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Author(s)	IWASA, Masao
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A NEW AMPHIPOD (*PARHYALE KURILENSIS*,
N. SP.) FROM URUP¹⁾

BY

Masao IWASA

(With 2 Plates and 1 Text-figure)

Last summer, an expedition to the Middle Kurile Islands was made under the auspices of the Geological and Mineralogical Institute of our University, and Professor Y. YAMADA of the Botanical Institute was one of its members. He collected on the shore of the island of Urup some Idotheids and some Amphipods, both of which were handed to me. It has been found upon my examination that the latter forms a new species of the genus *Parhyale* which has hitherto been represented by the single species *P. fasciger*. I shall give a brief description of the new species in the following pages. The Idotheids above mentioned are now under my investigation and an account for them will appear in the near future.

Family Talitridae STEBBING, 1906.

Genus *Parhyale* STEBBING, 1897.

Parhyale kurilensis, n. sp.

The colour is white, and the integument is smooth and shining. Body strongly compressed laterally, and very large, its length measured from the tip of rostrum to the end of telson reaching 43 mm in the male and 36 mm in the female.

1) Contribution No. 68 from the Zoological Institute, Faculty of Science, Hokkaido Imperial University.

Head. Height nearly equal to length. No pronounced rostrum. Mouth-parts strongly projecting below.

Eyes. Somewhat elliptical, dark, obliquely set near the anterior end and at about half the height of the head; ocelli numerous.

Peraeon and pleon. Peraeon segments 1-4 dorsally rounded, though not broadly, posterior segments having each a carina gradually increasing in size. Peraeon segments 5-7 each with a small dorsal

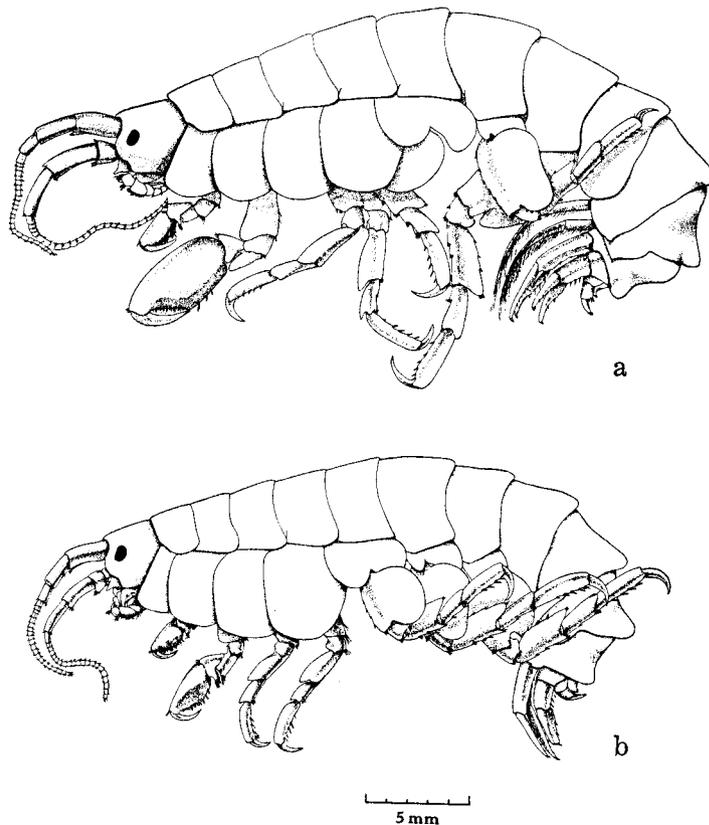


Fig. 1. *Parhyale kurilensis*, n. sp. a: male. b: female.

tooth, pleon segments 1-4 each with a strong one. Side-plates 1-4 very large, exceeding their own segments in size. They increase in size posteriorly; the fifth is nearly half as deep as the fourth, while the sixth and the seventh are still smaller than the fifth. Each

postero-lateral corner of the third and fourth pleon segments quadrate with a minute projecting tip. The fourth segment is dorsally concave at the middle, and almost reaches the telson, strongly projecting above the fifth segment which is very short, while the sixth is dorsally obsolete.

First antennae (Pl. I, Fig. 1). About one-fifth the length of the body. The combined length of the second and third joints of the peduncle is a little longer than the first joint, which is much stouter than the former joints. Flagellum longer than the peduncle, 21–23-jointed in male, ca. 22-jointed in female. Each joint of the flagellum laterally flattened, distally dilated, furnished with a bundle of short bristles at the dorsal distal angle, and with another bundle of longer bristles and about four olfactory rods at the ventral distal angle (Pl. I, Fig. 2). The olfactory rods in the male are a little larger than those in the female.

Second antennae (Pl. I, Fig. 3). They are a little longer than the first antennae, measuring about one-fourth the body-length. The second joint is slightly longer than the first, and the ultimate and penultimate joints are subequal in length. Flagellum somewhat longer than the peduncle, 21–25-jointed in male, ca. 22-jointed in female. Each joint of the flagellum is dorso-ventrally depressed, and provided with a few bundles of bristles encircling the dilated distal end.

Mandibles (Pl. I, Figs. 6, 7). Cutting edge of both mandibles with 7 teeth. The secondary plate on the left mandible is strong and bears six teeth arranged in a row; on the right side, however, it is shorter and has only three teeth situated in a triangular point, accompanied with many small denticles scattered around their bases. Molar processes well developed on both the right and the left mandibles, finely denticulate, and each with a hairy tuft on its posterior border and a long feathered seta at one corner. A tuft of setae is found anterior to the molar process, and another near the base of the secondary plate, and besides, between them there are three ciliated setae on the left and two on the right mandible. An articulating process is situated near the base of the molar process.

First maxillae (Pl. I, Fig. 8). Inner plate slender, surmounted by two feathered setae, of which the inner is the shorter. Outer plate rather broad, its apex being armed with nine denticulate spines arranged in two rows. Palp with a minute basal joint, and tipped with two small ciliated setae. Apex of the palp slightly extending over the distal end of the outer plate.

Second maxillae (Pl. I, Fig. 9). The setae around the apex of the outer plate are longer than those of the inner, and they are arranged in several rows on both plates. The fringe in the inner plate is bounded by a ciliated seta conspicuously longer than the rest.

Maxillipeds (Pl. I, Fig. 10). Inner plate with three strong apical teeth and several rather large bristles near its apex. The inner margin has several rather long ciliated setae, while the outer has a few small bristles. Outer plate extending barely beyond the first joint of palp. Spines are set in two approximated rows, a little within the margin. Inner margins of the second and third joints are each lobed distally, and are armed with numerous bristles. At the distal part of the anterior margin of the third joint are found two more bundles of bristles. The fourth joint is finger-like, curved and pointed, and has two rows of ciliated bristles on its inner margin. No sexual difference in structure of the maxilliped as is the case in *Parhyale fasciger* STEBBING.

First gnathopods (Pl. I, Figs. 11, 12). Side-plates widened below, and extended forwards, the front margin not being so curved as the hinder one. Distal ends of the second and third joints are lobed anteriorly. Fourth joint parallel-sided, the fifth distally widened, its anterior and posterior margins projecting outwards, and each with a bundle of setae. Sixth joint longer than the fifth, but a little narrower. Hind margin sparsely setose, very short, about one-third the length of the hand. Palm very oblique, fringed with setae, and carrying two spines of equal size at the extremity. Finger rather broad, curved, its inner margin serrulate, and equal to the palm in length. Those of the female not differing in structure from those

of the male mentioned above, except that the former are far smaller than the latter.

Second gnathopods (Pl. I, Figs. 13, 14). Side-plates somewhat deeper than broad, with rounded corners below, and the hind margin a little excavate above. The branchial vesicles of these limbs and the four following pairs have at the base a small vesicle accompanying them. Second and third joints are lobed distally. Fourth joint parallel-sided, the hind margin being longer than the front. Fifth joint almost triangular, with the front border nearly straight, the distal end not being produced. The hind margin, however, is produced distally into a prominent lobe protruding between the fourth and sixth joints, and armed with bristles. In the male the hand is massive, broader than the fifth segment, nearly twice longer than wide, widened distally; the front margin is long and unarmed, while the hind margin is shorter than the former and with a few bristles. Palm slightly oblique, uniformly convex, spinulose, with two spines standing at the defining angle. The finger is a little longer than the palm, with a row of minute setules on the inner margin. In the female, the side-plates are deeper than in the male, and the marsupial plates are not so long as in *P. fasciger*. They are distally acute, and fringed with short setae. The hand is less massive in the female, with the palm, which is very oblique, almost straight, nearly as long as the hind margin, and is bordered with setae, two rather stout spines being present at the extremity.

The first three peraeopods decrease in length posteriorly, but the fourth and fifth are longer than those. All of them are sparsely setose.

First peraeopods (Pl. II, Fig. 1). Side-plates deeper than broad. Second joint not lobed distally. Third joint very small, and narrower than the fourth. Fourth joint not longer than the sixth, which is narrower but longer than the fifth. On the finger of this, and of each of the succeeding pairs, there is a minute spine standing upright in advance of the unguis.

Second peraeopods (Pl. II, Fig. 2). Both the anterior and posterior margins of the side-plates, especially the latter, convex. Fourth joint about equal in length to that of the sixth.

Third peraeopods (Pl. II, Figs. 3, 4). Side-plates very shallow, two times broader than deep, bilobed, both of the lobes nearly equal in size. The second joint is about as broad as deep, provided with a large membranous expansion behind. Fourth joint shorter than the sixth.

Fourth peraeopods (Pl. II, Figs. 5, 6). Side-plates smaller than those of the third pair, its anterior lobe being far smaller than the posterior one. Second joint somewhat quadrate with rounded corners, the hind margin being slightly constricted in the middle. Fourth joint far broader but a little shorter than the sixth.

Fifth peraeopods (Pl. II, Figs. 7, 8). Side-plates not bilobed, pear-shaped, with the apex anteriorly directed. Second joint expanded posteriorly like the carina of a bird, having a triangular lobe in the lower part. Fourth joint nearly equal in length to the sixth joint.

Pleopods (Pl. II, Fig. 9). Both rami subequal in length, about 40-jointed. The peduncle, shorter than the rami, has two retinacula (Pl. II, Fig. 10) near the inner distal angle.

First uropods (Pl. II, Fig. 11). Peduncle shorter than rami, having short spines on its upper margin and a large spine at the apex. Both the outer and inner rami, of which the former is shorter than the latter, are furnished with one large and the other small spines at their apices, and a few small ones on the upper margin.

Second uropods (Pl. II, Fig. 12). Much smaller than the first, but similarly armed.

Third uropods (Pl. II, Fig. 13). Very small, its length being equal to the peduncle of the second pair. Peduncle shorter than rami, but twice broader than the outer ramus, and bearing some apical spines. The outer ramus has a few spines at the apex, the inner ramus being almost rudimentary, rounded conical in shape, and tipped with two minute setae.

Telson (Pl. II, Fig. 14). Short, broader than long, scarcely reaching the end of the peduncle of the third uropod, bipartite, each lobe being pyramidal in shape, concave dorsally, and having two or three apical spines.

According to Professor Y. YAMADA, the Amphipods are found in great abundance among algae washed ashore, at Iéma, the island of Urup. Oviparous females were found in July.

Remarks. This new species differs from the type species *Parhyale fasciger* STEBBING occurring in the West Indies, in the form of the first and second antennae, of the mandibles, of the gnathopods, and especially in its larger size which measures 43 mm in the male, while the latter species is barely a quarter of an inch long. The carinate and dentate dorsal ridge of the new species resembles that of the *Hyale ochotensis* (F. BRANDT), but the uniramous condition of the third uropod in the latter species clearly distinguishes itself from the present species.

In conclusion I wish to express my obligation to Professor Dr. Y. YAMADA who collected and has kindly given the specimens to me, and also to Professor Dr. T. UCHIDA for his kind guidance in the preparation of this paper.

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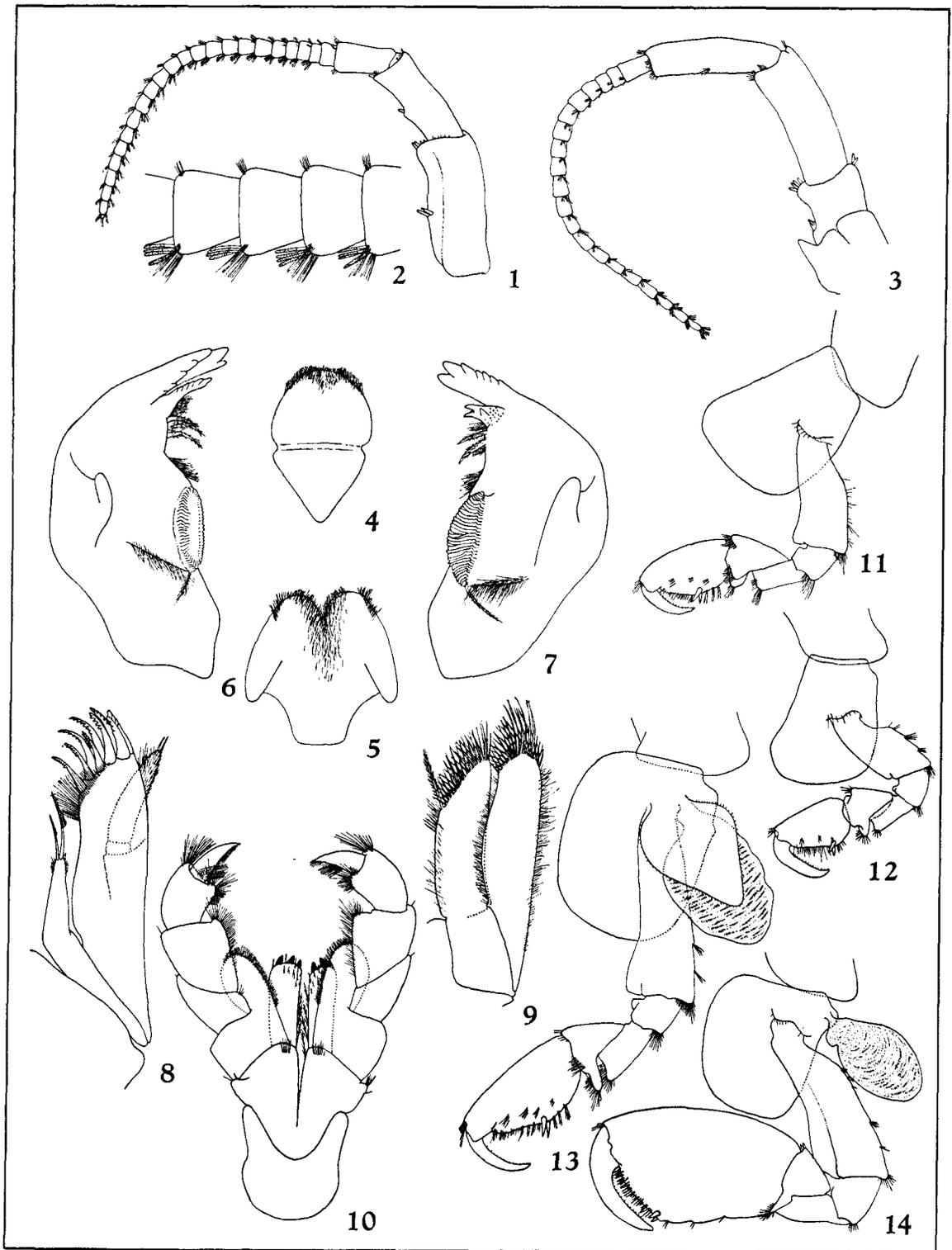
Plate I

Explanation of Plate I

Parhyale kurilensis, n. sp.

All the figures were drawn from the male, except 11 and 13, which were from the female.

1. Left first antenna; outer view. $\times 9$
2. Part of the flagellum of the same, highly magnified. $\times 42$
3. Left second antenna; outer view. $\times 9$
4. Upper lip; anterior view. $\times 15$
5. Lower lip; posterior view. $\times 15$
6. Left mandible; anterior view. $\times 29$
7. Right mandible; anterior view. $\times 29$
8. Left first maxilla; posterior view. $\times 29$
9. Left second maxilla; posterior view. $\times 29$
10. Maxilliped; posterior view. $\times 15$
11. Right first gnathopod of the female; inner view. $\times 8$
12. Right first gnathopod of the male; inner view. $\times 6$
13. Right second gnathopod of the female; inner view. $\times 8$
14. Right second gnathopod of the male; inner view. $\times 6$



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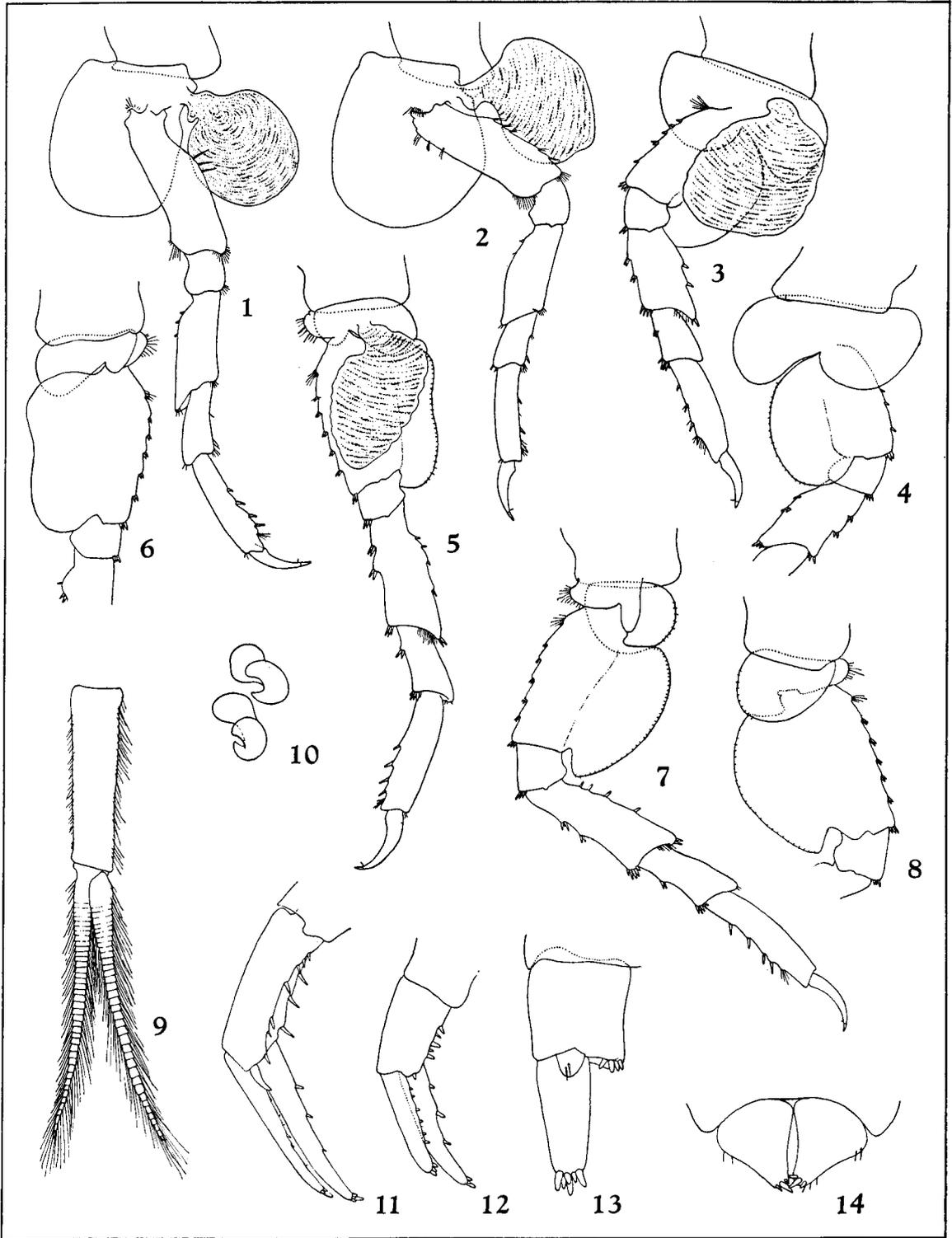
Plate II

Explanation of Plate II

Parhyale kurilensis, n. sp.

All the figures were drawn from the male.

1. Right first peraeopod ; inner view. ×6
2. Right second peraeopod ; inner view. ×6
3. Right third peraeopod ; inner view. ×6
4. The same ; outer view. ×6
5. Right fourth peraeopod ; inner view. ×6
6. The same ; outer view. ×6
7. Right fifth peraeopod ; inner view. ×6
8. The same ; outer view. ×6
9. Left second pleopod ; anterior view. ×9
10. Retinacula of the first pleopod. ×160
11. Left first uropod ; outer view. ×9
12. Left second uropod ; outer view. ×9
13. Right third uropod ; inner view. ×22
14. Telson ; dorsal view. ×15



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