Galathea inflata
Munida elegantissima

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New addition to the galatheid fauna of Japan (Crustacea, Anomura)*

Keiji BABA

In the previous paper (Baba, 1969) the writer pointed out that two of the species will be newly added to the galatheid fauna of Japan, on which additional details are herein mentioned. The first species, collected from Amami-oshima, one of the Ryukyus, was identified as *Galathea inflata* Potts which is originally reported to be associated with a crinoid found on the coral reef of Murray Island, the Torres Straits. The present material was unexpectedly collected among the cavities of coral rocks. The second species, *Munida elegantissima* de Man, was from two different localities, off Honshu and Southern Kyushu. The range of the species is said to be from Zanzibar through Amirante to the Malay Archipelago. Both of the species, therefore, extend their known range far northwards to the Japanese waters.

The writer is greatly indebted to Prof. S. Miyake for his helpful suggestions and encouragement. Thanks are also due to Mr. Y. Kurata, Mr. M. Takeda of Kyushu University, and Mr. Y. Ushio of Kagoshima University who kindly placed materials at the writer's disposal.

Galathea inflata Potts, 1915

(Figs. 1, 2)

Galathea inflata Potts, 1915, p. 85, fig. 4, pl. 1, fig. 7—Torres Straits.

* Contributions from the Zoological Laboratory, Faculty of Agriculture, Kyushu University, No. 407.

Material. Kasari-zaki, northern part of Amami-oshima, Ryukyu Islands, Aug. 9, 1968, M. Takeda & K. Honda leg.—1 ♂, ZLKU 15681.

Description. The rostrum is 1.5 times as long as broad and has the dorsal surface with short setae. Laterally it bears 4 acute spines of subequal size. The carapace is rather smooth without gastric spines. The cervical groove is indistinct. Transverse ridges are 8 in number, each fringing with rather coarse setae. Marginally it has 7 spines, of which the one is on the hepatic and the other 6 on the branchial region. The outer orbital angle is not developed but forms

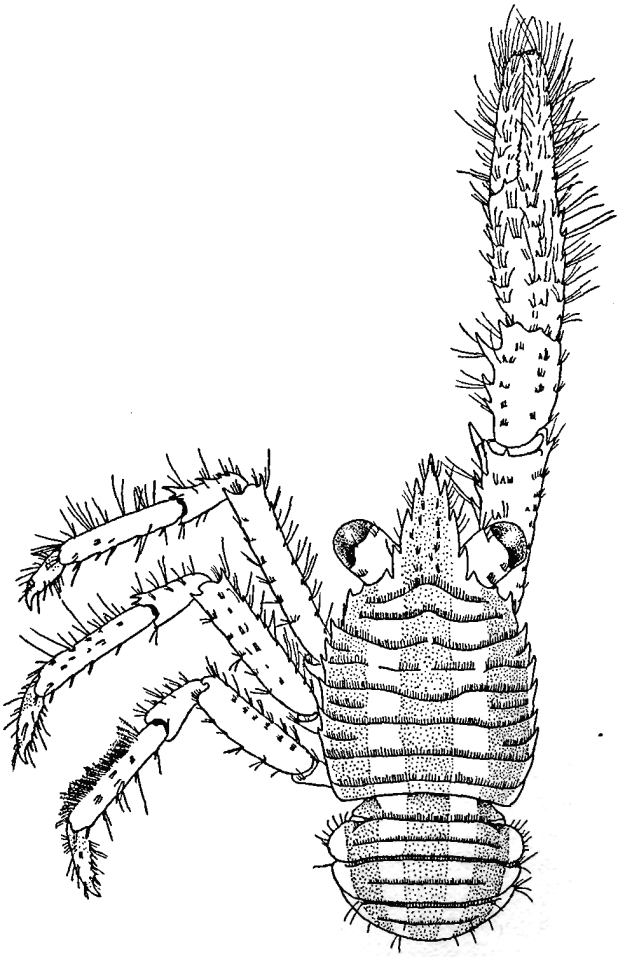

Fig. 1. *Galathea inflata* Potts, animal in dorsal view, ×12.

a minute spine. A single spine is present behind the insertion of the antenna.

Abdominal segments dorsally have each two transverse ridges.

The basal segment of the antennule bears three terminal spines, the inner being the largest. The first (proximal) segment of the antennal peduncle has a stout spine internally, the second segment is, as in common species, armed with both the inner and the outer distal marginal spines. The third is likewise equipped with an inner distal marginal spine.

The third maxilliped is setose, the setae are long. The ischium is as long as broad with an inner distal marginal spine, the inner toothed ridge having about 19 denticles. The merus is internally bi-spinose in the right side but trispinose in the left. Externally it bears a small but distinct spine at the distal portion and a slight eminence at midway. The carpus is non-spinose.

The anterior margin of the third thoracic sternite is spinose with a deep notch at the center (Fig. 2, *d*).

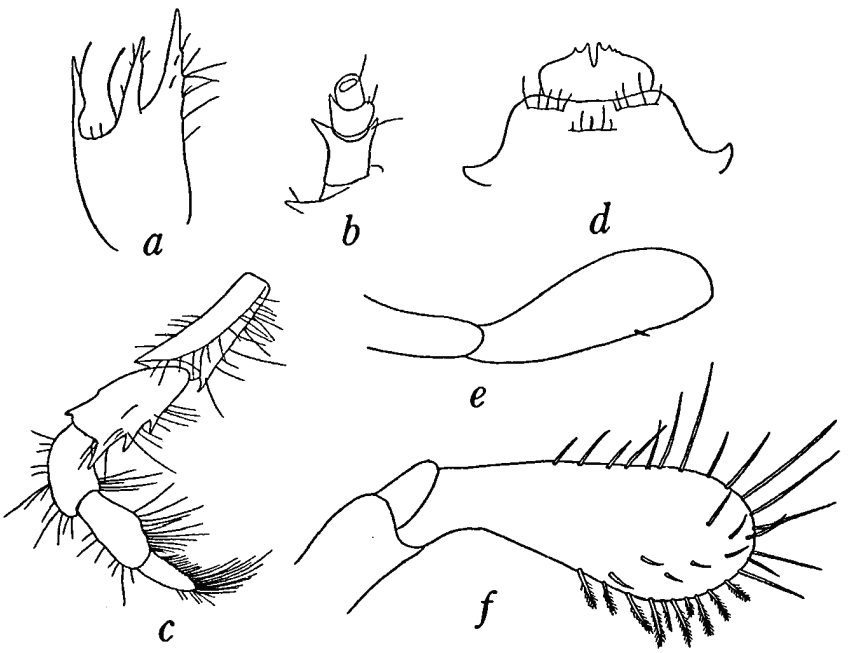

Fig. 2. *Galathea inflata* Potts, *a*, basal segment of left antennule, ×30; *b*, left antennal peduncle, ×30; *c*, endopod of left third maxilliped, ×30; *d*, anterior part of sternal segments, ×30; *e*, right first pleopod of male, dorsal view, ×140; *f*, right second pleopod of male, ventral view, ×140.

The chelipeds are stout, spinose and slightly longer than the carapace, the distal two segments being especially setose. The fingers are not gaping but touch straightly with tuberculated edge, the movable one is as long as the palm and slightly longer than the wrist. For armature refer to Fig. 1.

Ambulatory legs have coarse surface and are moderately setose. The merus of the first pair bears about 8 spines externally and a developed spine at the inner distal marginal angle. The carpus is likewise armed with four outer marginal, one inner distal marginal spines. A marked spine is also placed dorsally at the distal portion. The propodus is particularly setose externally, the setae are rather long. It has no spine externally but about 5 horny spines internally which are all mobile. The dactylus has the serrated inner margin with 5 or 6 broad setae. The second pair is almost equal to the first in shape. The third is quite different from the preceding two: The merus and carpus have no equipment of spines, and the propodus is externally thickly furnished with short plumose setae.

First two pleopods are as represented in Fig. 2, *e*, *f*.

Pereiopods have epipods only on the first pair.

Colour. After one month in formalin the body is pale brown in ground colour and has three longitudinal stripes of bluish brown running from the carapace backwards to the sixth abdominal segment (Fig. 1). The pterygostomial flap is longitudinally divided into two parts, the upper one without pigment and the lower with bluish brown. The chelipeds and ambulatory legs are of a bluish brown colour on all over the surface, excepting that the dactyli of ambulatory legs have each a middle portion with light orange or yellow. The eye is purplish.

Measurements. The carapace is 4.1 mm long and 2.5 mm broad. The cheliped is 7.8 mm long.

Remarks. Potts (1915) reported from the coral reef of the Torres Straits *Galathea inflata* in commensal with a crinoid, *Comanthus annulatum* (Bell) which is now transfered into *C. timorensis* (Müller). The present specimen was collected by Mr. Takeda among crevices of exposed coral rocks when he was finding xanthid crabs, therefore it showed a different habitat having relation not to crinoids but to corals, although we must pay attention to the fact that both the Potts' and the present materials are from the coral reefs.

Generally the present specimen agrees with *G. inflata*, which description is, however, considerably brief for which a full description is given above. Only one difference is shown by the fact that the anterior

branchial region is simple and the cervical groove is indistinct in the writer's specimen with which the Potts' contrasts in having scaly branchial region and well-developed cervical groove. The most characteristic is the spiniform sternum of the third thoracic segment and the third ambulatory leg with the propodus furnished with plumose setae on the outer margin, which fact makes it more easy to distinguish from other species.

Distribution. The species is known from two localities with a considerable distance, the Torres Straits and the Ryukyu Islands. Restricted to coral reefs.

Munida elegantissima de Man, 1902

(Figs. 3, 4)

Munida elegantissima de Man, 1902, p. 726, pl. 24, figs. 42, 42a, 42b—Malay Archipelago; Laurie, 1926, p. 138—Providence; Amirante; Tirmizi, 1966, p. 190, fig. 12—Zanzibar.

Material. Off Miyake-jima I., Izu Is., off Honshu, 85 m deep, Sept. 28, 1962, Y. Kurata leg.—1 ♀, ZLKU 14346.

Off Mage-jima Islet, west of Tanega-shima I., Southern Japan, 35–40 m deep, June 30, 1967, Kagoshima Univ. coll.—1 ♂, 1 ovig. ♀, ZLKU 14254.

Description. The rostrum is spiniform and horizontal with long coarse setae. The supraorbital spines extend forwards in parallel without diverging, and terminate midway of the rostrum. They bear long setae on the surface.

The carapace is rather rugose and distinct in striation, being sparsely furnished with short, coarse setae. Epigastric spines are 5–5. Of these a central pair is placed slightly anteriorly to the others. Behind these are two spines situated on the second stria, each being present behind the outer extremity of the orbit. The hepatic region bears a minute spine outside of the orbit, a well-developed anterolateral spine and another spinule behind. The anterior and posterior branchial regions have each two lateral spines, the former region bears one or two dorsal spines. There are two postcervical spines.

The basal segment of the antennule has four spines distally, the innermost being small and short. The outer second is setose and well developed (Fig. 4, *a*). The first segment of the antennal peduncle has a prolonged spine. The second is armed with an outer distal marginal and an inner distal marginal spine, and also with a spinule on the outer margin. The third has an inner distal marginal spine.

The merus of the third maxilliped is not markedly setose with two developed inner marginal spines of equal size, the outer margin being non-spinose. The carpus is smooth on the outer margin, but it bears a single spine on the distal portion of the inner margin.

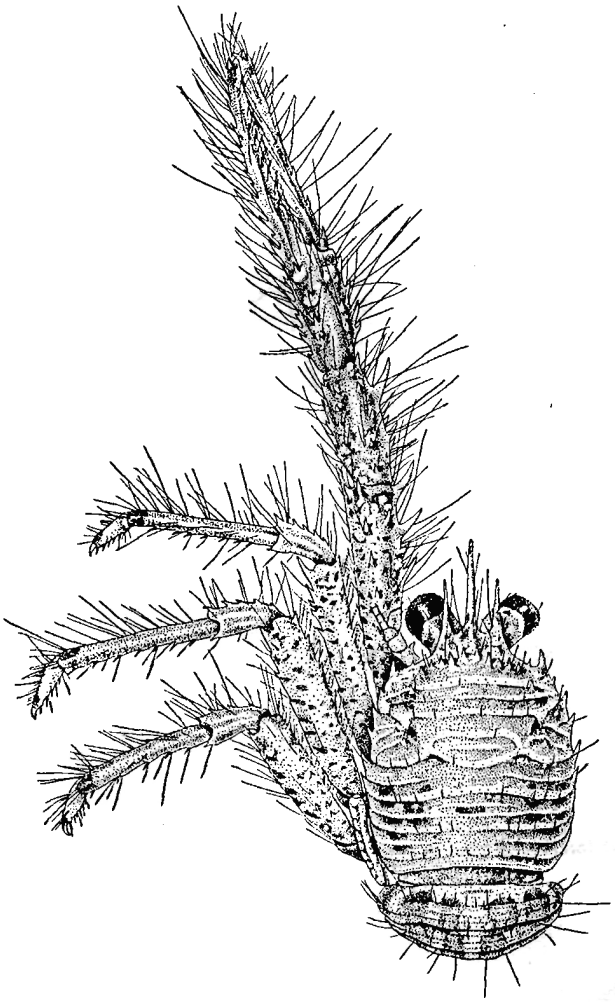

Fig. 3. *Munida elegantissima* de Man, male, in dorsal vew, ×4.

The third thoracic sternite is serrated anteriorly with a sharp spine directed inwards at the outer extremity of either side.

The chelipeds are spinose and very setose with long coarse setae, being less than twice as long as the carapace when measured from the tip of the rostrum to that of the movable finger. The arm bears large,

strong spines on the inner margin and spinules dorsally, the outer margin scarcely spinose. The wrist is as long as the palm, with four longitudinal rows of spines, the outer margin being not spinose. The palm is slightly more than a half of the finger, with five rows of spines marginally and dorsally, each row is composed of four to seven spines. It is armed, as usual in this group, with a spine at the anterior margin. The fingers are not gaping, crossing each other with sharpened tips. They have tubercles on the cutting edge, each finger bears a spine distally on the margin. The movable finger has three marginal spines poximally.

The ambulatory legs are also setose. In the first pair the merus bears five spines on the distal half of the outer margin, three inner marginal spines, and seven or eight spines on the proximal three-fourths of the outer margin. It is thickly furnished with soft, plumose setae on the outer margin. The carpus has five outer marginal and one inner distal marginal spines. The propodus is armed with seven inner marginal spines which are slender and movable. The inner margin of the dactylus is strongly serrated with six broad setae. The second pair is similar to the first, the third is reduced in armature.

First two pleopods of the male are as in Tirmizi's (1966) figures.

Epipods are present on the first three pairs of the pereiopods.

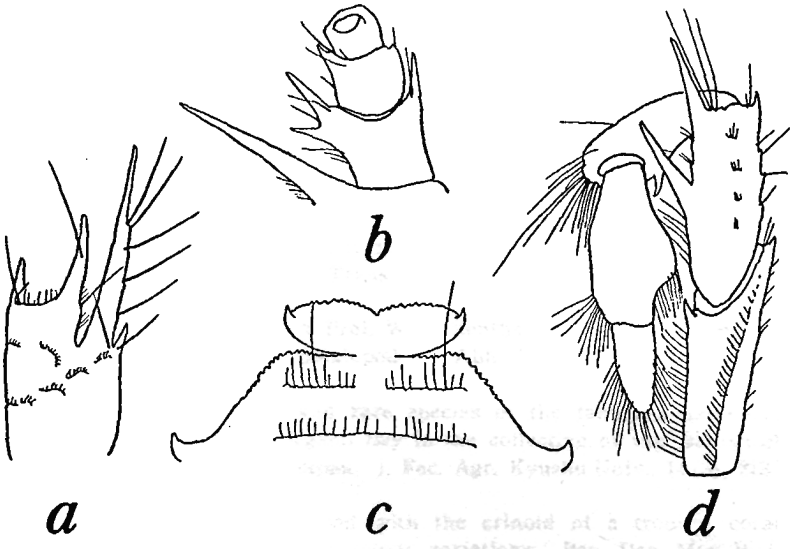

Fig. 4. *Munida elegantissima* de Man, *a*, basal segment of left antennule, ×16; *b*, left antennal peduncle, ×16; *c*, anterior part of sternal segments, ×16; *d*, endopod of left third maxilliped, ×16.

Colour. After one month of preservation in alcohol, whole the body is reddish with white transverse stripes on the carapace. In chelipeds the palm has several white spots dorsally. The propodus of the ambulatory legs longitudinally bears a stripe of light yellow. The pterygostomial flap is of red colour, but is white on the neighbouring area of the pleural suture.

Measurements. The male is 10.4 mm, ovigerous female 11.1 mm, and non-ovigerous female 6.7 mm in carapace length.

Remarks. This species is so characteristic that there is no confusion in identification. From other members it differs in having long coarse setae on legs and having an inner distal marginal spine on the carpus of the third maxilliped. The most related species to this is represented by *Munida bellior* Miyake et Baba, both of them bear as different from other members epipods on the first three pairs of pereiopods. The differences between them are as follows; (1) The carapace is not rugose in *M. bellior* while in *M. elegantissima* it is rugose with coarse setae dorsally. (2) The propodus of the ambulatory leg bears about four inner marginal spines in *M. bellior*, but eight or nine in *M. elegantissima*. (3) In *M. bellior* the antennal peduncle has no spine on the third segment, whereas in *M. elegantissima* it bears an inner distal marginal spine.

Distribution. Known from the east coast of Africa, Indian Ocean, Malay Archipelago and Japan in depths of 35 to 140 m.

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