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TWO NEW SPECIES OF CHIROSTYLIDS (DECAPODA: ANOMURA: CHIROSTYLIDAE) FROM TASMANIA

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ABSTRACT

Two new anomuran crustaceans from Tasmania are described and illustrated. *Gastroptychus rogeri,* new species, is similar to *G. hendersoni* (Alcock and Anderson, 1899) in the carapace spination but may be distinguished by having very spinose abdominal segments. *Uroptychus raymondi,* new species, is characterized by the combination of a strong midlateral spine on the carapace, a short, relatively broad antennal scale, and a short antennal flagellum, which differentiates the species from *U. valdiviae* Balss, 1913.

Unidentified specimens of chirostylid anomuran crabs obtained from Tasmania and vicinity and now deposited in the collection of the Tasmanian Museum (TM) have been made available for study. These include two species: one belonging to *Gastroptychus* Caullery, 1896, and the other to *Uroptychus* Henderson, 1888, both of which represent new species.

No record is available for *Gastroptychus* from off southeastern Australia; the southern limit of the distributional range is known to reach the east coast of New Zealand where Baba (1974) described one species. The known occurrences of the genus nearest to eastern Australia were recorded by Baba (1991) for three species from Chesterfield Island and Loyalty Islands. In her report of galatheideans from Australia, Haig (1973) mentioned that the "Endeavour" collection from Australia does not include chirostylids. However, I have found two "Endeavour" specimens of *Gastroptychus* from the Tasman Sea in the collection of the Copenhagen Museum (Baba, unpublished), which were collected by Th. Mortensen while he was a guest scientist on board the ship. These specimens represent an undescribed species. Thus, two species of the genus are to be known from this sea area. Records of *Uroptychus* species from eastern Australia are available only in Henderson (1885, 1888) who reported *U. australis* and *U. gracilimanus* from Port Jackson. The present new species thus is the third species to be known from eastern Australia.

Abbreviations used below include: chl, length of P1; cl, postorbital carapace length; Mxp 3, third maxilliped; P1, pereiopod 1 (cheliped); P2–4, pereiopod 2–4 (first to third walking legs).

Gastroptychus rogeri, new species
Figs. 1, 2

Material Examined.—Pedra Branca, S. Tasmania, 43°50′S, 147°E, 1,000 m, Jan.–Feb. 1991, D. Whannar coll.—1 ♂, holotype, cl 26.5 mm, chl 171.5 mm (TM G3497). Maatsuyker area, S. Tasmania, 44°13′S, 146°11′E, 850 m, 19 Nov. 1996, B. Kellaher coll.—1 ♂, paratype, cl 27.9 mm, chl 180 mm (TM G4030).

Description.—Rostrum slightly less than one-third as long as postorbital carapace length, rostral base laterally ridged, rostral spine curving dorsally. Lateral limit of orbit unarmed. Carapace, excluding rostrum, 1.12 times as long as its greatest width. Dorsal surface covered with spines more pronounced on anterior half, more numerous on posterior half especially on lateral portion. Gastric region convex, distinctly separated from cardiac region by deep depression slightly anterior to midpoint of postorbital carapace length; 6 spines in hexagonal arrangement with another spine in center (bearing additional 3 spines in longitudinal row followed behind central spine in paratype). Anterior branchial region separated by deep depression from posterior branchial region, indistinct from gastric region, bearing prominent spine; posterior branchial region with anterior elevation distinctly (holotype) or indistinctly (paratype) subdivided into mesial and lateral convexities, each with a few spines, lateral 2 prominent. Cardiac region with pair of strong anterior spines, each flanked by smaller spine, preceded by pair of small spines in paratype

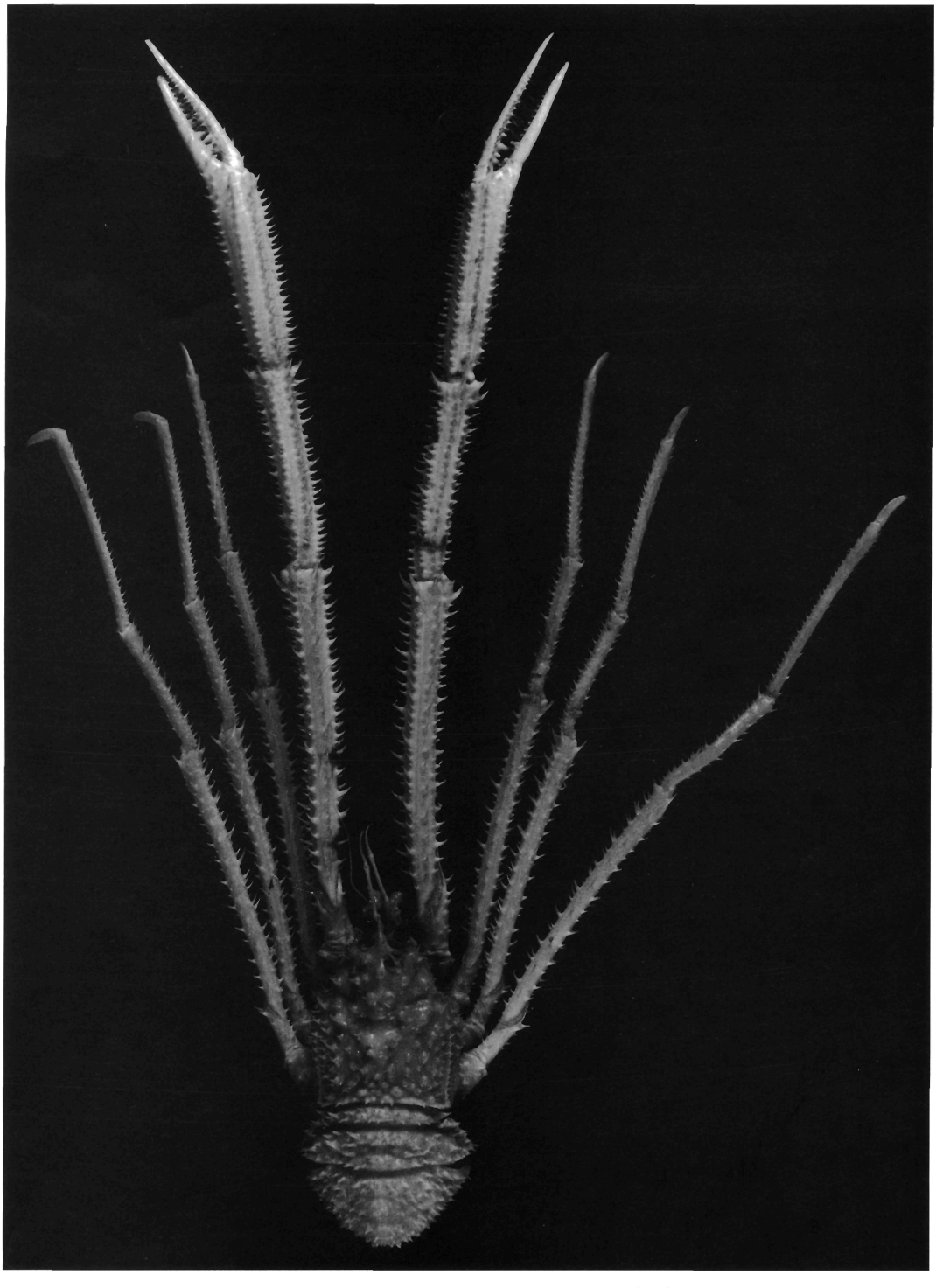

Fig. 1. *Gastroptychus rogeri,* new species, holotype, male, dorsal view.

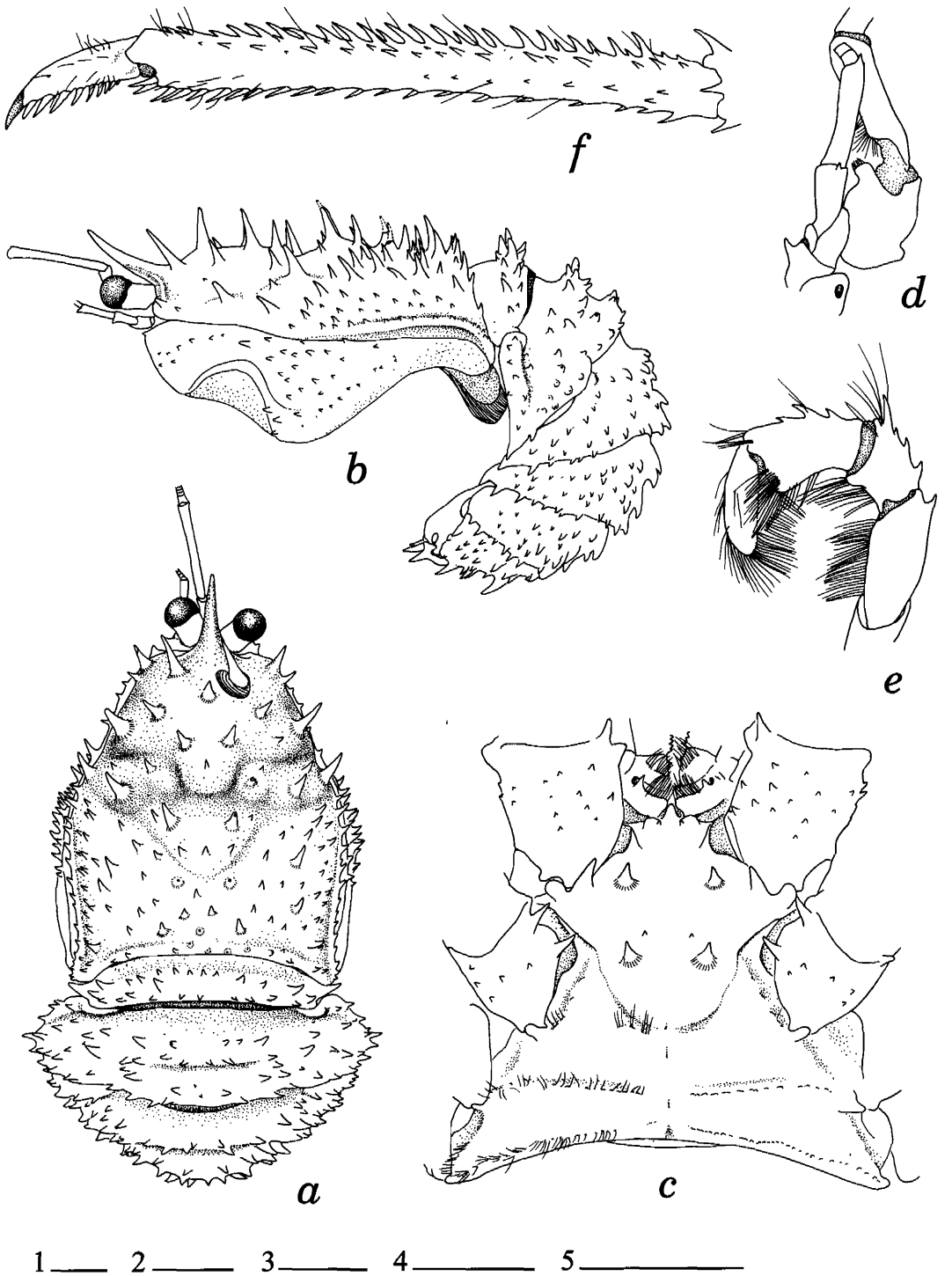

Fig. 2. *Gastroptychus rogeri,* new species, holotype, male: *a,* carapace and abdomen, dorsal; *b,* same, lateral; *c,* sternal plastron; *d,* right antennule and antennal peduncle, ventral; *e,* endopod of left Mxp 3, proximal segments omitted, lateral; *f,* distal segments of left P2, lateral. Scales = 5 mm; scale 1 for *a, b;* scale 2 for *f;* scale 3 for *c;* scale 4 for *e;* scale 5 for *d.*

or no spine in holotype on smooth surface lowered our toward cervical groove, followed behind by 2 or 3 smaller spines in transverse row on posteriorly lowered surface of reverse triangle. Lateral margins diverging posteriorly to midpoint of postorbital carapace length, then slightly converging concavely to posterior end. Anterolateral spine distinct, accompanied by another spine directly behind it. Elevated ridge along posterior margin with small spines. Pterygostomian flap with small spines as figured, anterior margin ending in small spine.

Thoracic sternite at base of Mxp 3 having anterior median ridge produced forward, followed behind by pair of small spines on surface. Following sternite with 3 pairs of strong spines, all directed ventrad: lateralmost pair on posterior parts of anterolateral margins strongest, anterior of mesial pairs slightly anterior and mesial to level of lateralmost, remaining pair present at level of anterior end of insertion of P1; additional 1–3 pairs of small spines between anterior and posterior mesial pairs.

Abdominal somites with numerous spines, pleura of somites 2–4 sharply tapering. Somite 1 having tergite transversely elevated, with spines arranged roughly in 2 rows, all spines directed dorsad; pleura ending in sharp, strong spine. Tergite of somite 2 divided into anterior and posterior elevations by mid-transverse groove, each elevation with spines arranged roughly in transverse rows; pleura with numerous spines. Tergites of somites 3–6 covered with spines arranged roughly in transverse rows, all spines directed posteriad; spines on tergite larger than those on pleura, especially on last 2 somites. Telson consisting of 2 plates, laterally lobe-like; posterior plate 1.2–1.4 times longer and 1.08–1.16 times wider than anterior.

Eyestalks barely reaching rostral tip, cornea moderately dilated.

Basal segment of antennule unarmed, distolateral margin rounded, bearing short fine setae. Antennal peduncles having second segment with acute distolateral spine; distal 2 segments with small distoventral spine, ultimate segment 2.5 times as long as penultimate (when measured along mesial margin); flagellum barely reaching end of P1 merus; antennal acicle reduced.

Endopod of Mxp 3 relatively stout. Basis with 1 spine on cristata dentata; ischium with 17 or 18 denticles on mesial ridge. Merus with distolateral spine. Carpus with well-developed distolateral and 3 extensor marginal spines. Propodus with 3 or 4 spines along extensor margin.

P1 subcylindrical, 6.5 times as long as postorbital carapace length, sparingly setose, bearing acute spines arranged in 7 rows: 2 dorsal, 2 ventral, 1 mesial, 2 lateral; and in paratype, additional small spines, including row of ventral spines. Merus and carpus equally wide but narrower than palm. Carpus subequal to palm in length. Palm somewhat widened distally, 4.3–4.5 times as long as wide, 1.2 times as long as movable finger, with additional spines on distal portion. Fingers directed somewhat laterad when extended forward, proximal portion with small spines dorsally, ventrally and laterally; opposable margins moderately gaping, with dense stiff setae and row of more or less pronounced processes, one of them at proximal fourth prominent on both fingers, that of fixed finger placed distal to that of movable finger when closed.

P2–4 slender, subcylindrical, distally compressed, especially on dactyl; very spinose, with sparse coarse setae. Merus with 6 rows of spines continued onto propodus. Carpus shorter than propodus. Propodus somewhat compressed; flexor margin with 2–6 fixed spines on proximal portion (2 or 3 on P2, 5 on P3, 6 on P4); remaining distal spines, 14–17 in number, basally articulated. Dactyl short, compressed, extensor margin convex, flexor margin nearly straight, ending in strong, curved corneous spine preceded by 7–10 basally articulated sharp spines moderately oblique in lateral view.

Color.—Description based upon a photograph of the paratype provided by Roger Buttermore. Carapace and abdomen pale, with transverse bands of orange red crossing anterior carapace including rostrum, posterior half of gastric region and its adjacent lateral region, posterior part of carapace behind cardiac region, posterior portion of each abdominal segment except telson. Pereiopods brownish red, spines basally reddish, distally pale.

Remarks.—The arrangement of spines on the carapace displayed by the new species is very similar to that of *Gastroptychus hendersoni* (Alcock and Anderson, 1899) previously known from the Arabian Sea, Philippines,

Kyushu-Palau Ridge, and New Caledonia. The new species is readily distinguished by the differences noted below. All the abdominal tergites are very spinose in the new species, whereas in *G. hendersoni* the tergite 3 is unarmed (Alcock and Anderson, 1899a: 23; 1899b: pl. 45, fig. 2; Alcock, 1901: 210; Tirmizi, 1964: 389; Baba in Baba *et al.*, 1986: 288, pl. 117; Baba, 1988: fig. 4; Baba, 1991: 469). The Mxp 3 in *G. rogeri* bears small but distinct extensor marginal spines on both the carpus and the propodus, whereas that of *G. hendersoni* is unarmed (see Alcock and Anderson, 1899a: 23; Alcock, 1901: 280) other than the distolateral spines, the evidence confirmed by reexamination of the material reported earlier by Baba (1986, 1988).

Etymology.—Named after Roger Buttermore, a curator of the Tasmanian Museum who made the material available for study.

Uroptychus raymondi, new species
Fig. 3

Material Examined.—Off St. Helens, Tasmania, 41°25′S, 148°40′E, 645 m, 12 Sept. 1985, G. Darey coll.—6 ♂♂ (cl 4.7–10.2 mm), 12 ov. ♀♀ (cl 6.4–12.0 mm), 6 ♀♀ (cl 5.5–7.3 mm) [1 ovigerous female, 6.4 mm, is selected as holotype] (TM G3517).

Description.—Carapace, excluding rostrum, 1.12–1.27 times as long as broad (greatest width measured at midlength of lateral margin). Dorsal surface weakly convex from side to side and from anterior to posterior end, with granulate or tuberculate short ridges bearing setae; wide depression bordering gastric and cardiac regions. Rostrum sharply triangular, length 0.48–0.58 times that of remaining carapace (greater in small specimens), dorsal surface anteriorly lowered, flattish or slightly convex with shallow median longitudinal depression, ventral surface horizontal. Lateral limit of orbit subtriangular but not strongly produced. Lateral margins with irregular sizes of denticles often distinct but small, often obscured, posteriorly diverging toward very strong midlateral spine rarely accompanied by smaller spine directly behind it, then converging toward posterior end, bearing ridge; anterolateral spine well developed, stout, often equally as strong as midlateral spine. Pterygostomian flap not visible in dorsal view, bearing feeble granulation and setae on surface, anteriorly ending in small spine.

Sternal plastron relatively narrow, somewhat widened posteriorly. Sternite at base of Mxp 3 depressed, anterior margin strongly concave, with wide U-shaped median notch often flanked by very small spine, anterolateral angle strongly produced. Sternite at base of P1 anterolaterally produced, anterolateral margin relatively short.

Abdominal segments unarmed, with sparse setae.

Eyes relatively narrow and elongate, usually barely reaching, rarely fully reaching midlength of rostrum, cornea equally as wide as but distinctly shorter than remainder of eyestalk.

Antennal peduncles distinctly overreaching cornea; distal 2 segments with small distoventral spine often barely discernible, ultimate segment twice as long as penultimate when measured along mesial margin; antennal scale relatively wide (width varying between 1.3 and 1.9 times that of opposite peduncle), never reaching end of ultimate peduncular segment (length varying from barely reaching to overreaching midlength of ultimate segment). Flagellum consisting of 17 or 18 segments, slightly longer than rostrum.

Mxp 3 moderately setose. Ischium having mesial ridge with row of denticles much smaller in distal fourth, larger and relatively distant from one another in remaining proximal portion. Merus short relative to width, with blunt distolateral process, flexor border distally ending in rounded margin, bearing 2 tubercular spines: proximal one about at distal third of length, distal one equidistant between proximal spine and distal end. Carpus with blunt, obsolescent process on distolateral end.

P1 3.6–4.8 (females), 4.5 (male) times as long as carapace excluding rostrum, relatively massive, surface thickly covered with long, fine setae. Ischium with distodorsal spine of moderate size. Merus and carpus subcylindrical, covered with granules or tubercles more distinct on ventral surface, distal margin with small spines. Palm somewhat depressed, about as long as or slightly shorter than carpus, relatively narrow in large specimens, less so in small specimens, more than twice as long as movable finger but never exceeding 2.5 times as long. Fingers relatively depressed, opposable margins distinctly sinuous in larger specimens of both sexes, less so in small specimens.

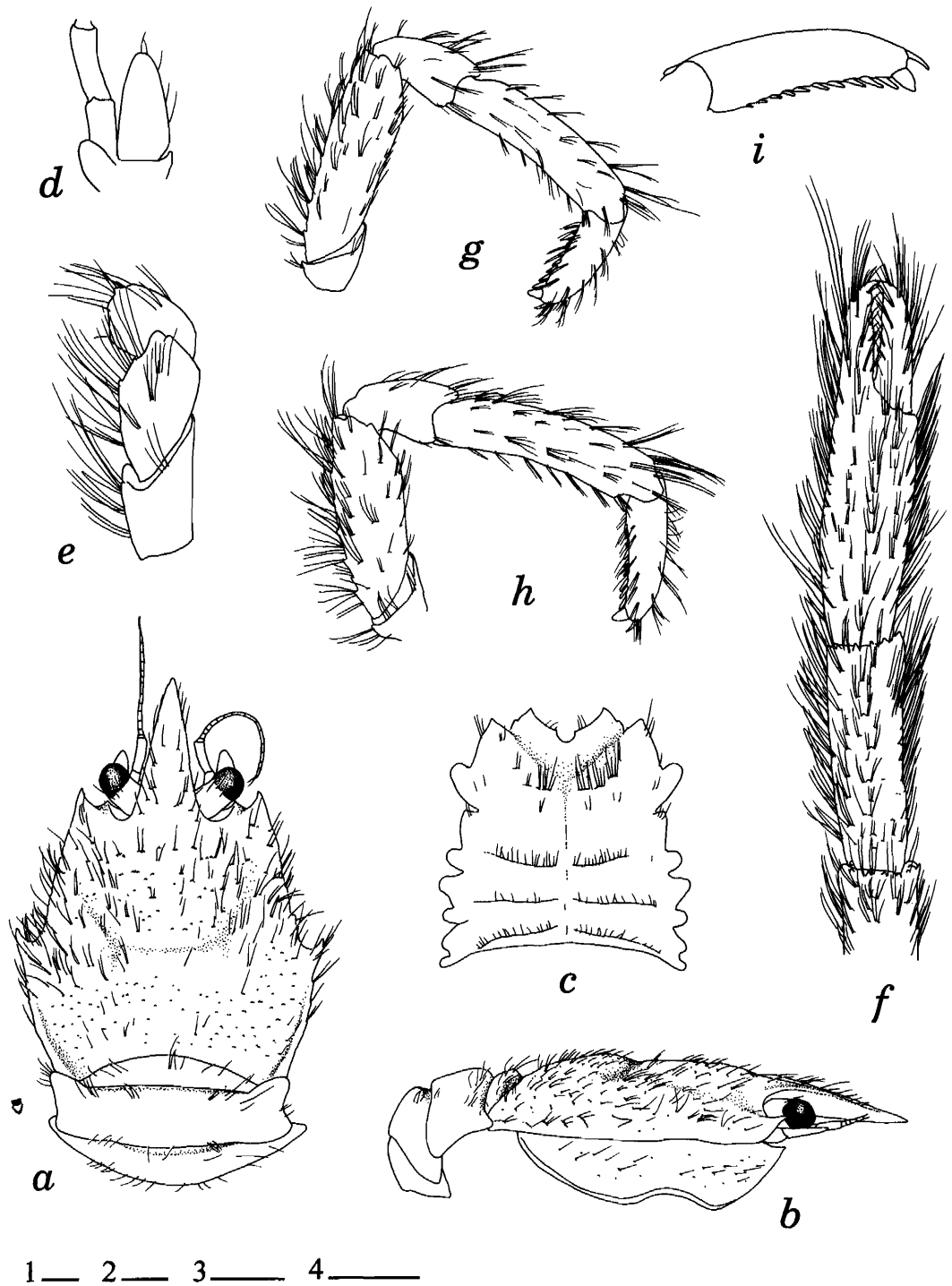

Fig. 3. *Uroptychus raymondi,* new species, holotype, male: *a,* carapace and abdomen, dorsal; *b,* same, lateral; *c,* sternal plastron; *d,* left antennal peduncle, ventral; *e,* endopod of left Mxp 3, distal segments omitted, lateral; *f,* left P1, dorsal; *g,* right P2, lateral; *h,* right P3, lateral; *i,* distal segment of right P4, setae omitted. Scales = 1 mm; scale 1 for *a, b, f;* scale 2 for *c, g, h;* scale 3 for *e, i;* scale 4 for *d.*

P2–4 relatively massive, with short ridges bearing long fine setae. Meri posteriorly diminishing in size, dorsal margin with small tubercle-like processes often obscured. Carpus short, length less than half that of propodus. Propodus 1.5 times as long as dactyl, flexor margin with pair of basally articulated spines distally, unarmed elsewhere. Dactyl relatively stout, slightly curving, flexor margin nearly straight, bearing 9–13 basally articulated spines usually obscured by thick setae, ultimate slender, penultimate stout, remote from ultimate, remaining spines slender, moderately oblique, diminishing in size toward base of segment.

Up to about 100 eggs carried, measuring 1.33 × 1.59–1.54 × 1.85 mm.

Remarks.—This species is close to *U. valdiviae* Balss, 1913, from Sombrero Channel of the Nicobar Islands, Indian Ocean, in the carapace ornamentation, setose pereiopods, and spination of P2–4 dactyls. The description of that species is so brief that I have tried to locate the type, but it seems to have been lost. The characteristics of the species is thus based on the original and extensive descriptions and illustrations (Balss, 1913; Doflein and Balss, 1913). The two species may be distinguished by the following: 1) the midlateral spine of the carapace is prominent in *U. raymondi,* not pronounced in *U. valdiviae;* 2) the anterolateral angle of the carapace is strongly produced forward in *U. raymondi,* being only a weak edge and not produced in *U. valdiviae;* 3) the antennal flagellum is relatively short, the length being at most slightly more than that of the rostrum in *U. raymondi,* whereas it is about twice as long in *U. valdiviae;* and 4) the P1 bears granulation on the surface in *U. raymondi,* but is smooth in *U. valdiviae.*

Etymology.—This species is named in honor of Raymond B. Manning.

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