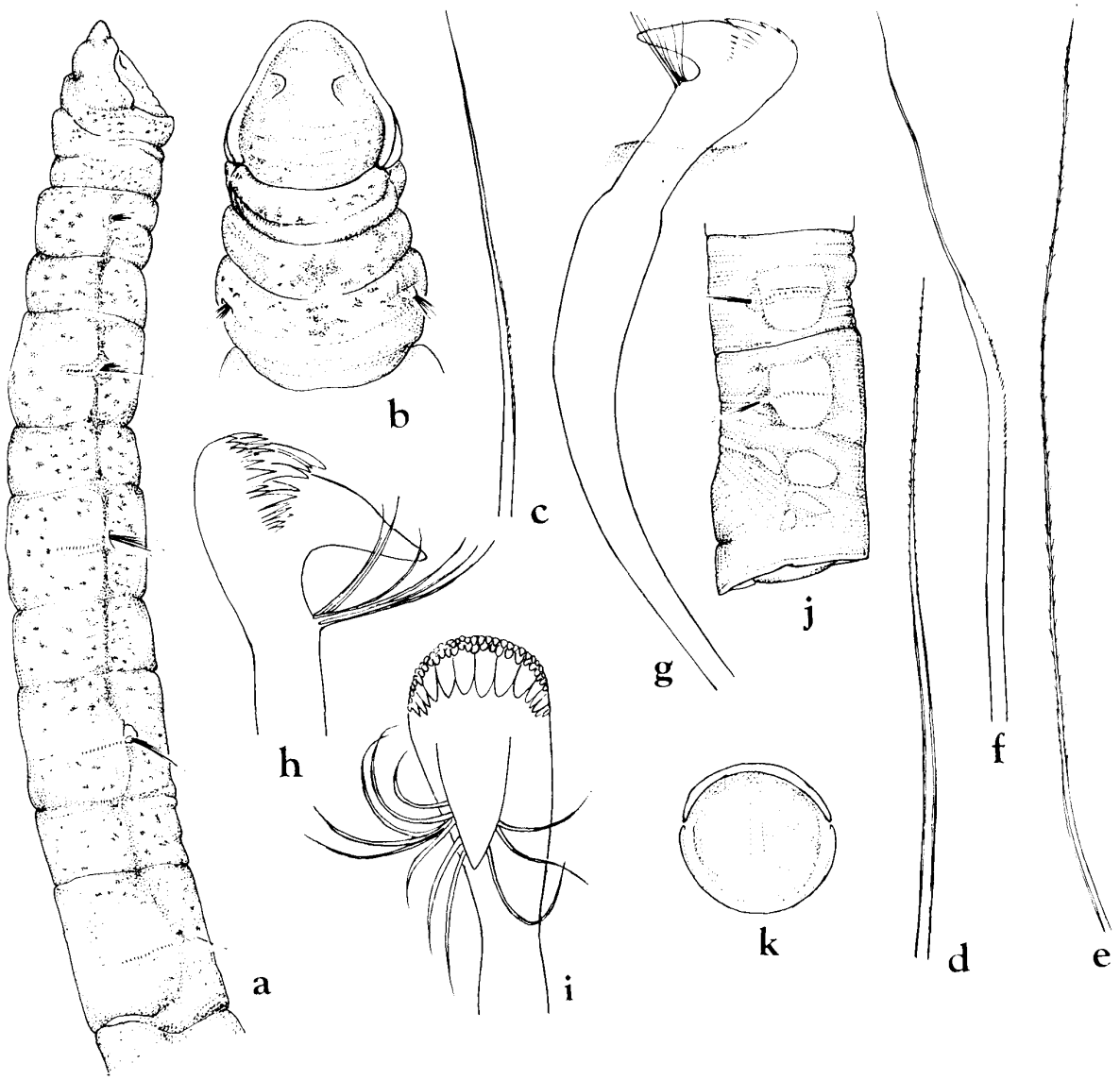


Fig. 39. *Asychis pigmentata* sp. nov. a, anterior end, in lateral view, ×10; b, cephalic plate, in frontal view, ×13; c, limbate capillary seta from the first notopodium, ×175; d, capillary seta with spinose distal part, ×175; e, f, capillary setae from median parapodium, e, ×80, f, ×220; g, uncinus from median neuropodium, ×330; h, i, distal ends of uncini, ×550; j, posterior end, in lateral view, ×10; k, anal plate, viewed from the rear, ×10.

1867) from Brazil, in the features of the prostomium and the pygidium with a smooth margin; they are especially alike in the form of the anal plate. However, *A. pigmentata* differs from *A. brasiliensis* in that: (1) the cephalic plate is smooth and slightly convex antero-dorsally, and does not have three broad, shallow crenulations along the ventral edge of the plate and (2) the peristomial rings are distinct, instead of the posterior part of the head being largely concealed by the collarlike first setiger.

Type-series. Holotype, NSMT-Pol. H 169; 2 paratypes, NSMT-Pol. P 170.

Distribution. Japan.

Genus *Maldane* Grube, 1860

Maldane cristata TREADWELL, 1923

(Fig. 40, a–n)

Maldane cristata TREADWELL, 1923, pp. 9–10, figs. 5–8; HARTMAN, 1956, pp. 295–296; 1969, pp. 457, 458, 4 figs.; FAUCHALD, 1972, pp. 262, 263.

Maldane sarsi: MCINTOSH, 1885, pp. 392–393; OKUDA, 1939, pp. 239–240; IMAJIMA & HARTMAN, 1964, pp. 317–318. (not *Maldane sarsi* MALMGREN, 1865, p. 188)

Maldane carinata MOORE, 1923, pp. 233–235.

Material examined. Off Sagami, Hokkaido, in 40–80 m (312); Mutsu Bay, in 5–64 m (244); Otsuchi Bay, in 89–99 m (2); Kamaishi Bay, in 58 m (4); Kashima Sea, 36°08.4′N, 140°55.0′E–36°09.5′N, 140°55.7′E, in 198–200 m (13), 36°12.7′N, 141°18.1′E–36°15.0′N, 141°18.7′E, in 975–1020 m (50), 36°30.1′N, 141°12.5′E–36°30.8′N, 141°13.5′E, in 690–705 m (3), 36°34.9′N, 140°55.6′E–36°35.6′N, 140°56.2′E, in 120–122 m (2), 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1005–1050 m (6), 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (3), KT–79–13; Tokyo Bay, 35°35.8′N, 140°02.00′E, in 7 m (1), 35°10.0′N, 139°47.5′E, in 144 m (1), KT–71–19; Sagami Bay, 34°45.0′N, 139°38.0′E, in 1500 m (21), 35°02.4′N, 139°14.6′E–35°03.2′N, 139°14.4′E, in 1340 m (1), 34°51.3′N, 139°19.7′E–34°51.7′N, 139°20.1′E, in 1115 m (46), 34°44.6′N, 139°13.0′E–34°44.0′N, 139°13.6′E, in 580 m (1), KT–65–34; 35°09.2′N, 139°30.4′E–35°08.9′N, 139°29.5′E, in 590 m (36), 35°09.2′N, 139°22.4′E–35°09.7′N, 139°22.2′E, in 500–520 m (51), 35°09.0′N, 139°14.2′E–35°09.6′N, 139°14.2′E, in 980–1140 m (14), 35°01.2′N, 139°28.1′E–35°01.2′N, 139°29.0′E, in 790–870 m (1), 35°00.9′N, 139°35.7′E–35°00.7′N, 139°36.0′E, in 1060–990 m (2), 35°00.6′N, 138°44.1′E–35°00.3′N, 138°44.4′E, in 560 m (2), 35°54.5′N, 139°19.7′E–34°54.5′N, 139°20.0′E, in 1450–1650 m (2), 34°54.2′N, 139°28.0′E–34°54.2′N, 139°27.5′E, in 1350–1340 m (2), KT–66–12, 35°03.7′N, 139°31.3′E, in 860 m (15), 35°12.8′N, 139°20.8′E, in 930 m (44), KT–67–22; 35°12.7′N, 139°14.0′E, in 800 m KT–70–4 (61), 35°01.2′N, 138°24.8′E–35°01.2′N, 138°25.35′E, in 1260–1290 m (3), 35°05.7′N, 139°23.8′E–35°06.1′N, 139°23.7′E, in 1188–1220 m (3), 35°04.1′N, 139°31.5′E–35°04.2′N, 139°30.8′E, in 750–870 m (52), KT–76–3; 35°12.27′N, 139°35.00′E, in 32 m (1), 35°15.42′N, 139°32.00′E, in 43 m (1), 35°11.42′N, 139°32.00′E, in 350 m (3), 35°09.42′N, 139°32.00′E, in 330 m (3), 35°07.42′N, 139°32.00′E, in 310 m (1), 35°11.42′N, 139°28.00′E, in 720 m (2), 35°07.42′N, 139°26.00′E, in 1100 m (8), 35°11.42′N, 139°30.00′E, in 550 m (1), 35°13.42′N, 139°24.00′E, in 560 m (1), for survey in Kanagawa Fish. Exper. Sta.; Sagaminada, 34°58.6′N, 139°28.6′E, in 1200 m (4), 34°20.2′N, 138°48.8′E, in 1450 m (9), 34°56.2′N, 139°15.0′E, in 1350 m (61), 34°51.3′N, 139°19.7′E, in 1115 m (199), 35°02.4′N, 139°14.6′E, in 1340 m (60), 35°04.3′N, 139°23.9′E, in 1220 m (42), KT–65–34; 35°00.5′N, 139°21.7′E, in 1500–2000 m, KT–70–4 (11); Suruga Bay, 34°41.2′N, 138°29.0′E, in 300 m, KT–68–2 (1), 35°01.66′N, 138°51.14′E–35°02.51′N, 138°50.64′E, in 83–99 m (2), 35°04.00′N, 138°47.39′E–35°04.00′N, 138°47.47′E, in 252–270 m (3), 34°45.9′N, 138°42.3′E–34°46.5′N, 138°

42.4′E, in 314 m (1), 34°56.33′N, 138°44.51′E–34°56.94′N, 138°44.50′E, in 286–326 m (1), 34°55.0′N, 138°44.0′E–34°54.2′N, 138°44.1′E, in 313–304 m (13), KT-73-15, 34°55.6′N, 138°40.3′E–34°55.3′N, 138°40.3′E, in 1008–1050 m (22), 35°04.65′N, 138°47.70′E–35°04.70′N, 138°47.70′E, in 345–375 m (3), KT-76-3; Tsushima Strait, in 45–125 m (106); Korea Strait, in 115–210 m (1355).

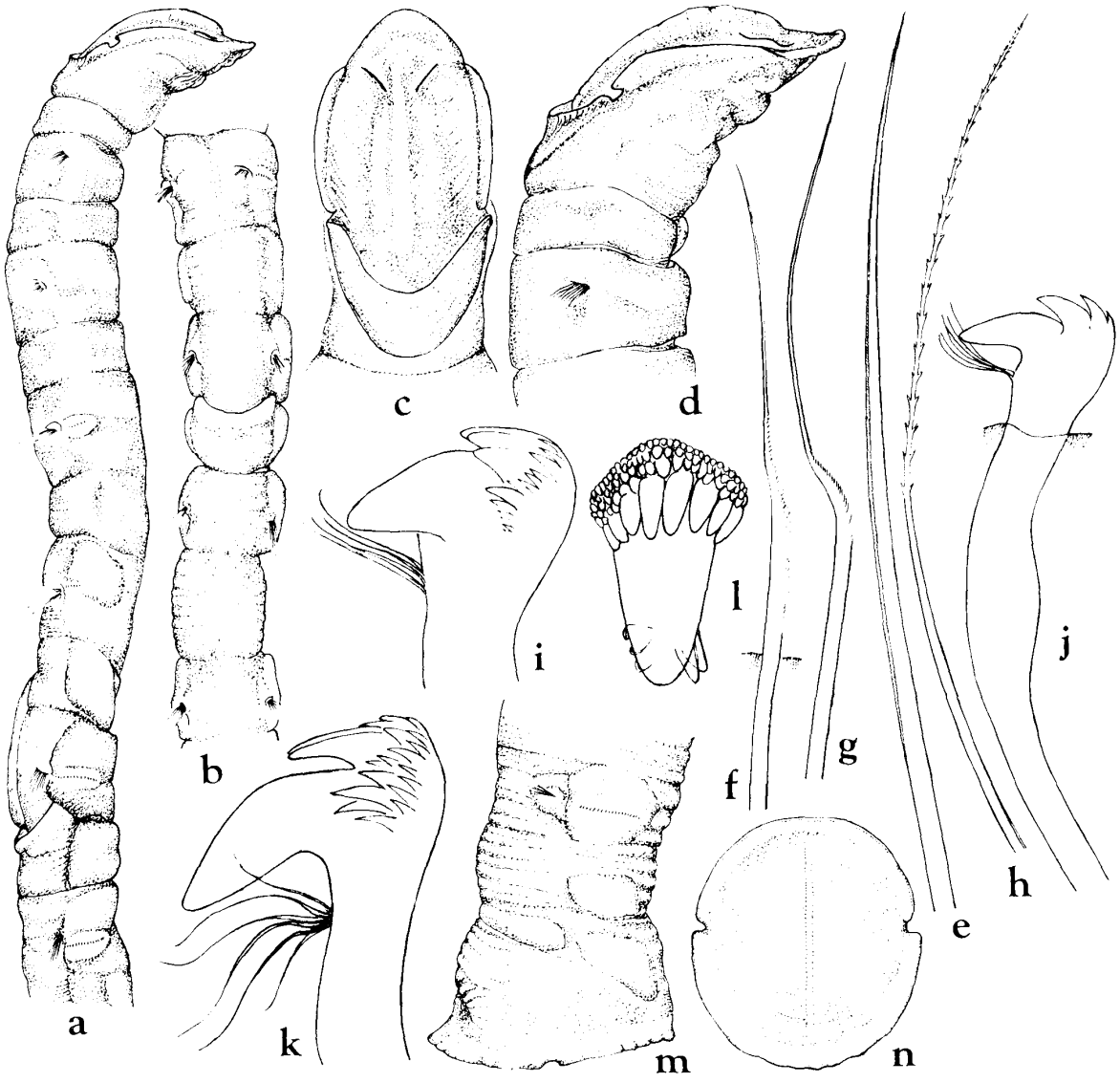


Fig. 40. *Maldane cristata* TREADWELL. a, anterior end, in lateral view, ×8; b, a part of body, showing through the 4th to 7th setigers, in dorsal view, ×8; c, cephalic plate, in frontal view, ×13; d, the same, in lateral view, ×13; e, f, notosetae from anterior parapodium, ×220; g, h, notosetae from median parapodium, g, ×55, h, ×220; i, median uncinus, ×460; j, distal end of uncinus from the first uncinigerous torus, ×805; k, l, distal ends of uncini from median uncinigerous torus, ×805; m, posterior end, in lateral view, ×13; n, anal plate, viewed from the rear, ×13.

Description. The largest specimen measures 65 mm in length and 4 mm in width; it consists of 19 setigerous, and two preanal asetigerous segments and pygidium. The body is cylindrical; the anterior segments are spotted with dark brown pigment. The sixth setigerous segment has an anterior flange dorsally, slightly overlapping the base of the fifth setiger (Fig. 40, a, b).

The cephalic plate is elliptical, and the cephalic rim is divided into three parts by a pair of deep lateral incisions. The posterior rim is well developed and elevated into a collar forming a deep pocket. The cephalic median keel is strongly arched, and extends from the prostomial palpode into the pit at the posterior end. The nuchal organs are short and divergent anteriorly (Fig. 40, c, d).

The first setigerous segment lacks neuropodial setae. The notopodial setae in the anterior segments are either limbate capillaries (Fig. 40, e) or slightly geniculate setae with slender tips (Fig. 40, f). However, they are replaced by spinous capillaries (Fig. 40, g) and geniculate setae with slender tips further back along the body (Fig. 40, h). Uncini are typically rostrate (Fig. 40, i) with eight large teeth in a transverse arc and several rows of small teeth above the main fang; the two median teeth in the first arc are much larger than the others (Fig. 40, j, k, l).

The pygidium has a slightly oblique anal plate with a pair of lateral incisions; the ventral margin is slightly crenate. The anal pore is present dorsally to the plate (Fig. 40, m, n).

Maldane sarsi reported by MCINTOSH (1885), from Sagami Bay (35°11′N, 139° 28′E, in 345 fms.), and deposited by him in the British Museum (Natural History), was re-examined. The specimen is referred to *Maldane cristata* TREADWELL, sharing its specific characteristics.

Distribution. Southern California to western Mexico; Japan.

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