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Oweniidae (Annelida, Polychaeta) from Japan

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Abstract Specimens of the family Oweniidae from the Japanese waters are examined. Four genera and six species, including one new species, are recognized. *Galathowenia wilsoni* described from the Ross Sea is the first to be found from the Northern Hemisphere. A new species, *Myrioglobula japonica*, is the second described species of the genus.

The three species of the oweniids from the Japanese waters have been reported as follows: *Owenia fusiformis* DELLE CHIAJE, 1841 by OKUDA (1937) and IMAJIMA & HARTMAN (1964), *Myriochele heeri* MALMGREN, 1867 by IMAJIMA (1968) and *M. oculata* ZAKS, 1922 by IMAJIMA (1972, 1982). However, only *Myriochele heeri* and *M. oculata* were given specific names in these papers. Recently, NILSEN and HOLTHE (1985) have reported five species of oweniids from Arctic and Scandinavian waters, and provided a phylogenetic interpretation for four genera from the investigated area.

In the present study, four genera and six species, including a new species of the genus *Myrioglobula*, are recognized from Japanese waters. Two species, *Myriochele danielsseni* HANSEN, 1879 and *Galathowenia wilsoni* BLAKE, 1984, are newly added to the Japanese fauna. *G. wilsoni* was described from the Ross Sea in 1968, and it was the first time that this species from Japan was recorded in the Northern Hemisphere.

A new species of *Myrioglobula*, described below, is the second species of the genus. The first species of the genus, *M. antarctica*, was described from the Scotia Sea, Orkney Islands, etc., in 604–3,816 m. Therefore, it was considered that *Myrioglobula* was endemic to the Sub-Antarctic region. However, the second species was found in the warm-temperate area to a depth of 125 m.

Materials examined were chiefly collected by the senior author; other materials were collected by the staff of the Akita Fisheries Experimental Station and the Kanagawa Fisheries Experimental Station.

The authors wish to express their thanks to Ms. Susan WILLIAMS of the Battelle Ocean Sciences, Ventura, California, for critically reading the manuscript and to Miss Yasuyo TAKEDA for her help with the scanning electron micrographs. The bulk of the collection, including type-specimens, has been deposited in the National Science Museum, Tokyo.

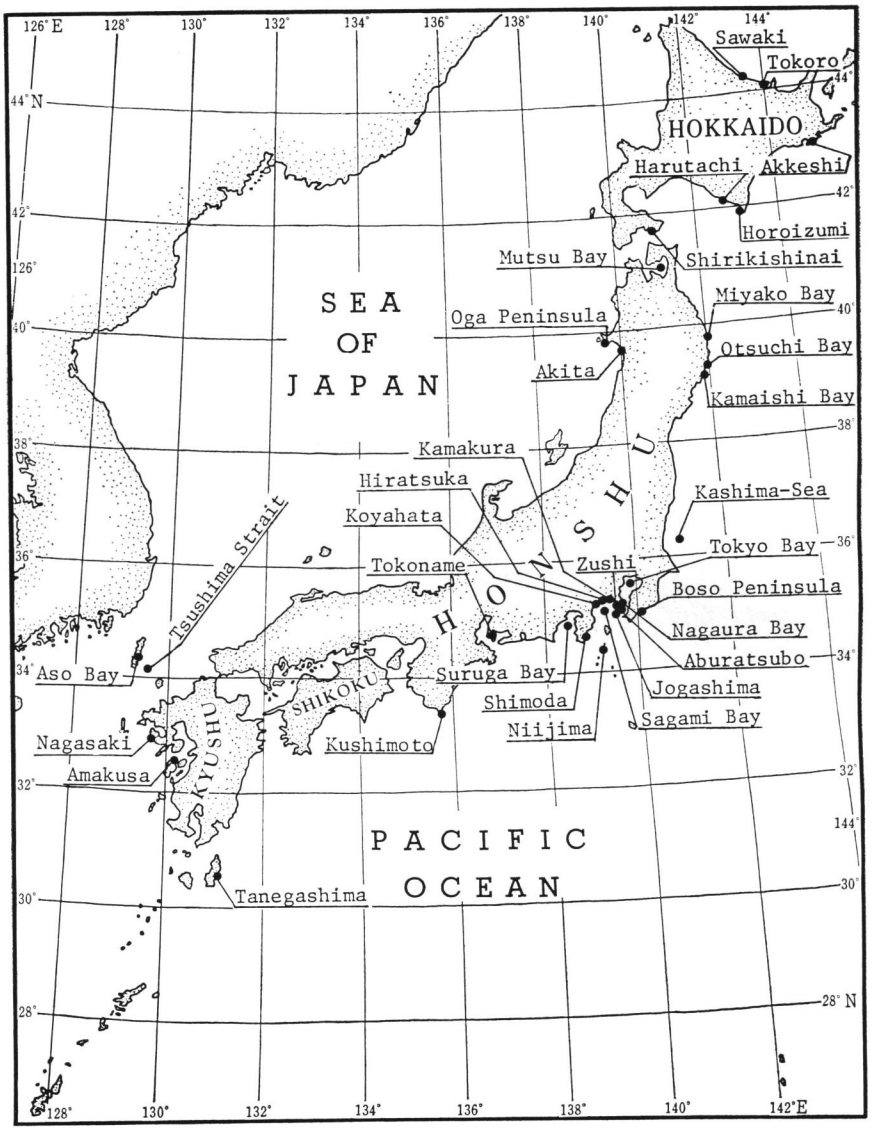

Fig. 1. Map of Japan, showing localities mentioned in the text.

Key to Japanese Species of Oweniidae

1. Head region with a tentacular crown; tube with shell fragments arranged like roof tiles ..... *Owenia fusiformis*

1′. Head region without tentacular crown; tube otherwise..... 2

2. With truncated anterior end of head region, terminal mouth and mid-dorsal slit;

notopodial fascicle with capillary setae only..... *Galathowenia*.. 3
2′. With rounded anterior end of head region and mouth in longitudinal slit ventrally; notopodial fascicle with capillary and acicular setae..... 4
3. With eye-spots; pygidium with two lobes..... *G. oculata*
3′. Without eye-spots; pygidium with eight lobes..... *G. wilsoni*
4. Neuropodial tori from second setiger..... *Myrioglobula japonica*
4′. Neuropodial tori from fourth setiger..... *Myriochele*.. 5
5. With eye-spots; uncini with teeth side by side; with dorsolateral sulcus on head region ..... *M. danielsseni*
5′. Without eye-spots; uncini with teeth one upper and one lower; without dorsolateral sulcus ..... *M. heeri*

Genus ***Owenia*** DELLE CHIAJE, 1842

Owenia fusiformis DELLE CHIAJE, 1842

(Fig. 2 a–k; Fig. 4 a–d)

Owenia fusiformis: FAUVEL, 1927, pp. 203–204, fig. 71 a–f; OKUDA, 1937, pp. 252–253, fig. 27; USCHAKOV, 1955, p. 346, fig. 128, A–E; IMAJIMA & HARTMAN, 1964, p. 322; DAY, 1967, pp. 649–651, fig. 31. 1. e–j; NILSEN & HOLTHE, 1985, pp. 19–21, fig. 1 a–b.
Ammochares fusiformis: BERKELEY & BERKELEY, 1952, pp. 42–43, figs. 79, 80.

Material examined. Intertidal zone of Sawaki (4 specimens); off Tokoro, in 20 m (1); off Akkeshi, in 20 m (2); intertidal zone of Harutachi (2) and Horoizumi (6); off Ohma, in 30 m (4); Mutsu Bay, 41°00.0′N, 140°47.5′E, in 51.5 m (1); off Oga Peninsula, 39°50.9′N, 139°45.2′E–39°50.8′N, 139°45.7′E, in 49–44 m (1), 39°49.8′N, 139°47.2′E–39°50.0′N, 139°47.5′E, in 70–65 m (1); off Akita, 39°47.0′N, 140°02.4′E, in 5 m (5), 39°47.0′N, 140°01.8′E, in 10 m (9), 39°47.0′N, 140°00.8′E, in 20 m (6), 39°47.0′N, 139°54.7′E, in 40 m (1), for survey Akita Fish. Exper. Sta.; Miyako Bay, 39°37.9′N, 141°59.9′E, in 20 m (1); off Otsuchi, 39°19.3′N, 142°04.0′E–39°19.3′N, 142°04.3′E, in 149 m (48), 39°17.1′N, 142°06.6′E–39°17.1′N, 142°06.6′E, in 204–205 m (4), KT-85-11; Otsuchi Bay, 39°22.9′N, 141°59.8′E–39°23.1′N, 141°59.5′E, in 83–85 m (1), 39°22.3′N, 141°59.8′E–39°22.5′N, 142°01.0′E, in 89 m (11), 39°22.0′N, 142°01.4′E–39°21.7′N, 142°01.4′E, in 74–80 m (577), 39°21.9′N, 141°59.2′E–39°22.1′N, 141°59.5′E, in 75–81 m (3), 39°21.8′N, 142°00.1′E–39°21.9′N, 141°59.8′E, in 79–86 m (128), 39°21.7′N, 141°59.8′E–39°21.5′N, 141°59.6′E, in 79–72 m (10), 39°21.7′N, 141°58.3′E–39°21.3′N, 141°58.6′E, in 57–60 m (22), 39°21.5′N, 141°58.7′E–39°21.8′N, 141°59.0′E, in 65–71 m (254); Kamaishi Bay, in 29 m (1); Kashima Sea, off Hitachi, 36°34.9′N, 140°55.6′E–36°35.6′N, 140°56.2′E, in 120–122 m (1), KT-79-13; off Emi, Boso Peninsula, 35°01.0′N, 140°04.6′E–35°01.3′N, 140°05.0′E, in 77–83 m (1), off Chikura, 34°59.7′N, 140°00.9′E–35°00.0′N, 140°01.1′E, in 45–47 m (1), off Shirahama, 34°51.2′N, 139°55.9′E–34°51.1′N, 139°55.2′E, in 100 m (1), KT-76-16; Tokyo Bay, 35°18.2′N, 139°45.0′E, in 20 m (11), 35°18.0′N, 139°44.4′E, in 50 m (2), 35°16.8′N, 139°45.4′E, in 50 m (3), 35°16.0′N, 139°47.0′E, in 70 m (1); Nagaura Bay, Yokosuka in 8.6 m (1);

west of Jogashima, 35°13.5′N, 139°48.2′E, in 20 m (1), 35°13.5′N, 139°50.0′E, in 10 m (3); Sagami Bay, 35°18.1′N, 139°28.0′E, in 9 m (2), 35°18.2′N, 139°23.0′E, in 13 m (1), 35°18.1′N, 139°20.0′E, in 12 m (4); 35°17.4′N, 139°30.0′E, in 10 m (1), 35°17.4′N, 139°27.0′E, in 20 m (3), 35°17.0′N, 139°34.0′E, in 6 m (1), 35°16.4′N, 139°27.0′E, in 57 m (1), 35°13.4′N, 139°34.0′E, in 63 m (1), for survey Kanagawa Fish. Exper. Sta.; off Hiratsuka, 35°18.1′N, 139°20.0′E, in 12 m (2), for survey Kanagawa Fish. Exper. Sta.; off Kamakura, 35°16.5′N, 139°33.4′E, in 12 m (1), 35°16.2′N, 139°34.1′E, in 4 m (2), for survey Kanagawa Fish. Exper. Sta.; off Aburatsubo, in 30 m (4), in 50 m (2); off Zushi, 35°17.0′N, 139°34.1′E, in 6 m (23), 35°16.7′N, 139°33.7′E, in 12 m (166), 35°16.5′N, 139°33.4′E, in 17 m (58), 35°16.3′N, 139°33.2′E, in 23 m (11), 35°16.2′N, 139°33.0′E, in 28 m (1), 35°16.0′N, 139°32.9′E, in 37 m (3); near Shimoda, Izu Peninsula, 34°44.3′N, 139°00.9′E–34°44.2′N, 139°00.7′E, in 30–25 m (1), 34°41.0′N, 139°01.1′E–34°40.7′N, 139°00.6′E, in 102–92 m (2), 34°41.0′N, 139°01.1′E–34°40.7′N, 139°00.6′E, in 100–93 m (1), 34°39.9′N, 139°00.1′E–34°39.6′N, 139°00.0′E, in 70–63 m (2), 34° 39.3′N, 139°00.7′E–34°39.1′N, 139°00.4′E, in 110–95 m (3), 34°38.1′N, 138°57.0′E–34°38.0′N, 138°57.0′E, in 57 m (1), 34°37.4′N, 138°58.9′E–34°37.2′N, 138°58.9′E, in 112–120 m (1), 34°37.4′N, 138°57.0′E–34°37.2′N, 138°56.7′E, in 64–59 m (1), 34° 37.4′N, 138°56.9′E–34°37.2′N, 138°56.7′E, in 61–60 m (3); off Tokoname, Ise Bay, 34°53.0′N, 136°49.0′E, in 2 m (3); Suruga Bay, 34°43.5′N, 138°30.2′E–34°43.8′N, 138° 30.6′E, in 70–71 m (3), KT-78-2; off Kuno-zan, 35°56.6′N, 138°31.1′E, in 80 m (1); off Kushimoto, 33°28.3′N, 135°45.1′E, in 18–20 m (2), 33°27.7′N, 135°44.8′E, in 44 m (1), 33°27.4′N, 135°44.2′E, in 43–48 m (1), 33°27.2′N, 135°45.4′E, in 19–27 m (1); Tsushima Strait, 34°45.9′N, 129°35.9′E, in 64 m (37), 34°40.1′N, 129°34.4′E, in 75 m (1), 34°37.5′N, 129°50.7′E, in 110 m (2), 34°31.7′N, 129°35.5′E, in 96 m (5), 34°27.6′N, 129°43.8′E, in 100 m (3), 34°25.1′N, 129°59.3′E, in 115 m (5), 34°23.1′N, 129°27.5′E, in 85 m (3), 34°17.6′N, 129°48.6′E, in 110 m (4), 34°16.4′N, 130°06.4′E, in 95 m (5), 34°16.0′N, 129°31.5′E, in 105 m (3), 34°08.5′N, 129°26.0′E, in 110 m (1), 34°08.1′N, 130°28.6′E, in 75 m (2), 34°06.2′N, 129°11.2′E, in 45 m (1), 34°03.3′N, 129°04.5′E, in 125 m (103), 33°57.7′N, 129°11.6′E, in 105–100 m (5), 33°50.5′N, 129°19.1′E, in 125 m (1), 33°49.9′N, 129°29.0′E, in 100 m (14), 33°48.6′N, 130°02.7′E, in 45 m (4); off Amakusa, in 10 m (3); off Tanegashima, 30°37.8′N, 130°54.2′E, in 40 m (1), 30°34.5′N, 130°53.6′E, in 45 m (3).

Description. A complete specimen measures 36 mm in length and 1.8 mm in width for 18 segments; however, an anterior fragment with ten segments measures 47 mm in length and 2.3 mm in width. Most specimens consist of 20 segments.

The body is anteriorly cylindrical and posteriorly tapered; it is pale yellow or pale vermillion in spirit. A crown of tentacles projects forward from the head region. The tentacular crown is divided into two lobes; each lobe has three to four flattened trunks with four dichotomously branched tentacles. The mouth is terminal and enclosed by tentacles. A low collar encloses the tentacular bases, and has two short slits ventrally. A pair of lateroventral eye-spots is present at the base of the crown. Pigmentation is sometimes present in the tentacles and the anterior body region

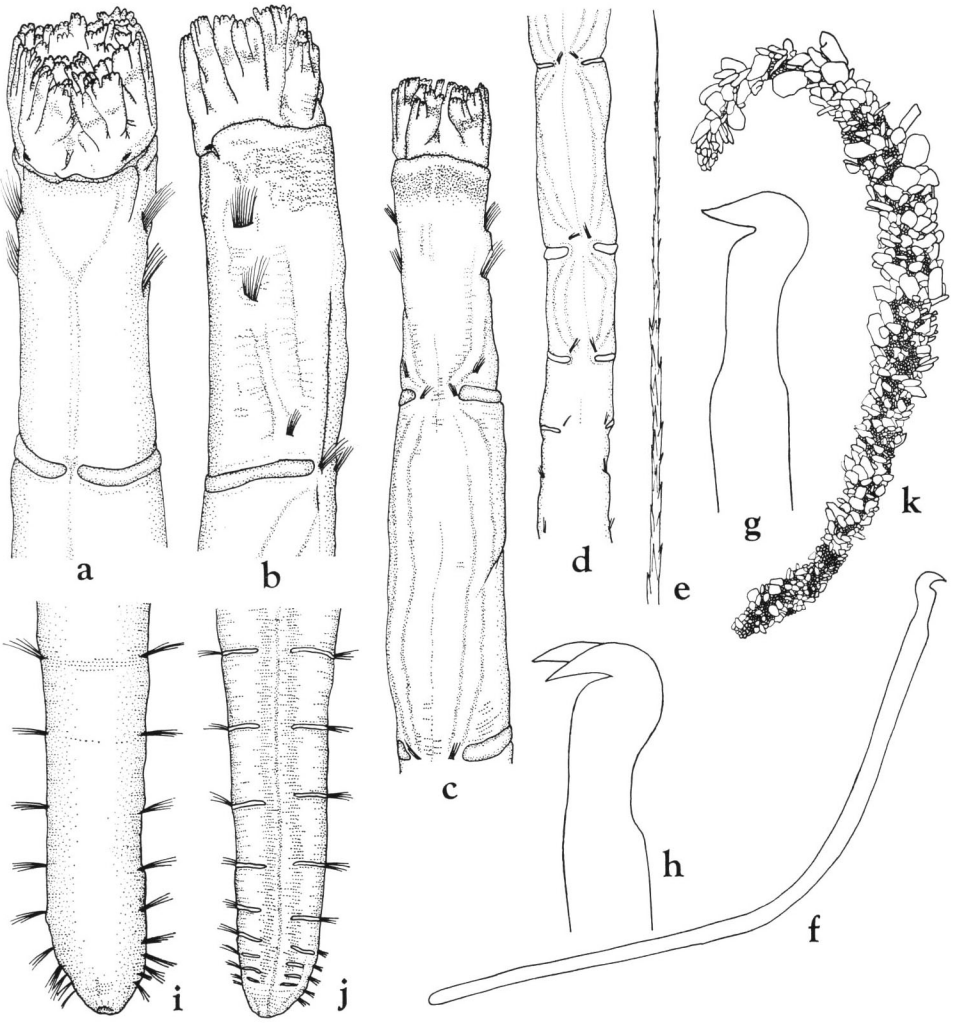

Fig. 2. *Owenia fusiformis* DELLE CHIAJE. a–c, Anterior ends, in ventral (a), lateral (b) views, ×13 and in dorsal view (c), ×8; d, seventh to twelfth setigers, in dorsal view, ×5; e, notopodial capillary seta, ×770; f, uncinus, × 875; g, h, distal ends of uncini, ×2,870; i, j, posterior ends, in dorsal (i) and ventral (j) views, ×8; k, tube, ×3.5

(Fig. 2 a–c). The sixth to eighth segments are the longest.

The first two notopodia are located at the lateral sides of the body. However, the third to tenth notopodia are situated along the mid-dorsal line (Fig. 2 d). The first two setal fascicles are larger than those of the following. The notopodial setae are all spinous capillaries (Figs. 2 e, 4 a, b). Neuropodial tori appear from the fourth setiger and continue to the posterior end. Tori are long, narrow and nearly rectangular; those in the third to ninth setigers extend nearly around the body.

Uncini are arranged in regular rows on the tori (Fig. 4 c); each uncinus has a well developed manubrium (Fig. 2 f) and has two teeth arranged side by side nearly at the same level (Figs. 2 g, h, 4 d).

The posterior end gradually tapers off and the anus opens at the terminal; the notopodial capillary setae and the neuropodial tori are rather well developed (Fig. 2 i, j).

The tube is fusiform, tapering at both ends; it is coated with small shell fragments and sand grains piled on top of one another like roof tiles (Fig. 2 k).

Distribution. World-wide areas. Circumpolar in Arctic seas, Bering Sea; Sea of Okhotsk; Alaska; Vancouver Island; eastern and western North America; the Gulf of Mexico; Iceland; the Faroes; entire Norwegian coast; Atlantic Ocean SW of the British Isles; South West Africa; Mediterranean; Red Sea; Indian Ocean; Japan.

Genus *Myriochele* MALMGREN, 1867

Myriochele heeri MALMGREN, 1867

(Fig. 3 a–k; Fig. 4 e–h)

Myriochele heeri MALMGREN, 1867, pp. 101–102, tab. 7, fig. 37; USCHAKOV, 1955, p. 348; IMAJIMA, 1968, p. 94; FAUCHALD, 1972, p. 270; BLAKE & DEAN, 1973, p. 37, fig. 2; BLAKE, 1984, p. 112; NILSEN & HOLTHE, 1985, pp. 21–22, figs. 3, 4, 11 c–e.

Material examined. Off Miyako, 39°39.0′N, 142°20.7′E–39°40.0′N, 142°20.4′E, in 640–620 m (56), KH-69-2: off Otsuchi, 39°17.3′N, 142°06.6′E–39°17.1′N, 142° 06.6′E, in 204–205 m (60), 38°42.0′N, 143°01.6′E–38°40.6′N, 143°00.2′E, in 2,525–2,538 m (1), KT-85-11; off Hitachi, Kashima Sea, 36°31.6′N, 141°03.7′E–36°30.6′N, 141°02.6′E, in 390–400 m (1), 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1,005–1,050 m (1); off Kashima, 36°12.4′N, 141°09.5′E–36°12.8′N, 141°08.8′E, in 690–710 m (28), KT-79-13; Sagami Bay, 34°51.3′N, 139°19.7′E–34°51.7′N, 139°20.1′E, in 1,115 m (1), KT-65-34.

Description. A complete specimen measures 20 mm in length and 1.4 mm in width for 23 segments.

The body is cylindrical and posteriorly tapered; the color is pale orange in spirit. The first three setigers in the thorax are very short (Fig. 3 a) and the fifth to seventh abdominal setigers are longer than the others. The head region is anteriorly rounded, and it is distinguished from the thorax by a constriction. The mouth is a longitudinal slit located at the ventral side of the head (Fig. 3 b, c).

All setigers have notopodial capillary setae with minute spinules (Figs. 3 d, 4 e). From the fifth or sixth setiger, some short and smooth acicular setae are present in lower part of the setal fascicle (Figs. 3 e, 4 f). Neuropodial tori arise from the fourth setiger and are nearly rectangular with uncini arranged in irregular rows (Fig. 4 g). The uncinus has a long manubrium (Fig. 3 f), and the neck is narrow and short. The distal teeth are arranged one above the other (Figs. 3 g, h, 4 h). The posterior body is distally tapered and flattened more or less dorsoventrally. The pygidium has a pair of weakly developed lobes (Fig. 3 i, j).

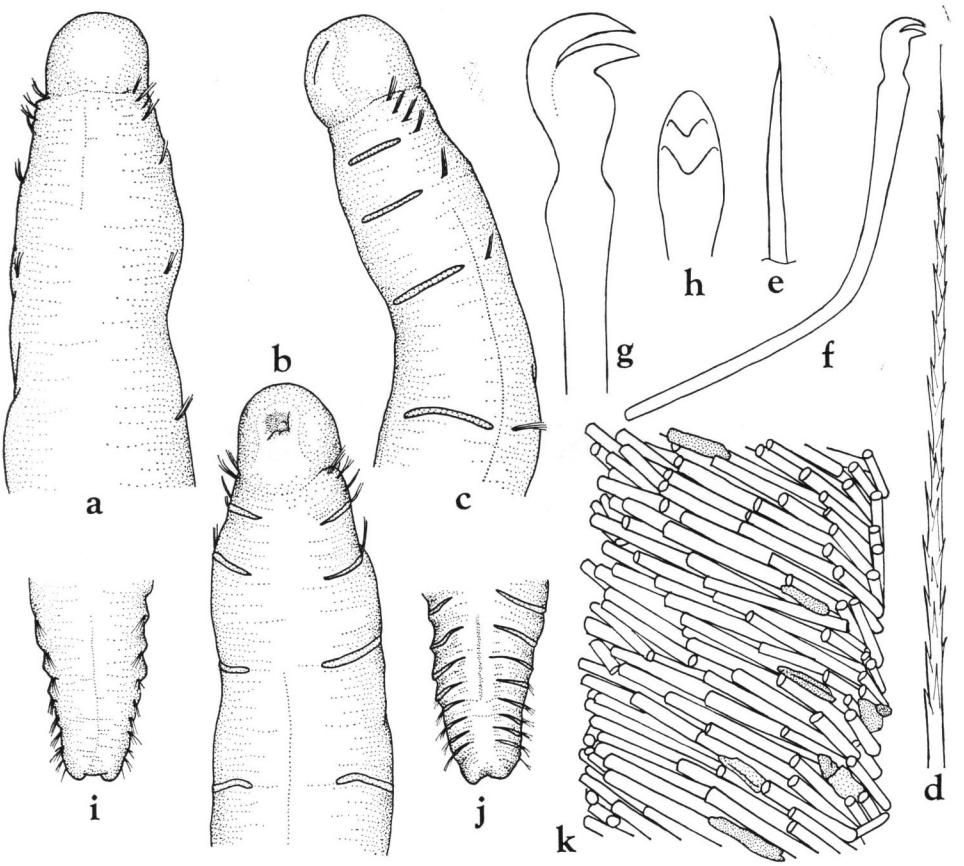

Fig. 3. *Myriochele heeri* MALMGREN. a–c, Anterior ends, in dorsal (a), ventral (b) and lateral (c) views, ×20; d, notopodial capillary seta, ×1,110; e, acicular seta, ×430; f, uncinus, ×1,280; g, distal end of uncinus, ×3,220; h, the same, in frontal view, ×3,220; i, j, posterior ends, in dorsal (i) and ventral (j) views, ×20; k, a part of tube, ×26.

The tube is rigid and cylindrical with long, tapered ends; it is encrusted with sponge spicules and a few sand grains arranged in a helical pattern (Fig. 3 k).

Distribution. Norwegian Sea; South Atlantic Ocean; Barents Sea; Polar Sea; Kara Sea; East Greenland; Baffin Land; Sea of Okhotsk; Japan.

Myriochele danielsseni HANSEN, 1879

(Fig. 5 a–i; Fig. 8 a, b)

Myriochele danielsseni HANSEN, 1879, p. 270, tab. 2, figs. 9–11; 1882, p. 42, pl. 6, figs. 13–15; NILSEN & HOLTHE, 1985, pp. 22–23, figs. 5, 6, 12 a.

Material examined. Off Oga Peninsula, 40°01.1′N, 139°49.7′E–40°00.7′N, 139°

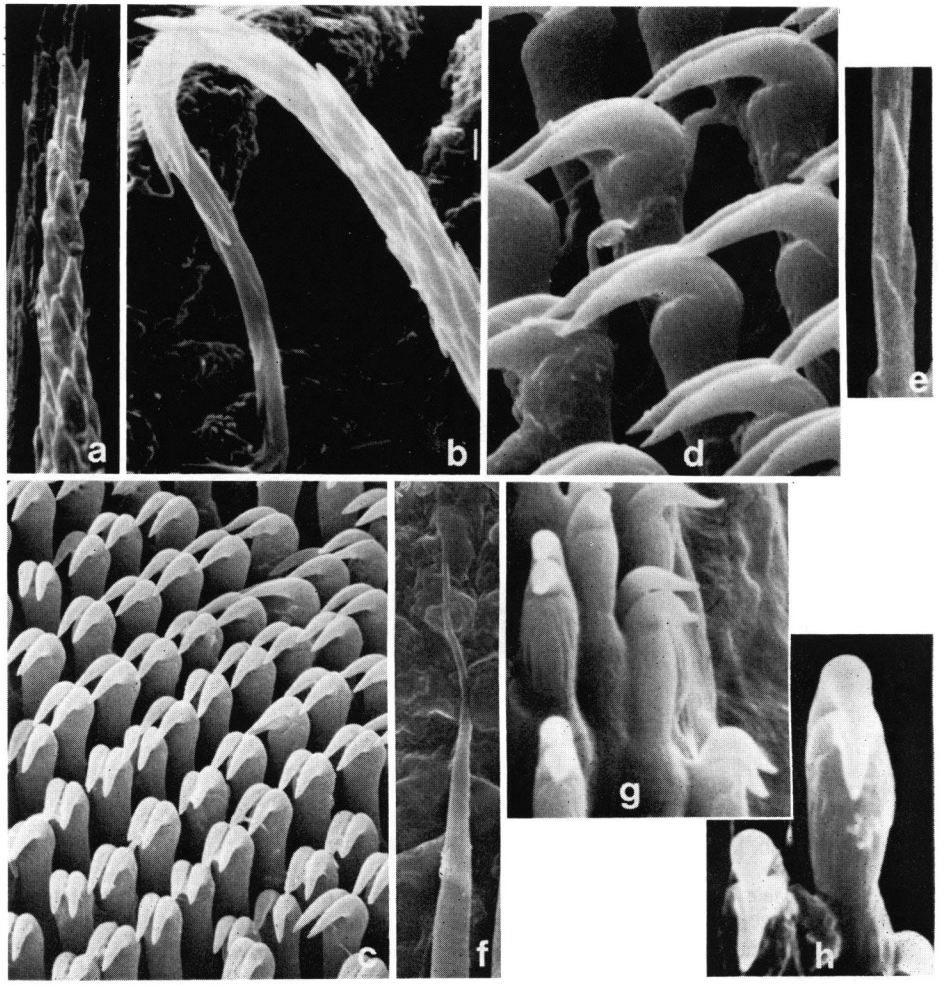

Fig. 4. Scanning electron micrographs. a–d, *Owenia fusiformis*: a, b, part of notopodial capillary setae, ×5,250; c, transverse rows of uncini, ×2,450; d, uncini, ×5,250. e–h, *Myriochele heeri*: e, part of notopodial capillary seta, ×5,250; f, acicular seta, ×2,450; g, h, uncini, g, ×5,250, h, ×7,000.

50.0′E, in 32–29 m (19), 39°49.8′N, 139°49.2′E–39°50.0′N, 139°47.5′E, in 70–65 m (6); Miyako Bay, 39°39.2′N, 141°59.8′E, in 49 m (24), 39°38.7′N, 142°00.0′E, in 38 m (1); off Otsuchi, 39°19.3′N, 142°04.0′E–39°19.3′N, 142°04.3′E, in 149 m (13), 39°17.3′N, 142°06.6′E–39°17.1′N, 142°06.6′E, in 204–205 m (145), KT-85-11; Otsuchi Bay, 39° 22.9′N, 141°59.8′E–39°23.1′N, 141°59.9′E, in 83–85 m (2), 39°22.8′N, 142°00.5′E–39° 23.0′N, 142°00.8′E, in 95–99 m (2), 39°22.0′N, 142°01.4′E–39°21.7′N, 142°01.4′E, in 74–80 m (4); off Hitachi, Kashima Sea, 36°25.8′N, 141° 18.3′E–36°23.0′N, 141°18.2′E in 1,005–1,050 m (71), KT-79-13; off Emi, Boso Peninsula, 35°00.1′N, 140°06.8′E–

35°00.5′N, 140°07.5′E, in 145–150 m (8), off Chikura, 34°57.2′N, 140°02.4′E–34°57.6′N, 140°02.7′E, in 115 m (4), off Shirahama, 34°53.8′N, 140°00.5′E–34°53.3′N, 139°59.9′E, in 180–160 m (1), 34°51.2′N, 139°55.6′E–34°51.1′N, 139°55.2′E, in 100 m (1), off Mera, 34°50.2′N, 139°50.1′E–34°50.2′N, 139°50.1′E, in 100–110 m (1), KT-76-16; off Kamakura, 35°15.2′N, 139°33.6′N, in 21 m (1), for survey Kanagawa Fish. Exper. Sta.; off Aburatsubo, in 30 m (202); near Shimoda, Izu Peninsula, 34°45.0′N, 139°02.1′E–34°45.1′N, 139°02.1′E, in 81–51 m (1), 34°41.1′N, 139°00.2′E–34°40.9′N, 138°59.7′E, in 60–53 m (1), 34°41.0′N, 139°01.1′E–34°40.7′N, 139°00.6′E, in 102–92 m (5), 34°

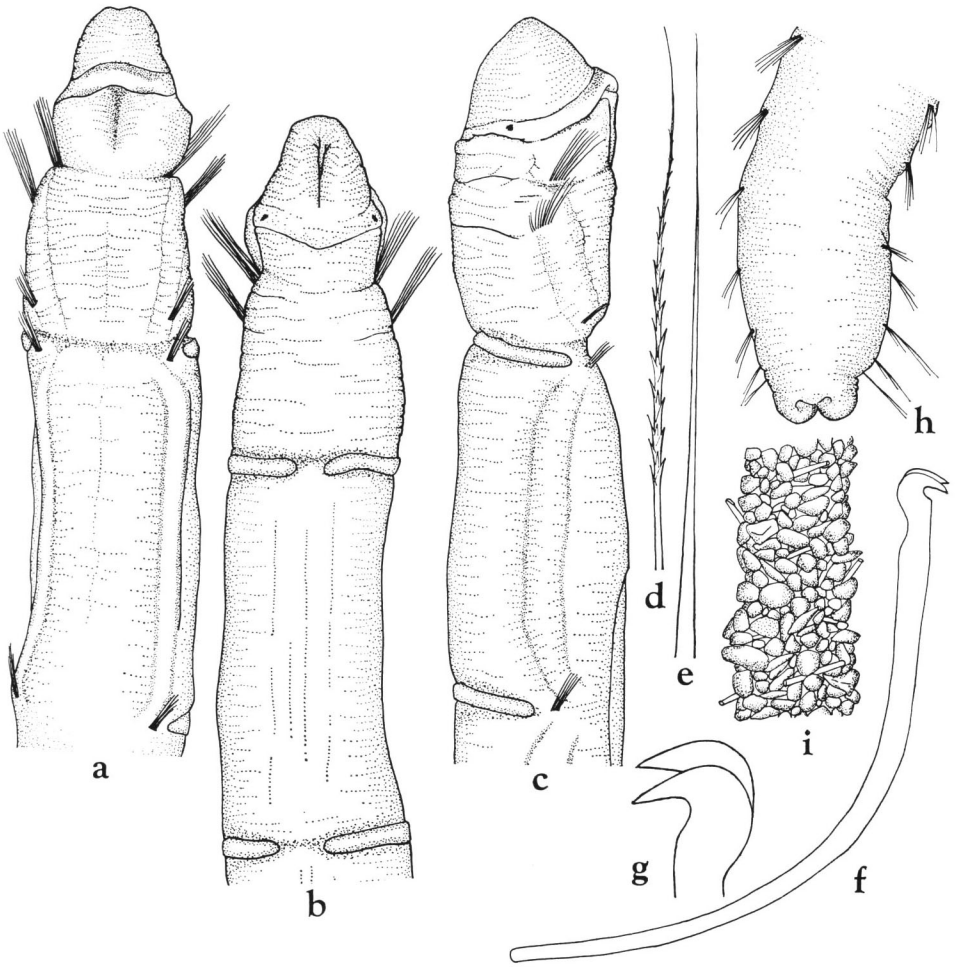

Fig. 5. *Myriochele danielsseni* HANSEN. a–c, Anterior ends, in dorsal (a), ventral (b) and lateral (c) views, ×36; d, notopodial capillary seta, ×770; e, acicular seta, ×1,550; f, uncinus, ×1,400; g, distal end of uncinus, ×2,870; h, posterior end, in dorsal view, ×36; i, a part of tube, ×26,

41.0′N, 139°01.1′E–34°40.7′N, 139°00.6′E, in 100–93 m (4), 34°41.0′N, 139°01.1′E–34°40.6′N, 139°00.6′E, in 106–95 m (1), 34°41.0′N, 139°01.1′E–34°40.4′N, 139°02.5′E, in 106–97 m (1), 34°39.9′N, 139°00.1′E–34°39.6′N, 139°00.0′E, in 70–63 m (1), 34°39.3′N, 139°00.7′E–34°39.1′N, 139°00.4′E, in 110–95 m (1), 34°36.9′N, 138°57.3′E–34°36.4′N, 138°57.2′E, in 80–79 m (1); off Niijima, 34°22.9′N, 139°14.7′E–34°23.0′N, 139°14.3′E, in 60–80 m (4), 34°23.1′N, 139°14.9′E–34°23.2′N, 139°14.6′E, in 60–80 m (5); Suruga Bay, 34°54.5′N, 138°27.7′E–34°54.4′N, 138°28.0′E, in 56–64 m (1), KT-78-2; off Kushimoto, 33°29.1′N, 135°51.0′E, in 34 m (1), 33°27.4′N, 135°44.2′E, in 43–48 m (2), 33°26.8′N, 135°48.6′E, in 58–60 m (1); Tsushima Strait, 34°27.6′N, 129°43.8′E, in 100 m (1), 34°25.1′N, 129°59.3′E, in 115 m (1), 34°16.0′N, 129°31.5′E, in 105 m (2), 34°08.1′N, 130°28.6′E, in 75 m (1), 34°03.3′N, 129°04.5′E, in 125 m (3), 33°49.9′N, 129°29.0′E, in 100 m (5).

Description. A complete specimen measures 19 mm in length and 0.8 mm in width for 20 segments. An anterior fragment consisting of eight segments measures 22 mm in length and about 1 mm in width.

The body is nearly cylindrical, with a deep constriction between the head and the thorax (Fig. 5 a); the color is almost pale yellow or pale vermilion in spirit. The head region is short and subconical with a rounded tip; there is a dorsolateral sulcus. The collar is low and thick and has one or two pigment rows along its anterior margin. The mouth opens in the ventral side as a longitudinal slit (Fig. 5 b). One pair of eyespots is present on the ventrolateral sides (Fig. 5 c). Setigers six to eight are longer than others.

All setigers have notopodial capillary setae with minute spinules (Fig. 5 d); setae in the first two setigers are very long and can reach the collar margin. Some acicular setae with fine tips arise from the third notopodia (Fig. 5 e). Neuropodial tori are present from the fourth setiger and continue to the posterior setigers. Uncini have a well developed manubrium (Fig. 5 f) and the distal teeth are arranged side by side nearly at the same or a somewhat at different levels (Figs. 5 g, 8 a, b).

The posterior end more or less tapers distally. The pygidium has a pair of lateral lobes (Fig. 5 h).

The tube is coated with sponge spicules and sand grains; it has no regular pattern (Fig. 5 i).

Distribution. North Sea; Norwegian Sea; Polar Sea; Japan.

Genus *Galathowenia* KIRKEGAARD, 1959

Galathowenia oculata (ZAKS, 1922)

(Fig. 6 a–j; Fig. 8 c, d)

Myriochele oculata ZAKS, 1922, pp. 171–174, figs. 1–3; USCHAKOV, 1955, p. 348, fig. 128 h, i; IMAJIMA, 1972, p. 13; 1982, p. 160; BLAKE & DEAN, 1973, pp. 36–37, fig. 1; NILSEN & HOLTHE, 1985, pp. 23–25, figs. 7, 8, 12 b, c.

Galathowenia africana KIRKEGAARD, 1959, p. 67, fig. 17.

Galathowenia oculata KIRKEGAARD, 1983, pp. 604–605; BLAKE, 1984, p. 114.

Material examined. Off Oga Peninsula, 39°53.6′N, 139°42.5′E–39°53.7′N, 139° 43.2′E, in 75–68 m (25), 39°49.8′N, 139°47.2′E–39°50.0′N, 139°47.5′E, in 70–65 m (12); off Otsuchi, 39°17.3′N, 142°06.6′E–39°17.1′N, 142°06.6′E, in 204–205 m (7), KT-85-11; Otsuchi Bay, in 45–47 m (3); Kamaishi Bay, in 19 m (1), in 24 m (7); near Shimoda, Izu Peninsula, 34°39.9′N, 139°00.1′E–34°39.6′N, 139°00.0′E, in 70–63 m (1), 34°37.4′N, 138°57.0′E–34°37.2′N, 138°56.7′E, in 64–59 m (1); off Kushimoto, 33°28.9′N, 135°49.1′E, in 32–38 m (2); Tsushima Strait, 34°03.3′N, 129°04.5′E, in 125 m (4); off Nagasaki Harbor, in 25 m (4).

Description. A complete specimen measures 23 mm in length and 0.8 mm in width for 26 segments.

The body is cylindrical and is posteriorly tapered; all individuals consist of up to 30 segments. The color is pale yellow or pale vermilion in spirit.

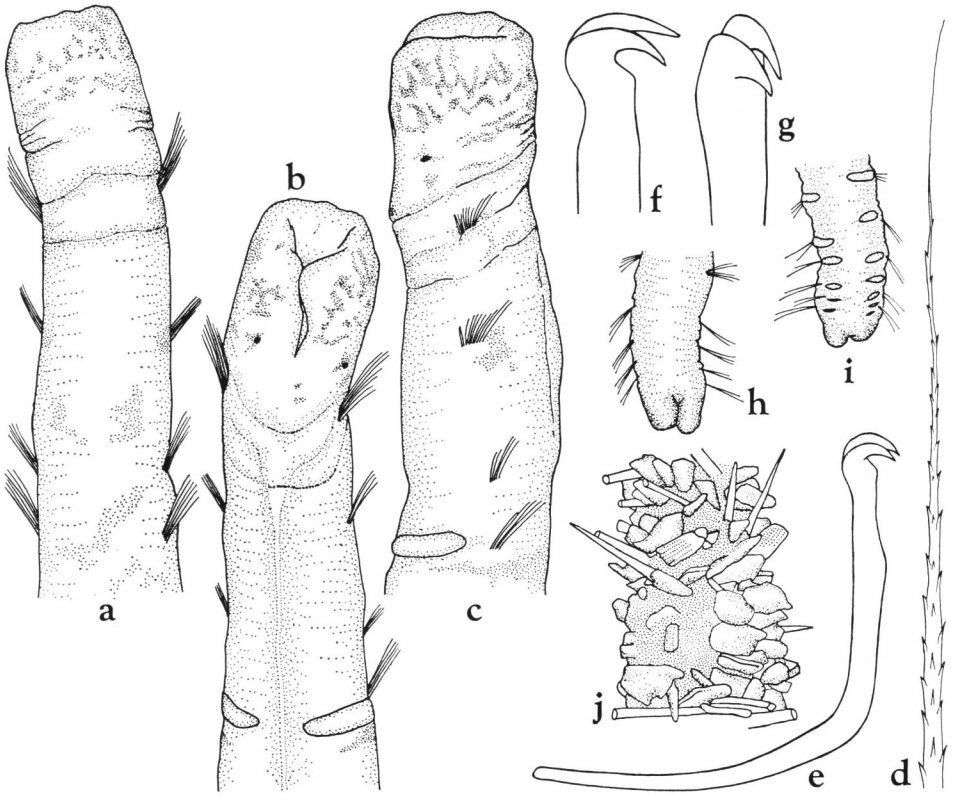

Fig. 6. *Galathowenia oculata* (ZAKS). a–c, Anterior ends, in dorsal (a), ventral (b) and lateral (c) views, ×36; d, notopodial capillary seta, ×1,110; e, uncinus, ×1,400; f, distal end of uncinus, in lateral view, ×2,870; g, the same, in dorso-lateral view, ×2,870; h, i, posterior ends, in dorsal (h) and ventral (i) views, × 36; j, a part of tube, ×18.

The head region is long and has a truncated anterior end. There is a mid-ventral cleft and a lip-like structure that slightly overlaps. Two brownish eye-spots are located at the ventrolateral sides of the head. Pigment is present on the head and other anterior parts in an irregular pattern. The first two setigers are both subequal in length; the third setiger is short, but the fourth setiger is long (Fig. 6 a–c).

All setigers have notopodial capillary setae with minute spinules (Fig. 6 d). Neuropodial tori appear from the fourth setiger; some of the first tori are very long and reach near the mid-dorsal line. Uncini have a long manubrium (Fig. 6 e) and two teeth arranged side by side at different levels (Figs. 6 f, g, 8 c, d).

The posterior body is more or less tapered and has parapodia to the posterior end. The pygidium has a pair of lateral lobes (Fig. 6 h, i).

The tube is long and cylindrical and is coated with cemented sand grains and

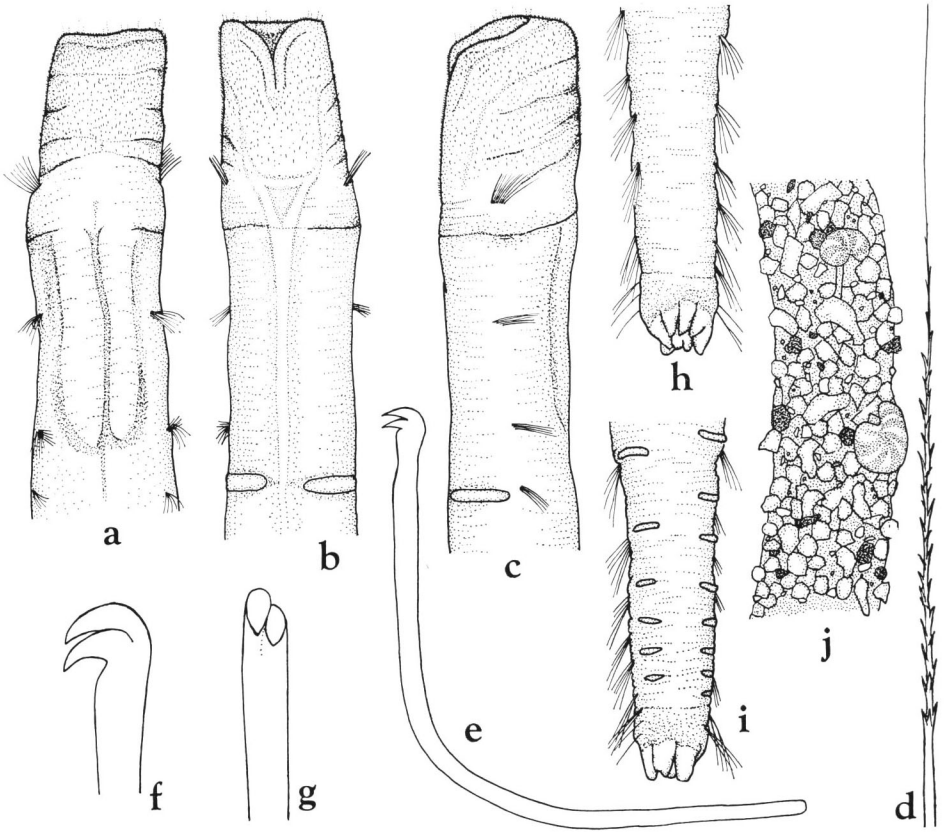

Fig. 7. *Galathowenia wilsoni* BLAKE. a–c, Anterior ends, in dorsal (a), ventral (b) and lateral (c) views, ×28; d, notopodial capillary seta, ×1,660; e, uncinus, ×1,370; f, distal end of uncinus, ×3,450; g, the same, in front view, ×3,450; h, i, posterior ends, in dorsal (h) and ventral (i) views, ×22; j, a part of tube, ×17.

sponge spicules (Fig. 6 j).

Distribution. Chuckchi Sea; Kara Sea; Polar Sea; White Sea; Norwegian Sea; Atlantic Ocean SW of the British Isles; North Sea; Bering Sea; British Columbia; Washington; Japan.

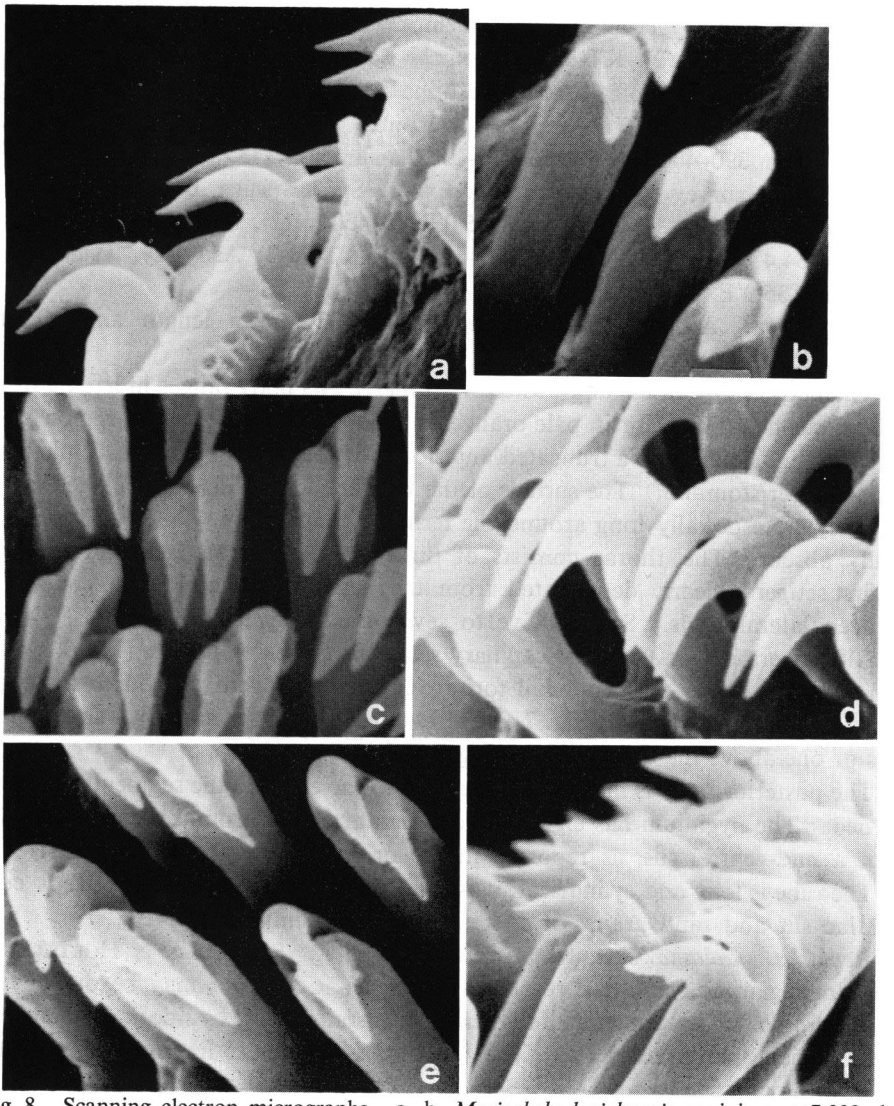

Fig. 8. Scanning electron micrographs. a, b, *Myriochele danielsseni*: uncini, a, ×7,000; b, ×10,500. c, d, *Galathowenia oculata*: uncini, × 10,500. e, f, *Galathowenia wilsoni*: uncini, ×7,000.

Galathowenia wilsoni BLAKE, 1984

(Fig. 7 a–k; Fig. 8 e, f)

Galathowenia wilsoni BLAKE, 1984, pp. 114–116, fig. 2.

Material examined. Off Miyako, 39°39.0′N, 142°20.7′E–39°40.0′N, 142°20.4′E, in 640–620 m (100), KH-69-2; off Otsuchi, 39°12.8′N, 142°16.0′E–39°13.9′N, 142°16.4′E, in 562–563 m (2), KT-85-11; Otsuchi Bay, 39°22.3′N, 141°59.8′E–39°22.5′N, 142°01.0′E, in 89 m (4); off Hitachi, Kashima Sea, 36°25.8′N, 141°18.3′E–36°23.0′N, 141°18.2′E, in 1,005–1,050 m (30); off Kashima, 36°12.4′N, 141°09.5′E–36°12.8′N, 141°02.6′E, in 390–400 m (38), KT-79-13; Sagami Bay, 35°09.4′N, 139°26.0′E, in 890 m (1), for survey Kanagawa Fish. Exper. Sta.; Suruga Bay, 34°41.2′N, 138°29.0′E, in 300 m (10), 34°40.6′N, 138°25.0′E, in 450 m (2), KT-68-2, 34°54.4′N, 138°27.7′E–34°54.4′N, 138°28.0′E, in 56–64 m (42), KT-78-2; Aso Bay, Tsushima, 34°45.9′N, 129°35.9′E, in 64 m (1).

Description. A complete specimen measures 32 mm in length and 0.9 mm in width for 25 segments.

The body is cylindrical and posteriorly tapered; its body ranges in having from 20 to 30 segments. The color is pale orange or pale yellow. The head region is long and has a high collar with a truncated anterior end; there is a longitudinal mid-ventral slit on the peristomium. The surface of the head region is densely covered by short cilia; they are especially long around the terminal mouth (Fig. 7 a–c). Eye-spots are usually absent. The thorax consists of three setigers of relatively normal length. The first setiger is clearly demarcated from the peristomium and the second setiger has deep lateral folds. Setigers five to seven are elongated.

All setigers have notopodial capillary setae with minute spinules (Fig. 7 d); there are no acicular setae. Neuropodial tori are first present from the fourth setiger; uncini have a long manubrium (Fig. 7 e) and two teeth arranged side by side at different levels or one above the other (Figs. 7 f, g, 8 e, f).

The posterior body is more or less tapered to the end and the segments are densely crowded. The pygidium has eight petaloid cirri arranged around the anus, but there is not a mid-ventral slit, as reported in the original description (Fig. 7 h, i).

The tube is long and cylindrical; it is rigid, but easily fragmented. It is coated with fine slit and sand grains or sometimes with foraminiferans (Fig. 7 j).

Remarks. *Galathowenia wilsoni* resembles *G. fragilis* (NILSEN et HOLTHE, 1985) from Norwegian Sea in some respects. However, *G. wilsoni* may be distinguished from *G. fragilis* in that the teeth of the uncini are arranged side by side at different levels, instead of being arranged in a longitudinal row; the pygidium has eight petaloid cirri, instead of having five to six.

Distribution. Ross Sea; Amundsen Sea; Japan.

Genus *Myrioglobula* HARTMAN, 1967

Myrioglobula japonica sp. nov.

(Fig. 9 a–k; Fig. 10 a–f)

Material examined. Sagami Bay, 35°17.4′N, 139°22.0′E, in 62 m (4), 35°11.4′N, 139°09.2′E, in 83 m (20); near Shimoda, Izu Peninsula, 34°44.9′N, 139°02.2′E–34° 45.0′N, 139°01.9′E, in 85–57 m (1), 34°41.0′N, 139°01.1′E–34°40.7′N, 139°00.6′E, in 100–93 m (holotype and 19 paratypes); 34°41.0′N, 139°01.1′E–34°40.6′N, 139°00.6′E, in 106–95 m (1), 34°40.9′N, 139°01.1′E–34° 40.5′N, 139°00.9′E, in 120–102 m (1), 34° 40.8′N, 139°00.6′E–34°40.6′N, 139°00.5′E, in 91–87 m (2), 34°39.9′N, 139°00.1′E–34°39.6′N, 139°00.0′E, in 70–63 m (1); Tsushima Strait, 34°16.4′N, 130°06.4′E, in 95 m (5), 34°03.3′N, 129°04.5′E, in 125 m (3), 33°45.9′N, 129°29.0′E, in 100 m (15).

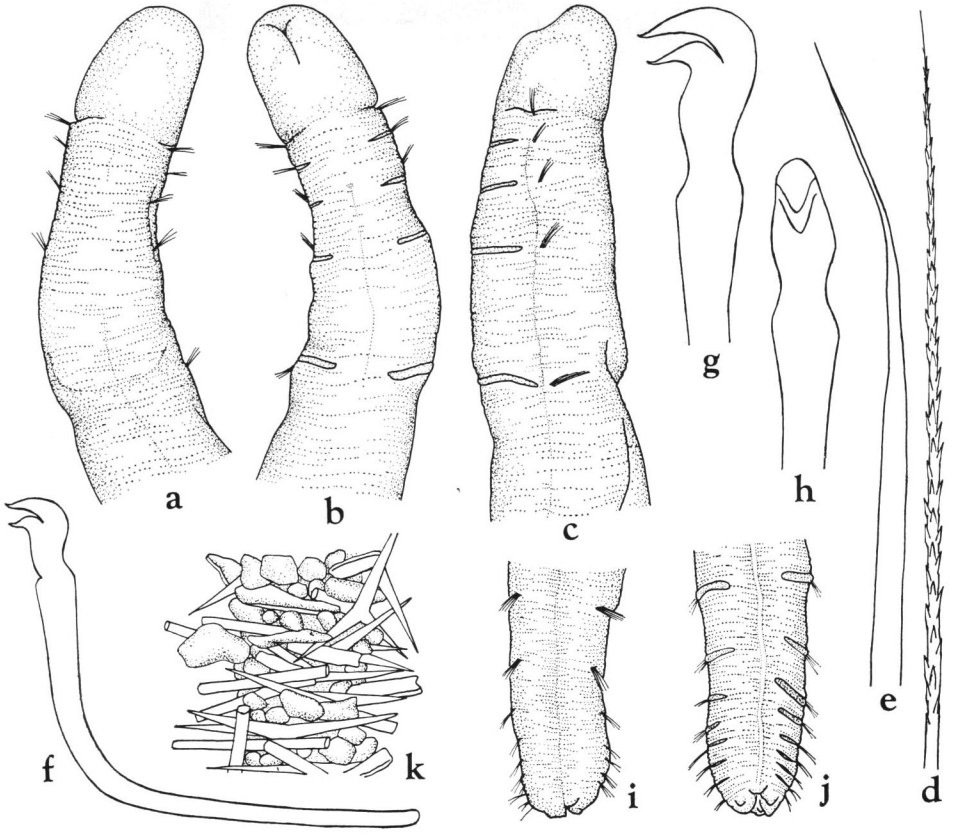

Fig. 9. *Myrioglobula japonica* sp. nov. a–c, Anterior ends, in dorsal (a), ventral (b) and lateral (c) views, ×30; d, notopodial capillary seta, ×1,110; e, acicular seta, ×1,110; f, uncinus, ×1,550; g, distal end of uncinus, ×3,220; h, the same, in frontal view, ×3,220; i, j, posterior ends, in dorsal (i) and ventral (j) views, ×30; k, a part of tube, ×18.

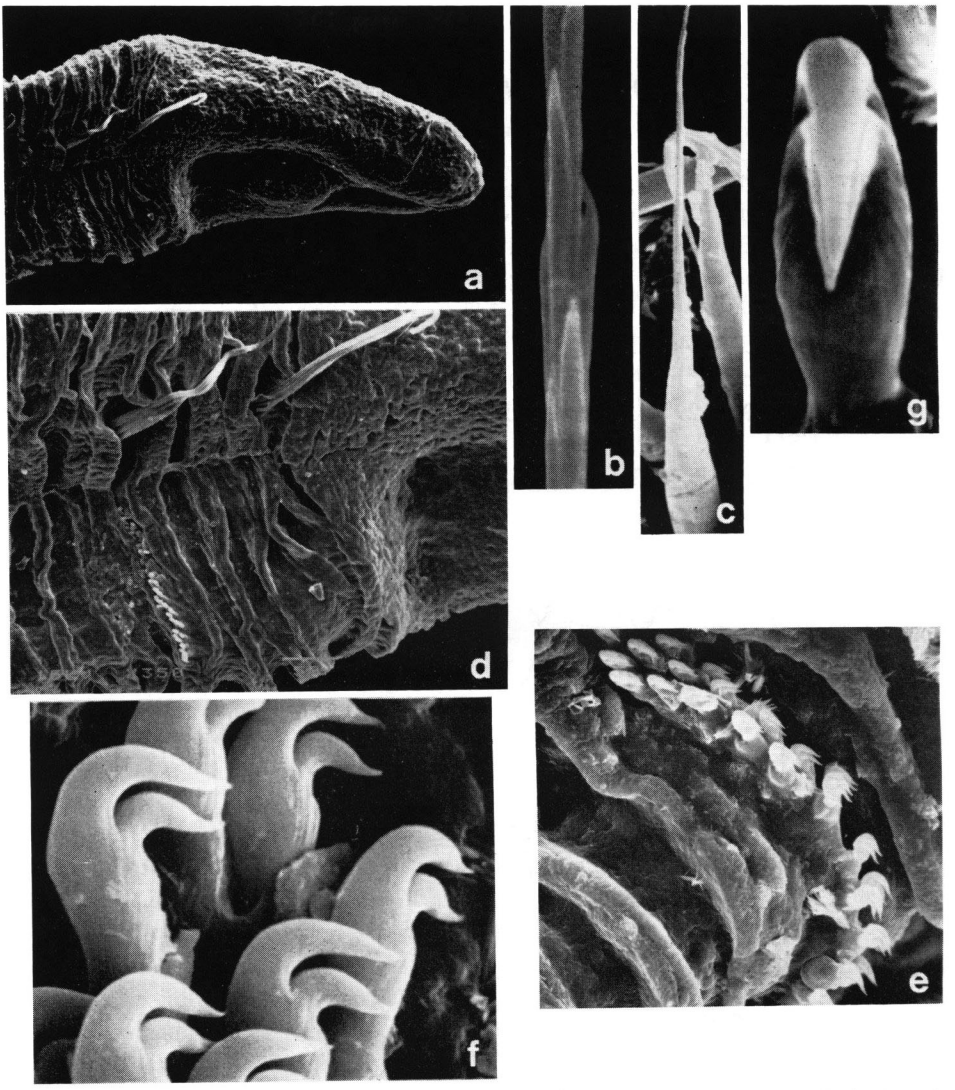

Fig. 10. Scanning electron micrographs. *Myrioglobula japonica*: a, anterior end, in lateral view, × 105; b, part of notopodial capillary seta, ×7,000; c, acicular seta, ×3,500; d, anterior end, showing first and second setigers, in lateral view, ×245; e, transverse row of uncini, ×1,400; f, g, uncini, ×10,500.

Description. The holotype measures 11 mm in length and 1 mm in width for 22 segments; the paratypes consist of 19 to 20 segments.

The body is short and cylindrical with a tapering posterior end; the color is off white or pale vermilion in spirit. The head region is somewhat prolonged with a rounded anterior end, and it is distinctly set off from the thorax with a constriction. The

mouth opens on the ventral side in a slit. Eye-spots are not visible (Figs. 9 a–c, 10 a).

Each segment of the fifth to seventh setigers is longer than others. All notopodia have capillary setae with minute spinules (Figs. 9 d, 10 b), and some short and smooth acicular setae are also present from the fifth setiger in the inferior position of the setal fascicle (Figs. 9 e, 10 c). The neuropodial tori are first present from the second setiger (Fig. 10 d); each is narrow and nearly rectangular with uncini arranged in 2–4 irregular rows (Fig. 10 e). The uncinus has a well developed manubrium (Fig. 9 f) and two teeth are arranged one above the other (Figs. 9 g, h, 10 f, g).

The posterior end is distally tapered and more or less flattened dorsoventrally. The pygidium has a pair of lateral lobes and five accessory papillae (Fig. 9 i, j).

The tube is coated with sponge spicules, sand grains and shell fragments; there is no pattern (Fig. 9 k).

Remarks. *Myrioglobula japonica* much resembles *M. antarctica* HARTMAN, 1967, from the Antarctic seas in some respects. However, *M. japonica* may be clearly distinguished from *M. antarctica* in the features of the uncini: *M. japonica* has two teeth arranged one above the other on the shaft, instead of being side by side on the same level.

The genus *Myrioglobula* was newly established by HARTMAN, 1967, based on specimens which came from the Scotia Sea, Weddell Sea, South Orkney Islands and South Shetland Islands in depths of 604–3,816 m. *M. japonica* is the second species of the genus and is found in the warm-temperate areas up to 125 m.

The genus is new to the Japanese fauna.

Type-series. Holotype, NSMT-Pol. H 243; 19 paratypes, NSMT-Pol. P 244.

Distribution. Japan.

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