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## FOUR AXIIDS (DECAPODA, THALASSINIDEA) FROM INDONESIA

With 5 Text-figures

by

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インドネシア産のアナエビ類 (十脚甲殻類) 4 種について

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**Abstract:** Four Axiids in the collections of the Rumphius Expedition 1973 and Dr. A. BANNER's from the Indonesian region are studied. One of these species is unsatisfactorily determined as *Axiopsis (Axiopsis) consobrina* DE MAN, and the other one is as *Axius (Axius) sp.*

*Axius (Neaxius) acanthus* A. MILNE-EDWARDS

(Figs. 1, 2)

*Axia acantha* A. MILNE-EDWARDS, 1879: 110.

*Eiconaxius acanthus*.—DE MAN, 1896: 491-497; 1898: pl. 34, figs. 57, 57a.

*Axius acanthus*.—DE MAN, 1925a: 3, 14; 1925b: 50-56.

*Axius acanthus* var. *mauritanus* BOUVIER, 1915: 196-198, fig. 7.—FOURMANOIR, 1955: 31, fig. 4.

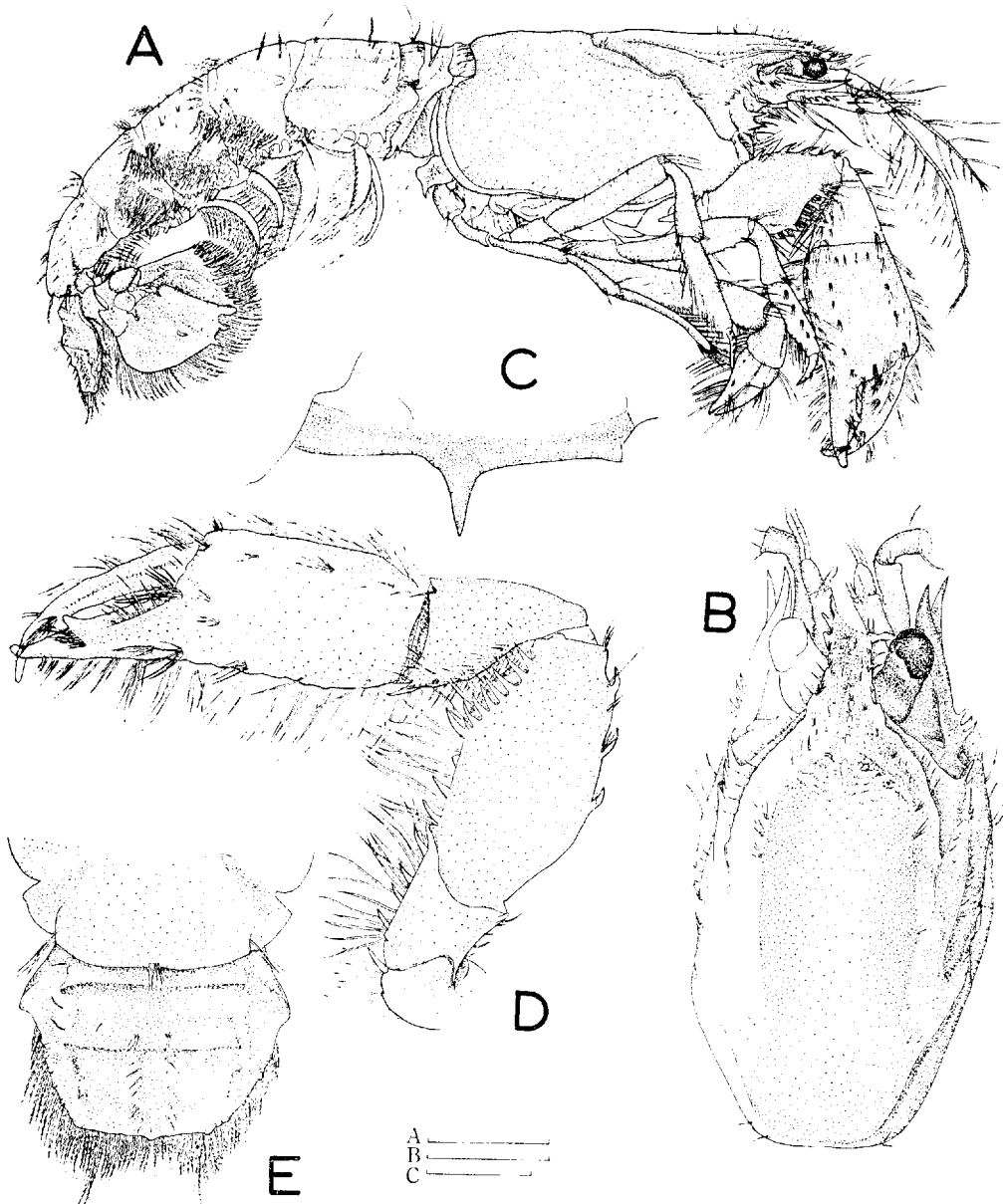
*Axius (Neaxius) acanthus*.—POORE & GRIFFIN, 1979: 235-236, fig. 7.

**Material Examined:** St. Na-1 In front of Namatationi Village, Ceram, Maluku; dead coral, LON-RUMPHIUS, 1973, collected 19-1-73 SAPRI, D. cut No. Ca 798. 1♂ CL=14.2 mm, TL=37.7 mm (tip of rostrum broken).

**Descriptive Remarks:** The single specimen, a male, is in good condition; a short description is given below, the specimen is, however, illustrated in detail.

Rostrum styliform, longer than basal width, tapering only near base; lateral margins with 5-7 spines, strongest terminally, most distal pair directed anteriorly, dominating tip of rostrum. Antero-lateral edge of carapace smooth, a row of 3-6 spines between antenna 2 and cervical groove, distal most largest; branchial region unarmed; cervical

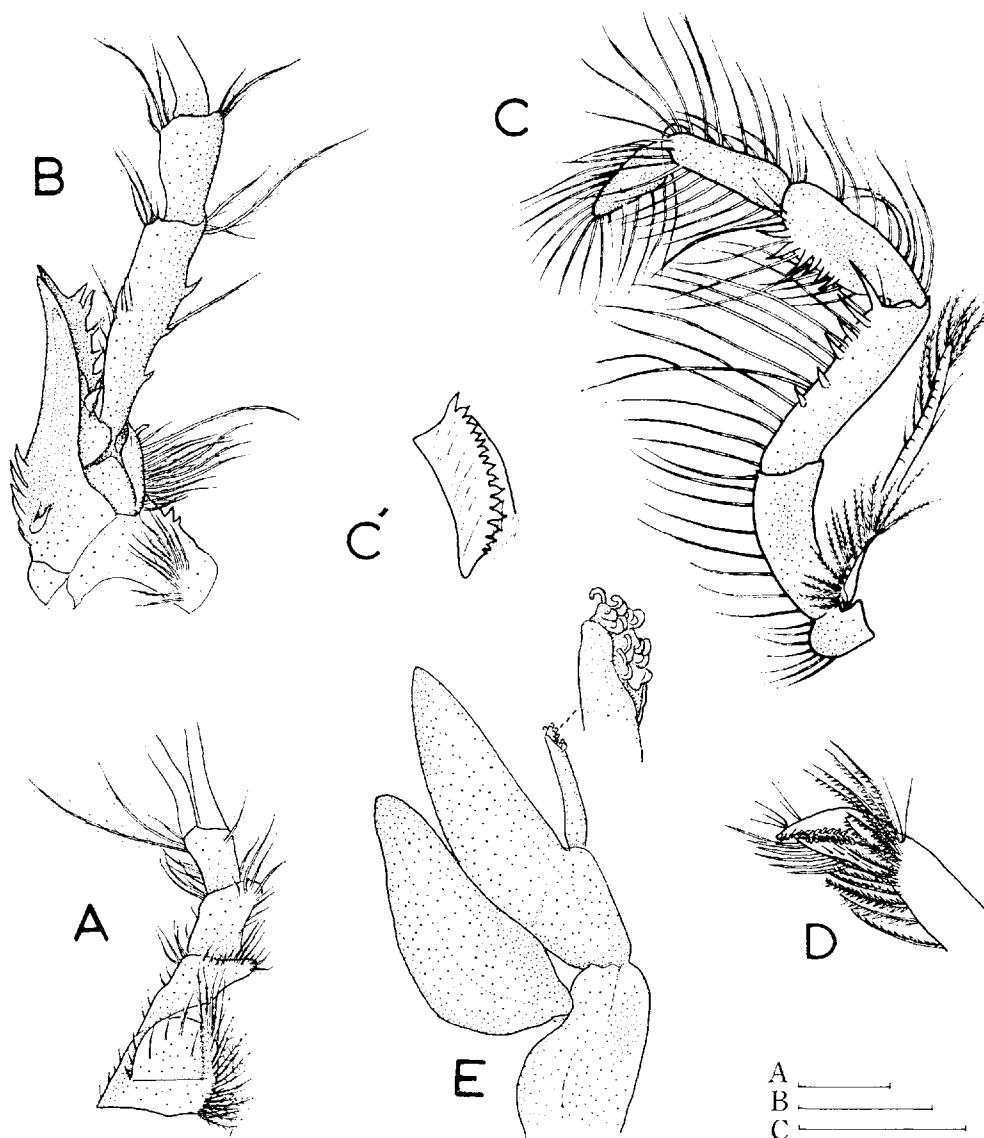
groove armed with 2 sub-equal spines (Fig. 1A). Median carina of carapace with 5-8 spines running back to rugose anterior part of gastric region; dorso-lateral margins of carapace crenulate (Fig. 1B). Pre-oral area spinose. Abdominal plurae 1-6 of male strongly armed, all spines curved backwardly (Fig. 1A). Sternites from 2-5 with a



Text-fig. 1. *Axius (Neaxius) acanthus*, ♂ A. specimen in lateral view. B. dorsal view of anterior region. C. 2nd abdominal sternite. D. small cheliped. E. telson. A at scale B=5 mm; B, D & E at scale C=2 mm; C at scale A=1 mm.

median spine (Fig. 1C).

Antenna 2 peduncle longer than that of antenna 1 (Fig. 2A) by last article; article 2 dorsally produced almost to level of end of scaphocerite, with 6 spines laterally, dorsal ridge smooth except at base where medially directed spine is seen; scaphocerite acute, reaching 0.7 length of article 4; with one dorsal and 6 medial spines; article 3 with 1



Text-fig. 2. *Axius (Neaxius) acanthus*, ♂ A. antenna 1 in ventral view. B. antenna 2 in dorsal view. C. maxilliped 3. C'. ischium maxilliped 3, inner view. D. chela of pereopod 5. E. pleopod 2, with enlarged appendix masculina. A, B, D at scale C; C & C' at scale A; E at scale B. All scales=1 mm.

and article 4 with 3 spines, article 5 unarmed (Fig. 2B). Eye-stalks shorter than length of rostrum. Maxilliped 3 ischium with curved toothed ridge on mesial surface (Fig. 2C'); merus longer than ischium with 6 medial spines; carpus distally swollen and armed with 6 submarginal medial spines (Fig. 2C).

Chelipeds unequal, not sexually dimorphic\*. Large cheliped basis with 1 ventral spine, ischium with 4 ventral spines and flat disto-lateral triangular projection; merus with 4 ventral spines, one tooth and a curved submarginal row of 8 spines at disto-median angle, 3 spines on dorsal margin; carpus with 1 ventral spine; propod dorsally smooth, ventrally crenulate; fingers crossed, fixed finger stout, with a well developed tooth at distal 1/3; dactyl smooth terminally curved except a broad convexity at 1/3. Small cheliped similar to large except in size (Fig. 1D). Pereopod 2 with ventral spines on coxa, ischium and merus. Pereopod 3 with ventral spines on coxa and merus. Pereopod 4 with dactyl armed; ischium produced disto-laterally; coxa with ventral spines. Pereopod 5 with cutting edge of chela armed (Fig. 2D). Pleopod 2 illustrated in fig. 2E.

Telson wider (Fig. 1E) than long, widest point 1/3 way along, then strongly tapering posteriorly; tapering margins tuberculate; posterior margin weakly emarginate, with a small projection at its midpoint. 2 strong smooth transverse ridges dorsally. Uropod endopod anterior margin short, lateral margin concave, a flat spine between this margin and posterior margin; posterior margin armed with 2 spines; medial dorsal ridges with 1 proximal and 1 distal spine, lateral ridge smooth; exopod with a straight lateral margin, ending in a spine, posterior margin curved, with 12 strong spines, dorsal ridges curved, smooth.

Distribution: Indo-Pacific.

*Axiopsis (Paraxiopsis) brocki* (DE MAN)

(Fig. 3)

*Axiopsis brocki* DE MAN, 1887: 475-480, pl. 20, fig. 3.

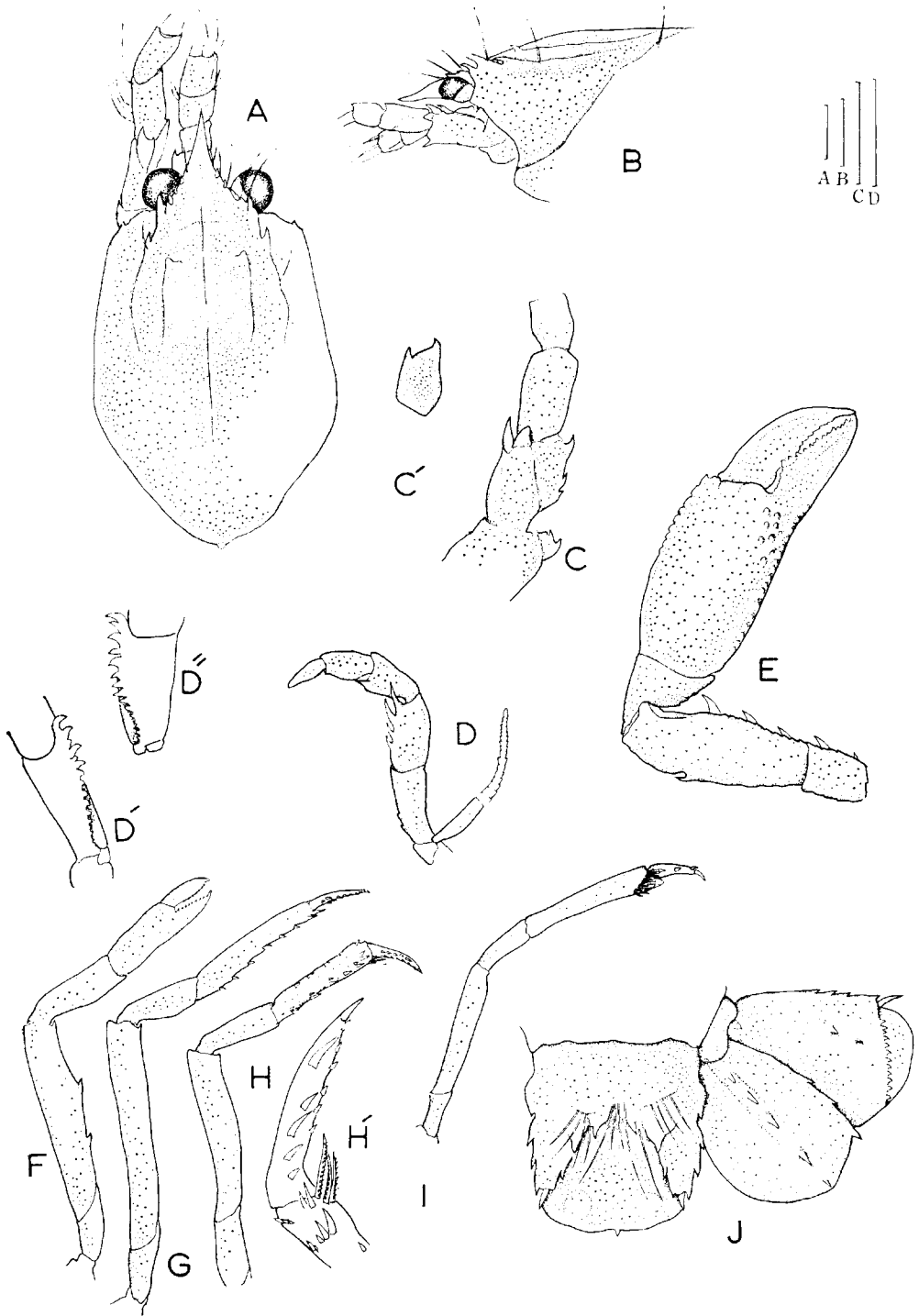
*Axiopsis (Paraxiopsis) brocki*—DE MAN, 1905: 597; 1925a: 7, 71, 101-109, pl. 8, fig. 19.

*Axiopsis (Paraxiopsis) brocki*—POORE & GRIFFIN, 1979: 228, fig. 3.

*Material Examined*: 4 specimens from Ambon (Bali) collected by A. BANNER 6-4-78 I B-8 CL=3-5 mm, TL=10-16 mm. Specimen illustrated ( $\hat{\sigma}$ ?) CL from orbital angle

\* Note—One female was available for study loaned out from British Museum.

Text-fig. 3. *Axiopsis (Paraxiopsis) brocki* (DE MAN). A. anterior region, dorsal view. B. same, lateral view. C. antenna 2. C'. scaphocerite, dorsal view, further enlarged. D. maxilliped 3. D', D". ischium of left, right maxilliped 3 respectively, inner view, further enlarged. E. right cheliped. F-H. pereopods 2-4. H'. Pereopod 4 propodus with a bunch of spinous, strong, cumbed setae. I. Pereopod 5. J. telson and uropod. A at scale C=1 mm; B, D, F-I. at scale B=1 mm; C & J at scale D=0.5 mm; E at scale A=1 mm.



=5 mm. TL from rostrum tip to telson tip=16 mm.

*Descriptive Remarks:* Rostrum triangular, tip very slightly upturned. Gastric region falling gradually down to rostrum. Median carina of gastric shield ending anteriorly at base of rostrum; submedian carina each ending anteriorly as a blunt projection or spine; lateral carina running as spinose ridges on to sides of rostrum, posterior two spines strong. Antero-lateral margin of carapace with a small spine just above antenna 2 (Fig. 3 A, B).

Antenna 1 peduncle reaching beyond end of article 4 of antenna 2, stylocerite a small spine (Fig. 3A). Antenna 2 article 1 with a toothed projection on disto-ventral angle and a small dorsal spine (Fig. 3C); scaphocerite a double-spined plate, lateral spine stronger (Fig. 3C'); article 3 with 3 ventral spines. Eyestalks less than half length of rostrum. Maxilliped 3 ischium with a mesial toothed ridge, varying on two sides in one specimen having CL=5 mm (Fig. 3D', D''); merus with 2 proximal smaller spines and 2 larger distal spines, distal most at inner disto-lateral angle; carpus with one small spine at inner disto-lateral angle (Fig. 3D).

Chelipeds subequal; ischium dorsally and ventrally serrated, spinose submarginally; merus with dentate ventral margin submarginally with 3 spines, dorsal margin with single spine at distal 1/3, carpus with 2-3 tubercles on ventral surface; propod tuberculate on most of ventral surface, dorsal, lateral and medial surfaces with fewer tubercles; propod with dorsal spine distally; fixed finger cutting edge strongly dentate, a very strong tooth 1/3 way along; dactyl as long as fixed finger, strong curved tip, cutting edge concave with a projection at level of strong tooth of fixed finger (Fig. 3E). Pereopod 2 merus with 2 spines ventrally, 1 at disto-median angle; cutting edges of each finger of chela toothed, tips pointed (Fig. 3F). Pereopod 3 with a single row of numerous small articulating spines on propod and dactyl (Fig. 3G). Pereopod 4 with two such rows on propod and dactyl, inner distal angle with a bunch of spinose, strong combed setae (Fig. 3H & H'). Pereopod 5 rather weakly armed (Fig. 3I). Pleopod 1 a single small rod shape article.

Telson longer than wide, parallel sided but abruptly narrowed 1/3 way from base, lateral margins with 3 spines along length ending posteriorly in 1 fixed and 1 movable spine; posterior margin semicircular with a short medial spine; 2 dorsal diagonal ridges with 3-4 strong spines running down to movable spines. Uropod endopod lateral margin with 2-3 small spines ending in a strong spine, posterior and medial margins continuous, dorsal longitudinal ridge with 5 spines; exopod 2- articulate, 2nd article very short, lateral margin of first article with 3-5 small spines, ending in a long articulating spine, 2 spines on dorsal, longitudinal ridges hardly perceptible, 9-12 spines along distal margin (Fig. 3J).

*Distribution:* Indonesia, Australia.

*Axiopsis (Axiopsis) consobrina* DE MAN

(fig. 4)

*Axiopsis consobrina* DE MAN, 1905: 595-596; 1925a: 5, 69, 80-84, fig. 13.—POORE & GRIFFIN, 1979: 230, fig. 4.

*Material Examined*: —One female, 6.4-75 1B-8 Bali, TL=13 mm, CL=5 mm.

*Descriptive Remarks*: Rostrum broad, triangular, upturned, 5 spines on each edge, tip of rostrum hooked upward. Gastric region falling very gradually down to rostrum; 5 longitudinal, spinose carinae running on gastric shield, median carina arise from base of rostrum, parallel to it two short spinose ridges run on each side; submedian carinae start from fifth spine of median carina, scattered spines between median and submedians, arranged, somewhat in longitudinal rows; antero-lateral margin of carapace with a small projection just above antenna (Fig. 4A, B).

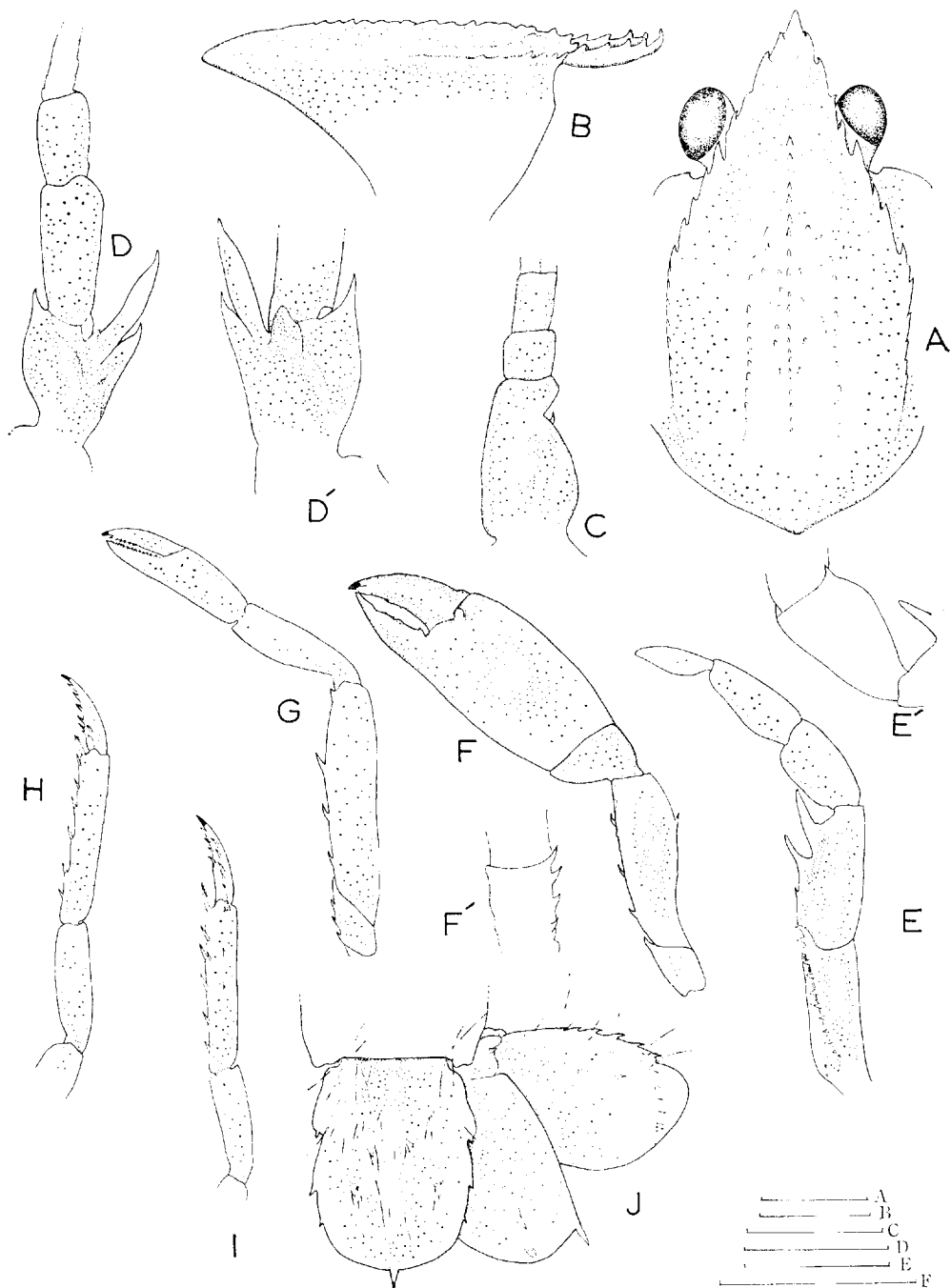
Antenna 1 peduncle reaching beyond article 4 of antenna 2; stylocerite a small spine (Fig. 4C). Antenna 2 article 2 with one strong spine, scaphocerite also a strong spine reaching half of article 4, bearing a basal medial spine (Fig. 4D); article 3 with a ventral spine (Fig. 4D, D'). Eyestalks stout, half length of rostrum (Fig. 4A). Maxilliped 3 ischium with a mesial toothed ridge; merus with 3 medial spines increasing in length distally; carpus with 1 small disto-medial spine (Fig. 4E, E').

Cheliped ischium spinose ventrally (Fig. 4F'); merus with 5 unequal spines, dorsal edge with single spine on distal one third; carpus unarmed; cutting edge of fingers crenulate; dactyl longer than fixed finger, tip with sub-terminal corneous projection (Fig. 4F). Pereopod 2 ischium and merus spinose; cutting edge of chela dentate, dactyl longer than fixed finger, tip corneous (Fig. 4G). Dactyli and propodi of pereopods 3-4 armed as in Fig. 4H, I.

Telson longer than wide, almost parallel-sided, lateral margins with 3 spines; posterior margin semicircular, with a median spine; a pair of sub-medial spines on dorsal surface at middle and 2 large spines placed posteriorly. Uropod endopod lateral margin with a terminal spine, posterior and medial margins continuous, dorsal longitudinal ridge with 5 spines; exopod 2 articulate, lateral margin of first article with 6 spines; dorsal longitudinal ridge spinose, 8 spines along distal margin; second article only a fraction of total length of exopod (Fig. 4J).

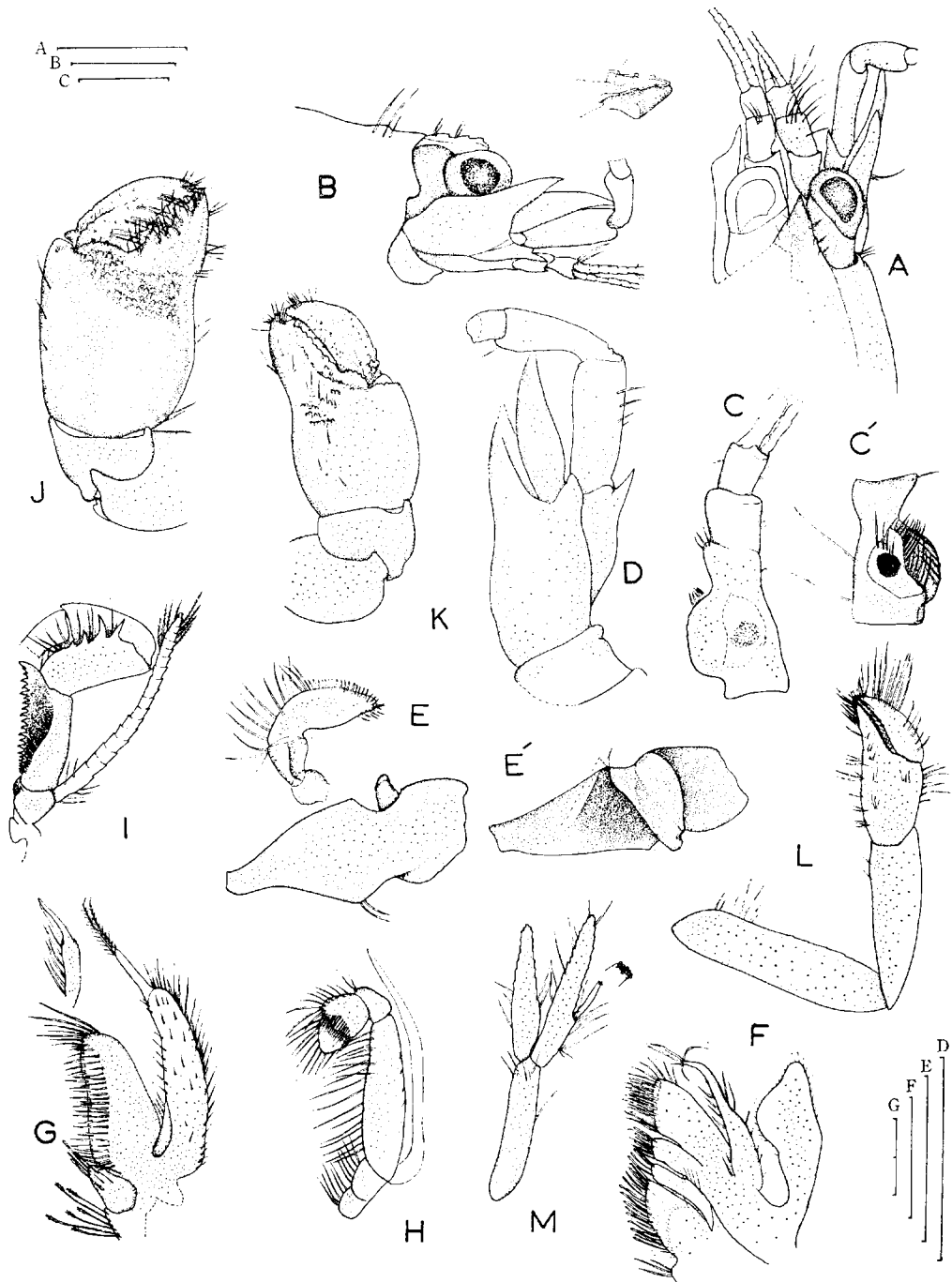
*Distribution*: Indonesia and Australia.

*Remarks*: From DE MAN's key the specimen at hand was identified as *A. consobrina* but on detail examination there were several differences found in rostrum, telson, chela and other appendages.



Text-fig. 4. *Axiopsis (Axiopsis) consobrina* DE MAN. A. gastric shield and eyes. B. rostrum and gastric shield, lateral view. C. antenna 1. D. antenna 2. D'. same, article, 2, 3, and scaphocerite, ventral view. E. endopod of maxilliped 3, inner view. E'. carpus of maxilliped 3, outer view, further enlarged. F. cheliped. F'. cheliped ischium, further enlarged. G-I. pereopods 2-4. J. telson and uropod. A at scale F=1 mm; B & E at scale D=1 mm; C at scale A=0.5 mm; D at scale B=0.5 mm; D' at scale E=0.5 mm; F & J at scale C=1 mm; G-I at scale B=1 mm.





Text-fig. 5. *Axius* sp. A. anterior region, dorsal view. B. same, lateral view. C. antenna 1. C'. article 1 of antenna 1. D. antenna 2. E. mandible. E'. same, inner view. F. maxilla 2. G-I. maxillipeds 1-3. J-K. right, left chelipeds. L. pereopod 2. M. pleopod 2. A, B & L at scale B=1 mm; C-E' at scale E=1 mm; F at scale D=1 mm; G at scale A=1 mm; H, J & K at scale G=2 mm; I at scale C=1 mm; M at scale F=1 mm.

*Axius (Axius) sp.*

(Fig. 5)

*Material examined*:—One fragmantry specimen, possibly female, Stat. 1/3, close to Tg. Ani, Piru Bay, Ceram, Maluku; dredged 72–78 M; mud. LON-RUMPHIUS 1973 collected. January 8th, 1973 Coll. "R. V. Samudera" ca. 786. Approximate length of abdomen=7 mm.

*Descriptive Remarks*: Small badly preserved specimen at first sorting proved to be a species of genus *Axius*. Further handling was difficult, the available fragments are illustrated and described.

Rostrum narrow, slightly upturned, pointed, depressed in middle, ventrally keeled, margin raised with 4 or 5 serrations (Fig. 5A, B). Antenna 1 peduncle reaching more than half of article 4 of antenna 2 (Fig. 5A), seems unarmed (Fig. 5C, C'). Antenna 2 with a dorsal ridge on article 2 extending forward as a strong spine; scaphocerite a prominent down-curved spine; article 3 with a ventral spine (Fig. 5D). Eye stalks reaching far beyond rostrum, clearly visible dorsally. Chelipeds unequal, left larger.

Cheliped merus inner margin serrated with a spine ventrally; carpus unarmed; propod with inner and outer surfaces partly granulated, distally more conspicuous on larger cheliped; fixed finger cutting edge of large chela with 2 strong teeth, that of small cheliped serrated; dactyli cutting edges serrated (Fig. 5J, K). Mandible, maxilla 2 and maxillipeds 1-2 are as illustrated in figs. 5E-H. Maxilliped 3 ischium with strong mesial toothed ridge; carpus armed with 4 sub-equal spines (Fig. 5I). Pereopod 2 (Fig. 5L) with medially serrated merus and propod; cutting edges of chela toothed. Pleopod 2 as in figure 5 M.

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### 要 約

インドネシアのルンピウス探検調査(昭和48)で得られたアナエビ類4種, ヤハズアナエビ *Axius (Neaxius) acanthus*, ブロックアナエビ *Axiopsis (Paraxiopsis) brocki*, コンソブリナアナエビ *Axiopsis (Axiopsis) consobrina*, アナエビ *Axius* sp. について報告する。コンソブリナアナエビは DE MAN の検索表に基づいて同定されたが, 額角, 尾節, 鉗脚その他胸脚で必ずしも一致をみななかった。