

Four New Species of Deep-Sea Cumacea (Crustacea) from the Japan Trench

By

Sigeo GAMÔ*

(Received, May 10, 1989)

Résumé. Quatre nouvelles espèces de Cumacés, *Bathycuma granulatum*, *B. declinatum* (Bodotriidae), *Makrokyllindrus* (*Coalecuma*) *micracanthus* (Diastylidae) et *Hemilamprops* (?) *abyssi* (Lampropidae), récoltées de la fosse du Japon au large de Kamaishi (le Nord-est du Japon) à des profondeurs de 5349-6416 m sont décrites et figurées.

Deep-sea cumacean crustaceans from the Japan Trench and its vicinity have been described by GAMÔ (1971, '84, '85, '87, '88a, b). This paper deals with four new species, *Bathycuma granulatum*, *B. declinatum* (Bodotriidae), *Makrokyllindrus* (*Coalecuma*) *micracanthus* (Diastylidae) and *Hemilamprops* (?) *abyssi* (Lampropidae). These specimens were collected by the Research Vessel "Hakuho-Maru" of the Ocean Research Institute, University of Tokyo, using beam-trawl of 4 m span, from the Japan Trench, depths 5349-6416 m, far off Kinkazan (the northeastern districts of Japan), during the cruise KH-81-4 (9 July-4 August, 1981). The registered type specimens are deposited in the collection of the National Science Museum, Tokyo, and remaining paratype specimens will be reserved in the collection of the Ocean Research Institute, University of Tokyo.

The author wishes to express his gratitude to Professor Masuoki HORIKOSHI of the Chiba University, Director of the cruise, for his interest and help during the cruise. The author's thanks are due to the staff members of the R/V Hakuho-Maru for their general assistance during the cruise and to the members of the Institute for their kind help in many ways.

Bathycuma granulatum sp. nov.

(Figs. 1-3)

Material examined. Holotype ovigerous female (18.1 mm) (NSMT-Cr. 9637); allotype subadult male (15.7 mm) (NSMT-Cr. 9638). Paratype: female with marsupium (19 mm); female with rudimentary oostegites (18.1 mm); female manca stage (8.5 mm) (NSMT-Cr. 9639), St. 12 (KH-81-4), 38°33.3'N, 144°19.4'E-

* Department of Biology, Faculty of Education, Yokohama National University, Tokiwadai, Hodogaya-ku, Yokohama 240, Japan.

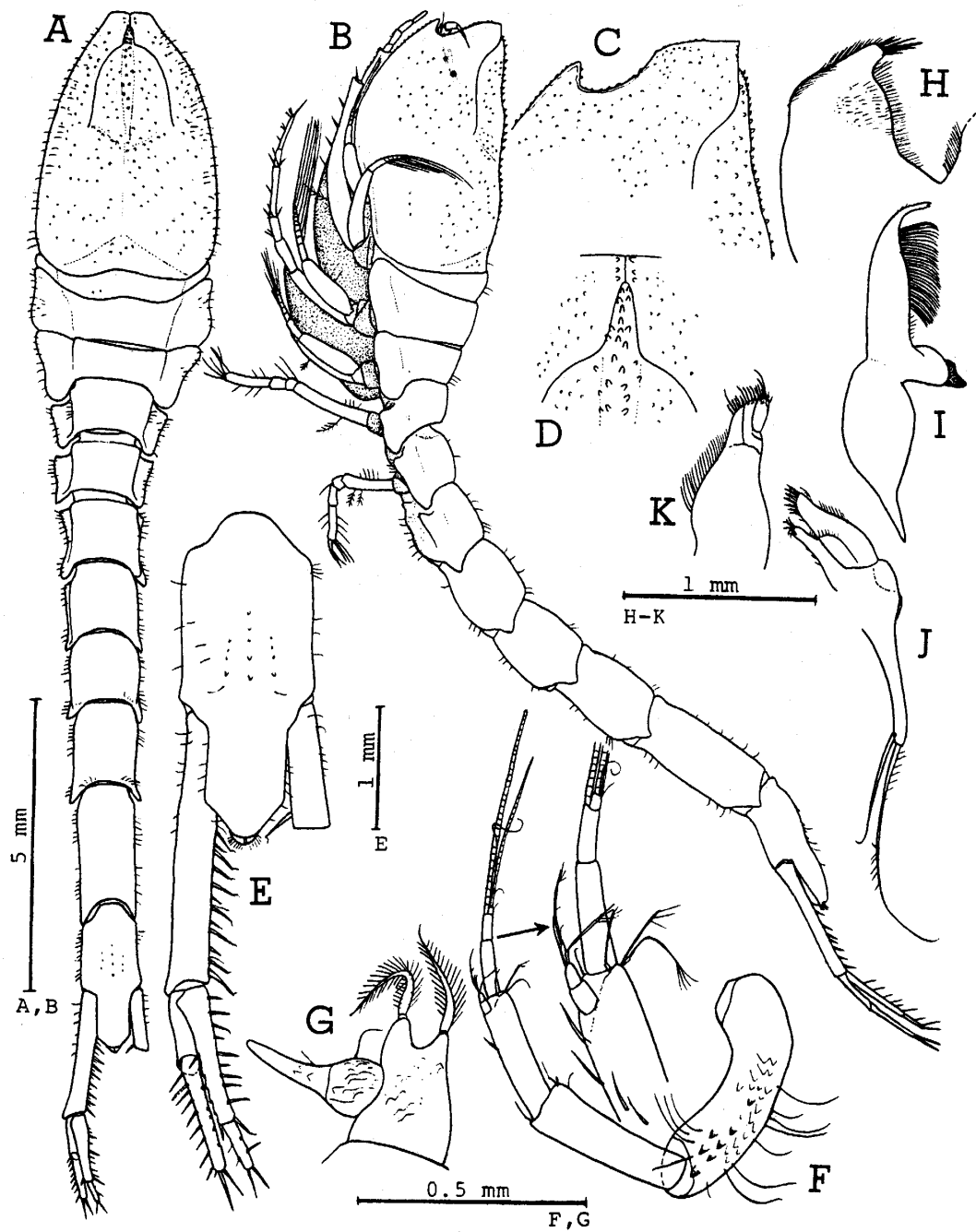


Fig. 1. *Bathycuma granulatum* sp. nov., holotype ovigerous female, length, about 18.1 mm. A: dorsal view. B: lateral view. C-D: anterior portion of carapace, lateral (C) and dorsal (D) view. E: telsonic segment with uropods, dorsal view. F: antennule. G: antenna. H: labium. I: right mandible. J: maxillule. K: maxilla.

38°35.4'N, 144°20.3'E, depth 6348–6416 m, far off Kinkazan, 31 Jul. 1981. Paratype female with rudimentary oostgites (19 mm) (NSMT-Cr. 9639), St. 11 (KH-81-4), 38°33.9'N, 145°15.7'E–38°35.5'N, 145°15.1'E, depth 5349–5368 m, far off Kinkazan, 1 Aug. 1981. Gear: Beam-trawl of 4 m span.

Description. The holotype is an ovigerous female, length about 18.1 mm, bearing only five embryos, about 0.9 mm in diameter. The integument is moderately calcified.

The carapace (Fig. 1, A-D) is somewhat ovate in outline as seen from above, and a little less than $1/4$ of the total body length, and strictly $1\frac{1}{3}$ times as long as the depth, which is a little less than the width. As seen from the side, the dorsal margin is almost horizontal, except for two slight swellings. On the dorsum there is no distinct dorsomedian carina and a double row of teeth. The surface of carapace is covered with minute granules and sparse short hairs. The ocular lobe is very small and narrow digitiform, and without visual elements. The pseudorostral lobes are short, truncated at the apex, and meet in front of ocular lobe for a distance about $1/2$ as long as the ocular lobe. The antennal notch is shallowly concave, and its anterolateral angle is moderately pointed. The anterolateral or lower margin of carapace is finely serrated.

The combined length of all free thoracic segments (Fig. 1, A, B) is about $3/4$ as long as the carapace. The first segment is the shortest, $2/3$ as long as the second. The second segment is the longest. The second to fifth segments are successively decreased in length as well as in depth. The side plates of the posterior four segments are prominent.

The abdomen (Fig. 1, A, B) is much more than $1/2$ of the total body length. The first segment is the shortest, slightly less than the second, and provided with a small lateral plate. The second and third segments are subequal in length, and a little more than the fourth. The fifth segment is the longest, about $1\frac{1}{2}$ times as long as the fourth.

The telsonic segment (Fig. 1, A, B, E) is a little shorter than the fifth abdominal segment, and its posterior portion is much produced backward between the uropods for about $1/3$ of the telsonic segment itself. There are three rows of several spinules on the dorsomedian portion.

The antennule (Fig. 1, A, F) is slender, cylindrical, and bears two long aesthetascs. The first peduncular segment is $1\frac{1}{2}$ times as long as the second, and provided with sparse hairs and several spinules near the distal portion. The third segment is a little less than $3/4$ as long as the second. The main flagellum is nearly $3/4$ as long as the third peduncular segment, and 3-segmented; the first segment is $1\frac{1}{2}$ times as long as the distal two segments combined; the third segment is the shortest, about $1/4$ of the second. The accessory flagellum is minute, nearly $1/3$ as long as the main lash, and 2-segmented; its distal segment is a little shorter than the basal one.

The antenna (Fig. 1, G) is vary small.

The labium is as shown in Fig. 1, H.

The mandible (Fig. 1, I) is normally boat-shaped, and right mandible bears 35 setae on the incisor process.

The maxillule (Fig. 1, J) has two filaments on the palp.

The maxilla is as shown in Fig. 1, K.

The first and second maxillipeds are as shown in Fig. 2, A and B.

The length of basis (including its outer distal prolongation) of third maxilliped (Fig. 2, C) is nearly 3 times as long as the remaining distal segments together, and provided with plumose hairs and a row of several spines on the inner margin. Its outer distal prolongation reaches the middle of carpus. The ischium is cylindrical, $1/2$ as long as the merus, which is about $3/4$ as long as the carpus. The merus bears three spinules near the distal margin. The pro-

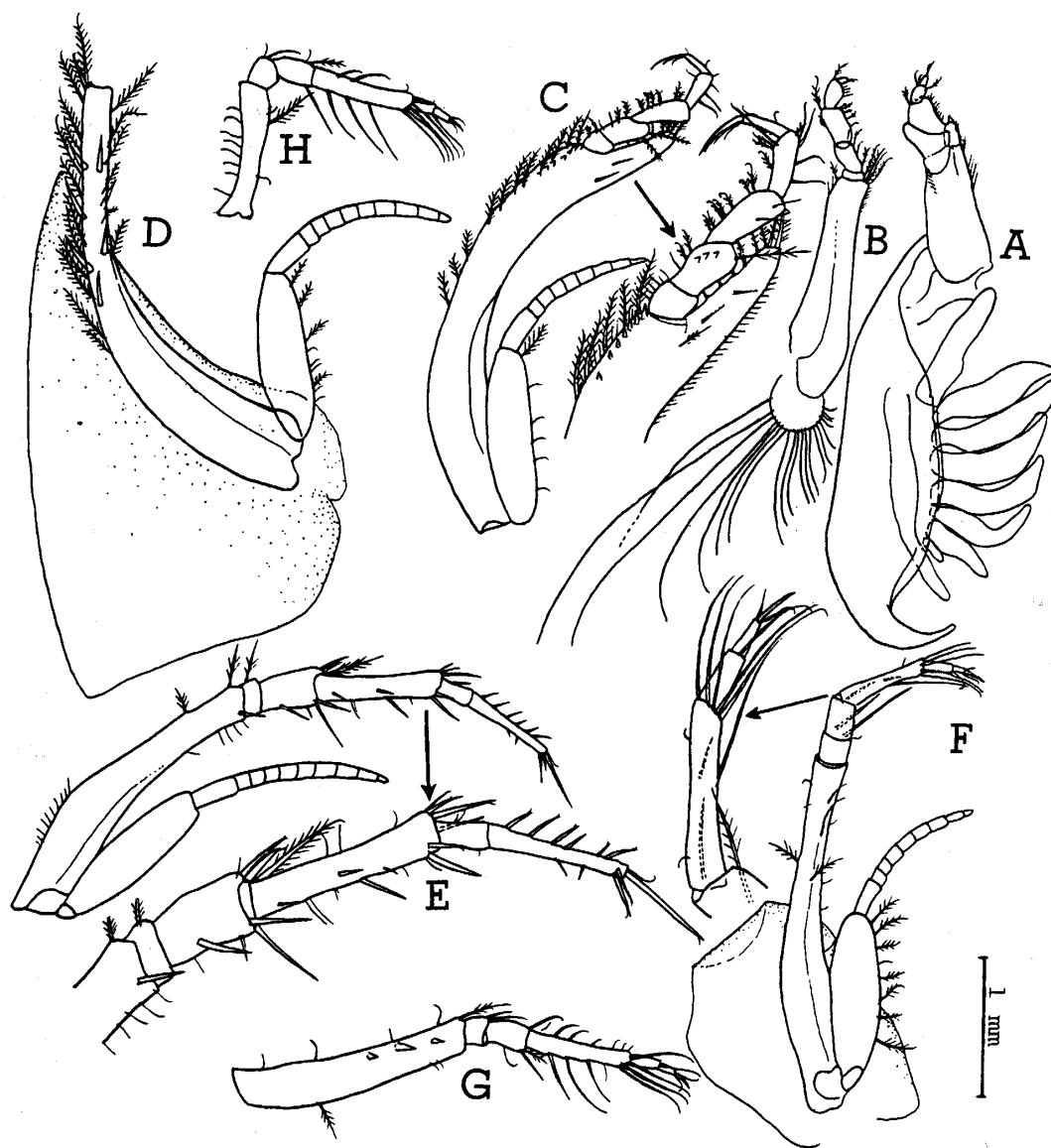


Fig. 2. *Bathycuma granulatum* sp. nov., holotype ovigerous female. A-B: first (A) and second (B) maxillipeds. C: third maxilliped. D: first peraeopod. E: second peraeopod. F-H: third (F) to fifth (H) peraeopods.

podus is slightly $3/4$ as long as the carpus, and much longer than the dactylus.

The first peraeopod (Fig. 2, D) is damaged and its distal segments are missing. The basis is cylindrical in shape, somewhat widened at the base, and about as long as the basis of third maxilliped. There are plumose hairs and several long spines on the lateral margins.

The second peraeopod (Fig. 2, E) is nearly $1\frac{1}{3}$ times as long as the basis of first peraeopod. The basis is almost cylindrical, slightly widened at the base, and much shorter than the remaining distal segments together. The ischium is very short. The carpus is about twice as long as the merus, and about as long as the distal two segments together. The dactylus is a little less than 3 times as long as the propodus, and provided with short lateral spines and unequal three apical spines.

The third peraeopod (Fig. 2, F) is about $5/6$ as long as the second; the basis is about $1\frac{2}{3}$ times as long as the remaining distal segments together. The fourth peraeopod (Fig. 2, G) is about $5/6$ as long as the third; its basis is a little shorter than the distal segments together. The fifth peraeopod (Fig. 2, H) is about $3/4$ as long as the fourth; its basis is about $2/3$ of combined length of distal segments.

The peduncle of uropod (Fig. 1, A, B, E) is about $6/7$ as long as the telsonic segment, and provided with 12 spines on the inner margin. The endopod is $2/3$ as long as the peduncle, and 2-segmented; the basal segment is about 3 times as long as the distal one, and furnished with 10 spines on the inner and 7 spines on the outer margin; the distal segment has 2 lateral and apical spines. The exopod is subequal to the endopod, and bears 9-5 spines on the lateral margins and 2 spines at the apex.

The first three pairs of peraeopods have well developed exopods.

Allotype subadult male, length about 15.7 mm, is heavily injured in the different parts of body. In general the male is very like the holotype female.

The carapace (Fig. 3, A-D) is about $1/4$ of the total body length, and nearly twice as long as the width, which is a little less than the depth.

The combined length of all free thoracic segments (Fig. 3, A, B) is much more than $3/4$ as long as the carapace. The first to fifth segments are successively decreased in depth as well as in width. The second segment is wider and deeper than the others, about as long as the fourth or the fifth.

The abdomen (Fig. 3, A, B, E) is short, cylindrical in shape. The first four segments are subequal in length. The fifth segment is about $2/3$ as long as the fourth.

The telsonic segment (Fig. 3, E) is a little shorter than the fifth abdominal segment. Its posterior portion is largely produced backward between the uropods as in the female specimen.

The antennule (Fig. 3, F) is somewhat stouter and shorter than that of the female. The first peduncular segment is a little shorter than the distal two segments combined, and furnished with lateral spinules. The second segment

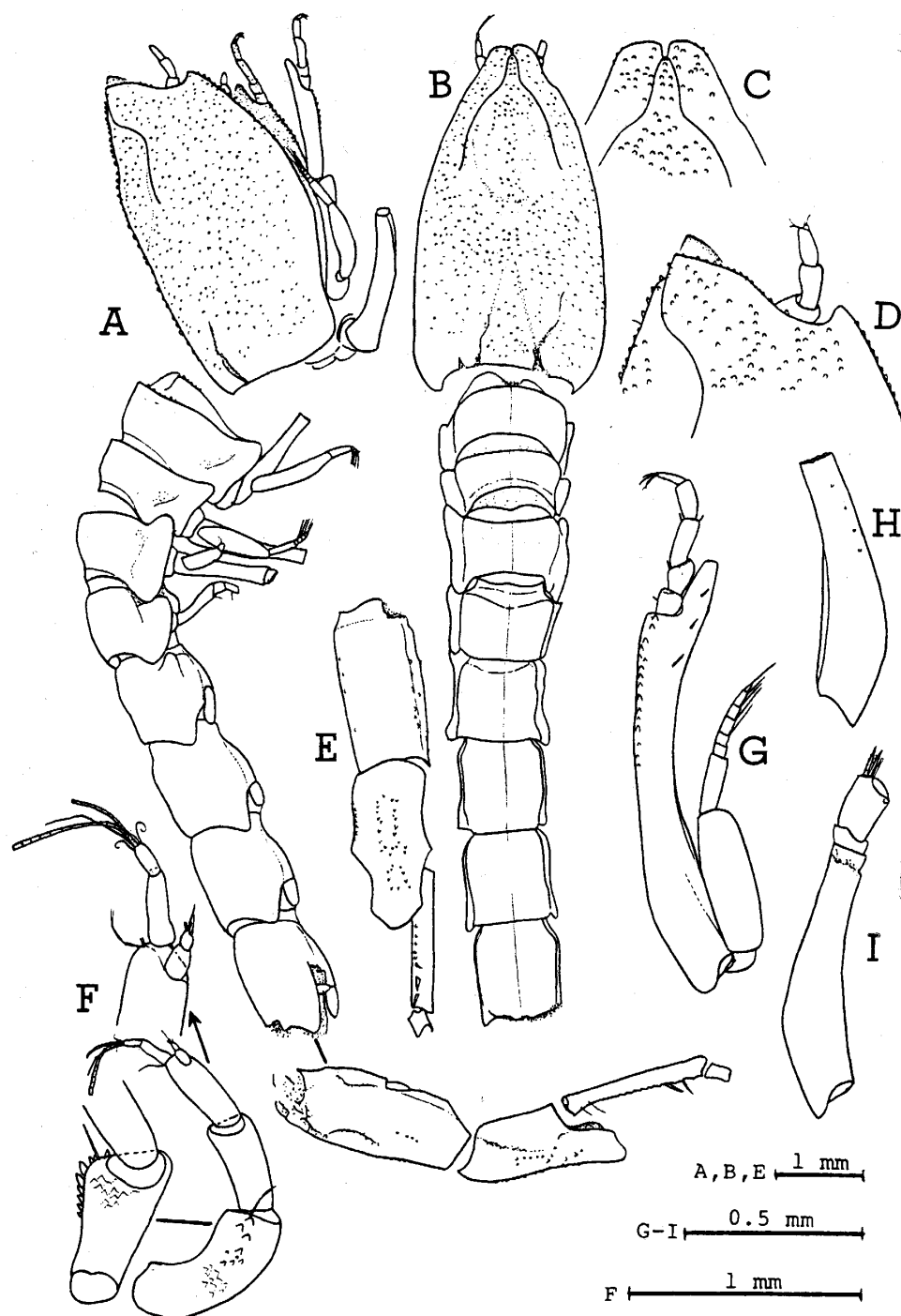


Fig. 3. *Bathycuma granulatum* sp. nov., allotype subadult male, length about 15.7 mm. A: lateral view. B: anterior portion of body, dorsal view. C-D: anterior portion of carapace, dorsal (C) and lateral (D) view. E: last two abdominal segments with basal portion of right uropod. F: antennule. G: third maxilliped. H: basal portion of basis of first pereopod. I: basal portion of basis of second pereopod.

is a little longer than the third. The main flagellum is about $1/2$ as long as the third peduncular segment, and 3-segmented; the first segment is about twice as long as the second; the third segment is very minute. The accessory flagellum is nearly $2/3$ as long as the first segment of main lash, and 2-segmented; the distal segment is about $2/3$ as long as the basal one.

The basis of third maxilliped (Fig. 3, G) is much less than 3 times as long as the remaining distal segments together. The five pairs of peraeopods are damaged.

The peduncle of uropods (Fig. 3, A, E) is damaged except for the basal portion of the right side. Its inner margin has about 8 spines. The rami are missing.

The first four pairs of peraeopods have exopods. Five pairs of rudimentary pleopods are present on the abdomen.

Remarks. The new species is most allied to *B. magna* JONES, 1969 from the Indian Ocean, Seychelle-Ceylon, 1040 m deep, from which it is well distinguished by having the carapace covered with minute granules and without distinct carina bearing a double row of teeth.

Bathycuma declinatum sp. nov.

(Figs. 4-6)

Material examined. Holotype female (3.2 mm) (NSMT-Cr. 9640); allotype young male (18.3 mm) (NSMT-Cr. 9641); paratype: a juvenile male (3.2 mm) and a fragment of female St. 12 (KH-81-4), $38^{\circ}33.3'N$, $144^{\circ}19.4'E$ – $38^{\circ}35.4'N$, $144^{\circ}20.3'E$, depth 6348–6416 m, far off Kinkazan. 31 Jul. 1981. Gear: Beam-trawl of 4 m span.

Description. Holotype is a female, length about 3.2 mm, somewhat injured in the different parts of body.

The carapace (Fig. 4, A, B, E) is $1/4$ of the total body length, and a little less than twice as long as the width, which is slightly more than the depth. As seen from the side, the dorsal margin is entirely arched. The dorsomedian carina bears two rows of alternating teeth, which run from the tip of ocular lobe to the hind margin of carapace and shortly interrupted in the posterior portion. The sides of carapace have no lateral ridges or spines. The antennal notch is shallowly concave, and its anterolateral angle is sharply pointed, emphasized by an acute spine. The anterolateral or lower margin of carapace is anteriorly serrate. The ocular lobe is very small, triangular in shape and without visual elements. The pseudorostral lobes are truncated at the apex as seen from above, bent downward, meet in front of the ocular lobe for about as long as the ocular lobe, and provided with two pairs of dorsal spines and some serrations on the lower margin.

The combined length of all free thoracic segments (Fig. 4, A, B) is slightly less than $5/6$ of the carapace. The second to fifth segments are successively decreased in width as well as in depth, and their side plates are distinct.

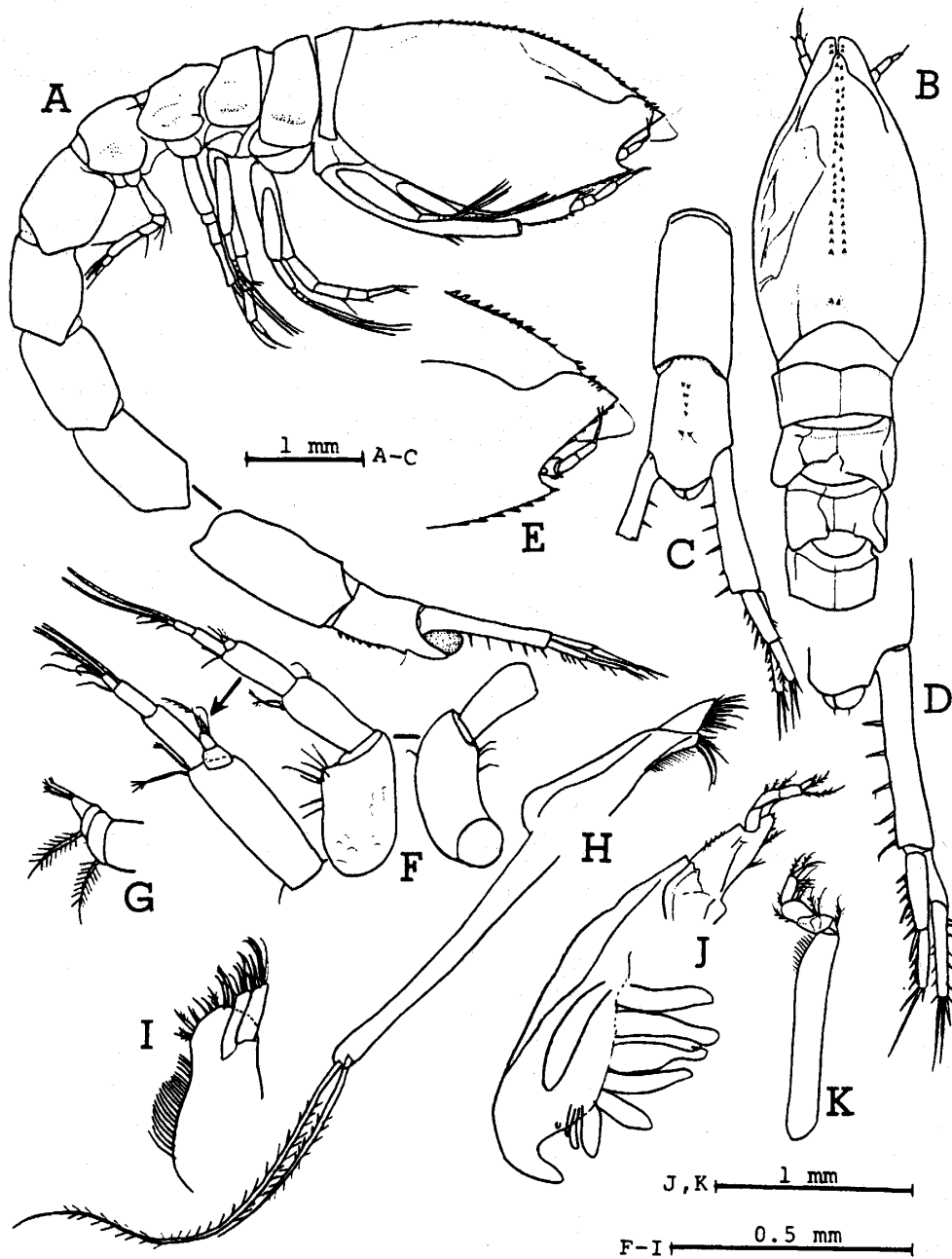


Fig. 4. *Bathycuma declinatum* sp. nov., holotype female, length about 11.2 mm. A: lateral view. B: cephalothorax, dorsal view. C: last two abdominal segments with uropods. D: posterior portion of telsonic segment with right uropod. E: anterior portion of carapace, lateral view. F: antennule. H: maxillule. I: maxilla. J-K: first (J) and second (K) maxillipeds

The abdomen (Fig. 4, A, C) is more than $1/2$ of the total body length. The first two segments are subequal in length, and a little shorter than the subequal posterior two segments. The fifth segment is much longer than the fourth.

The telsonic segment (Fig. 4, A, C) is about $3/4$ as long as the fifth abdominal segment, and its posterior portion is produced backward between the uropods for about $1/4$ as long as the telsonic segment itself. There are spinules on its dorsomedian portion.

The antenule (Fig. 4, F) is somewhat stout. The first peduncular segment is very robust, a little shorter than the distal two segments combined. The third segment is shorter than the second. The main flagellum is nearly as long as the third peduncular segment, 3-segmented, and provided with two aesthetascs; the first segment is much longer than the second; the third segment is very minute. The accessory flagellum is very small, about $1/2$ as long as the first segment of main lash, and 2-segmented; the basal segment is stout, much longer

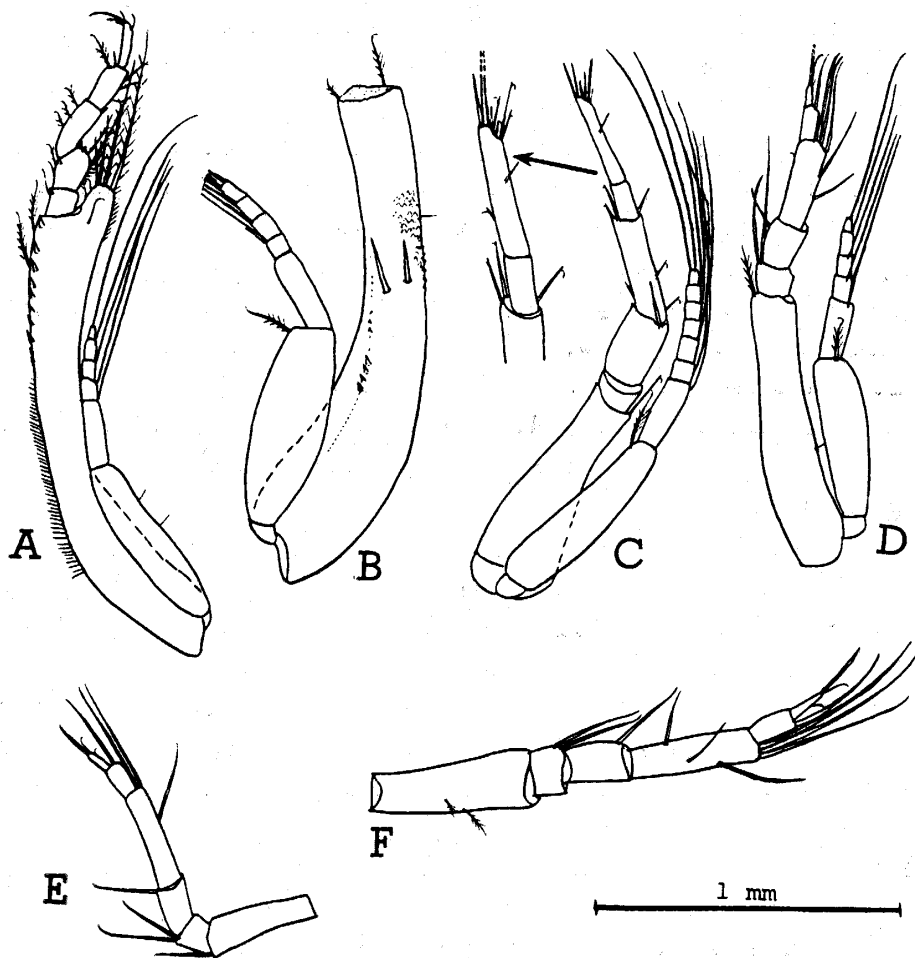


Fig. 5. *Bathycuma declinatum* sp. nov., holotype female. A: third maxilliped. B: first pereopod. C: second pereopod. D-F: third (D) to fifth (F) pereopods.

than the distal one.

The antenna is as shown in Fig. 4, G.

The mandible is normally boat-shaped, and the left mandible bears a lacinia mobilis and 19 setae on the incisor process.

The maxillule (Fig. 4, H) has two filaments.

The maxilla is as shown in Fig. 4, I.

The first and second maxillipeds are as shown in Fig. 4, J and K.

The basis of third maxilliped (Fig. 5, A) is slightly less than $2\frac{1}{2}$ times as long as the remaining distal segments together, and provided with a row of several spines along the inner margin. Its outer distal prolongation reaches half way along the merus. The ischium is much shorter than the merus, and furnished with a small spines on the inner distal end. The merus has two spines on the outer and a such small spine on the inner distal end. The carpus is much longer than the merus or propodus. The dactylus is about as long as the propodus.

The first peraeopod (Fig. 5, B) is damaged and its distal portion is missing. The basis is almost cylindrical in shape, and furnished with a pair of long spines in the middle of its ventral surface.

The basis of second peraeopod (Fig. 5, C) is a little less than $\frac{3}{4}$ as long as the remaining distal segments together. The ischium is very short. The merus is about $\frac{2}{3}$ as long as the carpus, which is much shorter than the distal two segments together. The dactylus is much less than 3 times as long as the propodus, and provided with several unequal apical spines.

The third peraeopod (Fig. 5, D) is much shorter than the second, and its basis is about $1\frac{1}{3}$ times as long as the remaining distal segments together. The fourth peraeopod (Fig. 5, E) is a little shorter than the third; its basis is about $\frac{1}{2}$ as long as the remaining distal segments together. The fifth peraeopod (Fig. 5, F) is about as long as the fourth; its basis is about $\frac{1}{2}$ as long as the distal segments together.

The peduncle of uropod (Fig. 4, C, D) is a little longer than the telsonic segment, and provided with 6 spines on the inner margin. The endopod is nearly $\frac{3}{4}$ as long as the peduncle, and 2-segmented; the first segment is much longer than the second, and furnished with 7 spines on the spinulose inner margin; the second segment bears 3 spines on the spinulose inner margin and unequal spines at the apex. The exopod is slightly longer than the endopod, and furnished with several spines on the lateral margins and unequal three spines at its apex.

The first three pairs of peraeopods bear well developed exopods.

Allotype young male, length about 18.3 mm, is a little injured. The young male is very similar to the female in general appearance.

The carapace (Fig. 6, A-D) is about $\frac{1}{4}$ of the total body length, slightly more than $1\frac{3}{4}$ times as long as the width, which is as wide as the depth. As seen from the side, the dorsal profile is almost horizontal in the hind por-

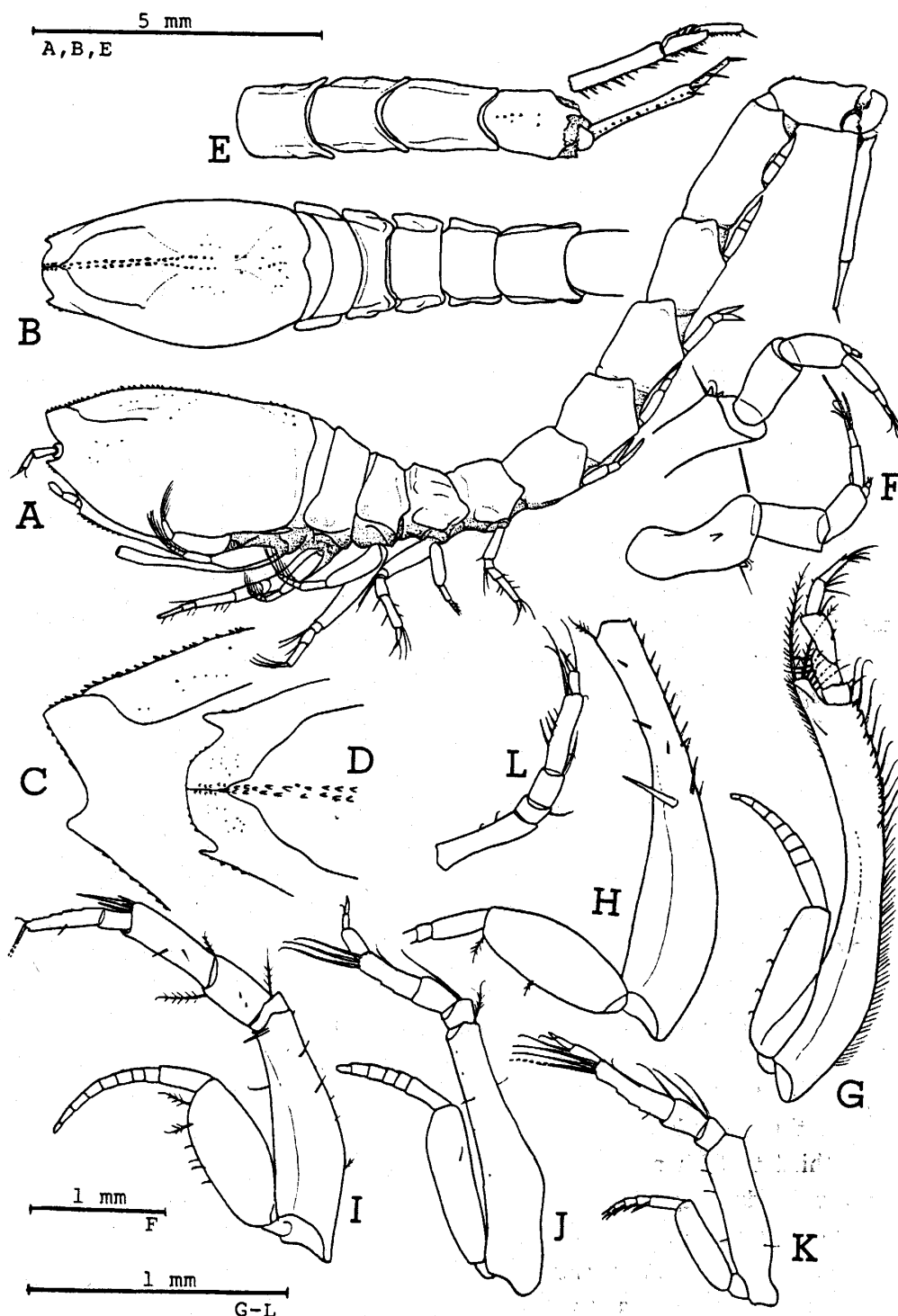


Fig. 6. *Bathycuma declinatum* sp. nov., allotype young male, length about 18.3 mm.

A: lateral view. B: anterior portion of body, dorsal view. C-D: anterior portion of carapace, lateral (C) and dorsal (D) view. E: posterior portion of body with uropods, dorsal view. F: antennule. G: third maxilliped. H: basis of first pereopod. I: second pereopod. J-L: third (J) to fifth (L) pereopods.

tion for about $2/3$ of the carapace length from its hind margin, and anteriorly bends downward from the frontal lobe to the apex of pseudorostrum. The pseudorostral lobes meet in front of the ocular lobe for about twice as long as the ocular lobe, and furnished with two rows of several dorsal spinules. There are scattered spinules on the carapace surface.

The combined length of all free thoracic segments (Fig. 6, A, B) is much shorter than the carapace.

The abdomen (Fig. 6, A, B, E) is much more than $1/2$ of the body length. The fifth segment is about $1\frac{1}{3}$ times as long as the fourth.

The telsonic segment (Fig. 6, A, E) is damaged in the distal portion and not fully observed. The posterior portion is produced backward between the uropods.

The first peduncular segment of antennule (Fig. 6, F) is a little shorter than the distal two segments combined, and provided with two lateral spines. The third segment is a little shorter than the second. The main flagellum is as long as the third peduncular segment, 3-segmented, and provided with two aesthetascs; the first segment is a little longer than the distal two segments together: the second segment is nearly $1/2$ as long as the first; the third segment is minute. The accessory flagellum is very small, about $1/2$ as long as the first segment of main lash, and 2-segmented; the distal segment is minute.

The flagellum of antenna (Fig. 6, A) is barely reached the base of first peraeopod.

The basis of third maxilliped (Fig. 6, G) is $2\frac{2}{3}$ times as long as the remaining distal segments together and provided with a row of small spines along the inner margin. Its outer prolongation reaches the middle of the merus.

The basis of first peraeopod (Fig. 6, H) is slender, widened at the base, and provided with two long spines in the middle of the ventral surface and spinose on the inner margin. The distal segments are missing.

The basis of second peraeopod (Fig. 6, I) is much shorter than the remaining distal segments together. The carpus is about $1\frac{1}{2}$ times as long as the merus, and subequal to the propodus and dactylus combined. The dactylus is twice as long as the propodus.

The third to fifth peraeopods are as shown in Fig. 6, J-L.

The uropods (Fig. 6, B, E) are damaged. The peduncle may be a little longer than the telsonic segment, and furnished with about 13 spines on the inner margin. The first segment of endopod is about $1/2$ as long as the exopod, and provided with spines on the lateral margins. The exopod has spines on the inner margin and at the apex.

The first four pairs of peraeopods have well developed exopods. Five pairs of pleopods are present on the abdomen.

Remarks. The specific name "*declinatum*" refers to the fact that the anterior of carapace bends downward. This species is most allied to *B. rotunditectorum* GAMÔ, 1988a from far off Miyako-jima I. (Ryūkyū Is.), 1600 m deep,

from which it is distinguished by that the pseudorostrum bears a double row of dorsal spines, the outer distal prolongation of third maxilliped is barely reached the middle of merus (in *rotunditectorum*, it slightly exceeds the end of merus), and the abdominal segments have no lateral carinae.

Makrokylindrus (Coalescuma) micracanthus sp. nov.

(Figs. 7-9)

Material examined. Holotype female with marsupium (11.9 mm) (NSMT-Cr. 9642); allotype young male (8.9 mm) (NSMT-Cr. 9643); paratype: a female with rudimentary oostegites (damaged); 2 manca larvae (male and female, 7.1 mm) (NSMT-Cr. 9644); 2 juvenile males (9 and 9.3 mm), St. 11 (KH-81-4), 38°33.9'N, 145°15.7'E-38°35.5'N, 145°15.5'E, depth 5349-5368 m, far off Kinkazan, 1 Aug. 1981. Gear: Beam-trawl of 4m span.

Description. Holotype is a female with marsupium, length about 11.9 mm (including telson). The uropods and telson are partly damaged. The integument is thin and covered with spinules.

The carapace (Fig. 7, A, B) is largely inflated, much more than 1/3 of the total body length, 1 1/3 times as long as the width, which is much more than the depth. On the frontal lobe, there is a double row of spinules. A shallow dorsomedian groove is present between the branchial swellings. The pseudo-rostral lobes are horizontally projected forward, meet in front of the small round eyeless ocular lobe for about 1/6 of the carapace length, and provided with a pair of dorsal spines near the apex. The antennal notch is obsolete. The anterolateral or lower margin of carapace is spinose.

The combined length of all free thoracic segments (Fig. 7, A, B) is a little less than 2/3 as long as the carapace. The third and fourth segments are dorsally fused together.

The abdomen (Fig. 7, A, C) is a little less than 3/5 of the total body length. The first segment is subequal to the second in length, and much shorter than the third or the fourth. The fifth segment is a little more than 3/4 as long as the third and fourth segments together. The sixth segment is slightly less than 1/2 as long as the fifth.

The telson (Fig. 7, A, C) is less than 3 times as long as the last abdominal segment, and without lateral spines. The post-anal portion may be 1/7 as long as the telson itself, and provided with 4 pairs of lateral spines, and its terminal spines are missing.

The antennule (Fig. 7, D) is large and cylindrical in shape. The first peduncular segment is a little less than the distal two segments combined, and provided with short hairs and spinules on the lateral sides. On its distal end there is a small knob with setae. The main flagellum is about 2/3 as long as the third peduncular segment, and 2-segmented; the distal segment is 2/3 as long as the basal one, and provided with two aesthetascs. The accessory flagellum

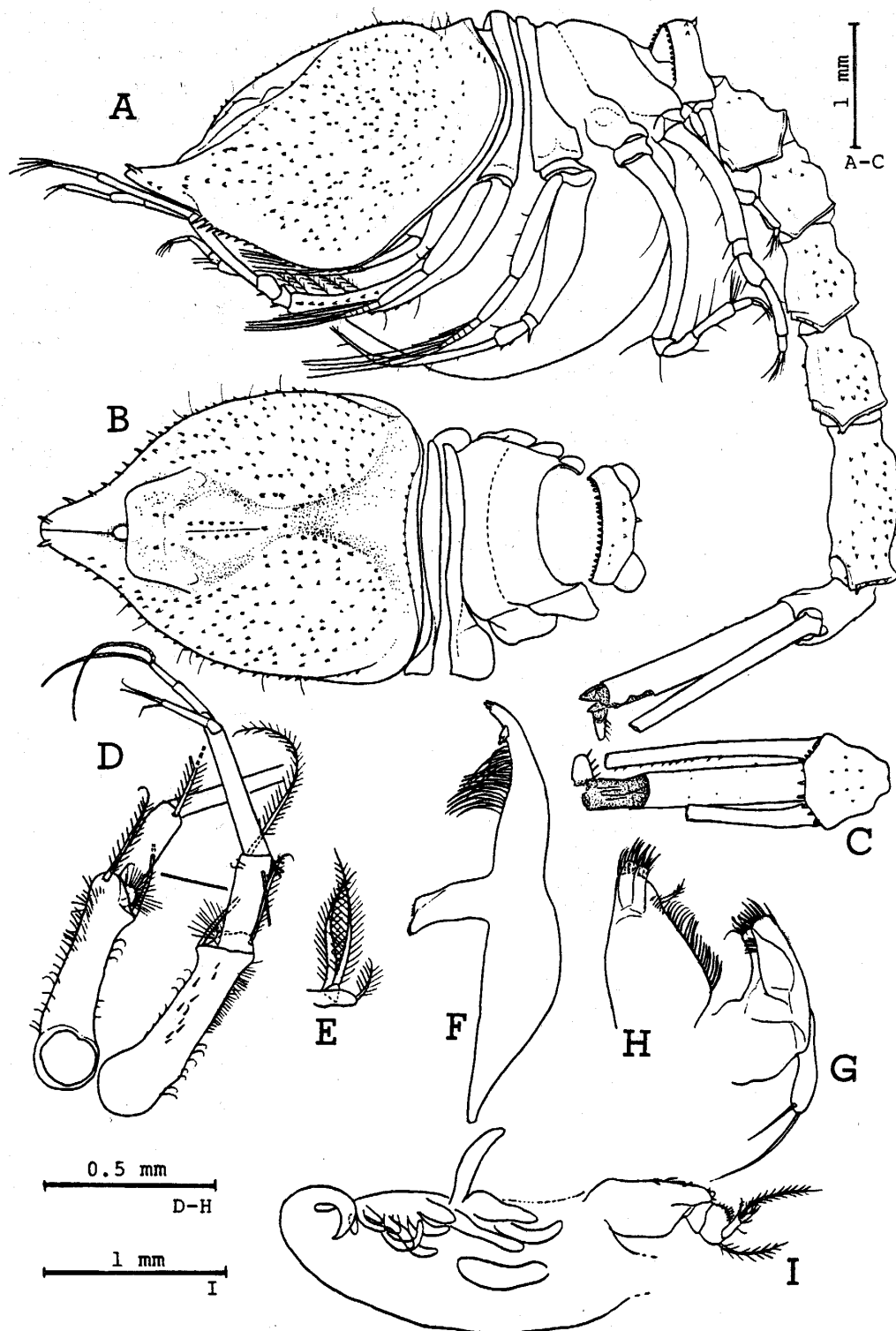


Fig. 7. *Makrokyllindrus (Coalelescuma) micracanthus* sp. nov., holotype female with marsupium, length about 11.9 mm (including telson). A: lateral view. B: cephalothorax, dorsal view. C: last abdominal segment with telson and peduncle of uropods, dorsal view. D: antennule. E: antenna. F: left mandible. G: maxillule. H: maxilla. I: first maxilliped.

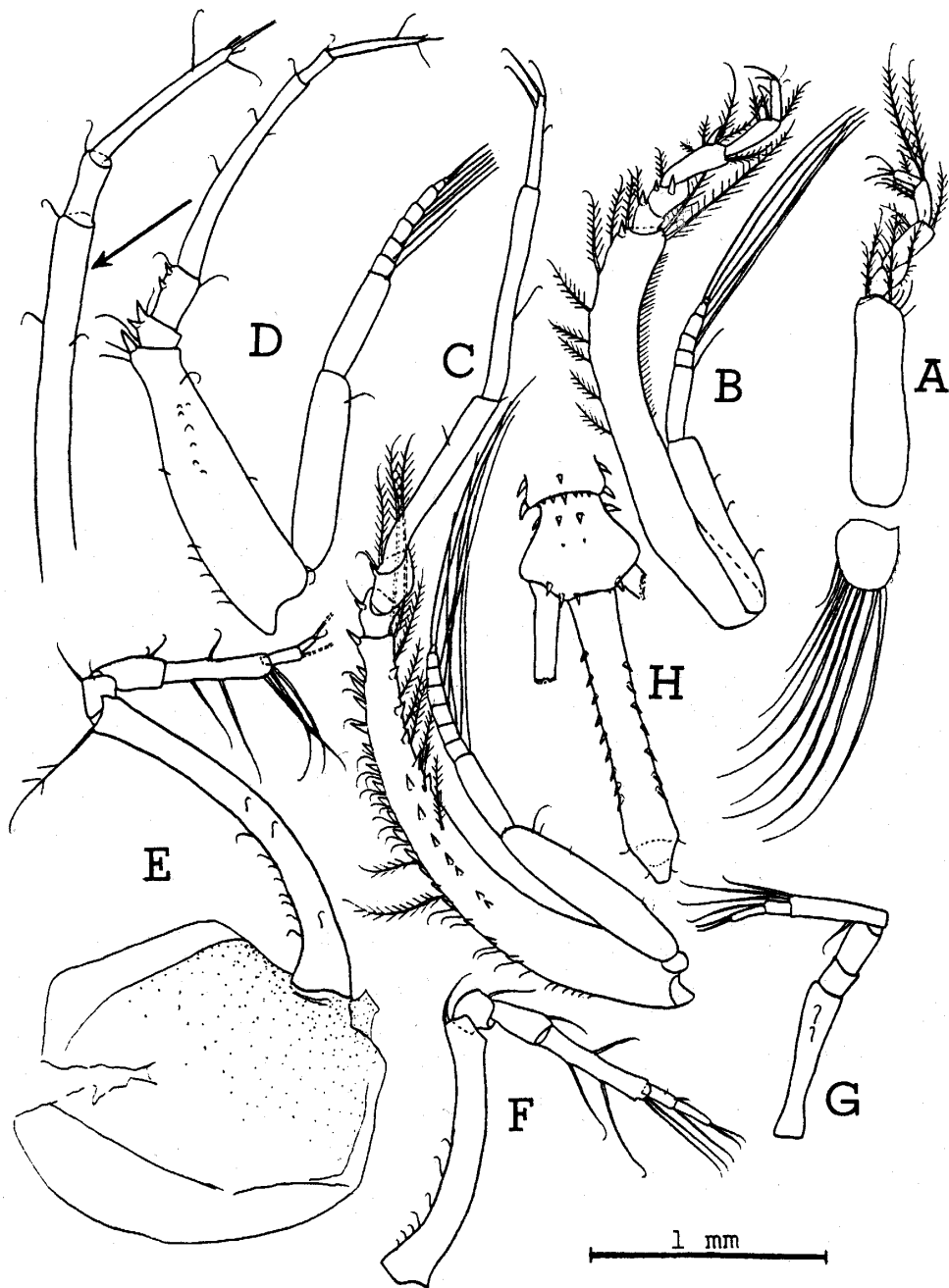


Fig. 8. *Makrokylindrus* (*Coalescuma*) *micracanthus* sp. nov., holotype female with marsupium. A: second maxilliped. B: third maxilliped. C: first pereopod.: D: second pereopod. E-G: third (E) to fifth (G) pereopods. Paratype female, manca stage, length about 7.1 mm. H: last abdominal segment with telson and basal portion of uropods.

is a little shorter than the main lash, and 3-segmented; the first segment is about $1/3$ as long as the second; the third segment is minute.

The antenna is as shown in Fig. 7, E.

The mandible (Fig. 7, F) is boat-shaped, and the left mandible bears a lacinia mobilis and 15 setae on the incisor process.

The maxillule (Fig. 7, G) has two filaments.

The maxilla is as shown in Fig. 7, H.

The first and second maxillipeds are shown in Fig. 7, I and Fig. 8, A.

The basis of third maxilliped (Fig. 8, B) is cylindrical in shape, about twice as long as the remaining distal segments together, and furnished with plumose hairs on the inner margin and a short spine near the distal end. The outer distal angle is not produced. The ischium is shorter than the merus, and provided with a small spine on the distal inner angle. The merus is about $2/3$ as long as the carpus, and furnished with two spines on the distal end. The carpus is about as long as the propodus, and bears with a small spine near the distal end. The propodus is about $1\frac{1}{2}$ times as long as the dactylus.

The basis of first peraeopod (Fig. 8, C) is very long, cylindrical in shape, about $9/10$ as long as the remaining distal segments together, and provided with a row of spines on the lateral margins and a such spine row in the middle of its ventral surface. The ischium is much shorter than the merus, and bears a spine on the inner margin. The merus is about $1/3$ as long as the carpus, and provided with a spine near the distal end. The propodus is as long as the carpus, and much longer than the dactylus.

The second peraeopod (Fig. 8, D) is slightly more than $2/3$ as long as the first. The basis is a little dilated at the base, about $2/3$ as long as the remaining distal segments together, and provided with a stout spine near the distal end. The ischium is short, and bears two spines on the inner margin. The merus is $1/4$ as long as the carpus, and furnished with two small spines on the inner margin. The carpus is $1\frac{2}{3}$ times as long as the distal two segments together. The dactylus is slightly more than twice as long as the propodus.

The third peraeopod (Fig. 8, E) is $6/7$ as long as the second; the basis is slightly less than $1\frac{1}{3}$ times as long as the remaining distal segments together. The fourth peraeopod (Fig. 8, F) is a little longer than the third; its basis is a little shorter than the distal segments together. The fifth peraeopod (Fig. 8, G) is $2/3$ of the fourth; its basis is $1\frac{1}{2}$ times as long as the distal segments combined.

The uropod (Fig. 7, A, C) is damaged and its distal portion is missing. The peduncle bears spinules on the inner margin.

The first two pairs of peraeopods have well developed exopods.

In juvenile female (manca stage), length about 7.1 mm, the telson is 3 times as long as the last abdominal segment, and provided with a row of 7-8 spines on the lateral margin.

Allotype juvenile male, length about 8.9 mm, (including telson) is very

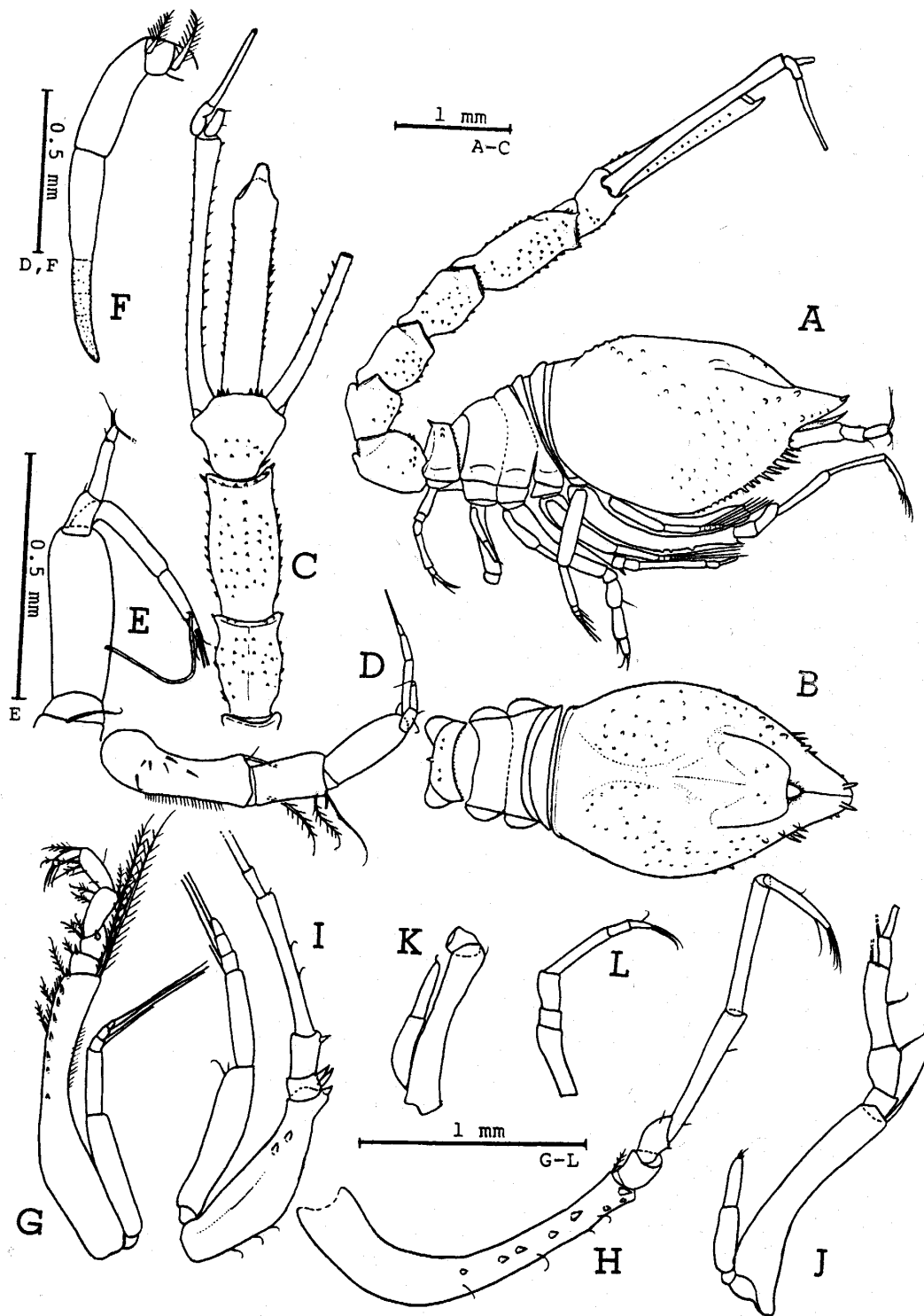


Fig. 9. *Makrokylindrus (Coalescuma) micracanthus* sp. nov., allotype juvenile male, length about 8.9 mm. A: lateral view. B: cephalothorax, dorsal view. C: last three abdominal segments with telson and uropods, dorsal view. D: antennule. E: distal portion of antennule. F: antenna. G: third maxilliped. H: first pereopod. I: second pereopod. J-L: third (J) to fifth (L) pereopods.

similar to the female in general aspects.

The carapace (Fig. 9, A, B) is slightly more than $1 \frac{1}{3}$ times as long as the width, which is a little more than the depth. The pseudorostral lobes meet in front of the small round eyeless ocular lobe for about $\frac{1}{5}$ of the carapace length. The antennal notch is obsolete. The anterolateral or lower margin of carapace is provided with sharp spines, which are much more salient than those of the female.

The combined length of all free thoracic segments (Fig. 9, A, B) is about $\frac{1}{2}$ of the carapace.

The abdomen (Fig. 9, A-C) is a little less than $\frac{3}{5}$ of the total body length. The first four segments are about subequal in length. The fifth segment is slightly more than $\frac{3}{4}$ as long as the third and fourth segments combined.

The telson (Fig. 9, A, C) is $2 \frac{2}{3}$ times as long as the last abdominal segment, and furnished with a row of spinules on each lateral margin. The anal-portion is about $\frac{1}{6}$ of the telson itself, and its distal spines are missing.

The antennule (Fig. 9, A, D, E) is somewhat stouter than that of the female. The first peduncular segment is a little less than the distal two segments combined. The third segment is robust, and $1 \frac{1}{3}$ times as long as the second. The main flagellum is about as long as the third peduncular segment, and 3-segmented; the first segment is long, about $1 \frac{2}{3}$ times as long as the distal two segments together; the second segment is about $\frac{1}{2}$ as long as the first; the third segment is minute.

The antenna (Fig. 9, F) is very short, and its flagellum is not yet fully developed.

The basis of third maxilliped (Fig. 9, G) is about $1 \frac{2}{4}$ times as long as the remaining distal segments together, and furnished with a row of spines along the inner margin. The ischium and merus have a small spine on each distal margin. The carpus and propodus are somewhat dilated, and subequal in length. The dactylus is nearly $\frac{1}{2}$ as long as the propodus.

The basis of first peraeopod (Fig. 9, H) is about $\frac{5}{6}$ as long as the remaining distal segments together.

The second peraeopod (Fig. 9, I) is very like that of the female, and its dactylus is missing. The third to fifth peraeopods are partly damaged and shown in Fig. 9, J-L.

The uropods (Fig. 9, A, C) are damaged and their distal portion is missing. The peduncle is about $1 \frac{1}{5}$ times as long as the telson, and about 3 times as long as the last abdominal segment. It bears about 13 small spines on the inner and spinules on the outer margin.

The first four pairs of peraeopods bear exopods. Two pairs of rudimentary pleopods are present on the first two abdominal segments.

Remarks. This species resembles *M. (M.) lomakinae* BĂCESCU, 1962 from south-west Africa, 4893 m deep, *M. (M.) americanus* BĂCESCU, 1962 from the tropical eastern Pacific, 1784 m, and *M. (M.) vitiasi* LOMAKINA, 1958 from Kurile-

Kamchatka Trench, 2840 m, but it differs from the three species mentioned-above by that the third and fourth free thoracic segments are dorsally fused together.

The specific name of the new species is derived from the fact that the carapace is covered with small spines.

Hemilamprops (?) *abyssi* sp. nov.

(Fig. 10)

Material examined. Holotype young female with rudimentary oostegites (NSMT-Cr. 9645), St. 11 (KH-81-4), 38°33.9'N, 145°15.7'E-38°35.5'N, 145°10.1'E, depth 5349-5368 m, far off Kinkazan, 1 Aug. 1981. Gear: Beam-trawl of 4 m span.

Description. The holotype is a young female with rudimentary oostegites, length about 4.8 mm (including telson). The integument is thin.

The carapace (Fig. 10, A, B) is much less than 1/3 of the total body length, and about twice as long as the depth, which is a little more than the width. As seen from above the carapace is somewhat spindric in shape, and furnished with two pairs of spines on both sides of the ocular lobe, and there are several spines in rows on the frontal lobe, and also two short longitudinal rows of spines near the hind margin of carapace. As seen from the side, the dorsal profile of carapace is a little arched. The ocular lobe is rounded, and without visual elements. The antennal notch is entirely obsolete. The anterolateral or lower margin of carapace is finely serrate.

The combined length of all free thoracic segments (Fig. 10, A, B) is nearly 2/3 as long as the carapace. The first segment is visible dorsally and laterally, and 1/2 as long as the second. The second to fifth segments are successively narrowed and also decreased in length as well as in depth. The fifth segment is the shortest.

The abdomen (Fig. 10, A, C) is slender, and much more than 1/2 of the total body length. The first segment is the shortest. The first five segments are successively increased in length. The fifth segment is the longest and about 1 1/2 times as long as the fourth. The last segment is about 1/2 as long as the fifth.

The telson (Fig. 10, C) is about 1 1/2 times as long as the last abdominal segment, slightly longer than the uropodal peduncle, and provided with two pairs of lateral spines and five distal spines.

The antennule (Fig. 10, D) is slender, cylindrical in shape. The first peduncular segment is much longer than the distal two segments together, and furnished with two spinules near the distal end. The second segment is 1 1/3 times as long as the third. The main flagellum is damaged and its distal portion is missing except for the first segment which is 1/2 as long as the third peduncular segment. The accessory flagellum is much longer than the basal segment of main lash, and 2-segmented; the basal segment is very small, about 1/3 as long as the distal one.

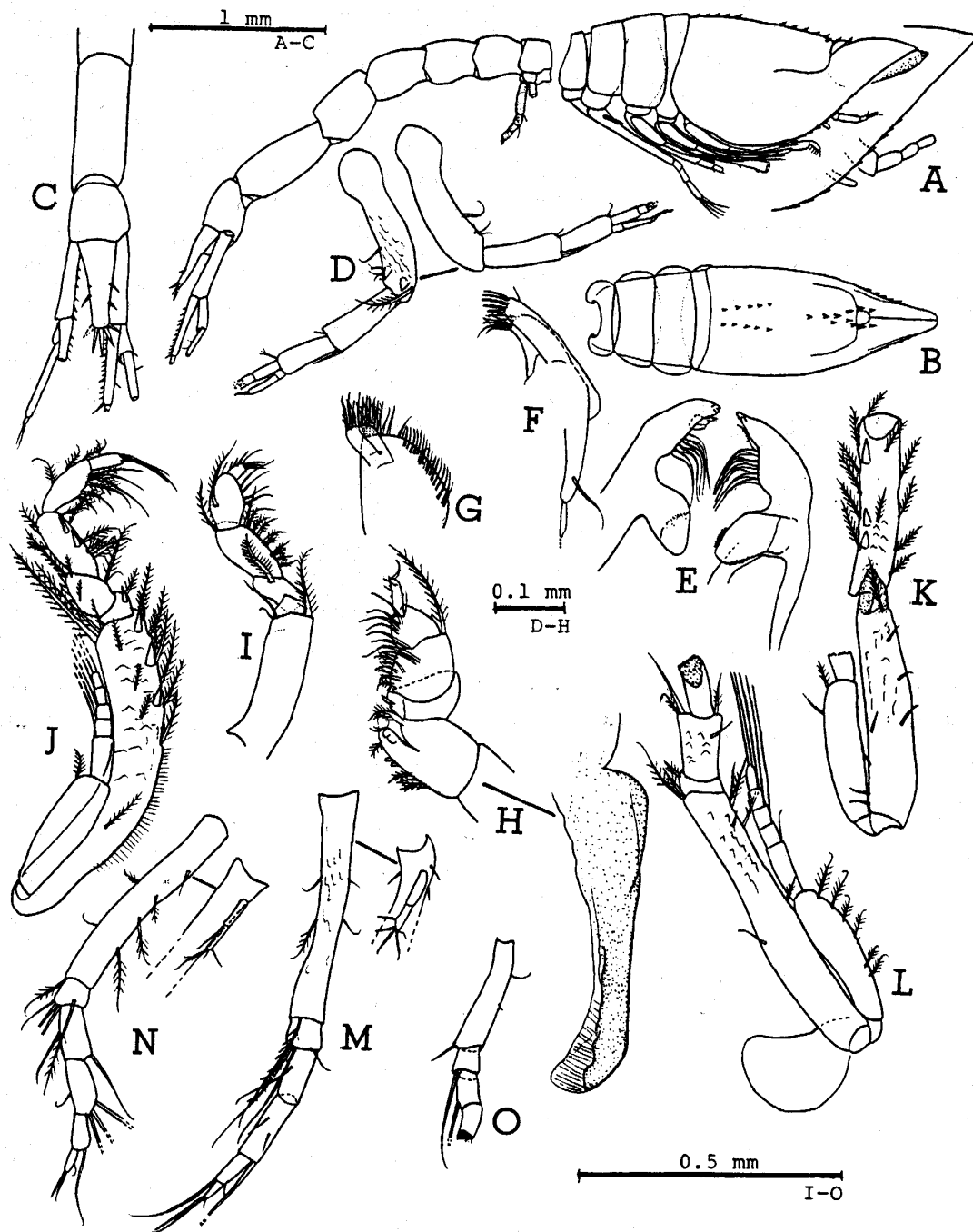


Fig. 10. *Hemilamprops(?) abyssi* sp. nov., holotype young female with rudimentary oostgites, length about 4.8 mm. A: lateral view. B: cephalothorax, dorsal view. C: last two abdominal segments with telson and uropods. D: antennule. E: mandibles. F: maxillule. G: maxilla. H-I: first (H) and second (I) maxillipeds. J: third maxilliped. K: basis of first pereopod. L: basal portion of second pereopod. M-O: third (M) to fifth (O) pereopods.

The mandibles (Fig. 10, E) are broadly truncated at the base. The right mandible has 7 seatae and the left one bears a lacinia mobilis and 6 setae on the incisor process.

The maxillule (Fig. 10, F) has two filaments.

The maxilla is as shown in Fig. 10, G.

The first and second maxillipeds are shown in Fig. 10, H and I.

The basis of third maxilliped (Fig. 10, J) is somewhat slender, moderately curved, and nearly $1\frac{1}{2}$ times as long as the remaining distal segments together. There are three large spines and plumose hairs on the inner margin and four plumose hairs on the ventral surface. The ischium is about $\frac{1}{2}$ as long as the merus, and provided with a stout spine near the distal end. The merus has three stout spines on the outer margin. The carpus is nearly $1\frac{2}{3}$ times as long as the merus, and furnished with two stout spines on the inner margin and a small spine on the outer distal margin. The propodus is somewhat expanded laterally, slightly less than $\frac{1}{2}$ as wide as its length, which is slightly more than as long as the carpus. The dactylus is about $\frac{1}{2}$ as long as the propodus.

The first peraeopod (Fig. 10, K) is damaged, without distal segments. The basis is almost cylindrical, $1\frac{1}{5}$ times as long as that of third maxilliped, and provided with three stout spines and plumose hairs on the lateral margin.

The second peraeopod (Fig. 10, L) is damaged and its distal three segments are missing. The basis is cylindrical in shape, and about $\frac{3}{4}$ as long as that of the first peraeopod.

The basis of third peraeopod (Fig. 10, M) is about $\frac{3}{4}$ as long as that of the second, and a little more than the remaining distal segments together. The fourth peraeopod (Fig. 10, N) is much shorter than the third; its basis is slightly more than the distal segments together. The fifth peraeopod (Fig. 10, O) is damaged and its distal three segments are missing; its basis is slightly shorter than that of the fourth.

The uropods (Fig. 10, C) are damaged and their distal portion is missing, except for the left exopod. The peduncle is slightly shorter than the telson, much less than twice as long as the last abdominal segment, and provided with 6 spines on the inner margin. The basal segment of endopod is nearly $\frac{3}{4}$ as long as the exopod, and furnished with 12 spines on the inner margin. The exopod has 2 segments; the second segment is the longest, about as long as the basal segment of endopod, and bears two terminal spines.

The first two pairs of peraeopods have well developed exopods, whereas the exopods of the third and fourth pairs are rudimentary.

Remarks. This new species is described here by only a single female holotype and the definite generic position of the species is reserved until adult male specimens are available. At a glance, this species is very like *Mesolamprops abyssalis* REYSS, 1978 from the North Atlantic, 4667-4862 m deep, from which it is distinguished by the carapace bearing dorsal spines and the telson with two

pairs of lateral spines. The specific name "*abyssi*" is derived from the deep-sea bottom where the specimen was collected.

摘 要

1981年の夏期に、東京大学海洋研究所の「白鳳丸」によって行れた日本海溝および付近海域の研究航海 (KH-81-4) で、釜石沖の日本海溝の水深 5349-6416 m の海底より ビーム・トロールによって採集された深海生のクマ類 (甲殻類) の 4 新種, *Bathycuma granulatum*, *B. declinatum* (Bodotriidae 科), *Makrokyllindrus* (*Coalecuma*) *micracanthus* (Diastylidae 科) と *Hemilamprops* (?) *abyssi* (Lampropidae 科) についての報告である。

1. *Bathycuma granulatum* sp. nov.: ビーム・トロールにより水深 5349-5368 m と 6348-6416 m の所から採集された。完模式標本は体長 18.1 mm の抱卵した雌, 別模式標本は体長 15.7 mm の亜成雄である。本新種は *B. magna* JONES, 1969 (インド洋のセイシェルとセイロン間の 1040 m 深産) に酷似しているが, 本種は甲背上に多数の小顆粒を有し, 2 列の鋸歯をもつ背面中央隆起線を欠くことによって明らかに区別される。

2. *Bathycuma declinatum* sp. nov.: 本新種は水深 6348-6416 m の海底より採集された完模式標本の体長 3.2 mm の雌と別模式標本の体長 18.4 mm の若雄によって記載される。本種に最も近縁と思われるものに *B. rotunditectorum* GAMÔ, 1988 (琉球諸島の宮古島沖, 水深 1600 m) があるが, 本種は擬額角上に小棘を有すること, 第 3 顎脚の基節末端外側突出部がかろうじて長節中程に達しているに過ぎないことなどによって明らかに区別される。

3. *Makrokyllindrus* (*Coalecuma*) *micracanthus* sp. nov.: 本種は水深 5349-5368 m の所から採集された体長 11.9 mm の成雌を完模式標本とし, 体長 8.9 mm の若雄を別模式標本として記載される。本種は一見 *M. (M.) lomakinae* BĂCESCU, 1962 (南西アフリカの水深 4893 m 産), *M. (M.) americana* BĂCESCU, 1962 (太平洋東部熱帯海域, 1784 m 深) および *M. (M.) vitiasi* LOMAKINA, 1958 (千島・カムチャッカ海溝, 2340 m 深) に似ているが, 本種の第 3・4 自由胸節は背面で互いに融合しているので明らかに種を異にしている。

4. *Hemilamprops* (?) *abyssi* sp. nov.: 本新種は水深 5349-5368 m の所より採集された体長 4.8 mm の未発達な抱卵葉をもつ若雌を完模式標本として記載される。*Hemilamprops* 属は背中に触角を突出させるための欠刻を欠くが, この他近縁の属との区別に成雄の有する腹肢の数が重要視されている。本種は一見 *Mesolamprops abyssalis* REYSS, 1978 (北大西洋, 4667-4862 m 深産) に似ているが, 本新種の背甲背面に棟を有し, 尾節に 2 対の側棟をもつことで明らかに区別される。しかか, 本新種が何れの属に属するかは, 更に成雄の標本が得られるまで, 本種の背甲に触角を突出させる欠刻がないため, 一応 *Hemilamprops* 属に所属させることとし, 確定的な属の決定は保留せざるを得ない。

References

- BĂCESCU, M., 1962. Contribution à la connaissance du genre *Makrokyllindrus* STEBBING (Crustacea Cumacea). Espèces nouvelles recueillies au cours des campagnes du Lamont Geological Observatory de New York. Vol. Abyssal Crustacea. 1. Vema Res. Ser., 1: 209-223.
- CALMAN, W.T., 1912. The Crustacea of the order Cumacea in the collection of the United States National Museum. Proc. U.S. natl. Mus., 41: 603-676.
- DAY, J., 1975. South African Cumacea. Part 1. Family Bodotriidae, Subfamily Vaun-

- thompsoniinae. Ann. S. Afr. Mus., **66**: 177-220.
- DAY, J., 1980. South African Cumacea. Part 4. Families Gynodiastylidae and Diastylidae. Ann. S. Afr. Mus., **82**: 187-292.
- GAMÔ, S., 1967-68. Studies on the Cumacea (Crustacea, Malacostraca) of Japan. Part 1-3. Publ. Seto mar. biol. Lab., **15**: 133-163; 245-274; **16**: 147-192.
- GAMÔ, S., 1971. Rapport préliminaire sur quatre espèces de Cumacés des eaux profondes du Japon. Zool. Mag., Tokyo, **80**: 251-255.
- GAMÔ, S., 1984. A new abyssal cumacean, *Paralamprops corollifera* sp. nov. (Crustacea) from east of the Japan Trench. Bull. Biogeogr. Soc. Japan. **39**: 21-25.
- GAMÔ, S., 1985. *Makrokylindrus* (*Makrokylindrus*) *hystrix* sp. nov. and *Leptosylis quadridentata* sp. nov., two new cumaceans from the Japan Trench (Crustacea). Sci. Repts. Yokohama Natl. Univ., sec. II, (32): 1-10.
- GAMÔ, S., 1987. Two new cumacean crustaceans, *Paraleucon* ? *ultraabyssalis* sp. nov. and *Leptostylis* ? *spinescens* sp. nov. from the Japan Trench. Bull. Biogeogr. Soc. Japan. **42**: 43-48.
- GAMÔ, S., 1988a. Four new deep-sea cumacean crustaceans from the Japanese waters. Sci. Repts. Yokohama Natl. Univ., sec. II, (35): 1-21.
- GAMÔ, S., 1988b. A new abyssal cumacean crustacean, *Leucon stenorhynchus* sp. nov. (Leuconidae) from the Japan Trench. Bull. Biogeogr. Soc. Japan. **43**: 25-28.
- JONES, N.S., 1969. The systematics and distribution of Cumacea from depths exceeding 200 meters. Galathea Rep., **10**: 99-180.
- LOMAKINA, N.B., 1958. Kumovie raki (Cumacea) Morei SSSR. Opred. Faune SSSR. **66**: 1-301.
- REYSS, D., 1978. Cumacés de profondeur de l'Atlantique Nord. Famille des Lampropidae. Curastaceana. **35**: 1-21.