

terminal spines only. Carpus slightly shorter than movable finger, distomesial margin with spinule. Palm spineless, 3 times as long as wide, 1.4 times as long as movable finger, mesial and lateral margins subparallel. Fingers moderately depressed, not gaping nor crossing, distally touching each other with intermeshing teeth when closed; opposable margins straight and denticulate.

Walking legs (Figure 55a) similar, comparatively short, third leg much shorter; furnished with fine setae especially thick on dorsal margin. First walking leg reaching end of merus of cheliped. Meri 3 times as long as wide, flattish and weakly granulate on dorsolateral face, carinate on ventral margin; dorsal margin cristiform, bearing terminal spine with accompanying spinule dorsal to it; ventral margin with several eminences and terminal spine. Carpi ridged on dorsolateral face, with distodorsal marginal spine. Propodi setose also on ventral margin, fully twice as long as dactyli. Dactyli distally spiniform and curving ventrad, ventral margin with 7 spines.

Epipods absent from all pereopods.

Measurements of holotype. – Length of carapace including rostrum, 15.3 mm; width of carapace, 9.7 mm; length of cheliped, 27.8 mm (left), 25.7 mm (right); of carpus, 4.2 mm (left), 3.7 mm (right); of palm, 6.5 mm (left), 6.2 mm (right); of movable finger, 4.5 mm (left), 4.3 mm (right).

Measurements of paratype. – Carapace length of ovigerous female, 22.5 mm.

Habitat. – Taken in 545 m on sandy bottom.

Remarks. – The cristiform lateral margin of the carapace, characteristic of this new species, is shared by *Munidopsis hendersoniana* Faxon from the Gulf of Panama, *M. marginata* (Henderson) from off New Zealand and *M. edwardsi* (Wood-Mason) in the Bay of Bengal. However, these relatives are rather remote from the new species in having the immovable eyestalk with a distinct eyespine and the relatively short cheliped. Among the *Elasmonotus* group, *M. debilis* and *M. cylindrophthalma* will be nearer to this species. In addition to the lack of the above-mentioned cristiform lateral margin, these two known species have relatively longer and less setose cheliped.

Type-locality. – Northeast of Makyan Island, off west coast of Halmahera (0°15'00"N, 127°24'35"E).

Distribution. – Known from the unique pair of the types from off the west coast of Halmahera, in 545 m.

### 75. *Munidopsis ciliata* Wood-Mason, 1891

#### Figure 56

*Munidopsis brevimana* Henderson, 1885:414; 1888:154, pl. 17: figs. 1, 2. [Preoccupied by *M. brevimana* (A. Milne Edwards, 1880) from the West Indies].

*Munidopsis ciliata* Wood-Mason, in Wood-Mason and Alcock, 1891:200. – Faxon, 1895:84, pl. 18: fig. 3. – Alcock and Anderson, 1895: pl. 11: figs. 3, 3a. – Benedict, 1902:318. – Ambler, 1980:19, fig. 4. – Baba, 1982b:114, pl. 2: fig. 1.

*Munidopsis (Orophorhynchus) ciliata*: Alcock, 1901:267. – MacGilchrist, 1905:248. – Tirmizi, 1966: 216, fig. 31.

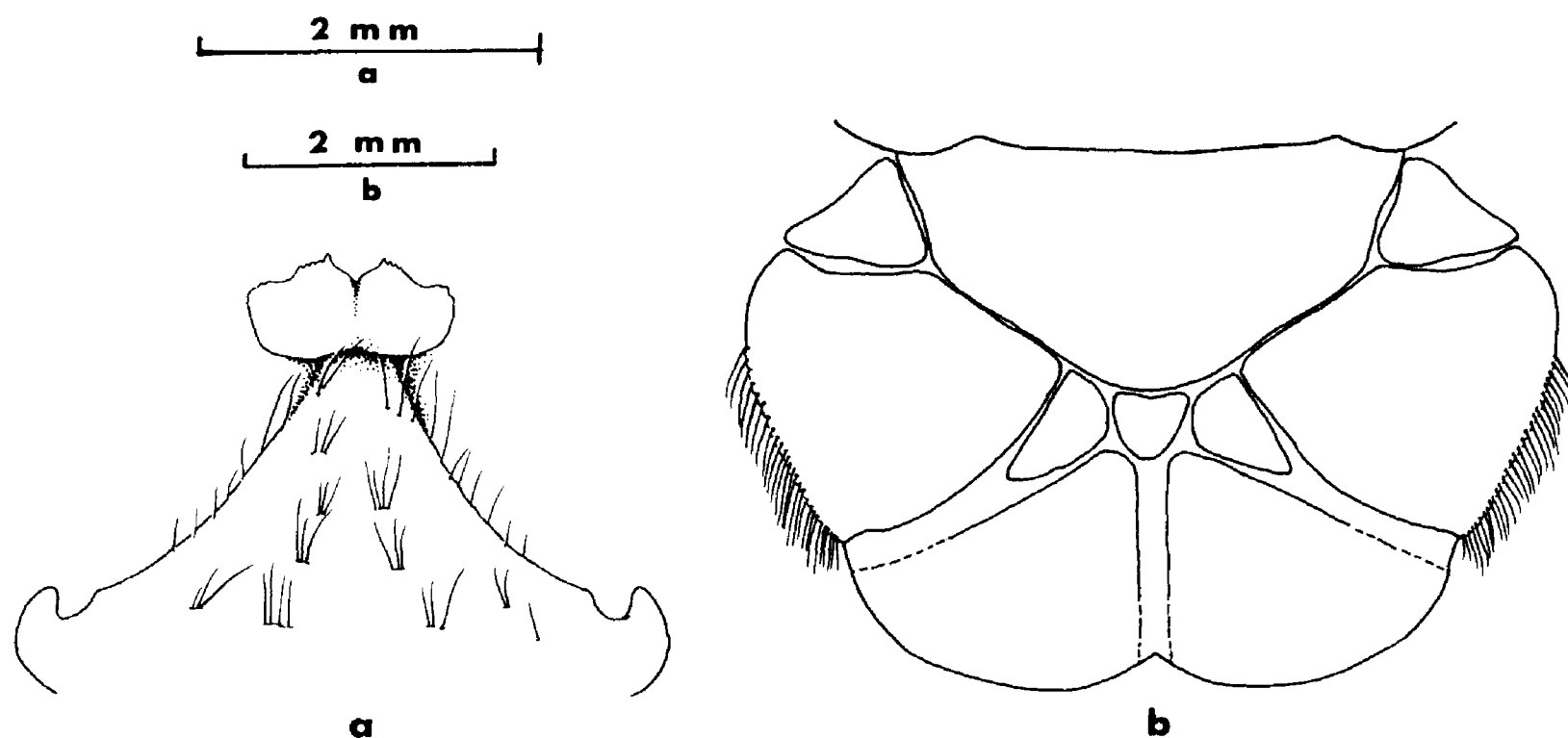


Figure 56. — *Munidopsis ciliata* Wood-Mason, male from "Albatross" Sta. 5612, carapace length 15.6 mm: a, anterior part of sternal segments; b, telson.

**Material.** — Teluk Bone, Sulawesi (Sta. 5658: 1 ♂, 1 ♀). — Makassar Strait (Sta. 5668: 1 ♂). — Teluk Tomini, Sulawesi (Sta. 5606: 1 ovig. ♀; Sta. 5609: 1 ♀; Sta. 5610: 1 ♂, 1 ovig. ♀; Sta. 5612: 1 ♂). — Off southwest coast of Halmahera (Sta. 5628: 1 ♂). — Molucca Sea between Halmahera and northern Sulawesi (Sta. 5614: 1 ovig. ♀).

**Measurements.** — Carapace lengths of males, 11.0-27.7 mm; of ovigerous females, 25.4-27.6 mm; of nonovigerous females, 15.4-15.5 mm.

**Diagnosis.** — Carapace with interrupted, coarsely setiferous striae; pair of epigastric spines prominent; lateral margin with 4 or 5 spines including smaller anterolateral one, anterior second much larger. Front margin oblique, with distinct antennal spine. Rostrum narrowly acute, slightly upturned, usually carinate dorsally. Abdomen spineless, second through fourth segments with 2 elevated transverse ridges. Two eyespines, inner one larger. Chelipeds shorter than walking legs. Epi-pod present on first pereopod.

**Habitat.** — Taken in 933-2,363 m on mud bottoms.

**Remarks.** — The anterior part of sternal segments and the telson are as illustrated (Figure 56a, b). In the female the midlateral plate of the telson lacks a fringe of setae. The dorsal carina of the rostrum is usually distinct, but, in a male from Station 5610, which measures 27.7 mm in carapace length, it is only feebly visible. Tirmizi (1966:217) mentioned that the "John Murray" specimen bears distinct serrae near the apex of the rostrum. This is true of one of the 10 specimens examined (female, c.l., 15.4 mm); however, such serrations are in most cases barely discernible, quite independent of age, as also pointed out earlier in the Japanese male specimen (Baba, 1982b:114). The merus of the third maxilliped is variably spinose on the ventral margin, bearing from three distinct spines to about seven small spines; the least number is as illustrated from the "Challenger" material (Henderson, 1888: pl. 17: figs. 1a, 2a), and the largest number as figured from the "John Murray" (Tirmizi, 1966: fig. 31c); however, the arrangement of spines in the latter case is different, the proximal portion of the margin being smooth instead of being rather spinose as in Tirmizi's

illustration.

Type-locality. – Bay of Bengal.

Distribution. – Previously known from the Gulf of Aden, the Bay of Bengal, off Kepulauan Aru, between Papua and the Admiralty Islands, Japan and also in the eastern Pacific from off Oregon and off Panama; 1,270-2,875 m.

### 76. *Munidopsis crenatirostris*, new species

#### Figure 57

Material. – South China Sea off southwestern Luzon (Sta. 5111: 1 ovig. ♀, holotype, USNM 150421).

Diagnosis. – Carapace dorsally spineless but moderately and weakly rugose; lateral margins diverging posteriorly, anterolateral spine small but distinct. Front margin concave behind eye, outer orbital angle produced. Rostrum less than half as long as remaining carapace, widely triangular, dorsally provided with crenulated, medially excavated convexity. Abdomen spineless. Telson divided into 12 plates. Eyes movable, cornea not elongate. Sternum of third thoracic somite relatively narrow, 1/3 as wide as following sternum, anterolateral margin deeply excavated. Chelipeds barely 1.5 times as long as carapace, moderately depressed and squamate dorsally, setose marginally, fingers crossing distally. Walking legs comparatively short, minutely tuberculate dorsally, furnished with plumose setae marginally; meri relatively wide, cristiform on dorsal margin. Epipods absent from pereopods.

Description of holotype. – Carapace (Figure 57a) excluding rostrum as long as wide, posteriorly widening, dorsally spineless, moderately rugose, provided with fine setae. Gastric region rather convex, with elevated ridge anteriorly and with interrupted striae. Hepatic region with squamiform ridges. Posterior half of carapace rugose with interrupted transverse ridges, separated from anterior half by distinct median groove. Cardiac transverse ridge elevated. Cervical groove distinct between hepatic and anterior branchial regions. Lateral margins almost smooth, notched at end of cervical groove; anterolateral angle with small but distinct spine. Front margin concave behind eye. Outer orbital angle produced.

Rostrum widely triangular, flattish, almost horizontal, slightly more than 1/3 as long as remaining carapace, laterally convex, dorsally with 2 longitudinal, crenulate convexities fused anteriorly.

Abdominal segments unarmed; second through fourth segments with sharply elevated anterior ridge and narrow median groove. Telson (Figure 57g) divided into 12 plates, pair of posterior plates indistinctly separated from midlateral plates.

Eyes movable, without eyespine, relatively short but wide, cornea nearly as long as remaining eyestalk.

Anterior part of sternal segments as illustrated (Figure 57e); sternum of third thoracic somite short, narrow, about 1/3 as wide as following sternum, anterolateral margin deeply excavated.

Basal segment of antennule (Figure 57b) stocky, distally widening with 4 terminal spines; mesial 2 spines small and nearer each other, lateral and dorsolateral stouter. Second segment of antennal peduncle (Figure 57c) produced on distolateral

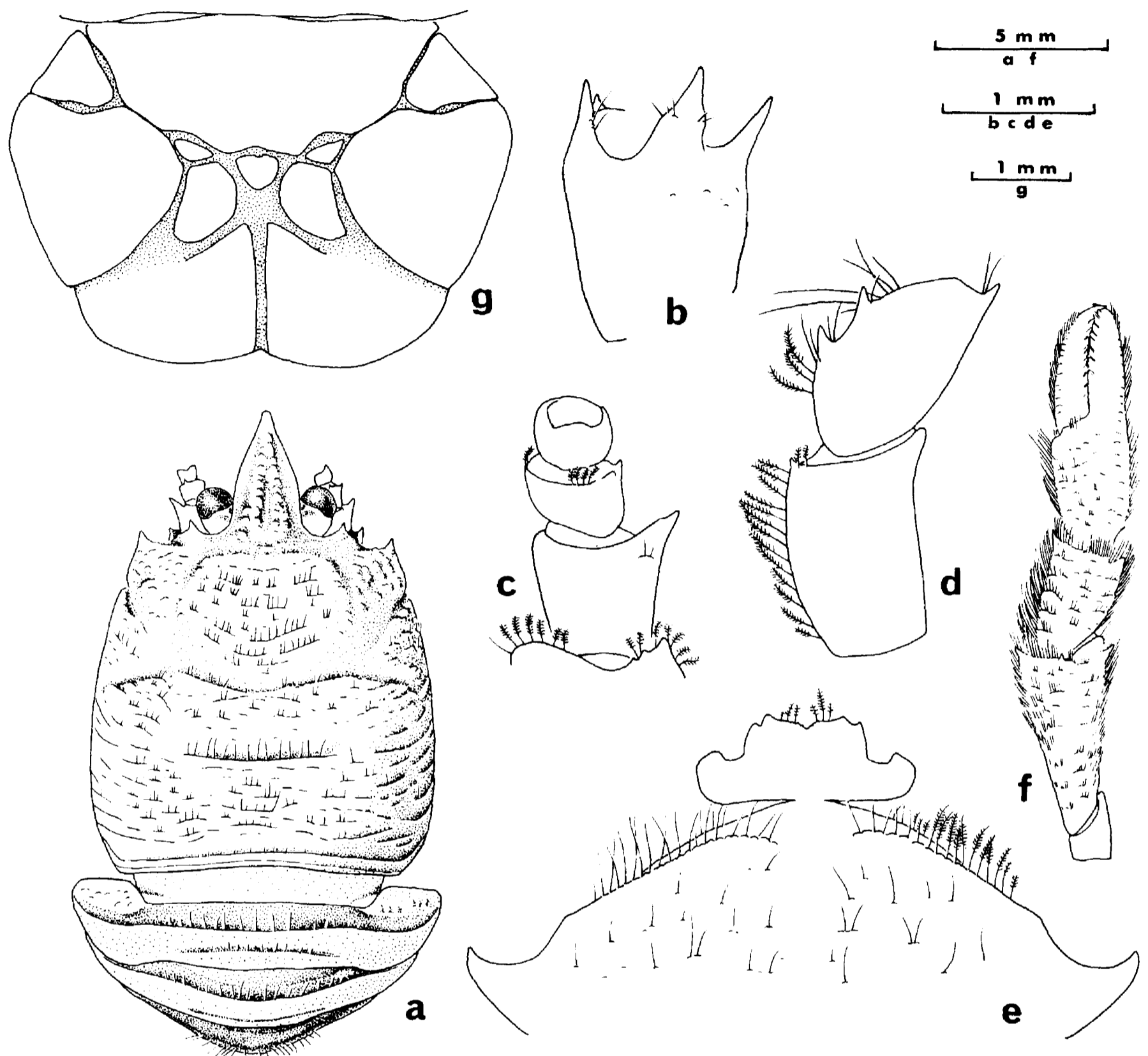


Figure 57. — *Munidopsis crenatirostris*, new species, ovigerous female holotype from "Albatross" Sta. 5111: a, carapace and abdomen; b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments; f, right cheliped; g, telson.

margin.

Ischium of third maxilliped (Figure 57d) as long as merus, distoventral margin with spinule, mesial ridge with 20 closely placed denticles. Merus indistinctly widening medially, with 2 ventral marginal spines of small and subequal size and small distodorsal marginal spine.

Chelipeds detached from body, similar in shape but unequal in size; left cheliped shorter, nearly as long as carapace including rostrum; right cheliped (Figure 57f) 1.4 times as long as carapace, moderately depressed distally, dorsally bearing scales tipped with tubercles in part, and setose particularly on mesial margin. Merus with

4 terminal spines and 4 dorsal spinules in row. Carpus shorter than palm, distomesial margin with small spine. Palm unarmed, twice as long as wide. Fingers as long as palm, not gaping, ending in sharp point, distally crossing.

Left two and right three walking legs remaining, but detached from body; similar, comparatively short, tuberculate on dorsolateral face and smooth on ventral margin, furnished with plumose setae especially thick on dorsal margin. Merus, probably of first walking leg, relatively wide, dorsal margin cristiform, distally spiniform. Carpus smooth marginally, dorsolateral face longitudinally ridged near dorsal margin. Propodus with smooth margins, fully 1.5 times as long as dactylus. Dactylus distally spiniform and curving ventrad, bearing 4 spines on ventral margin.

Epipods absent from all pereopods.

Measurements of holotype. – Length of carapace including rostrum, 13.5 mm; width of carapace, 9.3 mm; length of cheliped, 14.8 mm (left), 19.4 mm (right); of carpus, 2.4 mm (left), 3.2 mm (right); of palm, 2.7 mm (left), 4.1 mm (right); of movable finger, 2.7 mm (left), 4.2 mm (right).

Habitat. – Taken in 432 m on mud bottom.

Remarks. – The smooth lateral margin of the carapace, the short cheliped without serration along the distolateral margin of the chela, and the cristiform meral margin of the walking leg, all characteristic of this new species, demonstrate that this is not referred to the group centered around *Munidopsis pilosa* nor to that around *M. cylindrophthalma*, both of which share one or two of the above mentioned peculiarities. One of the closest relatives seems to be *M. laevigata* (Henderson) from north of Papua, from which *M. crenatirostris* differs in having the rostrum surmounted by a distinct dorsal convexity, the fingers of the cheliped crossing distally, and the lateral margins of the carapace posteriorly diverging.

Type-locality. – Northwest of Sombrero Island, off southwestern Luzon (13°45' 15"N, 120°40'30"E).

Distribution. – Known from the unique ovigerous female holotype from the above-mentioned locality in 432 m.

### 77. *Munidopsis cylindrophthalma* (Alcock, 1894)

Figures 58, 59

*Elasmonotus cylindrophthalmus* Alcock, 1894:333. – Alcock and Anderson, 1895: pl. 13: fig. 4.

*Munidopsis (Elasmonotus) cylindrophthalmus*: Alcock, 1901: 272. – Tirmizi, 1966:213, figs. 28, 29A, B.

*Munidopsis (Elasmonotus) cylindrophthalma*: Doflein and Balss, 1913:159.

*Munidopsis okadai* Yanagita, 1942:93, 2 figs.

*Munidopsis cylindrophthalma*: Baba, in Baba, Hayashi and Toriyama, 1986:177, 293, fig. 127.

Material. – Molucca Sea off west coast of Halmahera (Sta. 5622: 1 ovig. ♀; Sta. 5624: 2 ♂, 3 ovig. ♀). – Off northern Mindanao (Sta. 5501: 1 ovig. ♀; Sta. 5503: 1 ♂). – Between Negros and Siquijor (Sta. 5536: 1 ovig. ♀). – Between Cebu and Leyte (Sta. 5403: 2 ♂; Sta. 5409: 3 ♂, 1 ovig. ♀). – Off southeastern Mindoro (Sta. 5260: 1 ovig. ♀). – East coast of Mindoro (Sta. 5123: 1 ♂, 3 ovig. ♀, 1 ♀; Sta. 5124: 1 ovig. ♀). – Vicinity

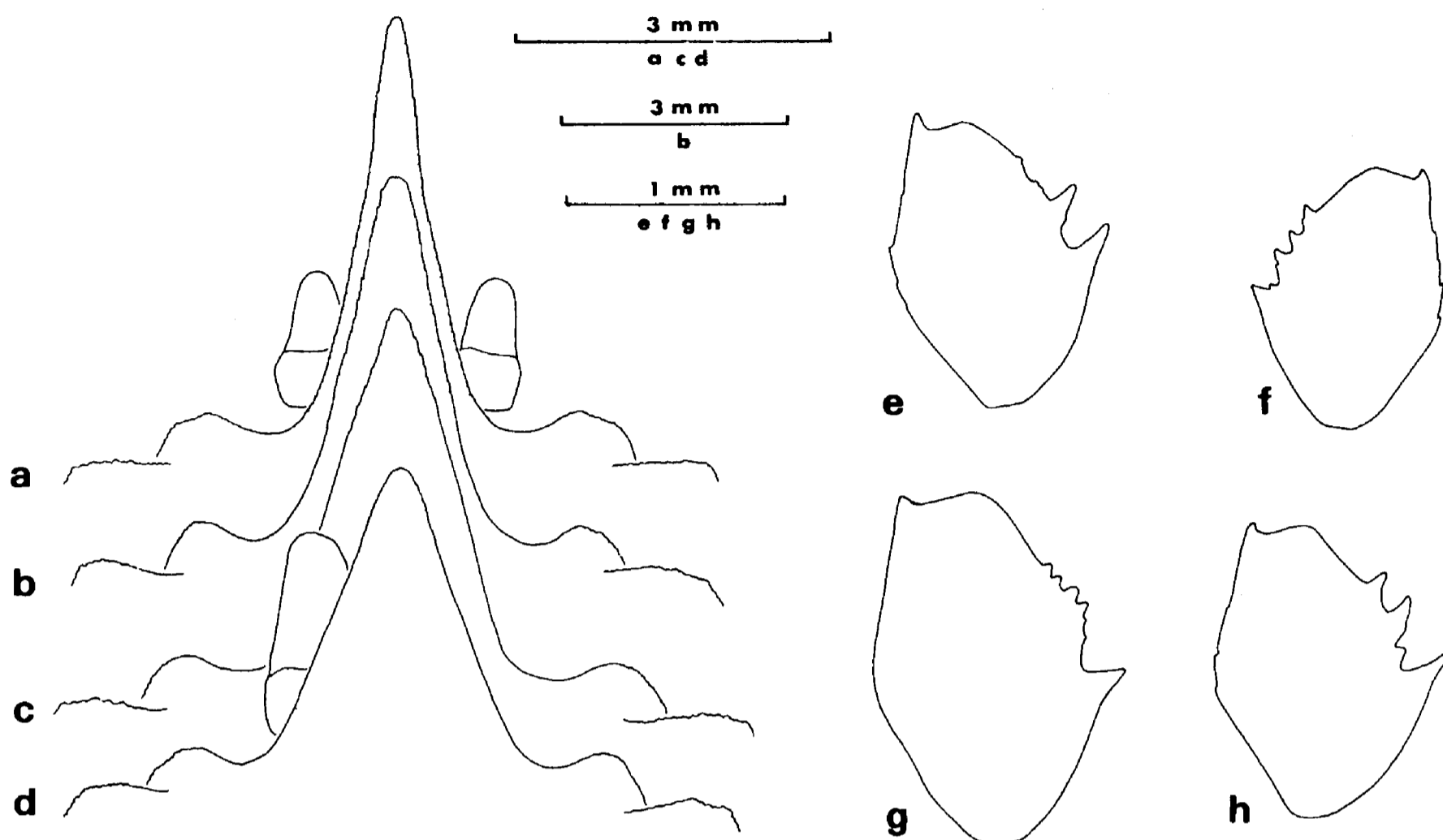


Figure 58. — *Munidopsis cylindrophthalma* (Alcock), morphological variations of rostrum and merus of third maxilliped: a, male from "Albatross" Sta. 5403, carapace length 16.2 mm; b, male from "Albatross" Sta. 5116, carapace length 15.3 mm; c, male from "Albatross" Sta. 5373, carapace length 11.3 mm; d, male from "Albatross" Sta. 5624, carapace length 11.0 mm; e, same; f, ovigerous female from "Albatross" Sta. 5624, carapace length 9.3 mm; g, ovigerous female from "Albatross" Sta. 5373, carapace length 14.3 mm; h, ovigerous female from "Albatross" Sta. 5260, carapace length 12.6 mm.

of Marinduque off southwestern Luzon (Sta. 5368: 1 ♂; Sta. 5373: 2 ♂, 3 ovig. ♀). — South China Sea off southwestern Luzon (Sta. 5111: 1 ovig. ♀; Sta. 5116: 1 ♂; Sta. 5118: 1 ♂, 2 ovig. ♀).

Measurements. — Carapace lengths of males, 10.6-16.2 mm; of ovigerous females, 8.8-14.7 mm; of nonovigerous female, 7.7 mm.

Diagnosis. — Carapace longer than wide, totally spineless, median and cardiac transverse grooves distinct, lateral margins subparallel, anterolateral angle rounded. Rostrum triangular, comparatively wide, flattish or concave dorsally, slightly upcurved distally. Abdomen spineless; 2 transverse ridges distinctly elevated on second through fourth segments. Telson divided into 12 plates, paired posterior plates relatively elongate. Eyes movable, eyestalk without cornea very short, cornea elongate and subcylindrical. Chelipeds slender, subcylindrical, spineless, fully 3 times as long as carapace. Walking legs extremely short, meri carinate along dorsal margin, dactyli ending in sharp point, with prominent spines on ventral margin. Epipods absent from pereopods.

Habitat. — Taken in 291-619 m usually on bottoms of mud, occasionally mixed with sand.

Remarks. — Prior to having access to the "Albatross" material I have examined 52 Japanese specimens of *Munidopsis okadai* Yanagita taken in several localities be-

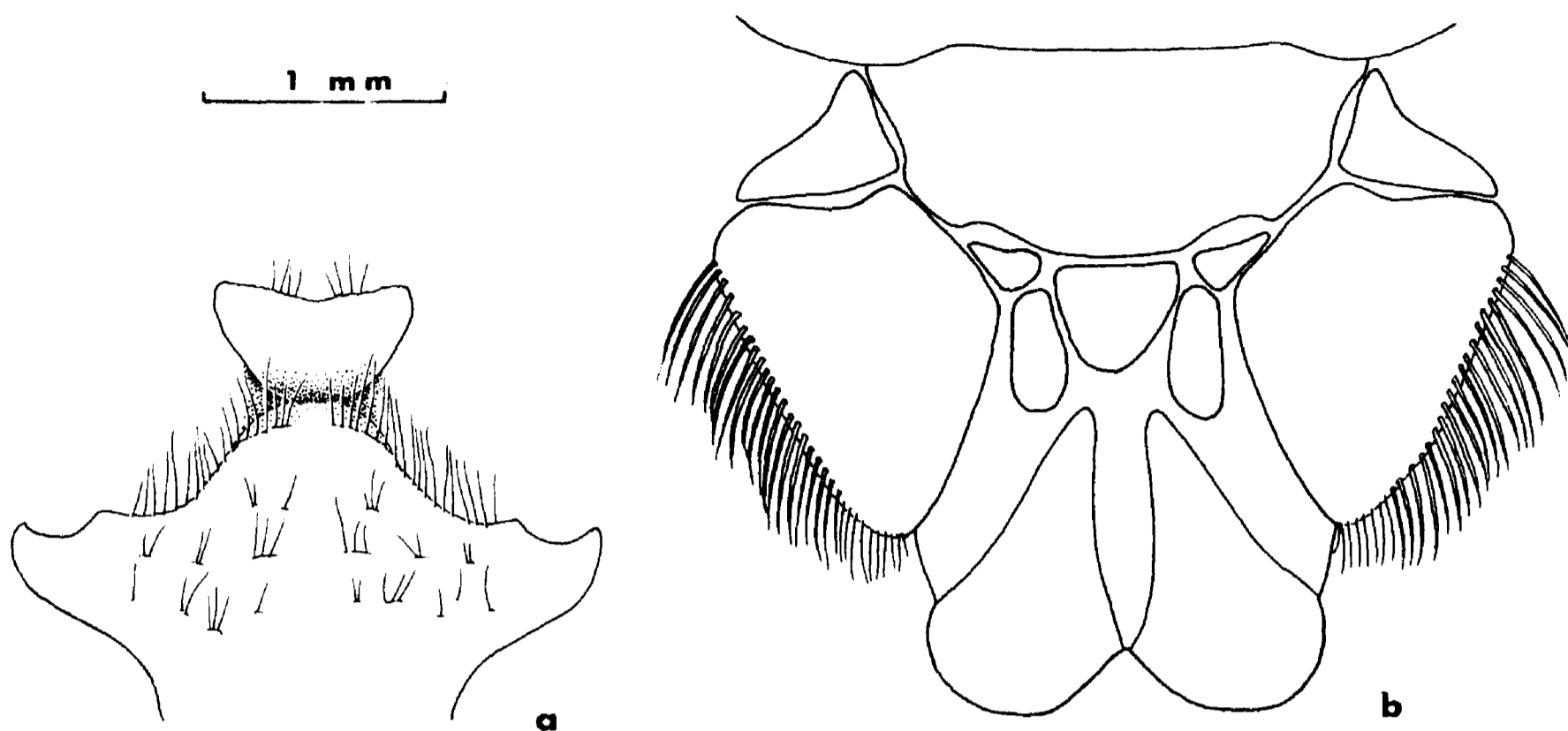


Figure 59. – *Munidopsis cylindrophthalma* (Alcock), male from "Albatross" Sta. 5624, carapace length 11.0 mm: a, anterior part of sternal segments; b, telson.

tween Sagami and Tosa Bays and deposited in Kyushu University, Fukuoka. At that time it was noticed that these specimens are much closer to *M. cylindrophthalma* than to *M. debilis*, the latter of which was supposed to be the closer relative of *M. okadai* (Yanagita, 1942:95). Examination of a male of *M. cylindrophthalma* taken by the "Investigator" from the Andaman Sea in 485 m (265 fm) and now in the Smithsonian collections, confirmed to my satisfaction that *M. okadai* and *M. cylindrophthalma* are conspecific.

The "Albatross" specimens are referred without question to *M. cylindrophthalma*. The relative length of the rostrum and the spination of the merus of the third maxilliped are quite variable, as illustrated (Figure 58a-h); in a specimen with the longest rostrum the cornea fails to reach the midlength of the rostrum, while in another with the shortest rostrum it terminates in the distal 1/5 of rostral length. The ventral margin of the merus of the third maxilliped is also inconstantly spinose, as figured (Figure 58b); in the Andaman Sea material and a few of the Japanese specimens examined, it is as indicated by Tirmizi (1966:214), having two distinct spines instead of two small tubercles as noted by Alcock (1894:333).

The sternum and telson are described and illustrated here for the species (Figure 59a, b): Sternal segments comparatively narrow, lateral margins of that of third thoracic somite posteriorly converging, anterior margin feebly concave. Telson divided into 12 plates, paired posterior plates elongate, fringe of coarse setae present on mid-lateral plate in male, absent in female.

Type-locality. – Andaman Sea.

Distribution. – Known from the Arabian Sea, Maldives, Andaman Sea, off western Sumatra, Molucca Sea, the Philippines between Mindanao Sea and southwestern Luzon, and Japan; in 200-743 m.

**78. *Munidopsis dasypus* Alcock, 1894**

## Figure 60

*Munidopsis dasypus* Alcock, 1894:329. – Alcock and Anderson, 1894:167; 1895: pl. 13: fig. 9. – Alcock, 1901:252. – MacGilchrist, 1905:245. – Alcock and MacGilchrist, 1905: pl. 70: fig. 3. – Tirmizi, 1966:218, fig. 32. – Kensley, 1977:176, fig. 10.

**Material.** – Off southwest coast of Halmahera (Sta. 5630: 2 ♀; Sta. 5631: 1 ♂). – South China Sea off southwestern Luzon (Sta. 5275: 1 ♂).

**Measurements.** – Carapace lengths of males, 16.2-19.4 mm; of nonovigerous females, 16.3-20.0 mm.

**Diagnosis.** – Carapace covered with fine setae, posterior transverse ridge with 2-8 small spines. Gastric and cardiac regions distinctly convex. Lateral margins subparallel, bearing 1 or 2 spines anteriorly. Front margin oblique. Rostrum styliform, dorsally carinate, distally curving dorsad, half as long as remaining carapace. Eyestalk without cornea slender, comparatively elongate, cornea curving laterad. Small spine between bases of eyestalk and antennal peduncle. Abdominal segments spineless. Telson divided into 8 plates. Second segment of antennal peduncle produced only on distolateral margin. Chelipeds and walking legs covered with fine, long setae; merus and carpus spinous, fingers directed slightly laterad. Meri of walking legs armed with few prominent spines on dorsal margin. Epipods present on first pereopods.

**Habitat.** – Taken in 214-1,480 m on bottoms of sand and/or mud.

**Remarks.** – A female of the "Investigator" material, designated as 137/10 by Alcock (1901:253) and now deposited in the collection of the National Museum of Natural History, Smithsonian Institution, was examined for comparison. It agrees well with the "Albatross" specimens. The lateral marginal serrations of the rostrum as described for the "John Murray" material (Tirmizi, 1966:218) are not evident in either the "Albatross" or the "Investigator" specimens examined. The accompanying illustrations (Figure 60a-e) will complement the previous species accounts.

**Type-locality.** – Bay of Bengal off the Andaman Islands.

**Distribution.** – Known from off Natal, Gulf of Aden, Arabian Sea, Laccadive Sea, Bay of Bengal, Andaman Sea, Moluccas and off southwestern Luzon; in 214-1,939 m.

**79. *Munidopsis latimana* Miyake and Baba, 1966**

*Munidopsis latimana* Miyake and Baba, 1966: 85, figs. 3, 4. – Baba, in Baba, Hayashi and Toriyama, 1986:179, 294, fig. 129.

**Material.** – Between Cebu and Bohol (Sta. 5411: 1 ♂). – East coast of Mindoro (Sta. 5121: 4 ♂, 2 ovig. ♀). – South China Sea off southwestern Luzon (Sta. 5117: 1 ♂, 1 ovig. ♀; Sta. 5279: 1 ♂).

**Measurements.** – Carapace lengths of males, 10.5-19.9 mm; of ovigerous females, 12.3-18.3 mm.

**Diagnosis.** – Body and legs thickly covered with fine setae. Carapace lacking dorsal spines, lateral margins subparallel, armed with 5-9 small spines, including



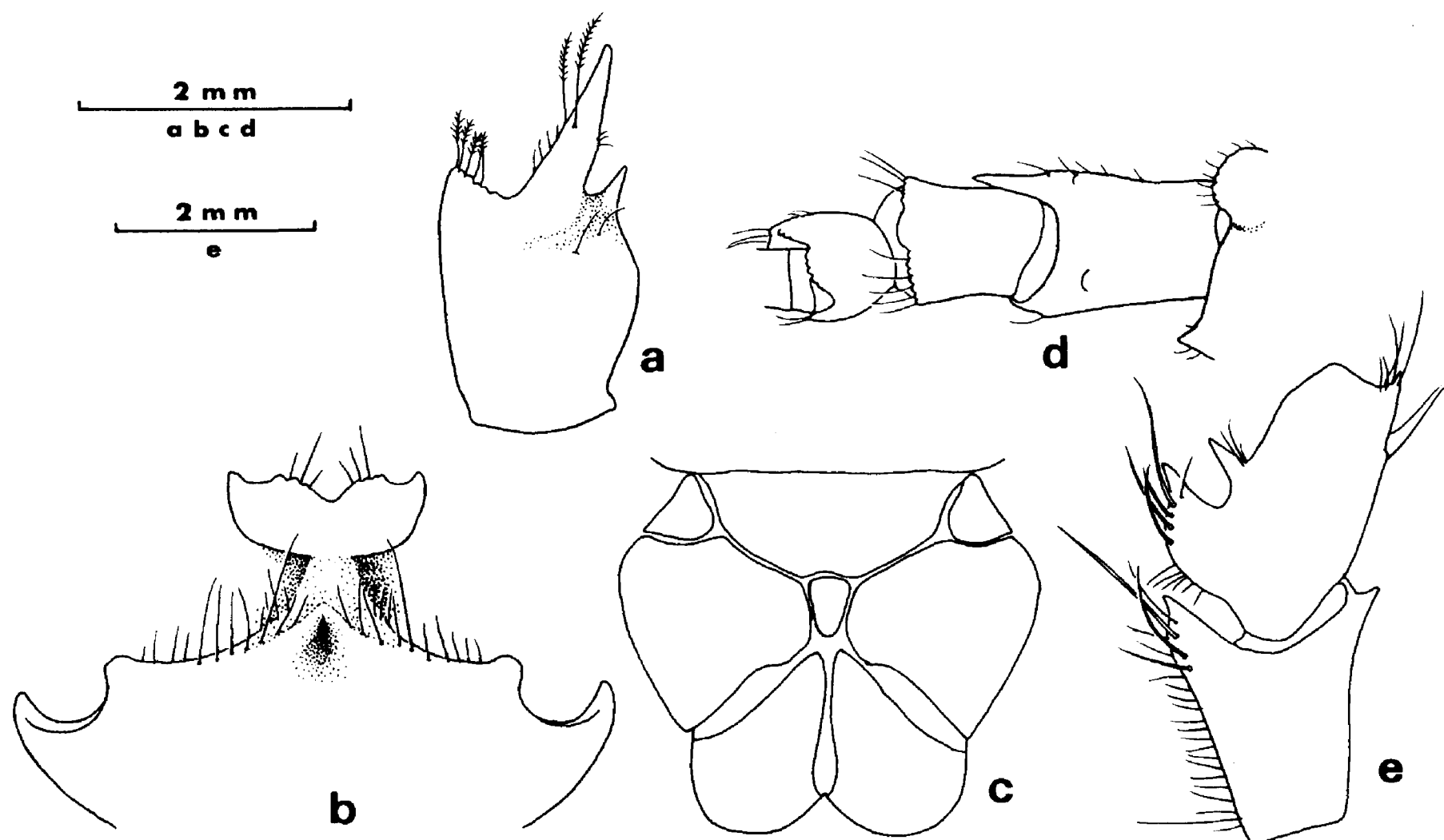


Figure 60. – *Munidopsis dasypus* Alcock, female from "Albatross" Sta. 5630, carapace length 20.0 mm: a, basal segment of left antennule; b, anterior part of sternal segments; c, telson. Male from "Albatross" Sta. 5275, carapace length 19.4 mm: d, left antennal peduncle; e, proximal segments of endopod of left third maxilliped.

anterolateral. Rostrum widely triangular, dorsally flattish, slightly deflexed. Outer orbital angle greatly produced. Abdominal segments spineless. Telson divided into 12 plates. Eyes with eyelashes comparatively small, movable. Chelipeds stout and short, depressed distally, opposable margins of fingers distally touching each other with several intermeshing teeth, lateral margin of fixed finger serrate. Walking legs short, reaching end of carpus of cheliped. Epipod present on first pereopod.

Habitat. – Taken in 198-265 m on green mud bottoms.

Remarks. – By permission of H. Minei, the male holotype (ZLKU 11041) and four paratypes (ZLKU 7535 and 11042) were moved from Kyushu University, Fukuoka to the Smithsonian Institution, Washington, D.C. No marked differences between the types and the Philippine material were noted.

Type-locality. – Tosa Bay, Japan.

Distribution. – Known from the above listed localities in the Philippines and Tosa Bay, Japan, in 198-350 m.

### 80. *Munidopsis pilosa* Henderson, 1885

#### Figure 61

*Munidopsis pilosa* Henderson, 1885: 415; 1888: 157, pl. 17: fig. 5. – Alcock and Anderson, 1894: 171.

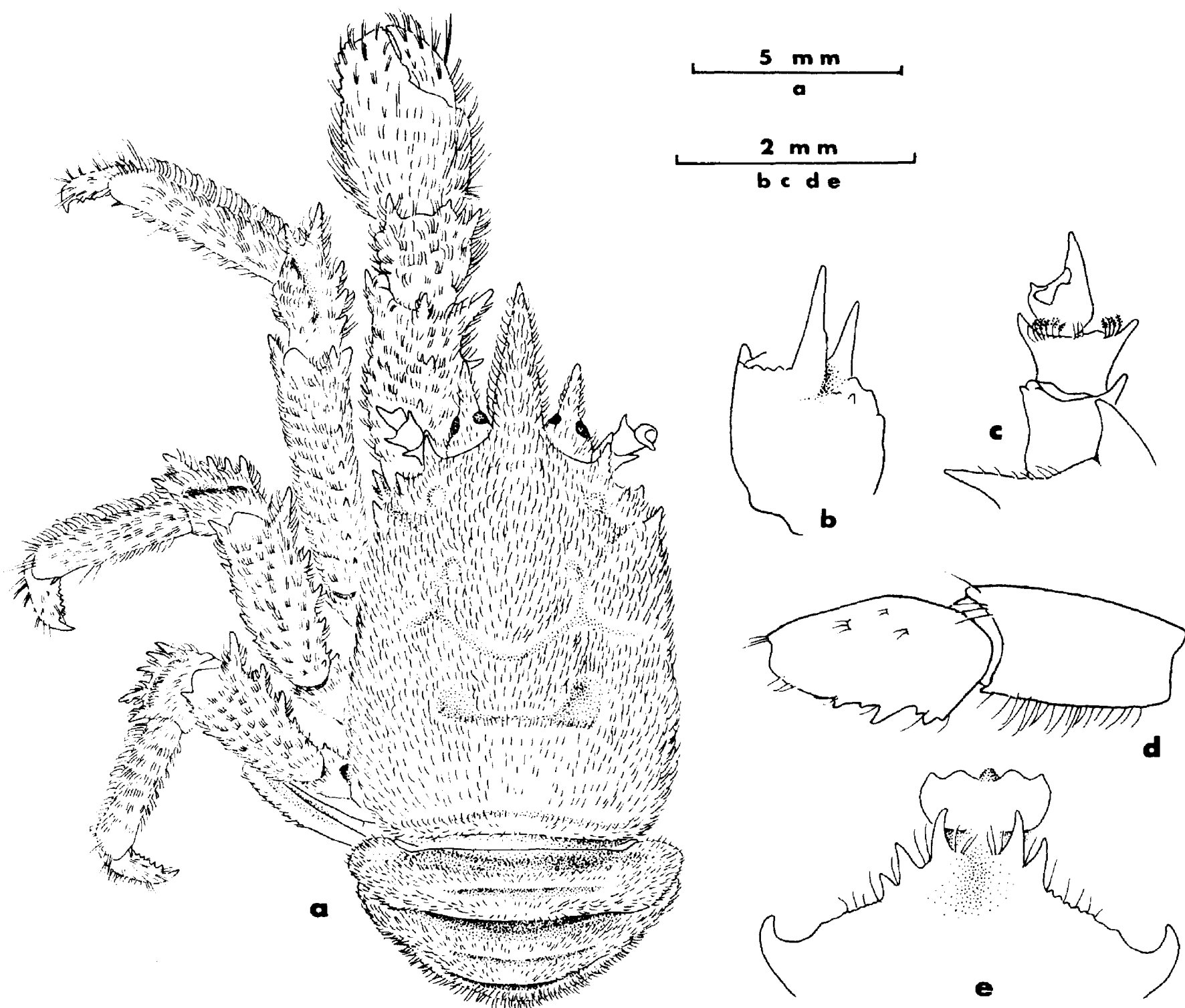


Figure 61. – *Munidopsis pilosa* Henderson, male from "Albatross" Sta. 5664: a, dorsal view; b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments.

**Material.** – Makassar Strait (Sta. 5664: 1 ♂, 2 ovig. ♀).

**Measurements.** – Carapace length of male, 13.5 mm; of ovigerous females, 10.4 and 11.0 mm.

**Diagnosis.** – Body and legs thickly covered with short setae. Carapace longer than wide, moderately convex dorsally; deep, naked transverse grooves on gastrocadiac border and on cardiac region; posterior transverse ridge elevated; lateral margins feebly diverging posteriorly, armed with 1 or 2 spines anteriorly. Front margin oblique, antennal spine well developed. Rostrum narrowly triangular, barely half as long as remaining carapace, moderately carinate dorsally. Abdominal segments spineless. Telson divided into 8 plates. Eyes fused to carapace, cornea rudimentary, eyestalk short, provided with well developed pubescent eyespine slightly overreaching midlength of rostrum. Sternum of fourth thoracic somite armed with 2 or 3 acute, stout spines anterolaterally. Chelipeds short, fingers not crossing distally,

fixed finger with denticulate carina on lateral margin. First walking leg reaching end of cheliped, merus and carpus strongly spinous marginally. Epipods absent from all pereopods.

Habitat. – This species seems to show a marked preference for hard ground; both the type and the "Albatross" materials have been taken on the same such bottoms; the "Albatross" specimens have been obtained in 732 m.

Remarks. – This species belongs to one of the groups of Chace (1942:71) that contains *Munidopsis spinoculata* and *M. hendersoniana*. Two more species referable to this group have been described by Pequegnat and Pequegnat (1971): *M. ramahtaylorae* and *M. subspinoculata*, both from the Gulf of Mexico. And this report offers another two additions, *M. bispinoculata* and *M. similior* from the Philippines. The closest relative to *M. pilosa* seems to be the Atlantic *M. ramahtaylorae*, in which, however, the carapace is as long as wide, the rostrum and eyespine are relatively much shorter, and the merus of the walking leg is not spinose as in *M. pilosa*.

Henderson (1888:158) noted that the chelipeds were lost during preparation of the illustration, in which they are shown, but that their actual meager length had been recorded beforehand. The details of the cheliped, as well as antennule, antenna and sternum, the latter three omitted in the previous species accounts, are described below:

Cheliped (Figure 61a) thickly covered with fine setae, short but relatively stout, moderately depressed distally, nearly as long as carapace; merus subcylindrical, distally wider, with 4 strong distal, few dorsal and 1 mesial marginal spines; carpus also armed with 3 distal spines, distomesial one smaller; palm unarmed, as long as wide, slightly longer than movable finger, moderately massive but depressed; fingers indistinctly gaping, distally touching each other with intermeshing teeth; opposable margins with distinct process at base; fixed finger with denticulate carina on lateral margin. Antennular basal segment (Figure 61b) with 2 well developed terminal spines, distomesial margin minutely produced; another spinule near and slightly ventral to lateral terminal spine. All segments of antennal peduncle (Figure 61c) produced on distal margins. Sternum of third thoracic somite (Figure 61e) comparatively narrow, sinuous on anterior margin; following sternum with 2 or 3 acute spines on anterolateral margin.

Henderson (1888:157) mentioned that two spines are present on the margin of the carapace, one on the front margin just behind the antennal peduncle [= antennal spine] and the other at the anterolateral angle. However, the "anterolateral spine" of Henderson is misunderstood. The "Albatross" male specimen has a tiny true anterolateral spine and another stouter one at the anterior extremity of the branchial region (Figure 61a); in the remaining two ovigerous females this true tiny anterolateral is missing, as in the illustrated "Challenger" specimen (Henderson, 1888: pl. 17: fig. 5).

Type-locality. – Near the Philippines [Molucca Sea south of Batjan].

Distribution. – Known from the Andaman Sea, Makassar Strait and Molucca Sea in 732-1,510 m.

**81. *Munidopsis plumatisetigera*, new species****Figure 62**

**Material.** – Molucca Sea off west coast of Halmahera (Sta. 5626: 1 ♂, holotype USNM 150431).

**Diagnosis.** – Body covered with plumose setae. Carapace convex on gastric and cardiac regions, armed with 2 anterior gastrics, 1 median gastric, 1 cardiac, 4 lateral marginals and 5 spines on posterior ridge. Front margin with distinct antennal spine, lateral half depressed from level of mesial half. Rostrum comparatively wide, dorsally convex, trifid distally. Second and third abdominal segments with 4 dorsal spines. Telson divided into 10 plates. Eyes small, movable. Well developed spine ventral to front margin between eyestalk and antennal peduncle. Chelipeds slender, about twice as long as carapace; merus and carpus spinose, fingers not crossing, distally touching each other with few intermeshing teeth. First walking leg reaching end of carpus of cheliped; merus with few tiny dorsal marginal spines. Epipods absent from pereopods.

**Description of holotype.** – Whole body covered with fine plumose setae. Carapace (Figure 62a) slightly longer than wide, gastric region moderately convex with 2 anterior and 1 median spines. Postcervical portion with feebly elevated, interrupted ridge. Cardiac region more or less convex, anterior transverse ridge elevated with prominent median spine. Few interrupted ridges in posterior 1/4 of carapace. Posterior transverse ridge elevated, bearing 5 small spines. Front margin with distinct antennal spine, lateral half of margin considerably depressed below level of mesial half. Spine ventral to front margin between eyestalk and antennal peduncle well developed, overreaching second segment of antennal peduncle. Lateral margin feebly convex, armed with 4 stout spines in distal half.

Rostrum comparatively wide, more than 1/3 as long as carapace, slightly convex and indistinctly carinate dorsally, trifid distally; median process upturned; lateral margin feebly convex and smooth.

Second and third abdominal segments (Figure 62a) transversely ridged, armed with 4 small spines each. Telson (Figure 62f) divided into 10 plates, midlateral plate with fringe of plumose setae.

Eyes small, movable, ending near midlength of rostrum.

Basal segment of antennule (Figure 62b) with 2 lateral terminal spines only. First segment of antennal peduncle (Figure 62c) greatly produced anteriorly on both distomesial and distolateral margins; second segment with distolateral spine only; third and fourth segments spineless.

Ischium of third maxilliped (Figure 62d) shorter than merus, distoventral and distodorsal margins produced, distodorsal marginal process prominent, mesial ridge with 21 closely placed denticles. Merus widest at midlength, distally narrowing, ventral margin with 2 strong spines in distal half, distal smaller; dorsal margin with prominent distal spine.

Sternum of third thoracic somite (Figure 62e) posteriorly narrowing, anterolaterally expanded, anterior margin mesially concave, bearing plumose setae in median half of width. Following sternum relatively wide, about 3 times as wide as preceding.

Chelipeds dissimilar, left one as illustrated (Figure 62a), right one slightly longer;

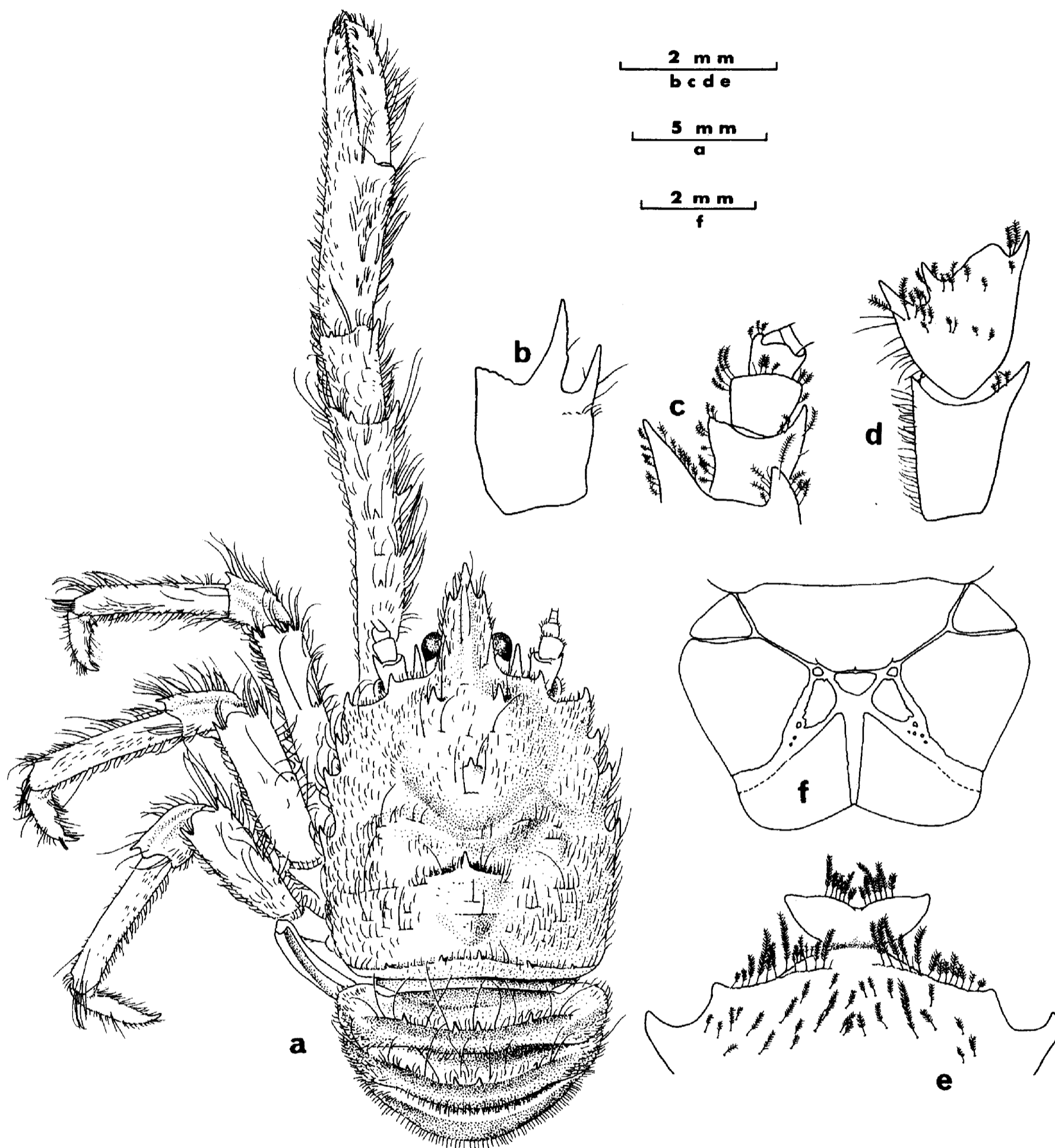


Figure 62. — *Munidopsis plumatisetigera*, new species, male holotype from "Albatross" Sta. 5626: a, dorsal view; b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments; f, telson.

twice as long as carapace including rostrum, subcylindrical but distally more or less depressed, totally covered with plumose setae of moderate length. Merus comparatively long, armed with 3 strong mesial marginal, 4 small dorsal, 1 distolateral and 1 distoventral spines; distolateral marginal spine broken in left cheliped. Carpus weakly tuberculate dorsally, with 1 tiny distodorsal and 1 acute distomesial spines.

Palm spineless, 2.6 or 2.8 times as long as wide, slightly longer than movable finger, mesial and lateral margins subparallel. Fingers not gaping, distally touching each other with few intermeshing teeth; opposable margins almost straight and denticulate.

Walking legs (Figure 62a) similar, but third leg much shorter; covered with plumose setae especially thick on dorsal and ventral margins. First walking leg reaching end of carpus of cheliped. Merus sparsely tuberculate, with 4 dorsal marginal and 1 ventral marginal spines, all moderate-sized. Carpus with distodorsal spine only. Propodus 5 times as long as wide, nearly straight, devoid of ventral marginal spinelets. Dactylus half as long as propodus, distally curving ventrad, ventral margin minutely dentate.

Epipods absent from all pereopods.

Measurements of holotype. – Length of carapace including rostrum, 16.0 mm; width of carapace, 10.5 mm; length of cheliped (left), 30.0 mm; of carpus, 3.4 mm; of palm, 6.6 mm; of movable finger, 6.1 mm.

Habitat. – Taken in 485 m on bottom of mud and sand.

Remarks. – Among the group that possess a trifid rostrum, the new species seems to be most closely related to *Munidopsis regia* reported in this paper, from which, however, it is readily distinguished by lacking an epipod on the cheliped.

Type-locality. – Northeast of Kayoa Island, off southwest coast of Halmahera (0°07'30"N, 127°29'00"E).

Distribution. – Known from the unique male holotype from the above-mentioned locality in 485 m.

## 82. *Munidopsis regia* Alcock and Anderson, 1894

### Figure 63

*Munidopsis regia* Alcock and Anderson, 1894:168; 1895: pl.11: fig. 1.

*Munidopsis triaena* Alcock and Anderson, 1894:168; 1895: pl.11: fig. 5.

*Munidopsis (Galathodes) regia*: Alcock, 1901:261. – Doflein and Balss, 1913:156, fig. 23. – Tirmizi, 1966:228, fig. 39.

*Munidopsis (Galathodes) triaena*: Alcock, 1901:261.

Material. – Off northern Mindanao (Sta. 5511: 1 ♀). – East coast of Mindoro (Sta. 5123: 1 ♀). – Vicinity of Marinduque off southwestern Luzon (Sta. 5374: 1 ♂).

Measurements. – Carapace length of male, 35.7 mm; of nonovigerous females, 17.9 and 36.5 mm.

Diagnosis. – Carapace glabrous, gastric and cardiac regions moderately convex; 2 epigastric and 1 cardiac spines distinct; posterior transverse ridge spineless or armed with 1 or 2 spines; lateral margins subparallel with 4 stout spines in anterior half, converging in posterior half. Front margin oblique with small antennal spine. Rostrum comparatively wide and dorsally carinate, bearing lateral spine at end of horizontal portion, distally spiniform and upturned. Second, third and fourth abdominal segments with 1, 2, and 2 median spines respectively. Telson divided into 10 plates. Eyespine absent. Merus and carpus of cheliped spinose, chela unarmed. Epipod present on first pereopod.

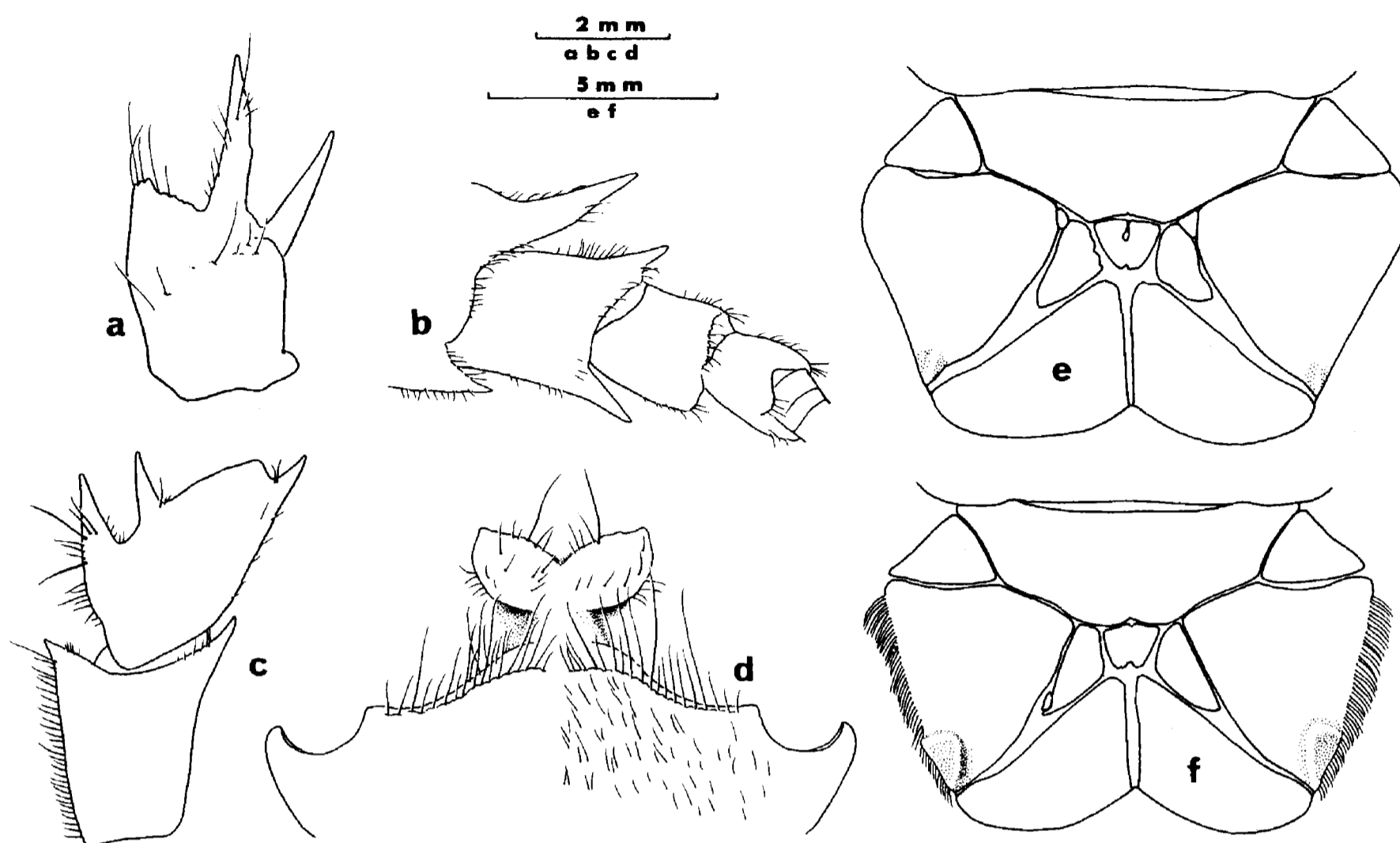


Figure 63. — *Munidopsis regia* Alcock and Anderson, female from "Albatross" Sta. 5511, carapace length 36.5 mm: a, basal segment of left antennule; b, left antennal peduncle; c, proximal segments of endopod of left third maxilliped; d, anterior part of sternal segments; e, telson. Male from "Albatross" Sta. 5374: f, telson.

Habitat. — Taken in 348-750 m on bottoms of mud, or mud mixed with sand.

Remarks. — The specimens listed above agree well with the original description and illustration of *Munidopsis triaena*, except in the following respects: The posterior ridge of the carapace bears a pair of spines in two of the three specimens examined and a single spine in the other, instead of being unarmed as in the "Investigator" material.

Doflein and Balss (1913:156) considered that *M. triaena* and *M. regia* are conspecific. This may be true, for the number of spines on the posterior transverse ridge of the carapace, supposed to be different in the two (Alcock, 1901:250), is variable as mentioned above and earlier (Doflein and Balss, 1913:157).

Type-locality. — Andaman Sea.

Distribution. — Known from the Gulf of Mannar, the Maldives, the Bay of Bengal off the Andaman Islands, off the west coast of Sumatra, Mindanao Sea, and off southwestern Luzon; in 260-750 m.

### 83. *Munidopsis rostrata* (A. Milne Edwards, 1880)

Restricted synonymy:

*Galacantha rostrata* A. Milne Edwards, 1880:52. — Tirmizi, 1966:206, figs. 23, 24. — Kensley, 1968:292.

*Munidopsis rostrata*: Chace, 1942:75. — Baba, 1982b:112.

**Material.** – Teluk Tomini, Sulawesi (Sta. 5609: 1 ♀). – Makassar Strait (Sta. 5670: 1 ♂).

**Measurements.** – Carapace length of male, 17.0+ mm; of nonovigerous female, 16.0 mm.

**Diagnosis.** – Carapace covered with simple or squamiform tubercles, armed with 2 small epigastric, 1 extremely strong mesogastric, and 1 moderately large cardiac spines; lateral margin with 2 prominent spines anteriorly, posterior one larger. Front margin oblique, without antennal spine. Rostrum trifold at anterior end of horizontal portion, upturned apically. Second through fourth abdominal segments with prominent median spine. Telson divided into 10 plates. Eyes movable and spineless. Dactyli of walking legs dorsoventrally depressed distally. Epipods present on first through third pereopods.

**Habitat.** – Taken in 1,998-2,161 m on mud bottoms.

**Type-locality.** – Bequia in the Lesser Antilles.

**Distribution.** – This is one of the most widespread species in both the Atlantic and the Indo-Pacific, also in the Southern Ocean. For distribution the reader is referred to Chace (1942:76); the range in the Indo-Pacific has been more widely extended westward to the Arabian Sea and Zanzibar (Tirmizi, 1966:206) and northeastward to Japan (Baba, 1982b:122). The bathymetric range is from 1,650 to 3,294 m.

#### 84. *Munidopsis scobina* Alcock, 1894

##### Figure 64

*Munidopsis scobina* Alcock, 1894:330; 1901:254. – Alcock and Anderson, 1895: pl. 13: fig. 1. – Tirmizi, 1966:222, fig. 35.

**Material.** – Molucca Sea off west coast of Halmahera (Sta. 5622: 1 ♀).

**Measurements.** – Carapace length of female, 12.2 mm.

**Diagnosis.** – Carapace glabrous, interruptedly striated in posterior 1/3, dorsally armed with 2 epigastrics, 1 mesogastric, 1 metagastric, 1 cardiac and 2 spines on posterior ridge; lateral margin constricted at end of cervical groove, slightly convex at midlength, bearing 4 or 5 spines including greatly produced anterolateral. Front margin oblique with small antennal spine. Rostrum styliform, upcurved, half as long as carapace. Second through fourth abdominal segments with 1 or 2 median spines on anterior and posterior ridges, posterior ridge of fourth segment spineless. Telson divided into 12 plates. Eyes small and movable, mostly corneal. Antennular basal segment more or less elongate, with 3 acute terminal spines and 1 accompanying spinule dorsal to mesial terminal. Antennal peduncle stout, second segment with prominent distolateral spine. Chelipeds very slender, as wide as walking legs, barely twice as long as carapace, merus and carpus with few spines. Meri of walking legs lacking marginal spines but both terminal one. Epipods absent from pereopods.

**Habitat.** – Taken in 503 m on mud bottom.

**Remarks.** – The "Albatross" specimen differs in some minor points as mentioned below from the original species account as well as from an ovigerous female speci-



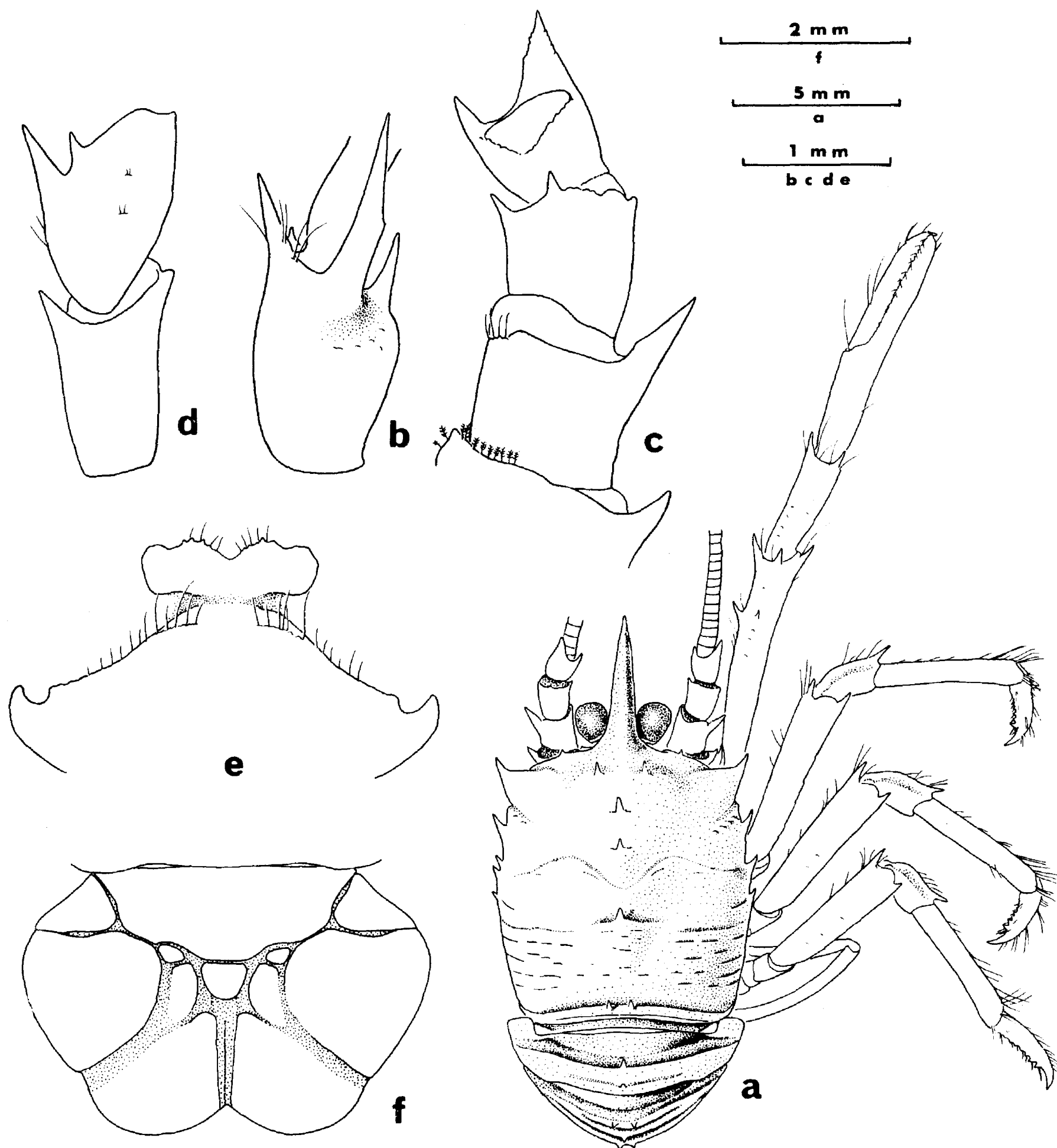


Figure 64. — *Munidopsis scobina* Alcock, female from "Albatross" Sta. 5622: a, dorsal view; b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments; f, telson.

men from the Bay of Bengal in 498 m (272 fm) which was recorded in Alcock (1901:254) and which is now deposited in the Smithsonian Institution (USNM 19020). In the "Albatross" specimen, the carapace is posteriorly narrowing, as previously mentioned for the "John Murray" material (Tirmizi, 1966:222); the rostrum is dis-

tinctly upcurved; the carapace and abdominal segments are much less spinose; and the chela is spineless. The spination of the abdominal segments in the South Arabian coast specimens (Tirmizi, 1966:222) seems to be intermediate between that in the "Albatross" and that in the "Investigator" specimens.

Type-locality. – Northern part of Bay of Bengal.

Distribution. – Known from the South Arabian coast, the Bay of Bengal and the Moluccas, in 353-1,046 m.

### 85. *Munidopsis similior*, new species

#### Figure 65

Material. – Off northern Mindanao (Sta. 5518: 1 ovig. ♀). – Off southeastern Luzon (Sta. 5453: 23 ♂, 25 ovig. ♀, 11 ♀ [1 male is holotype, USNM 150429]). – South China Sea off southwestern Luzon (Sta. 5113: 1 ♂).

Diagnosis. – Carapace dorsally spineless, weakly striated on gastric region and on posterior 1/3 of dorsal surface; lateral margin slightly convex, bearing 2 small spines anteriorly. Front margin with distinct antennal spine. Rostrum comparatively wide, weakly carinate dorsally, minutely dentate distolaterally. Abdomen unarmed. Telson divided into 8 plates. Eyes immovable, cornea with 2 distinct terminal spines, inner one smaller, distinctly ventral in position, relatively remote from outer one. Sternum of fourth thoracic somite with single spine on distolateral margin. Chelipeds comparatively stout, longer than carapace. Walking legs also stout, reaching equally far or overreaching cheliped; merus spineless excepting both marginal terminal. Epipods absent from all pereopods.

Description of holotype. – Carapace (Figure 65a) 1.2 times as long as wide, almost glabrous but very sparsely furnished with fine setae; posterior half with weak, interrupted ridges; cardiac region with moderately elevated transverse ridge about 1/3 as wide as carapace; posterior transverse ridge uninterrupted, as high as cardiac one. Front margin oblique with distinct antennal spine. Lateral margin moderately convex at posterior 1/3 of length, armed with 2 spines anteriorly; anterolateral spine much smaller than another located at anterior end of branchial region.

Rostrum (Figure 65a) 0.35 as long as remaining carapace, comparatively wide, almost straight, weakly carinate and finely setose dorsally, minutely dentate distolaterally.

Abdomen unarmed; 2 ridges each on second and third segments, and single anterior ridge on fourth segment; all ridges very sparsely setiferous. Telson (Figure 65f) divided into 8 plates; midlateral plate fringed with setae on lateral margin.

Eyes (Figure 65a) fused to carapace, cornea rounded, with 2 eyespines; outer spine stouter, slightly dorsal in position, inner spine rather ventral and considerably remote from outer.

Basal segment of antennule (Figure 65b) with 2 terminal spines. Antennal peduncle (Figure 65c) as in *M. bispinoculata*.

Merus of third maxilliped (Figure 65d) with 4 spines on ventral margin, penultimate obsolete in left appendage, dorsal margin with distinct terminal spine. Ischium produced on distoventral margin, mesial ridge with 16 denticles.

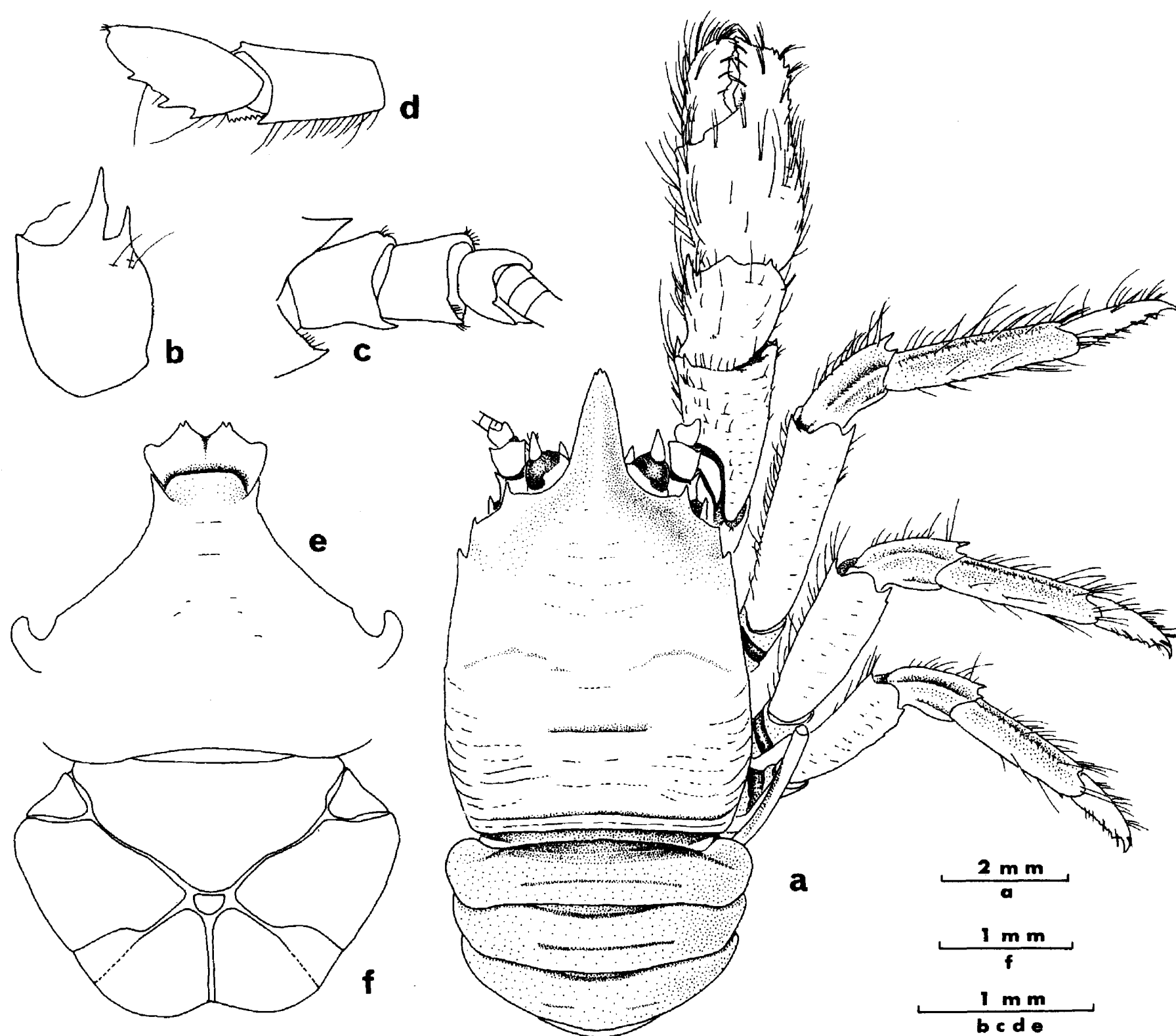


Figure 65. — *Munidopsis similior*, new species, male holotype from "Albatross" Sta. 5453: a, dorsal view; b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments; f, telson.

Sternum of third thoracic somite (Figure 65e) produced laterally, anterior margin with 2 prominent processes, each bidentate. Following sternum with well developed distolateral spine on either side.

Cheliped (Figure 65a) relatively massive, 1.4 times as long as carapace including rostrum, depressed distally, furnished with coarse setae moderate in density. Ischium with dorsal, lateral and ventral spines. Merus and carpus as in *M. bispinoculata*. Palm 1.2 times as long as wide, slightly longer than movable finger. Lateral margin of chela convex at midlength of palm, feebly concave between fixed finger and palm, distinctly serrate on fixed finger. Fingers relatively wide, slightly gaping, ending in round tip, distally touching each other with few intermeshing teeth.

Walking legs (Figure 65a) similar, stout, moderately setose, second and third legs more scaly on merus; first leg reaching end of cheliped when extended forward.

Meri feebly squamate on dorsolateral face, distinctly ridged on dorsal margin, both dorsal and ventral margins with terminal spine only. Carpi ridged on dorsolateral face along dorsal margin, with 2 dorsal marginal spines distally, ultimate smaller. Propodi about 5 times as long as wide, ventral margin with single terminal spinelet. Dactyli nearly straight but distally curving ventrad, half as long as propodi, 9 ventral marginal denticles decreasing in size toward base of segment.

Epipods absent from all pereopods.

Measurements of holotype. – Length of carapace including rostrum, 7.7 mm; width of carapace, 4.8 mm; length of cheliped (right), 11.0 mm; of carpus, 1.8 mm; of palm, 2.2 mm; of movable finger, 2.0 mm.

Measurements of paratypes. – Carapace lengths of males, 4.1-8.7 mm; of ovigerous females, 5.0-9.4 mm; of nonovigerous females, 3.3-7.6 mm.

Variation. – Most of the paratypes bear a single spine near the distolateral extremity of the sternum of the fourth thoracic somite, which spine tends to be reduced to a small size and finally to complete absence in four of the 60 specimens examined. In only one case are there two spines; however, this additional spine is merely fused to the base of the primary spine.

Habitat. – Taken in 267-366 m on mud bottoms.

Remarks. – This new species is most closely related to *Munidopsis bispinoculata*, but the following peculiarities displayed by *M. similior* will prove to be distinct: The rostrum is relatively wider, more weakly carinate dorsally, bears distinct dentitions around the tip; the two eyespines are more remote from each other; the cornea is more distinctly rounded distally; the sternum of the fourth thoracic somite bears a single spine on the distolateral margin; the cheliped is relatively much stouter; and the merus of the walking leg is marginally spineless except for the distal spine.

From the western Atlantic analogue, *M. spinoculata*, the new species is distinguished by having two distinct eyespines, the inner one visible from a dorsal aspect and rather remote from the outer, and also having a single distolateral spine on each side of the sternum of the fourth thoracic somite.

*M. similior* seems to be a shallow water inhabitant, whereas *M. bispinoculata* occurs in deeper waters between 933 and 2,363 m.

Type-locality. – Northeast of Legaspi Light, off southeastern Luzon (13°12'N, 123°49'18"E).

Distribution. – Known from the Mindanao Sea and off the southwest and southeast coasts of Luzon, in 267-366 m.

### 86. *Munidopsis sinclairi* McArdle, 1901

#### Figure 66

*Munidopsis (Elasmonotus) Sinclairi* McArdle, 1901:524.

*Munidopsis (Elasmonotus) sinclairi*: Alcock and McArdle, 1902: pl. 56: fig. 4.

Material. – Off southwest coast of Halmahera (Sta. 5630: 1 ♂). – Molucca Sea off west coast of Halmahera (Sta. 5624: 1 ♀). – Teluk Tomini, Sulawesi (Sta. 5606: 1 ovig. ♀). – Off southeastern Luzon (Sta. 5469: 1 ♀).

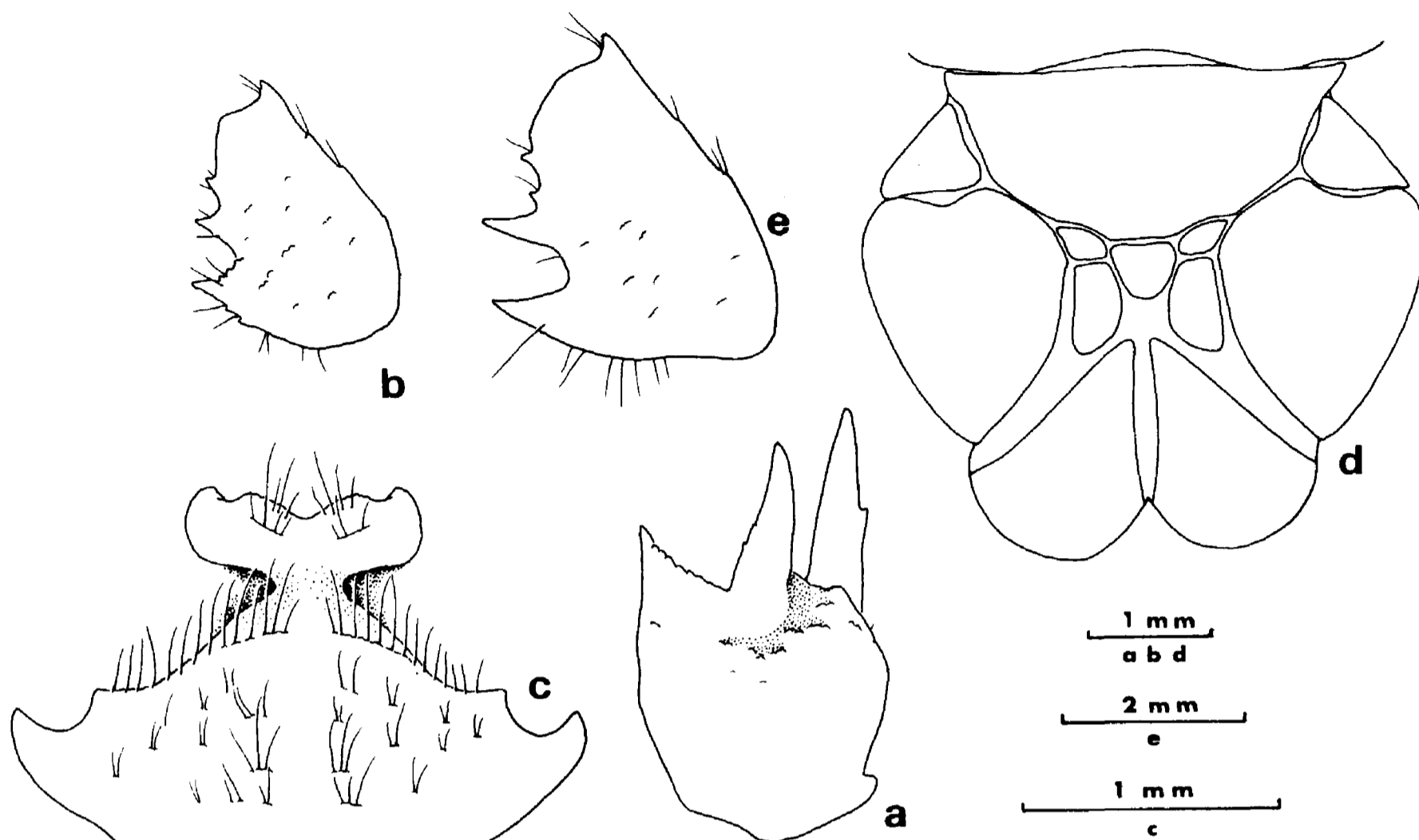


Figure 66. — *Munidopsis sinclairi* McArdle, ovigerous female from "Albatross" Sta. 5606, carapace length 20.7 mm: a, basal segment of left antennule; b, merus of left third maxilliped; c, anterior part of sternal segments; d, telson. Female from "Albatross" Sta. 5469, carapace length 12.3 mm: e, merus of left third maxilliped.

**Measurements.** — Carapace length of male, 15.5 mm; of ovigerous female, 20.7 mm; of nonovigerous females, 7.3 and 12.3 mm.

**Diagnosis.** — Carapace spineless, rather rugose or ripply dorsally; gastric and cardiac regions convex; lateral margins convex and subcristiform; anterolateral angle rounded. Lateral part of front margin transverse and depressed from level of mesial part. Rostrum acutely triangular, about half as long as carapace, feebly upcurved distally. Abdomen spineless, second through fourth segments transversely carinate. Telson divided into 12 plates. Eyes without eyespine small and movable. Chelipeds barely 1.5 times as long as carapace, weakly granulate, covered with fine setae; palm spineless. Walking legs setose, dorsally granulate, especially on merus, first leg reaching end of carpus of cheliped. Epipods absent from pereopods.

**Habitat.** — Taken in 527-1,526 m on bottoms of mud, or mud mixed with sand.

**Remarks.** — The illustration of the species (Alcock and McArdle, 1902: pl. 56: fig. 4) is exquisite and fully complements the brief original description, with which the "Albatross" specimens agree well. The following details should be added to the species account: Rostrum very finely serrate in distal half of lateral margin; antennular basal segment (Figure 66a) with 2 terminal spines, distomesial margin minutely produced; merus of third maxilliped (Figure 66b, e) variably spinose on ventral margin, proximal spine most prominent, dorsal margin also with terminal spine; anterior part of sternal segments as illustrated (Figure 66c); telson (Figure 66d) divided into 12 plates, posterior plates moderately elongate.

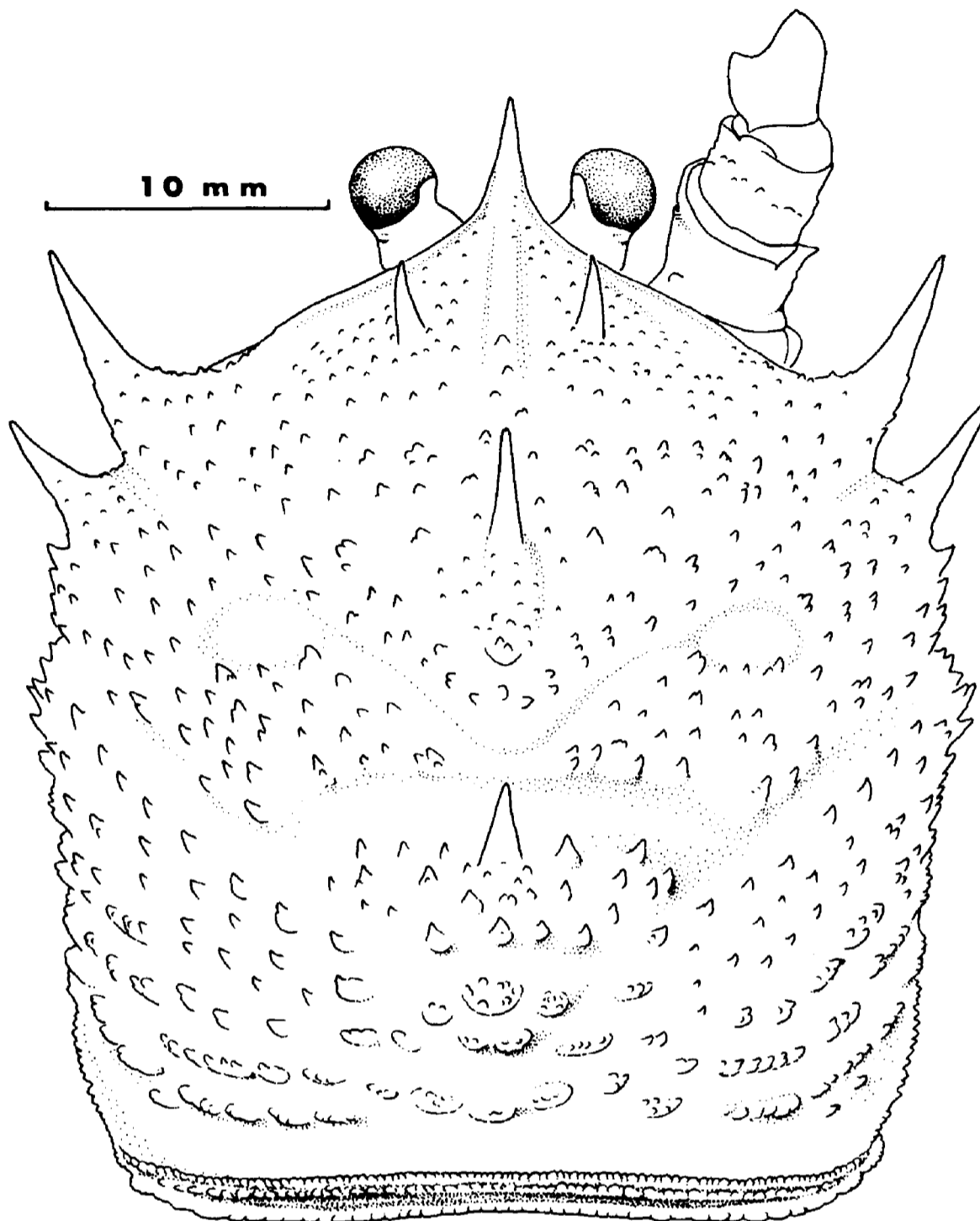


Figure 67. – *Munidopsis spinosa* (A. Milne Edwards), male from "Albatross" Sta. 5587: carapace, dorsal view.

Type-locality. – Off south coast of Sri Lanka.

Distribution. – Known from off the south coast of Sri Lanka, the Moluccas, Sulawesi, and off southwestern Luzon; in 527-1,610 m.

### 87. *Munidopsis spinosa* (A. Milne Edwards, 1880)

Figures 67, 68

*Galacantha spinosa* A. Milne Edwards, 1880:53. – Milne Edwards and Bouvier, 1897:56, pl. 4: figs. 14-21.

*Munidopsis spinosa*: Chace, 1942:76. – Takeda, 1983:96.

*Munidopsis rostrata*: Miyake, 1982:144, pl. 48: fig. 4.

Material. – Off northeastern Borneo (Sta. 5587: 1 ♂).

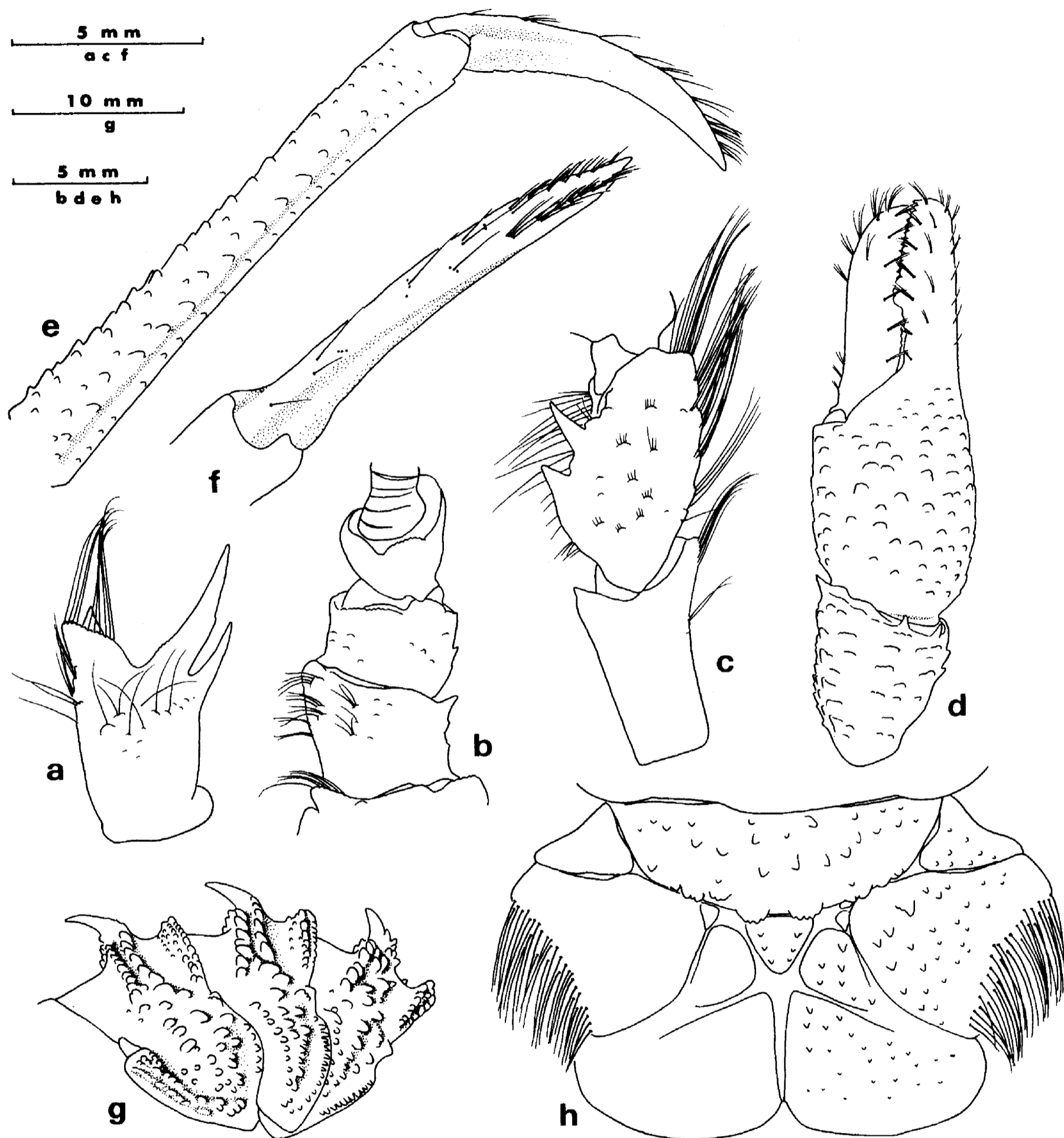


Figure 68. — *Munidopsis spinosa* (A. Milne Edwards), male from "Albatross" Sta. 5587: a, basal segment of left antennule; b, left antennal peduncle; c, proximal segments of endopod of left third maxilliped; d, right cheliped, proximal segments omitted; e, distal part of right first walking leg; f, same, dactylus; g, second through 4th abdominal segments, lateral view; h, telson.

Measurements. — Carapace length, 41.5 mm.

Diagnosis. — Body entirely covered with tubercular processes. Carapace nearly as long as wide, armed with paired epigastric, strong mesogastric and relatively large cardiac spines; lateral margins subparallel, with 2 prominent spines anteriorly.

Front margin oblique, without antennal spine. Rostrum short, spiniform, curving dorsad. Second through fourth abdominal segments with 2 elevated transverse ridges, anterior ridge with strong median spine. Telson divided into 10 plates. Eyes small and movable, without eyespine. Chelipeds 1.5 times as long as carapace, palm more or less massive, fingers not crossing distally. Dactyli of walking legs curving ventrad, dorsoventrally flattened distally. Epipods present on first through third pereopods.

Habitat. – Taken in 759 m on bottom of mud, sand and coral.

Remarks. – This specimen has been compared with four Caribbean Sea specimens of *M. spinosa* identified by L.B. Holthuis and deposited in the Rijksmuseum van Natuurlijke Historie, Leiden: 1 ovigerous female (c.l., 44.0 mm) and 1 non-ovigerous female (c.l., 25.0 mm) from northwest of Columbia, 10°17.0'N, 75°59.9'W – 10°15.2'N, 75°59.9'W, 724-597 m, 14 Jul 1966, "John Elliot Pillsbury" Sta. 381; 1 male (c.l., 32.1 mm) and 1 nonovigerous female (c.l., 35.5 mm) from south of Jamaica, 17°31.2'N, 77°49.2'W – 17°32.3'N, 77°49.4'W, 878-906 m, 6 Jul 1970, "Pillsbury" Sta. 1224. No differences worthy of note were noticed.

In most cases the widespread deep-sea species are abyssal or lower bathyal zone inhabitants, as known of *M. rostrata*, *M. antonii*, etc. (Baba, 1981b: 111), but, an exceptional case is *M. tridentata* that is known to occur between 275 and 1,630 m, and the same is also applicable to *M. spinosa*.

Miyake (1982:144) reported an ovigerous female of *Munidopsis rostrata* from the Kyushu-Palau Ridge east of Daito Island (28°04'N, 134°20'E) in 520 m, which specimen, however, is undoubtedly referable to *M. spinosa*.

Type-locality. – Off Dominica.

Distribution. – Previously known in the western Atlantic from the West Indies and off the north coasts of Suriname and French Guiana in 609-1,010 m. This is the first record from the Pacific.

### 88. *Munidopsis tenax* Alcock, 1901

#### Figure 69

*Bathyankyristes spinosus* Alcock and Anderson, 1894:174, pl. 9: fig. 2. – Alcock and McArdle, 1901: pl. 55: fig. 2.

*Munidopsis (Bathyankyristes) tenax* Alcock, 1901: 273. – Tirmizi, 1966:211, fig. 27.

Material. – South China Sea off southwestern Luzon (Sta. 5282: 1 ♀).

Measurements. – Carapace length of female, 25.2 mm.

Diagnosis. – Carapace dorsally spineless, covered with fine setae, median transverse ridge distinct; lateral margin feebly convex, deeply bilobed in front of cervical groove, each lobe ending in acute spine; another spine at midlength. Front margin slightly oblique, without antennal spine. Small spine ventral to front margin between eyestalk and antennal peduncle. Rostrum pilose, acutely triangular, dorsally convex, distally upturned, about half as long as carapace. Abdomen unarmed. Telson divided into 8 plates. Eyes movable, eyestalk without cornea visible from above. Merus of third maxilliped with 1 strong midventral and 1 prominent disto-dorsal spines. Chelipeds relatively short but longer than walking legs, thickly fur-



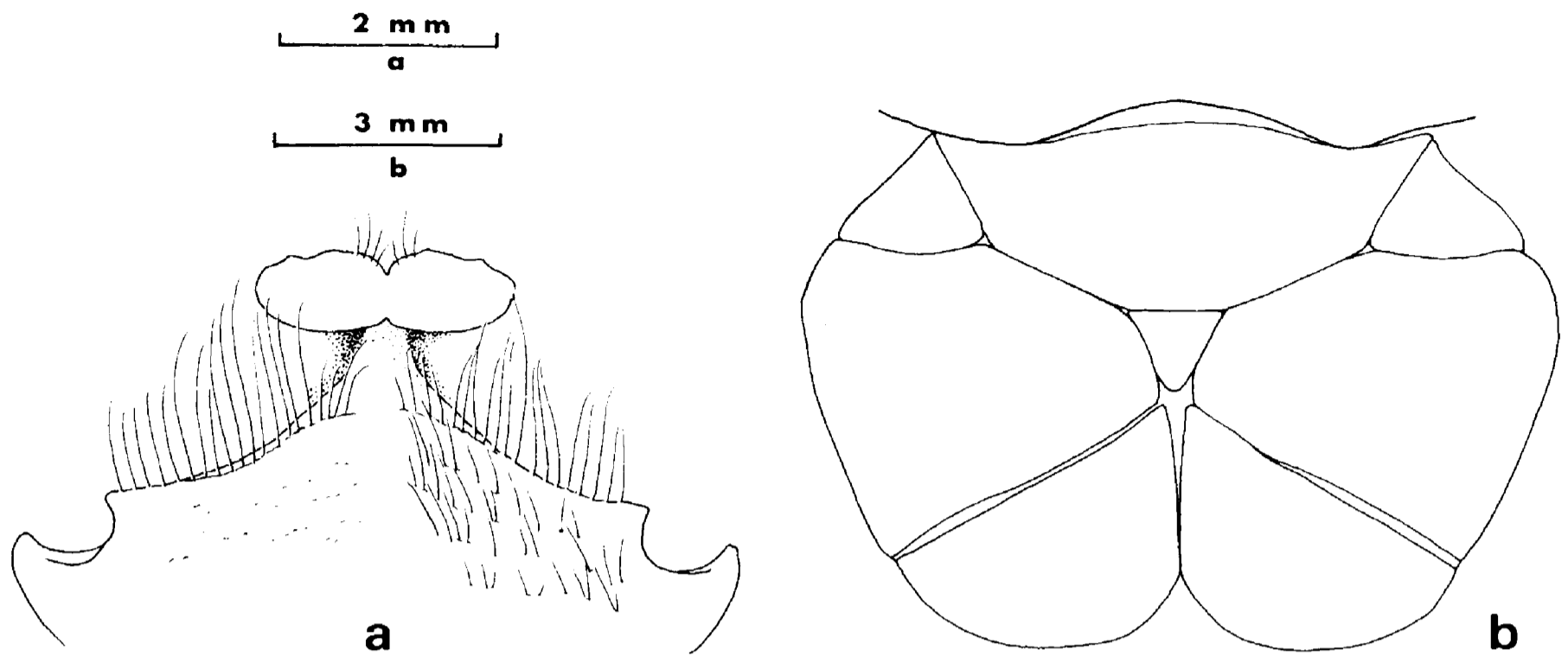


Figure 69. — *Munidopsis tenax* Alcock, female from "Albatross" Sta. 5282: a, anterior part of sternal segments; b, telson.

nished with plumose setae; merus and carpus spinose, chela spineless, fingers distally crossing. Walking legs also covered with plumose setae; propodus distally widening and subchelate with dactylus. Epipods absent from pereopods.

Habitat. — Taken in 454 m on bottom of sand.

Remarks. — The present specimen has the carapace partly broken. The lateral margin of the carapace is originally described as bearing three spines, the third one occurring directly behind the cervical groove. This last one is totally absent on both sides in the "Albatross" specimen. Another spine at the extremity of the median transverse ridge, not mentioned by Alcock (1894, 1901), is evident in the figure (Alcock and McArdle, 1901: pl. 55: fig. 2) as well as in the "Albatross" specimen.

Another of the two known species of the *Bathyankyristes* group is *Munidopsis levis* Alcock and Anderson from the Arabian Sea; it differs from *M. tenax* in having the rostrum wider and more depressed, the eyestalk except for the cornea invisible from a dorsal aspect (this is not true in the figure, as pointed out by Tirmizi (1966: 213)), the chelipeds much less spiny, the meri and carpi of the walking legs unarmed excepting distodorsal and distoventral spines, and the abdominal terga in closer contact (Alcock and Anderson, 1894: 175; Alcock, 1901: 274).

Type-locality. — Andaman Sea.

Distribution. — Known from Zanzibar, Andaman Sea, Maldives, and South China Sea off southwestern Luzon; in 454-797 m.

### 89. *Munidopsis trachynotus* (Anderson, 1896)

*Galacantha trachynotus* Anderson, 1896:100. — Alcock and Anderson, 1896: pl. 25: figs. 3, 3a. — Tirmizi, 1966:210, figs. 25, 26.

*Galacantha spinosa* var. *trachynotus*: Alcock, 1901:277.

Material. — Teluk Tomini, Sulawesi (Sta. 5613: 1 ♂, 1 ovig. ♀).

**Measurements.** – Carapace length of male, 30.6 mm; of ovigerous female, 39.8 mm; diameters of ova, 2.3-3.0 mm.

**Diagnosis.** – Carapace covered with spinules; paired epigastric, 1 mesogastric, 2 cardiac spines prominent; three or more lateral marginal spines present, anterior 2 strong and subequal in size. Rostrum strongly upturned in distal half, armed with pair of lateral spines at end of horizontal portion. Eyes movable, lacking eyespine. Abdomen spinose, second through fourth segments with prominent median spine. Dactyli of walking legs dorsoventrally flattened distally. Epipods present on first through third pereopods.

**Habitat.** – Taken in 1,380 m on mud bottom.

**Remarks.** – Apparently this species is much like *Munidopsis spinosa* especially in having the walking legs with dorsoventrally flattened dactyli, but it differs in having the armed rostrum, as stressed by Chace (1942:77).

**Type-locality.** – Arabian Sea.

**Distribution.** – Known from the Arabian Sea and Sulawesi in 1,380-1,893 m.

### 90. *Munidopsis tridentata* (Esmark, 1857)

#### Figure 70

**Restricted synonymy:**

*Munidopsis tridentata*: Chace, 1942:88. – Pequegnat and Pequegnat, 1970:158, figs. 5-14.

**Material.** – Off southern Obi (Sta. 5635: 1 ovig. ♀). – Sulu Sea off Cagayan I. (Sta. 5423: 1 ♂, 1 ♀). – Between Siquijor and Bohol (Sta. 5526: 1 ovig. ♀). – Palawan Passage (Sta. 5348: 1 ♂, 1 ♀).

**Measurements.** – Carapace lengths of males, 10.9 and 18.7 mm; of ovigerous females, 10.9 and 11.3 mm; of nonovigerous females, 8.8 and 9.0 mm.

**Diagnosis.** – Carapace without dorsal spines, with very faint, incomplete transverse lines; lateral margin convex, armed in anterior half with 4 spines, sometimes distinct, sometimes obsolete or even absent. Front margin oblique, with small antennal spine. Rostrum wide, dorsally carinate, distally trifid. Abdomen unarmed. Telson divided into 8 plates. Eyes small and movable. Small spine ventral to front margin between eyestalk and antennal peduncle. Chelipeds twice as long as carapace, merus and carpus spinose, palm spineless, fingers gaping in proximal 2/3 of length in both sexes. Epipods absent from pereopods.

**Habitat.** – Taken in 686-1,470 m on bottoms of mud mixed with globigerina or coral sand, and of coral mixed with sand, or rock and soapstone.

**Remarks.** – This species is said to be one of the most widespread species. The reader is referred to Chace (1942:88) for complete synonymy. There are two lots of identified specimens in the collection of the National Museum of Natural History, Smithsonian Institution: Two males, taken by the "Talisman", off Cape Bojador; three males taken in Hardangar Fjord, Norway. Also, I have examined numerous Norwegian specimens taken at 63°32'N, 9°51'E, and at 63°30'N, 9°49'E, all deposited in the Rijksmuseum van Natuurlijke Historie, Leiden. Direct comparison between the "Albatross" and the eastern Atlantic specimens revealed that there are some minor differences, which are presumed to be less than specific, however. The merus

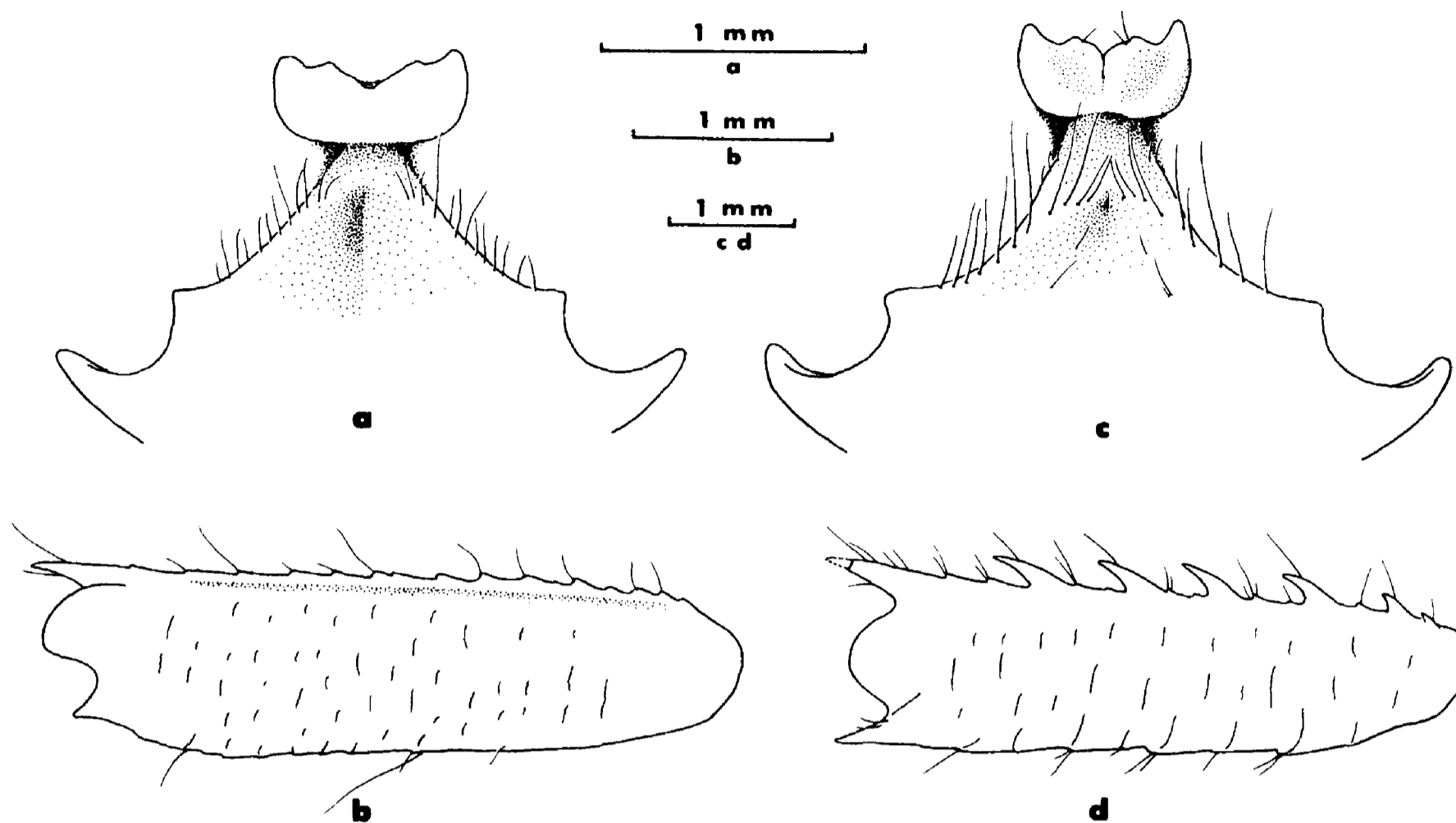


Figure 70. – *Munidopsis tridentata* (Esmark), male from "Albatross" Sta. 5348, carapace length 18.7 mm: a, anterior part of sternal segments; b, merus of detached walking leg. Male from Hardangar Fjord, Norway, carapace length 14.7 mm: c, anterior part of sternal segments. Male from off Cape Bojador, carapace length 11.2 mm: d, merus of detached walking leg.

of the walking leg is minutely spinose in the "Albatross" Philippine material, whereas it is strongly spinose in the eastern Atlantic specimens (Figure 70b, d), as has previously been mentioned by Selbie (1914:82). The same cline is also apparent in the armature of the lateral margin of the carapace; in the eastern Atlantic material four lateral spines are consistently present although their sizes are variable; in the "Albatross" specimens they vary from being obsolete to a complete absence. Further, the sternum of the third thoracic somite is more strongly produced anterolaterally in the eastern Atlantic specimens (Figure 70a, c).

Type-locality. – Lofoten, west coast of Norway.

Distribution. – Chace (1942:89) summarized the distribution as: The eastern Atlantic from off the coast of Iceland, off Norway, in the Bay of Biscay, off the Azores, and off the west coast of Africa and the Cape Verde Islands; the western Atlantic off the north coast of Cuba; and in the Indian Ocean; in 275-1,630 m. Pequegnat and Pequegnat (1970:159) added a new locality record, northwest Gulf of Mexico in 789 m. The updated depth range is between 145 and 2165 m, the shallowest recorded by Samuelsen (1972: 91) from off Bergen, and the deepest by Bouvier (1922: 48) from off Morocco.

### 91. *Munidopsis valdiviae* (Doflein and Balss, 1913)

#### Figure 71

*Galacantha valdiviae* Doflein and Balss, 1913:147, fig. 15, pl. 16: fig. 2. – Baba, 1982b:112, pl. 1: fig. 1.

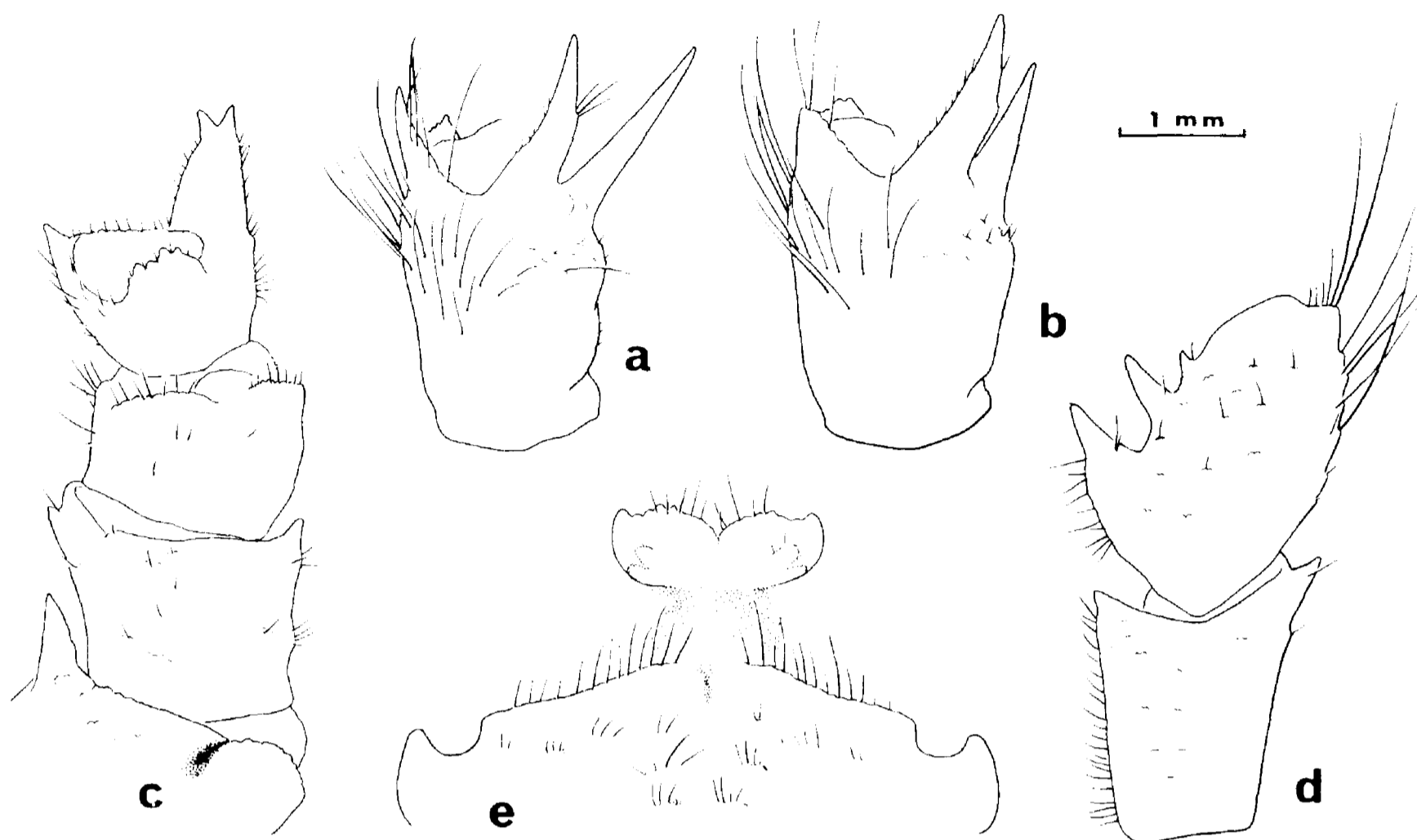


Figure 71. — *Munidopsis valdiviae* (Doflein and Balss), ovigerous female from "Albatross" Sta. 5349, carapace length 27.0 mm: a, basal segment of left antennule. Male from "Albatross" Sta. 5601: b, basal segment of left antennule; c, left antennal peduncle; d, proximal segments of endopod of left third maxilliped; e, anterior part of sternal segments.

**Material.** — Molucca Sea off northwestern Sulawesi (Sta. 5601: 1 ♂, 2 ovig. ♀). — Palawan Passage (Sta. 5349: 1 ovig. ♀).

**Measurements.** — Carapace length of male, 20.0 mm; of ovigerous females, 21.3-27.0 mm.

**Diagnosis.** — Carapace with tuberculate, setiferous scales dorsally, armed with 1 strong mesogastric and 2 smaller epigastric spines; cardiac spine present; lateral margins subparallel or slightly convex, armed with well developed anterolateral spine and another smaller one at midlength. Front margin oblique, without antennal spine. Rostrum short, trifold, distally turned dorsad. Abdomen almost smooth but strong median spines on second through fourth segments, covered with fine setae excepting sixth segment and tailfan, both dorsally tuberculate. Eyes small and movable, eyespine absent. Small spine distinct between bases of eyestalk and antennal peduncle. Epipods present on first through third pereopods.

**Habitat.** — Taken in 1,330-1,400 m on bottoms of sand mixed with coral or with globigerina and pteropods.

**Remarks.** — Among the *Galacantha* group characterized by abnormally developed spines on the carapace, *Munidopsis valdiviae* is readily distinguished from the other species by having the abdomen smooth but armed with median spines on second through fourth segments. The "Albatross" specimens are nearly as large as the type. In the ovigerous female from Station 5349 the antennular basal segment is about as described for the "Valdivia" material (Figure 71a); in the remaining three

specimens from Station 5601, however, the distomesial spine is quite absent, as illustrated (Figure 71b); size reduction of this spine was reported earlier in Japanese material (Baba, 1982b:113). The antennal peduncle is as figured (Figure 71c); the second segment bears both distal marginal processes of small size; the third segment is unarmed. The merus of the third maxilliped in the ovigerous female from Station 5349 bears an additional small spine distal to the usual two ventral marginals (Figure 71d). The sternum, not mentioned originally, is as illustrated (Figure 71e).

Type-locality. – Off southern Somali Republic, east Africa (1°48'N, 45°42'E).

Distribution. – Known previously from off the east coast of Africa and Japan; in 1,120-1,644 m.

### Genus *Paramunida*, new genus

Diagnosis. – Carapace without distinct transverse ridges, covered with spinules or granules. Rostrum basally broad, distally spiniform, extremely short, usually upturned. Supraocular spines stout, short, rather remote from rostral spine. Abdominal segments usually with 2 elevated transverse ridges, each provided with rather regularly arranged spines. Cornea dilated and depressed. Basal segment of antennule with 2 distinct or indistinct terminal spines, lateral marginal spines rudimentary. First segment of antennal peduncle with greatly produced distomesial spine. Chelipeds and walking legs squamate; dactyli of walking legs slender and curved, dorsoventrally flattened distally. Male gonopods only on second abdominal segment.

Type-species. – *Paramunida setigera*, new species.

Remarks. – The characters previously noted for the *Munida scabra* group (Baba, 1981a:291) are also shared by the "Albatross" Philippine material of two new species, as also is the complete absence of the male gonopod from the first abdominal segment. On the basis of these a new genus, *Paramunida*, is proposed to accommodate seven species.

*Paramunida* is much like *Bathymunida* Balss, 1914, especially in having an undeveloped rostrum and reduced transverse ridges of the carapace; the male gonopod is also absent from the first abdominal segment in both genera, although information as to gonopods is not available for two of the six previously known species of *Bathymunida*. The new genus, however, is distinct in lacking abnormally developed gastric and cardiac spines and in having a well developed anterior prolongation of the first segment of the antennal peduncle.

This genus is confined to the Indo-West Pacific, and bathymetrically is recorded mostly from transitional depths.

### Key to Species of *Paramunida*

1. Carapace tricarinate longitudinally with rows of distinct spines .... *P. tricarinata* (Alcock, 1894:324; Alcock and Anderson, 1895: pl. 12, fig. 1; Alcock, 1901:246; Tirmizi, 1966:202, fig. 21)
- Carapace not tricarinate longitudinally ..... 2
2. Carapace granulate and sparsely spinulose ..... 92. *P. granulata*
- Carapace densely spinulose dorsally ..... 3

3. Rostral spine smaller than supraocular spine ..... 4  
 – Rostral spine larger than supraocular spine ..... 5
4. Base of rostrum strongly excavated; basal segment of antennule gradually narrowed distally, with 2 more or less reduced terminal spines; no bundle of setae at base of carpus of cheliped ..... *P. hawaiiensis* (Baba, 1981a: 288, figs. 1, 2)  
 – Base of rostrum moderately excavated; antennular basal segment narrowed in distal 1/3 of length, with 2 distinct terminal spines; carpus of cheliped with bundle of setae at base ..... 95. *P. setigera*
5. Propodi of walking legs particularly slender, about 20 times as long as wide ....  
 ..... 93. *P. longior*  
 – Propodi of walking legs about 8.5 to 11 times as long as wide ..... 6
6. Carapace with 3 longitudinal rows of spines in posterior half; propodi and dactyli of walking legs relatively thick; distomesial spine of second segment of antennal peduncle not reaching midlength of anterior prolongation of first segment  
 ..... 94. *P. scabra*  
 – Indistinct rows of spines in posterior half of carapace; propodi and dactyli of walking legs relatively slender; distomesial spine of second segment of antennal peduncle overreaching midlength of anterior prolongation of first segment  
 ..... *P. proxima* (Henderson, 1885:410; 1888:135, pl. 13: fig. 2; Tirmizi, 1975:305, figs. 1-8; Baba, 1982b:110, fig. 4; Baba, in Baba, Hayashi and Toriyama, 1986:173, 291, fig. 124)

**92. *Paramunida granulata* (Henderson, 1885)**

Figure 72

*Munida granulata* Henderson, 1885:409; 1888:133, pl. 14:figs. 3, 3a-b.

Material. – Molucca Sea off west coast of Halmahera (Sta. 5621: 1 ♂).

Measurements. – Carapace length of male, 7.4 mm.

Diagnosis. – Carapace lacking transverse ridges, granulose dorsally, with scattered spinules; 2 epigastric, 1 metagastric and 1 cardiac spines distinct. Rostrum much stouter, upturned distally, reaching end of eyestalk. Supraocular spine smaller than, and, more or less close to, rostral spine. Distomesial spine of second segment of antennal peduncle reaching end of anterior prolongation of first segment.

Habitat. – Taken in 545 m on sand bottom.

Remarks. – The chelipeds are missing and the walking legs are detached from the body in this specimen. Examination of two male syntypes borrowed from the British Museum (Natural History) showed that the propodus of the first walking leg is shorter than those of the second and third, and that the dactylus of the same is dorsoventrally flattened distally, as is known in the case in *Munidopsis trachynotus* (see Tirmizi, 1966:211).

From other known species *M. granulata* is easily distinguished by having the carapace granulose and less spinose and the second segmental spine of the antennal peduncle almost reaching the end of the anterior prolongation of the first segment.

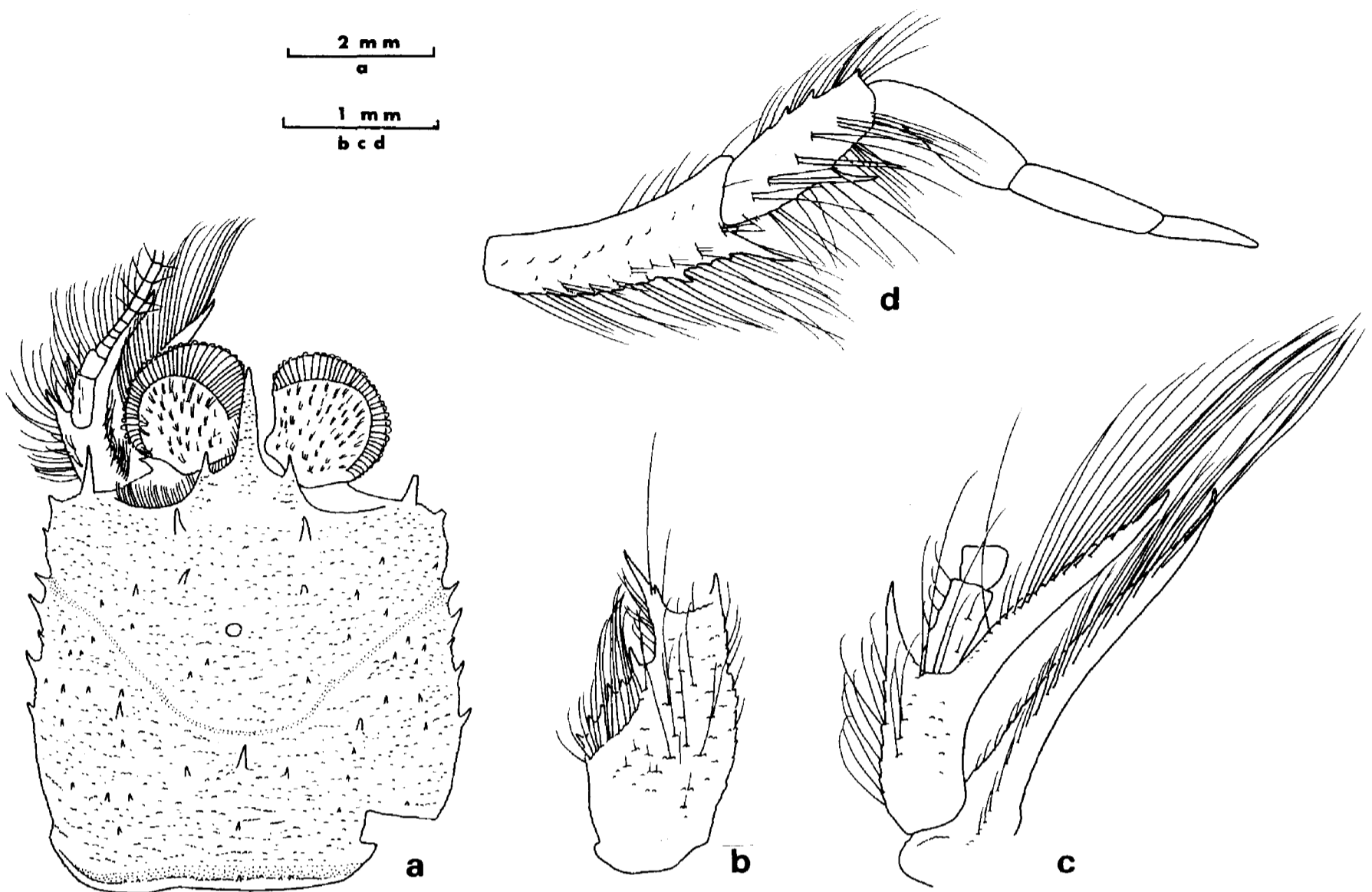


Figure 72. – *Paramunida granulata* (Henderson), male from "Albatross" Sta. 5621: a, carapace; b, basal segment of right antennule; c, right antennal peduncle; d, endopod of right third maxilliped.

Type-locality. – Off Matuku, Fiji Islands.

Distribution. – Previously known only from the type-locality, in 576 m.

### 93. *Paramunida longior*, new species

#### Figure 73

Material. – Molucca Sea off west coast of Halmahera (Sta. 5626: 2 ovig. ♀). – South China Sea off northwestern Luzon (Sta. 5441: 1 ♂, holotype, USNM 150403).

Diagnosis. – Carapace dorsally covered with spinules and fine setae; paired epigastric spines prominent; metagastric region indistinctly defined. Rostrum relatively stout, nearly 3 times as long as supraocular spine, distally spiniform and upturned. Basal segment of antennule elongate, distally narrowing with 2 terminal spines, lateral terminal larger. Distomesial spine of second segment of antennal peduncle terminating opposite midlength of anterior prolongation of first segment, distinctly overreaching ultimate segment; ultimate and penultimate segment slender, nearly half as wide as second segment. Chelipeds slender, lacking tuft of setae at base of carpus. Walking legs also slender, propodus about 20 times as long as wide in first leg.

Description of holotype. – Carapace nearly as long as wide. Front margin (Figure

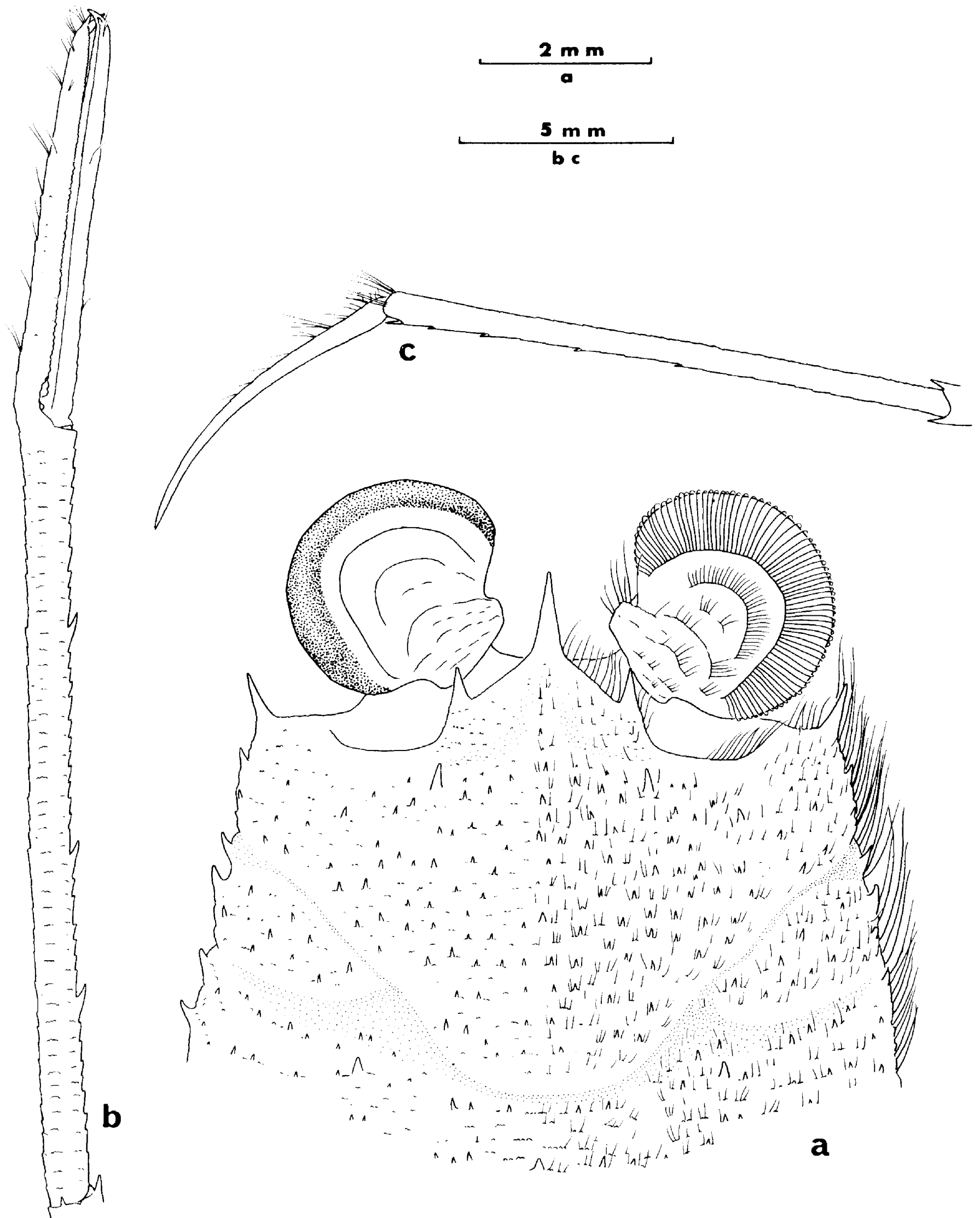


Figure 73. — *Paramunida longior*, new species, male holotype from "Albatross" Sta. 5441: a, anterior half of carapace; b, left chela; c, distal segments of left first walking leg.



73a) concave behind eye, setiferous on lateral portion. Dorsal surface covered with spinules, lacking scaly striae, deeply excavated between anterior epigastric region and base of rostrum. Two epigastric spines distinct behind supraoculars. Metagastric region indistinct. Cervical groove well developed. Postcervical spine more or less pronounced on each side. Cardiac region indistinctly circumscribed. Transverse ridge along posterior margin of carapace elevated, with several tubercular processes. Branchial region divided by deep groove into anterior and posterior subregions. Lateral margin convex, with coarse, iridescent setae in anterior half; well developed anterolateral and another smaller spines in front of cervical groove and 4 moderate-sized ones behind it; first (foremost) of latter smaller than second, located at end of cervical groove and slightly ventral in position. Posterior margin moderately concave.

Rostrum (Figure 73a) wide at base, spiniform and upturned in distal half, marginally setiferous, dorsally convex at base, and stouter than supraoculars. Supraocular spine falling short of midlength of rostrum. Outer orbital angle rounded.

Eyes (Figure 73a) dilated and depressed, eyestalk with setiferous striae; eyelashes long, covering entire dorsal surface of cornea.

Abdomen similar to that of *P. scabra*.

Basal segment of antennule elongate, thickly covered with spinules and tubercles, dilated in proximal 2/3 of length, narrowing in distal 1/3, armed with 2 terminal spines, lateral terminal larger. Distomesial spine of second segment of antennal peduncle ending opposite midlength of anterior prolongation of first segment, overreaching ultimate segment; ultimate and penultimate segments very slender, nearly half as wide as second segment.

Third maxilliped relatively slender and setose. Ischium with well developed distoventral process and row of 4 spines on lateral face. Merus 3/4 as long as ischium, ventral margin with median spine; dorsal margin lacking spines and eminences.

Cheliped (Figure 73b) subcylindrical, granulate, 7.4 times as long as carapace including rostrum. Merus longer than carapace, with 3 rows of spines, dorsal spines smaller; mesial margin with pronounced plumose setae proximally. Carpus shorter than palm, longer than movable finger, devoid of tuft of setae at base; 4 mesial marginal spines distinct. Palm about 20 times as long as wide, nearly twice as long as movable finger, slightly depressed, weakly carinate laterally, dorsally convex, and armed with 3 mesial marginal spines equidistantly. Lateral margin of chela convex at base of fixed finger. Fingers distally crossing, with accompanying small spine near each apex; opposable margins almost straight, distinctly excavated at base of fixed finger, moderately produced at gaping portion of movable finger; movable finger carinate dorsally and ventrally.

Walking legs slender, all legs furnished with plumose setae along dorsal margins of meri and carpi. Merus of first walking leg with 15 dorsal marginal and 3 ventral marginal spines. Both margins of carpus produced distally. Propodus (Figure 73c) about 20 times as long as wide, 1.7 times as long as dactylus, ventral margin with 5 spinelets in distal half. Dactylus very slender, curving ventrad, ventral margin smooth, dorsal margin setose. Second walking leg similar to first, but propodus longer; ventral marginal spines of merus slightly dorsolateral in position. Third walking leg similar to second; carpus with 4 dorsal marginal spines including

larger terminal.

Epipods absent from pereopods.

Measurements of holotype. – Length of carapace, 10.1 mm; width of carapace, 8.0 mm; length of cheliped (right), 74.9 mm; of carpus, 15.5 mm; of palm, 19.5 mm; of movable finger, 10.3 mm.

Measurements of paratypes. – Carapace lengths of ovigerous females, 10.0 and 10.2 mm; diameter of ovum, 0.5 mm.

Variation. – Two ovigerous female paratypes have five branchial marginal spines instead of four as in the male holotype; and their chelipeds are relatively shorter, measuring 6.2 times as long as the carapace. In the smaller ovigerous paratype, the rostral margin is distinctly serrate in the proximal half.

Habitat. – Taken in 340-485 m on bottom of mud and sand.

Remarks. – Differences between this species and *P. setigera* newly described in this paper are subtle, but I am inclined to believe that the following peculiarities are constant in this species: The carapace is not scaly; the metagastric region is indistinctly circumscribed; the rostrum is stouter and three times as long as the supraoculars; the carpus of the cheliped lacks a tuft of setae on the proximal portion; and the propodi of the walking legs are much slenderer.

Type-locality. – Northwest of S. Fernando Point Light, western Luzon (16°38'N, 119°57'18"E).

Distribution. – South China Sea off western Luzon and the Molucca Sea, in 340-485 m.

#### 94. *Paramunida scabra* (Henderson, 1885)

*Munida scabra* Henderson, 1885:409; 1888:134, pl. 15: figs. 4, 4a-b. – Yokoya, 1933:63. – Yanagita, 1943:30, figs. 9, 10. – Miyake and Baba, 1967c:242, fig. 13. – Miyake, 1982:149, pl. 50: fig. 2. – Baba, in Baba, Hayashi and Toriyama, 1986:175, 292, fig. 125.

Material. – Off northeastern Borneo (Sta. 5582: 1 ♂; Sta. 5593: 1 ♀). – Balabac Strait off northern Borneo (Sta. 5354: 1 ♂, 1 ovig. ♀, 1 sp. (sex indet.)). – Sulu Archipelago (Sta. 5135: 1 ovig. ♀; Sta. 5545: 1 ovig. ♀; Sta. 5546: 1 ♂; Sta. 5547: 2 ♀). – Off northern Mindanao (Sta. 5518: 2 ovig. ♀). – Off Pacific coast of southern Luzon (Sta. 5475: 12 ♂, 12 ovig. ♀, 3 ♀; Sta. 5476: 1 ovig. ♀). – South China Sea off southwestern Luzon (Sta. 5116: 1 ♀; Sta. 5289: 1 ♀; Sta. 5294: 1 ♂). – South China Sea off Hong Kong (Sta. 5312: 3 ♂, 4 ovig. ♀, 1 ♀; Sta. 5314: 1 ovig. ♀). – South China Sea off southwestern Formosa (Sta. 5317: 1 ♂, 1 ovig. ♀, 3 ♀).

Measurements. – Carapace lengths of males, 9.5-18.2 mm; of ovigerous females, 11.0-18.2 mm; of nonovigerous females, 10.3-14.3 mm.

Diagnosis. – Carapace covered with spinules; paired epigastric and 1 or 2 median metagastric spines prominent; 3 longitudinal rows of much stouter spines on mid-cardiac region and both branchiocardiac boundaries. Rostrum relatively acute and stout. Supraocular spines nearly half as long as rostrum. Distomesial spine of second segment of antennal peduncle overreaching end of peduncle, barely reaching midlength of first segmental process; third segment slightly longer than wide, about 0.8 as wide as second segment. Chelipeds and walking legs stout, squamate, furnished with fine setae on mesial or dorsal margins. Propodi of walking legs 8.5-10.0

times as long as wide; dactyli relatively thick.

Habitat. – Taken in 70-1,630 m mostly on sand bottoms, occasionally mixed with shells, pebbles and mud, or on mud bottoms.

Type-locality. – Off the Kei Islands (5°49'15"S, 132°14'15"E).

Distribution. – Previously known from the Kei Islands, off northern Borneo, Philippines, East China Sea and Japan, in 70-1,630 m.

### 95. *Paramunida setigera*, new species

Figures 74, 75

Material. – Davao Gulf off southeastern Mindanao (Sta. 5255: 3 ♂, 1 ovig. ♀, 2 ♀). – Illana Bay off southwestern Mindanao (Sta. 5256: 2 ♂). – Balabac Strait off northern Borneo (Sta. 5353: 1 ovig. ♀). – Between Cebu and Leyte (Sta. 5408: 1 ♂). – East coast of Mindoro (Sta. 5121: 5 ♂, 6 ♀). – South China Sea off southwestern Luzon (Sta. 5110: 1 ♀, 1 sp. (sex indet.)); Sta. 5117: 16 ♂, 26 ovig. ♀, 11 ♀ [1 ovigerous female is holotype, USNM 150405]; Sta. 5272: 6 ♂, 3 ♀; Sta. 5273: 2 sp. (sex indet.); Sta. 5279: 1 ovig. ♀). – Vicinity of Marinduque off southwestern Luzon (Sta. 5372: 4 ♂, 2 ovig. ♀; Sta. 5375: 1 ♂).

Diagnosis. – Carapace covered with spinules, without distinct transverse ridges; pair of epigastric spines prominent; metagastric region distinctly circumscribed. Rostrum extremely short, basally wide and flattish, distally spiniform. Supraocular spines somewhat stouter than rostral spine. Antennular basal segment elongate, dilated in proximal 2/3 of length, narrowing in distal 1/3, thickly setose, armed with 2 terminal spines, lateral terminal larger. Distomesial spine of second segment of antennal peduncle ending opposite midlength of anterior prolongation of first segment, distinctly overreaching ultimate segment of peduncle; distal 2 segments half as wide as second segment. Chelipeds relatively slender, provided with pronounced tuft of setae at base of carpus. Walking legs also very slender.

Description of holotype. – Carapace (Figure 74) slightly wider than long when measured between front and posterior margins. Front margin concave behind eye. Dorsal surface covered with spinules and short fine setae, both arising from scale-like striae. Cervical groove deeply excavated. Gastric region (Figure 75a) indistinctly separated from hepatic area, metagastric region well defined; 2 distinct epigastric spines behind and slightly lateral to supraocular spines. Anterior branchial region separated by deep groove from posterior branchial region, provided with simple, nonsquamiform striae. Cardiac region well defined, feebly convex; round scalelike ridge at anterior end of branchiocardiac boundary distinctly elevated and provided with few spinules. Lateral margin convex, provided with iridescent setae in anterior half, anterolateral spine well developed, followed by 5 distinct spines. Two uninterrupted ridges along deeply concave posterior margin.

Rostrum (Figure 75a) short, wide at base, almost triangular, ending in sharp spine, upturned distally; lateral margin finely serrate, fringed with fine setae; dorsal surface flattish with few tiny tubercular processes. Supraocular spines distantly separated from, and, slightly stouter than, rostral spine. Outer orbital angle rounded. Eyes distally swollen and depressed, with setiferous striae on eyestalk; eye-

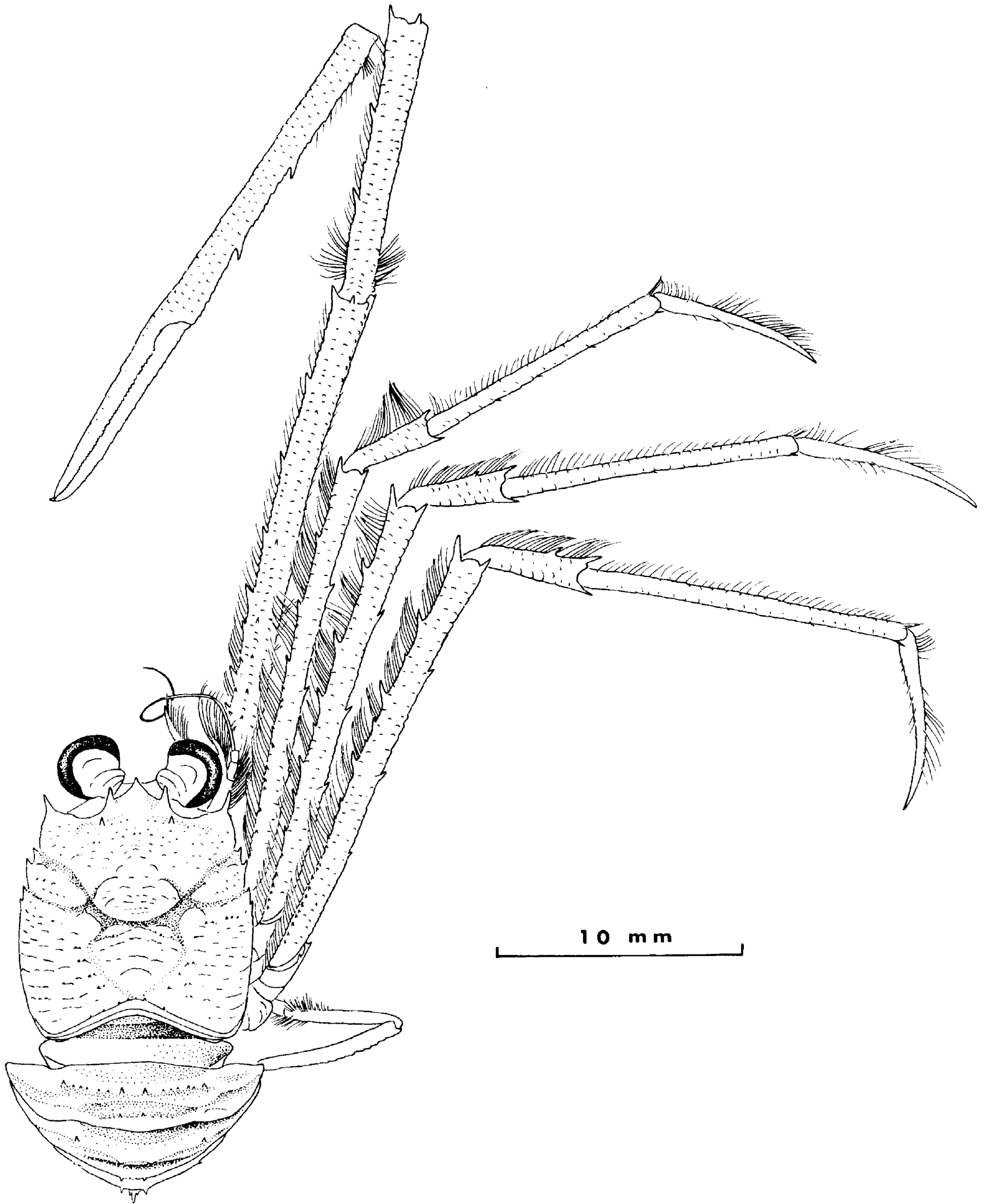


Figure 74. — *Paramunida setigera*, new species, ovigerous female holotype from "Albatross" Sta. 5117, dorsal view.

lashes long, covering whole cornea in dorsal view.

Abdomen similar to that of *P. scabra*. Pleura tapering; second segment with 4 distinct spines and 10 tubercular small processes on anterior ridge and 2 median spines on posterior ridge; third segment similar to second in armature, lacking tubercular processes on anterior ridge; fourth segment also similar to preceding, but posterior ridge with distinct single median spine.

Basal segment of antennule (Figure 75b) elongate, slender in distal 1/3 of length, dilated in proximal 1/3, furnished with long coarse setae, ventrally and marginally tuberculate; 2 terminal spines distinct, lateral terminal larger. Anterior prolongation of first segment of antennal peduncle (Figure 75c) with long coarse setae on lateral margin; second segment likewise setose laterally, slender, barely 3 times as long as wide; distomesial spine overreaching end of peduncle, terminating opposite midlength of anterior prolongation of first segment; distolateral process moderate-sized; third segment slender, fully twice as long as wide, nearly half as wide as second segment; flagellum short, falling short of end of merus of cheliped.

Third maxilliped (Figure 75d) setose, setae plumose on entire dorsal margin of merus and on distal half margin of ischium. Ischium longer than merus, rather thin, distoventral margin produced, lateral surface with row of about 7 spines; mesial ridge with about 23 denticles. Ventral margin of merus with small median spine, dorsal margin with 4 elevations and small terminal spine. Distal 3 segments slender, carpus unarmed.

Anterior part of sternal segments as illustrated (Figure 75e).

Cheliped (Figure 74) slender, subcylindrical, granulate, 6 times as long as carapace including rostrum. Merus distinctly longer than carapace, armed with 3 rows of spines: 1 dorsal, 1 mesial marginal, and 1 ventral. Carpus longer than movable finger, bearing 3 mesial marginal, 1 distodorsal and 1 distoventral spines; tufts of iridescent setae on mesial and lateral proximal margins. Palm longer than carpus, 1.5 times as long as movable finger, 10 times as long as wide, mesial margin with 2 prominent spines. Fingers not gaping, crossing distally, almost naked, opposable margins straight.

Walking legs (Figure 74) also slender, distinctly overreaching end of carpus of cheliped when extended forward, weakly granulate; dorsal margin furnished with both plumose and iridescent setae. Merus of first walking leg with more than 10 dorsal marginal and 4 ventral marginal spines. Carpus produced on both distal margins. Propodus distinctly shorter than those of second and third legs, 1.37 times as long as dactylus, dorsal margin moderately setose; ventral margin with several spinelets, most of them very tiny, only visible under high magnification, but distal one distinct. Dactylus slender, gently curving ventrad, marginally unarmed, dorsal margin with coarse setae. Second walking leg similar to first; carpus with additional dorsal marginal spine; propodus much longer. Third walking leg nearly as long as second leg; armature of merus less prominent in proximal half; propodus longer than that of second leg.

Epipods absent from all pereopods.

Measurements of holotype. — Length of carapace including rostrum, 10.5 mm; width of carapace, 9.5 mm; length of cheliped (right), 63.9 mm; of carpus, 12.7 mm; of palm, 15.0 mm; of movable finger, 9.5 mm; diameter of ovum, 0.5 mm.

Measurements of paratypes. — Carapace lengths of males, 6.0-14.5 mm; of oviger-

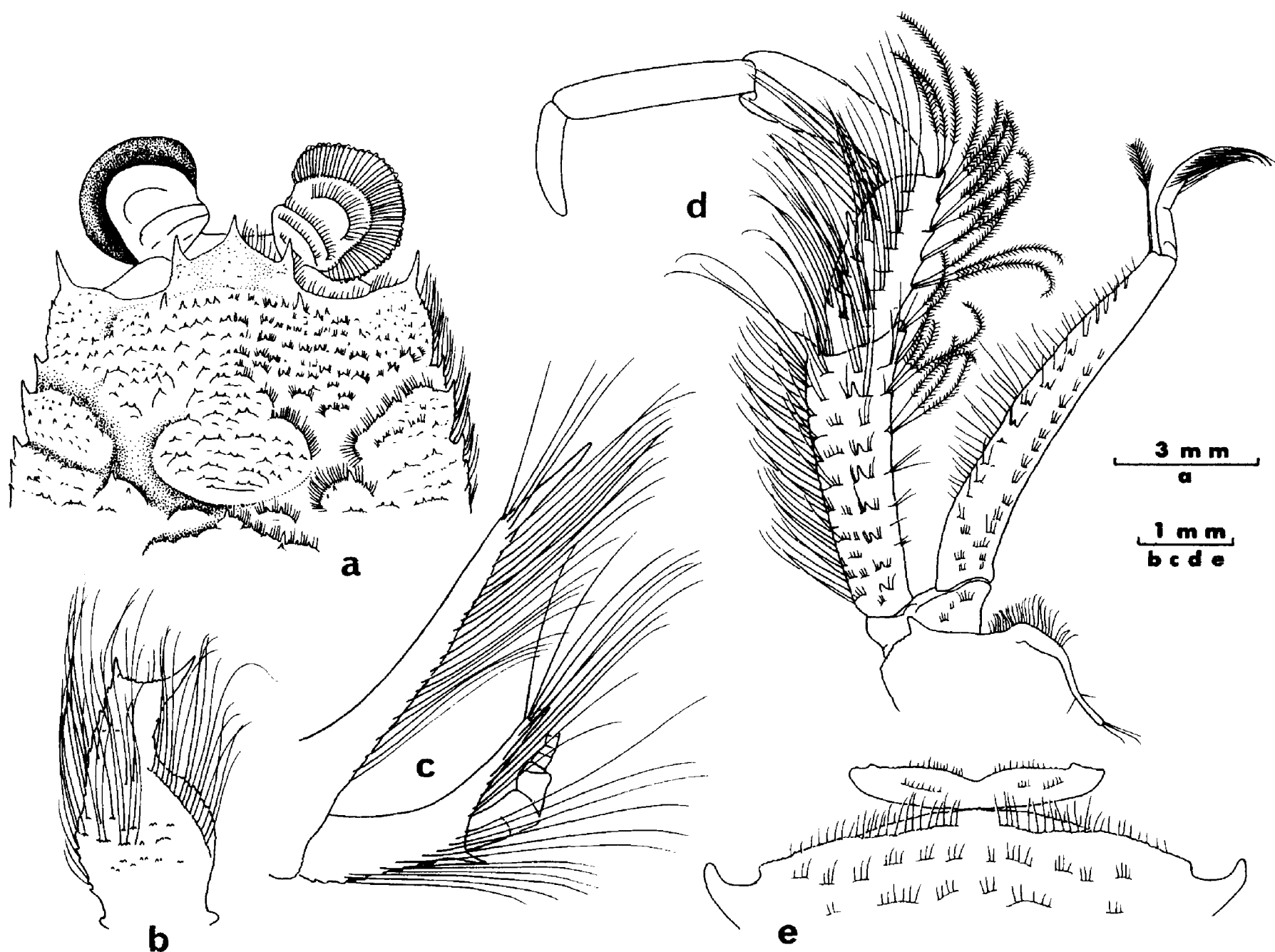


Figure 75. — *Paramunida setigera*, new species, ovigerous female holotype from "Albatross" Sta. 5117: a, anterior half of carapace; b, basal segment of left antennule; c, left antennal peduncle; d, left third maxilliped, setae omitted from distal 3 segments; e, anterior part of sternal segments.

ous females, 9.5-12.8 mm; of nonovigerous females, 8.0-12.8 mm.

**Variation.** — Tufts of iridescent setae on the proximal portion of the carpus of cheliped, characteristic of this new species, are reduced to fewer setae in two of the 85 specimens examined. The fingers of the cheliped are usually not gaping in the male as in the ovigerous female holotype; in one male (c.l., 12.0 mm) from Station 5256, however, they are strongly gaping at the proximal 2/7 of length. The palm is, without exception, 1.5 times as long as the movable finger in females, nearly 2.0 times as long in males. The merus of the third maxilliped is mostly spineless on the dorsal margin, but in some specimens including the holotype it bears one or two small, distinct spines.

Two females from Station 5255 bear rhizocephalan parasites.

**Habitat.** — Taken in 183-289 m usually on bottoms of mud, occasionally mixed with shells and coral sand.

**Remarks.** — *Paramunida setigera* is closely related to *P. longior*. Relationships between the two species are given under the "Remarks" of *P. longior*.

**Type-locality.** — Northwest of Sombrero Island off southwestern Luzon (13°52' 22"N, 120°46'22"E).

Distribution. – Recorded from off southeastern and western Mindanao, South China Sea off southwestern Luzon, and east coast of Mindoro; in 183-289 m.

### Genus *Sadayoshia* Baba, 1969

#### 96. *Sadayoshia miyakei* Baba, 1969

*Sadayoshia miyakei* Baba, 1969a:19, figs 5, 6.

Material. – Sibuyan Sea (Sta. 5179: 1 ovig. ♀). – Between Burias and Luzon (Sta. 5218: 1 ♀) – Off northern Luzon (Sta. 5325: 2 ♂, 1 ♀).

Measurements. – Carapace length of male, 5.7 mm (Carapace detached from body and missing in male from Station 5325); of ovigerous female, 5.2 mm; of nonovigerous female, 5.3 mm.

Diagnosis. – Carapace very *Galathea*-like in striation, dorsally armed with 8-10 spinules on first stria, 1 near extremity of second stria, and another on branchial region behind anterior bifurcation of cervical groove. Rostrum stout and spiniform. Two supraocular spines distinct, outer one smaller. Abdominal segments unarmed. Eyes developed but not dilated distally. Antennular basal segment with 5 terminal spines. Merus of third maxilliped with 1-3 spines on ventral margin, proximal larger. Chelipeds short, massive but depressed distally, and acutely spinose. Walking legs also stout, propodi with few spinules on dorsal margin and dorsolateral face, dactyli finely serrate with about 6 short, coarse setae on ventral margin. Epiopods absent from pereopods.

Habitat. – Taken in 37-410 m on bottoms of sand or mud.

Remarks. – Although the merus of the third maxilliped in the type series is trispinose on the ventral margin (Baba, 1969a:21), the present material displays wide variation in this regard; among the total of 10 appendages of five specimens examined only two are as in the types; the median of the three ventral marginals is missing in five appendages; the distal spine is also wanting in one appendage; both the median and the distal spines are barely discernible in another appendage; and, the distal is lacking but the median remains as a rudiment in the remaining. The armature of this segment, in contradiction to its invariability in most of the Galatheidae, is thus widely variable in *S. miyakei* as it is in *Munida japonica* Stimpson (Baba, 1967c:242, fig. 12).

Type-locality. – Off Mage-jima, southern Kyushu, Japan.

Distribution. – Previously known from the type-series from the southern Kyushu, Japan, in 35-40 m.

## Summary

The collection of chirostyliid and galatheid crustaceans (Decapoda: Anomura) made by the "Albatross" Philippines Expedition, 1907-1910 contains 96 species in 15 genera: 26 of Chirostyliidae and 70 of Galatheididae. Three new genera of the Galatheididae are proposed: *Allomunida* and *Fennerogalathea* are monotypic, the former is represented in the "Albatross" collection by 11 specimens from the Sulu Archipelago and Tanon Strait between Negros and Cebu, the latter by three specimens from off southwestern Luzon; *Paramunida* are named for the *Munida scabra* group of Baba (1981a) which now accomodates seven species, all confined to the Indo-West Pacific. Thirty-one new species (Chirostyliidae: *Eumunida propior*, *Uroptychus acostalis*, *U. albatrossae*, *U. bispinatus*, *U. brevisquamatus*, *U. comptus*, *U. convexus*, *U. levicrustus*, and *U. vandamae*; Galatheididae: *Allomunida magnicheles*, *Fennerogalathea chacei*, *Galathea albatrossae*, *G. bidens*, *Munida armata*, *M. compressa*, *M. eminens*, *M. exigua*, *M. fortiantennata*, *M. levi-antennata*, *M. longispinata*, *M. major*, *M. prominula*, *M. similis*, *M. variabilis*, *Munidopsis bispinocolata*, *M. carinimarginata*, *M. crenatirostris*, *M. plumati-setigera*, *M. similior*, *Paramunida longior*, and *P. setigera*) are described. A new name, *Uroptychus occultispinatus*, is proposed for *U. granulatus japonicus* Balss, 1913 because of the precedence to be given to *U. japonicus* Ortmann, 1892. Thirty-five species of chirostyliids and galatheids that are previously known elsewhere outside the Indo-Malayan faunal region are newly recorded from the Philippines and vicinity. Keys to all known genera of the Chirostyliidae and Galatheididae are presented. Keys to species are provided for the Indo-West Pacific *Munida* and *Paramunida*, the Philippine *Uroptychus*, and the "Albatross" presentation of *Eumunida*, *Gastroptychus*, *Galathea* and *Munidopsis*. For each species, expanded systematic accounts including references, diagnosis, measurements, habitat preference shown by the "Albatross" specimens, type-locality and distribution record are given. In the account of new species the description of holotype, and of paratypes if necessary, is provided. The distribution of the Philippine species of chirostyliids and galatheids is briefly discussed.



## Appendix: Station Data

Stations of the "Albatross" Philippine Expedition 1907-10 at which chirostyliid and galatheid crustaceans were collected and the species taken at each station.

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5099. South China Sea off southwestern Luzon; 4.8 miles SW of Corregidor Lt. (14°18'55"N, 120°31'20"E); 55 m; gray mud, sand, shells; 2 Jan 1908: *Galathea albatrossae*
5104. South China Sea off southwestern Luzon; 1.3 miles NE of Sueste Pt. Lt. (14°45'48"N, 120°12'20"E); 60 m; bottom unknown; 8 Jan 1908: *Galathea albatrossae*
5109. South China Sea off southwestern Luzon; 25.8 miles SW of Corregidor Lt. (14°03'45"N, 120°16'30"E); 22-29 m; coral; 15 Jan 1908: *Galathea spinosorostris*
5110. South China Sea off southwestern Luzon; 25 miles SW of Corregidor Lt. (13°59'20"N, 120°25'45"E); 247 m; dark gray mud; 15 Jan 1908: *Munida squamosa*, *Paramunida setigera*
5111. South China Sea off southwestern Luzon; 4.5 miles NW of Sombrero I. (13°45'15"N, 120°40'30"E); 432 m; green mud; 16 Jan 1908: *Galathea pubescens*, *Munida incerta*, *Munidopsis crenatirostris*, *Munidopsis cylindrophthalma*
5113. South China Sea off southwestern Luzon; 9.5 miles NE of Sombrero I. (13°51'30"N, 120°50'30"E); 291 m; dark green mud; 17 Jan 1908: *Eumunida funambulus*, *Munidopsis similior*
5114. South China Sea off southwestern Luzon; 7.2 miles SW of Sombrero I. (13°36'11"N, 120°45'26"E); 622 m; fine sand; 20 Jan 1908: *Munidopsis andamanica*
5116. South China Sea off southwestern Luzon; 2.5 miles SW of Sombrero I. (13°41'N, 120°47'05"E); 366 m; bottom unknown; 20 Jan 1908: *Uroptychus mortenseni*, *Galathea kuboi*, *Munida compressa*, *Munida heteracantha*, *Munida incerta*, *Munida kuboi*, *Munida pilorhyncha*, *Munidopsis cylindrophthalma*, *Paramunida scabra*
5117. South China Sea off southwestern Luzon; 10.8 miles NW of Sombrero I. (13°52'22"N, 120°46'22"E); 216 m; dark green mud; 21 Jan 1908: *Galathea balssi*, *Galathea pubescens*, *Munida kuboi*, *Munidopsis latimana*, *Paramunida setigera*
5118. South China Sea off southwestern Luzon; 10 miles NW of Sombrero I. (13°48'45"N, 120°41'51"E); 291 m; dark green mud; 21 Jan 1908: *Munida squamosa*, *Munidopsis cylindrophthalma*
5121. East coast of Mindoro; 9 miles SE of Malabrigo Lt. (13°27'20"N, 121°17'45"E); 198 m; dark green mud; 2 Feb 1908: *Galathea multilineata*, *Galathea pubescens*, *Munida squamosa*, *Munidopsis latimana*, *Paramunida setigera*
5122. East coast of Mindoro; 20.6 miles SE of Malabrigo Lt. (13°21'30"N, 120°30'33"E); 403 m; green mud; 2 Feb 1908: *Galathea pubescens*, *Munida andamanica*, *Munida longispinata*, *Munida squamosa*
5123. East coast of Mindoro; 32.5 miles SE of Malabrigo Lt. (13°12'45"N, 121°38'45"E); 518 m; green mud; 2 Feb 1908: *Uroptychus crassipes*, *Munida andamanica*, *Munida longispinata*, *Munida rufiantennulata*, *Munida variabilis*, *Munidopsis cylindrophthalma*, *Munidopsis regia*
5124. East coast of Mindoro; 20.75 miles NW of Pt. Origen (12°52'N, 121°48'30"E); 514 m; soft green mud; 2 Feb 1908: *Munida andamanica*, *Munida longispinata*, *Munida variabilis*, *Munidopsis andamanica*, *Munidopsis cylindrophthalma*
5126. Sulu Sea off southwestern Panay; 11.75 miles NW of Nogas I. (10°34'45"N, 121°47'30"E); 1360 m; soft green mud; 3 Feb 1908: *Munida andamanica*
5131. Sulu Sea off western Mindanao; 0.40 mile SW of island off Panabutan Pt.; 49 m; green mud, coral sand; 6 Feb 1908: *Galathea albatrossae*
5132. Sulu Sea off western Mindanao; 0.30 mile SE of island off Panabutan Pt.; 48 m; green mud, sand; 6 Feb 1908: *Galathea albatrossae*
5135. Sulu Archipelago; 11.9 miles NE of Jolo Lt. (6°11'50"N, 121°08'20"E), 295 m; fine coral sand; 7 Feb 1908: *Paramunida scabra*

- No station number. Sulu Archipelago; south side of Marongas I., vicinity of Jolo; shore, coral head; 10 Feb 1908: *Allogalatea elegans*, *Galathea amboinensis*, *Galathea subsquamata*, *Lauriea gardineri*
5137. Sulu Archipelago; 1.3 miles NW of Jolo Lt. (6°04'25"N, 120°58'30"E); 37 m; sand, shells; 14 Feb 1908: *Allogalatea elegans*, *Galathea subsquamata*
5138. Sulu Archipelago; 2.50 miles NW of Jolo Lt. (6°06'N, 120°58'50"E); 35 m; sand, coral; 14 Feb 1908: *Allogalatea elegans*
5139. Sulu Archipelago; 3.60 miles NE of Jolo Lt. (6°06'N, 121°02'30"E); 220 m; coral sand; 14 Feb 1908: *Allogalatea elegans*
5140. Sulu Archipelago; 6.10 miles NE of Jolo Lt. (6°08'45"N, 121°03'E); 139 m; fine coral sand; 14 Feb 1908: *Bathymunida longipes*, *Galathea balssi*
5141. Sulu Archipelago; 5.50 miles NW of Jolo Lt. (6°09'N, 120°58'E); 53 m; coral sand; 15 Feb 1908: *Galathea consobrina*, *Galathea subsquamata*
5144. Sulu Archipelago; 3.40 miles NE of Jolo Lt. (6°05'50"N, 121°02'15"E); 35 m; coral sand; 15 Feb 1908: *Chirostylus dolichopus*, *Galathea subsquamata*
5145. Sulu Archipelago; 0.85 mile NW of Jolo Lt. (6°04'30"N, 120°59'30"E); 42 m; coral sand, shells; 15 Feb 1908: *Chirostylus dolichopus*, *Galathea subsquamata*, *Lauriea gardineri*
5146. Sulu Archipelago; 3.40 miles SE of Sulade I. (5°46' 40"N, 120°8'50"E); 44 m; coral sand, shells; 16 Feb 1908: *Galathea ternatensis*
5147. Sulu Archipelago; 8.40 miles SW of Sulade I. (5°41'40"N, 120°47'10"E); 38 m; coral sand, shells; 16 Feb 1908: *Galathea consobrina*, *Galathea subsquamata*, *Lauriea gardineri*
5157. Sulu Archipelago; 3.30 miles NE of Tinakta I. (5°12' 30"N, 119°55'50"E); 33 m; fine sand; 21 Feb 1908: *Allogalatea elegans*, *Galathea ternatensis*
5158. Sulu Archipelago; 1.90 miles SE of Tinakta I. (5°12'N, 119°54'30"E); 22 m; coarse sand, shells; 21 Feb 1908: *Allomunida magnicheles*, *Galathea ternatensis*
5159. Sulu Archipelago; 1.40 miles SE of Tinakta I. (5°11' 50"N, 119°54'E); 18 m; coral sand; 21 Feb 1908: *Galathea ternatensis*
5160. Sulu Archipelago; 2.75 miles NE of Tinakta I. (5°12' 40"N, 119°55'10"E); 22 m; sand; 22 Feb 1908: *Allomunida magnicheles*, *Galathea subsquamata*, *Galathea ternatensis*
5163. Sulu Archipelago; 6.70 miles SE of Observation I. (5°01'40"N, 119°51'E); 51 m; coral sand; 24 Feb 1908: *Allogalatea elegans*
5165. Sulu Archipelago; 6.40 miles SE of Observation I. (4°58'20"N, 119°50'30"E); 16 m; coral; 24 Feb 1908: *Allogalatea elegans*, *Munida roshanei*
5172. Sulu Archipelago; 24.75 miles W of Jolo Lt. (6°03'15"N, 120°35'30"E); 582 m; fine sand, shells; 5 Mar 1908: *Munida pilosimanus*
5173. Sulu Archipelago 6.75 miles SW of Jolo Lt. (6°02'55"N, 120°53'E); 340 m; shells, coral; 5 Mar 1908: *Munida inornata*
5174. Sulu Archipelago; 2.60 miles W of Jolo Lt. (6°03'45"N, 120°57'E); 37 m; coarse sand; 5 Mar 1908: *Chirostylus dolichopus*, *Galathea subsquamata*
5179. Sibuyan Sea; 4.50 miles NW of Romblon Lt. (12°38'15"N, 122°12'30"E); 68 m; hard sand; 25 Mar 1908: *Allogalatea elegans*, *Galathea consobrina*, *Galathea genkai*, *Munida elegantissima*, *Sadayoshia miyakei*
5183. Between Panay and Negros; 4 miles NW of Lusaran Lt. (10°32'48"N, 122°26'E); 176 m; soft green mud; 30 Mar 1908: *Munida squamosa*
5191. Tonan Strait between Negros and Cebu; 5.5 miles NE of Refugio I. (10°29'45"N, 123°31'15"E); 472 m; green mud; 2 Apr 1908: *Allomunida magnicheles*
5197. Between Cebu and Bohol; 22 miles N of Baliscasag I. (9°52'30"N, 123°40'45"E); 318 m; green mud; 9 Apr 1908: *Munida heteracantha*, *Munida squamosa*
5198. Between Cebu and Bohol; 10.25 miles NW of Baliscasag I. (9°40'50"N, 123°39'45"E); 403 m; green mud; 9 Apr 1908: *Munida andamanica*, *Munida rufiantennulata*, *Munida similis*

5212. East of Masbate; 14.5 miles NW of Panalangan Pt. (12°04'15"N, 124°04'36"E); 198 m; gray sand, mud; 20 Apr 1908: *Munida exigua*
5213. East of Masbate; 8.5 miles SW of Destacado I. (12°15'N, 123°57'30"E); 146 m; sand, mud, shells; 20 Apr 1908: *Galathea balssi*, *Munida roshanei*
5214. East of Masbate; 2.60 miles NE of Palanog Lt., Masbate (12°25'18"N, 123°37'15"E); 399 m; green mud; 21 Apr 1908: *Munida andamanica*
5218. Between Burias and Luzon; 2 miles SE of Anima Sola I. (13°11'15"N, 123°02'45"E); 37 m; coarse sand; 22 Apr 1908: *Galathea subsquamata*, *Sadayoshia miyakei*
5221. Vicinity of Marinduque off southwestern Luzon; 5.50 miles SW of San Andreas I. (13°38'15"N, 121°48'15"E); 353 m; green mud; 24 Apr 1908: *Gastroptychus sternoornatus*, *Munida andamanica*
5222. Vicinity of Marinduque off southwestern Luzon; 9.20 miles NW of San Andreas I. (13°38'30"N, 121°42'45"E); 357 m; green mud; 24 Apr 1908: *Munida similis*
5241. Off eastern Mindanao; 3 miles NW of Uanivan I. (6°50'45"N, 126°14'38"E); 393 m; soft gray mud; 14 May 1908: *Galathea multilineata*
5244. Off eastern Mindanao; 4 miles NW of Uanivan I. (6°52'05"N, 126°14'15"E); 313 m; gray mud; 15 May 1908: *Galathea multilineata*
5247. Davao Gulf off southeastern Mindanao; 3.8 miles NE of Dumalag I. (7°02'N, 125°38'45"E); 247 m; mud; 18 May 1908: *Munida squamosa*
5249. Davao Gulf off southeastern Mindanao; 1 mile S of Lanang Pt. (7°06'06"N, 125°40'08"E); 42 m; coral, sand; 18 May 1908: *Allogalathea elegans*, *Galathea consobrina*
5251. Davao Gulf off southeastern Mindanao; 1.1 miles SW of Linao Pt. (7°05'12"N, 125°39'35"E); 37 m; coral; 18 May 1908: *Galathea consobrina*
5252. Davao Gulf off southeastern Mindanao; 1.5 miles SW of Linao Pt. (7°04'48"N, 125°39'38"E); 51 m; coral; 18 May 1908: *Allogalathea elegans*
5253. Davao Gulf off southeastern Mindanao; 1.5 miles SW of Linao Pt. (7°04'48"N, 125°39'38"E); 51 m; coral; 18 May 1908: *Munida japonica*
5254. Davao Gulf off southeastern Mindanao; 0.7 mile SW of Linao Pt. (7°05'42"N, 125°39'42"E); 38 m; sand, coral; 18 May 1908: *Allogalathea elegans*, *Galathea consobrina*, *Munida japonica*
5255. Davao Gulf off southeastern Mindanao; 4.5 miles NE of Dumalag I. (7°03'N, 125°39'E); 183 m; soft mud; 18 May 1908: *Munida japonica*, *Paramunida setigera*
5256. Illana Bay off southwestern Mindanao; 2.80 miles SE of Utara Pt., Bongo I. (7°21'45"N, 124°07'15"E); 289 m; mud; 22 May 1908: *Munida kuboi*, *Munida squamosa*, *Paramunida setigera*
5259. Off northwestern Panay; 12 miles NE of Caluya I. (11°57'30"N, 121°42'15"E); 571 m; gray mud, globigerina; 3 Jun 1908: *Munida andamanica*
5260. Off southeastern Mindoro; 7.2 miles SE of Balanja Pt. (12°25'35"N, 121°31'35"E); 428 m; green mud, sand; 3 Jun 1908: *Munida andamanica*, *Munidopsis cylindrophthalma*
5261. Off southeastern Mindoro; 6 miles SE of Balanja Pt. (12°30'55"N, 121°34'24"E); 265 m; sand, mud; 4 Jun 1908: *Gastroptychus sternoornatus*
5265. South China Sea off southwestern Luzon; 3.3 miles SW of Matocot Pt., Luzon (13°41'15"N, 120°00'50"E); 247 m; sand, mud; 6 Jun 1908: *Munida incerta*
5266. South China Sea off southwestern Luzon; 7 miles NW of Matocot Pt., Luzon (13°44'36"N, 120°59'15"E); 183 m; mud; 8 Jun 1908: *Galathea multilineata*, *Munida armata*, *Munida squamosa*
5272. South China Sea off southwestern Luzon; 25.5 miles SW of Corregidor Lt. (14 N, 120°22'30"E); 216 m; mud, shells, coral sand; 14 Jul 1908: *Munida armata*, *Munida heteracantha*, *Munida squamosa*, *Paramunida setigera*
5273. South China Sea off southwestern Luzon; 27.25 miles SW of Corregidor Lt. (13°58'45"N, 120°21'35"E); 209 m; mud, shells, coral sand; 14 Jul 1908: *Munida squamosa*, *Paramunida setigera*
5274. South China Sea off southwestern Luzon; 17.50 miles NW of Malavatuan I. (13°57'30"N, 120°03'25"E); 957 m; gray mud, sand; 16 Jul 1908: *Uroptychus nigricapillis*

5275. South China Sea off southwestern Luzon; 10.75 miles NW of Malavatuan I. (13°55'55"N, 120°10'15"E); 214 m; fine sand; 16 Jul 1908: *Munidopsis dasypus*
5279. South China Sea off southwestern Luzon; 5.4 miles NE of Malavatuan I. (13°57'30"N, 120°22'15"E); 214 m; green mud; 17 Jul 1908: *Eumunida propior*, *Munida japonica*, *Munida rufiantennulata*, *Munida squamosa*, *Munidopsis latimana*, *Paramunida setigera*
5281. South China Sea off southwestern Luzon; 4.3 miles NE of Malavatuan I. (13°52'45"N, 120°25'E); 368 m; dark gray sand; 18 Jul 1908: *Munida incerta*
5282. South China Sea off southwestern Luzon; 6.20 miles NE of Malavatuan I. (13°53'N, 120°26'45"E); 454 m; dark gray sand; 18 Jul 1908: *Munidopsis tenax*
5289. South China Sea off southwestern Luzon; 5 miles NW of Matocot Pt. (13°41'50"N, 120°58'30"E); 315 m; broken shells, sand; 22 Jul 1908: *Munida compressa*, *Munida squamosa*, *Paramunida scabra*
5294. South China Sea off southwestern Luzon; 2.75 miles NE of Escarceo Lt. (13°32'15"N, 121°02'E); 447 m; sand, pebbles; 24 Jul 1908: *Munida compressa*, *Paramunida scabra*
5298. South China Sea off southwestern Luzon; 6.7 miles NW of Matocot Pt. (13°43'25"N, 120°57'40"E); 256 m; sand; 24 Jul 1908: *Eumunida funambululus*, *Munida squamosa*
5301. South China Sea off Hong Kong (20°37'37"N, 115°43'E); 381 m; gray mud, sand; 8 Aug 1908: *Munida compressa*
5309. South China Sea off Hong Kong (21°53'N, 115°51'E); 113 m; green mud; 4 Nov 1908: *Munida babai*, *Munida exigua*
5312. South China Sea off Hong Kong (21°30'N, 116°32'E); 256 m; sand, small shells; 4 Nov 1908: *Paramunida scabra*
5314. South China Sea off Hong Kong (21°41'N, 116°46'E); 205 m; sand, broken shells; 5 Nov 1908: *Paramunida scabra*
5317. South China Sea off southwestern Formosa (21°36'N, 117°27'E); 421 m; sand, small shells; 5 Nov 1908: *Eumunida smithii*, *Munida compressa*, *Munida prominula*, *Paramunida scabra*
5321. Luzon Strait off Batan; 1.25 miles NE of Ibugos I. (20°19'30"N, 121°51'15"E); 48 m; white sand, coral, broken shells; 9 Nov 1908: *Allogalatea elegans*
5325. Off northern Luzon; 16.75 miles SW of Hermanos I. (18°34'15"N, 121°51'15"E); 410 m; green mud; 12 Nov 1908: *Cervimunida princeps*, *Galathea spinosorostris*, *Sadayoshia miyakei*
5342. Off northwestern Palawan; 0.5 mile NW of Endeavor Pt. (10°56'55"N, 119°17'24"E); 26-46 m; gray mud; 23 Dec 1908: *Galathea albatrossae*
5348. Palawan Passage; 33.5 miles NW of Pt. Tabonan (10°57'45"N, 118°38'15"E); 686 m; coral, sand; 27 Dec 1908: *Uroptychus spinimarginatus*, *Munida eminens*, *Munidopsis tridentata*
5349. Palawan Passage; 45.2 miles SW of Pt. Tabonan (10°54'N, 118°26'20"E); 1340 m; coral, sand; 27 Dec 1908: *Munidopsis valdiviae*
5353. Balabac Strait off northern Borneo; 16.8 miles NW of Cape Melville Lt. (7°50'45"N, 116°43'15"E); 271 m; 1 Jan 1909: *Paramunida setigera*
5354. Balabac Strait off northern Borneo; 16.8 miles SW of Cape Melville Lt. (7°47'50"N, 116°43'15"E); 214 m; mud; 1 Jan 1909: *Paramunida scabra*
5355. North Balabac Strait off northern Borneo; 16.6 miles NE of Balabac Lt. (8°08'10"N, 117°19'15"E); 81 m; coral, sand; 5 Jan 1909: *Allogalatea elegans*, *Munida roshanei*
5357. North Balabac Strait off northern Borneo; 14.3 miles NE of Balabac Lt. (8°06'N, 117°17'10"E); 124 m; coral, sand; 5 Jan 1909: *Munida roshanei*
5363. South China Sea off southwestern Luzon; 4.5 miles NE of C. Santiago Lt. (13°47'20"N, 120°43'30"E); 329 m; 20 Feb 1909: *Munida squamosa*
5365. South China Sea off southwestern Luzon; 6.7 miles SE of C. Santiago Lt. (13°44'24"N, 120°45'30"E); 392 m; bottom unknown; 22 Feb 1909: *Munida longispinata*
5368. Vicinity of Marinduque off southwestern Luzon; 21.8 miles SE of Tayabas Lt. (13°35'30"N, 121°48'E); 331 m; gray mud; 23 Feb 1909: *Munida similis*, *Munidopsis cylindrophthalma*

5369. Vicinity of Marinduque off southwestern Luzon; 8.8 miles SE of Tayabas Lt. (13°48'N, 121°43'E); 194 m; black sand; 24 Feb 1909: *Munida japonica*
5371. Vicinity of Marinduque off southwestern Luzon; 6 miles SE of Tayabas Lt. (13°49'40"N, 121°40'15"E); 152 m; green mud; 24 Feb 1909: *Fennerogalatea chacei*, *Munida exigua*
5372. Vicinity of Marinduque off southwestern Luzon; 4.5 miles SE of Tayabas Lt. (13°49'12"N, 121°36'09"E); 275 m; green mud; 24 Feb 1909: *Munida heteracantha*, *Paramunida setigera*
5373. Vicinity of Marinduque off southwestern Luzon; 15 miles SW of Tayabas Lt. (13°40'N, 121°31'10"E); 619 m; soft mud; 2 Mar 1909: *Munida andamanica*, *Munida longispinata*, *Munida rufiantennulata*, *Munida variabilis*, *Munidopsis cylindrophthalma*
5374. Vicinity of Marinduque off southwestern Luzon; 7.4 miles SW of Tayabas Lt. (13°46'45"N, 121°35'08"E); 348 m; gray mud; 2 Mar 1909: *Munida similis*, *Munidopsis regia*
5375. Vicinity of Marinduque off southwestern Luzon; 18.2 miles SE of Tayabas Lt. (13°42'15"N, 121°50'15"E); 196 m; green mud; 2 Mar 1909: *Munida squamosa*, *Paramunida setigera*
5376. Vicinity of Marinduque off southwestern Luzon; 18.7 miles SE of Tayabas Lt. (13°42'50"N, 121°51'30"E); 165 m; gray mud, sand; 2 Mar 1909: *Fennerogalatea chacei*, *Munida exigua*
5387. Between Burias and Luzon; 27 miles NW of Bagatao I. Lt. (12°54'40"N, 123°20'30"E); 382 m; soft green mud; 11 Mar 1909: *Munida heteracantha*
5388. Between Burias and Luzon; 21 miles NW of Bagatao I. Lt. (12°51'30"N, 123°26'15"E); 414 m; soft green mud; 11 Mar 1909: *Munida andamanica*
5398. Between Masbate and Leyte; 2.7 miles NW of Gigantangan I. (11°35'12"N, 124°13'48"E); 209 m; green mud; 15 Mar 1909: *Eumunida funambulus*, *Munida bellior*, *Munida japonica*
5400. Sibuyan Sea north of Cebu; 22.5 miles SE of Tanguigui I. (11°24'24"N, 124°05'30"E); 46 m; sand, shells; 16 Mar 1909: *Galathea ternatensis*
5403. Between Cebu and Leyte; 15.7 miles NE of Capitancillo I. (11°10'N, 124°17'15"E); 333 m; green mud; 16 Mar 1909: *Munidopsis cylindrophthalma*
5404. Between Cebu and Leyte; 6.8 miles NW of Ponson I. (10°50'N, 124°26'18"E); 348 m; mud; 17 Mar 1909: *Munida andamanica*
- 5404-5: *Munida similis*
5405. Between Cebu and Leyte; 8.5 miles NW of Ponson I. (10°49'20"N, 124°24'23"E); 479 m; hard bottom; 17 Mar 1909: *Gastroptychus investigatoris*, *Munida andamanica*
5406. Between Cebu and Leyte; 10.2 miles NW of Ponson I. (10°49'03"N, 124°22'30"E); 545 m; mud; 17 Mar 1909: *Munida andamanica*, *Munida rufiantennulata*
5407. Between Cebu and Leyte; 12.2 miles NW of Ponson I. (10°51'38"N, 124°20'54"E); 641 m; green mud; 17 Mar 1909: *Munida rufiantennulata*
5408. Between Cebu and Leyte; 20.8 miles SE of Capitancillo Lt. (10°40'15"N, 124°15'E); 291 m; green mud; 18 Mar 1909: *Munida heteracantha*, *Munida similis*, *Paramunida setigera*
5409. Between Cebu and Leyte; 22 miles SE of Capitancillo Lt. (10°38'N, 124°13'08"E); 346 m; green mud; 18 Mar 1909: *Galathea pubescens*, *Munida andamanica*, *Munida heteracantha*, *Munida similis*, *Munidopsis cylindrophthalma*
5410. Between Cebu and Leyte; 7.2 miles NE of Bagacay Pt. Lt. (10°28'45"N, 124°05'30"E); 705 m; green mud; 18 Mar 1909: *Munida andamanica*, *Munida rufiantennulata*, *Munida variabilis*
5411. Between Cebu and Bohol; 4.7 miles SW of Luis Pt. Lt. (10°10'30"N, 123°51'15"E); 265 m; green mud; 23 Mar 1909: *Uroptychus albatrossae*, *Uroptychus convexus*, *Galathea bidens*, *Munida heteracantha*, *Munida squamosa*, *Munidopsis latimana*
5412. Between Cebu and Bohol; 5.5 miles SW of Luis Pt. Lt. (10°09'15"N, 123°52'E); 296 m; green mud; 23 Mar 1909: *Munida heteracantha*, *Munida squamosa*
5416. Between Cebu and Bohol; 2.9 miles SW of Luis Pt. Lt. (10°11'30"N, 123°53'30"E); 275 m; green mud; 25 Mar 1909: *Munida heteracantha*, *Munida kuboi*
5417. Between Cebu and Bohol; 3.5 miles SW of Luis Pt. Lt. (10°10'N, 123°53'15"E); 302 m; gray mud, sand; 25 Mar 1909: *Eumunida funambulus*, *Galathea pubescens*, *Munida heteracantha*, *Munida*

*rufiantennulata, Munida similis, Munida squamosa*

5418. Between Cebu and Bohol; 5.6 miles SW of Lais Pt. Lt. (10°08'50"N, 123°52'30"E); 291 m; gray mud, sand; 25 Mar 1909: *Munida heteracantha, Munida squamosa*
5419. Between Cebu and Bohol; 17.8 miles SW of Lais Pt. Lt. (9°58'30"N, 123°46'E); 317 m; green mud; 25 Mar 1909: *Munida heteracantha, Munida squamosa*
5420. Between Cebu and Bohol; 6 miles NW of Cruz Pt. (9°49'35"N, 123°45'E); 232 m; bottom unknown; 25 Mar 1909: *Munida squamosa*
5423. Sulu Sea off Cagayan I.; 4.8 miles NW of Cagayan I. (9°38'30"N, 121°11'E); 930 m; gray mud, coral sand; 31 Mar 1909: *Munidopsis tridentata*
5425. Sulu Sea off Cagayan I.; 4 miles NW of Cagayan I. (9°37'45"N, 121°11'E); 906 m; gray mud, coral sand; 31 Mar 1909: *Munida major*
5432. Off northeastern Palawan; 5.7 miles SW of Corandagos I. (10°37'50"N, 120°12'E); 93 m; sand; 8 Apr 1909: *Munida japonica*
5440. South China Sea off northwestern Luzon; 23.1 miles SW of S. Fernando Pt. Lt. (16°33'52"N, 119°52'54"E); 315 m; fine gray sand, globigerina; 10 May 1909: *Munida heteracantha*
5441. South China Sea off northwestern Luzon; 18.7 miles NW of S. Fernando Pt. Lt. (16°38'N, 119°57'18"E); 340 m; bottom unknown; 10 May 1909: *Munida andamanica, Munida heteracantha, Munida incerta, Munida pilorhyncha, Munida squamosa, Paramunida longior*
5442. South China Sea off northwestern Luzon; 8.4 miles SW of S. Fernando Pt. Lt. (16°30'36"N, 120°11'06"E); 82 m; coral sand; 10 May 1909: *Munida japonica*
5444. Off southeastern Luzon; 5.1 miles NW of Atalaya Pt., Batag I. (12°43'51"N, 124°58'50"E); 564 m; green mud; 3 Jun 1909: *Munida andamanica, Munida eminens*
5453. Off southeastern Luzon; 4.5 miles NE of Legaspi Lt. (13°12'N, 123°49'18"E); 267 m; bottom unknown; 7 Jun 1909: *Munida heteracantha, Munida japonica, Munidopsis similior*
5469. Off southeastern Luzon; 4 miles NE of Atulayan I. (13°36'48"N, 123°38'24"E); 915 m; green mud; 18 Jun 1909: *Munidopsis sinclairi*
5475. Off Pacific coast of southern Luzon; 11 miles NE of S. Bernardino Lt. (12°55'26"N, 124°22'12"E); 357 m; shells; 24 Jun 1909: *Paramunida scabra*
5476. Off Pacific coast of southern Luzon; 13.5 miles NE of S. Bernardino Lt. (12°56'24"N, 124°25'24"E); 494 m; fine sand; 24 Jun 1909: *Paramunida scabra*
5481. Between Samar and Leyte; 3.8 miles SE of Cabugan Grande I. (10°27'30"N, 125°17'10"E); 112 m; sand, shells, gravel; 30 Jul 1909: *Munida babai, Munida japonica*
5482. Between Samar and Leyte; 4.5 miles SE of Cabugan Grande I. (10°27'30"N, 125°18'E); 123 m; broken shells, sand, green mud; 30 Jul 1909: *Allogalatheia elegans*
5483. Between Samar and Leyte; 5.7 miles SE of Cabugan Grande I. (10°27'30"N, 125°19'15"E); 135 m; sand, broken shells; 30 Jul 1909: *Munida japonica*
5491. Between Leyte and Mindanao; 19.3 miles NE of Diuata Pt. (9°24'N, 125°12'E); 1350 m; green mud, coral; 1 Aug 1909: *Munida major, Munidopsis andamanica*
5492. Between Leyte and Mindanao; 15.2 miles NE of Diuata Pt. (9°12'45"N, 125°20'E); 1350 m; gray mud; 1 Aug 1909: *Munida major*
5494. Between Leyte and Mindanao; 4.2 miles SE of Diuata Pt. (9°06'30"N, 125°18'40"E); 1240 m; green mud, sand; 2 Aug 1909: *Munida major*
5501. Off northern Mindanao; 8.2 miles NW of Macabalan Pt. Lt. (8°37'37"N, 124°35'E); 392 m; fine sand, gray mud; 4 Aug 1909: *Galathea kuboi, Munida andamanica, Munida similis, Munidopsis cylindrophthalma*
5502. Off northern Mindanao; 8.2 miles NW of Macabalan Pt. Lt. (8°37'37"N, 124°35'E); 392 m; bottom unknown; 4 Aug 1909: *Munida andamanica, Munida longispinata*
- 5502-3: *Munida andamanica*
5503. Off northern Mindanao; 6.6 miles NW of Macabalan Pt. Lt. (8°36'26"N, 124°36'08"); 414 m; green mud; 4 Aug 1909: *Munidopsis cylindrophthalma*

5504. Off northern Mindanao; 6 miles NW of Macabalan Pt. Lt. (8°35'30"N, 124°36'E); 366 m; green mud; 5 Aug 1909: *Munida andamanica*, *Munida longispinata*
5506. Off northern Mindanao; 12.2 miles NW of Macabalan Pt. Lt. (8°40'N, 124°31'45"E); 479 m; green mud; 5 Aug 1909: *Munida andamanica*, *Munida longispinata*
5508. Off northern Mindanao; 4.9 miles NW of Camp Overton Lt., Iligan Bay (8°17'24"N, 124°11'42"E); 494 m; green mud; fine sand; 5 Aug 1909: *Galathea pubescens*, *Munida andamanica*, *Munida similis*
5510. Off northern Mindanao; 9.1 miles NW of Camp Overton Lt., Iligan Bay (8°16'N, 124°03'50"E); 774 m; gray mud, fine sand; 7 Aug 1909: *Munida variabilis*
5511. Off northern Mindanao; 15.3 miles NW of Camp Overton Lt., Iligan Bay (8°15'20"N, 123°57'E); 750 m; gray mud, sand; 7 Aug 1909: *Munida andamanica*, *Munida variabilis*, *Munidopsis regia*
5512. Off northern Mindanao; 14 miles NW of Camp Overton Lt., Iligan Bay (8°16'02"N, 123°58'26"E); 814 m; gray mud, fine sand; 7 Aug 1909: *Munida variabilis*
5513. Off northern Mindanao; 10.3 miles NW of Camp Overton Lt., Iligan Bay (8°16'45"N, 124°02'48"E); 924 m; gray mud, fine sand; 7 Aug 1909: *Munida variabilis*
5516. Off northern Mindanao; 9.7 miles NE of Pt. Tagolo Lt. (8°46'N, 123°32'30"E); 320 m; globigerina; 9 Aug 1909: *Eumunida propior*
5517. Off northern Mindanao; 10.5 miles NE of Pt. Tagolo Lt. (8°45'30"N, 123°33'45"E); 309 m; globigerina; 9 Aug 1909: *Eumunida funambulus*, *Eumunida propior*, *Munida heteracantha*, *Munida japonica*, *Munida rufiantennulata*, *Munida squamosa*
5518. Off northern Mindanao; 8.7 miles NE of Pt. Tagolo Lt. (8°48'N, 123°31'E); 366 m; gray mud, globigerina; 9 Aug 1909: *Eumunida propior*, *Munida rufiantennulata*, *Munida squamosa*, *Munidopsis similior*, *Paramunida scabra*
5519. Off northern Mindanao; 8.7 miles NE of Pt. Tagolo Lt. (8°47'N, 123°31'15"E); 333 m; globigerina, sand; 9 Aug 1909: *Uroptychus albatrossae*, *Galathea rubromaculata*, *Munida heteracantha*, *Munida japonica*, *Munida rufiantennulata*, *Munida squamosa*
5523. Off northern Mindanao; 6.7 miles NE of Pt. Tagolo Lt. (8°48'44"N, 123°27'35"E); depth and bottom unknown; 10 Aug 1909: *Munida andamanica*, *Munida heteracantha*, *Munida squamosa*
5526. Between Siquijor and Bohol; 18.4 miles SE of Balicasag I. (9°12'45"N, 123°45'30"E); 1470 m; green mud, globigerina; 11 Aug 1909: *Munidopsis tridentata*
5527. Between Siquijor and Bohol; 8.2 miles SE of Balicasag I. (9°22'30"N, 123°42'40"E); 717 m; globigerina ooze; 11 Aug 1909: *Uroptychus nigricapillis*
5528. Between Siquijor and Bohol; 5.8 miles SW of Balicasag I. (9°24'45"N, 123°39'15"E); 803 m; globigerina ooze; 11 Aug 1909: *Munida andamanica*
5529. Between Siquijor and Bohol; 6.9 miles SW of Balicasag I. (9°23'45"N, 123°39'30"E); 807 m; gray mud, globigerina; 11 Aug 1909: *Uroptychus occultispinatus*
5533. Between Cebu and Siquijor; 9.4 miles SW of Balicasag I. (9°27'15"N, 123°31'48"E); 791 m; green mud, sand; 19 Aug 1909: *Munida andamanica*
5535. Between Cebu and Siquijor; 17 miles NE of Apo I. (9°20'30"N, 123°23'45"E); 567 m; gray globigerina ooze; 19 Aug 1909: *Munida rufiantennulata*, *Munida squamosa*
5536. Between Negros and Siquijor; 11.8 miles NE of Apo I. (9°15'45"N, 123°22'00"E); 511 m; green mud; 19 Aug 1909: *Uroptychus albatrossae*, *Munida andamanica*, *Munida heteracantha*, *Munida rufiantennulata*, *Munidopsis cylindrophthalma*
5537. Between Negros and Siquijor; 8.7 miles NE of Apo I. (9°11'00"N, 123°23'00"E); 465 m; green mud; 19 Aug 1909: *Munida andamanica*, *Munida heteracantha*, *Munida rufiantennulata*
5541. Off northern Mindanao; 12.7 miles NE of Tagolo Lt. (8°49'38"N, 123°34'30"E); 401 m; fine sand, broken shells; 8 Aug 1909: *Munida andamanica*, *Munida incerta*, *Munida squamosa*
5543. Off northern Mindanao; 12.5 miles NE of Tagolo Lt. (8°47'15"N, 123°35'00"E); 296 m; sand; 20 Aug 1909: *Eumunida propior*, *Munida squamosa*
5545. Sulu Archipelago; 3 miles NE of Noble Pt., Tulayan I. (6°04'45"N, 121°20'20"E); 209 m; fine

- coral sand; 15 Sep 1909: *Galathea multilineata*, *Paramunida scabra*
5546. Sulu Archipelago; 5 miles NE of Noble Pt., Tulayan I. (6°06'48"N, 121°20'32"E); 253 m; fine coral sand; 15 Sep 1909: *Paramunida scabra*
5547. Sulu Archipelago; 9.5 miles NW of Noble Pt., Tulayan I. (6°09'20"N, 121°13'40"E); 284 m; fine sand; 15 Sep 1909: *Paramunida scabra*
5576. Sulu Archipelago; 17.2 miles NE of Mt. Dromedario (5°25'56"N, 120°03'39"E); 507 m; sand; 23 Sep 1909: *Munida incerta*
5577. Sulu Archipelago; 10.9 miles NE of Mt. Dromedario (5°20'36"N, 119°58'51"E); 439 m; coarse sand; 23 Sep 1909: *Uroptychus naso*
5580. Off northeastern Borneo; 23.2 miles NW of Sibutu I. peak (4°52'45"N, 119°06'45"E); 296 m; brown sand, coral; 25 Sep 1909: *Munida incerta*
5582. Off northeastern Borneo; 6.2 miles NE of Si Amil I. (4°19'54"N, 118°58'38"E); 1630 m; gray mud, fine sand; 23 Sep 1909: *Paramunida scabra*
5586. Off northeastern Borneo; 9.4 miles E of Sipadan I. (4°06'50"N, 118°47'20"E); 635 m; gray mud; 28 Sep 1909: *Uroptychus comptus*, *Munida andamanica*
5587. Off northeastern Borneo; 3.8 miles NW of Sipadan I. (4°10'35"N, 118°37'12"E); 759 m; green mud, sand, coral; 28 Sep 1909: *Munidopsis spinosa*
5589. Off northeastern Borneo; 2.8 miles SE of Mabul I. (4°12'10"N, 118°38'08"E); 476 m; fine gray sand, gray mud; 29 Sep 1909: *Munida andamanica*
5590. Off northeastern Borneo; 4.3 miles SE of Mabul I. (4°10'50"N, 118°39'35"E); 567 m; green mud, sand; 29 Sep 1909: *Munida andamanica*
5592. Off northeastern Borneo; 6.4 miles SE of Silungan I. (4°12'44"N, 118°27'44"E); 558 m; green mud; 29 Sep 1909: *Munida andamanica*, *Munida incerta*
5593. Off northeastern Borneo; 17.2 miles SE of Mt. Putri, Borneo (4°02'40"N, 118°11'20"E); 70 m; fine sand; 29 Sep 1909: *Munida elegantissima*, *Munida incerta*, *Paramunida scabra*
5601. Molucca Sea off northeastern Sulawesi; 20.7 miles S of Limbe I. (1°13'10"N, 125°17'05"E); 1400 m; sand, globigerina, pteropods; 13 Nov 1909: *Munidopsis valdiviae*
5603. Off south coast of Minahassa Peninsula, Sulawesi; 5.7 miles SE of Gorontalo pier (0°24'00"N, 123°03'45"E); 1470 m; sand; 15 Nov 1909: *Gastroptychus hendersoni*
5605. Teluk Tomini, Sulawesi; 5.9 miles SE of Dopedo I. (0°21'33"N, 121°34'10"E); 1180 m; bottom unknown; 16 Nov 1909: *Uroptychus scambus*
5606. Teluk Tomini, Sulawesi; 10.8 miles SE of Dopedo I. (0°16'28"N, 121°33'30"E); 1530 m; green mud; 17 Nov 1909: *Munidopsis ciliata*, *Munidopsis sinclairi*
5609. Teluk Tomini, Sulawesi; 21 miles SW of Binang Unang I. (0°11'00"S, 121°16'00"E); 1998 m; green mud; 18 Nov 1909: *Munidopsis ciliata*, *Munidopsis rostrata*
5610. Teluk Tomini, Sulawesi; 20.9 miles SE of Batu Daka I. (0°36'00"S, 122°01'00"E); 1240 m; gray mud; 19 Nov 1909: *Munidopsis ciliata*
5612. Teluk Tomini, Sulawesi; 7 miles NW of Buka Buka I. (0°38'00"S, 121°45'40"E); 1370 m; bottom unknown; 20 Nov 1909: *Munidopsis bispinoculata*, *Munidopsis ciliata*
5613. Teluk Tomini, Sulawesi; 4 miles N of Buka Buka I. (0°42'00"S, 121°44'00"E); 1380 m; gray mud; 20 Nov 1909: *Munidopsis trachynotus*
5614. Molucca Sea between Halmahera and northern Sulawesi; 30.5 miles SW of Tifore I. (0°31'00"N, 125°58'45"E); 2013 m; gray mud, sand, globigerina; 22 Nov 1909: *Uroptychus bispinatus*, *Munidopsis ciliata*
5617. Molucca Sea off west coast of Halmahera; 7 miles NE of Ternate (0°49'30"N, 127°25'30"E); 240 m; bottom unknown; 27 Nov 1909: *Uroptychus naso*, *Uroptychus spinulifer*
5618. Molucca Sea off west coast of Halmahera; 7.8 miles NW of Mareh I. (0°37'00"N, 127°15'00"E); 763 m; gray mud; 27 Nov 1909: *Uroptychus gracilimanus*, *Munida andamanica*, *Munida fortiantennata*
5619. Molucca Sea off west coast of Halmahera; 7 miles NW of Mareh I. (0°35'00"N, 127°14'40"E); 796



- m; fine gray sand, mud; 27 Nov 1909: *Uroptychus gracilimanus*, *Munida andamanica*, *Munidopsis andamanica*
5620. Molucca Sea off west coast of Halmahera; 7 miles NW of Makyan I. (0°21'30"N, 127°16'45"E); 655 m; gray mud; 28 Nov 1909: *Uroptychus vandamae*
5621. Molucca Sea off west coast of Halmahera; 3 miles NE of Makyan I. (0°15'00"N, 127°24'35"E); 545 m; gray black sand; 28 Nov 1909: *Munida andamanica*, *Munida compressa*, *Munida incerta*, *Munidopsis carinimarginata*, *Paramunida granulata*
5622. Molucca Sea off west coast of Halmahera; 4.1 miles SE of Makyan I. (0°19'20"N, 127°28'30"E); 503 m; gray mud; 29 Nov 1909: *Gastroptychus investigatoris*, *Munida andamanica*, *Munida incerta*, *Munidopsis cylindrophthalma*, *Munidopsis scobina*
5623. Molucca Sea off west coast of Halmahera; 7.5 miles NE of Makyan I. (0°16'30"N, 127°30'00"E); 498 m; fine sand, mud; 29 Nov 1909: *Uroptychus sibogae*, *Munida incerta*
5624. Molucca Sea off west coast of Halmahera; 8.9 miles SE of Makyan I. (0°12'15"N, 127°29'30"E); 527 m; fine sand, mud; 29 Nov 1909: *Munida andamanica*, *Munida incerta*, *Munidopsis cylindrophthalma*, *Munidopsis sinclairi*
5625. Molucca Sea off west coast of Halmahera; 6 miles NE of Kayoa I. (0°07'00"N, 127°28'00"E); 421 m; gray mud, fine sand; 29 Nov 1909: *Munida andamanica*
5626. Molucca Sea off west coast of Halmahera; 6.7 miles NE of Kayoa I. (0°07'30"N, 127°29'00"E); 485 m; gray mud, fine sand; 29 Nov 1909: *Munida andamanica*, *Munida leviantennata*, *Munidopsis plumatisetigera*, *Paramunida longior*
5628. Off southwest coast of Halmahera; 7 miles SE of St. Lamo I. (0°28'30"S, 127°45'00"E); 2363 m; gray mud; 30 Nov 1909: *Munidopsis bispinocolata*, *Munidopsis ciliata*
5630. Off southwest coast of Halmahera; 4.5 miles SE of Doworra I. (0°56'30"S, 128°05'00"E); 1040 m; coral sand, mud; 2 Dec 1909: *Munidopsis bispinocolata*, *Munidopsis dasypus*, *Munidopsis sinclairi*
5631. Off southwest coast of Halmahera; 10.5 miles SW of Doworra I. (0°57'00"S, 127°56'00"E); 1480 m; green mud; 2 Dec 1909: *Munidopsis dasypus*
5634. Off southern Obi; 3 miles SW of Gomumu I. (1°54'00"S, 127°36'00"E); 602 m; bottom unknown; 3 Dec 1909: *Eumunida pacifica*, *Uroptychus levicrustus*
5635. Off southern Obi; 2.5 miles SE of Gomumu I. (1°53'30"S, 127°39'00"E); 732 m; coral, rock, soapstone; 3 Dec 1909: *Uroptychus brevisquamatus*, *Munidopsis tridentata*
5641. Butung Strait between Sulawesi and Butung; 3.4 miles SE of Kalono Pt. (4°29'24"S, 122°52'30"E); 71 m; sand, shells; 14 Dec 1909: *Allogalatea elegans*
5650. Teluk Bone, Sulawesi; 12.5 miles SE of Lamulu Pt. (4°53'45"S, 121°29'00"E); 988 m; green mud; 17 Dec 1909: *Munida microps*, *Munidopsis andamanica*
5656. Teluk Bone, Sulawesi; 14.5 miles SE of Olang Pt. (3°17'40"S, 120°36'45"E); 886 m; gray mud; 19 Dec 1909: *Munida andamanica*
5658. Teluk Bone, Sulawesi; 12 miles NE of C. Loko Loko (3°32'40"S, 120°31'30"E); 933 m; gray mud; 19 Dec 1909: *Munidopsis bispinocolata*, *Munidopsis ciliata*
5660. Flores Sea off southern Sulawesi; 20.5 miles NE of C. Lassa (5°36'30"S, 120°49'00"E); 1270 m; gray mud, sand; 20 Dec 1909: *Uroptychus nigricapillis*
5661. Flores Sea off southern Sulawesi; 12.5 miles SW of C. Lassa (5°49'40"S, 120°24'30"E); 329 m; hard bottom; 20 Dec 1909: *Munida japonica*
5664. Makassar Strait; 3.8 miles SW of Kapoposang Lt. (4°43' 22"S, 118°53'18"E); 732 m; hard bottom; 28 Dec 1909: *Uroptychus acostalis*, *Uroptychus vandamae*, *Munidopsis pilosa*
5668. Makassar Strait; 10.6 miles NW of Mamuju I. (2°28'15"S, 118°49'00"E); 1650 m; gray mud; 29 Dec 1909: *Uroptychus acostalis*, *Munidopsis ciliata*
5670. Makassar Strait; 40 miles NW of Chenoki Pt. (1°19'00"S, 118°43'00"E); 2161 m; gray mud; 30 Dec 1909: *Munidopsis rostrata*

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