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REVISION OF *MUNIDA*, A GENUS OF DECAPOD CRUSTACEANS, FOUND IN JAPANESE WATERS

By Isamu YANAGITA

Zoological Institute, Tokyo University of Literature and Science

(With 10 figures)

The first record of *Munida* in Japanese waters was made by STIMPSON (1858), who described *M. japonica,* collected in Kagoshima Bay, by the U. S. N. North Pacific Exploring Expedition. The second was by ORTMANN (1892), who described *M. heteracantha* from Kadjiyama (?) and Sagami Bay after examining the specimens deposited at the Strassburger Museum. DOFLEIN (1902) described *M. sagamiensis* from Sagami Bay in his "Ostasiatische Decapoden". BENEDICT (1903), who added *M. andamanica* to the Japanese fauna, described *M. honsuensis* upon examining the materials collected by the U. S. Fish Commission Steamer "Albatross".

After examining DOFLEIN'S collection, BALSS (1913) treated the following three species, *M. heteracantha, M. honsuensis* and *M. sagamiensis,* under the synonym of *M. japonica.* YOKOYA (1933), who, in his report of the Sōyō Expedition, supported BALSS' opinion regarding *M. japonica,* besides adding *M. scabra* to the Japanese fauna, described *M. brevirostris* as a new species from north of the Gotō Is.

DAM (1938), in her review of genus *Bathymunida,* altered the

genus of *Munida brevirostris* and assigned this species to *Bathymunida*. MELIN (1939), who examined the materials collected by the Sixten Bock Expedition to Bonin Islands, separated *M. japonica heteracantha* from *M. japonica* upon examining a female with eggs.

The writer, in this paper, discusses the variations observed in *M. japonica* and adds three species to the Japanese fauna, one of which seems to be new to science. He also reviews the Japanese *Munida*, with descriptions, and provides a key to all the species.

The writer takes this opportunity of recording his hearty thanks to Dr. Yaichiro OKADA and Dr. Shigemori IRIKI, under whose guidance the present work was accomplished. He also wishes to express his thanks to Assistant Prof. Ituo KUBO, Imperial Fisheries Intsitute, who kindly supplied him with a number of valuable specimens collected by him at Kumanonada, Enshyunada, and Toyama Bay; to Dr. Yu YOKOYA, College of Agriculture, Tokyo Imperial University, who allowed him to go over the specimens collected by the Sōyō Expedition; to Prof. K. KIKUCHI, Toyama High School, who enabled the writer to study the specimens collected from Toyama Bay, and to Dr. Tune SAKAI, Gifuken Women's Normal School, who did likewise with specimens collected off the Izu Peninsula.

Key to the species of *Munida* in the Japanese waters

a. Fourth segment of abdomen unarmed. Anterior margin of gastric area armed with row of about ten spines.
  b. Cheliped less than two and a half times the length of carapace, including rostrum.
    c. Width and length of carapace both about same. Rostrum cutlass shaped, curving rapidly upwards at base ....*M. andamanica* ALCOCK
    c. Width of carapace about 6/7–7/8 times length of carapace. Rostrum sigmoid, protruding either slightly upward or horizontally.
      d. Gastric region provided with about nine transverse ridges. Merus of third maxilliped with spine on outer margin ..... *M. japonica japonica* STIMPSON
      d. Gastric region provided with about eleven transverse ridges. Merus of third maxilliped without spine on outer margin ..... *M. japonica heteracantha* ORTMANN
  b. Cheliped more than three times length of carapace, including rostrum.. *M. kuboi* n. sp.
a. Fourth segment of abdomen armed with teeth or small spines. Anterior

margin of gastric area armed with only two spines.

b. Carapace provided with no transverse ridges, but small spines and hairs on the whole surface .....*M. scabra* HENDERSON

b. Carapace provided with transverse ridges on the whole surface.

c. Posterior margin of carapace armed with two spines. Cardiac area with well developed median spine .....*M. squamosa* HENDERSON

c. Posterior margin of carapace armed with no spine. Cardiac area without median spine .....*M. incerta* HENDERSON

Munida incerta HENDERSON, 1888

Nom. Jap.—Higenaga-ebikani

Munida incerta: HENDERSON, 1888, p. 130, pl. 13, fig. 4.

The rostrum, which is slightly deperssed and upturned, measures about half the length of the carapace, protrudes back-

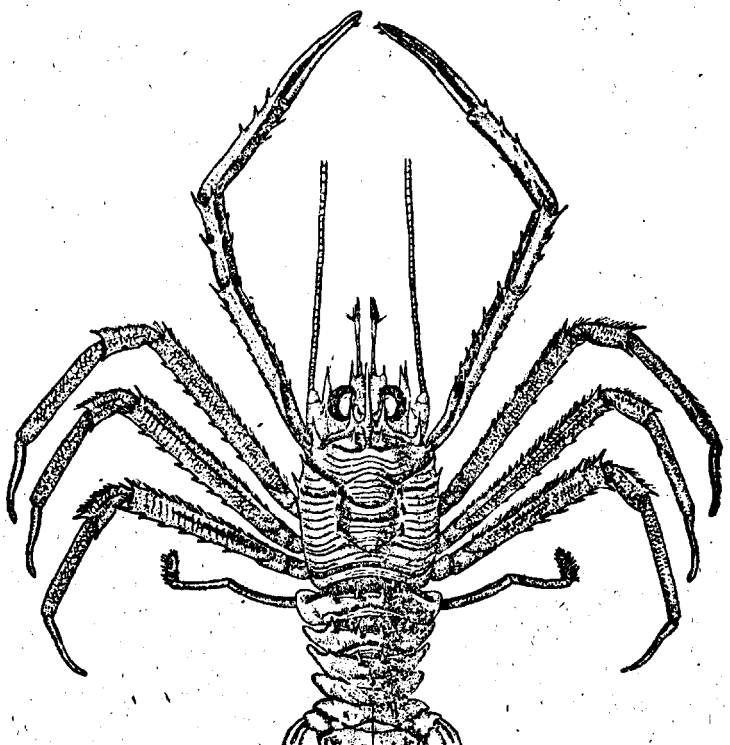

Fig. 1. *Munida incerta* HENDERSON. ×1.

ward like a keel into the gastric region. The supraorbitals are about two-thirds the length of the rostrum, and somewhat upturned. The surface of the carapace is provided with many pubescent striae. The gastric area is moderately convex, there being placed in front of it two spines immediately behind the supraorbitals, while the cardiac area is unarmed. A longitudinal row of three spines is present on the boundary between the cardiac and the branchial areas. The lateral margin of the carapace bears five or six spines, of which only the anterior one of the hepatic spines is stout.

The second, third, and fourth abdominal segments bear four spines each on the anterior margin, the lateral two of which are almost obsolete on the fourth segment, while there is a prominent median spine near the posterior margin. The dorsal surface of the telson, the fifth and sixth segments are covered with minute ciliated scales.

The cheliped is somewhat square in transverse section, each segment being scabrous with three rows of prominent spines. The propodus is about two and a half times the length of the carpus.

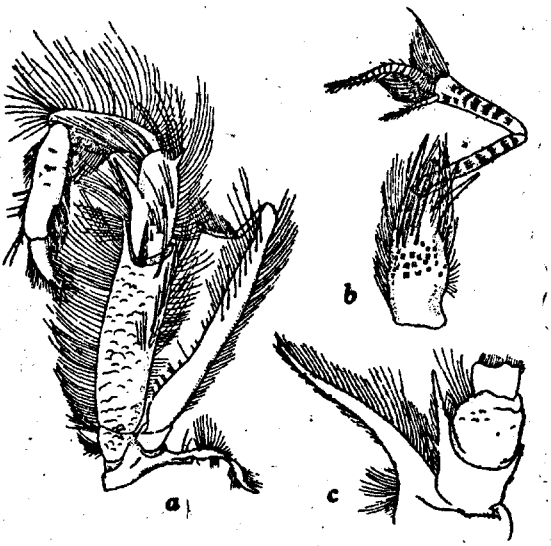

Fig. 2. *Munida incerta* HENDERSON.
a. Third maxilliped. ×6. b. Antennule. ×6.
c. The four basal segments of the antenna. ×6.

The palm has three spines on the inner margin, two or three on the lower side, two on the outer margin, and one at the base of the movable finger. The fingers are slender, almost in contact throughout, without any hiatus, while three or four prominent spines may be seen on the inner side of the immovable finger. The ambulatory limbs are flattened. The upper surface of the merus, carpus, and propodus are covered with hair-clad scales of small size, the lateral margins of the two former joints being spinose. The dactyli exceed half the length of the propodi.

The eyes are large and strongly compressed, having a fringe of long hairs passing over the upper surface of each cornea. The antenna is almost five times the length of the carapace. The antennal acicle is long, slightly curved, and freely movable, reaching nearly to the apex of the rostrum. The second joint has two spines on the inner margin and one on the outer. The ischium and the merus of the external maxilliped are squamose, the former with a short conical spine at the distal end of its inner border, the latter with a single well-marked spine near the middle of the same border, and a small sized spine at the distal end of the outer border.

A female, collected in Kumanonada, measures 29.0 mm in the carapace, including rostrum; 21.5 mm in the width of the carapace, and 86 mm in the cheliped.

Material examined. Two females (one bearing eggs), off Miya, Aichi Prefecture, about 360 m deep, October and November, 1937. One male and three females (two bearing eggs), Kumanonada, about 360 m deep, October and November, 1937.

Remarks. So far as the writer has been able to ascertain, the present species has been known only from the bottom of a sea, 450 m deep, off Sibago Island, Philippines, by an imperfect female specimen collected by the "Challenger".

The male has a pair of copulatory legs on the second abdominal segment, and lacking the first abdominal appendages, as in the case of *Munida scabra* HENDERSON. No secondary sexual characters are seen in the present species.

Munida squamosa HENDERSON, 1885

Nom. Jap.—Hako-ebikani

Minida squamosa: HENDERSON, 1885, p. 409; 1888, p. 131, pl. 13, fig. 1.

The rostrum was broken in trawling. The supraorbitals are squamose, slightly curved, and one-fourth the length of the carapace. The striae on the surface of the carapace are finely granulated and slightly pubescent. The gastric area is convex, with a pair of spines placed immediately behind the supraorbitals. The cardiac

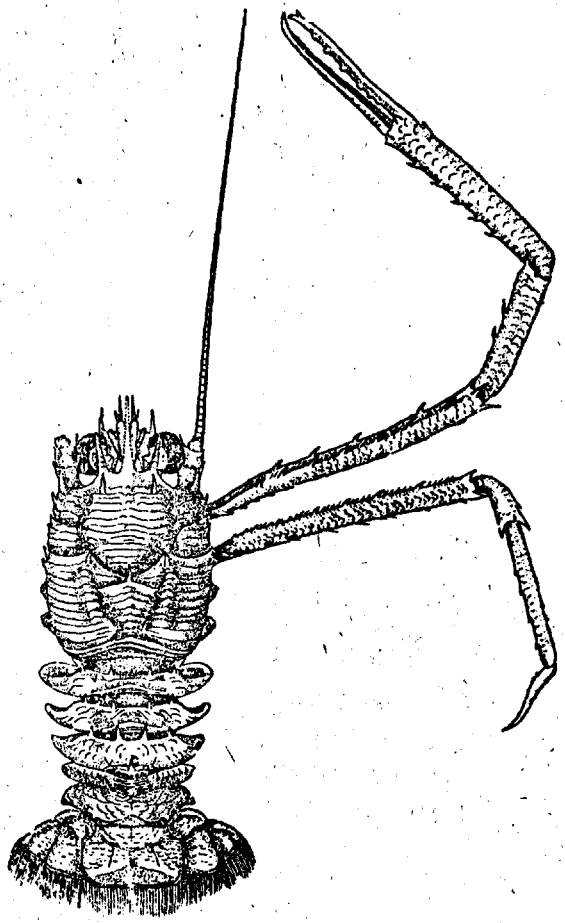

Fig. 3. *Munida squamosa* HENDERSON. ×1½.

area is distinctly circumscribed, and triangular in outline, with a well-developed median spine on the anterior margin which hangs over the united cervical grooves. A single spinule is present on each branchial region, placed just behind the cervical groove and near the confines of the cardiac area. The lateral margin of the carapace is armed with about six spines (two spines each in the hepatic, the anterior branchial, and posterior branchial regions), all small excepting the first one. The posterior margin of the carapace, which is raised, bears two spines.

The second, third, and fourth abdominal segments bear four spines each on the anterior margin. The two lateral of these spines are almost obsolete on the fourth segment, although a prominent median spine occurs near the posterior margin. The telson and the dorsal surface of the sixth segment are covered with minute scales.

The chelipeds are moderately long. The merus, carpus, and propodus are covered with large and almost smooth scales. In transverse section the merus is prismatic, while the carpus and propodus are cylindrical (according to HENDERSON those of the adult male are slightly flattened). The propodus is about two and a half times the length of carpus. The spines of the merus make about three rows, while the carpus and propodus have a row of spines on their margins. The fingers are slender, being about two-thirds the length of the palm, and the tip of the movable finger fits in between the two small teeth at the apex of the immovable finger. The inner sides of the fingers bear small and obsolete teeth, in which six spines of the immovable finger are prominent, and the inner margin of the movable finger pubescent. The ambulatory limbs are flattened. The upper surfaces of the meral, the carpal, and the propodal joint are squamose. The dactyli are short and their frontal margins finely crenated.

The eyes are large, slightly compressed, and reniform. The antennal acicle, which is short, reaches the distal end of the third joint. The second joint has a single spine both on the inner and outer margins, while the third joint has a single spine on the inner margin. The ischium and the merus of the external maxillipeds are both squamose externally, and strongly pubescent. The inner

margin of the former is prolonged distally into a slender acute spine, while the latter joint has a spine near the middle of the same margin.

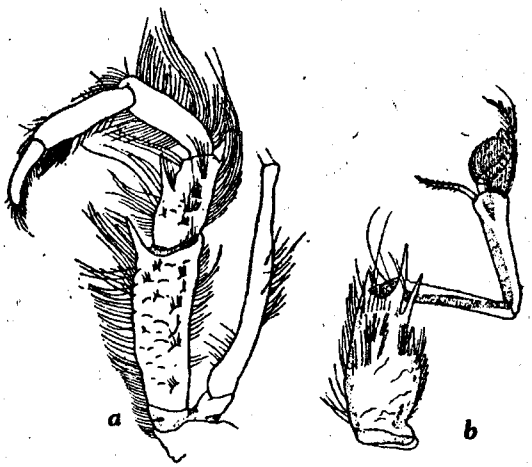

Fig. 4. *Munida squamosa* HENDERSON.
a. Third maxilliped. ×6. b. Antennule. ×6.

One young male, collected off Miya, measures 12.0 mm in the carapace, 11.8 mm in the width of the carapace, 49 mm in the cheliped.

Material examined. One young male, collected off Miya, Aichi Prefecture, about 360 m deep, December 1935.

Remarks. So far as the writer has been able to ascertain, this species was formerly known by about only twenty specimens, collected by the "Challenger" from the bottom of a 275 m deep, north of New Guinea. The present species collected from Ceylon and the Andaman Sea is distinguished as *M. squamosa prolixa* ALCOCK.

Munida kubot **n. sp.**

Nom. Jap.—Kubo-ebikani

The carapace is very narrow, its width being less than two-thirds the length of the carapace, excluding the rostrum. The carapace is greatly swollen in the median portion, its transverse section being almost semicircular. The rostrum protrudes almost

horizontally, the supraorbitals upturned somewhat. The gastric area, which is swollen, has nine spines (a pair of large spines behind the supraorbitals, with a pair of spines and a median spine between them, besides two paired spines outside the large spines) in a row on the front. A pair of distinct spines is seen both outside and behind this gastric row of spines. The gastric area is expanded, making the hepatic and probranchial areas narrow. A single spinule is present on each branchial region, placed just behind the cervical groove and near the confines of the cardiac area. The lateral border of the carapace is armed with seven spines (two in the hepatic region, three in the probranchial, and two in the postbranchial). The second abdominal segment bears a row of ten spines, the third four, and the fourth none. Each of the second and third segments bears three transverse ridges.

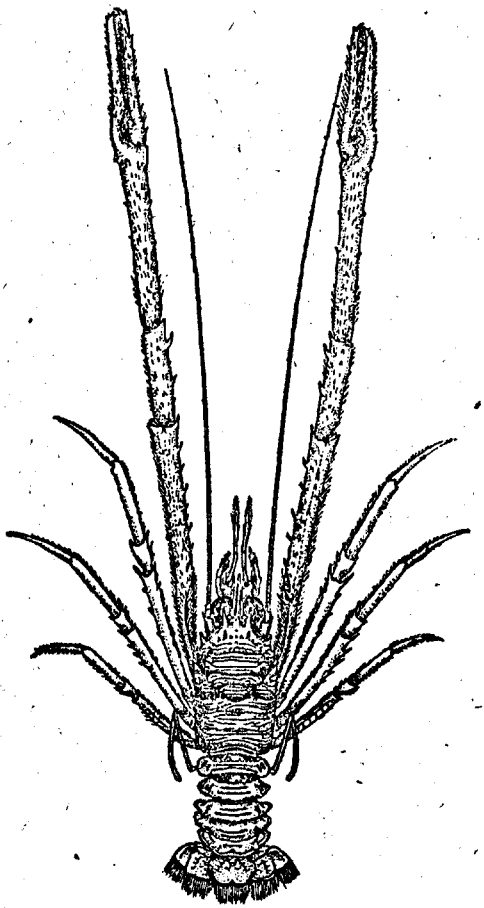

Fig. 5. *Munida kuboi* n. sp. ×1½.

The cheliped is about four times the length of the carapace. Each segment is covered with scales and hairs, the merus and carpus bearing spines on the upper and inner sides. The merus is prismatic, while the carpus is cylindrical. The movable finger is two-thirds the length of the palm. The fingers are serrated, and their apices spinulous. The immovable finger is excavated at the basal part, forming a hiatus.

Fig. 6. *Munida kuboi* n. sp.
a. Third maxilliped. ×6.
b. Antennule. ×6.
c. Antenna. ×10.

The ambulatory limbs are long and flattened. The first and second limbs have a row of spines each on the inner and outer margins. The dactyli are four-fifths the length of the propodi.

The antennal acicle, which is short, does not reach the distal end of the second joint. The second joint of the antenna has a spine each on the inner and outer margins, whereas the third joint has none. The flagellum measures about three times the length of the carapace, including the rostrum. The basal joint of the antennule has four spines, the outermost one of which is very small. The ischium of the external maxilliped, which is long and narrow, has an acute spine on the inner anterior corner, dull pointed on its outer anterior corner. The merus has two spines on the inner margin, the distal one of which is very small.

The male has two pairs of copulatory legs on the first and second abdominal segments, with a larger cheliped than that of the female. The cheliped of the female is about three times the length of the carapace, the fingers in contact throughout having no hiatus. The antenna of the female is shorter than that of the male.

Type. A male specimen, collected in Toyama Bay, on Oct. 25, 1937, measures 18.0 mm in the carapace, including rostrum; 9.0 mm in the width of the carapace, 4.5 mm in the length of the rostrum, and 70 mm in the cheliped. The type, on which the above description is based, is preserved in the writer's collection, Sp. No. 25,

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The writer examined also a female with eggs, obtained by the Sōyō-maru, on August 17, 1930, from the sea bottom, 148 m deep, south of Oga, Sōyō station 627. The writer also examined, besides, three young males obtained by the Sōyō-maru, on August 4, 1930, from the sea bottom, 78 m deep, northwest of Niigata, Sōyō-station 594.

Comparison. Although the present form is related to *Munida constricta* MILNE-EDWARDS, from the West Indies, it may be distinguished from it, as will be seen from the annexed Table.

	M. kuboi n. sp.	*M. constricta* MILNE-EDWARDS
Locality	Japan, the continental side	West-Indies
Length of rostrum	One-third the length of carapace, excluding rostrum	Half the length of carapace, excluding rostrum
Transverse ridges on gastric region	About eleven	About eight
Surface of postbranchial area	A spine just behind the bifurcation of the cervical groove	No spine in the same position
Fingers of cheliped in the male	Forming a hiatus	No hiatus
Spines on anterior margins of abdominal segments	Ten spines on the second, four on third, and none on the fourth	Six spines on second, four on third, and two on the fourth

Remarks. Although YOKOYA (1933, p. 58) referred the one female and three young males, mentioned above, collected by the Sōyō-maru, to *Munida japonica* STIMPSON, the writer identifies it with the present species.

This species is named in honour of Assistant Prof. Ituo KUBO, Imperial Fisheries Institute, who collected the type specimen.

In the young males the cheliped measures about three and a half times the length of the carapace, the movable fingers being less excavated than those of the large-sized males. The dactyli of the ambulatory limbs are also longer than those of the large male specimens, nearly equalling the length of the propodi.

Munida japonica japonica STIMPSON, 1858

Nom. Jap.—Yamato-ebikani

Munida japonica: STIMPSON, 1858, p. 252; 1907, p. 235; MIERS, 1879, p. 51; ORTMANN, 1892, p. 254, pl. 11, fig. 11; BORRADAILE, 1900, p. 422; DE MAN, 1902, p. 724; DOFLEIN, 1902, p. 644; SOUTHWELL, 1906, p. 221; BALSS, 1913, p. 15, fig. 14; 1916, p. 3; YOKOYA, 1933, p. 58; MELIN, 1939, p. 85, figs. 54–57.

Munida sagamiensis: DOFLEIN, 1902, p. 623.

Munida honsuensis: BENEDICT, 1903, p. 261, fig. 11.

The carapace is broadest at its last lateral spine. The rostrum is styliform, measuring half the length of the carapace and twice the length of the supraorbitals, all three of which are slightly upturned. The gastric area is well defined, its anterior part being provided with thirteen spines, of which the two situated behind the supraorbitals are fairly large. A pair of spines is present outside and behind this gastric row of spines, as also a pair in the hepatic region, in the probranchial region. The lateral border of the carapace is armed with eight spines, namely, three each in the hepatic and the probranchial region, and two in the postbranchial region. The gastric region has nine transverse ridges between the spinal row in front and the cervical groove. The abdominal segments have no teeth on the dorsal anterior margins. The second segment has four transverse ridges, and the third five.

The chelipeds are short, stout, subcylindrical, and covered with hairly scales. The merus is provided with three or four spines on the inner margin, a row of them on the upper side, and two between them. Three spines on the inner side of the carpus are prominent, there being also several spines on the upper side. The palm, slightly flattened, has a row of spinules on the outer margin, and about six on the inner side. The movable finger has a prominent spine at its base. The fingers, spinulous on their apices, are serrated inside, the basal part of the immovable finger being excavated, forming a hiatus. The ambulatory limbs have two large spines each at the distal ends of the merus and the carpus. Spinulets are developed on both the anterior and posterior margins of the merus, on the anterior margin of the carpus, and on the posterior margins of both propodus and dactylus.

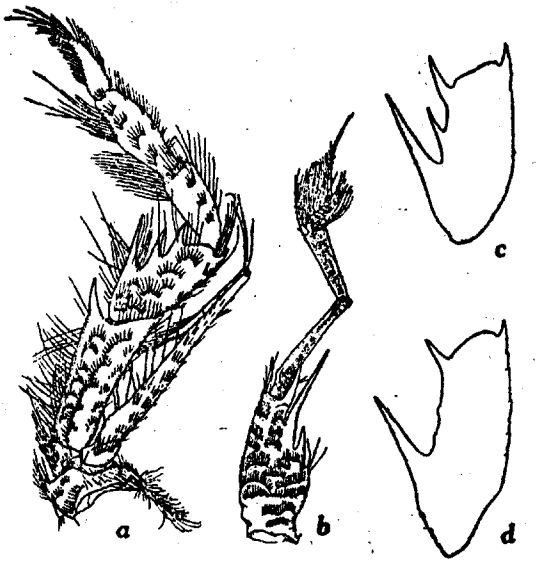

Fig. 7. *Munida japonica japonica* STIMPSON.
a. Third maxilliped. ×14. b. Antennule. ×8.
c–d. The meri of the third maxillipeds. ×20.

The antennal acicle is small. The second joint of the antenna is pointed on its anterior corners, the third joint terminates in a tooth on the outer side, whereas the fourth joint is unarmed. The peduncular joint of the first antenna is covered with hairy scales and armed with four pointed teeth at the extremity. The backs of the ischium and the merus of the external maxilliped are scaly. The ischium is dull pointed on its anterior corners; the inner margin of the merus bears three acute spines, whereas the outer margin has only a small spine at the distal end.

The male has two pairs of copulatory legs on the first and second abdominal segments.

One male, collected off Akabane, Atsumigun, Aichi Prefecture, measures 12.6 mm in the carapace, including rostrum; 7.5 mm in the width of the carapace, 4.2 mm in the length of the rostrum, and 28 mm in the cheliped.

Material examined. Two males, collected at a point between Hatsushima and Itō, Izu-peninsula, 80–100 m deep, July 30, 1936.

One female with eggs, collected off Manazuru-saki, Izu-penin-

sula, 120–130 m deep, August 1, 1936.

One male, collected off Hatsushima, Izu-peninsula, 25–30 m deep, July 28, 1936.

One male, collected in Kumanonada, depth unknown, November 1937.

One male, collected off Akabane, Atsumigun, Aichi Prefecture, 200 m deep, April 23, 1936.

One male, collected off Izu-peninsula, depth unknown, November 1939.

Two males, collected in Toyama Bay, depth unknown, received December 1941.

Type locality. Kagoshima Bay.

Distribution. All around Honshu, Corean Strait, Bonin Is.; Ceylon, Malay Archipelago, Polynesia. Depth: 0–543 m.

Remarks. As pointed out by previous authors, the present species shows wide variations in character, for which reason, many scientific names have been proposed, for example, *M. sagamiensis* DOFLEIN (1902), *M. honsuensis* BENEDICT (1903), and *M. heteracantha* ORTMANN (1892).

BALSS (1913) synonymized these species with *M. japonica* STIMPSON based on material found in the collections of DOFLEIN and HABERER, obtained largely from Sagami Bay, Chiba Prefecture, and Formosa, without referring definitely to the matter of variations in his material. YOKOYA (1933) followed BALSS' opinion, studying the very numerous specimens collected by the Sōyō-maru, dredged from all around Honshu. MELIN (1939) studied closely the variation in the present species, and separated the subspecies *heteracantha* ORTMANN.

Although the majority of the specimens agree in their important characters stated above, a number of them exhibit variations, which the writer will now describe, as observed in his collection.

1. The length of the rostrum and the supraorbitals show variation, in that a few specimens have longer rostrum and shorter supraorbitals.
2. In the median spine and the one behind it in the gastric area, either the latter or both are often obsolete.

3. The hepatic spine is usually obsolete.
4. In a few cases, the lateral border of the carapace in the hepatic region has four spines, but the second and fourth are poorly developed.
5. The number of the transverse ridges on the gastric region varies, ten or eleven being observed in a few cases.
6. In several specimens, the anterior margin of the second abdominal segment has four or six spines. The writer was unable to confirm the presence of eight spines as described by MELIN (1939).
7. In one case, the number of transverse ridges are five in the second and six in the third abdominal segments, and in another case, they are both five.
8. The median spine on the inner margin of the merus in the third maxilliped is often obsolete, in which position the merus is provided with one or two small protuberances.

All the serial variations stated above related to *M. japonica heteracantha* ORTMANN.

Munida japonica heteracantha ORTMANN, 1892

Nom. Jap.—Sagami-ebikani

Munida heteracantha: ORTMANN, 1892, p. 255, pl. 11, fig. 12; DOFLEIN, 1902, p. 644.

Munida japonica heteracantha: BALSS, 1913, p. 15; MELIN, 1939, p. 89, fig. 58.

The rostrum is two-fifths the length of the carapace and four times the length of the supraorbitals. All these three spines protrude horizontally. In most cases the median and the hinder spines of the anterior spinal row on the gastric region are obsolete. Although the lateral border of the carapace has eight spines, frequently they number only seven, the middle one in the hepatic region being obsoleted. Between the spinal row in front and the cervical groove, the gastric region has eleven

Fig. 8.
The third maxilliped of *Munida japonica heteracantha* ORTMANN. × 8.

transverse ridges.

The abdominal segment has eight teeth on the anterior margin of the second segment and four on the third. The second segment has four transverse ridges and the third five in large specimen, although, according to MELIN, the former has three and the latter five.

In the case of the third maxilliped, the merus has two spines on the inner margin, but none on the outer margin.

Compared with the typical form, the cheliped in the present form is longer and slenderer.

A male specimen collected off Izu-peninsula measures 10.5 mm in the carapace, including rostrum; 6.5 mm in the width of the carapace, 3.0 mm in the length of the rostrum, and 28 mm in the chelliped.

Material examined. One male, off Fukuura, Izu-peninsula, 100–130 m deep, July 7, 1934.

One female, Yoshihama, Izu-peninsula, 30–40 m deep, July 9, 1936.

Type locality. Kadjiyama and Sagami Bay.

Distribution. Zushi, Misaki, Fukuura, between Itō and Hatsushima, Kadjiyama, Chichishima. Depth: 100–350 m.

Remarks. The specific characters that vary, either continuouslly or irregularly, in both the typical and *heteracantha* forms are:

The length of the supraorbitals
The length of the rostrum
Spines on the anterior gastric region
The number of transverse ridges on the gastric region
Spines on the lateral border of the carapace
Teeth on the second abdominal segment
The number of transverse ridges on the abdominal segment
Spines on the inner margin of the merus in the third maxilliped
The length of the cheliped

The characters that distinctly separate the two forms are:

Spine on the outer margin of the merus in the third maxilliped

The specific characters that are constant to the two forms are:

The antennule
The antenna
The sternum, etc.

The specific characters of the present species are classified as above, in view of which the writer concludes that the *heteracantha* form is distinguishable as a subspecies of *M. japonica* STIMPSON. According to BALSS, the present form is bathymetric variety, which statement MELIN criticizes as being based on insufficient grounds. Besides, in contrast with the wide distribution of the typical form, that of the *heteracantha* form is narrow, being restricted to Sagami Bay and the Bonin Islands. In these respects, the writer is unable to comment, particularly, because of the scanty material on which previous reports are based as well as those by the writer. Further investigation is needed before any definite conclusion can be reached.

Munida andamanica ALCOCK, 1894

Nom. Jap.—Kebuka-ebikani

Munida militaris andamanica: ALCOCK, 1894, p. 321; BOONE, 1935, p. 42.
Munida andamanica: ALCOCK, 1901, p. 242; Illus. Zool. Investigator Crust., 1895, pl. 13, fig. 2; BALSS, 1913, p. 17; DOFLEIN and BALSS, 1913, p. 143; YOKOYA, 1933, p. 63.
Munida curvatura: BENEDICH, 1903, p. 253.

Material examined. Two males and two females, off Maisaka, Shizuoka Prefecture, about 360 m deep, December 1939. Five males and seven females (of these three bear eggs), collected from Kumanonada, about 360 m deep, October and November, 1939.

One male specimen from Kumanonada measures 26.0 mm in the carapace, including rostrum; 16.5 mm in the width of the carapace, and 37 mm in the cheliped.

Type locality. Andaman Sea.

Distribution. Sagami Bay, Suruga Bay, Murotozaki, Bungo Strait, Mie Prefecture; Andaman Sea, Arabian Sea, east coast of Africa, near Sumatra. Depth: 140–1080 m.

Remarks. As indicated by BALSS (1913), all our specimens lack spines behind the bifurcation of the cervical groove.

Munida scabra HENDERSON, 1885

Nom. Jap.—Toge-ebikani

Munida scabra: HENDERSON, 1885, p. 409; 1888, p. 134, pl. 15, fig. 4; YOKOYA, 1933, p. 63.

Material examined. Two females with eggs, collected off Miya, Aichi Prefecture, about 360 m deep, October and November, 1937.

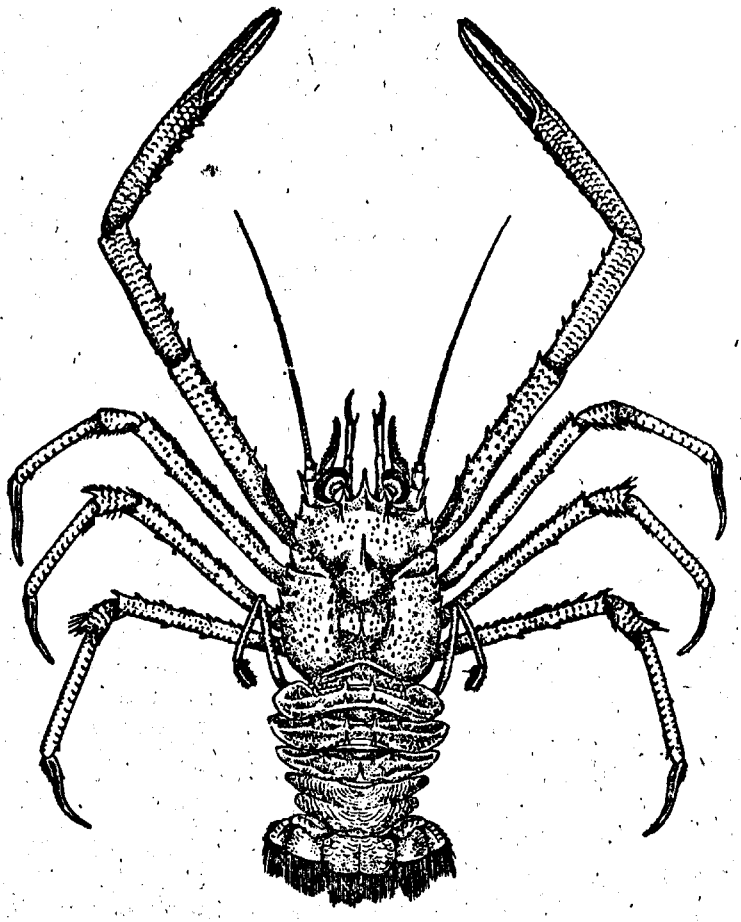

Fig. 9. *Munida scabra* HENDERSON, a female specimen collected off Miya. ×2.

The larger female measures 14.0 mm in the carapace, including rostrum; 13.0 mm in the width of the carapace, 3.0 mm in the rostrum, and 45 mm in the cheliped.

Type locality. Off Little Ki Island, Challenger Station 192.

Distribution. Inubozaki, Sagami Bay, Murotozaki, Bungo Strait, Miyazaki Prefecture, Gotō Is., Saishuto Is.; Little Ki Island. Depth: Littoral to 393 m.

Remarks. The writer's specimen have four spines each on the branchial area, but according to HENDERSON, "the branchial area bears three or four spines . . .". In other respects, the writer could not find any variation in character.

Fig. 10. *Munida scabra* HENDERSON.
a. Third maxilliped. ×6.
b. Antennule. ×10.
c. Antenna. ×6.

In the present genus, the basal joint of the antennule has usually four acute spines, while in the present species, it has, oddly, only three small spines.

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