ISOPODA FROM THE COASTAL ZONE OF THE KURILE ISLANDS. I. JANIRIDAE AND JAEROPSIDAE FROM URUP ISLAND

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INTRODUCTION

The benthic fauna around the Kurile Islands has been fairly well investigated only in the Kurile-Kamchatka Trench and in the inshore waters of the southern and northern Kuriles (for isopods see Gurjanova, 1955; Kussakin, 1962a, 1962b; Birstein, 1963), whereas the inshore fauna from the middle Kuriles are inadequately known.

In the autumn of 1969 an expedition to the middle Kuriles was organised at the instigation of the Pacific Research Institute of Fisheries and Oceanography. The members of this expedition, all from the hydrobiological laboratory of the Vladivostok Institute of Marine Biology, studied bottom communities to a depth of 20 m by means of the autonomous diving technique, and to 60 m depth by means of dredging. The communities around Urup were studied in more detail, there the rocks were usually overgrown with dense colonies of sponges and encrusting calcareous algae, over this flourished the giant algae *Alaria, Cymathaere*, and *Arthrothamnus*, also sea urchins were present.

Around Urup Island 13 hydrobiological cross-sections from 0 m up to 60 m were made and 160 quantitative samples taken.

MATERIAL

The isopod material taken at Urup Island is surprisingly abundant and contains many species. In the crevices of lithothamnion and among the sponges a very rich isopod fauna was discovered.

In all, the material contains 29 species of isopods, 14 of which are new. The most characteristic feature of this fauna is the relative diversity of the Asellota (18 species, especially of the families Munnidae and Janiridae), after that come the Valvifera (10 species), whereas the Flabellifera, very numerous in warmer waters, are represented by only one species (*Gnorimosphaeroma noblei* Menzies).

Below we give descriptions of the new species and additional records for the earlier known species of Janiridae. The types are deposited in the Institute of Marine Biology, Vladivostok.

JANIRIDAE

Janiralata erostrata (Richardson, 1899)

Janthe erostrata Richardson, 1899: 858-859; Richardson, 1900: 299.
Jolella erostrata, Richardson, 1905: 465, fig. 520.
Janira erostrata, Gurjanova, 1936: 41-42, fig. 8; Gurjanova, 1950: 281.
Janiralata erostrata, Menzies, 1951: 138; Kussakin, 1962a: 22-23, fig. 2.
Material examined. — Urup, depth 40-60 m, 2 samples (3 specimens).
Simushir, depth 50-60 m, 4 specimens.

Distribution. — This is a Pacific high-boreal species known from the Aleutian Islands, eastern Kamchatka and the northern and middle Kuriles.

Janiralata soldatovi (Gurjanova, 1933)

Janira soldatovi Gurjanova, 1933: 81, fig. 4; Gurjanova, 1936: 42, fig. 9.
Janiralata soldatovi, Menzies, 1951: 138; Kussakin, 1962a: 23-25, fig. 3.
Material examined. — Iturup, depth 40-41 m, among sponges.
Urup, depth 5-20 m, 11 samples (21 specimens).
Simushir, depth 7-10 m, stones, 1 specimen.

Distribution. — A Pacific high-boreal species known from the northern part of the Japan Sea, the southern part of the Okhotsk Sea and the southern and middle Kuriles.

Janiralata pilosa Kussakin, 1962

Janiralata pilosa Kussakin, 1962a: 34-36, figs. 16-18.
Material examined. — Iturup, depth 40-41 m, 10 specimens.
Urup, depth 15-48 m, 4 samples (9 specimens).
Paramushir, depth 30-52 m, 2 samples (3 specimens).

Distribution. — A Pacific high-boreal species, known from eastern Kamchatka and the northern and middle Kuriles.

Janiralata bisinuata n. sp. (figs. 1-2)

Material. — Urup, depth 42-48 m, 1 holotype (N 1/734) and 18 paratypes; depth 39-43 m, 1 specimen.

Description. — Female holotype. The body is strongly flattened, oval, a little more than twice as long as broad across pereonal somite VI. Length 8.4 mm, width 3.9 mm. The dorsal surface is smooth; the borders bear some rather long setae.

The rostral process is long, more than half as long as the head, with a blunt apex. The anterolateral lobes of the head are large, triangular and pointed frontally; the lateral margins are faintly serrated. A rather short, triangular process is located on each side of the frontal margin between the anterolateral lobe and the rostral process. The eyes are rather large, bulging, blackish-brown, situated at a considerable distance from the lateral margin of the head.

The lateral margins of the pereonal somites are produced into long lobes,

which are deeply divided on somites II and III. The coxal plates are small, visible in dorsal view only in pereonal somites V to VII.

The pleotelson is broad, about 1.5 times wider than long; the posterior half of the lateral margins are finely, almost inconspicuously serrated; the posterior margin has a wide, short, rounded medial lobe; the posterolateral lobes are about twice as long as the median one; they are wide, and triangular, with a distinct semi-oval notch at the apex.

The antennula reaches the distal end of the penultimate peduncular segment of the antenna; the flagellum is composed of 18 segments. The antenna is

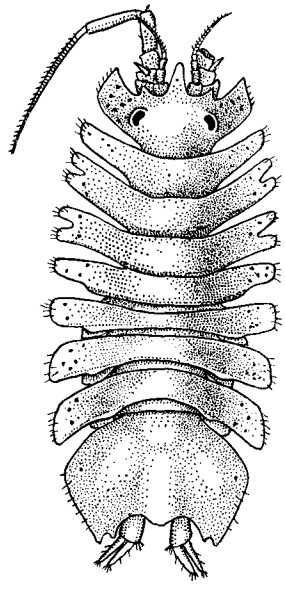

Fig. 1. *Janiralata bisinuata* n. sp., holotype, female.

moderately long, about half the length of the body, the squama is rather long and narrowly conical; the flagellum consists of more than 50 short segments.

The lacinia mobilis of the left mandible has 4 teeth; the spine-row of the left mandible bears ten setae; the molar process is nearly cylindrical, it gradually widens distally; the second segment of the palp has two long and four shorter setae in the distal third. The inner lobe of maxilla II is considerably shorter than the outer ones. The inner plate of the maxilliped carries three coupling hooks; the epipodite is pointed distally, its outer margin is produced into a short triangular lobe in the middle part.

The carpus of pereopod I is weakly expanded; its inner margin has nine bifid spines; about half of the inferior border of the first pereopod shows a number of serrations.

The operculum of pleopod II is wider than long, its posterior margin is

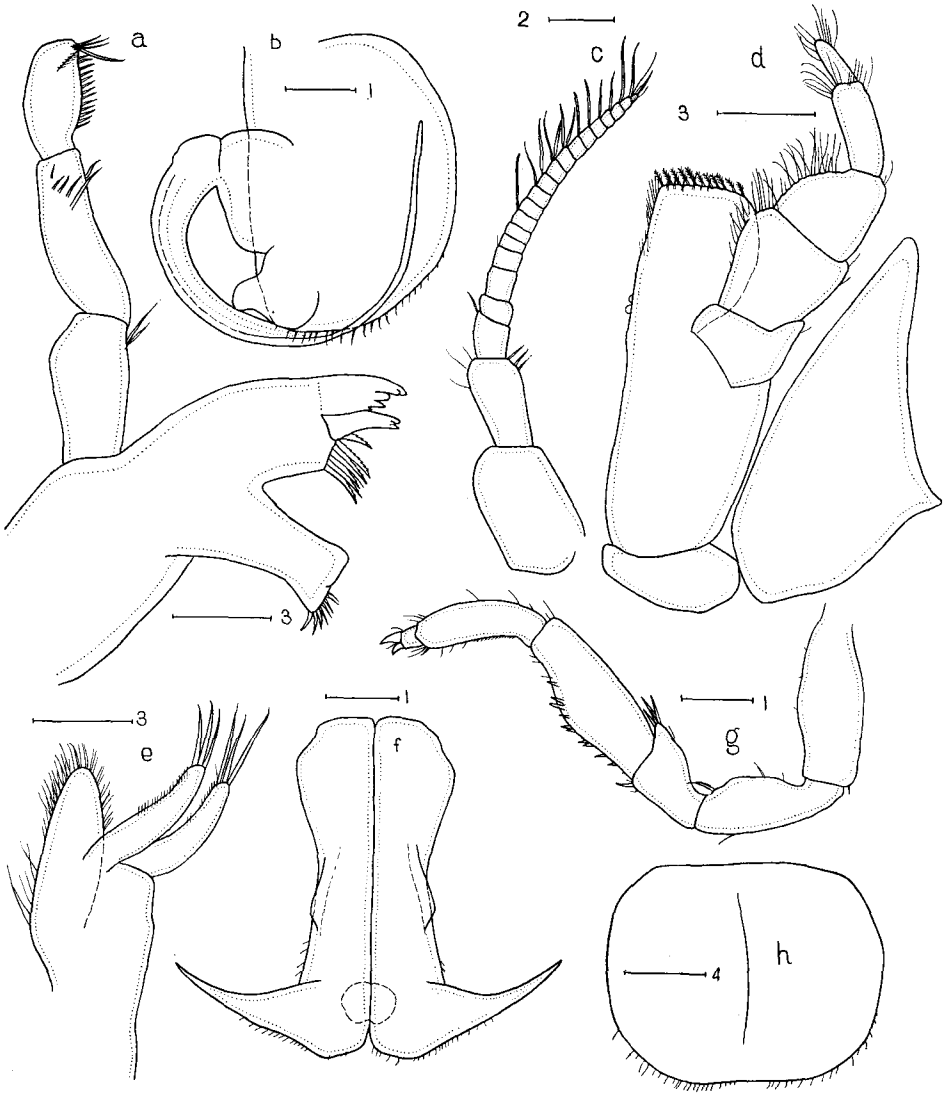

Fig. 2. *Janiralata bisinuata* n. sp., holotype, female. a, mandible; d, maxilliped; e, second maxilla; g, first pereopod; h, operculum. Paratype, male. b, second pleopod; c, first antenna; f, first pleopod. Scale 1 represents 0.3 mm; scale 2 represents 0.2 mm; scale 3 represents 0.2 mm; scale 4 represents 0.5 mm.

rounded, being nearly straight in the middle. The uropods are moderately developed, they have about half the length of the pleotelson; the two branches are subequal in length.

The colour of alcohol specimens is pale, greyish-yellow, with dark brown pigment spots, which are larger on either side of the body.

Male allotype. In general appearance the male is very similar to the female,

but the rostral process is a little longer than in the female. The posterolateral corners of pleopod I are greatly produced outwards; they are very long, acute and have the distal median lobes weakly defined. The male process of pleopod II is very long, thin, with an awl-shaped distal extremity; it is curved along the margin of the pleopod, first being directed posteriorly, then outward and finally forward; its tip reaches the distal end of the proximal quarter of the outer margin of the pleopod.

Remarks. — *J. bisinuata,* with small coxal plates on pereonal somites II and III that are not visible dorsally, seems to be allied to *J. shiinoi* Kussakin and *J. chuni* Thielemann but it is easily distinguished from both by the long rostral process, by the presence of the well developed postero-lateral lobes of the pleotelson and some other characteristics. The new species is well distinguished from all species of the genus *Janiralata* by the extremely long male process of pleopod II and by the presence of notches on the posterolateral lobes of the pleotelson.

Janiralata microphthalma n. sp. (figs. 3-4)

Material. — Urup, depth 15-20 m, 1 ♀ holotype (N 1/908) and 1 paratype.

Description. — The female holotype (length 4.8 mm) has embryos at stage I. The body is flattened, slender, rather narrow, with nearly parallel lateral margins, its length is a little more than 3 times its width; the dorsal surface is smooth; the borders carry rather short setae.

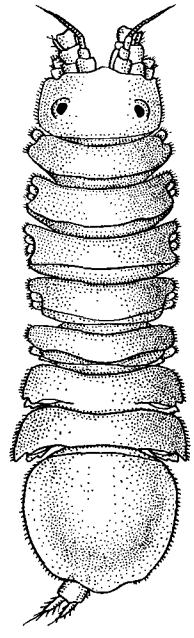

Fig. 3. *Janiralata microphthalma* n. sp., holotype, female.

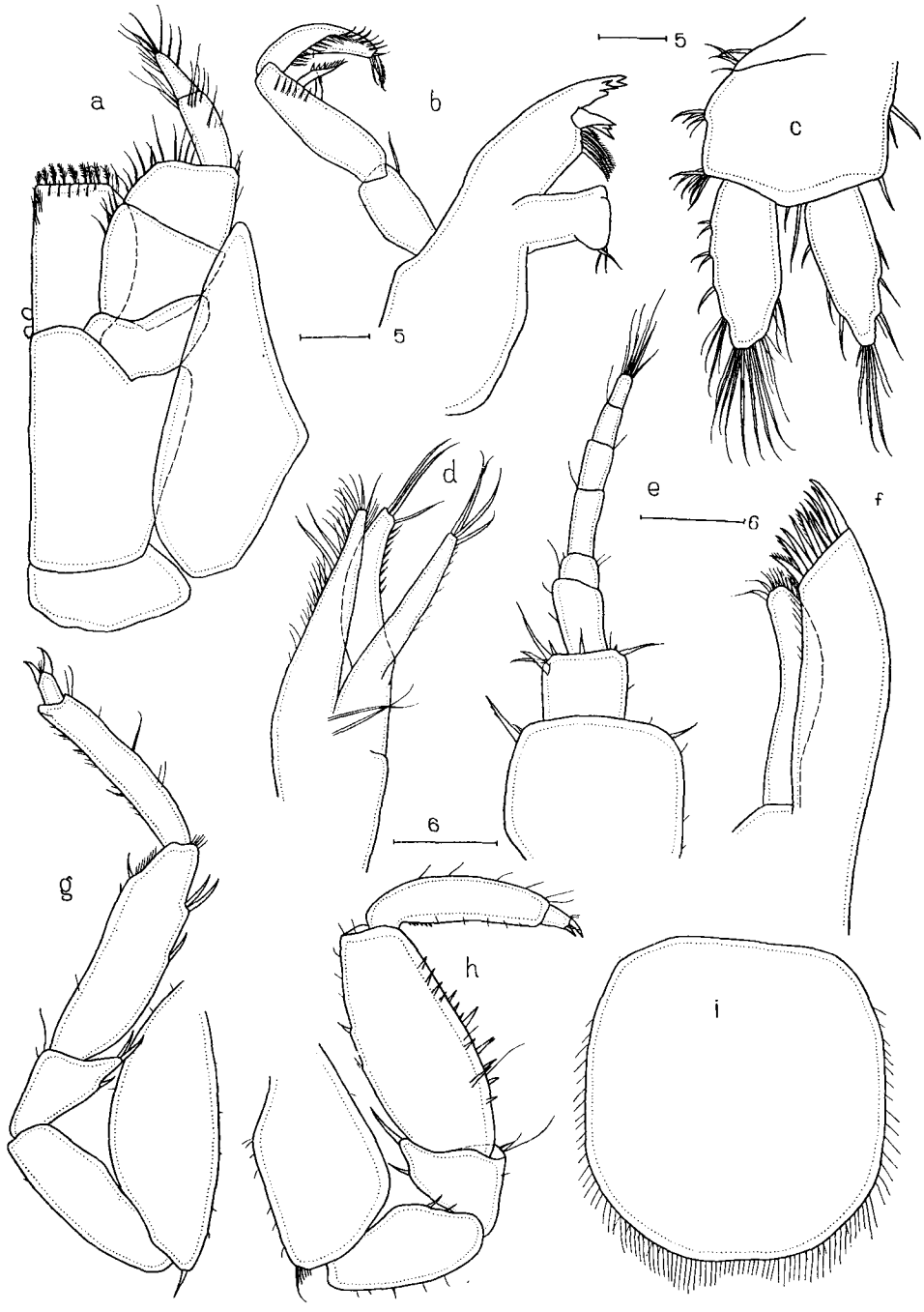

Fig. 4. *Janiralata microphthalma* n. sp., holotype, female. a, maxilliped; b, mandible; c, uropod; d, second maxilla; e, first antenna; f, first maxilla; g, second pereopod (3); h, first pereopod (3); *i*, operculum (2). Scale 5 represents 0.1 mm; scale 6 represents 0.1 mm. The numbers in parentheses refer to the corresponding scales in fig. 2.

The width of the head is almost twice the length; the frontal margin is slightly curved, with a small median convexity; on each side of the frontal margin there is a triangular notch near the lateral margins; the small triangular anterolateral processes of the head do not reach the level of the median point. The lateral margins of the head are very slightly convex. The eyes are small, oval and situated at a considerable distance from the lateral margins of the head.

The posterolateral angles of pereonal somite I, the antero- and posterolateral angles of pereonal somites II to IV and the anterolateral angles of somites V to VII are produced into short lobes, rounded at the apex; the anterior lobes on somites II to IV are a little longer.

The coxal plates are not large, but well visible from above on all somites. On pereonal somite I they consist of a single lobe, on the other segments they are bilobed. On somites II to IV both lobes of the coxal plates are developed subequally and are a little shorter than the anterior lobes of the respective somite. On the following segments the anterior lobe is wide, but short, whereas the posterior one is very narrow and short.

The pleotelson is rather long, nearly circular, about 1.2 times as wide as long. The lateral margins are evenly convex, the posterolateral angles not produced into widely rounded lobes. The median posterior lobe is short, but very wide and rounded posteriorly.

Antenna I is short. The basal peduncular segment is strongly expanded, subquadrate. The second segment has half the width and less than half the length of the first segment. The third segment is slightly shorter than and less than half as wide as the second. The flagellum is noticeably shorter than the peduncle, it is 5-segmented. The first segment is short, the others elongate; all segments have only some setae, and are without aesthetascs. Antenna II is missing.

The mandible is rather thin; the spine-row of the left mandible has 8 setae, seven of which are serrated, while the inner one is smooth. The molar process is rather long and slightly expanded distally. Its apex is almost square. The inner margin of the first segment of the palp bears a rather long simple seta not far from its inner end. The second segment on the same place bears a very thick, flattened, curved seta, the proximal margin of which is smooth and its distal margin bears 3 serrations and some hairs. A second seta, which is long and strongly thickened at the base, is placed somewhat more proximally than the first; it is finely serrated distally. Furthermore the segment bears an oblique row consisting of 6 simple, rather short setae, which nearly reaches the outer distal angle of the segment. The distal segment of the palp bears about 26 setae along its margin.

The endite of the maxilliped has 2 small coupling hooks.

The carpus of pereopod I is slightly expanded, its faintly convex inner margin has about fifteen bifid spines and some setae. The proximal part of the inner margin of the propodus bears 6 rather long and narrow serrations.

The operculum of pleopod II is subrectangular and about 1.25 times longer than wide; its margins are fringed with rather long setae, the posterior margin

is slightly concave in the middle. The uropod is very short, nearly 3 times shorter than the pleotelson; the width of the protopodite is nearly equal to its length, the inner margin is nearly straight, with two groups of spine-like setae; the outer margin is convex, with three groups of similar setae; both branches are short, wide, equal in length, each slightly shorter than the protopodite.

The colour is pale greyish-yellow, without pigment spots; the eyes are nearly black.

Remarks. — This new species is readily distinguishable from the other species of the genus *Janiralata* by the small eyes, the very short uropods and some other features.

Janiralata obliterata n. sp. (figs. 5-6)

Material. — Urup, depth 20 m, 1 ♀ holotype (N 8/934) and 14 paratypes.
Urup, depth 10 m, 3 specimens; 46-60 m, 1 specimen.
Iturup, depth 40-41 m, 1 specimen.
Simushir, depth 7-10 m, 1 specimen.
Eastern Kamchatka, cape Krestovyi, depth 4-17 m, 3 specimens.

Description. — Female holotype (length 4.2 mm) with embryos at stage III. The body is flattened, slender, relatively narrow, it is only slightly expanded in the middle and is nearly 3 times as long as wide. The dorsal surface is smooth, with some setae on each side of the body.

The cephalon is comparatively short, being less than twice as wide as long; the frontal margin is slightly sinuous, weakly convex in the median part and

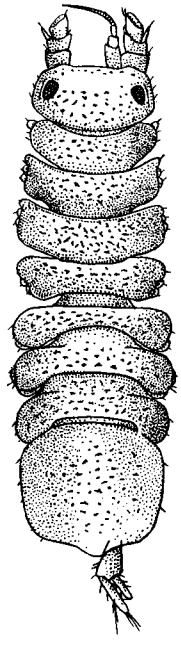

Fig. 5. *Janiralata obliterata* n. sp., holotype, female.

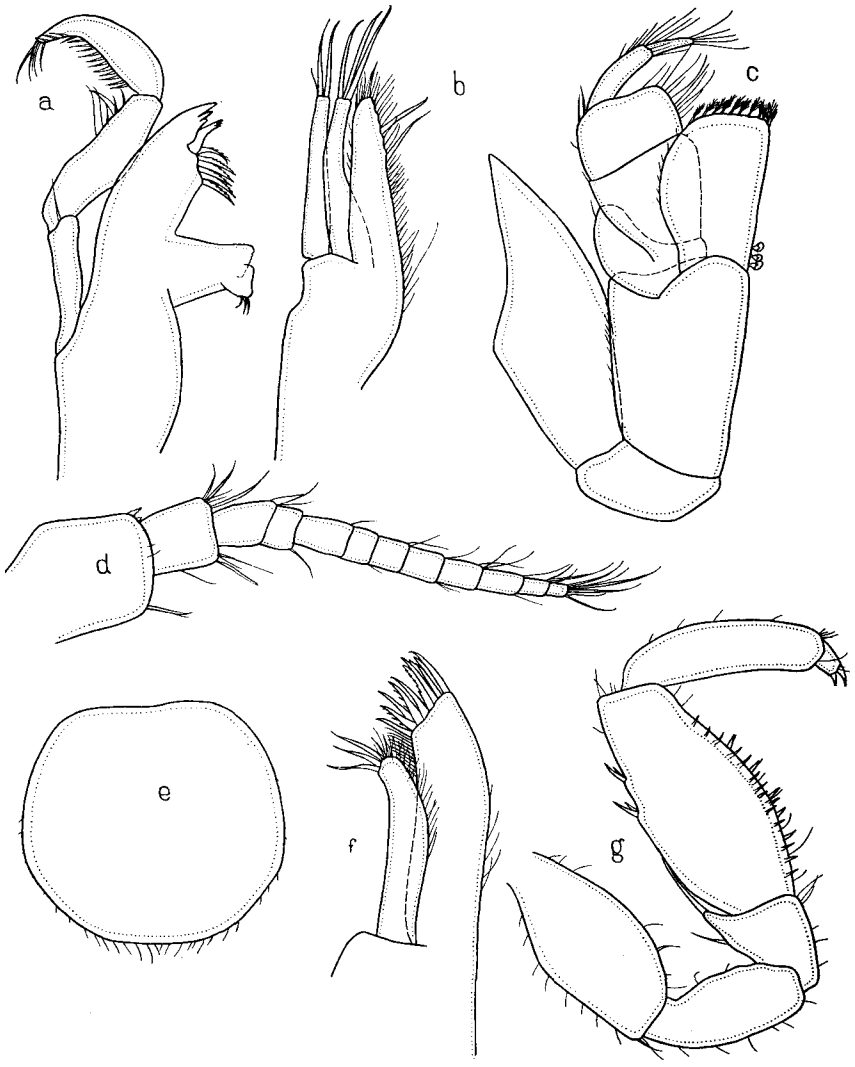

Fig. 6. *Janiralata obliterata* sp. nov., holotype, female. a, mandible (5); b, second maxilla (6); c, maxilliped (5); d, first antenna (5); e, operculum (2); f, first maxilla (6); g, first pereopod (5). The numbers in parentheses refer to the corresponding scales in figs. 2 and 4.

rather strongly convex behind the base of antenna II. The anterolateral angles of the head are broadly rounded and have no processes; the lateral margins are slightly convex, the posterolateral angles of the head are widely rounded. The eyes are large, oval, with nearly straight inner margins; they are situated dorsally not far from the lateral margins of the cephalon.

The pereonal somites differ only slightly in width, only the anterior one is noticeably narrower than the others, though a little wider than the head. The lateral margins of pereonal somites I and V to VII are without lobes, they are

rounded in somite I, slightly convex in the posterior somites. The anterolateral angles of somites II to IV are produced into short rounded lobes, which increase in width from II to IV. The coxal plates are very small, but visible from above on all pereonal somites, those on somites II to IV are bilobed, on the other somites they consist of a single lobe.

The pleotelson is comparatively long and subquadrate, the antero- and posterolateral angles are widely rounded. The posterior median lobe is short and wide, rounded behind. The lateral margins are nearly straight, converging a little backwards.

Antenna I is short, its basal segment is relatively little expanded. The second segment is about 2/3 as long and half as wide as the first. The third segment is a little shorter than the second, it is slightly wider than the flagellum. The latter consists of 9 segments. Antenna II is missing.

The spine-row of the left mandible has 8 setae; the molar process is considerably constricted at the beginning of the distal third. The palp is long, the distal half of the outer margin of the second segment has 2 long basally expanded, serrated setae and 3 rather short simple ones, the third segment is elongate, and fringed with numerous setae. The endite of the maxilliped has 3 coupling hooks.

Pereopod I is relatively stout. The carpus is considerably expanded, its inner margin bears about eighteen bifid spines and some spine-like setae. The proximal part of the inner margin of the propodus is provided with 5 serrations. The operculum (pleopod II) is rounded, it is slightly wider than long, its posterior margin is somewhat concave in the middle and is fringed with short setae. The uropod is rather large, exceeding half the length of the pleotelson, the exopodite is a little shorter and narrower than the endopodite.

The colour is pale yellowish-grey, with numerous very minute pigment spots. The eyes are black.

Remarks. — In the absence of a rostral process, of anterolateral processes of the head, and of posterolateral processes of the pleotelson, the very large eyes and the very short lateral lobes of the pereonal somites, the new species is related to *J. rajata* Menzies from northern California. However, *J. obliterata* is easily distinguished from the latter by the more massive, relatively shorter and wider uropods, the fewer segments in the antennular flagellum, the less slender body and by some other features.

An ovigerous specimen with 8 embryos in stage III was collected in September.

Ianiropsis pallidocula Kussakin, 1962

Ianiropsis pallidocula Kussakin, 1962a: 50-53, figs. 26-28.

Material examined. — Urup, depth 0-48 m, 13 samples (61 specimens).
Simushir, lowest littoral, among *Laminaria,* 4 specimens.
Matua, depth 3-4 m, 1 specimen.

Distribution. — This is a Pacific high-boreal species, which has been found in western Kamchatka and the central Kuriles.

JAEROPSIDAE

Jaeropsis affinis Kussakin, 1961

Jaeropsis affinis Kussakin, 1961: 667-669, figs. 1-3.

Material examined. — Urup, depth 5-20 m, rocks with *Laminaria*, 4 samples (7 specimens).
Simushir, 0.2 m, rocks with *Laminaria*, 1 specimen.
Matua, 10 m, 1 specimen.

RÉSUMÉ

Pendant l'expédition de l'Institut de biologie marine aux Kouriles en 1969, dans les eaux littorales de l'île Urup, on a recueilli 8 espèces de la famille des Janiridae et 1 espèce de la famille des Jaeropsidae. Trois espèces nouvelles pour la science sont décrites: *Janiralata bisinuata, J. microphthalma* et *J. obliterata*. Pour les autres les localités nouvelles sont mentionnées.

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