18. Studies on Japanese Mysidacea

I. Descriptions of New and Some Already Known Species Belonging to the Genera, Neomysis, Acanthomysis and Proneomysis

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(With Text-figures 1–116)

Collected materials of Japanese Mysidacea contain many interesting species and reveal new facts with respect to their taxonomy, distribution and habits. The study of the specimens is in progress and among them so far examined ten species, that is, two belonging to the genus *Neomysis*, four to *Acanthomysis* and four to *Proneomysis*, are dealt with in the present paper. Of these species seven are new to science, one can be identified with certainty as an already known species and the remaining two are doubtful whether they are referable to already known ones or not. All of them are described and figured in minute details for comparison with each other and to clear up some doubtful points in their structure and taxonomic position.

It is my pleasant duty here to express my deep gratitude to Professor Ikusaku Amemiya, by whose suggestion and guidance the present study was undertaken and carried out. I am also indebted to Mr. Kiichi Nakazawa for his kind information given to me as well as valuable specimens placed by him at my disposal. Thanks are due to Mr. Hiroaki Aikawa, Mr. Katuaki Tuzinaga and other gentlemen who all kindly sent me materials for the study.

Genus *Neomysis* Czerniawsky, 1882

Zimmer (1915) amalgamated the genus *Acanthomysis* Czerniawsky (=*Dasymysis* Holt and Beaumont (1900), *Metamysis* Nakazawa (1910), not Sars, *Orientomysis* Derzhavin (1913)) with the genus *Neomysis* Czerniawsky (1882) on the ground that the distinctions between these two genera have been broken down in the light of the species described by Nakazawa and Derzhavin. In the structure of the male pleopods both genera are identical and the only difference between them lies in the antennal scale. In *Neomysis* the antennal scale is very long, with a sharply pointed apex, while in *Acanthomysis* the antennal scale is comparatively short, with a rounded apex.

The numerous species referred to the comprehensive genus of Zimmer may be divided into two groups according to the character of the antennal scale, as follows :

Group I. Antennal scale with an acute spiniform apex.

N. awatchensis (Brandt)
Mysis awatschensis Brandt 1851, Czerniawsky 1882
Syn: *N. nigra* Nakazawa 1910, Tattersall 1921
N. intermedia (Czerniawsky)
Heteromysis intermedia Czernawsky 1882
N. intermedia, Nakazawa 1910
Syn: *N. awatschensis* Tattersall 1921, Derzhavin 1923
N. isaza Marukawa 1928
N. mercedis Holmes 1897
Holmes 1900, Tattersall 1932
N. rayii Murdoch 1885
Syn: *N. toion* Derzhavin 1913
N. integer (Leach)
Mysis integer Leach 1815
Syn: *Mysis vulgaris* Thompson 1828
N. vulgaris Czerniawsky 1882
N. franciscorum Holmes 1900
Hansen 1913, Schmitt 1919
N. mirabilis (Czerniawsky)
Heteromysis mirabilis Czerniawsky 1882
N. kadiakensis Ortmann 1908
Schmitt 1919, Tattersall 1932
N. japonica Nakazawa 1910
N. americana (Smith)
Zimmer 1904
Mysis americana Smith 1874
N. spinosa Nakazawa 1910
N. czerniawskii Derzhavin 1913
Syn: *N. andersoni* Schmitt 1919
N. patagona Zimmer 1907
N. meridionalis Colosi 1924
N. monticelli Colosi 1924

Group II. Antennal scale with a rounded apex.

N. longicornis (Edwards)
Mysis longicornis Edwards 1837
Acanthomysis longicornis, Czerniawsky 1882
Dasymysis longicornis (Edwards), Holt and Beaumont 1900
Syn: *Acanthomysis playdens* Czerniawsky 1882
Acanthomysis spinosissima Czerniawsky 1882
N. sagamiensis (Nakazawa)
Metamysis sagamiensis Nakazawa 1910

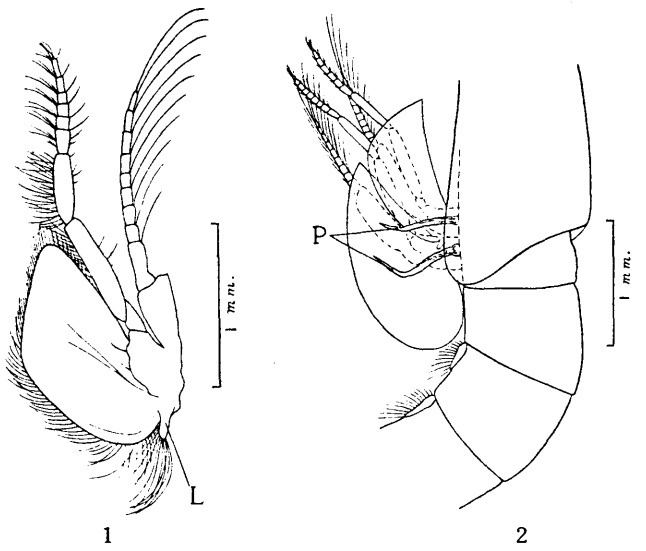
N. mitsukurii (Nakazawa)
Metamysis mitsukurii Nakazawa 1910
N. schrencki (Czerniawsky)
Mysis schrencki Czerniawsky 1882
N. stelleri (Derzhavin)
Orientomysis stelleri Derzhavin 1913
N. costata (Holmes)
Illig 1930, Tattersall 1932
Mysis costata Holmes 1900, Hansen 1913
N. dybowskii (Derzhavin)
Orientomysis dybowskii Derzhavin 1913
N. indica Tattersall 1922
N. hodgarti Tattersall 1922
N. macropsis Tattersall 1932
N. columbiae Tattersall 1933
N. pseudomacropsis Tattersall 1933
N. sculpta Tattersall 1933

As far as I can make out consulting with the keys in Illig's (1930), Tattersall's (1932) and Zimmer's (1909) papers, the present genus, therefore, comprises 28 already known species, as listed above, and is becoming somewhat unwieldy. Therefore, Tattersall inclines to the opinion that it would be better to separate them into two genera according to the character of the antennal scale. In his paper (1932) he says, "it seems probable that Group II will have to be separated generically from the remainder on the character of the antennal scale. It forms a ready means of separating the species into two groups which may well be given generic rank. In such case the name *Acanthomysis* must be used to designate the second group of species." In his later paper (1933) he also says, "When the numerous species belonging to the genus *Neomysis* come to be revised, it will probably be found convenient to group them into a number of closely allied genera." Tattersall, however, in both of his papers (1932, 1933), did not divide the genus *Neomysis* into two genera and adopted Zimmer's arrangement, and it seems that he hesitated before dividing them into two genera and awaited the discovery of some definite distinctions between the two groups beside the character of the antennal scale.

Tattersall in his paper (1932) described interesting facts he observed in the three species belonging to the group I, viz. *N. mercedis* Holmes, *N. franciscorum* Holmes and *N. kadiakensis* Ortmann. The facts, namely, are the following two points which until then had escaped notice. The first point is the presence of a small posterior setose lobe on the posterior pair of oostegites, projecting backward, and rather sharply marked off from the main oostegite. The second point is the presence in the female of a rather long, delicate, somewhat curved and forwardly directed spiniform process on the median line of the last three thoracic sterna.

Especially on these points I examined the five species in my material, viz.

N. japonica Nakazawa, *N. spinosa* Nakazawa, *N. intermedia* (Czerniawsky), *N. czerniawskii* Derzhavin? and *N. nakazawai* n. sp. The results of my examination slightly differ from Tattersall's observation. As to the first point, I found the lobe (Fig. 1) which seems to correspond to that observed and described



Figs. 1-2. *Neomysis intermedia* Czerniawsky

Fig. 1. Seventh thoracic limb with the anterior oostegite to show the posterior lobe (L).

Fig. 2. Middle part of the body to show the processes (P) on the last two thoracic sterna and the marsupial pouch.

by Tattersall to be present on the 'posterior' oostegites in his species. The lobe more or less developed is, on the contrary, on the anterior oostegites in all above named species, and I could not find out any peculiar lobe on the posterior oostegites. Judging, however, from his figure, Tattersall seems to have mistaken the term 'posterior' for 'anterior'. Similar lobe also can be observed in some species belonging to the group II, viz. *N. mitsukurii* (Nakazawa), *N. dybowskii* (Derzhavin)?, *Acanthomysis longirostris* n. sp. and *A. dimorpha* n. sp. As to the second point, I could find such processes (Fig. 2) only on each of the last two thoracic sterna as far as concerned to all my species belonging to the group I except *N. spinosa*. In *N. spinosa* I failed to find such process.

From the above said results of my examination, I think that these two points may or may not be the distinctive characters between the two groups. Further examination is necessary and I reserve here to decide the weight of

these points to count for the generic importance. But at any rate, I believe that the difference in the character of the antennal scale forms a ready means of separating the species into two genera.

In my material I found three new species belonging to the genus *Neomysis* in Zimmer's sense. One of them belongs to the group I, and the other two to the group II. I believe that Japan and her adjacent seas are rich in species of *Neomysis*, and expect that a considerable number of new species may further be discovered hereafter.

Hence, so as not to complicate the genus *Neomysis*, here I separate the group II from the group I generically only on the ground of the difference in the character of the antennal scale and use the name *Neomysis* to designate the group I and *Acanthomysis* the group II.

Neomysis nakazawai[1] n. sp.

Figures 3-13.

LOCALITY. Noda, Karafuto (Sakhalin).

Type specimen. 24 females, no males.

The material was kindly sent to me by Mr. Nakazawa, to whom I am greatly indebted for the privilage of examining and describing the present species.

There are no male specimens in the collection, therefore, the following description is based only on female specimens.

DESCRIPTION. Body stout. Last thoracic somite has 2 rather faint depressions on dorsal side. Anterior 5 abdominal somites have obscure grooves on dorsal side, 3 on the first somite, 2 on each of the second and the third, and 1 on each of the fourth and the fifth.

Front margin of the carapace produced into a wide subquadrangular plate with rounded angles, about $^{2}/_{3}$ as long as broad, but the carapace leaves the whole of the eye-stalks and antennules uncovered; front margin of the rostral plate concave with a broad ob-trapezoidal indentation and somewhat depressed at the middle. Antero-lateral corners of the carapace long and acutely pointed.

Eyes, including the stalk, about $1^{2}/_{3}$ times as long as broad, cornea occupying about $^{1}/_{3}$ of the entire eye in dorsal view.

Antennular peduncle long and slender; basal joint almost as long as the 2 distal joints combined.

Antennal scale long and narrow, about 15 times as long as broad, and about 3 times as long as the antennular peduncle, setose all round, 2-jointed, the distal joint about $^{1}/_{5}$ of the entire length of the scale and terminating in an acute spiniform apex; basal joint, from which the scale arises, with a prominent spine on both inner and outer corners.

Antennal peduncle about $^{1}/_{3}$ of the length of the scale; the third joint

[1] In honour of Mr. Kiichi Nakazawa.

slightly shorter than the second.

Mouth parts, first and second thoracic limbs show no feature of special interest.

Third to the eighth thoracic limbs rather slender, propodite divided into 9–15 subjoints which increase in number posteriorly; basal plate of the exopod with a spiniform outer distal angle.

Marsupial pouch consisted of 2 pairs of oostegites; the posterior margin of the anterior pair of the oostegites with a tiny, setose, backwardly projecting lobe. Each of the last 2 thoracic sterna provided with a long, delicate, spiniform process on the median line.

Sixth abdominal somite about $1^1/_5$ times as long as the fifth.

Pleopods of the female are all rudimentary.

Telson linguiform, about $1^2/_5$ times as long as the last abdominal somite and about $2^1/_5$ times as long as broad at the base; lateral margins concave in the first $^1/_3$ part, convex in the second $^1/_3$ part and then gradually narrowing toward a narrowly rounded apex; the margins densely armed throughout their length with many stout spines; in the proximal $^2/_3$ of the margins the spines are rather widely spaced, in the next half of the margins the spines growing larger posteriorly and grouped into 5–7 sets, each set composed of a large spine followed by 2–5 slightly smaller spines, and in the last $^1/_{10}$ of the margins around the apex the spines are short, blunt, very closely set and of even size.

Inner uropod slightly shorter than the telson and its ventral inner margin armed with a dense row of about 80 spines.

Outer uropod $1^1/_2$ times as long as the telson.

Length. Adult females, 30 mm.

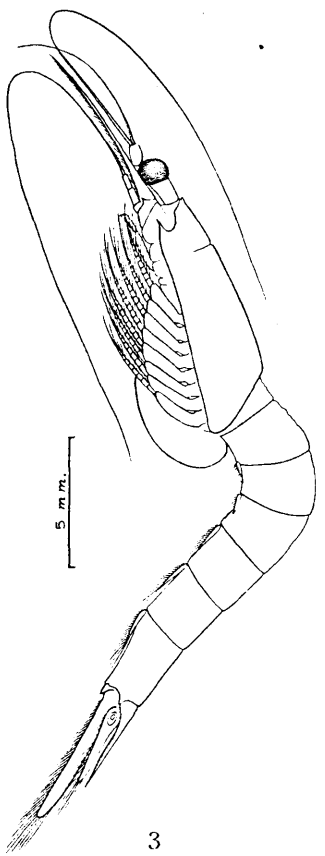


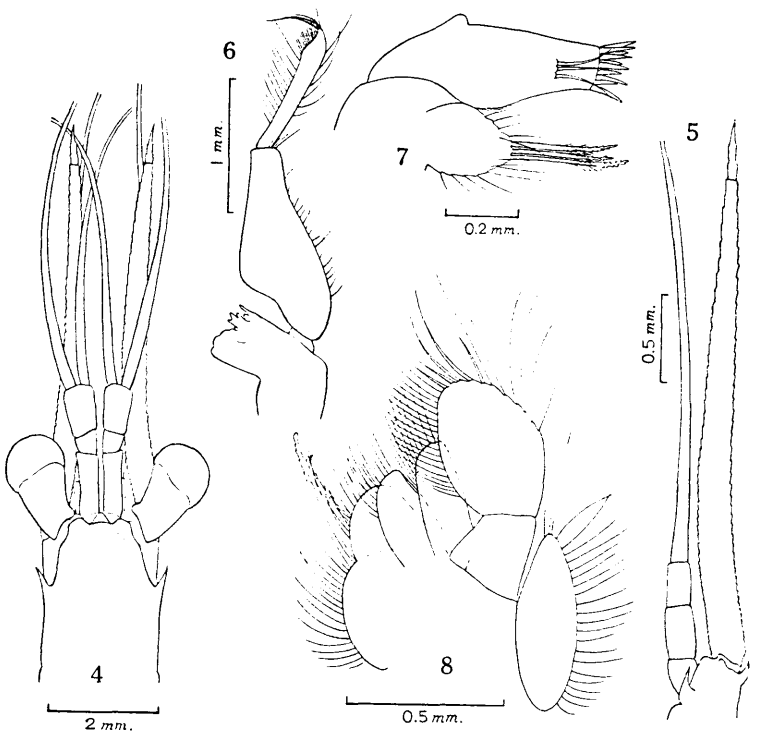
Fig. 3. *Neomysis nakazawai* n. sp.
Lateral view of adult female.

REMARKS. Although I could not obtain male specimens, the present species must be included in the genus *Neomysis*, diagnosed clearly by the combination of the characters afforded by the antennal scale, propodite, telson, pleopod

of the female, oostegite, etc.

The present species is very closely allied to *N. patagona* Zimmer, from Magellan Straits, in the peculiar shape of the rostral plate, and easily distinguishable in this point from other species hitherto described. But the present species differs from *N. patagona* in the following points:

(1) Last thoracic somite and anterior 5 abdominal somites have grooves on dorsal side, whereas in *N. patagona* the body is smooth.



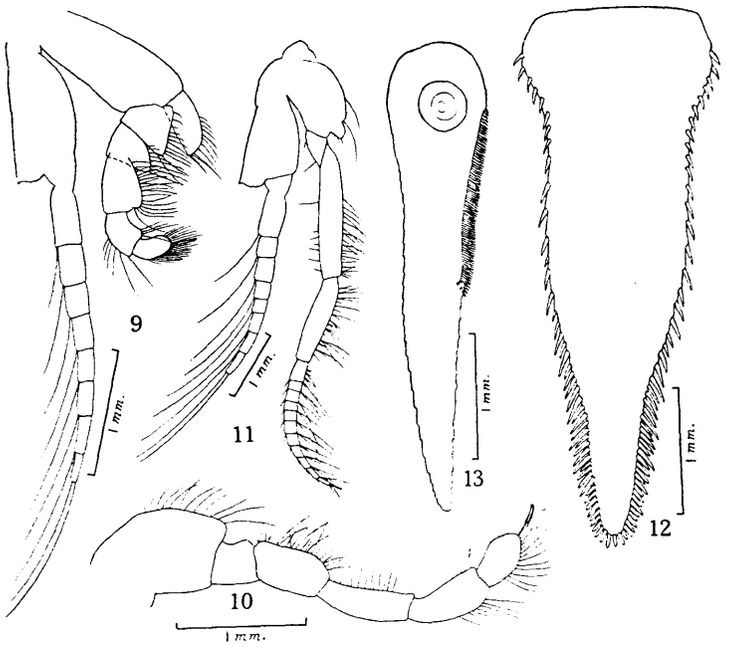
Figs. 4–8. *Neomysis nakazawai* n. sp.

Fig. 4. Anterior end of a female to show rostral plate, eye, antennule and antennal scale.
Fig. 5. Antennale scale and peduncle.
Fig. 6. Mandible and palp.
Fig. 7. First maxilla.
Fig. 8. Second maxilla.

(2) In the present species the rostral plate leaves the whole of the eye-stalks and antennules uncovered, while in *N. patagona* the rostral plate reaches to the middle of the eye-stalks.

(3) Antennal scale is relatively longer, 15 times as long as broad in the present species, while in *N. patagona* it is 9 times as long as broad.

(4) Propodite of the third to the eighth thoracic limbs subdivided into 9–15 joints in the present species and 8–9 in *N. patagona*.



Figs. 9–13. *Neomysis nakazawai* n. sp.

Fig. 9. First thoracic limb.
Fig. 10. Endopod of second thoracic limb.
Fig. 11. One of the posterior thoracic limbs.
Fig. 12. Telson.
Fig. 13. Inner uropod.

(5) The present species is rather easily distinguishable from *N. patagona* in the armature of the telson.

(6) Inner uropod is provided with a dense row of about 80 spines on the ventral inner margin in the present species, while in *N. patagona* with only 1 spine on the same part.

(7) Outer uropod is setose all round, and has no spines not as in *N. patagona*.

Neomysis czerniawskii Derzhavin?

Figures 14–21.

Neomysis czerniawskii Derzhavin 1913
Neomysis andersoni Schmitt, 1919; Rept. Canad. Arctic Exp. 1913–1918. 7, Crustacea, (B), 1 B–8 B, 3 text-figs.

LOCALITIES. Port Samé, Aomori Prefecture. Abundant, adult males and females.

Off the coast of the Sikotan Peninsula, Hokkaido. Abundant, adult males and females.

Present specimens from the two localities, especially the Sikotan samples agree very well with Derzhavin's description of *N. czerniawskii* in many essential points. But to my regret, as Derzhavin's description is very brief and rather incomplete, and he made no mention about the features of the fourth pleopod of the male in his text, I can not make full comparison of the present specimens with the Derzhavin's. Recently Tattersall united *N. andersoni* Schmitt with *N. czerniawskii* by the examination of Schmitt's co-types. But it is a regret for me unable to say anything about the matter, as I can not consult with Schmitt's original description of *N. andersoni*.

Judging from scrutiny of Derzhavin's figures in his paper the present specimens from the two localities slightly differ from *N. czerniawskii* in the apical armature of the telson. In my specimens the apex of the telson is armed with 4 equally long spines, while in Derzhavin's figure of *N. czerniawskii* the 4 spines show different features, e. i., the inner pair of the spines are shorter than the outer. As to the fourth pleopod of the male of Derzhavin's specimens, I can only cognise vaguely its form and length by his figure of the male. In his figure only tiny fourth pleopod is shown. But I think his figure depicts an immature male with tiny fourth pleopod which has not yet fully grown. Immature males in my specimens from Port Samé, which measure 9 mm. in length also show the same condition as Derzhavin's figure. Thus, it is quite certain that Derzhavin's figure was drawn from some immature specimen. As to the shape of the rostrum Derzhavin gave no description thereof and in his comparison of *N. czerniawskii* with *N. spinosa* Nakazawa he made also no reference to the rostrum, but in my present specimens the rostrum clearly differs from that of *N. spinosa*.

On the other hand, there are slight differences between the Samé and the Sikotan specimens, that is, in the body length of the adult, and in the number of joints of the propodite and in that of the spines on the ventral inner margin of the inner uropod, as are shown in the following table.

However, I think that these differences cannot be considered more than variations in a species, as in many other important characters all these specimens are very similar. It is not seldom occurrence that the number of joints of propodite and that of spines on the ventral inner margin of inner uropod are liable to variations in the same species. Nevertheless, the Samé specimens

	Number of joints of propodite	Number of spines on the ventral inner margin of uropod	Body length
Samé specimen	8-10	44-54	16 mm
Sikotan specimen	9-12	54-60	21 mm
N. czerniawskii (after Derzhavin)	9-12	54	21 mm

show fairly noticeable differences from others, e. i., in the body length and in the number of joints of propodite. Yet, the said differences seem to me also variations in the same species, as these kinds of variations in one species are equally rather common in Mysidacea according to localities and also to different seasons of the year even in the same locality. Therefore, the Samé specimens may be at greatest one variety in the species, the samples of which were collected from Kamchatka (Derzhavin) and Sikotan.

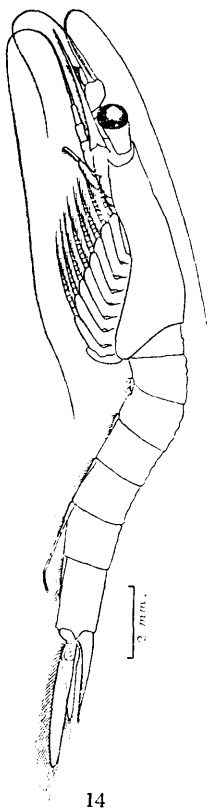


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Fig. 14. *Neomysis czerniawskii* Derzhavin ? Lateral view of adult male.

I am not quite sure yet whether the present specimens actually belong to the same species as that described by Derzhavin or not. Decision on this point can only be made by examination of fully grown specimens of *N. czerniawskii*, or, perhaps, when Schmitt's description of *N. andersoni* is available for reference. So that I reserve here to draw any conclusion on the specific identification of the present specimens for future study. However, from above said reasons and also taking into consideration the hydrographical relation of the three localities where Derzhavin's and my specimens were collected, I am rather inclined to the opinion that my present specimens from two localities are identical with each other and also with *N. czerniawskii* at the same time. And it seems advisable in this opportunity to give a brief description of the Sikotan specimens.

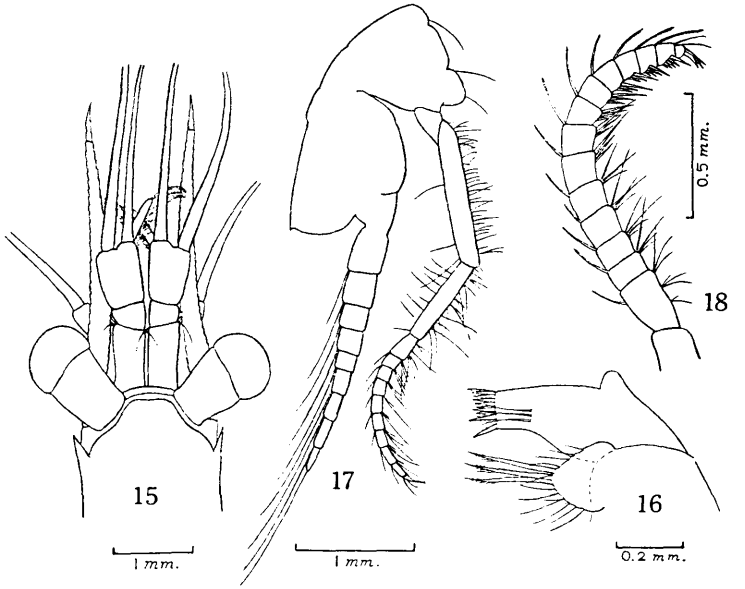
Description. Front margin of the carapace produced into a wide subquadrangular plate with rounded angles, the front margin of the plate somewhat depressed at the apex, so that it appears slightly concave in outline; antero-lateral corners of the carapace acutely pointed.

Each of the free somite of the thorax and the 5 anterior abdominal somites with 2 or 3 faint transverse grooves on dorsal side.

Eyes globose, eye-stalks rather long.

Antennular peduncle more robust in the male than in the female; its first joint provided with 2 long plumose setae, one on the outer distal corner and the other near the inner distal corner; male sexual appendage slender, about as long as the third joint.

Antennal scale narrowly lanceolate in shape with a pointed apex, about 14 times as long as broad, extending far beyond the antennular peduncle, 2–2½ times as long as it, 2-jointed, the distal joint $^1/_6$–$^1/_7$ of the entire length of the scale; the scale somewhat longer in the female than in the male; the second joint of the antennal peduncle slightly longer than the third joint.



Figs. 15-18. *Neomysis czerniawskii* Derzhavin ?

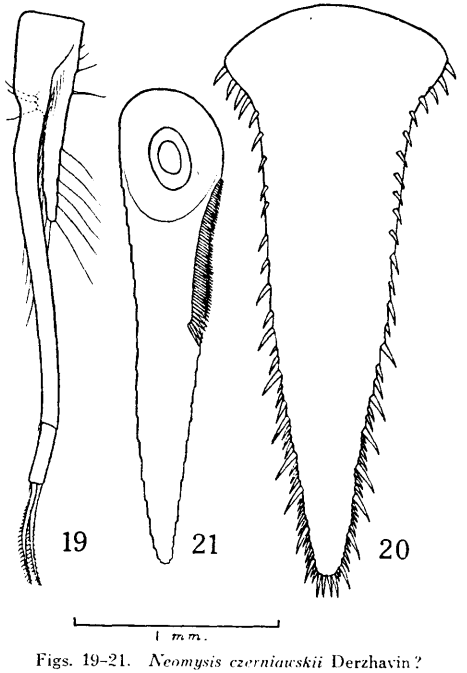
Fig. 15. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 16. First maxilla.
Fig. 17. Third thoracic limb.
Fig. 18. Distal joints of eighth thoracic limb to show the peculiar transformation of the setae along the inner margin of propodite.

Mouth parts, first and second thoracic limbs show no very marked difference from those in other species of the genus.

Third to the eighth thoracic limbs slender; propodite divided into 9–12 joints, the number of the joints increases posteriorly. In the last thoracic limbs setae on the inner margin of distal 5–6 joints of propodite transformed into strong spines.

Fourth pleopod of the male reaching to the middle of the last abdominal

somite, exopod 2-jointed, the first joint about 5 times as long as the second joint, the latter terminated by 2 long spinous setae, about 1½ times as long as the joint.



Figs. 19–21. *Neomysis czerniawskii* Derzhavin?

Fig. 19. Fourth pleopod of the male.
Fig. 20. Telson.
Fig. 21. Inner uropod.

Telson long and narrowly triangular, about 1½ times as long as the last abdominal somite, and 2½ times as long as broad at the base, abruptly narrowing at a short distance from the base and then gradually narrowing to a slender truncate apex, the proximal ⅖ of the lateral margins armed with about 15 short, stout and uniform spines, in the distal ⅗ of the margins spines arranged in 8–10 successive sets, each set being composed of 2–4 small spines followed by a longer and stronger spine, the apex bears 4 equally long spines, which are about as long as the longer lateral spines.

Inner uropod almost as long as the telson, and with a dense row of about 51 spines on the ventral inner margin.

Outer uropod about 1½ times as long as the inner.

Length. Adult specimens of both sexes, 21 mm.

REMARKS. The present species is very closely allied to *N. spinosa* Nakazawa, but is distinguishable from it by the shape of the rostrum, by the absence of the spiniform process on the eye-stalk and of the spines on the fifth and the sixth abdominal somites, and by the number of joints on the propodite and of the spines on the inner margin of the inner uropod.

DISTRIBUTION. Awatschin Bay, Bay of Petropawlowsk, Kamchatka. (Derzhavin, 1913).

Genus *Acanthomysis* Czerniawsky, 1882 emend.

This genus was established by Czerniawsky in 1882 and has been named at various times *Dasymysis* by Holt and Beaumont 1900, *Metamysis* by Nakazawa 1910 and *Orientomysis* by Derzhavin 1913. In 1915, Zimmer in his revision of the genera of the tribe Mysini regarded all these genera as synonyms of *Neomysis*, mainly on the basis of the character of the pleopods which are uniform throughout their members.

Afterward numerous species have been referred to the genus *Neomysis*, and thus the genus became very rich in species and somewhat unwieldy. Hence, I have separated the group of species which have the antennal scale with a rounded apex from the genus *Neomysis* and revived the name *Acanthomysis* to designate group II as already discussed under the genus *Neomysis*.

DEFINITION OF THE GENUS. A genus of the tribe Mysini closely allied to *Neomysis*, but is distinguishable from it by the rounded apex of the antennal scale. In other respects the genus absolutely agrees with *Neomysis*.

Type: *A. longicornis* (Edwards).

REMARKS. The present genus is distinguishable from all other genera of the tribe Mysini by the combination of the characters afforded by the antennal scale and the fourth pleopod of the male.

I found 2 species in my material, both new to science. With 13 species already described, the genus will now include 15 species altogether as are shown as follows:

A. longicornis (Edwards) 1837
= *Neomysis longicornis* (Edwards)
A. sagamiensis (Nakazawa) 1910
= *Neomysis sagamiensis* (Nakazawa)
A. mitsukurii (Nakazawa) 1910
= *Neomysis mitsukurii* (Nakazawa)
A. schrencki (Czerniawsky) 1882
= *Neomysis schrencki* (Czerniawsky)
A. stelleri (Derzhavin) 1913
= *Neomysis stelleri* (Derzhavin)
A. costata (Holmes) 1900
= *Neomysis costata* (Holmes)
A. dybowskii (Derzhavin) 1913
= *Neomysis dybowskii* (Derzhavin)
A. indica (Tattersall) 1922
= *Neomysis indica* Tattersall
A. hodgarti (Tattersall) 1922
= *Neomysis hodgarti* Tattersall
A. macropsis (Tattersall) 1932
= *Neomysis macropsis* Tattersall
A. columbiae (Tattersall) 1933
= *Neomysis columbiae* Tattersall
A. pseudomacropsis (Tattersall) 1933
= *Neomysis pseudomacropsis* Tattersall
A. sculpta (Tattersall) 1933
= *Neomysis sculpta* Tattersall

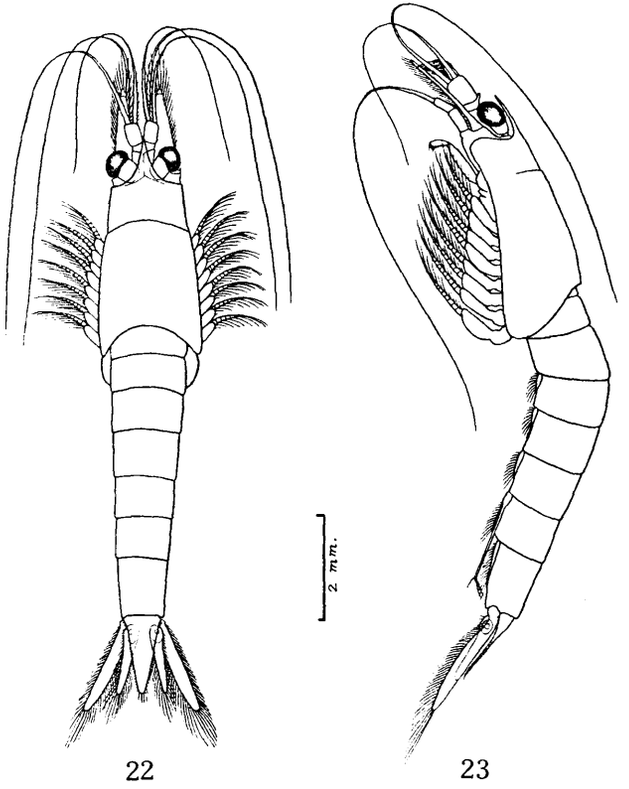
A. longirostris n. sp.
A. dimorpha n. sp.

Acanthomysis longirostris n. sp.

Figures 22–32.

LOCALITIES. Port Gunzan, Tyôsen (Korea).
Type specimen. Abundant, adult males and females.
Ariake Sea, Kyûshû. 22 males, 8 females.

DESCRIPTION. Body smooth, without spinules or grooves on either thorax or abdomen.



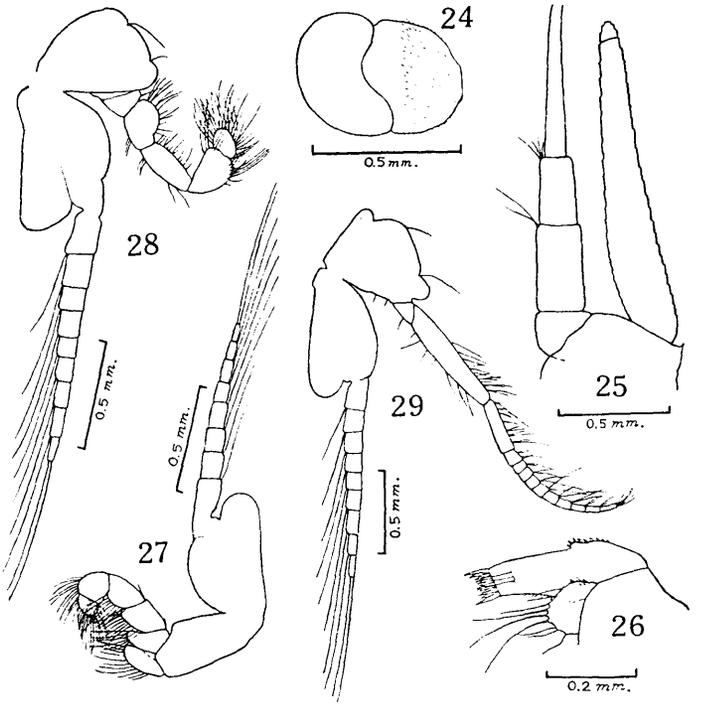
Figs. 22–23. *Acanthomysis longirostris* n. sp.

Fig. 22. Dorsal view of adult female showing rostral plate.
Fig. 23. Lateral view of adult male.

Front margin of the carapace produced into a long triangular rostral plate with a sharply pointed apex, the apex reaches to the distal end of the second joint of the antennular peduncle; antero-lateral corners of the carapace rounded.

Eyes normal in shape, pigment black; eye-stalk stout and its proximal half densely beset with spinules.

Antennular peduncle with the first joint slightly shorter than the third joint; male sexual appendage long, triangular and about half as long as the third joint.



Figs. 24–29. *Acanthomysis longirostris* n. sp.

Fig. 24. Eye.
Fig. 25. Antennal scale and peduncle.
Fig. 26. First maxilla.
Fig. 27. First thoracic limb.
Fig. 28. Second thoracic limb.
Fig. 29. One of the posterior thoracic limbs.

Antennal scale narrowly lanceolate in shape, about 7 times as long as broad, apex rounded, 2-jointed, the distal joint about $^1/_5$ of the entire length of

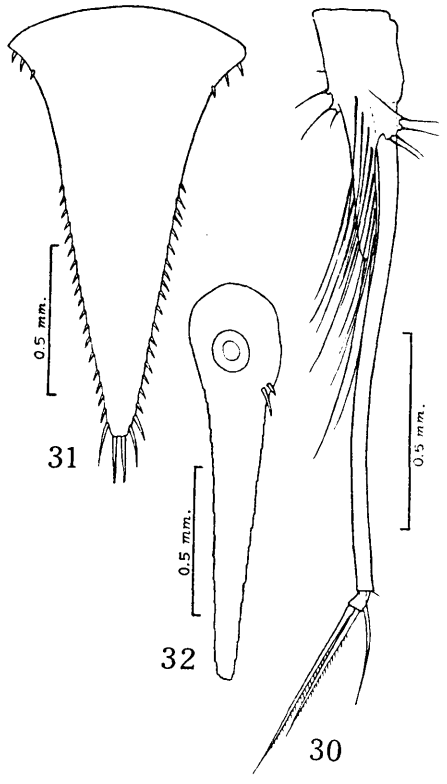
the scale; the scale extends for $^2/_5$ of its length beyond the antennular peduncle and its own peduncle, and slightly longer in the female than in the male.

Labrum pointed anteriorly and the spine reaching to the middle of the second joint of the palp of mandible.

First maxillae with a ridge on the outer margin of the outer plate armed with about 10 spinules; outer margin of the inner plate also armed with several spinules.

Second maxillae, first and second thoracic limbs show no features of special interest.

Remaining thoracic limbs with propodite divided into 9–11 (mostly 10) joints; meropodite longer than carpopodite.



Figs. 30–32. *Acanthomysis longirostris* n. sp.

Fig. 30. Fourth pleopod of the male.
Fig. 31. Telson.
Fig. 32. Inner uropod.

The sixth abdominal somite $1^1/_3$ times as long as the fifth.

Fourth pleopod of the male reaching almost to the posterior end of the last somite of the abdomen; endopod of usual form: exopod 2-jointed; the first joint very long and its inner distal corner armed with a long simple seta, about $^1/_4$ of the length of the joint; the second joint very short, only $^1/_{22}$ of the length of the first joint and terminated by 2 long spinous setae about 8 times as long as the joint.

Telson long, triangular, $1^1/_3$ times as long as the last abdominal somite, and almost twice as long as broad at the base, abruptly narrowing at a short distance from the base and then almost straightly narrowing to a slender but truncate apex; lateral margins armed with about 23 small spines, 3 of them situated near the base and the others on the distal $^1/_3$ of the margins; the last pair of lateral spines abruptly increasing in length, almost as long as a pair of spines on the apex, which are about $^1/_{10}$ of the length of the telson.

Inner uropod slightly longer than the telson, with 2–3 spines on the lower inner margin near statocyst; statocyst rather small.

Outer uropod about $^1/_3$ longer than the telson.

Length. Adult males and females, 11 mm.

REMARKS. The present species is very closely allied to *A. hodgarti* (Tattersall). But it differs from *A. hodgarti* in the following points:

(1) The rostral plate is much longer than that of *A. hodgarti*, the apex sharply pointed and reaches to the distal end of the second joint of the antennular peduncle.

(2) Propodite of the third to the eighth thoracic limbs subdivided into 9–11 joints in the present species and 5–6 joints in *A. hodgarti*.

(3) Superficially, telson is very much similar to that of *A. hodgarti*, but the apex more narrowly truncated than in *A. hodgarti*, and slightly differs in the apical armature. In *A. hodgarti* the apex bears 4 equally long spines, while in the present species the apex bears only 2 long spines, yet it looks very much alike the same part of *A. hodgarti*, if it is seen together with the last pair of the lateral spines.

(4) In this species the exopod of the fourth pleopod of the male has very short second joint, about $^1/_{22}$ of the length of the first joint and terminated by 2 long spinous setae; while in *A. hodgarti* the second joint $^2/_7$ of the length of the first joint and terminated by a long simple seta.

Tattersall described the fourth pleopod of the male in *A. hodgarti* as follows: "Fourth pleopod reaching almost to the base of the telson, endopod with well developed side lobe, exopod composed of three joints, first joint very long, three and a half times as long as the second, latter bearing a very long straight simple seta three times as long as the joint, terminal joint very minute with a single short seta at the apex." However, I cannot find out the tiny third joint in his small figure. If his description is correct, I think these structures of the fourth pleopod of the male do not conform to the generic character of the genus *Acanthomysis*.

The present species is also closely allied to *A. longicornis* (Edwards) and *A. sagamiensis* (Nakazawa), but easily distinguishable from both of them by several features e. i., the rostral plate, the number of joints of the propodite of the thoracic limbs, the fourth pleopod of the male and the armature of the telson.

Long rostral plate and the form of the fourth pleopod of the male will serve to distinguish the present species from any hitherto known species in the genus.

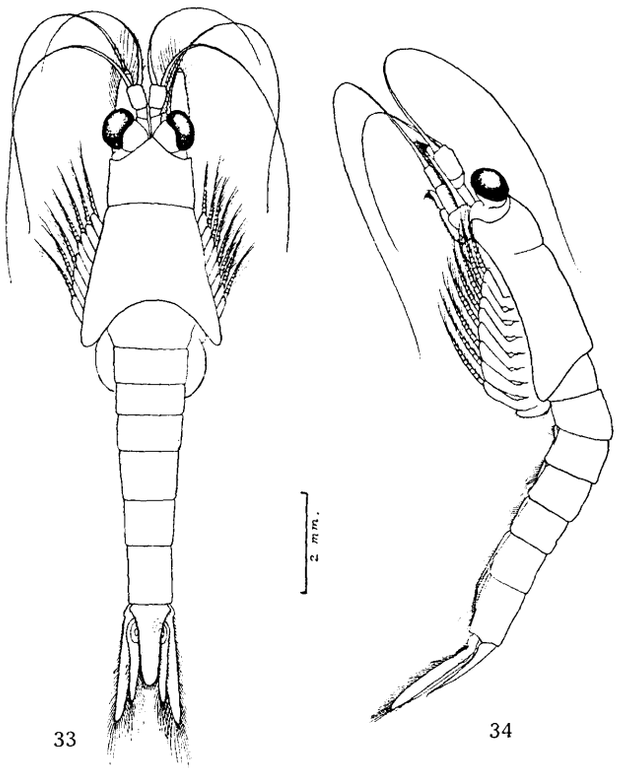
Acanthomysis dimorpha n. sp.

Figures 33–46.

LOCALITY. Off Urusan, Korea Straits.
Type specimen. 26 males, 22 females.

DESCRIPTION. Front margin of the carapace produced into a short triangular rostral plate, apex obtusely pointed; antero-lateral corners of the carapace rounded.

Eyes large, slightly depressed in lateral view, in dorsal view the whole eye is about as long as broad and the cornea about half as long as the entire length of the eye.



Figs. 33-34. *Acanthomysis dimorpha* n. sp.

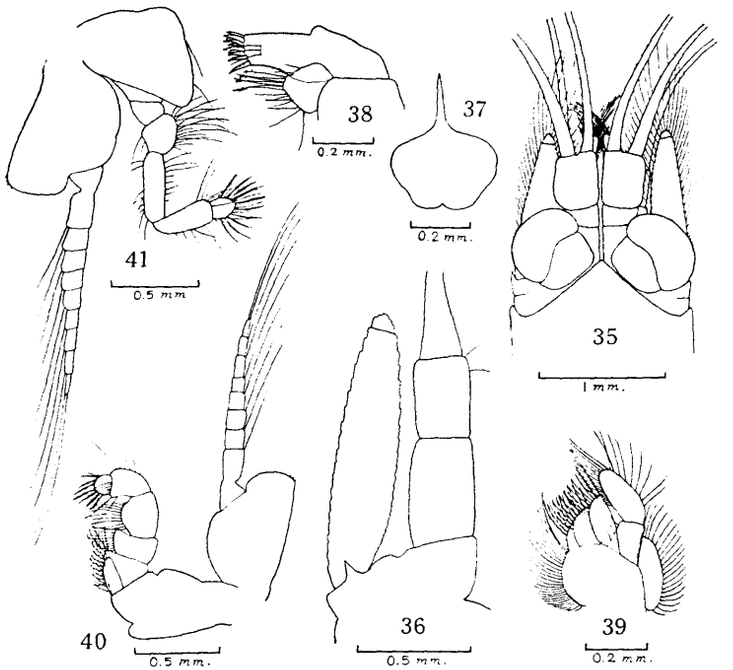
Fig. 33. Dorsal view of adult female. Fig. 34. Lateral view of adult male.

Antennular peduncle short and stout, in the male the third joint almost as long as the 2 proximal joints combined, male sexual appendage well developed and triangular in shape; in the female the third joint shorter than the 2 proximal joints combined.

Antennal scale slightly longer than the antennular peduncle, in the male

the scale extends to the distal end of the male sexual appendage, about 4 times as long as broad, apex rounded, 2-jointed, the distal joint $^1/_{11}$ of the entire length of the scale; basal joint, from which the scale arises, with a prominent spine on the outer distal corner. Antennal peduncle slightly shorter than the antennular peduncle.

Mouth parts, first and second thoracic limbs show no very marked difference from those in other species of the genus.



Figs. 35-41. *Acanthomysis dimorpha* n. sp.

Fig. 35. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 36. Antennal scale and peduncle.
Fig. 37. Labrum.
Fig. 38. First maxilla.
Fig. 39. Second maxilla.
Fig. 40. First thoracic limb.
Fig. 41. Second thoracic limb.

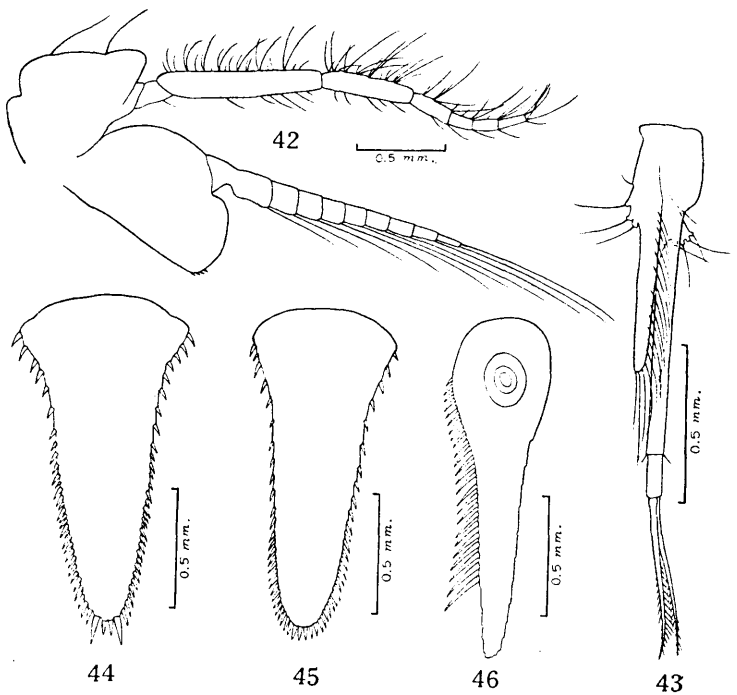
Third to the eighth thoracic limbs slender, propodite divided into 4-5 joints. Basal plate of the exopod of all thoracic limbs with 1-6 small spines on the outer distal corner.

Sixth abdominal somite about $1^2/_3$ times as long as the fifth.

Fourth pleopod of the male extending backwards beyond the middle of

the last abdominal somite; endopod of usual form; exopod 2-jointed, the first joint about 1½ times as long as the endopod and 6 times as long as the second joint, terminal setae about 4 times as long as the second joint.

Telson about 1½ times as long as the last abdominal somite and about twice as long as broad at the base. In the male telson is triangular, lateral



Figs. 42–46. *Acanthomysis dimorpha* n. sp.

Fig. 42. One of the posterior thoracic limbs.
Fig. 43. Fourth pleopod of the male.
Fig. 44. Telson of the male.
Fig. 45. Telson of the female.
Fig. 46. Inner uropod.

margins armed throughout their whole length with about 30 short spines, rather widely spaced proximally and more crowded distally; apex narrowly truncate and armed with 2 pairs of spines, the outer pair stout and longer than the inner and lateral spines, the inner pair equal in size to the lateral spines. In the female telson is linguiform, apex broadly rounded, spines on the lateral margins absolutely identical with those of the male, but spines around the blunt apex are short, closely set and equal in size to the lateral spines, and there can be seen no stout long spines not as in the male.

Inner uropod 1⅛ times as long as the telson, the inner margin armed with a row of about 24 slender spines extending from the statocyst almost to the ¾ point from the base, the spines are regularly set and gradually growing longer toward the apex.

Outer uropod 1¼ times as long as the inner.

Length. Adult males and females, 12 mm.

REMARKS. The present species is unique among the genus *Acanthomysis* in the fact that the male differs from the female in the shape and armature of the telson, in addition to the usual secondary sexual characters.

The present species is distinguishable from all other species of the genus by the peculiar row of spines on the ventral inner margin of the inner uropod which somewhat recalls that of the genus *Doxomysis*.

Acanthomysis dybowskii (Derzhavin)?

Figures 47–55.

Orientomysis dybowskii, Derzhavin 1913

LOCALITY. Off Urusan, Korea Straits. 6 males, 24 females.

The present specimens are in substantial agreement with Derzhavin's description and his figures of *Orientomysis dybowskii*. However, I am not sure whether they belong actually to the same species as that described by Derzhavin or not, because his description and figures are too imperfect to allow a full comparison with my specimens.

There is nothing in his description that can not be applied to my specimens, yet beside the characters noted by him the present specimens have 2 points of importance which may be regarded as the additional specific characters. The first point is the presence of the spiniform process on the eye-stalk and the second is the presence of the peculiar setae on the carpopodite and the propodite of the third to the eighth thoracic limbs. Judging from his obscure figure, there may be slight difference in the form and armature of the telson. As to the fourth pleopod of the male he gives no description, but in his remarks he says "Von allen andern Arten dieser Gattung unterscheidet sich *Orientomysis dybowskii* durch ihre langen Pleopoden und die breit-zungenförmige Gestalt ihres Telsons." However, in my specimens, the fourth pleopod of the male is not specially long as compared with

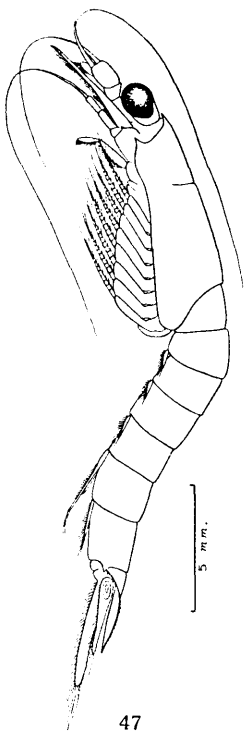


Fig. 47. *Acanthomysis dybowskii* (Derzhavin)?
Lateral view of adult male.

that in other species of the genus.

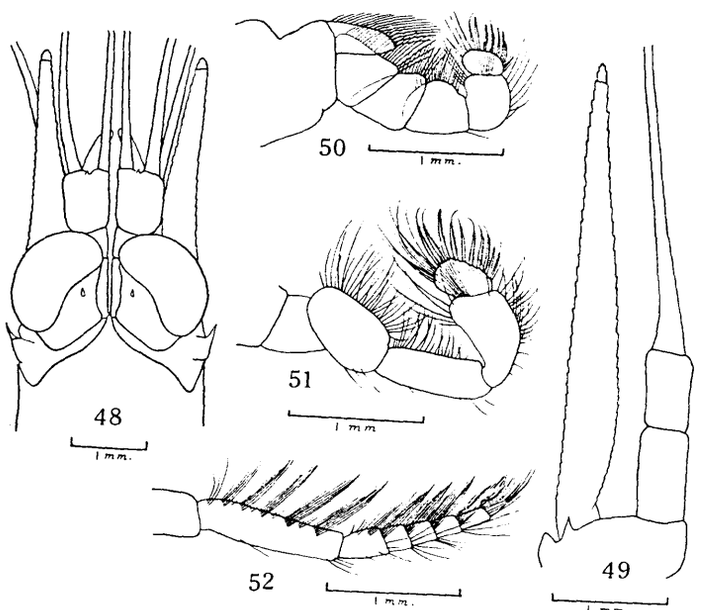
Here I describe and figure my specimens for the convenience of future reference.

DESCRIPTION. Front margin of the carapace produced into a triangular rostral plate, angle of the apex acute but the tip bluntly pointed; antero-lateral corners of the carapace acutely pointed.

Eyes, including the stalk, about as long as broad; cornea reniform and occupying about $^2/_3$ of the entire eye in dorsal view; the stalk with a blunt spiniform process on dorsal side just as in *N. spinosa* Nakazawa.

Antennular peduncle with the first joint almost as long as the third joint, male sexual appendage triangular in dorsal view.

Antennal scale long and narrow, about 8 times as long as broad, apex narrowly rounded, 2-jointed, the distal joint about $^1/_{25}$ of the scale in length: the scale in the male slightly shorter than twice of the antennular peduncle



Figs. 48-52. *Acanthomysis dybowskii* (Derzhavin)?

Fig. 48. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 49. Antennal scale and peduncle.
Fig. 50. Endopod of the first thoracic limb.
Fig. 51. Endopod of the second thoracic limb.
Fig. 52. Distal joints of one of the posterior thoracic limbs.

but in the female slightly longer than twice of the same.

Mouth parts, first and second thoracic limbs show no marked difference from those in other species of the genus.

Third to the seventh thoracic limbs with propodite divided into 5 joints, the eighth limbs always with a larger number (7) of joints than the preceding limbs; carpopodite armed with about 6 series of long setae along its inner margin, each series consisted of 3-10 setae arranged sideways; inner distal corner of each joint of propodite also armed with a single series of similar setae. Basal plate of the exopod of all thoracic limbs with 3 or 4 small spines on the outer distal corner.

Fourth pleopod of the male extending backwards beyond the middle of the last abdominal somite; endopod of usual form; exopod 2-jointed, the first joint twice as long as the endopod and about 6 times as long as the second joint, the outer distal corner of the first joint armed with a plumose seta which is slightly longer than the second joint, terminal setae about 3 times as long as the second joint.

Telson long linguiform, $1^1/_5$ times as long as the last abdominal somite, and $2^1/_3$ times as long as broad at the base, lateral margins armed throughout their whole length by many slender spines, in the proximal $^1/_3$ of the margins the spines rather widely spaced but in the distal $^2/_3$ grouped into about 9 sets, each set composed of a large spine followed by 2-6 small spines, apex rounded and armed with 2 pairs of spines, the inner pair shorter than the outer pair and about as long as the shorter lateral spines.

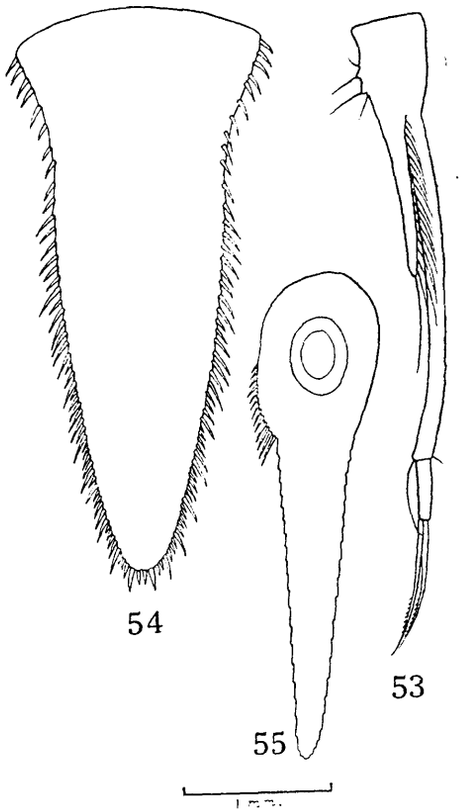


Fig. 53-55. *Acanthomysis dybowskii* (Derzhavin)?

Fig. 53. Fourth pleopod of the male.
Fig. 54. Telson.
Fig. 55. Inner uropod.

Inner uropod almost as long as the telson, with about 13 spines on the inner margin near statocyst.

Outer uropod $1^{2}/_{5}$ times as long as the telson.

Length. Adult males and females, 25 mm.

REMARKS. The present species is distinguishable from all other species in the genus by the combination of characters afforded by the shape and armature of the telson and by the presence of the spiniform process on the eye stalks and of the peculiar setae on the carpopodite and propodite of the thoracic limbs.

DISTRIBUTION. Awatschin Bay, Bay of Petropawlowsk, Lake Kultutschnoje (Derzhavin, 1913).

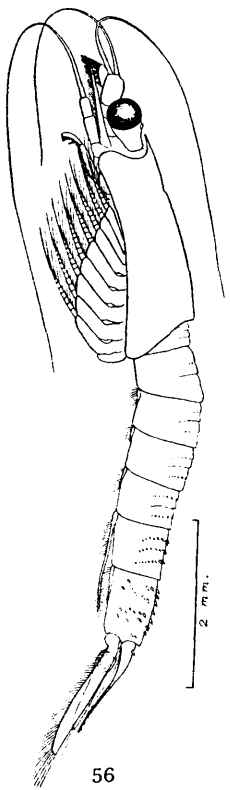


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Fig. 56. *Acanthomysis mitsukurii* (Nakazawa)
Lateral view of adult male.

Acanthomysis mitsukurii (Nakazawa)

Figures 56–66.

Metamysis mitsukurii Nakazawa 1910

LOCALITY. Aziro, Sizuoka Prefecture. Abundant males and females.

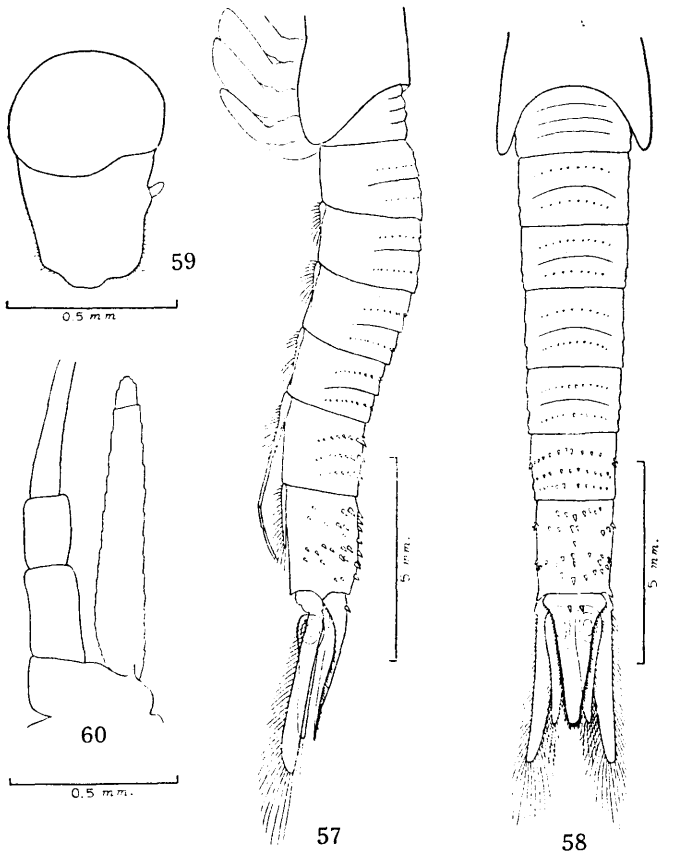
The present specimens agree absolutely with Nakazawa's description and figures of *Metamysis mitsukurii*. In my specimens, however, I found 2 points which seem apparently to be overlooked by Nakazawa. The one point is the presence of a blunt spiniform process on the eye-stalk, and the other is the presence of a pair of spines on the dorsal surface of the telson. Upon questioning on these two points Mr. Nakazawa very kindly answered me that he had overlooked these points. There are also some respects inadequate in his description and figures as to the abdominal somites and the fourth pleopod of the male.

Hence, here again I describe and figure the present species by my own specimens to complete the description of *A. mitsukurii*.

DESCRIPTION. Front margin of the carapace produced into a short triangular rostral plate with a pointed apex; antero-lateral corners of the carapace rounded.

Last thoracic somite with 2 or 3 transverse ridges on dorsal side.

Each of the first to the fourth abdominal somites with a transverse fold in the middle and 2 transverse rows of short spines, one in front and the other behind of the fold; in the anterior abdominal somites the rows of spines very obscure and appear as if they were faint folds. Each of the fifth and the sixth somites armed with many short but stout spines on the dorsal and lateral surface; the spines on the fifth somite



Figs. 57–60. *Acanthomysis mitsukurii* (Nakazawa)

Fig. 57. Posterior half of a male, lateral view to show the ridges and the rows of spines on the abdominal somites.
Fig. 58. The same, dorsal view.
Fig. 59. Eye, lateral view to show the spiniform process on the stalk.
Fig. 60. Antennal scale and peduncle.

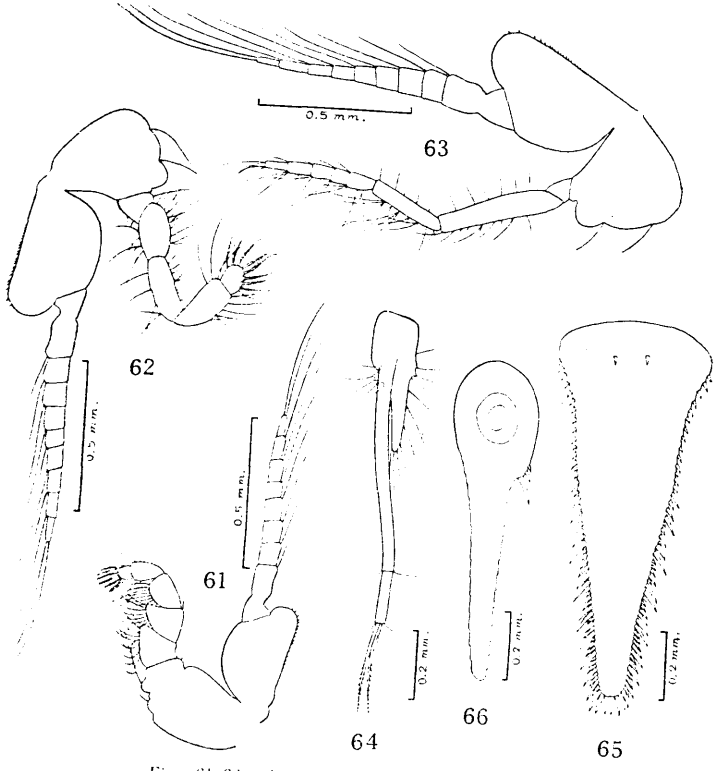
are arranged in 3 transverse rows, the spines on the sixth somite rather scattered and are not in orderly arrangement and there are about 7 spines along

its dorsal median line, as are shown in the figs. 57 and 58.

Eyes, including the stalk, about 1⅔ times as long as broad, cornea occupying slightly less than half of the entire eye in dorsal view; the stalk densely beset with spinules in the proximal half and provided with a blunt spiniform process on dorsal side just as in *N. spinosa* Nakazawa.

Antennular peduncle stouter in the male than in the female; the third joint slightly shorter than the 2 proximal joints combined; male sexual appendage triangular and about half as long as the third joint.

Antennal scale slightly longer than the antennular peduncle, about 6 times as long as broad, apex rounded, 2-jointed, the distal joint about 1/5 of the entire length of the scale. Basal joint, from which the scale arises, with



Figs. 61–66. *Acanthomysis mitsukurii* (Nakazawa).

Fig. 61. First thoracic limb.
Fig. 62. Second thoracic limb.
Fig. 63. One of the posterior thoracic limbs.
Fig. 64. Fourth pleopod of the male.
Fig. 65. Telson.
Fig. 66. Inner uropod.

a spine on the outer distal corner.

Labrum provided with a long spiniform process, the tip reaches to the end of the middle joint of the mandibular palp.

Other members of the mouth parts, and first and second thoracic limbs show no marked difference from those of other species in the genus.

Third to the eighth thoracic limbs with propodite divided into 5 joints. Basal plate of the exopod of all thoracic limbs armed with many small spines along the outer margin.

Fourth pleopod of the male long, reaching almost to the posterior end of the last abdominal somite; endopod of usual form; exopod 2-jointed, the first joint about 2½ times as long as the endopod and about 4 times as long as the second joint, terminal setae about twice as long as the second joint.

Telson long triangular, 1½ times as long as the last abdominal somite and 2½ times as long as broad at the base; lateral margins densely armed throughout their length with many stout spines, in the first ⅓ part of the margins the spines short and rather widely spaced, in the remaining part of the margins the spines grouped into about 8 sets, each set composed of a large spine followed by 1–6 small spines; apex narrowly rounded and armed with about 7 subequally long spines which are about as long as the larger spines on the lateral margins; the telson, beside the usual armature, provided with a pair of spines on dorsal surface near the base.

Inner uropod almost as long as the telson, with 3 spines on the inner margin near statocyst.

Outer uropod about 1¼ times as long as the telson.

Length. Adult males and females, 8 mm.

Remarks. The present species is easily distinguishable from all other species in the genus by the fact that the abdominal somites are spinulated. The blunt spiniform process on the eye-stalk and the pair of spines on the dorsal surface of the telson may be regarded as additional specific characters, especially the latter.

Superficially, the present species is very closely allied to *N. spinosa* Nakazawa, but it is easily distinguishable from the latter by the shape of the antennal scale.

Distribution. Off Ôarai, Ibaraki Prefecture; Off Maisaka, Sizuoka Prefecture (Nakazawa, 1910).

Genus *Proneomysis* Tattersall, 1933 sensu ampl.

The genus *Proneomysis* was originally established by Tattersall for a single species, *P. wailesi*, obtained in the waters of Western Canada.

In my collection I have found 4 species which are all new to science and closely allied to *P. wailesi*. These species, however, differ in one important point from Tattersall's definition of the genus *Proneomysis*. In his *Proneomysis* the fifth pleopod of the male is not similar to that of the female, but well

developed and modified, consisting of a long protopod terminating in a very long seta, while in all my present species the fifth pleopod of the male is absolutely similar to that of the female as in other genera of the tribe Mysini.

Tattersall in his diagnosis of *Proneomysis* attaches great importance to the structure of the fifth pleopod observed in the male of *P. wailesi* and is of the opinion that the character is sufficient to separate *Proneomysis* from other genera of the tribe Mysini. As Tattersall pointed out, if the structure of the fifth pleopod of the male is a character of generic importance, the present 4 species cannot be referred to *Proneomysis*.

In other respects, however, these present species agree absolutely with the characters of Tattersall's *Proneomysis*, especially in the form and character of the fourth pleopod of the male.

In view of this fundamental agreement among this group of species, I naturally raise the question as to the value of the structure of the fifth pleopod of the male in *P. wailesi* for the character of generic importance.

Hence, as Tattersall's *Proneomysis* comprises only a single species, I think that in the present extent of our knowledge it is better to include other species in the genus *Proneomysis*, modifying Tattersall's diagnosis of the genus and defining *Proneomysis* as a genus characterized by the constant character of the fourth pleopod of the male, not taking the peculiar character of the fifth pleopod of the male into account of generic importance.

New Definition of the Genus *Proneomysis*. First, second and third pleopods of the male rudimentary, unjointed and of the same form as in the female.

Fourth pleopod of the male biramus; inner ramus unjointed; outer ramus long and 3-jointed, the last joint terminated into 2 strong spinous setae.

Fifth pleopod of the male either similar or not to that of the female; when not similar, well developed and modified, consisting of a long protopod terminating in a very long seta.

Antennal scale narrowly lanceolate in shape, 2-jointed and setose all round; apex rounded.

Female with 2 pairs of oostegites.

Telson entire, without cleft on the distal end.

Type: *P. wailesi* Tattersall.

Remarks. The present genus is most closely allied to *Acanthomysis*, which, as already described, I have separated from the genus *Neomysis*, and the only real difference between the present genus and *Acanthomysis* lies in the character of the fourth pleopod in the male. The 3-jointed fourth pleopod of the male, with 2 long terminal setae, will serve to distinguish the present genus from other genera in the tribe Mysini.

Key to species of the genus *Proneomysis*

I. Fifth pleopod of the male not similar to that of the female, well developed and modified, consisting of a long protopod terminating in a very long seta. *P. wailesi* Tattersall

II. Fifth pleopod of the male similar to that of the female.
  A. Abdominal somite with transverse fold on dorsal side. *P. misakiensis* n. sp.
  B. Abdominal somite smooth.
    a. Propodite of the third to the eighth thoracic limbs armed with many peculiar setae in comb-like arrangement along the inner margin. *P. eriopedes* n. sp.
    b. Propodite normal and without peculiar setae.
      i. Rostrum long, triangular with a sharply pointed apex, extending beyond the middle of the first joint of the antennular peduncle. *P. fusca* n. sp.
      ii. Rostrum short triangular with an obtusely pointed apex. *P. perminuta* n. sp.

Proneomysis fusca n. sp.

Figures 67–79.

Locality. Misaki, Kanagawa Prefecture.

Type specimen. Abundant, males and females.

Quite common in the vicinity of the Misaki Marine Biological Station. Most abundant in the growth of Sargassum.

Description. In the female, body is stout and coloured dark yellowish-brown except outer flagellum of antennule, flagellum of antenna, mouth parts, appendages on thorax and abdomen, and distal part of uropods. The body colour well matches that of Sargassum. But in the male, body is rather slender and transparent for the most part, and the dark yellowish-brown pigments develop only along the ventral median line of the body.

Front margin of the carapace is produced into a long triangular rostral plate with a sharply pointed apex, the apex in the male reaching to the middle of the first joint of the antennular peduncle and in the female to the posterior end of the same joint; antero-lateral corners of the carapace rounded.

Eyes short and stout with the stalks slightly longer than the cornea.

Antennular peduncle stout in both sexes, the first joint in the male slightly shorter as compared with that in the female; male sexual appendage about $^{3}/_{4}$ of the length of the third joint.

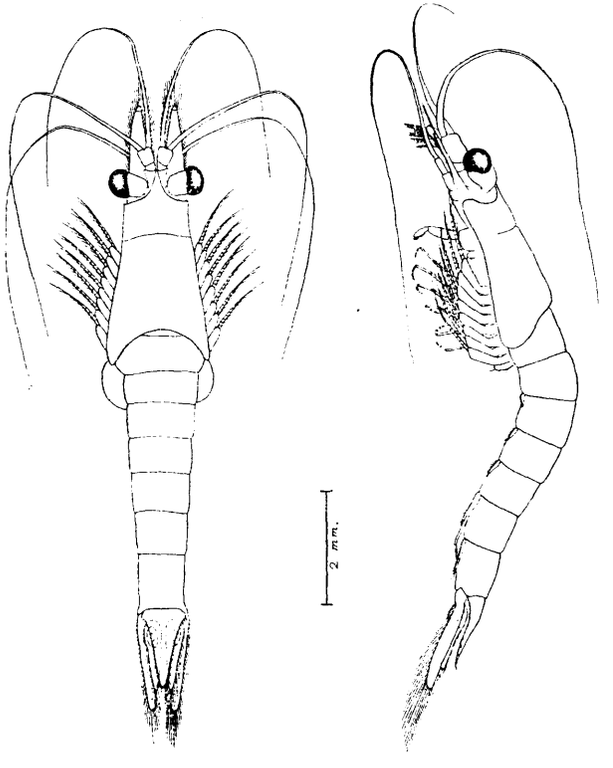
Antennal scale in the male 6 times as long as broad, only slightly longer than the antennular peduncle and extends beyond the antennal peduncle for about $^{1}/_{3}$ of its own length; distal joint about $^{1}/_{12}$ of the entire length of the scale. In the female the antennal scale much larger than in the male, $5^{1}/_{3}$ times as long as broad, extending beyond the antennular peduncle for about $^{2}/_{3}$ and the antennal peduncle for about $^{1}/_{3}$ of its own length; distal joint about $^{1}/_{16}$ of the entire length of the scale. Basal joint, from which the scale arises, with a prominent spine on the outer distal corner.

Antennal peduncle reaches to the middle of the third joint of the anten-

nular peduncle; the third joint $^3/_4$ of the length of the second joint.

Labrum provided with a forwardly directed spiniform process.

Mouth parts, first and second thoracic limbs not showing any striking difference from those in *Neomysis* and *Acanthomysis*.

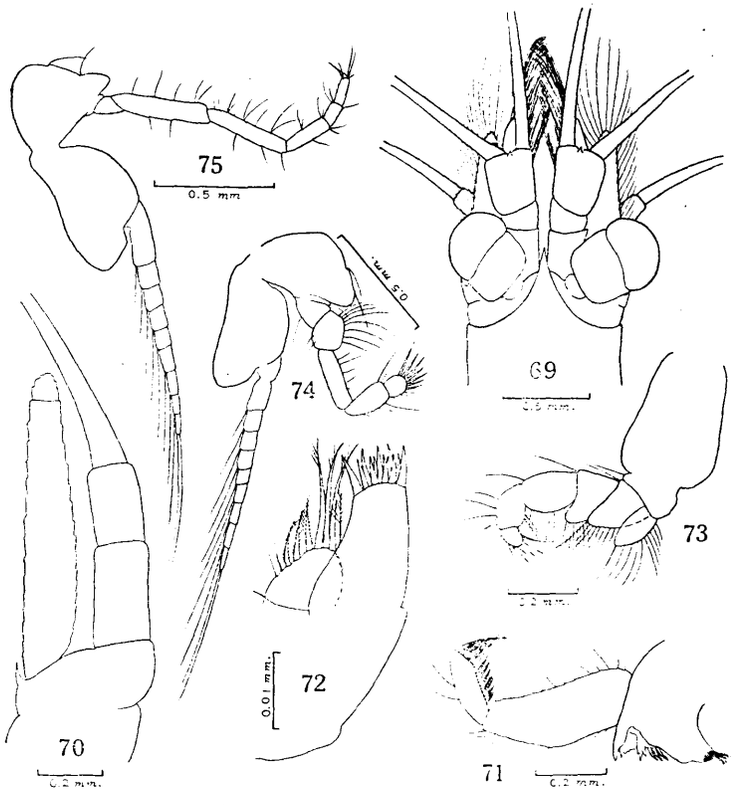


Figs. 67-68. *Proneomysis fusca* n. sp.

Fig. 67. Dorsal view of adult female. Fig. 68. Lateral view of adult male.

Third to the eighth thoracic limbs rather slender; propodite divided into 3 joints.

Fourth pleopod of the male reaching to the middle of the last abdominal somite; exopod 3-jointed, the first joint about twice as long as the endopod, the second and the third joints almost equal in size and about $^1/_6$ of the length of the first, the third joint terminated by 2 strong spinous setae, about $2^1/_2$



Figs. 69-75. *Proneomysis fusca* n. sp.

Fig. 69. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 70. Antennal scale and peduncle.
Fig. 71. Mandible and palp.
Fig. 72. First maxilla.
Fig. 73. Endopod of the first thoracic limb.
Fig. 74. Second thoracic limb.
Fig. 75. One of the posterior thoracic limbs.

times as long as the joint.

Telson triangular in shape, narrowing to a truncate apex which is about $^1/_8$ the width of the base; in the male the telson is about $1^2/_3$ times as long as the last abdominal somite, and about $1^3/_4$ times as long as broad at the base; but in the female the telson is slightly longer than in the male, about $1^1/_2$

times as long as the last abdominal somite and twice as long as broad at the base; proximal half of the lateral margins armed with about 8 short spines, 3 or 4 spines near the base rather long; distal half of the margins armed

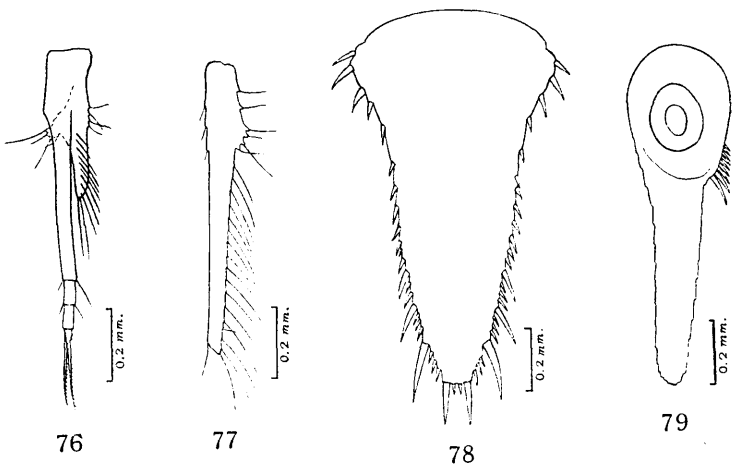


Fig. 76–79. *Pronecomysis fusca* n. sp.

Fig. 76. Fourth pleopod of the male.
Fig. 77. Fifth pleopod of the male.
Fig. 78. Telson.
Fig. 79. Inner uropod.

with 5-6 sets of spines, each set composed of a large spine followed by 2–6 small ones, the larger spines growing larger posteriorly, the last pair of large spines about 1/6 of the total length of the telson; apex armed with 2 pairs of spines, the larger outer pair about 1/5 of the total length of the telson, and the smaller inner pair equal in size to the smaller spines on the lateral margins.

Inner uropod slightly longer than the telson, with 8–9 strong spines on the ventral inner margin near the statocyst; the statocyst rather large.

Outer uropod 1/5 longer in the male and 1/4 longer in the female than the telson.

Length. Adult males and females, 9–10 mm.

Remarks. The present species is very closely allied to *P. eriopedes*, but easily distinguishable from it by the absence of peculiar setae on the inner margin of the propodite.

The long rostral plate will serve to distinguish this species from all other species of the genus.

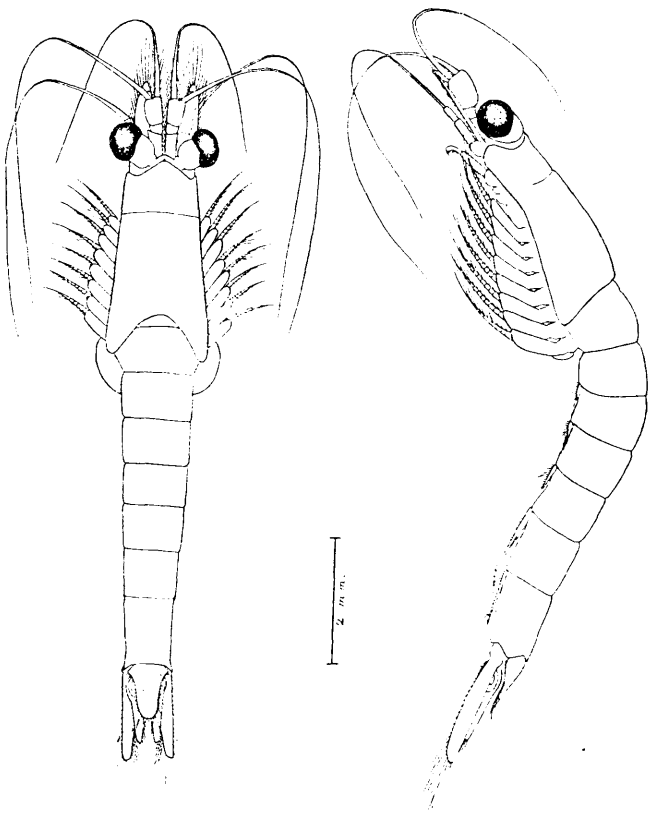
Proneomysis eriopedes n. sp.

Figures 80-92.

Locality. Misaki, Kanagawa Prefecture.

Type specimen. Abundant, males and females.

Common in the growth of sea-weeds in the vicinity of the Misaki Marine Biological Station.



Figs. 80–81. *Proneomysis eriopedes* n. sp.

Fig. 80. Dorsal view of adult female. Fig. 81. Lateral view of adult male.

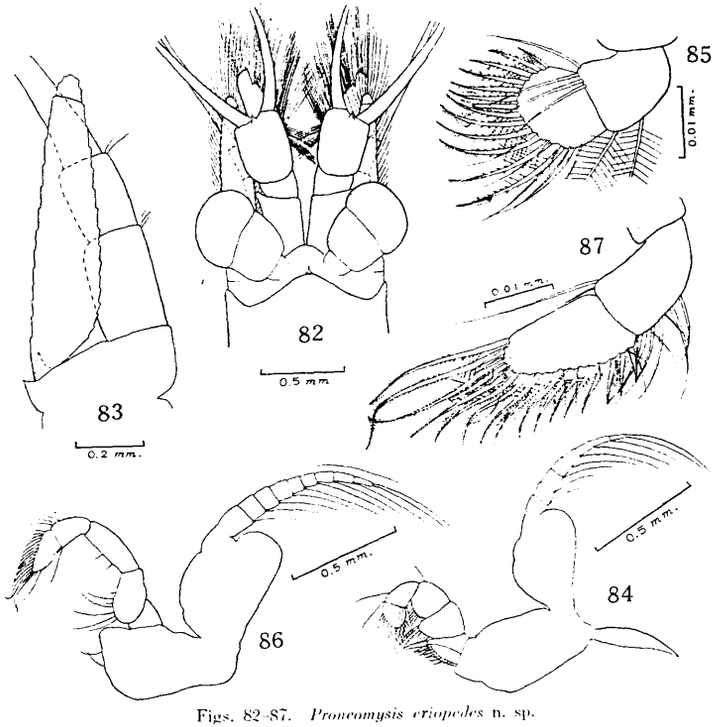
Description. Front margin of the carapace produced into a short triangular rostral plate with an obtuse apex, just under the apex there is a tiny chitinous

projection, which is spiniform in dorsal view; antero-lateral corners of the carapace rounded.

Eyes stout with the stalks slightly longer than the cornea.

Antennular peduncle stout; male sexual appendage well developed and about $^5/_6$ of the length of the third joint of the antennular peduncle. In the female the antennular peduncle somewhat more slender than in the male.

Antennal scale slightly longer than the antennular peduncle and about 4–4$^1/_2$ times as long as broad; distal joint marked off by a very obscure suture and $^1/_{11}$–$^1/_{10}$ of the entire length of the scale. Basal joint, from which the scale arises, with a prominent spine on the outer distal corner.



Figs. 82-87. *Proncomysis eriopedes* n. sp.

Fig. 82. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 83. Antennal scale and peduncle.
Fig. 84. First thoracic limb.
Fig. 85. Distal joints of the endopod of the first thoracic limb.
Fig. 86. Second thoracic limb.
Fig. 87. Distal joints of the endopod of the second thoracic limb.

Antennal peduncle in the male slightly longer than $^2/_3$ of the length of the scale, but in the female about half as long as the scale.

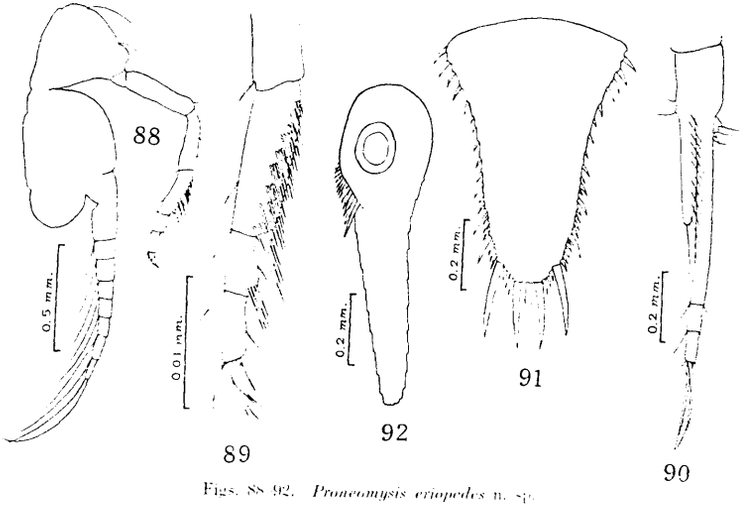
Mouth parts exhibit no feature of special interest.

First thoracic limbs with dactylopodite armed around its distal margin with about 12 stout peculiar plumose setae; hairs on the plumose seta very fine and closely set in the distal part of the seta, but rather stout and widely spaced in the proximal part, between these two parts the seta armed with tiny dentiform spines on each side.

Second thoracic limbs with well developed triangular dactylopodite, which is about twice as long as broad and whose inner margin also armed with about 20 setae identical with those on the dactylopodite of the first thoracic limbs.

Third to the eighth thoracic limbs rather slender; propodite divided into 3 joints; the first joint almost as long as the 2 distal joints combined, its inner margin armed with many setae throughout its whole length, the setae grouped into about 9 series, each series consisted of 3–5 setae arranged sideways; anterior 1 or 2 limbs always with a less number of such series of setae than the other limbs; the second joint of prododite armed with a single series of similar setae on the inner distal corner.

Fourth pleopod of the male reaching to the middle of the last abdominal somite; exopod 3-jointed, the first joint about 1$^1/_2$ times as long as the endopod.



Figs. 88-92. *Proncomysis eriopedes* n. sp.

Fig. 88. One of the posterior thoracic limbs.
Fig. 89. Distal joints of the endopod of one of the posterior thoracic limbs.
Fig. 90. Fourth pleopod of the male.
Fig. 91. Telson.
Fig. 92. Inner uropod.

the second and the third joints almost equal in size and about 1/7 of the first, the third joint terminated by 2 strong spinous setae, about 3 times as long as the joint.

Telson slightly shorter than the last abdominal somite, linguiform, somewhat abruptly narrowing in the first 1/3 part, then gradually narrowing to a broadly rounded apex; proximal half of the lateral margins armed with about 10 short spines, 3–4 spines near the base rather stout and long; distal half of the margins armed with 4–5 sets of spines, each set composed of a large spine followed by 1–5 small spines; the larger spines rapidly grow larger posteriorly, the ultimate and the penultimate pairs of them especially long and about 1/4 of the length of the telson, the shorter spines increase in number posteriorly; on the middle of the apex there are 2 short spines between the ultimate pair of the longer spines.

Inner uropod 1 1/2 times as long as the telson, with about 13 spines on the ventral inner margin near the statocyst.

Outer uropod 1 5/6 times as long as the telson.

Length. Adult males and females, 9–10 mm.

REMARKS. The present species is very closely allied to *P. fusca* but differs from it in having peculiar setae on the thoracic limbs and in the shape of the rostrum and the telson.

It is distinguishable from all other species of the genus by the presence of the peculiar setae on the thoracic limbs.

Proncomysis misakiensis n. sp.

Figures 93–105.

LOCALITY. — Mouth of Aburatubo Inlet, Kanagawa Prefecture.

Type specimen. Abundant, adult males and females.

Common in the growth of sea-weeds in the vicinity of the Misaki Marine Biological Station.

DESCRIPTION. Front margin of the carapace produced into a triangular rostral plate, the apex extending as far forward as the base of the antennular peduncle, angle of the apex acute, but the tip bluntly rounded; antero-lateral corners of the carapace rounded.

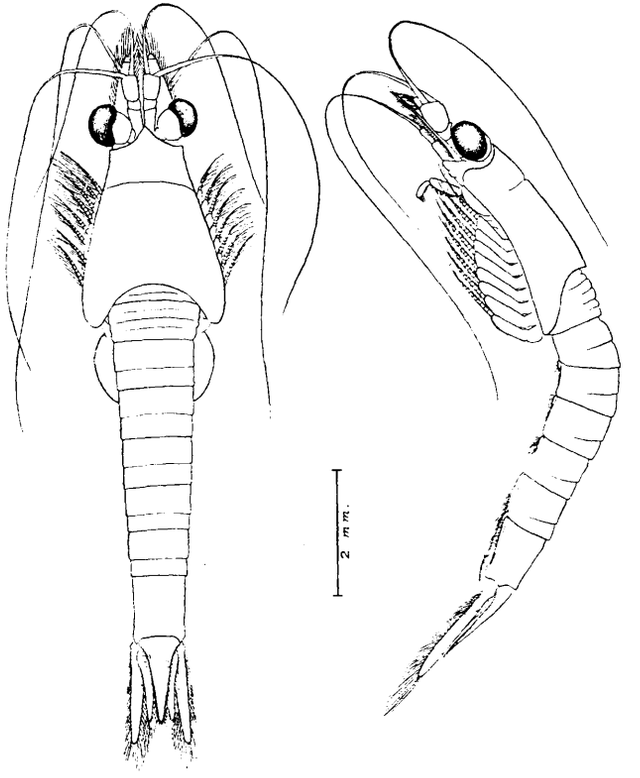
The last thoracic somite with 2 or 3 transverse grooves on dorsal side.

Each of the five anterior abdominal somites with a transverse fold on dorsal side. The fifth abdominal somite always with brown pigments developing along the fold and the distal end of the joint.

Eyes stout and about as long as broad; cornea large and reniform in dorsal view; eyestalk slightly shorter than the cornea and minutely hispid in the proximal half.

Antennular peduncle rather stout; the third joint almost as long as the 2 proximal joints combined; male sexual appendage about half as long as the third joint.

Antennal scale about 5 times as long as broad; distal joint marded off by an obscure suture and about 1/10 of the scale in length. In the male the antennal scale extending as far forward as to the distal end of the male sexual appendage and beyond the antennal peduncle for about 2/5 of its own length. In the female the scale slightly larger than in the male, about 1 1/2 times as



93 94

Figs. 93–94. *Proncomysis misakiensis* n. sp.

Fig. 93. Dorsal view of adult female. Fig. 94. Lateral view of adult male.

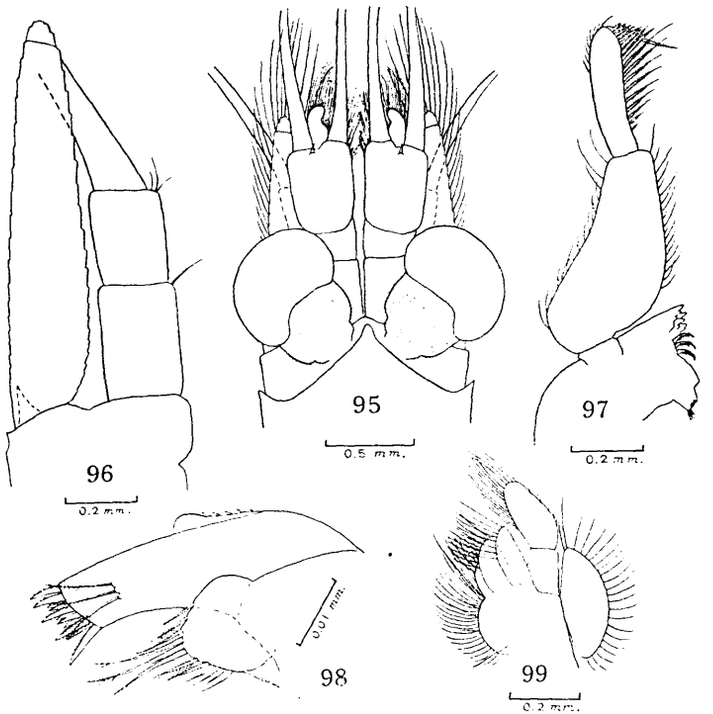
long as the antennular peduncle and about twice as long as the antennal peduncle. Basal joint, from which the scale arises, with a prominent spine on the outer distal corner.

First maxillae with ridge on the outer margin of the outer plate armed with about 5 spinules.

Third to the eighth thoracic limbs with propodite divided into 3 joints.

Basal plate of the exopod of the thoracic limbs with a small spine on the outer distal corner.

Fourth pleopod of the male reaching to the posterior end of the last abdominal somite; exopod 3-jointed, the first joint about 3 times as long as



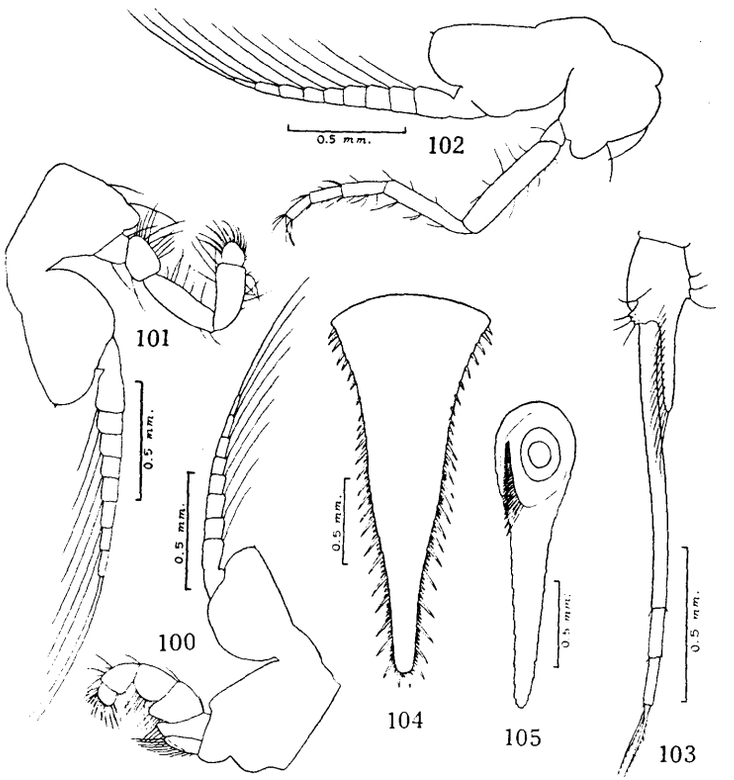
Figs. 95-99. *Proncomysis misakiensis* n. sp.

Fig. 95. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 96. Antennal scale and peduncle.
Fig. 97. Mandible and palp.
Fig. 98. First maxilla.
Fig. 99. Second maxilla.

the endopod, the second and the third joints almost equal in size and $^1/_6$–$^1/_7$ of the first joint, the third joint terminated by 2 strong spinous setae, about $1^2/_3$ times as long as the joint.

Telson long triangular, slightly shorter than the twice of the length of the last abdominal somite and $2^1/_2$ times as long as broad at the base; lateral margins concave in the first $^1/_3$ part, convex in the second $^1/_3$ part and then

gradually narrowing to a narrowly rounded apex; the lateral margins densely armed throughout their length with many spines, the proximal $^1/_3$ of the margins with about 10 short stout spines rather widely spaced, the remaining



Figs. 100-105. *Proncomysis misakiensis* n. sp.

Fig. 100. First thoracic limb.
Fig. 101. Second thoracic limb.
Fig. 102. One of the posterior thoracic limbs.
Fig. 103. Fourth pleopod of the male.
Fig. 104. Telson.
Fig. 105. Inner uropod.

part of the margins with the spines grouped into 12–15 sets, each set composed of a large spine followed by 1–5 small ones; the apex armed with 2 pairs of spines, the longer outer pair about $^1/_5$ of the length of the telson and the inner pair equal in size to the shorter spines on the lateral margins.

Inner uropod about as long as the telson, with 30–35 spines on the ventral inner margin near the statocyst.

Outer uropod $^1/_4$ longer than the telson.

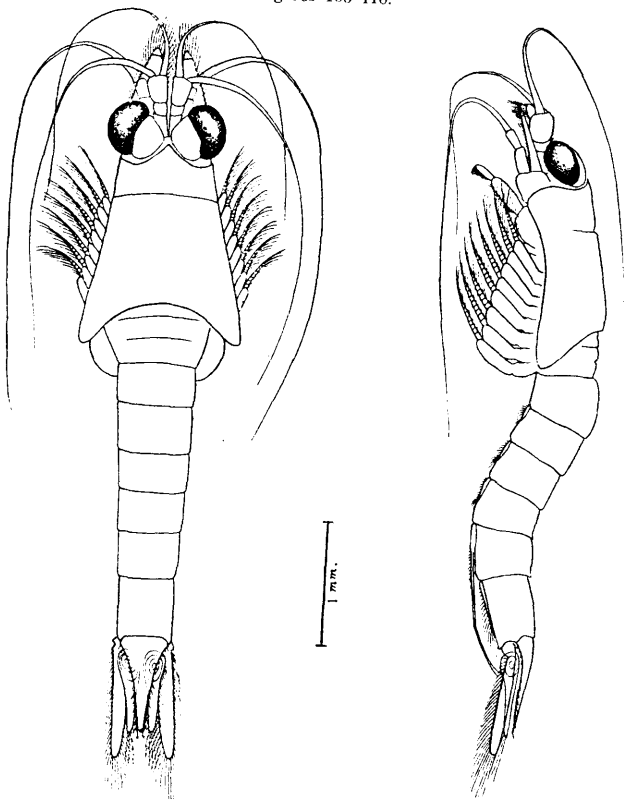
Length. Adult males and females, 9–10 mm.

REMARKS. The present species is closely allied to both *P. fusca* and *P. eriopedes* but the fold on the abdominal somites and the shape of the telson will serve to distinguish it from both of them.

Superficially this species is very closely allied to *Acanthomysis mitsukurii* (Nakazawa), but is distinguishable from it by the number of joints on the fourth pleopod of the male and by the absence of the spines on the abdominal somites.

Proneomysis perminuta n. sp.

Figures 106–116.



106 107

Figs. 106-107. *Proneomysis perminuta* n. sp.

Fig. 106. Dorsal view of adult female. Fig. 107. Lateral view of adult male.

LOCALITY. Aziro, Sizuoka Prefecture.

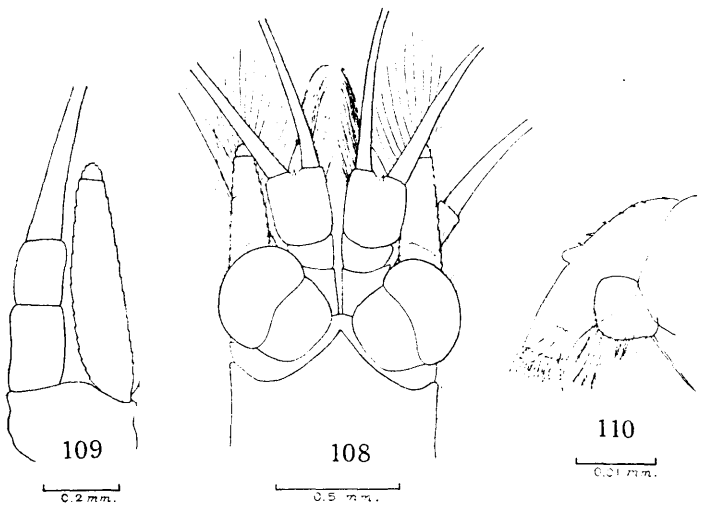
Type specimen. Abundant, adult males and females.

DESCRIPTION. Front margin of the carapace produced into a short triangular rostral plate with an obtusely pointed apex; antero-lateral corners of the carapace rounded.

Eyes slightly depressed in lateral view, in dorsal view the whole eye is about as long as broad and cornea is about half as long as the entire length of the eye.

Antennular peduncle short and stout, the third joint about as long as the 2 proximal joints combined, male sexual appendage short and triangular.

Antennal scale slightly longer than the antennular peduncle, in the male extending as far forward as the tip of the male sexual appendage, about 4 times as long as broad, apex rounded, 2-jointed, the distal joint about $^1/_{15}$ of the entire length of the scale. Basal joint, from which the scale arises, with a prominent spine on the outer distal corner.



Figs. 108–110. *Proneomysis perminuta* n. sp.

Fig. 108. Anterior end of a male to show rostral plate, eye, antennule and antennal scale.
Fig. 109. Antennal scale and peduncle.
Fig. 110. First maxilla.

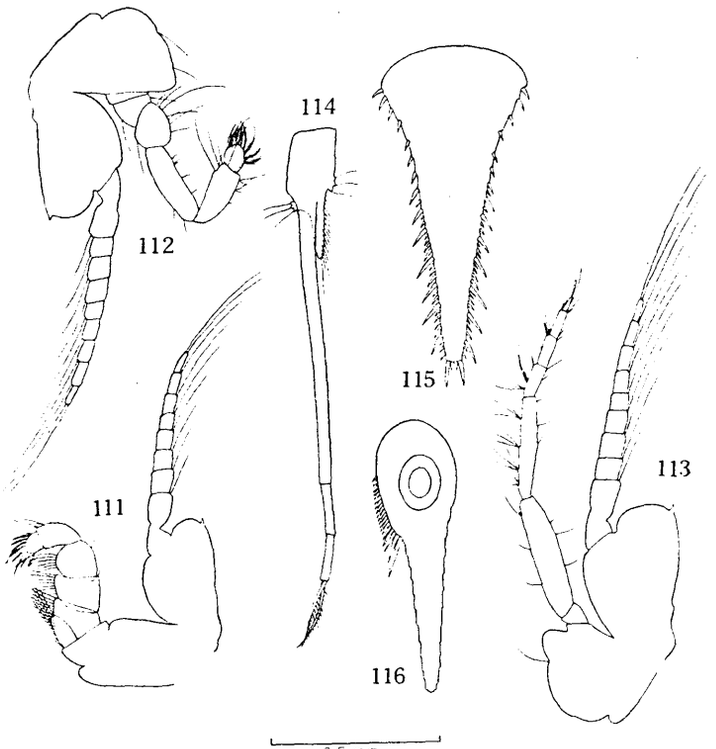
Antennal peduncle stout and slightly shorter than the antennular peduncle.

Mouth parts, first and second thoracic limbs showing no very marked difference from those in other species of the genus except for the outer margin of the outer plate of the first maxillae provided with several small spines.

Third to the eighth thoracic limbs with propodite divided into 3 joints. Basal plate of the exopod of all thoracic limbs provided with a spine on the outer distal corner.

Last thoracic somite with one or two faint transverse grooves on the dorsal side.

Fourth pleopod of the male very long, reaching to the posterior end of the statocyst; endopod small; exopod 3-jointed, the first joint very long, the second and the third joints equal in size and about 1/7 of the first joint, terminal setae slightly longer than the third joint.



Figs. 111–116. *Proncomysis perminuta* n. sp.

Fig. 111. First thoracic limb.
Fig. 112. Second thoracic limb.
Fig. 113. One of the posterior thoracic limbs.
Fig. 114. Fourth pleopod of the male.
Fig. 115. Telson.
Fig. 116. Inner uropod.

Telson triangular, 1 2/3 times as long as the last abdominal somite and about twice as long as broad at the base; lateral margins tapering to a narrow but distinctly truncate apex which is about 1/3 the width of the base; the lateral margins armed throughout their entire length with about 14 strong spines which increase in length toward the apex, on the distal half of the margins the spaces between the strong spines are occupied by 1–4 small spines; the apex armed with four spines, the outer spines about as long as the larger spines on the lateral margins and about thrice as long as the inner.

Inner uropod slightly longer than the telson, with a row of 16–20 strong spines on the ventral inner margin near the statocyst.

Outer uropod about 1 1/4 times as long as the telson.

Length. Adult males and females, 5 mm.

REMARKS. The present species is very closely allied to *P. fusca* but differs from it in the body length and in the shape of the rostrum and the telson.

This species also shows many points of resemblance to *P. misakiensis*, but is distinguishable by the body length and by the absence of the fold on the abdominal somites.

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