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A New Species of Sand-Burrowing Marine Amphipods from Hokkaido, Japan

Yukiyoshi KAMIHIRA*

Abstract

A dogielinotid amphipod was collected from the sandy beach of Hakodate, Hokkaido, Japan. The specimen was described as a new species of genus *Haustorioides* by the author. The species is a sand-burrower, and the length: width ratio in dorsal view is 4.7:1 for the male and 4.1:1 for the female. The key to the species of this genus was given.

Introduction

The dogielinotid Amphipoda has been recorded from the USSR coast of the Japan Sea and Okhotsk Sea, and also recently reported from northern California[1]. According to Bousfield[2], dogielinotid amphipods are sand-burrowers, and, of at least 8 species from the Asiatic coastal waters and the American Pacific coast, only one species have been classified into the genus *Haustorioides*[3]. On the other hand, there is no record yet of any dogielinotid Amphipoda from the coast of Japan.

The present author was collecting some gammarids on the sandy beach at Hakodate, Japan, and found some *Haustorioides* (Dogielinotidae, Amphipoda) in the collection. With respect to the morphological characteristics, the present species is distinctly different from *H. munsterhjelmi*, which was described hitherto by Oldevig[4] and Barnard[1] in this genus. The specimens were sent to Dr. Barnard who is a taxonomic authority in this division, and he suggested that the author's specimen is different from *H. munsterhjelmi*.

In the present paper the specimen is described as a new species of genus *Haustorioides* and will be added to the members of gammarids from Hokkaido, Japan.

Key to the species of genus *Haustorioides*

1 Uropod 3 lacking ramus, peduncle terminated by only a few spines ..... *Haustorioides* 2

2a Pleonal epimera 1–2 each with small posterodistal tooth, epimeron 3 with long tooth; dactylus of pereopods 4–5 serrate and with hooked setae; telson short, a little cleft in median margin ..... *H. munsterhjelmi* Oldevig

b Pleonal epimeron 1 with small posterodistal tooth, epimera 2–3 with long tooth; dactylus of pereopods 4–5 serrate and armed with needled setae; telson short, slightly concave in median margin, not cleft ..... *H. japonicus*, n. sp.

* *Laboratory of Planktology, Faculty of Fisheries, Hokkaido University*
(北海道大学水産学部浮游生物学講座)
Permanent address: *Laboratory of Biology, Hakodate College*
(原籍. 函館大学生物学研究室)

Family Dogielinotidae Gurjanova, 1953
Genus *Haustorioides* Oldevig, 1958
Haustorioides japonicus n. sp.
(Japanese name; Naminori-sokoebi)

Male. Colour of the living animal brownish dots on a greyish yellow ground. Body length 9.0 mm, from the tip of rostrum to the end of telson in lateral view. Eyes black, ovaliform. All pereonal and pleonal segments free, never grossly distorted or enlarged. Dorsal margin smooth, unornamented. Centre of anterior margin of the head produced and formed small neb-like rostrum. Lateral cephalic lobes subconical.

Antennae stout, peduncles short, heavily spinose. Antenna 1 a little shorter than antenna 2. The former consisted of 10 articles, the latter consisted of 11 articles. The spines ring-shaped in each article. Accessory flagellum absent.

Epistome proboscoid, upper lip rounded below with hair but a little concave in median. Lower lip with two rounded halves, with hair on median margin, no distinct inner lobes. Mandible heavy, lacking palp, bearing strongly triturate molar, well toothed incisor and lacina mobilis. Left incisor divided into 5 teeth, right, 4 teeth. Inner plate of maxilla 1 short, and has two setae on apex. Outer plate large and has nine tooth-like setae on apex. Setae of the inner plate of maxilla 2 shorter than the outer plate. Maxillipedal palp consisted of 4 articles, terminal article clavate, lacking nail, maxillipedal plates well developed but outer smaller than inner. Gnathopods 1–2 subchelate. Gnathopod 2 larger than gnathopod 1 and enlarged at article 6, lobe of article 5 ligulate, palm oblique. Hind margin of palm armed with two small spines and with numerous setae.

Coxa plates all normally large in size, first never reduced, and beveled, anterodistally, fourth excavate posterioly and with posterodistal quadrate lobe.

Article 4 of pereopods 1–2 enlarged at terminate, and article 6 longer than article 5, and elongated. Dactylus of pereopods 3–4 armed with needle-type setae, but no in dactylus of pereopods 1–2. All pereopods armed with nail in dactylus, but unornamented. Pereopods 3–5 increasing in length consecutively. Article 4 of pereopods 3–4 enlarged, and armed with spines at the anterior margin and with numerous setae at the posterior margin. Article 5 of pereopod 3 formed converse triangular.

Posterior corner of pleonal epimeron 1 projected, and formed small tooth. Pleonal epimera 2–3 have long tooth. Peduncles of pleopods 1–3 armed with 10–13 coupling spines.

Peduncles of uropods 1–2 strongly setose, rami sabre-like, and naked. Uropod 3 reduced in size, composed only of peduncle, bearing one apical spine. Telson short, broader than long, slightly concave in the median margin, not cleft, easily reaching the end of the peduncles of uropod 3, and having one pair of spines.

Female. Similar to male with exception of the following characteristics: Body length 11.5 mm. Gnathopods smaller than those of the male. Four pairs of brood lamellae present and large, subtriangular, margins lined with short, curl-tipped setae.

Holotype. It will be deposited at the Odawara Carcinological Museum, after it is charged to the Biological Laboratory of Hakodate College for a while. male,

9.0 mm.

Type-locality. Omori Beach, Hakodate City, Hokkaido, Japan. cylindrical core sampler at intertidal zone of sandy beach, collected by Y. Kamihira, June 15, 1972.

Materials. 100+ specimens from the type-locality. Paratypes are deposited in the Municipal Hakodate Museum, Odawara Carcinological Museum, Smithonian Institution, and National Museum of Canada.

Remarks. According to Dr. J.L. Barnard's instruction, this species is definitely distinct from *H. munsterhjelmi*. It differs in the longer teeth on epimera 1–2, the shorter dactyl of male gnathopod 1, the more densely setose article 6 of pereopod 1, the shape of the palm on female gnathopod 1 and the shape of the lobe on article 5 of female gnathopod 1, the smaller article 5 of pereopods 3–4, the long and setose dactyl of pereopod 5, and the shape of the telson. Moreover, it differs in the shape of the article 5 of pereopod 3. From the

Table 1. *The body length to body width ratio in Haustorioides japonicus.*

Male			Female		
Length	Width	L./W.	Length	Width	L./W.
10.00	2.20	4.55	11.50	2.75	4.18
9.00	1.75	5.14	11.00	2.50	4.40
9.75	2.00	4.88	11.00	2.75	4.00
9.00	1.75	5.14	11.75	3.00	3.92
9.00	1.75	5.14	10.75	2.50	4.30
9.50	2.00	4.75	11.25	2.50	4.50
9.25	2.00	4.63	10.50	2.50	4.20
9.50	2.00	4.75	10.50	2.50	4.20
9.50	2.00	4.75	11.00	2.50	4.40
8.50	1.75	4.86	11.75	2.75	4.23
9.25	1.75	5.29	11.50	2.75	4.18
9.00	1.88	4.79	11.75	3.00	3.92
10.00	2.00	5.00	11.25	2.75	4.09
9.75	2.00	4.88	11.25	2.75	4.09
9.50	1.88	5.05	10.75	2.75	3.91
9.25	2.00	4.63	10.25	2.75	3.73
9.00	1.88	4.79	10.50	2.75	3.82
9.00	1.88	4.79	9.00	2.00	4.50
9.00	1.88	4.79	11.25	2.75	4.09
9.00	1.88	4.79	10.50	2.50	4.20
9.50	2.00	4.75	10.75	2.50	4.30
9.50	2.25	4.22	9.50	2.50	3.80
9.50	2.20	4.32	11.00	2.75	4.00
9.00	2.00	4.50	10.25	2.50	4.10
9.00	2.00	4.50	10.75	2.50	4.30
9.25	2.20	4.20	10.50	2.75	3.82
9.00	2.00	4.50	10.50	2.75	3.82
9.50	2.20	4.32	11.00	2.75	4.00
9.00	2.00	4.50	10.50	2.50	4.20
8.50	1.75	4.86	10.00	2.63	3.80
mean ratio ($\bar{x}\pm s$): 4.74±0.28			mean ratio ($\bar{x}\pm s$): 4.10±0.22		

above-mentioned morphological characteristics, this species was classified as a new species of genus *Haustorioides* by the author.

The ratio of body length to body width in dorsal view on each 30 specimens of adult male and female was measured (Table 1). Since the ratio was 4.7:1 in male and 4.1:1 in female, this species comes under the Bousfield's "slender-fusiform".

Barnard doubts if in Oldevig's description, the maxillipeds of *H. munsterhjelmi* consisted of 3 articles palp with dactylus missing. He examined the paratype, but did not reach a conclusion because the maxillipeds were missing entirely. Further, the maxillipedal palp for congenerous *H. japonicus* by the author consists of 4 articles, and the article 4 is ovately claviform, neither hook-like nor saber-like.

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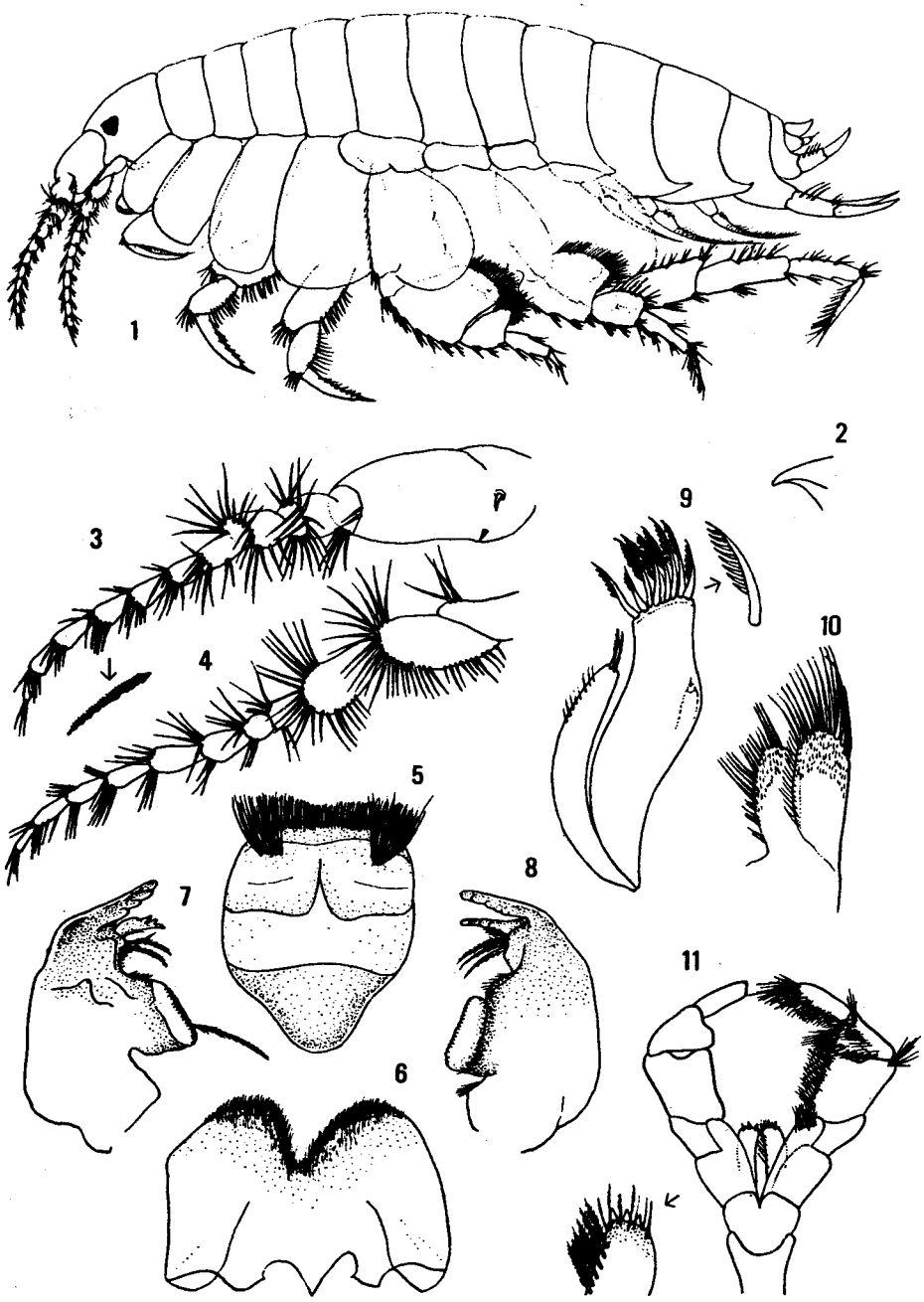

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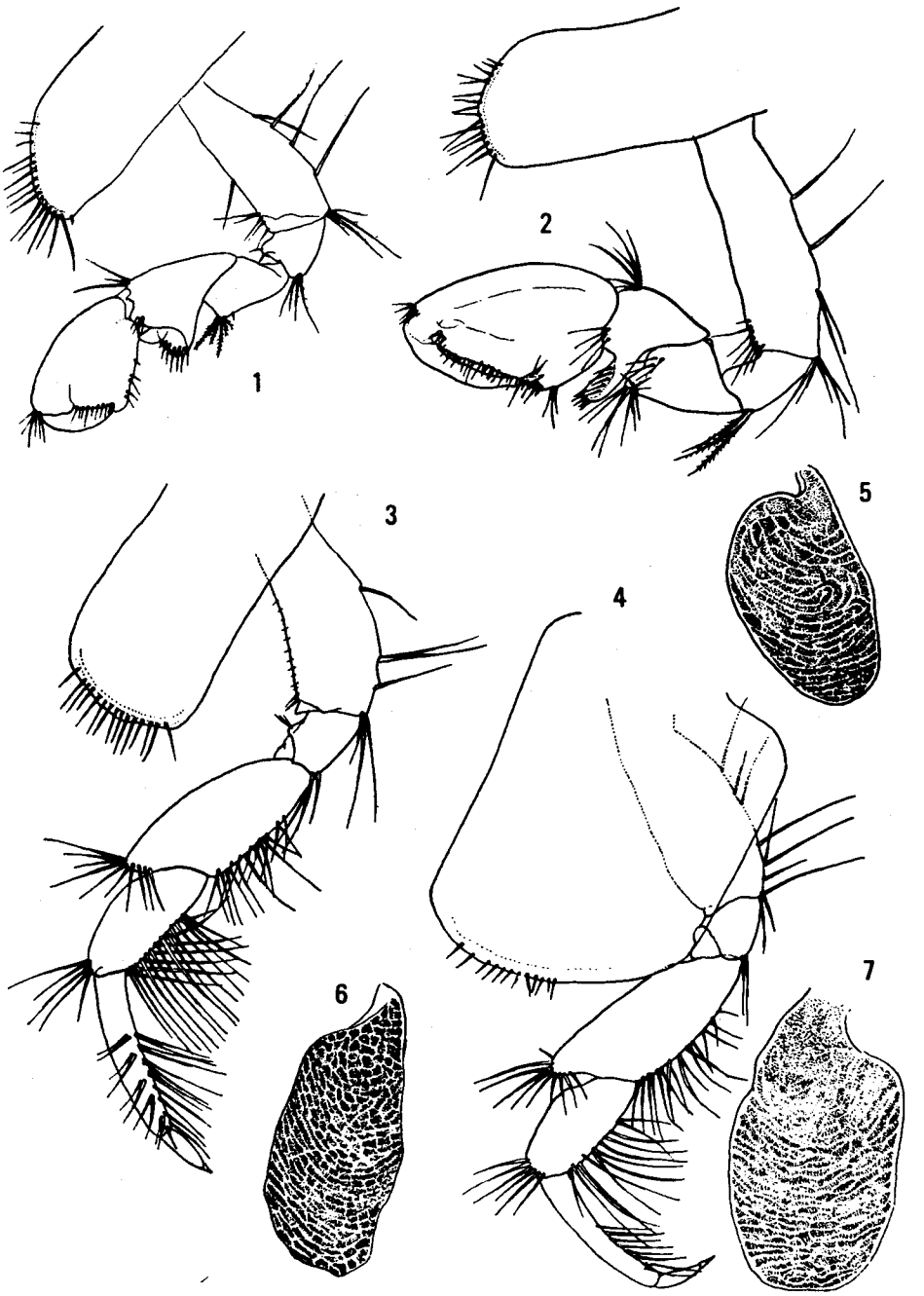

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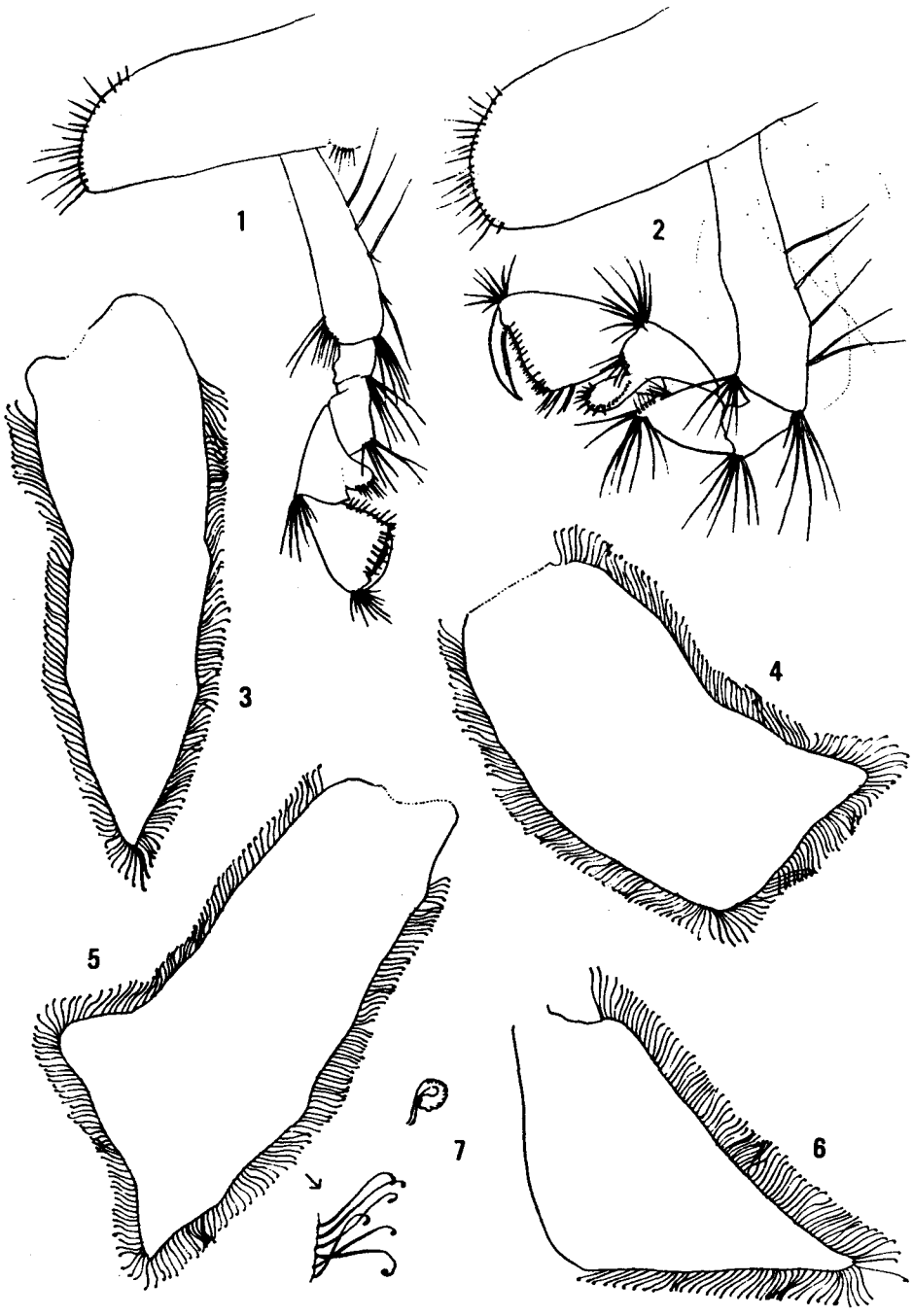

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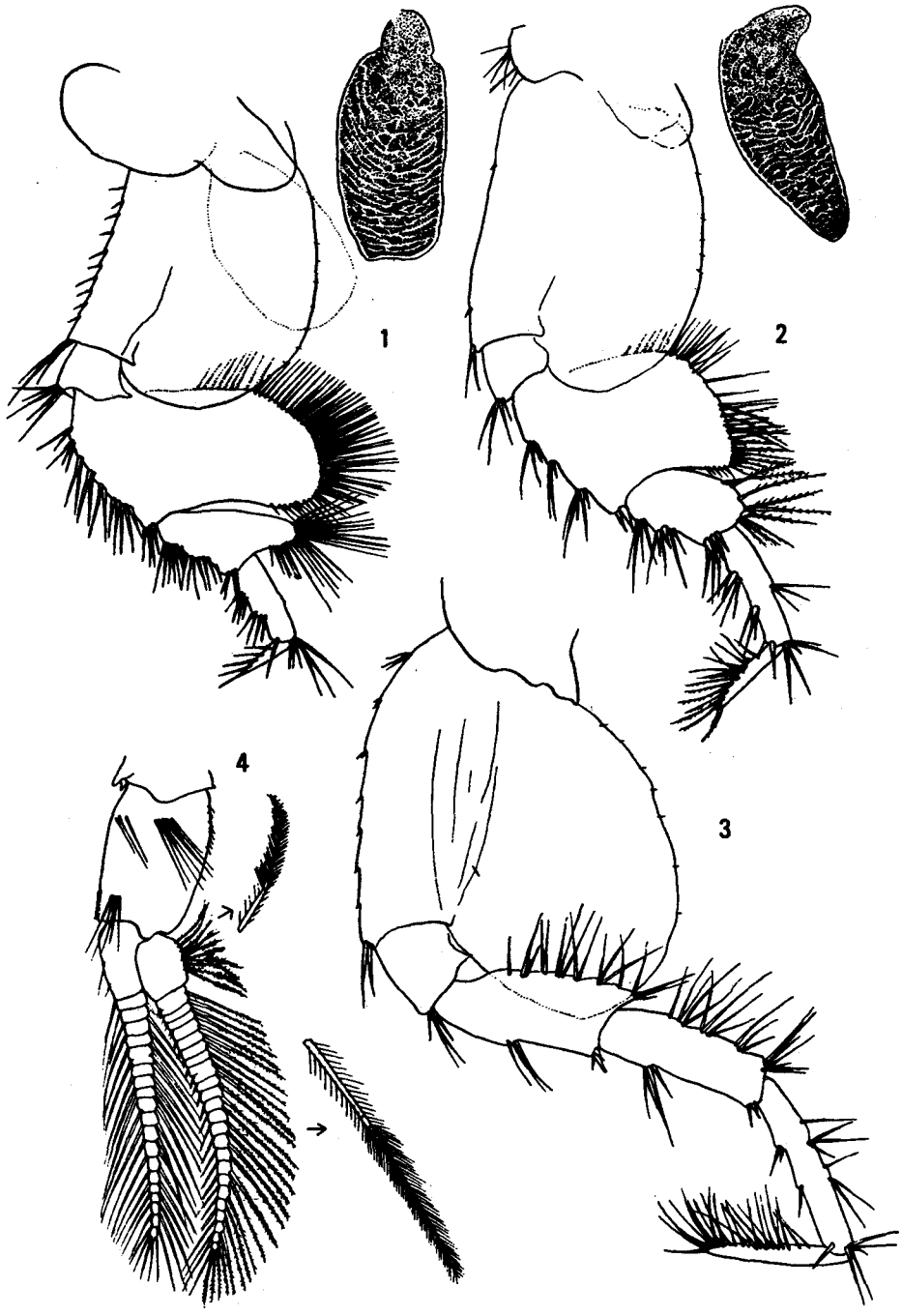

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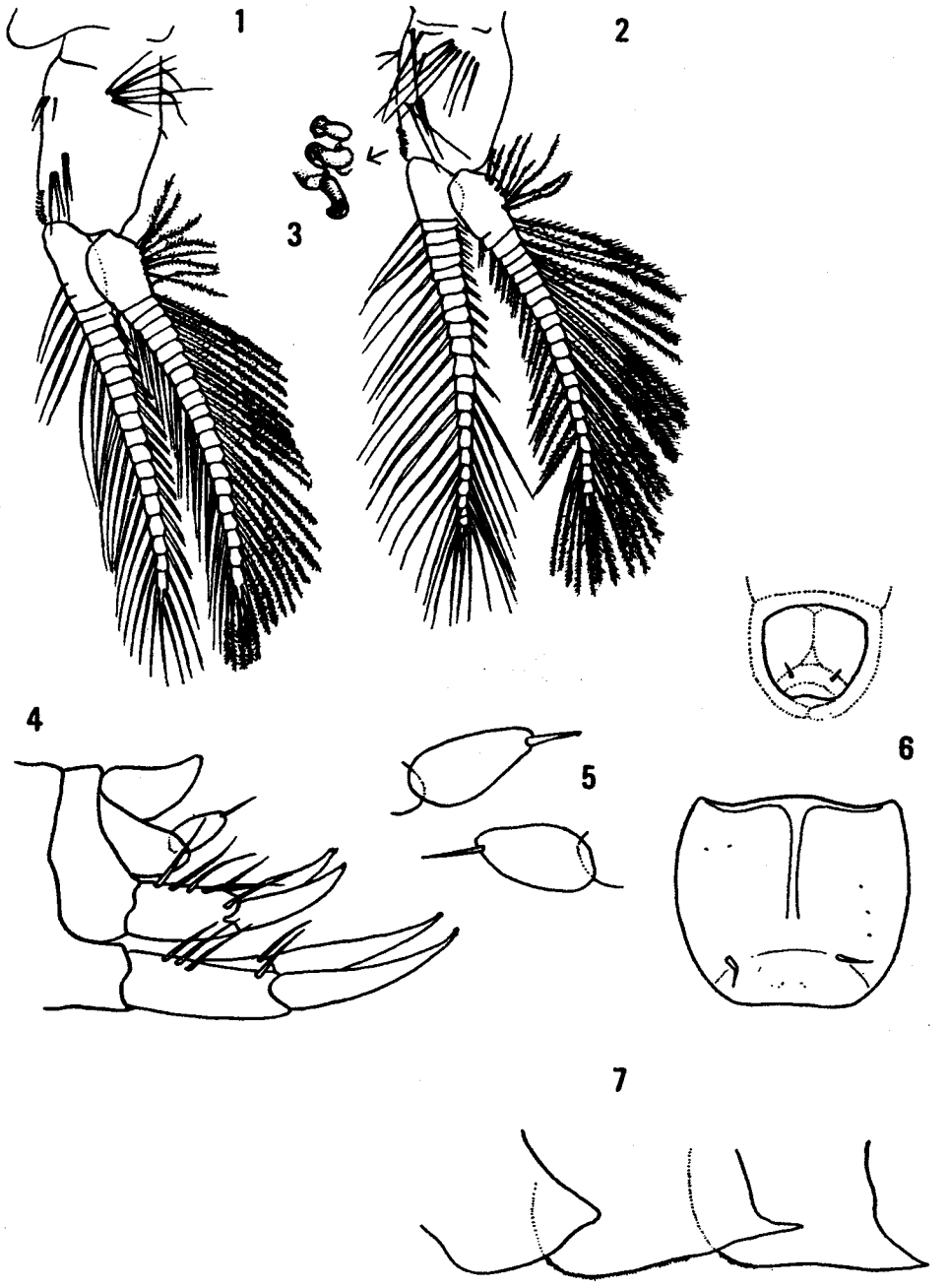

KAMIHIRA: A new species of marine amphipod

Explanation of Plate I

Haustorioides japonicus, n. sp.
All the figures were drawn from the male.

1. lateral view of the body. × 10.5
2. rostrum. × 70
3. 1st antenna. × 24
4. 2nd antenna. × 24
5. upper lip. × 70
6. lower lip. × 70
7. left mandible. × 70
8. right mandible. × 70
9. 1st maxilla. × 70
10. 2nd maxilla. × 70
11. maxilliped. × 24

Explanation of Plate II

Haustorioides japonicus, n. sp.
All the figures were drawn from the male.

1. 1st gnathopod. × 24
2. 2nd gnathopod. × 24
3. 1st pereopod. × 24
4. 2nd pereopod. × 24

5–7. lateral aspects of left gills from appendages. × 24

Explanation of Plate III

Haustorioides japonicus, n. sp.
All the figures were drawn from the female.

1. 1st gnathopod. × 31
2. 2nd gnathopod. × 31

3–6. lateral aspects of left brood lamellae. × 31

7. view of apices of curl-tipped setae of brood lamellae.

Explanation of Plate IV

Haustorioides japonicus, n. sp.
All the figures were drawn from the male.

1. 3rd pereopod. × 24
2. 4th pereopod. × 24
3. 5th pereopod. × 24
4. 1st pleopod. × 24

Explanation of Plate V

Haustorioides japonicus, n. sp.
All the figures were drawn from the male.

1. 2nd pleopod. × 24
2. 3rd pleopod. × 24
3. coupling hooks of a pleopod.
4. urosomites. × 24
5. 3rd uropod. × 70
6. telson. × 70
7. pleonal epimera 1–3. × 24