Journal of the Oceanographical Society of Japan
Vol. 26, No. 3, pp. 137 to 150, June 1970

Systematic and Ecological Studies on Mysidacea Collected by the Bottom-net*

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Abstract: A list of the 21 species represented in the collection by the bottom-net is given. Of these, 5 are impossible to be identified with the already known species, especially 2 are reserved as their genera are undecided. It is found that there are 2 races in *Holmesiella affinis* II, the large-sized and the small-sized, as like as the most related species, *H. anomala* ORTMANN. As to a species, *Pteromysis amemiyai* II, the development of the marsupium is discussed on the basis of an adult female collected by the ORI-net. The occurrence of 2 species, *Petalophthalmus oculatus* ILLIG and *Pseudomma calloplura* HOLT and TATTERSALL, is a new record in the Pacific. For the former species, moreover, an ecological property of the habitat is discussed.

1. Introduction

Up to date, studies on the mysids which inhabit close to the sea-floor, except in the shore waters shallower than the depths of 20 or 30 m, have never been fully carried out. The present author has practiced a series of investigations of mysids taken from the vicinity of the sea-floor in the neighbouring areas of Japan using the bottom-net which was designed by OMORI (1969), and 21 species including rare and probably new ones were collected from the offing of Tateyama, Chiba Prefecture, which is located in the east coast of Sagami Bay. In the present paper systematic notes and ecological discussions are given.

2. Method and stations

Samplings were carried out with the bottom-net. As for the details of the net and the method of the collection, refer to OMORI (1969). Date, time, position and depth of 7 stations where mysids were taken are shown in Table 1. At St. 293-2 the catch was very abundant and a part of it remains still unidentified.

3. List of the species

Suborder Lophogastrida
  Family Lophogastridae
    Gnathophausia longispina G. O. SARS
Suborder Mysida
  Family Petalophthalmidae

Table 1. Available data on the stations where mysids were collected.

Station	Date	Time	Position	Depth(m)
221-2	Apr. 23, 1967	11:29-11:48	Off Tateyama, Chiba Pref.	30
221-3	Apr. 23, 1967	12:15-12:40	Off Tateyama, Chiba Pref.	61-71
221-4	Apr. 23, 1967	12:46-13:11	Off Tateyama, Chiba Pref.	44 71
221-5	Apr. 23, 1967	13:30-14:16	Off Tateyama, Chiba Pref.	370-380
293-1	Apr. 13, 1968	12:16-12:38	From 35°00.7'N, 139°49.5'E to 35°00.3'N, 139°48.8'E	35-75
293-2	Apr. 13, 1968	13:00-13:37	From 35°00.3'N, 139°48.4'E to 35°00.0'N, 139°47.6'E	220-330
293-3	Apr. 13, 1968	14:05-14:43	From 35°00.3'N, 139°47.2'E to 35°00.3'N, 139°47.3'E	370-430

* Received March 31, 1970
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Petalophthalmus oculatus ILLIG
Family Mysidae
Subfamily Mysinae
Tribe Erythropini
Meterythrops picta HOLT and TATTERSALL
Gibberythrops brevisquamosa (ILLIG)
Hypererythrops zimmeri II
Eoerythrops typicus MURANO
Dactylerythrops chrotops MURANO
Holmesiella affinis II
Pteromysis amemiyai II
Pseudomma calloplura HOLT and TATTERSALL
Pseudomma japonicum Murano ?
Pseudomma sp. (A)
Pseudomma sp. (B)
A species of unknown genus (A)
A species of unknown genus (B)
Tribe Leptomysini
Pseudomysis dactylops TATTERSALL
Mysidopsis surugae MURANO
Bathymysis sp.
Tribe Mysini
Parastilomysis paradoxa II
Subfamily Mysidellinae
Mysidella tanakai II
Mysidella nana MURANO

4. Systematic notes

Gnathophausia longispina G. O. SARS

Gnathophausia longispina G. O. SARS, 1884, p. 8; 1885, pp. 46-48; ORTMANN, 1905, pp. 969-970; 1906, pp. 41-42; HANSEN, 1910, p. 17; SHIINO, 1937, pp. 184-187; FAGE, 1941, pp. 39-41; W. M. TATTERSALL, 1951, pp. 28-29.

Material: St. 293-3, 2 juveniles, 20.8 and 27.1 mm (from apex of rostrum to distal end of telson).

Geographical distribution: Philippine Islands, Hawaiian Islands, adjacent waters of Indonesia, Japan and East China Sea.

Petalophthalmus oculatus ILLIG (Figs. 1~4)

Petalophthalmus oculatus ILLIG, 1906, pp. 194-196; 1930, pp. 411-412; W. M. TATTERSALL, 1939, pp. 229-230; O. S. TATTERSALL, 1955, pp. 65-66; PILLAI, 1968, pp. 283-291.

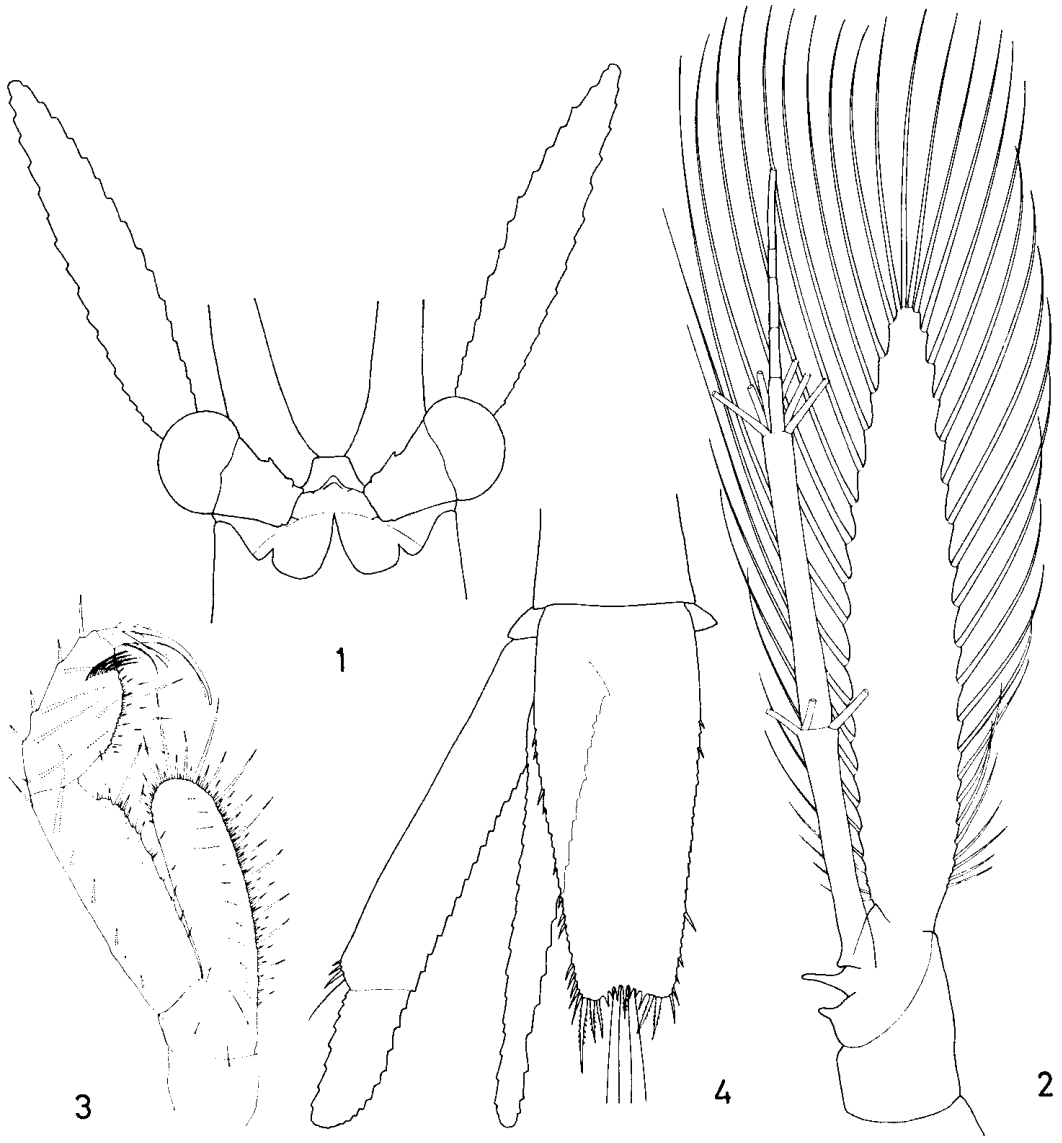
Material: St. 221-5, 5 immature ♀♀, 9.5 to 12.5 mm; St. 293-2, 30 immature ♀♀. 8.2 to 16.4 mm; St. 293-3, 2 immature ♂♂, 17.3 and 18.5 mm, and 3 immature ♀♀, 6.6 to 18.5 mm.

Remarks: All the present specimens are immature, but the author has found 2 adult (35°02.6′N, 139°41.0′E) and 1 immature (35° 12.8′N, 139°15.5′E) female which were taken by oblique hauls of ORI-net from near the present locality. These agree well with the description of the type specimens by ILLIG (1906 and 1930) and the redescription of an adult female collected from near the type locality by PILLAI (1968) except for some minor respects as follows. (1) In the present specimens the central spine of anterior margin of carapace is long, reaching to base of eyestalk (Fig. 1), while in the specimens from the Indian Ocean it is rather short and does not reach to base of eyestalk. (2) Cornea is more expanded in the present specimens than in the latters (Fig. 1). (3) In the present specimens antennal scale is longer than antennal peduncle (Fig. 2), but in the latters it is shorter than antennal peduncle. (4) In the former the lobe from ischium of the 2nd thoracic limb is about 3 times as long as broad (Fig. 3), whereas in the latter it is about 4.5 times as long as broad. (5) Outer distal corner of the 1st segment of exopod of uropod is bearing 3 spines in addition to a seta in the former (Fig. 4), while it is bearing a single spine in addition to a seta in the latter.

Geographical distribution: Gulf of Aden, Arabian Sea and the north-west of Seychelles Islands. Until now, this species has been obtained from the north-western part of the Indian Ocean and Arabian Sea. The present record, therefore, is a new in the Pacific, and so the geographical range of the species is considerably extended.

Meterythrops picta HOLT and TATTERSALL

Meterythrops picta HOLT and TATTERSALL, 1905, pp. 116-117 and 143; 1906, pp. 23-24; HANSEN, 1908, p. 107; ZIMMER, 1909, pp. 87-88; W. M. TATTERSALL, 1911, pp. 28-29; ZIMMER, 1914, p. 388; ILLIG, 1930, p. 428; STEPHENSEN, 1933, p. 12; W. M. TATTERSALL, 1951, p. 113; W. M. and O. S. TATTER-



Figs. 1~4. *Petalophthalmus oculatus* ILLIG, 1, anterior end of adult female, ×17; 2, antenna, ×25; 3, 2nd thoracic limb, ×16; 4, telson and uropod, ×17.

SALL, 1951, pp. 209-212; O. S. TATTERSALL, 1955, pp. 117-118; BIRSTEIN and TCHINDONOVA, 1962, pp. 65-66; II, 1964, pp. 314-319.

Meterythrops indica HANSEN, 1910, pp. 63-64; ILLIG, 1930, pp. 428-429; W. M. TATTERSALL, 1939, p. 235.

Meterythrops affinis COIFMANN, 1936, pp. 36-38.

Material: St. 293-2, 1 juvenile ♀, 4.3 mm; St. 293-3, 1 juvenile ♀, 4.7 mm.

Remarks: Outer margin of antennal scale is furnished with no spines besides terminal one in the present juvenile specimens.

Geographical distribution: Widely distributed in deeper layers of the Pacific, Atlantic and Indian Oceans.

Gibberythrops brevisquamosa (ILLIG)

Erythrops brevisquamosa ILLIG, 1906, p. 197; COIFMANN, 1936, pp. 34-35.

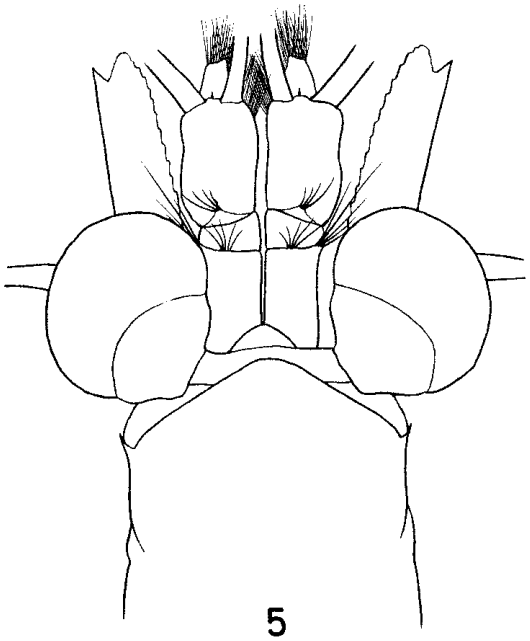


Fig. 5. *Eoerythrops typicus* MURANO, anterior end of adult male, ×17.

Hypererythrops brevisquamosa ILLIG, 1930, pp. 429-430.

Gibberythrops brevisquamosa W. M. TATTERSALL, 1939, p. 245; II, 1964, pp. 336-341.

Material: St. 293-3, 1 adult ♂, 8.0 mm.

Geographical distribution: This species has been collected from the Indian Ocean and adjacent seas of Japan (Sagami and Suruga Bays).

Hypererythrops zimmeri II

Hypererythrops sp. ZIMMER, 1915, p. 318.

Hypererythrops zimmeri II, 1937, pp. 205-208; 1964, pp. 330-333; MURANO, 1970, pp. 256-257.

Material: St. 221-4, 1 adult ♂, 5.5 mm and 1 immature ♀, 4.6 mm; St. 293-1, 1 adult ♂, 5.2 mm, and 2 adult ♀♀, 5.3 and 5.6 mm.

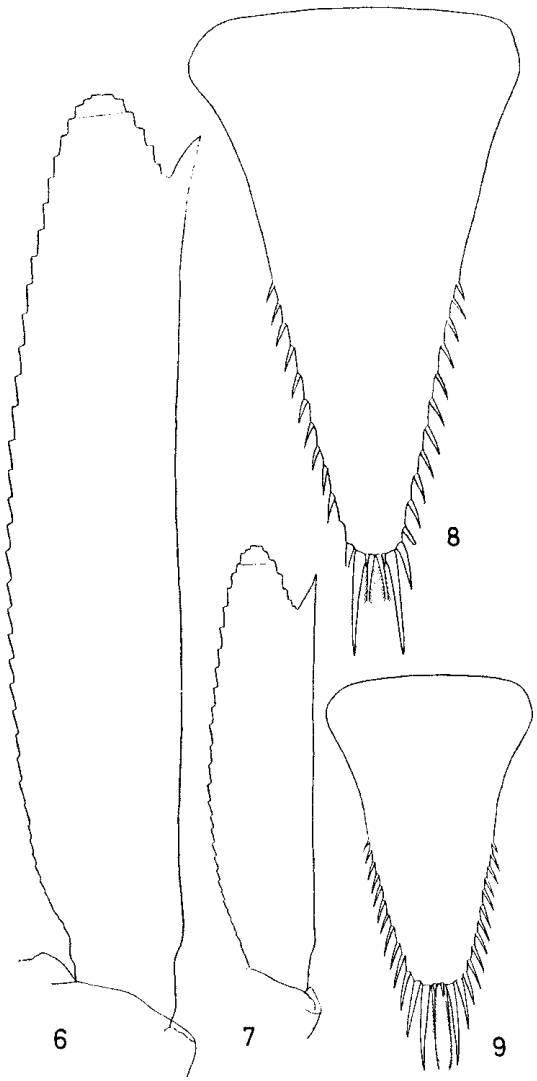
Remarks: This species seems to be a benthic form living at shallow waters of the depths of 30~80 m.

Geographical distribution: Italy; Sagami and Suruga Bays, Japan.

Eoerythrops typicus MURANO (Fig. 5)

Eoerythrops typicus MURANO, 1969, pp. 210-211.

Material: St. 221-5, 1 adult ♂, 10.7 mm;



Figs. 6~9. *Holmesiella affinis* II, 6, antennal scale of large-sized race, ×28; antennal scale of small-sized race, ×28; 8, telson of large-sized race, ×28; 9, telson of small-sized race, ×28.

St. 293-2, 1 adult ♂, 11.0 mm, and 1 immature ♀, 8.2 mm.

Remarks: Except a fact, the difference in the size of eye, the present specimens are almost the same as the type collected by an oblique haul of the ORI-net from the depth of 500 m to the surface. In the present specimens the eye is larger and more expanded than in the type (Fig. 5). As this difference is rather

remarkable, the author identifies with some hesitation these specimens with *Eoerythrops typicus*.

Geographical distribution: Only known from Sagami Bay, Japan.

Dactylerythrops chrotops MURANO

Dactylerythrops chrotops MURANO, 1969, pp. 214–217.

Material: St. 293–2, 6 juveniles, 4.0 to 6.9 mm; St. 293–3, 12 juveniles, 5.2 to 6.8 mm.

Remarks: This species was instituted by the present author for the reception of 2 adult males collected from deeper layers by the ORI-net. The present collection by the bottom-net suggests that this species normally lives in the vicinity of the bottom.

Geographical distribution: Sagami and Suruga Bays, Japan.

Holmesiella affinis II (Figs. 6~9)

Holmesiella affinis II, 1937, pp. 200–205; 1964, pp. 348–351; MURANO, 1970, pp. 260.

Material: St. 221–5, 2 adult ♂♂, 14.9 and 15.8 mm, 2 adult ♀♀ with embryos in marsupium, 18.8 and 21.0 mm, 1 immature ♂, 13.7 mm, and 3 immature ♀♀, 10.7 to 12.5 mm; St. 293–2, 3 adult ♂♂, 14.5 to 16.9 mm, 2 adult ♀♀ with embryos in marsupium, 21.2 and 22.0 mm, and 16 immature ♀♀, 9.9 to 14.5 mm.

Remarks: In *Holmesiella anomala* ORTMANN which is nearly related to this species, it has already been observed that the species can be divided into 2 races, the large-sized deep-water race and the small-sized shallow-water race. Such 2 races are also found in the present species. Namely, the present females with embryos in marsupium are 21.2 and 22.0 mm in body length from the depths of 220~330 m, and 18.8 and 21.0 mm from the depths of 370~380 m. As against this, the female taken from the depth of about 80 m in Suruga Bay has carried eggs at the length of only 12.4 mm. These 2 races, the large-sized and the small-sized, appear to be distinguishable in some morphological features. The differences are shown in Table 2.

Geographical distribution: Only known from the adjacent seas of Japan.

Pteromysis amemiyai II

Pteromysis amemiyai II, 1964, pp. 357–360.

Material: St. 293–3, 1 juvenile ♀, 7.6 mm.

Remarks: In the present collection by the bottom-net, a single juvenile female was captured, but 9 specimens including an adult female have been caught in Sagami Bay (34°44.8′N, 139°08.5′E) when the ORI-net accidentally touched the sea-floor at the depth of about 480 m during an oblique haul. Using these specimens as a basis, the author wishes to inquire into II's description on the genus *Pteromysis*.

II collected a single female 9.5 mm long. Although his specimen was armed with no oostegites on thoracic limbs, he thought that the specimen is probably an adult because the 3rd to 8th thoracic limbs have possessed extremely broadened merus as if it was to compensate for

Table 2. Morphological differences between the large-sized and the small-sized race of *Holmesiella affinis*.

	Large-sized race	Small-sized race
Body length with embryos	18.8–22.0 mm	12.4 mm
Rostrum	Apex rather obtusely pointed	Apex narrowly rounded
Eye	Large; diameter of cornea is 0.086–0.101 of body length	Somewhat small; diameter of cornea is 0.065–0.071 of body length
Antennal scale	About 5.5 times as long as broad; terminal lobe small, less than 1/10 of scale (Fig. 6)	About 4.2 times as long as broad; terminal lobe large, about 1/7 of scale (Fig. 7)
Telson	1.7 times as long as broad; distal margin narrow, about 1/6 of width at the base; marginal spine short as compared with the length of telson (Fig. 8)	1.5 times as long as broad; distal margin broad, about 1/4 of width at the base; marginal spine long as compared with the length of telson (Fig. 9)
4th pleopod of the male	Endopod 14-segmented; exopod 11-segmented	Endopod 13-segmented; expod 11-segmented

the loss of oostegites.

The adult female taken by the ORI-net is 15.5 mm, and is armed with well developed oostegites. In its large eye, long scale, antennal peduncle of which the junction between the 2nd and 3rd segments is overlapping, shape and armature of telson, and above all things, in the broadened merus of the endopods of the 3rd to 8th thoracic limbs, this specimen almost agrees with Ii's description of *Pteromysis amemiyai*, though it is different in body length and in the presence of fully developed oostegites. Of the immature females taken by the ORI-net in company with the adult one, in the specimen of 13.9 mm the half-grown oostegites are seen on the thoracic limbs, but in the specimen of 12.3 mm these are invisible. The type specimen of 9.5 mm is certainly an immature female in which oostegites does not yet develop. The diagnosis of the genus *Pteromysis* must of necessity be revised, but the genus is of course retained by the presence of the broadened merus in thoracic endopods. It seems to be normal that the present species inhabits close to the bottom.

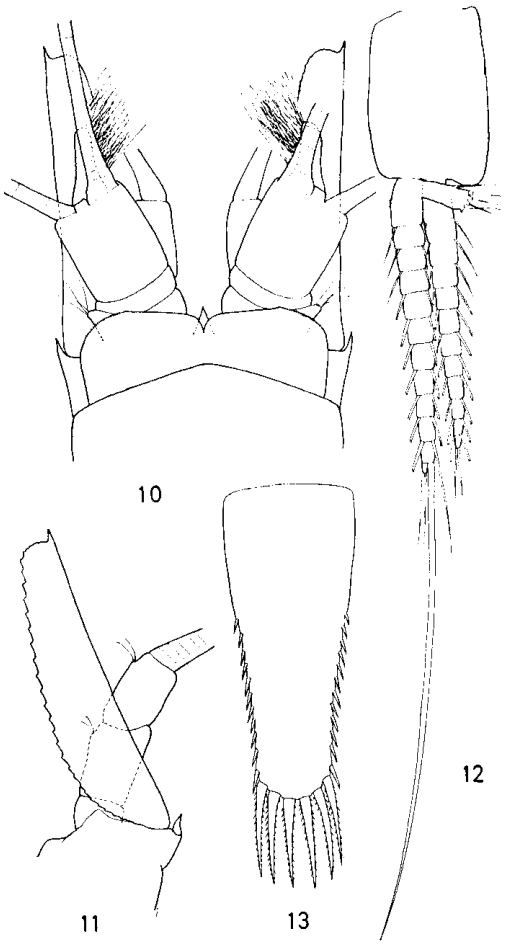
Geographical distribution: Only known from Sagami Bay, Japan.

Pseudomma calloplura HOLT and TATTERSALL (Figs. 10~13)

Pseudomma calloplura HOLT and TATTERSALL, 1905, pp. 126 and 145; 1906, pp. 30-33; 1909, p. 133; ZIMMER, 1909, pp. 106-107; W. M. TATTERSALL, 1911, p. 46; BACESCO, 1941, pp. 19-21; W. M. and O. S. TATTERSALL, 1951, pp. 236-238.

Material: St. 221-5, 2 adult ♂♂ in bad condition; St. 293-2, 2 adult ♂♂, 8.0 and 8.1 mm; St. 293-3, 1 adult ♂ in bad condition.

Remarks: Among a number of species belonging to the genus *Pseudomma*, this species is a peculiar one in respect to its telson which has apical spines furnished with spinules and to the 4th pleopod of the male, of which the endopod is longer than exopod and bears a long naked seta on the penultimate segment. With these two characteristics the present specimens agree with the type specimen from the British area, so that the author has no scruples about its identification with *P. calloplura* (Figs. 12 and 13). In the location of the serrulation of eyeplate, however, the Japanese specimens seem to differ from the British ones, judging from the figure of W. M. and O. S. TATTERSALL (1951, Figs. 53A and B). In the former the serrulation marks only 1/4 of the total margin of eye (Fig. 10), while in the latter it extends to 3/5.



Figs. 10~13. *Pseudomma calloplura* HOLT & TATTERSALL, 10, anterior end of adult male, ×33; 11, antenna, ×33; 12, 4th pleopod of male, ×33; 13, telson, ×33.

Geographical distribution: The present species has been hitherto known from the west and south-west of Ireland, Faroe Channel and the Mediterranean. The present record, therefore, is very interesting and considerably extend the geographical range of this species.

Pseudomma japonicum MURANO?
(Figs. 14 and 15)

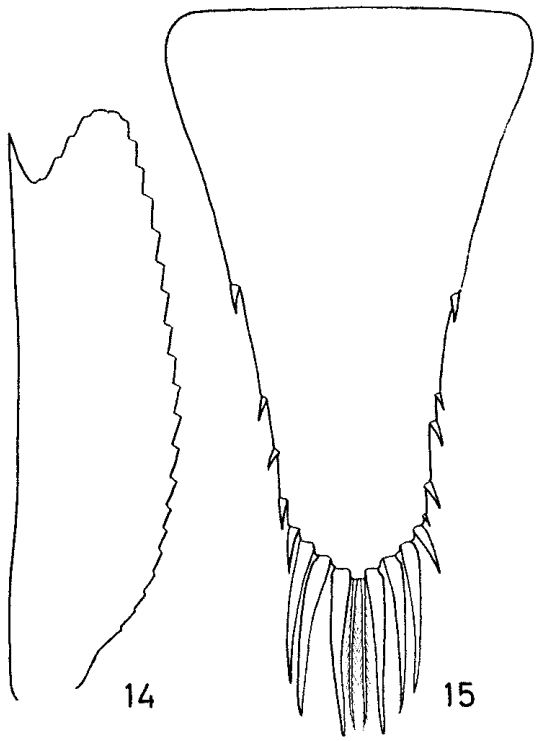
Pseudomma japonicum MURANO, 1970, pp. 252-254.

Material: St. 221-5, 1 adult ♂, 6.0 mm, 2 adult ♀ (1 badly damaged), 6.0 mm, 2 immature ♂♂, 5.1 and 5.3 mm, and 4 immature ♀♀, 3.3 to 5.4 mm; St. 293-2, 7 adult ♂♂, 5.8 to 6.3 mm, 6 adult ♀♀, 5.8 to 7.0 mm, 2 immature ♂♂, 5.5 and 5.7 mm, and 2 immature ♀♀, 4.7 and 5.4 mm; St. 293-3, 2 adult ♂♂, 5.8 and 6.5 mm, 1 adult ♀, 6.4 mm, 2 immature ♂♂, 5.0 and 5.6 mm, and 1 immature ♀, 6.0 mm.

Remarks: The present specimens differ from the type collected from the west coast of Suruga Bay in morphological features and ecological property as follows. (1) The body length of the type specimens is 4.7 mm in the female and 3.9 mm in the male. In the present specimens, it is 5.8-7.0 mm in the female and 5.8-6.5 mm in the male. (2) Terminal lobe of antennal scale is rather large, 3.5 times as long as terminal spine of external margin in the latter, whereas it is rather small and slightly extends beyond terminal spine in the present ones (Fig. 14). (3) The type specimens are taken from the sea-floor at the depth of about 80 m, while the present specimens are caught from the sea-floor at the depths of 220~330, 370~380 and 370~430 m.

Although the differences in the body length and the scale are not so small, it seems to be appropriate that the present specimens are referred to *P. japonicum*, since these differences appear to result from their habitats.

Geographical distribution: Sagami and Suruga Bays, Japan.



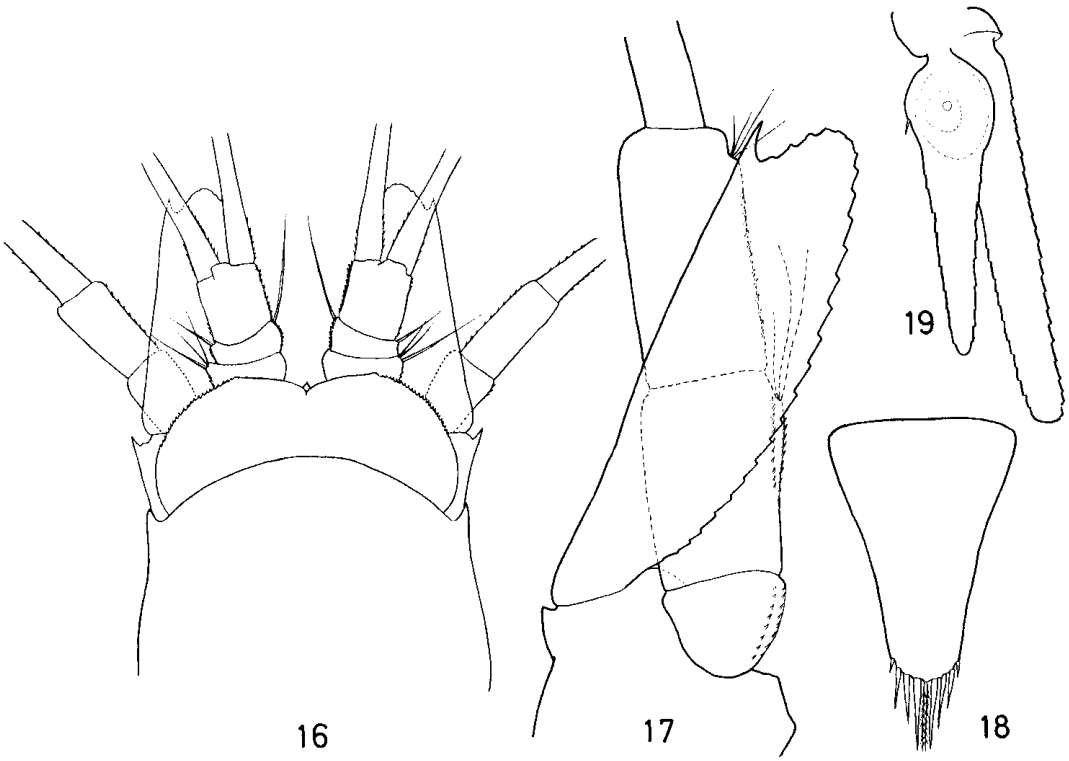
Figs. 14~15. *Pseudomma japonicum* MURANO?, 14, antennal scale, ×83; 15, telson, ×83.

Pseudomma sp. (A) (Figs. 16~19)

Material: St. 221-5, 1 adult ♂, 6.1 mm; St. 293-3, 2 adult ♂♂, 5.6 and 6.0 mm, and 1 adult ♀ with embryos in brood pouch, 6.0 mm.

Remarks: The present species closely resembles *P. nanum* from the west and south-west coasts of Ireland and Faroe Channel in its subliner body, short carapace, and shape and armature of telson (Fig. 18). However, the specific differences between this species and *P. nanum* are found in the following points. (1) In the British specimens, the sexual difference which is most unusual among mysids is present in antennal peduncle. While in the present species the difference is small and usual in mysids, the antennal peduncle of both male and female is allied to that of the male of *P. nanum* (Figs. 16 and 17). (2) In *P. nanum* outer margin of antennal scale is terminating in a spine which is very slightly shorter than obtusely rounded apex, while in the present specimens it is terminating in a spine which is clearly shorter than somewhat narrowly rounded apex (Fig. 17). (3) Antennule and antenna are furnished with some rows of spinules in the present species (Fig. 16), but in *P. nanum* it has not been noted in the description of the previous workers. (4) Endopod of uropod is armed with a single spine on the inner margin in the former species (Fig. 19), whereas no spines are present on the same position in the latter.

The exact specific identification is reserved to further study.



Figs. 16~19. Pseudomma sp. (A), 16, anterior end of adult female, ×42; 17, antenna, ×83; 18, telson, ×42; 19, uropod, ×42.

Pseudomma sp. (B)

Pseudomma sp. MURANO, 1970, pp. 254-256.

Material: St. 221-5, 1 adult ♀, 7.9 mm; St. 293-2, 3 adult ♀♀, 7.1 to 8.0 mm, and 1 immature ♂, 5.4 mm; St. 293-3, 3 adult ♂♂, 6.0 to 6.2 mm, 7 adult ♀♀, 6.8 to 7.9 mm, of which 3 specimens of 7.0, 7.4 and 7.5 mm carry embryos in marsupium, and 3 immature ♂♂ (1 damaged), 4.8 and 5.2 mm.

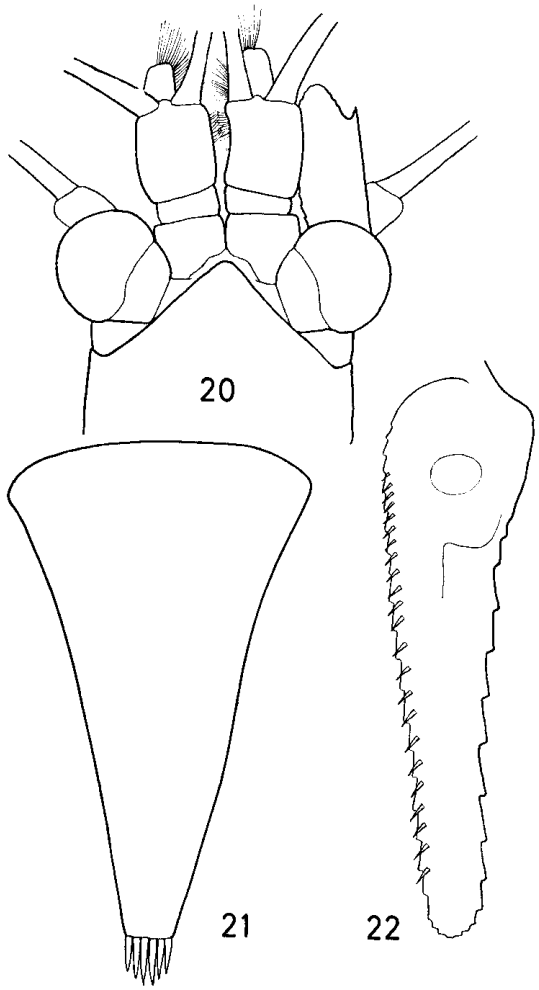
Remarks: The present specimens agree with the species reported as *Pseudomma* sp. by the present author for a young and a badly damaged specimen collected from Suruga Bay (1970). Full description of this species must be made in the near future.

A species of unknown genus (A)
(Figs. 20~22)

Material: St. 221-5, 1 adult ♂ in 2 pieces, estimated length 9.7 mm; St. 293-3, 3 immature ♀♀ (in 1, pleon missing), 5.5 and 7.5 mm.

Remarks: Four specimens are collected, but except a juvenile female of 5.5 mm, these are not in good condition. However, the salient characters can be sufficiently pointed out. (1) A constriction between thorax and abdomen is present but not so distinctly. (2) Outer margin of antennal scale is smooth and ending into a spine which is much shorter than rounded apex (Fig. 20). (3) Endopod of 5th pleopod of the male is unarmed with any modified setae. (4) Telson is long and narrowly triangular, armed with no spines on the lateral margins. The apex is armed with 3 pairs of somewhat thick spines (Fig. 21). (5) Inner margin of endopod of uropod is furnished with a row of about 23 spines from the region of statocyst to the apex (Fig. 22).

The present species resembles the species of the genera *Katerythrops*, *Meterythrops*, *Pleurerythrops* and *Parerythrops*, but it is not reasonably agree with any of them in the peculiar armature of the telson and the structure of the pleopods.



Figs. 20~22. A species of unknown genus (A), 20, anterior end of male, ×17; 21, telson, ×42; 22, endopod of uropod, ×42.

A species of unknown genus (B)
(Figs. 23~26)

Material: St. 293-2, 2 adult ♂♂, both 9.3 mm, and 1 immature ♀, 8.6 mm; St. 293-3, 4 adult ♂♂, 9.4 to 10.3 mm, 2 adult ♀♀, 9.4 and 9.6 (ovigerous) mm, 1 immature ♂, 5.9 mm, and 2 immature ♀♀, 7.8 and 9.1 mm.

Remarks: The present species has morphologic characteristics as follows. (1) Anterior margin of carapace is projected into an acutely pointed rostrum, and the lateral margins of the rostrum are somewhat deeply concave (Fig. 23). (2) Eye is functionally normal and apartly set (Fig. 23). (3) Antennal scale is lanceolate and setose all round (Fig. 24). (4) Carpus of endopod of 3rd to 8th thoracic limbs is divided from propodus by an oblique articulation. (5) 4th pleopod of the male is biramous and natatory, and furnished with no modified setae (Fig. 25). (6) Telson is elongate triangular, and armed with about 14 spines on distal half of lateral margin. Apex is narrow, and armed with a pair of spines (Fig. 26).

Although the antennal scale has setae on the whole margin as in tribes Mysini and Leptomysini, this species must be referred to tribe Erythropini in the structure of the thoracic limbs and 4th pleopod of the male. Among Erythropini, *Hyperamblyops nana* BIRSTEIN and TCHINDONOVA, and the species of the genera *Heteroerythrops* and *Euchaetomeropsis* bear such a scale, but of course the present species can not be identified with any of them. The present species is allied to the species of *Metamblyops* in the normal eye and telson. It seems, however, that the difference in the scale is too large to identify the present specimens with the above genus.

Pseudomysis dactylops TATTERSALL

Pseudomysis dactylops TATTERSALL, 1951, pp. 157-159; II, 1964, pp. 374-375.

Material: St. 221-5, 7 juveniles, 6.8 to 8.6 mm; St. 293-2, abundant juveniles, 6.9 to 13.3 mm; St. 293-3, very abundant juveniles, 6.5 to 16.7 mm, the largest specimen of 16.7 mm with oostegites just beginning to appear.

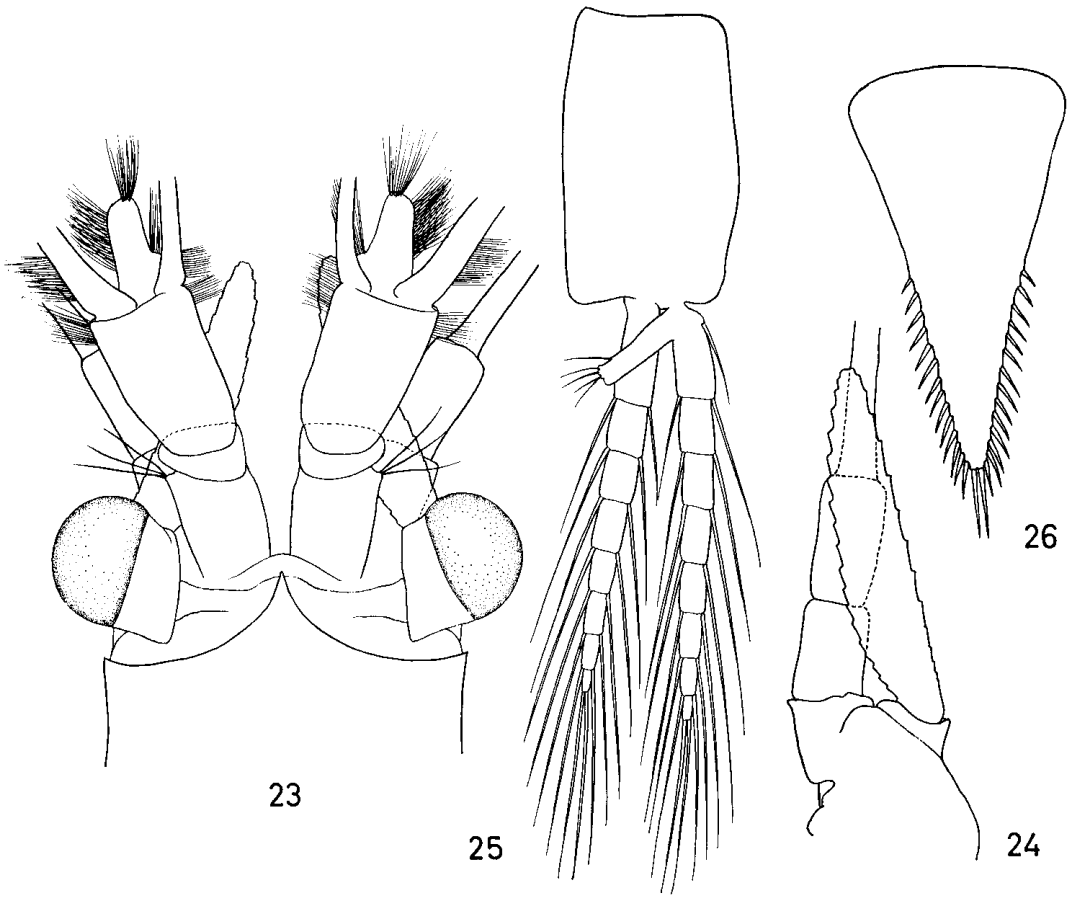
Remarks: Until now, it was the solitary record that 2 females were captured at Albatross Station 3697 located in Sagami Bay. In the present collection, especially at St. 293-2, very abundant specimens are taken, although all of them are juvenile. The reason why juvenile alone is captured is not clearly known. However, seasonal occurence resulted from life cycle or difference in habitats between adult and immature is thought to be the course.

Geographical distribution: Sagami Bay, Japan.

Mysidopsis surugae MURANO

Mysidopsis japonica var. vel n. sp. II, 1964, pp. 408-409.

Mysidopsis surugae MURANO, 1970, pp. 260-



Figs. 23~26. A species of unknown genus (B), 23, anterior end of male, ×33; 24, antenna, ×42; 25, 4th pleopod of male, ×42; 26, telson, ×42.

264.

Material: St. 293-1, 1 immature ♀, 5.6 mm.

Geographical distribution: Hitherto only known from Korea and Japan.

Bathymysis sp. (Figs. 27~30)

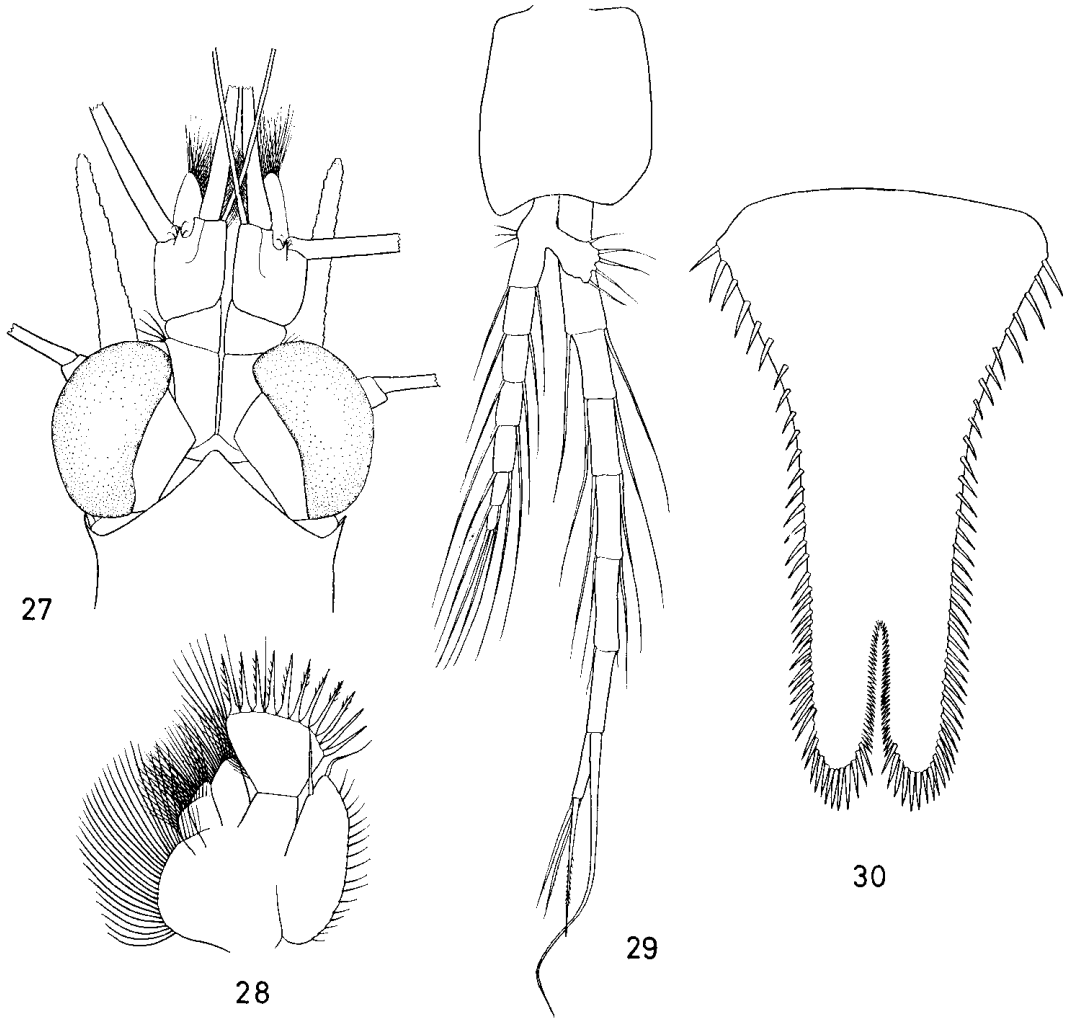
Material: St. 221-5, 1 immature ♀, 13.5 mm; St. 293-2, 1 adult ♂, 13.0 mm.

Remarks: This species resembles fairly well *Bathymysis renoculata* TATTERSALL from the east coast of the United States in large eye, narrowly lanceolate scale, maxilla with the distal joint of the endopod broadly expanded and telson with deep cleft at the apex (Figs. 27, 28 and 30). In 4th pleopod of the male, however, the present specimens differ from *B. renoculata*. In the latter species exopod is 8-jointed, of which the 7th joint is the longest, 1.5 times as long as the 6th joint judging from the Tattersall's figure (1951, p. 154, Fig. 57D). The 8th joint is very short, and armed with a long and a short seta at the apex. While in the present specimen it is 8-jointed, the 6th joint is somewhat longer than the 7th joint. The 8th joint is very short with 2 long setae of almost the same length at the apex (Fig. 29). This difference appears to indicate that the present specimens are specifically distinct from *B. renoculata*. Detail identification is brought over to further examination.

Parastilomysis paradoxa II

Parastilomysis paradoxa II, 1936, pp. 3-7; 1964, pp. 418-420; MURANO, 1970, p. 264.

Material: St. 221-2, 2 adult ♂♂, 10.8 and 11.5 mm, 3 adult ♀♀ (1 badly damaged), both



Figs. 27~30. *Bathymysis* sp. 27, anterior end of adult male, ×17; 28, maxilla, ×42; 29, 4th pleopod of male, ×33; 30, telson, ×42.

13.0 mm, 3 immature ♂♂, 7.0 to 8.9 mm, and 11 immature ♀♀, 7.8 to 11.4 mm; St. 221-3, 1 immature ♀, 10.0 mm.

Remarks: II collected this species in 3 localities, upper waters of the River Rokkaku-gawa, Saga Prefecture, Tsushima Strait and Misaki, Kanagawa Prefecture. The present author obtained it from the sea-floor at the depth of about 80 m in Suruga Bay (1970). The present specimens were also captured from the sea-floor at the depths of 30 m and 61~71 m. Judging from these facts it has a wide vertical distribution and it is an euryhaline form.

Geographical distribution: Known only from Japan.

Mysidella tanakai II

Mysidella tanakai II, 1964, pp. 574-577.

Material: St. 221-5, 1 adult ♂, 6.2 mm, and 1 adult ♀ with embryos in brood sac, 5.1 mm.

Remarks: The type specimen of II was taken by a vertical haul from the depth of 1,010 m to the surface. The present specimens were collected from the sea-floor at the depths of 370-380 m. The species seems to be a benthic form living at considerable depths.

Geographical distribution: Known from Suruga and Sagami Bays, Japan.

Mysidella nana MURANO

Mysidella nana MURANO, 1970, pp. 264-267.

Material: St. 221-4, 1 immature ♀, 4.3 mm.

Remarks: The type specimens were taken at the bottom of about 80 m along the west coast of Suruga Bay, and the present one was taken at the bottom of 44-71 m. Unlike *Mysidella tanakai* the present species lives in shallower waters of 50-100 m.

Geographical distribution: Known from Sagami and Suruga Bays.

5. Discussion

In Japan, there is only one instance of the report on the mysids living close to the sea-floor at the depths more than 30 m (MURANO, 1970), and we are at present very poor in the knowledge of them. Mysidacean fauna collected in the present samplings consists of 21 species. Of these, 16 species can be identified with already known species, but remaining 5 are reserved for further study in an undecided state in regard to the species, and also to the genus of 2 species. The occurrence of 2 species, *Petalophthalmus oculatus* and *Pseudomma calloplura*, is a new record in the Pacific. These facts truly show that the studies in this field are slow in rising.

By the using of the bottom-net, in addition to the systematic study valuable results were obtained in the ecology of mysid. *Petalophthalmus oculatus* has been a very rare species in the world. This was established by ILLIG (1906) for the reception of 4 specimens captured in the Gulf of Aden. Since then, only 3 specimens have been reported; *i.e.* 1 small juvenile from the north Arabian Sea (W. M. TATTERSALL, 1939), 1 juvenile female from the north-west of Seychelles (O. S. TATTERSALL, 1955) and 1 adult female from the north-west Arabian Sea (PILLAI, 1968). All these specimens were taken by vertical or oblique haul from the certain depths, but not from the sea-floor. The present author obtained 3 specimens from Sagami Bay by oblique hauls in 1964, but ever since it has been never collected in the same locality by vertical, oblique or horizontal hauls in spite of a number of trial. By the using of the bottom-net, however, although all of them are juvenile or immature, 50 specimens are collected by only 3 efforts. It is surprising matter in contrast with the fact that only 10 specimens, including the author's 3, have been collected during the past over 60 years. It indicates that they inhabit on the sea-floor at the depths of 200 to 400 m, and with some reasons they unusually start their pelagic life away from the sea-floor. Certainly, such ecological nature has caused that they were ever very rarely collected as plankton. To the author's regret, the reasons why they leave the floor can not be known yet.

It seems that there are various degrees of specific property in the frequency of the transfer into the sea from the sea-floor. Among the present collection, *Hypererythrops zimmeri*, *Eoerythrops typicus*, *Dactylerythrops chrotops*, *Pteromysis amemiyai*, *Pseudomysis dactylops* and *Parastilomysis paradoxa* likely to have more or less of such ecological nature.

Acknowledgements

The author expresses his sincere thanks to Dr. Naoyoshi II for his valuable advice and helpful discussions. Professor Ryuzo MARUMO, Associate Professor Takahisa NEMOTO and Dr. Makoto OMORI of the Ocean Research Institute, University of Tokyo, have kindly encouraged and suggested the present author throughout this work.

References

BACESCO, M. (1941): Les Mysidacés des eaux méditerranéennes de la France (spécialement de Banyuls) et des eaux de Monaco. Bull. Inst. Océanogr. Monaco, **795**, 1-46.

BANNER, A. H. (1947): A taxonomic study of the Mysidacea and Euphausiacea of the north-eastern Pacific. Part I. Mysidacea, from Family Lophogastridae through Tribe Erythropini. Trans. Royal Canada. Inst., **26**, 345-399, 7 pls.

BIRSTEIN, J. A. and J. G. TCHINDONOVA (1962): Mysidacea collected by the Soviet Antarctic Expedition with the R. V. 《Ob》. Acad. Nauk S. S. S. R. Biol. Res. Sov. Ant. Exp. 1955-1958, **1**, 58-68.

COIFMANN, I. (1936): I misidacei del Mar Rosso. Studio del materiale raccolto dal Prof. L. Sanzo durante la campagna idrografica della R. Nava Ammiraglio Magnaghi (1923-4). R. Com. Talassogr. Ital., Mem., **233**, 52 pp., 25 pls.

FAGE, L. (1941): Mysidacea, Lophogastrida, I. Dana Rep., **4**, No. 19, 1–52.

HANSEN, H. J. (1908): Danish Ingolf-Expedition, Crustacea Malacostraca, I. **3**, pt. 2, 1–120, 2 figs., 5 pls,

HANSEN, H. J. (1910): The Schizopoda of the Siboga expedition. Siboga-Expedition, **37**, 123 pp., 3 figs., 17 pls.

HOLT, E. W. L. and W. M. TATTERSALL (1905): Schizopodous Crustacea from the north-east Atlantic slope. Sci. Invest. Fish. Br. Ire., 1902–3, pt. **2**, app. 4, 99–151, 11 pls.

HOLT, E. W. L. and W. M. TATTERSALL (1906); Schizopodous Crustacea from the north-east Atlantic slope. Supplement. Sci. Invest. Fish. Br. Ire., 1904, **5**, 1–50, 5 pls.

II, N. (1936): Studies on Japanese Mysidacea, II: Descriptions of three new species belonging to two new genera, *Parastilomysis* and *Paracanthomysis*. Japan. Jour. Zool., **7**, 1–15.

II, N. (1937): Studies on Japanese Mysidacea, III: Descriptions of four new species belonging to tribes Leptomysini and Erythropini. Japan. Jour. Zool., **7**, 191–209,

II, N. (1964): Fauna Japonica, Mysidae. i-x, 610 pp. Biogeogr. Soc. Japan, Tokyo.

ILLIG, G. (1906): Bericht über die neuen Schizopodengattungen und -arten der Deutschen Tiefsee Expedition 1898–1899. Zool. Anz., **30**, 194–211.

ILLIG, G. (1930): Die Schizopoden der Deutschen Tiefsee Expedition. Wiss. Ergeb. Deutsch. Tiefsee Exped., **22**, 400–625.

MURANO, M. (1969): Three new species of Mysidacea from Japan. Crustaceana, **17**, 207–219.

MURANO, M. (1970): Small collection of benthic Mysidacea from coastal waters in Suruga Bay, Japan. Crustaceana, **18**, 251–268.

OMORI, M. (1969): A bottom-net to collect zooplankton living close to the sea-floor. Jour. Oceanogr. Soc. Japan, **25**, 291–293.

ORTMANN, A. E. (1905): Schizopods of the Hawaiian Islands collected by the Albatross in 1902. Bull. U. S. Fish. Comm., 1903, pt. **3**, 961 973.

ORTMANN, A. E. (1906): Schizopod crustaceans in the U. S. National Museum. The families Lophogastridae and Eucopiidae. Proc. U. S. Nat. Mus., **31**, 23–54, 2 pls.

PILLAI, N. N. (1968): Redescription of *Petalophthalmus oculatus* (Crustacea: Mysidacea) based on an adult female collected from near the type locality. Jour. Zool., London, **155**, 283–291.

SARS, G. O. (1885): Report on the Schizopoda collected by H. M. S. Challenger during the years 1873–76. Challenger Rep., Zool., **13**, pt. 37, 225 pp., 3 figs., 38 pls.

SHIINO. S. M. (1937): Two species of the gigantic mysidaceans *Gnathophausia* found in Japan. Annot. Zool. Japan, **16**, 181–187.

STEPHENSEN, K. (1933): The Godthaab Expedition 1928: Schizopoda. Meddel. Grönland, **79**, Nr. 9, 1–20.

TATTERSALL, O. S. (1955): Mysidacea. Discovery Rep., **28**, 1–190.

TATTERSALL, W. M. (1909): The Schizopoda collected by the "Maia" and "Puritan" in the Mediterranean. Mitt. Zool. St. Neapel, **19**, pt. 2, 117–143, 1 pl.

TATTERSALL, W. M. (1911): Schizopodous Crustacea from the northeast Atlantic slope 2nd supplement. Fish. Ire. Sci. Invest. 1910, **2**, 1–77, 8 pls.

TATTERSALL, W. M. (1939): The Euphausiacea and Mysidacea of the John Murray Expedition to the Indian Ocean. Sci. Rep. John Murray Exped., **5**, 203–246.

TATTERSALL, W. M. (1951): A review of the Mysidacea of the United States National Museum. Bull. Smithsonian Inst. U. S. Nat. Mus., **201**, 1–292.

TATTERSALL, W. M. and O. S. TATTERSALL (1951): The British Mysidacea. i-viii, 460 pp., Ray Society, London.

ZIMMER, C. (1909): Nordisches Plankton. Lief 12, 6, Schizopoden, 1–178.

ZIMMER, C. (1914): Die Schizopoden der deutschen Südpolar-Expedition 1901–1903. Deutsch. Südpolar-Exped. 1901–1903, **15**, Zool. 7, 377–445, 4 pls.

ZIMMER, C. (1915): Zur Kenntnis der Schizopodenfauna Neapels. Mitt. Zool. St. Neapel, **22**, 313–327.

そりネットにより採集されたアミ類の分類学的ならびに生態学的研究

村　野　正　昭

要旨　新しく開発されたそりネットを用いて，千葉県館山沖において底棲性プランクトンを採集し，そのうちアミ類についての分類学的ならびに生態学的研究を行なった．採集されたのは21種である．5種に関しては種の同定を，更にそのうちの2種に関しては属の同定を行なうことができず，恐らく新属あるいは新種として発表すべきもののように考える．また，*Petalophthalmus oculatus*, *Pseudomma calloplura* の2種の今回の出現は，太平洋海域からの新しい記録である．*Holmesiella affinis* に関しては浅海性の小型種と中深海性の大型種の2型のあることを，また *Pteromysis amemiyai* については体長と哺育嚢の発達との関係を明らかにした．更に *Petalophthalmus oculatus* についてはその生態学的特性を論じた．