

O H M U

OCCASIONAL PAPERS
OF
ZOOLOGICAL LABORATORY
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KYUSHU UNIVERSITY
FUKUOKA, JAPAN

Urotychus uss
" gracilimanus
" scandens

Galathea pubescens
Munida scabra
Munida heteracantha
Ceriumunida princeps
Munidopsis trifida kowalews

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No. 3

Chirostylids and galatheids from dredgings and trawlings operated
in the East China Sea by the Japanese Fisheries Research
Vessel "Kaiyo Maru" in 1967*

Keiji BABA

At the end of 1967 the Japanese Fisheries Research Vessel "Kaiyo Maru" made an expedition to the East China Sea for research of fishing potential. The benthonic invertebrates, chiefly the decapod crustaceans, collected at that time were forwarded to our laboratory for study. Prior to that operation the Seikai Regional Fisheries Research Laboratory, Nagasaki, has been engaged in a study of fishes as well as benthonic animals inhabiting there and the crustaceans collected were also presented to our laboratory by the courtesy of Mr. Hideo Yamashita. Its collection came from rather shallow waters at most down to about 100 m. However, Kaiyo Maru trials for dredging and trawling were conducted between 100 and 1,000 m in depths, and therefore yielded an interesting collection. I take here the opportunity to report the section of the families Chirostylidae and Galatheidae.

The collection of this group contains 22 specimens, divided among 8 species, i.e., 3 species of the Chirostylidae and 5 of the Galatheidae. From this area were already reported 11 species based upon the Seikai Regional Fisheries Research Laboratory collection (Miyake & Baba, 1964, 1967). The present species except for one chirostylid and one galatheid are all recorded for the first time from the East China Sea, therefore this area now has inhabitants of 17 species of the group.

* Contributions from the Zoological Laboratory, Faculty of Agriculture, Kyushu University, No. 408.

Baba

Before going further, I wish to express my gratitude to Prof. Sadayoshi Miyake for his kind advice and suggestions. Thanks are also due to Mr. Hideo Yamashita of the Seikai Regional Fisheries Research Laboratory for placing material at my disposal. To Prof. Huzio Utinomi of the Seto Marine Biological Laboratory who kindly took the trouble of identifying an octocorallian, the commensal host of *Uroptychus gracilimanus*, and to Dr. Fenner A. Chace, Jr. of the U. S. National Museum who at my request sent me on loan two specimens of *Munidopsis trifida* from Patagonia and gave me helpful suggestions as well as the permission to report on them, go my deepest thanks.

Description of species

Family Chirostylidae

Uroptychus naso van Dam, 1933

(Figs. 1, 2)

Uroptychus naso van Dam, 1933, p. 23, figs. 35-37—Kei Islands;—1939, p. 402—Kei Is.; west coast of Kyushu, Japan;—1940, p. 97—Java Sea.

Material examined. East China Sea (27°33.3' N, 126°00.3' E—27°29.3' N, 126°08.5' E), 152-330 m deep, Dec. 8, 1967, 10⁵⁰—12,⁴² H. Yamashita leg.—1 ♂, ZLKU 15122.

Description. The carapace is subscaliform or tuberculate dorsally and diverges posteriorly. A deep groove is present between the gastric and cardiac regions but it does not continue forwards. The lateral margin bears 8 or 9 stout spines which are all situated on the branchial region. The hepatic region is scattered with spinules. The anterolateral angle is spined.

The rostrum is half as long as the carapace, concave above, subscaliform and carinated ventrally. The distal half or distal two-thirds portion has about 6 spinules marginally. The outer orbital angle is obscure.

The basal segment of the antennule has a single spine at the outer distal marginal angle. The second to fifth segments of the antennal peduncle bear each a spine on their distal portion. The fourth segment is half as long as the fifth (ultimate) segment. The antennal scale terminates at the distal third point of the fifth segment, its outer margin being quite smooth.

In the third maxilliped the ischium is slightly more than half as long as the merus, with a pair of spinules on its inner distal margin. The merus is spinose marginally, i.e., one large spine on the anterior margin which articulates with the carpus, and two inner marginal spines of which the distal one is somewhat the smaller. The carpus

is also with four outer marginals. The anterior margin of the third thoracic sternite has at the middle a deep embayment which represents a U-shaped form. The fourth thoracic sternite bears a row of spinules marginally.

The chelipeds are about one and a half times as long as the carapace, densely furnished with spinules and short fine setae on both margins, and tuberculate above. The ischium bears one tubercle on the distal portion of the dorsal surface. The palm and finger are not cylindrical but slightly depressed. The fingers are not gaping, with minute tubercular teeth on their cutting edges, two large protuberances being present only on the cutting edge of the movable finger.

The ambulatory legs are not so setose as in the original description. In the first pair the merus is broad, spinulose above, with about 12 stout spines and 8 to 10 other spinules externally and 5 or 6 internally, both the distal marginal spines being the strongest. The carpus has 7 outer marginals and one inner marginal. The propodus is stout and setose, the setae are very long. The inner margin bears 5 spines on the distal half, the terminal one forms a pair with another inside one. The dactylus is less than a half of the preceding segment, its inner margin has about 9 spines or broad setae, of which the penultimate is very strong. The second is very similar to the first, the third is likewise equal to the second in shape but much the smaller and shorter.

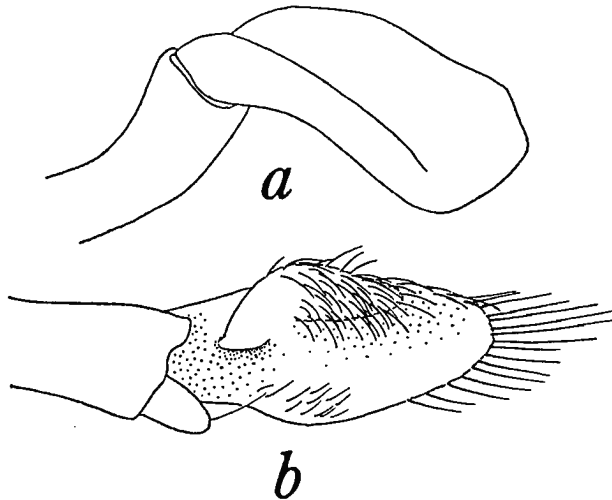


Fig. 1. *Uroptychus naso* van Dam, *a*, right first pleopod, dorsal view, $\times 33$;
b, right second pleopod, ventral view, $\times 33$.

First two pleopods are as represented in Fig. 1. The endopod of the first pleopod is thin without any setae, and ventrally has a longi-

tudinal sulcus. The endopod of the second pleopod has near the base a lobe which is covered with setae.

Colour. After two months in five per cent of formalin, the body is wholly yellowish orange with a longitudinal stripe of white running from on the carapace backwards to the third abdominal segment.

Measurements. Length of carapace is 16.2 mm, breadth of carapace 11.2 mm, and length of cheliped 50.5 mm.

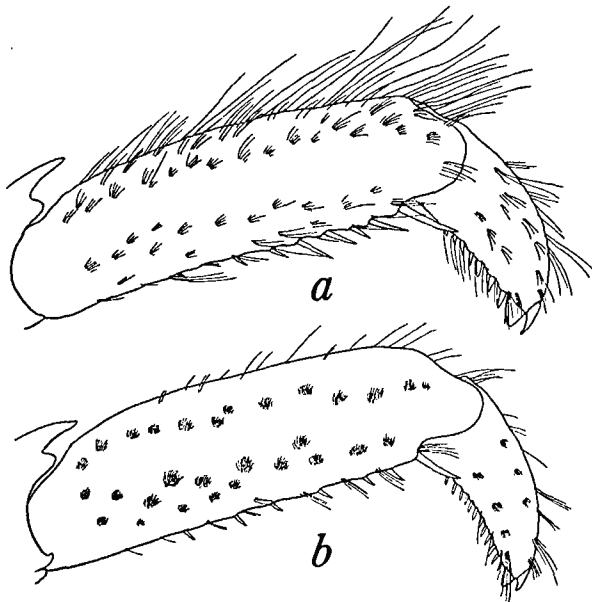


Fig. 2. Distal two segments of first ambulatory legs in *Uroptychus naso* van Dam, showing presence or absence of bundles of short setae, *a*, material from the East China Sea, $\times 12$, *b*, material from Tosa Bay, Japan, $\times 16$.

Remarks. At the present disposal I had an opportunity to examine two females from Tosa Bay, now deposited in the Zoological Laboratory, Kyushu University. As a result it proved that the Tosa Bay material was furnished with bundles of short setae which were scattered chiefly on the dorsal (upper) surface of the propodus and dactylus of the first ambulatory leg only (Fig. 2, *b*). However, such setae were not observed in the present East China Sea material, likewise in the original description nothing is mentioned of such a furnishment. Although it is of evidence that the Tosa Bay material is represented by the female and the East China Sea material the male, it remains unsolved whether or not this fact is due to sex, or to geographical or population variation.

Distribution. This species has hitherto been known from the Malay Archipelago and the west coast of Kyushu. Bathymetrically it is taken between 68 and 363 m.

Uroptychus gracilimanus (Henderson, 1885)

(Figs. 3, 4)

Diptychus gracilimanus Henderson, 1885, p. 420—off Port Jackson.

Uroptychus gracilimanus Henderson, 1888, p. 181, pl. 21, fig. 5; Doflein & Balss, 1913, p. 134—Indian Ocean coast of Sumatra; East African coast;—Parisi, 1917, p. 3—Sagami Bay; Tirmizi, 1964, p. 392, figs. 6-9—Zanzibar.

Material examined. East China Sea (28°57.3' N, 127°14.6' E—28°52.8' N, 127°15.3' E), 570-740 m deep, Dec. 7, 1967, 8⁴⁶—10²⁰ H. Yamashita leg.—1 ♀, ZLKU 15118.

Description. The carapace is quite smooth, without setae dorsally and laterally. The left branchial region is swollen by the bopyrid parasite. The surface has no groove excepting that a deep groove runs slightly dorsally along the lateral margin from the middle portion to the posterior end. The anterolateral angle is produced forwards. The rostrum is of moderate length and slightly extends beyond the eyestalk.

The antennal peduncle is non-spinose. The ultimate segment is slightly more than twice the length of the penultimate one. The antennal scale is rather short, terminating midway of the ultimate segment.

The third maxilliped is smooth, without any spine.

The anterior margin of the third thoracic sternite is deeply embayed with a pair of central spines between which a further deep incision is present as is shown by Tirmizi (1964). The telson is not bilobed.

The cheliped is about three times as long as the carapace, slightly depressed and smooth without spines but is sparsely furnished with long setae. The wrist is slightly more than twice as long as the fingers and slightly longer than the palm. The latter segment is about four times as long as broad. In the left cheliped the cutting margin of the movable finger bears on the proximal third portion a two-lobed projection which fits in with the embayment of the immovable finger. In the right cheliped the fingers are not gaping, their cutting edges being straight and touching each other with tubercular teeth on the distal two-thirds portion.

The ambulatory legs are similar and also not spinose nor rugose but smooth. The propodus of the first pair has 5 or 6 long spines on the distal two-thirds portion of the inner margin. The dactylus of the same is somewhat curved inwards and has on the outer proximal marginal portion a row of short plumose setae and on the inner

margin about 8 to 12 spines which decrease in size proximally.

Colour. After two months in formalin the animal is wholly pale brown.

Measurements. Carapace is 7.5 mm long and 6.1 mm broad.

Ecology. The animal was found clinging to an octocorallian coral* dredged from a depth of 570-740 m.

Remarks. In the figure drawn by Henderson (1888), the carapace is shown as having a groove which runs in the right side along the entire lateral margin but in the left side along the posterior half. In my specimen, however, such a groove is present on the posterior half portion of each side. In other respects the present specimen is rather well agreeable with Henderson's (1888) and Tirmizi's (1964) species accounts with the exception that the cheliped is larger and shorter, being about three times the length of the carapace.

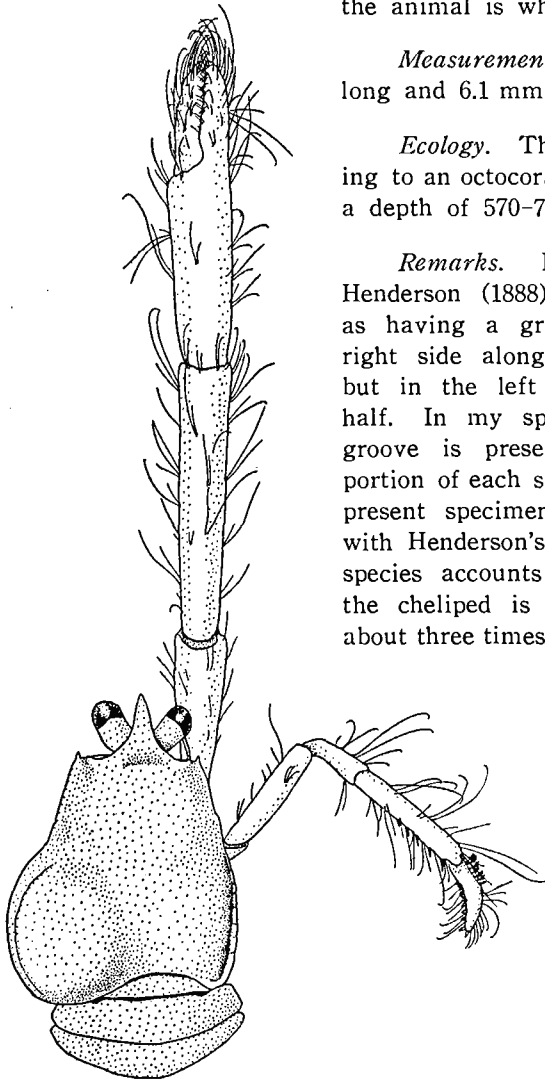


Fig. 3. *Uroptychus gracilimanus* (Henderson), female infested by a bopyrid in the left branchial chamber, in dorsal view, $\times 4.7$.

* The species was identified as *Acanella japonica* Kükenthal by Prof. H. Utinomi.

This species is so rare in Japan that no record is given since Parisi (1917) reported it from the Sagami Bay without description.

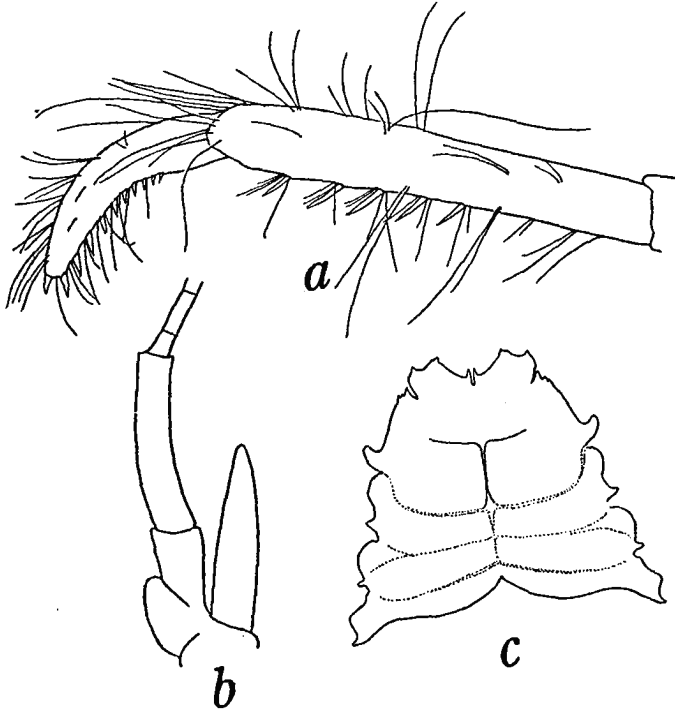


Fig. 4. *Uroptychus gracilimanus* (Henderson), *a*, distal two segments of left first ambulatory leg, $\times 14$; *b*, left antennal peduncle, $\times 28$; *c*, sternal segments, $\times 10$.

Distribution. This species shows a rather wide distribution in the Indo-Pacific, and is known from New South Wales coast, East African coast, Indian Ocean coast of Sumatra and Tosa Bay, Japan. The bathymetric range is from 421 to 1,668 m.

Uroptychus scandens Benedict, 1902

Uroptychus scandens Benedict, 1902, p. 298, fig. 42—off Honshu, Japan; Balss, 1913, p. 27, figs. 19, 20—Sagami Bay; van Dam, 1933, p. 27, fig. 38—Kei Is.; Yokoya, 1933, p. 68—east of Boshu; Suruga Bay; Bungo Strait; van Dam, 1937, p. 102—Banda Sea;—1940, p. 97—Java Sea; Miyake, 1947, p. 734, fig. 2123;—1960, p. 97, pl. 48, fig. 7;—1965, p. 634, fig. 1040; Miyake & Baba, 1967, p. 227, fig. 2—East China Sea.

Material examined. East China Sea ($31^{\circ}15.5' N$, $127^{\circ}17.0' E$), 120 m deep, Dec. 5, 1967, H. Yamashita leg.—3 ♂♂, 2 ♀♀, ZLKU 15103.

Measurements. Males are 4.8–3.2 mm, and females 5.4–4.5 mm in carapace length.

Distribution. Known from the Pacific coast of Japan from Sagami Bay to the southward, East China Sea, and the Malay Archipelago. The bathymetric range is from 50 to 393 m.

Family Galatheidae

Galathea pubescens Stimpson, 1858

(Fig. 5)

Galathea pubescens Stimpson, 1858, p. 252—Hakodate and Amami-oshima;—1907, p. 233; Balss, 1913, p. 11, figs. 11, 12—Sagami Bay; Yokoya, 1933, p. 57—off Murotozaki; Miyake, 1947, p. 732, fig. 2117;—1965, p. 634, fig. 1043; Tirmizi, 1966, p. 187—Zanzibar.

Material examined. East China Sea (31°15.5' N, 127°17.0' E), 120 m deep, Dec, 5, 1967, H. Yamashita leg.—8 ♂♂, 2 ♀♀, ZLKU 15108.

Measurements. Males are 5.8–3.3 mm and females 4.0–3.3 mm in carapace length.

Remarks. This species is easily recognized by having the pubescent carapace, the merus of the third maxilliped with three internal and two external spines, and also the basal antennular segment which lacks an inner terminal spine. Recently Tirmizi (1966) recorded it from Zanzibar area mentioning that the specimen is imperfect. She describes that the first two pleopods are essentially similar to those of *Galathea gardineri* in which species account by her the first pleopod is noted as absent and the second is figured. The first pleopod of the present

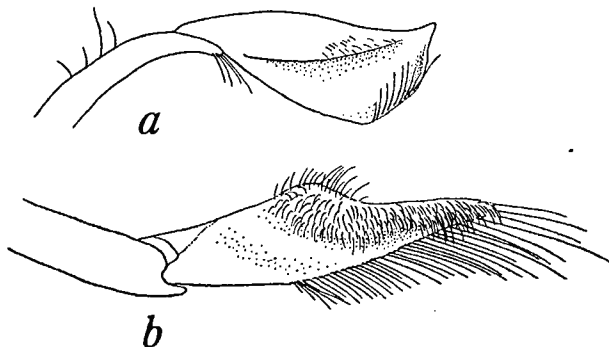


Fig. 5. *Galathea pubescens* Stimpson, a, right first pleopod, dorsal view, $\times 40$; b, right second pleopod, ventral view, $\times 40$.

material is as represented in Fig. 5, *a*. The endopod of the second pleopod is more setose anteriorly than that of *G. gardineri* shown by Tirmizi, and slightly curled dorsally.

Distribution. Known from the Japanese waters from Hakodate southwards to Amami-oshima Island and Zanzibar area. The bathymetric range is from 50 to 457 m.

Munida scabra Henderson, 1885

Munida scabra Henderson, 1885, p. 409—Kei Is.;—1888, p. 134, pl. 15, figs. 4, 4a-b; Yokoya, 1933, p. 63—Pacific coast of Japan from Inubo-zaki southwards to Miyazaki Pref.; north and west coasts of Kyushu; Yanagita, 1943, p. 30, figs. 9, 10a-c—off Miya; Atsumi Bay; Miyake & Baba, 1967, p. 242, fig. 13—East China Sea.

Material examined. East China Sea (31°40.0' N, 128°22.8' E), Dec. 4, 1967, 22,¹⁵ H. Yamashita leg.—1 ♂, ZLKU 15101.

Measurements. The carapace is 4.6 mm long in the male.

Colour. After two months in formalin, the animal is of a light seashell pink in ground and fringed with reddish orange on the striae of the carapace and scales of the legs.

Distribution. Known from the Kei Islands, the Pacific coasts of Japan from Inubo-zaki southwards to Miyazaki Prefecture, and the East China Sea in depths between 100 and 393 m.

Munida heteracantha Ortmann, 1892

Munida heteracantha Ortmann, 1892, p. 255, pl. 11, figs. 12, 12i, 12k—Kadsiyama [?=Katsuyama, Uraga Canal]; Sagami Bay; Doflein, 1902, p. 644.

Munida japonica var. *heteracantha* Balss, 1913, p. 15—Zushi; Misaki; Fukuura; Ito; Hatsushima; Izu; Melin, 1939, p. 89, fig. 58—Bonin Is.

Munida japonica heteracantha Yanagita, 1943, p. 27, fig. 8—Fukuura; Yoshihama; Kikuchi, 1932, p. 7—Toyama Bay.

Munida sagamiensis Doflein, 1902, p. 623, pl. 3, fig. 9—Sagami Bay.

Material examined. East China Sea (31°40.0' N, 128°22.8' E), 310 m deep, Dec. 4, 1967, 22,¹⁵ H. Yamashita leg.—1 ♂, ZLKU 15102.

Measurements. Carapace is 10.3 mm long in one male examined.

Colour. The animal is uniformly light orange in formalin. The transverse ridges are orange. The setae on the arm and wrist of the cheliped are reddish orange, but the bases of the scattered spines and

the scaly elevations and also the fingers except for the distal 1/6 portion are orange red. The pterygostomial flap and the sternal segments are whitish. Eyes are dark holly berry.

Remarks. In the third maxilliped the merus has no external spine, which character proved quite constant in many specimens preserved in our laboratory (24 ♂♂ and 15 ♀♀ from several localities of the Japanese waters). This fact is the most marked character to be separable from *Munida japonica* Stimpson. As seen in the synonymy, most of the workers considered this species a subspecific level, but I use here the original designation.

Distribution. Known from Sagami Bay, the Sea of Japan and the Bonin Islands in depths of 30 to 350 m.

Cervimunida princeps Benedict, 1902

Cervimunida princeps Benedict, 1902, p. 249, fig. 3—off Honshu, Japan; Bouvier, 1906, p. 480—Japan; Marcus, 1911, p. 527, fig. 8, pl. 25, fig. 7; Balss, 1913, p. 18, fig. 15, pl. 1, fig. 1—Sagami Bay; Parisi, 1917, p. 2—Sagami Bay; Yokoya, 1933, p. 65—east of Kinkazan; off Inubo-zaki; Sagami Bay; Shimoda; off Mitani, Aichi Pref. [=Sea of Enshu]; off the mouth of River Tenryū [=the Sea of Enshu]; east of Owase, Kii; S. of Kochi [=Tosa Bay]; Bungo Strait; North of Sado; off Yamagata Pref.; Miyake, 1947, p. 733, fig. 2120;—1960, p. 97, pl. 48, fig. 6; Makarov, 1962, p. 100, fig. 37—Sea of Japan; Miyake, 1965, p. 635, fig. 1047.

Material examined. East China Sea (28°37.0' N, 126°56.0' E—28°45.0' N, 127°03.0' E), 285–430 m deep, Dec. 7, 1967, 15²⁰–17⁵⁰ H. Yamashita leg.—1 ♂, ZLKU 15121.

Measurements. The carapace is 60.6 mm long in the male.

Colour. The animal is reddish on whole over the surface in life as well as in formalin.

Distribution. This species is taken from the Pacific coast of Japan from off the Ojika Peninsula, Miyagi Prefecture southwards to east of Kyushu, and also from the Sea of Japan. The bathymetric range is from 76 to 452 m.

Munidopsis trifida tomentosa Benedict, 1902

(Figs. 6–8)

Munidopsis trifida: Alcock & Anderson, 1894, p. 168—Laccadive Sea;—1899, p. 18—Andaman Sea; Illust. Zool. Invest., 1905, pl. 70, fig. 1; Balss, 1913, p. 20—

Sagami Bay; Yokoya, 1933, p. 66—Suruga Bay; Miyake, 1947, p. 734, fig. 2121.
Munidopsis tomentosa Benedict, 1902, p. 329.

Material examined. East China Sea (28°57.3' N, 127°14.6' E—28°52.8' N, 127°15.3' E), 570–740 m deep, Dec. 7, 1967, 8⁴⁶–10²⁰ H. Yamashita leg.— 1 ovig. ♀, 1 ♀, ZLKU 15119.

Description. The rostrum is long, its proximal half is rather broad, carinated and setose dorsally but non-setose ventrally. The dorsal surface is furnished with a strong spine on either distal marginal end. The distal half is spiniform and very setose dorsoventrally.

The carapace is stout, and covered with short setae. The gastric region bears a pair of stout spine. Anteriorly the lateral margin has four spines of subequal size. The border between the gastric and cardiac regions is deeply hollowed which extends laterally to reach the last lateral marginal spine.

The abdomen is unarmed, the dorsal surface of each segment is raised by one median transverse carina. On each segment a deep concavity is also present between the transverse carina and the posterior margin.

Outside of and below the eye is a sharp, strong spine. The third thoracic sternite is rather rounded without marked protrusion laterally, its anterior margin being concave at the center.

The basal segment of the antennule is stocky with two outer terminal spines. The antennal peduncle has normal equipment of spines; the first segment is produced on both the inner and the outer marginal edges, the outer one protruding towards the direction of the peduncle. The second segment bears an outer distal marginal spine and the third an inner distal marginal one of small size.

In the third maxilliped the ischium, which is triangular in cross section, is nearly as long as the merus, being armed with a strong spine on either distal marginal end. The cutting edge of the ischium has about 19 closely placed denticles. The merus internally bears two spines, the proximal is very strong so that the segment is widest at the insertion of that spine. Externally the merus has a minute distal spine.

The cheliped is setose and subcylindrical, but somewhat depressed distally. It extends beyond the rostrum by about one and a half times of the carapace length. The arm is spinous, bearing about 7 dorsal, three internal, and one external spines and three small spines set up rather ventrally near the proximal inner margin. The wrist is slightly scaly with three spines placed on the outer distal portion and one large internal spine. The palm is somewhat depressed, slightly rugose and has no spine, it is nearly as long as the finger and three times the

length of the preceding segment. The fingers touch each other along entire length, its cutting edges equipped with tubercular teeth.

The ambulatory legs are likewise setose especially on the outer (upper) margin. In the first pair the merus is rather narrow and slightly coarse, it externally bears 7 spines of which the distal is strongly developed and internally has one distal spine. The carpus has a longitudinal elevation dorsally, and is armed with 5 outer marginal and two or three microscopically small spines placed on the inner distal portion. The propodus is setose wholly, with only two spinules on the distal one-fourth. The dactylus is likewise setose, having about 8 serrated teeth, which decrease in size proximally, with each a broad seta. In the second pair the armature is similar to but less prominent than in the first; the merus bears 5 outer marginal spines and the propodus three outer marginals. The merus of the third pair is short, with an inner distal marginal and three outer marginal spines.

The epipods are absent from all the pereopods.

Colour. After two months in formalin, the entire body is pale brown in ground, with two longitudinal stripes of reddish orange running from behind the eyes backwards to the last abdominal segment. Reddish markings are also seen on the rostrum, the ventral surface of the third maxilliped, and the fingers and the inner margin of the arm of the cheliped.

Measurements. Carapace length is 25.0 mm in ovigerous female and 23.5 mm in non-ovigerous female.

Remarks. *Munidopsis trifida* was originally reported from the Strait of Magellan in a depth of 400 fathoms (Henderson, 1885). Subsequently it was taken by dredgings in the Laccadive and the Andaman Seas by "Investigator" (Alcock & Anderson, 1894, 1899). But Benedict (1902) said in his list of the species known from all the seas that the Investigator material should be known as *M. tomentosa*. This fact is due to the less furnishment of setae on the body and legs written in the original description as well as seen in topotypes of *M. trifida* kept in the U. S. National Museum. Afterwards Balss (1913) reported *Munidopsis trifida* from Sagami Bay, Japan mentioning that his material was not so setose, and therefore the Patagonian and the Indian forms were conspecific. To clarify whether or not they are identical with each other, I examined through the courtesy of Dr. F. A. Chace, Jr. of the U. S. National Museum two specimens of topotypes (Albatross St. 2785, 449 fms.) containing one ovigerous female and one juvenile. As regards the furnishment of the setae Benedict's account is surely true in the ovigerous female although there are traces of roots of setae (Fig. 6, a). This fact agrees with the original description, while the juvenile has

almost scarce setae on which specimen Benedict did not mention. In contrast with these, our material is tomentose on all over the surface as in Alcock's illustration (Fig. 6, *b*). Additionally other slight differences were here noted as follows: (1) The third thoracic sternite of ours is slightly rounded, whereas that of the topotype is the wider (Figs. 7, *d*, and 8, *d*). (2) The merus of the third maxilliped has a small spine at the inner distal marginal angle in the topotype but such a spine is absent from ours (Figs. 7, *c*, and 8, *c*). (3) The palm of the cheliped is with one outer distal marginal spine or without any spine in ours, while that of the topotype is marginally spinose (Figs. 7, *e* and 8, *e*). (4) The endopod of the uropod is marginally spinose in the topotype whereas it is smooth in ours.

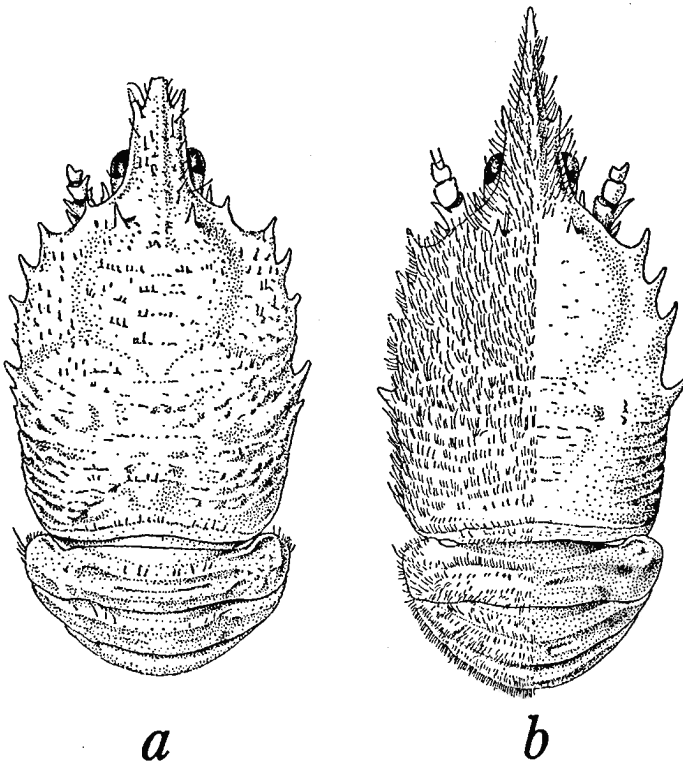


Fig. 6. Body in dorsal view, exclusive of legs, *a*, *Munidopsis trifida* Henderson from Patagonia, ovigerous female, $\times 3.5$; *b*, *Munidopsis trifida tomentosa* Benedict from the East China Sea, non-ovigerous female, $\times 3.2$.

It is, however, very difficult to decide whether or not the above-regards are of much value and lead the specific characters. On this regard Dr. Chace kindly suggested to me that "very possibly *M. tomentosa*

will eventually prove to be a subspecies of *M. trifida*, but there is no chance of demonstrating that relationship without many more specimens than are now available." Following Chace's opinion I propose here for the West-Indopacific form the name *Munidopsis trifida tomentosa* Benedict and for the Patagonian one *M. trifida trifida* Henderson for the time being.

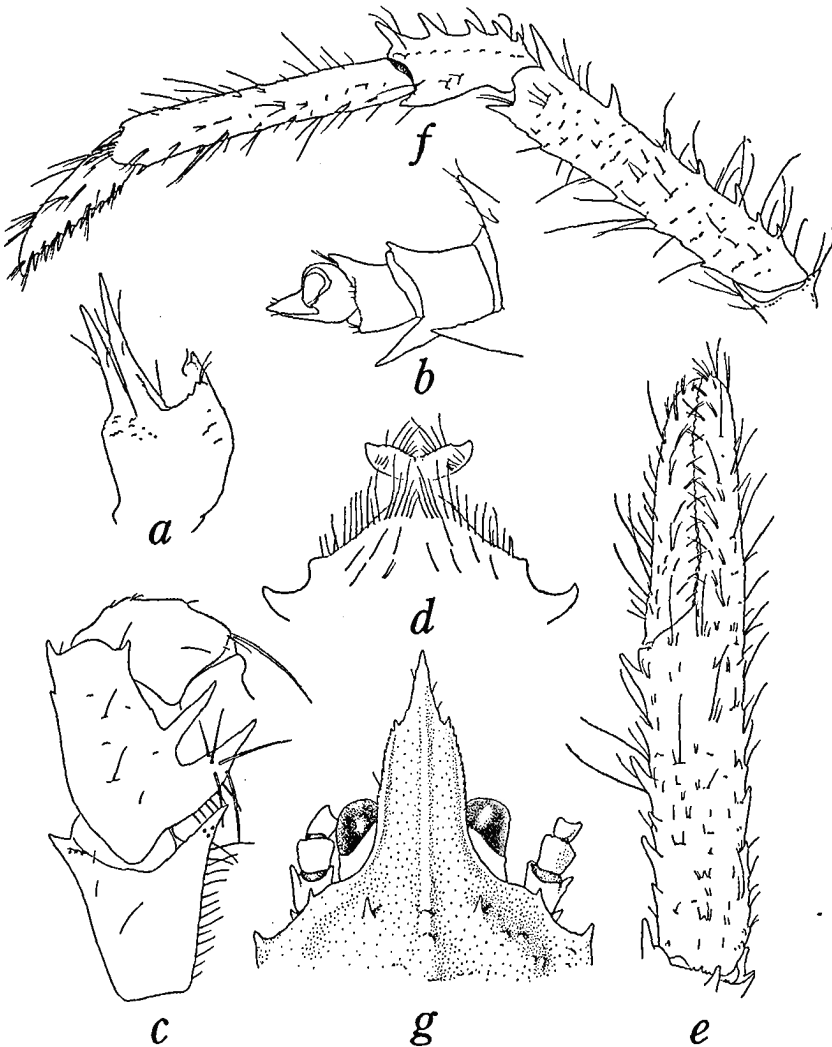


Fig. 7. *Munidopsis trifida trifida* Henderson from Patagonia, a, basal segment of right antennule, $\times 12$; b, right antennal peduncle, $\times 12$; c, endopod of right third maxilliped, $\times 12$; d, anterior part of sternal segments, $\times 8$; e, distal two segments of right cheliped, $\times 5$; f, left first ambulatory leg, $\times 5$; g, anterior part of carapace, $\times 17$. a-f, ovigerous female; g, juvenile.

As a supplement it has to be mentioned herein that the carapace in our material has no spine on the oblique anterolateral margin just behind the antennal peduncle, which fact is the largest difference from the previous records. In addition the juvenile specimen of the topotype of *M. trifida trifida* has the rostrum with serrated lateral margin and a short central spine (Fig. 7, *g*).

Distribution. Known from the Laccadive and the Andaman Seas, and the Japanese waters in depths between 280 and 1,100 m.

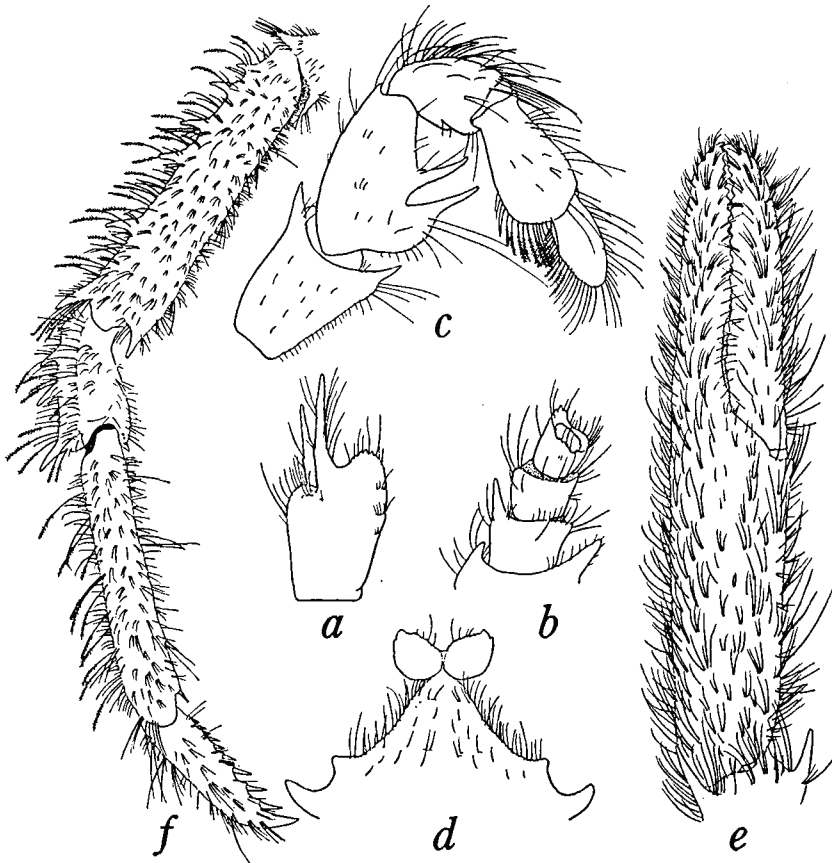


Fig. 8. *Munidopsis trifida tomentosa* Benedict, non-ovigerous female from the East China Sea, *a*, basal segment of right antennule, $\times 8$; *b*, right antennal peduncle, $\times 8$; *c*, endopod of right third maxilliped, $\times 8$; *d*, anterior part of sternal segments, $\times 8$; *e*, distal two segments of left cheliped, $\times 5$; *f*, left first ambulatory leg, $\times 5$.

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