

*TYPTON MANNINGI* AND *T. CAPRICORNIAE*, NEW SPECIES,  
NEW PONTONIINE SHRIMPS FROM NORTHERN QUEENSLAND,  
WITH A REVIEW OF THE INDO-WEST PACIFIC SPECIES OF  
*TYPTON* COSTA (DECAPODA: PALAEMONIDAE)

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A B S T R A C T

Two new pontoniine shrimp species of the little known genus *Typton* Costa, *T. manningi* and *T. capricorniae*, from Queensland, Australia, are described and illustrated. The Indo-West Pacific species of the genus are reviewed, and a key for their identification is provided. All six Indo-West Pacific species of the genus, associates of sponges and sparsely reported from East Africa to Japan, are known from Australian waters.

Pontoniine shrimps of the genus *Typton* Costa, 1844, are rarely reported in the Indo-West Pacific crustacean literature. They are probably less rare than the records suggest. They are all of small size and part of the cryptofauna, living inside the cavities of sponges, the hosts often themselves of very small size and encrusting the dead bases of coral colonies. Usually living as heterosexual pairs, the even smaller males are frequently not collected. Collected mainly from coral reef habitats, the greatest depth at which they have been found is 40–46 m. The sparse records indicate a wide distribution in Indo-West Pacific seas, from East Africa to Japan and the Great Barrier Reef. Other species are known from the East Pacific and West Atlantic oceans, and a single species, *T. spongicola*, the first species of the genus to be described, occurs in the East Atlantic-Mediterranean region. All six of the Indo-West Pacific species of *Typton* are known from Australia.

CL, postorbital carapace length; QM, Queensland Museum, Brisbane.

DESCRIPTION

Family Palaemonidae Rafinesque, 1815

Subfamily Pontoniinae Kingsley, 1878

Genus *Typton* Costa, 1844

*Typton manningi*, new species

Figs. 1–5

*Material Examined*.—1 ovig. ♀, holotype, 1 ♂, allotype, Abbot Point, Queensland, Australia, 19°53'S, 148°05'E,

8 July 1998, depth ?, from harbor pile scrapings, coll. J. Ackerman, QM W.24741, W.24742.

*Description. Female Holotype*.—Small-sized pontoniine shrimp (Fig. 1) of very inflated body form, lacking right fifth pereopod.

Carapace (Fig. 2A) subglobular, smooth, glabrous, slightly depressed, broader than deep; rostrum short, triangular in dorsal view (Fig. 2B), 1.5 times longer than basal width, carinae obsolete, feebly compressed distally, acute, (Fig. 2C) slightly up-turned, unarmed, ventral border convex, proximally enlarged, about 0.18 of CL, reaching to about level of distal margin of eyestalk; inferior orbital angle feebly produced, rounded; anterolateral border of carapace feebly produced, broadly rounded.

Abdomen large, inflated, segments smooth, glabrous, third not posterodorsally produced, sixth segment (Fig. 2G) half as long as wide anteriorly, depressed, with posterodorsal margin unarmed, posterolateral and posteroventral angles acutely produced; pleura of first three segments broadly rounded, fourth and fifth smaller, posteriorly produced, unarmed. Telson (Fig. 2H) about 2.5 times sixth segment length, about 1.8 times longer than maximal width at 0.33 of length, lateral margins convex, posteriorly convergent, posterior border feebly convex, without median process, about 0.27 of maximal telson width, dorsally with 2 pairs of small spines, at about 0.3 and 0.6 of telson length, anterior spines about 0.07 of telson length, slightly larger than posterior spines, posterior margin with 3 pairs

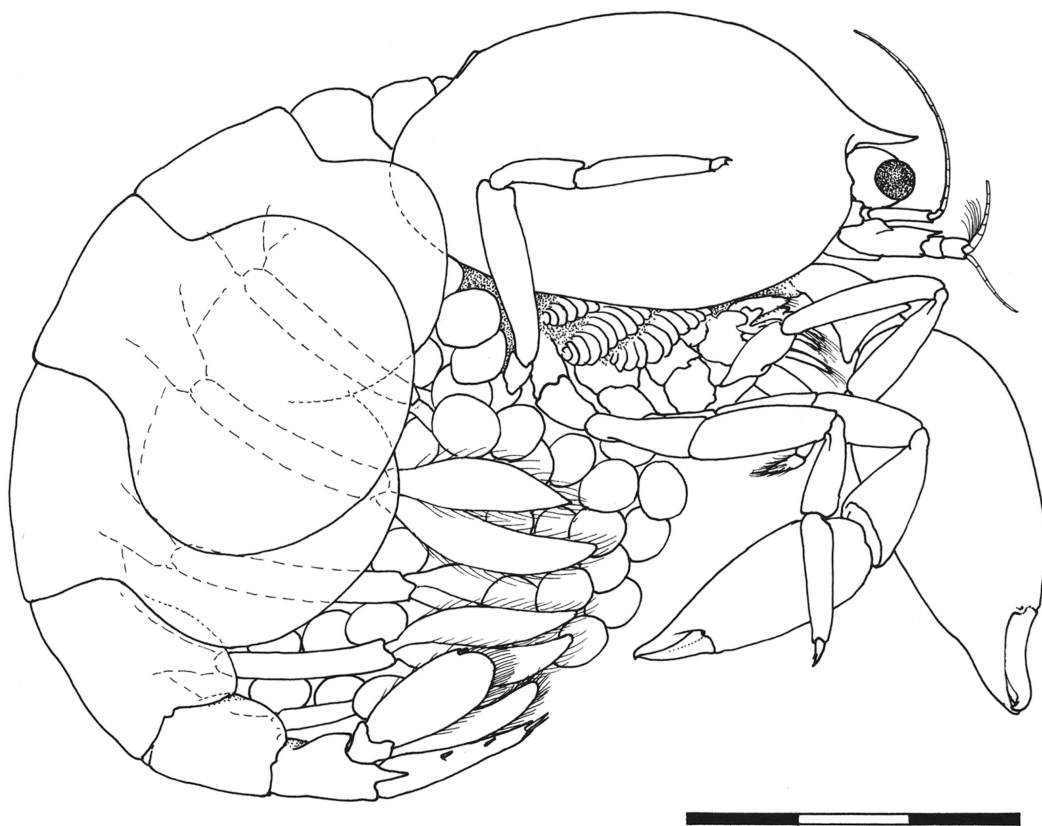


Fig. 1. *Typton manningi*, sp. nov., ovigerous female holotype, Abbot Point, Queensland, W 24741. Scale bar in millimeters.

of spines (Fig. 2I), lateral spines small, about 0.5 of anterior dorsal spine length, intermediate and submedial spines subequal, similar, about 2.5 times lateral spine length, submedian spines non-setulose.

Antennule (Fig. 2E) with short peduncle, exceeding rostrum and corneal margin by about half proximal segment length; proximal segment about 2.4 times longer than wide, lateral margin feebly concave, with strong distolateral tooth reaching to distal margin of intermediate segment, without ventromedial tooth, stylocerite very short, acute, reaching to about 0.4 of segment length, statocyst distinct, without statolith; intermediate and distal segments short, subequal, combined equal to about 0.45 of proximal segment length; upper flagellum short, first 2 segments of rami fused, stout, with about 5 groups of aesthetascs, short ramus distally obsolete, longer ramus with 5 short slender segments; lower flagellum similar, short, with 5 segments.

Antenna (Fig. 2F) with basicerite robust, unarmed, with large, rounded protuberant aperture to antennal gland, merocerite and ischiocerite small, carpocerite short, slender, 5.0 times longer than central width, reaching to about distal margin of proximal antennal segment, flagellum short, slender, about 5 times carpocerite length; scaphocerite completely lacking (Fig. 5A).

Eyes (Fig. 2D) well developed, small, globular, cornea well pigmented, hemispherical, transverse, about 0.8 of stalk width, 0.1 of CL.

Mouthparts (right) small. Labrum not enlarged. Mandible (Fig. 3A) without palp; corpus normal; molar process (Fig. 3C, D) subcylindrical, with 2 strong teeth distally separated by deep groove; incisor process (Fig. 3B) well developed, distal margin rounded with strong lateral tooth, 10 smaller teeth medially. Maxillula (Fig. 3E) with short, feebly bilobed palp (Fig. 3F), lower lobe with single short, sinuous simple seta; upper lacinia

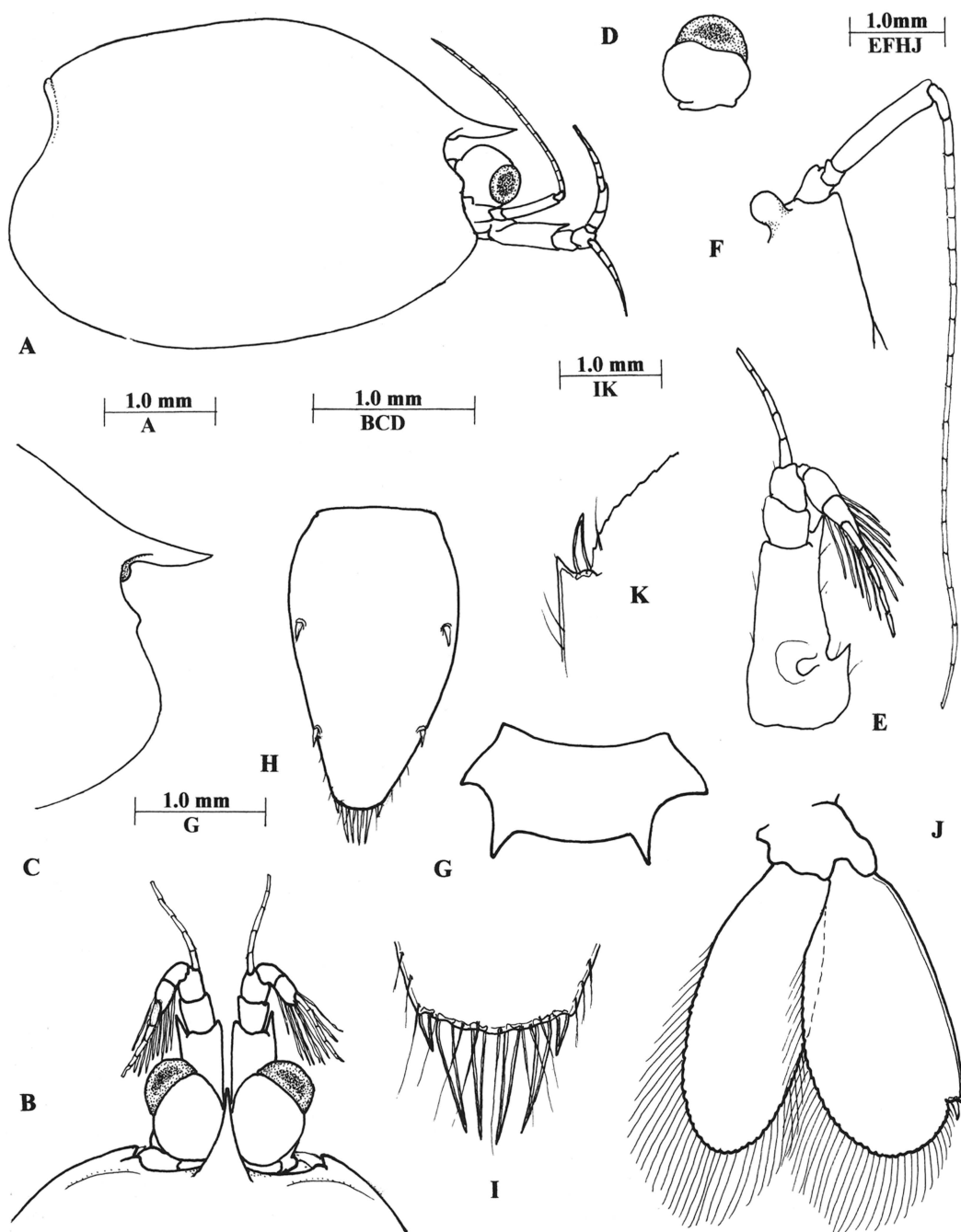


Fig. 2. *Typton manningi*, sp. nov., ovigerous female holotype. A, carapace, eye and antennae, lateral; B, anterior carapace, eyes and antennae, dorsal; C, anterior carapace and rostrum, lateral; D, eye, dorsal; E, antennule; F, antenna; G, sixth abdominal segment, dorsal; H, telson; I, same, posterior spines; J, uropod; K, same, exopod, posterolateral angle.

broad, medial border convex with numerous short simple spines; lower lacinia slender, tapering distally with numerous long simple spines. Maxilla (Fig. 3G) with simple slender

tapering palp, sparsely setose along proximal lateral margin; basal endite with lobes fused, medial margin angulate, with 2 sets of short simple setae; coxal endite obsolete, medial

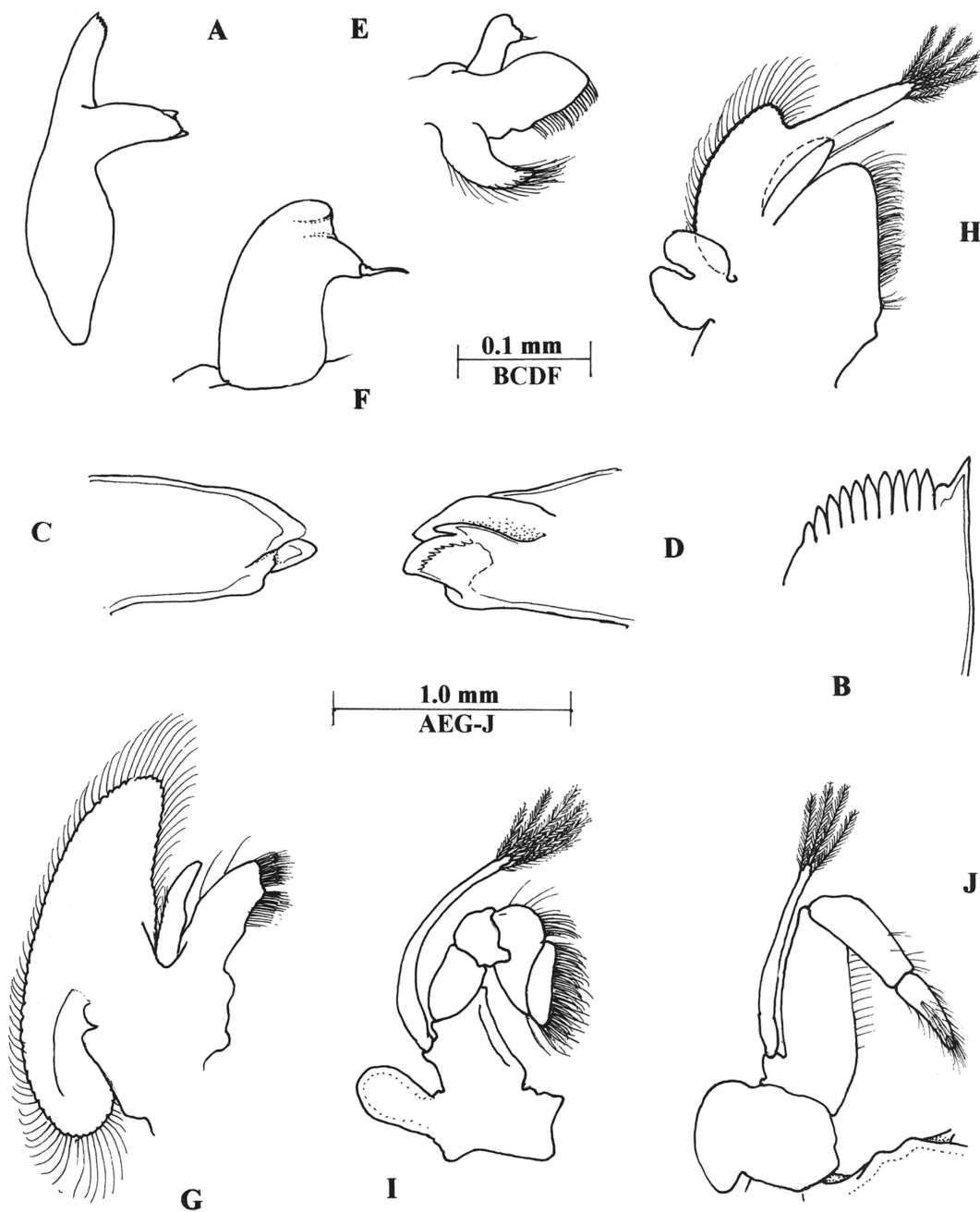


Fig. 3. *Typton manningi*, sp. nov., ovigerous female holotype. A, mandible; B, same, incisor process; C, same, molar process, posterior aspect; D, same, molar process, anterior aspect; E, maxillula; F, same, palp; G, maxilla; H, first maxilliped; I, second maxilliped; J, third maxilliped.

margin non-setose; scaphognathite well developed, 3.0 times longer than central width. First maxilliped (Fig. 3H) with well-developed palp with single long, simple preterminal seta medially; large basal and small coxal endites fused, basal endite with medial mar-

gin with dense short simple spines, coxal endite with few short spines, exopod well developed, caridean lobe broad, flagellum robust, short, subequal to caridean lobe length, with 6 terminal plumose setae, epipod small, deeply bilobed with rounded lobes. Second



maxilliped (Fig. 3I) with normal endopod, dactylar segment about 3.0 times longer than wide, with dense simple setae medially, propodal segment anterolaterally rounded, setose, carpus and ischiomerus and basis normal, exopod well developed with slender flagellum with 6 plumose setae distally, coxa angularly produced medially, with simple oval epipod laterally. Third maxilliped (Fig. 3J) with endopod short, reaching to about middle of proximal antennular segment, ischiomerus and basis fully fused, combined segment about 3 times longer than central width, flattened, sparsely setose, penultimate segment about 0.6 of antepenultimate segment length, 2.2 times longer than proximal width, tapering distally, sparsely setose, distal segment about 0.8 of penultimate segment length, 3 times longer than proximal width, with numerous groups of spiniform setae, exopod with slender flagellum reaching to well beyond antepenultimate endopod segment, with 4 plumose setae distally, coxal segment robust, with large oval coxal plate laterally; without arthrobranch. Paragnath with large suboval lobes.

Third thoracic sternite broad, with stout transverse carina. Fourth sternite unarmed. Posterior sternites narrow.

First pereopods (Fig. 4A) normal, extending exceeding carpoperite by carpus and chela. Chela (Fig. 4B) with palm about 1.8 times longer than deep, slightly compressed, fingers (Fig. 5B) broad, spatulate, about 0.6 of palm length, cutting edges entire, fixed finger with three small acute teeth distally, dactylus with two similar teeth, with numerous tufts of short setae, proximal cleaning setae absent; carpus without distal cleaning setae, 1.5 times chela length, 4.0 times longer than central width, tapering strongly proximally; merus 1.1 times carpus length, 4.5 times longer than central width; ischium about 0.55 of merus length; basis normal; coxa stout, without ventral process.

Second pereopods small, unequal. Major second pereopod (Fig. 4C) exceeding carpoperite by length of chela, subequal to CL; chela (Fig. 4D) with palm swollen, oval in section, smooth, glabrous, about 2.0 times longer than deep, tapering slightly distally, fingers (Fig. 4E) about 0.4 of palm length, dactylus (Fig. 5C) compressed, with compressed acute tooth proximally, tip acute, hooked, intervening cutting edge feebly con-

cave, entire, fixed finger (Fig. 5D) compressed, deeply cannulate, medial cutting edge expanded, laminar, with large acute tooth proximally, acting as shear against dactylus, cutting edge denticulate, with minute blunt teeth, lateral edge sharp, entire, with small blunt tooth proximally; carpus about half palm length, 2.5 times longer than distal width, distally expanded, excavate, unarmed, strongly tapered proximally; merus about 0.8 of palm length, 1.7 times longer than wide, subuniform, unarmed; ischium almost 0.5 of palm length, tapered proximally, 2.4 times longer than distal width, unarmed; basis and coxa robust, without special features, coxa without ventral process. Minor second pereopod (Fig. 4F) similar to major, smaller, chela about 0.7 of CL, 0.6 of major chela length, fingers about 0.35 of palm length.

Ambulatory pereopods normal. Third pereopod (Fig. 4G) exceeding carpoperite by about length of propod and dactyl, moderately robust; dactyl (Fig. 5E) about 0.16 of propod length, stout, compressed, unguis short, stout, strongly curved, about 1.5 times longer than basal width, proximal dorsal surface transversely ribbed, ventral border entire (?), carpus about 1.3 times longer than basal width, tapering distally, distal width about 0.3 of basal width, with subterminal acute distal accessory tooth, ventral margin concave, unarmed; propod (Fig. 4H) about 4.2 times longer than proximal width, tapering slightly distally, with pair of stout distoventral spines, 2 single ventral spines, sparsely setose; carpus about 0.75 of propod length, stout, 2.8 times longer than distal width, unarmed; merus about 1.2 times propod length, 3.3 times longer than central width, unarmed; ischium without special features, subequal to propod length, 3.0 times longer than distal width, unarmed; coxa stout, without ventral process. Fourth and fifth pereopods similar, more slender.

Pleopods well developed, with elongated basipodites and expanded rami.

Uropods (Fig. 2J) with protopodite normal, posterolateral angle bluntly rounded; exopod broad, twice as long as wide, maximal width at about 0.6 of length, lateral margin feebly convex, unarmed, with small distal tooth and mobile spine (Fig. 2K), diaeresis obsolete; endopod subequal to exopod length, narrower, about 2.2 times longer than central width.

Ova numerous, about 150.

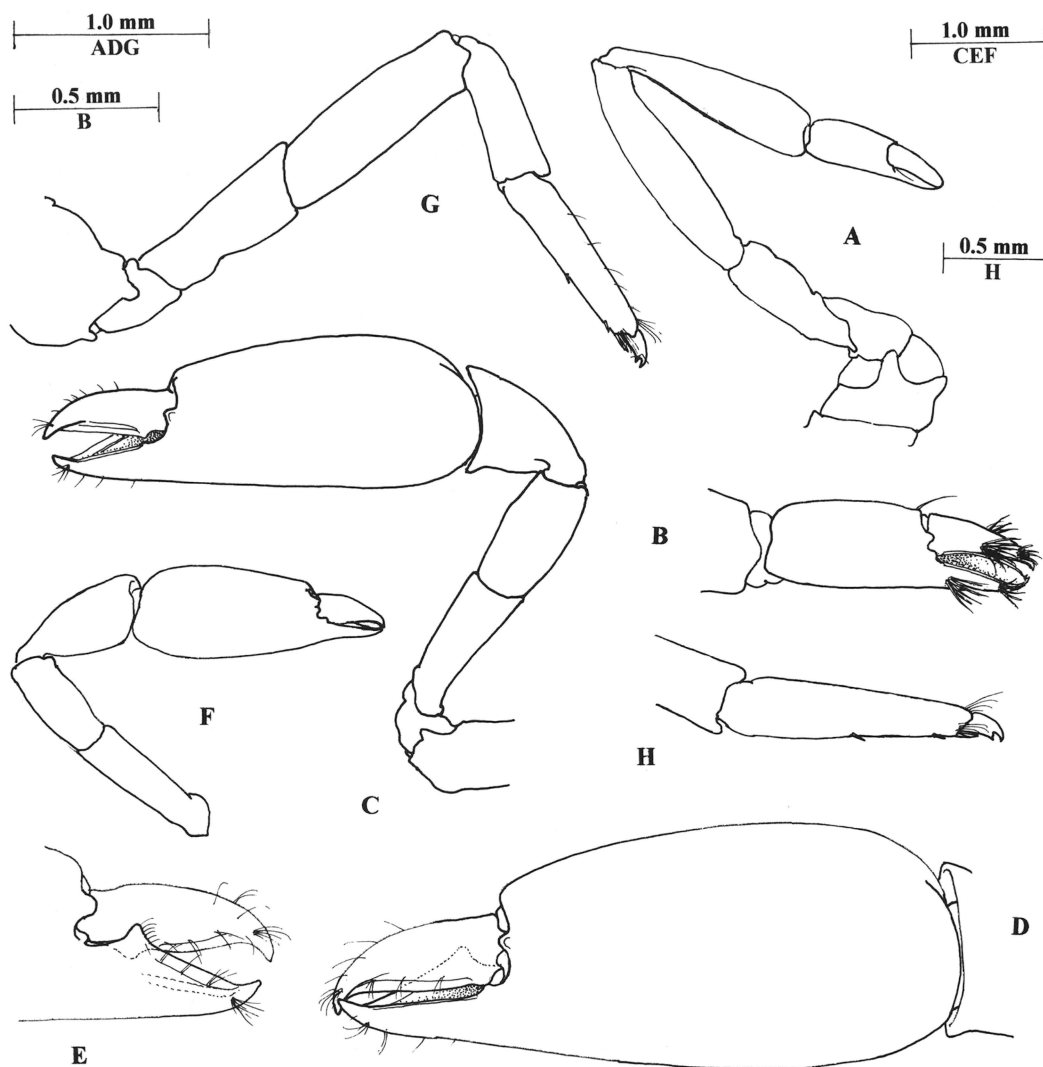


Fig. 4. *Typton manningi*, sp. nov., ovigerous female holotype. A, first pereiopod; B, same, chela; C, major second pereiopod; D, same, chela, lateral; E, same, fingers, medial; F, minor second pereiopod; G, third pereiopod; H, same, distal propod and dactylus.

**Male Allotype.**—Much smaller than female, less inflated, subcylindrical in body form, lacking major second pereiopod. Generally similar to female.

Carapace (Fig. 5F) as in female, rostrum more slender, less up-turned, about 0.33 of CL, inferior orbital angle feebly produced, rounded. Antenna as in female, with scaphocerite completely lacking. Minor second pereiopod with chela about 0.9 of CL, shearing fingers, cutting edge of fixed finger minutely denticulate as in female. Third

pereiopod (Fig. 5G) with unguis of dactyl (Fig. 5H) minutely ribbed dorsally with 4 or 5 minute denticles ventrally, ventral border of corpus unarmed. First pleopod with endopod (Fig. 5I) about half exopod length, 3.0 times longer than proximal width, feebly tapering distally, with 8 long plumose setae laterally, few short setae distomedially. Endopod of second pleopod (Fig. 5J) about 0.75 of exopod length, with appendix interna at about 0.45 of medial margin length, about 0.25 of endopod length, corpus of appendix mas-

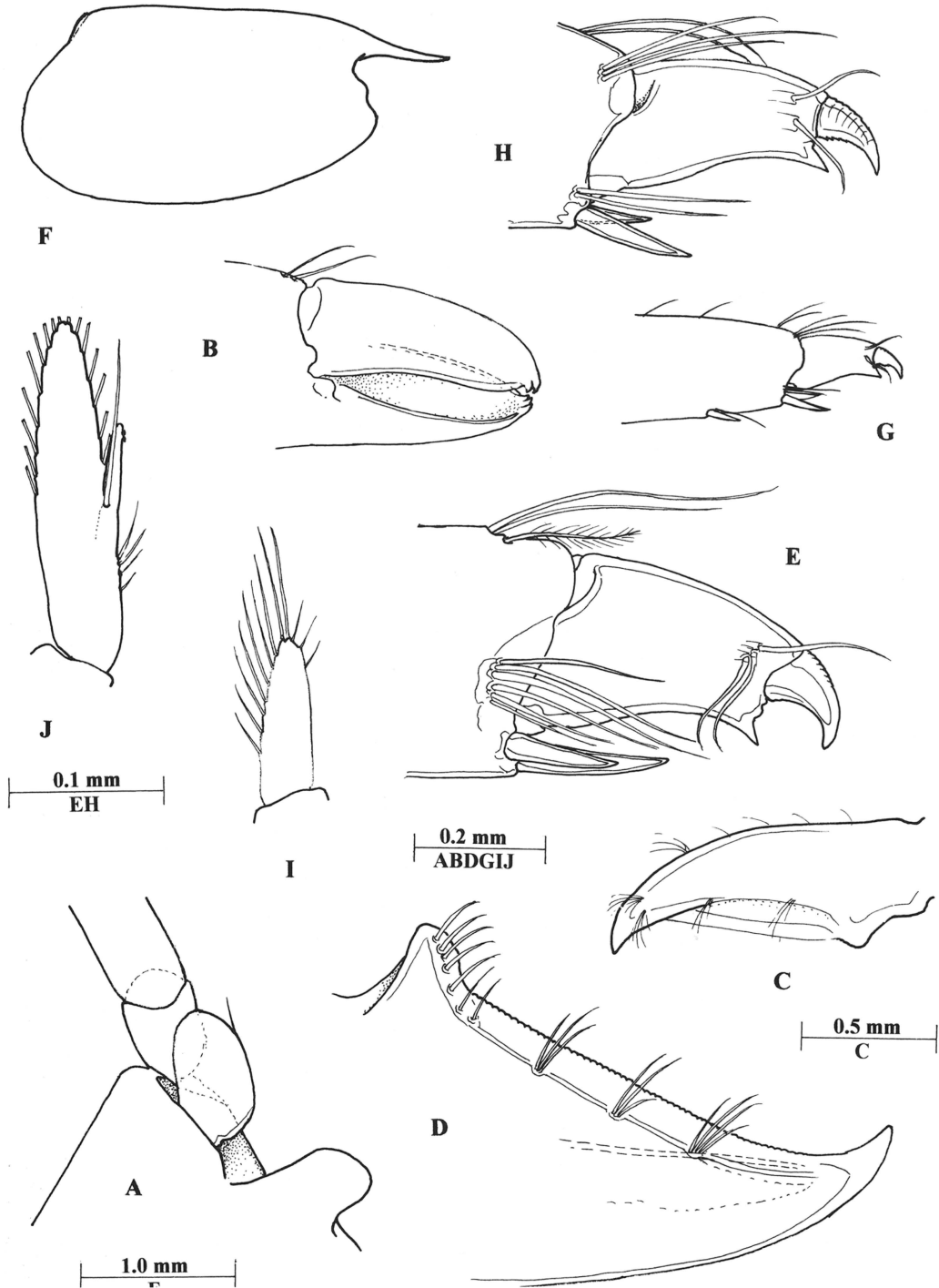


Fig. 5. *Typton manningi*, sp. nov., ovigerous female holotype. A, proximal antenna, distal basicerite, merocerite, ischiocerite, and proximal carapocerite, ventral aspect; B, first pereiopod, fingers, setae omitted; C, second pereiopod, dactyl; D, same, fixed finger; E, third pereiopod, distal propod and dactyl. Male allotype. F, carapace and rostrum, lateral; G, third pereiopod, distal propod and dactyl; H, same, enlarged; I, first pleopod, endopod; J, second pleopod, endopod.

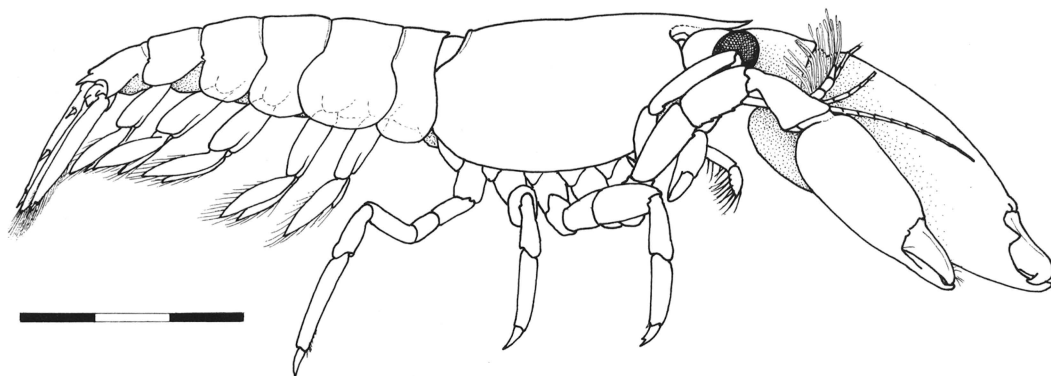


Fig. 6. *Typton capricorniae*, sp. nov., holotype female, Heron Island, W 24744. Scale bar in millimeters.

culina obsolete, appendix represented by single long stiff simple spiniform seta reaching to about 0.9 of endopod length.

**Measurements (mm):** Female, total length (approx.) 14.3; carapace and rostrum, 4.05; post-orbital carapace, 3.5; major chela, 3.25; minor chela, 1.9; length of ovum, 0.9. Male, total length (approx.) 6.0; carapace and rostrum, 2.2; postorbital carapace, 1.7; minor chela, 1.6.

**Types.**—The holotype female and allotype male are deposited in the collections of the Queensland Museum, registration numbers W.24741, W.24742.

**Host.**—*Ircinia* sp. [Porifera].

**Coloration.**—No data.

**Etymology.**—The species is named, with pleasure, in honor of Dr. Raymond B. Manning, in recognition of his extensive contributions to tropical carcinology and unflinching help over many years.

**Systematic Position.**—The new species, *T. manningi*, can be immediately separated from all the presently described Indo-West Pacific species of the genus by the complete absence of the scaphocerite. It is otherwise very similar to *T. bawii* Bruce, 1972. In *T. bawii* the scaphocerite is small, but distinct, narrow, rounded, distally unarmed, reaching to about 0.25 of the length of the carapocerite. Other differences are that in *T. bawii* the merus of the second pereopod is ventrally acutely tuberculate, and the ventral border of the dactylus of the third pereopod is minutely denticulate. The antennae and mouthparts are es-

entially identical except that the basal endite of the maxilla is distinctly bilobed. The cutting edge of the expanded carina of the major second pereopod was not noted as entire in the description of this species, and it is possible that minute denticulations, if present, might have been overlooked.

**Remarks.**—The denticulations along the cutting edge of the expanded cutting edge of the major second pereopod in *T. manningi* have not been reported in any of the non-Indo-West Pacific species of the genus, but may have been overlooked. All these species also possess a small scaphocerite.

The absence of a statolith from the statocyst is probably due to the specimen having recently moulted, in association with a fresh brood of ova, and not yet having secreted a replacement.

### *Typton capricorniae*, new species Figs. 6–8

**Material Examined.**—1 ♀, holotype, Heron Island, Capricorn Islands, Queensland, 12 December 1979, coll. N. L. Bruce, QM W.24744.

**Description.**—Small-sized, slender shrimp, (Fig. 6) generally similar to above species, of subcylindrical body form.

Carapace smooth, glabrous, with acute rostrum (Fig. 7A) reaching to about 0.5 of length of proximal antennular segment, narrow in dorsal view, compressed, about 0.38 of CL, slightly up-turned, ventrally convex, inferior orbital angle obsolete, anterolateral angle moderately produced, rounded.

Abdomen with pleura small, rounded, posterodorsal margin of sixth segment unarmed,

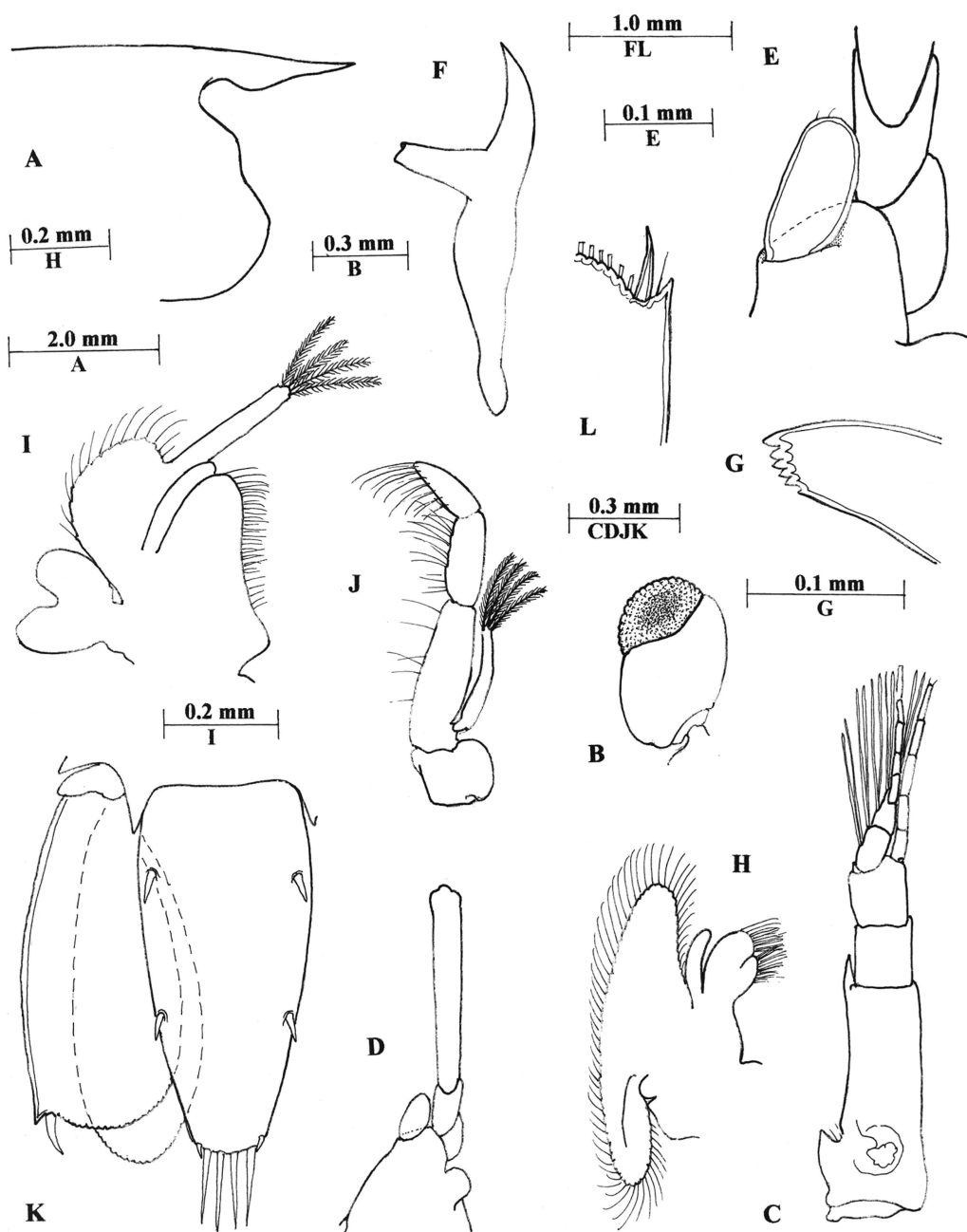


Fig. 7. *Typton capricorniae*, sp. nov., holotype. A, anterior carapace and rostrum, lateral; B, eye, dorsolateral; C, antennule; D, antennal peduncle; E, same, scaphocerite; F, mandible; G, same, incisor process; H, maxilla; I, first maxilliped; J, third maxilliped; K, telson and left uropod; L, left uropod, posterolateral angle of exopod.

posterolateral and posteroventral processes acute. Telson (Fig. 7K) about 2.0 times sixth segment length, 2.2 times longer than width, lateral margins convex, posteriorly convergent, dorsal spines about 0.09 of telson

length, at about 0.25 and 0.63 of length, submarginal, posterior margin about 0.4 of width, broadly convex without medial process, lateral spines small, about 0.5 of dorsal spine length, intermediate and submedian spines

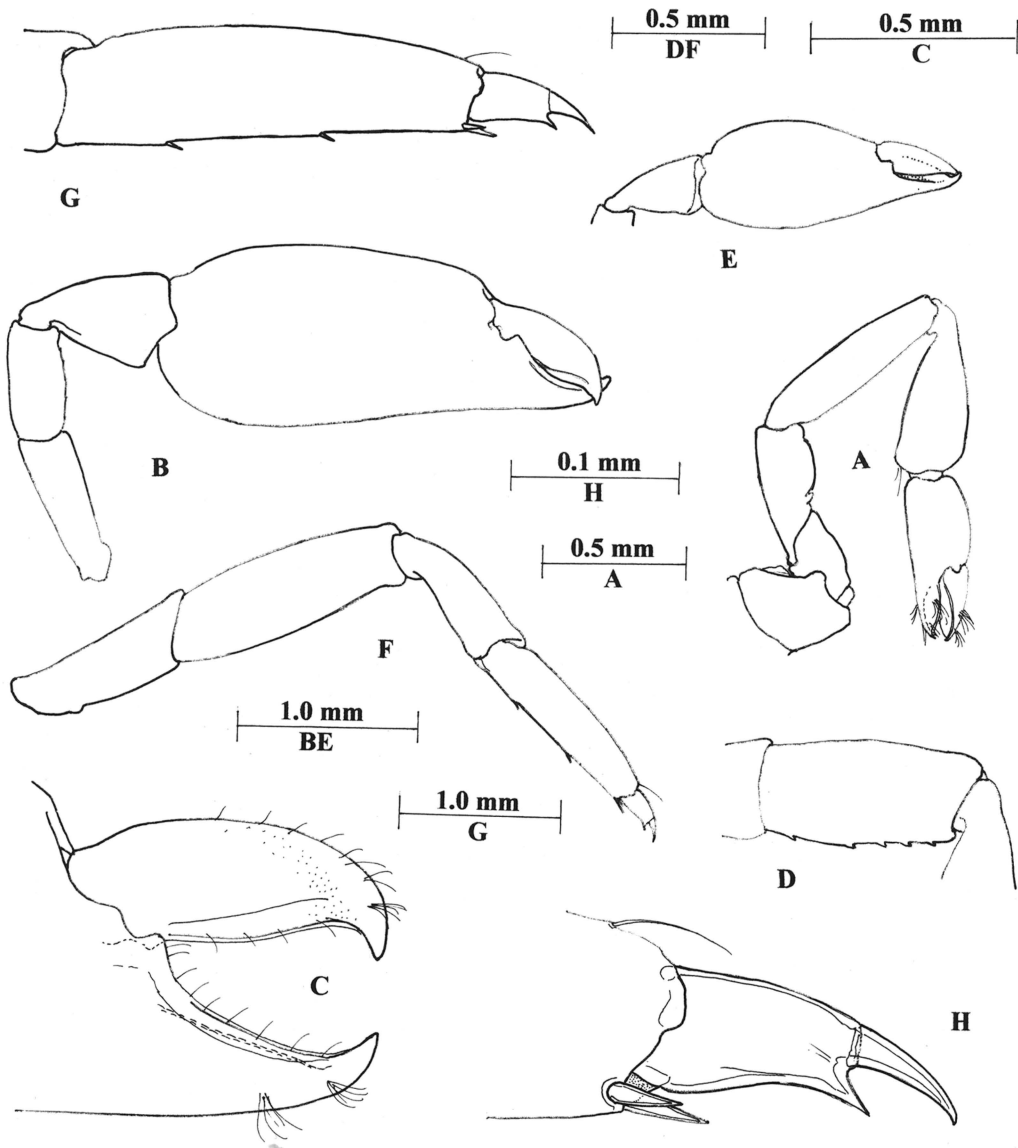


Fig. 8. *Typton capricorniae*, sp. nov., holotype. A, first pereiopod; B, major second pereiopod, medial; C, same, fingers of chela, medial; D, same, merus; E, minor second pereiopod, lateral; F, third pereiopod; G, same, propod and dactyl; H, same, distal propod and dactyl.

similar, subequal, about 0.2 of telson length, 5 times lateral spine length, non-setulose.

Eye (Fig. 7B) well developed, stalk subcylindrical, about 1.8 times longer than width in dorsal view, compressed, medially flattened, cornea well pigmented, diameter about 0.2 of CL, hemispherical, oblique, without accessory pigment spot.

Antennule (Fig. 7C) as in previous species, proximal segment with strong distolateral tooth, stylocerite short, broad, subacute, statocyst with statolith.

Antenna (Fig. 7D) with basicerite unarmed, large rounded protuberant aperture to antennal gland, carpoperite slender, extending well beyond eyes and rostrum, exceeding proximal antennular segment, about 7.0 times longer than distal width, merocerite and ischiocerite short, subequal, scaphocerite (Fig. 7E) very small, suboval, without plumose setae, two minute setules only, reaching to about 0.75 of merocerite length.

Mouthparts generally as in previous species. Mandible (Fig. 7F) with corpus slen-

der, molar process slender, distally truncate, incisor process (Fig. 7G) normal, with 6 small acute teeth distally. Maxilla (Fig. 7H) with basal endite bilobed, distal lobe larger than proximal, scaphognathite narrow, about 3.5 times longer than wide. First maxilliped (Fig. 7I) with non-setose palp, caridean lobe wide, epipod well developed, bilobed, cordiform. Third maxilliped (Fig. 7J) with ischiomerus fused to basis, longer than exopod, exopod with 4 plumose setae distally.

First pereopod (Fig. 8A) short, robust, extending beyond middle of proximal antennular segment by carpus and chela; chela stout, feebly compressed, about 1.4 times longer than deep, with few cleaning setae proximally, fingers about 0.85 of palm length, twice as long as deep, broadly spatulate, with entire cutting edges, dactylus with single small acute distal tooth, fixed finger with two; carpus stout, subequal to chela length, 2.5 times longer than distal width, strongly tapering proximally, with sparse cleaning setae distally; merus about 1.3 times chela length, subcylindrical, 4.5 times longer than central width; ischium about 0.9 of chela length, 2.4 times longer than central width; basis and coxa robust, without special features, coxa without ventral process.

Second pereopods well developed, markedly unequal, similar. Major second pereopod (Fig. 8B) exceeding antennular peduncle by carpus and chela, twice CL; chela with palm swollen, compressed, oval in section, smooth, glabrous, about 1.9 times longer than deep, tapering slightly distally, fingers (Fig. 8C) about 0.4 of palm length, dactylus compressed, with small compressed subacute tooth proximally, tip stout, acute, hooked, intervening cutting edge feebly concave, entire, fixed finger compressed, feebly cannulate, medial cutting edge slightly expanded, with small blunt tooth proximally, acting as shear against dactylus, cutting edge entire, blunt, lateral edge sharp, entire, with minute low blunt tooth proximally; carpus about half palm length, 1.7 times longer than distal width, distally expanded, excavate, unarmed, strongly tapered proximally; merus (Fig. 8D) about 0.33 of palm length, 2.0 times longer than wide, subuniform, with ventral margin with 5 small acute tubercles; ischium almost 0.45 of palm length, tapered proximally, 3.0 times longer than distal width, ventral margin unarmed; basis and coxa robust, without

special features, coxa without ventral process. Minor second pereopod (Fig. 8E) generally similar, smaller, chela about 1.2 of CL, 0.6 of major chela length; fingers about 0.45 of palm length, dactylus 3.0 times longer than deep, tip acute, hooked, cutting edge entire, proximal segments similar to major chela but smaller, merus ventrally tuberculate.

Ambulatory pereopods (Fig. 8F) normal. Third pereopod exceeding carapocerite by about length of propod and dactyl, moderately robust; dactyl (Fig. 8H) about 0.3 of propod length, normal, compressed, about 2.8 times longer than basal width, unguis long, slender, feebly curved, 3.2 times longer than basal width, proximal dorsal surface smooth, ventral border entire, corpus about 1.8 times longer than basal width, tapering distally, distal width about 0.33 of basal width, with subterminal acute distal accessory tooth, ventral margin concave, unarmed; propod (Fig. 8G) about 4.0 times longer than proximal width, tapering slightly distally, with pair of small stout distoventral spines, 2 smaller single ventral spines, sparsely setose; carpus about 0.75 of propod length, stout, 0.33 times longer than distal width, unarmed; merus about 1.2 times propod length, 3.3 times longer than central width, unarmed; basis subequal to propod length, 3.0 times longer than distal width, unarmed; ischium without special features; coxa stout, without ventral process. Fourth and fifth pereopods similar, more slender.

Pleopods normally developed, without elongated basipodites and expanded rami.

Uropods (Fig. 7K) with protopodite normal, posterolateral angle bluntly rounded; exopod broad, twice as long as wide, maximal width at about 0.6 of length, lateral margin feebly convex, distolateral angle (Fig. 7L) with small acute tooth, with large mobile spine medially, extending well beyond feebly developed distal lamina, diaeresis obsolete; endopod about 1.1 times exopod length, 3.0 longer than central width, exceeding tip of telson.

*Measurements (mm).*—Total length (approx.) 14.3; carapace and rostrum, 4.05; postorbital carapace, 3.5; major chela, 3.25; minor chela, 1.9.

*Types.*—The holotype female is deposited in the collections of the Queensland Museum, registration number QM W.24744.

*Host.*—Porifera, unidentifiable (G. Pulitzer-Finali, personal communication), a very small

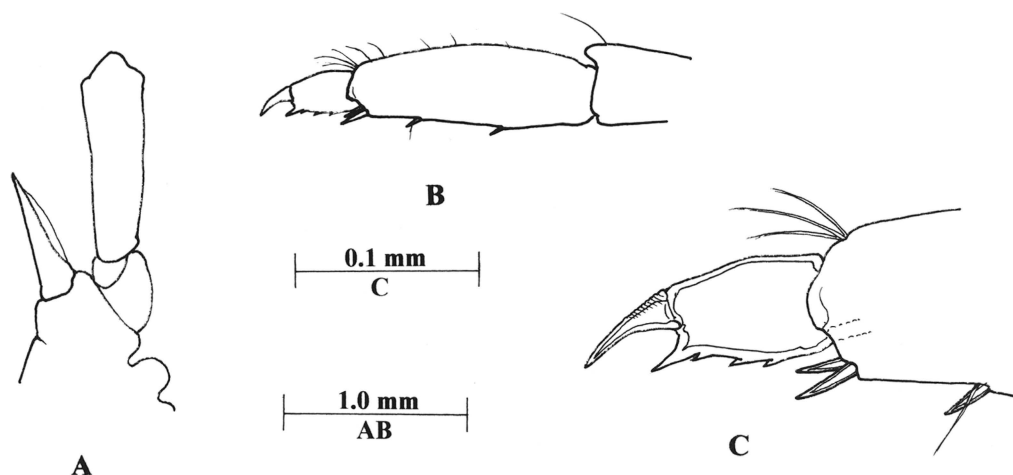


Fig. 9. *Typton* sp., juvenile, Abbot Point, Queensland. A, antennal peduncle; B, third pereopod, propod and dactyl; C, same, distal propod and dactyl.

colony encrusting the base of a *Pocillopora* colony.

*Coloration*.—No data.

*Etymology*.—The specific name, from the locality of capture, one of the Capricorn Islands.

*Systematic Position*.—The new species, *T. capricorniae*, is most closely related to *T. bawii*. It can be readily distinguished by the following features: scaphocerite minute, scarcely reaching base of carpoperite; ambulatory dactyls biunguiculate, corpus without ventral denticles; first pereopods short, stout, carpus subequal to chela length; rostrum slender, distally acute; inferior orbital angle obsolete; the distolateral spine of the exopod of the uropod far exceeding the posterior margin of the lamella. Important features shared with *T. bawii* are the great reduction of the scaphocerite, unarmed rostrum, and the ventral tuberculation of the second pereopod merus.

*Typton* sp.  
Fig. 9

*Material Examined*.—1 juv., Abbot Point, Queensland, 8 July 1998, from harbour pile scrapings, coll. J. Ackerman, QM W.24743.

*Remarks*.—The single specimen is very small, CL about 0.85 mm. The rostrum has a single small acute dorsal tooth distally, and the carapace has a small acutely produced in-

ferior orbital angle. The antennule (Fig. 9A) has a distinct acute scaphocerite, reaching to about half the carpoperite length, with a feebly developed lamella medially. The major second pereopod chela, about 0.95 mm long, has typical shearing fingers and a small acute denticle at about the midpoint of the ventral meral length. The third ambulatory pereopod has the dactyl (Fig. 9C) about 0.4 of the propod length, strongly biunguiculate, with a slender unarmed unguis and a convex ventral margin armed with three small acute denticles, the most distal almost confluent with the accessory tooth. The propod (Fig. 9B), three times as long as its central width, has a pair of distoventral spines and two ventral spines. The second pleopod is without an appendix masculina.

The specimen, which was found separately from the specimens of *T. manningi* described above, is considered to be most likely a juvenile of *T. wasini* Bruce, 1977, a species that has been reported from Queensland (*vide infra*). The scaphocerite is particularly similar to the male of that species although much better developed. In *T. wasini* it reaches scarcely to the proximal end of the carpoperite rather than to its midpoint.

SYSTEMATIC ACCOUNT

*Typton* Costa, 1844

*Typton* Costa, 1844: 288; Holthuis, 1993: 178–179; Bruce, 1995: 143, 144.



*Typton australis* Bruce, 1973

*Typton australis* Bruce, 1973: 254–263, figs. 1–4.

**Type Material.**—Australian Museum, ovigerous ♀ holotype, AM P17936.

**Host.**—*Psammopemma* sp. [Porifera] (Bruce, 1983a).

**Bathymetric Range.**—3 m.

**Distribution.**—Type locality: Chinaman's Reef, Queensland (Bruce, 1973). Reported from Queensland only: Chinaman's Reef and Heron Island (Bruce, 1981, 1983a).

*Typton bawii* Bruce, 1972

*Typton bawii* Bruce, 1972: 243–252, figs. 1–5.

**Type Material.**—Natural History Museum, ♀ holotype, 1971: 154.

**Host.**—*Iotrochota baculifera* Ridley, 1884 (see Bruce, 1976).

**Bathymetric Range.**—18–25 m.

**Distribution.**—Type locality: Bawi Island, Unguja, Zanzibar (Bruce, 1972). Reported from Ras Iwatine and Shimoni, Kenya (Bruce, 1976), Zanzibar, Japan (?) (Miyake, 1982), and Heron Island, Queensland (Bruce, 1981, 1983a).

**Remarks.**—It has not proven possible to locate the precise locality or the origin of the report by Miyake or the specimen(s) deposited in the collections of Kitakyushu Museum (Masako Mitsuhashi, personal communication, 5 July 1999).

*Typton capricorniae*, new species

*Vide supra.*

*Typton manningi*, new species

*Vide supra.*

*Typton nanus* Bruce, 1987

*Typton nanus* Bruce, 1987: 49–56, figs. 1–5.

**Type Material.**—Northern Territory Museum, ♀ holotype, NTM Cr.005204.

**Host.**—Porifera, indet.

**Bathymetric Range.**—40–46 m.

**Distribution.**—Type locality: Western Australia, 16°34' S, 121°27' E (Bruce, 1987). Reported from type locality only.

*Typton wasini* Bruce, 1977

*Typton wasini* Bruce, 1977: 272–285, figs. 1–6.

**Type Material.**—Natural History Museum, ovigerous ♀ holotype, 1974: 740, allotype ♂, 1974: 741; Nationaal Natuurhistorisch Museum, paratypes, D 29886.

**Host.**—*Reniera* sp., *Dysidea* sp. [Porifera] (Bruce, 1977, 1983a).

**Bathymetric Range.**—12 m.

**Parasites.**—*Probynia obstipa* Bourdon and Bruce, 1983 [Isopoda, Bopyridae], with hyperparasitic *Cabirops* sp. (Bourdon and Bruce, 1983)

**Distribution.**—Type locality: Wasin Channel, Kenya. Reported from Kenya (Bruce, 1976, 1977), La Saline, Réunion (Bruce, 1983b), and Heron Island, Queensland (Bruce, 1981, 1983a; Bourdon and Bruce, 1983).

KEY TO THE INDO-WEST PACIFIC SPECIES OF THE GENUS *TYPTON* COSTA, 1844

1. Rostrum dorsally dentate ..... 2  
– Rostrum dorsally unarmed ..... 3
2. Large species, rostrum with 4 dorsal teeth, second pereopod with ventral border of palm and merus unarmed ..... *T. wasini* Bruce  
– Very small species, rostrum with 3 dorsal teeth, minor second pereopod with small acute ventral teeth on palm and merus (major second pereopod unknown) ..... *T. nanus* Bruce
3. Scaphocerite completely lacking ..... *T. manningi* sp. nov.  
– Small or rudimentary scaphocerite present ..... 4
4. Inferior orbital angle obsolete, scaphocerite exceeding middle of carpocerite; third pereopod particularly stout ..... *T. australis* Bruce  
– Scaphocerite not nearly reaching to middle of carpocerite, third pereopod normal ..... 5
5. Rostrum distally acute, inferior orbital angle not produced, scaphocerite not reaching base of carpocerite, ambulatory dactyl with ventral corpus proximally unarmed, posterolateral spine of exopod of uropod extending beyond posterior margin of lamella ..... *T. capricorniae* sp. nov.  
– Rostrum distally blunt, inferior orbital angle produced, broadly angular; scaphocerite not exceeding 0.3 of carpocerite length; ambulatory dactyl with ventral corpus proximally denticulate, posterolateral spine of exopod of uropod not extending beyond posterior margin of lamella ..... *T. bawii* Bruce

**Remarks.**—It may be noted that the Indo-West Pacific species of the genus *Typton* generally possess small inferior orbital angles on the carapace or even lack them completely. When present they are mostly in a suborbital position. This contrasts strongly with the type species of the genus, *T. spongicola*, in which they are placed in a much higher position on

the orbital margin (Bruce, 1972) and so termed paraorbital spines. Holthuis (1951: 151) earlier noted that, "It is therefore not certain the name antennal spine is correctly applied to them." Whether acute processes at the lower limit of the orbit should be referred to as inferior orbital angles or antennal spines is also frequently not clear. Holthuis (1951) has also suggested that the juvenile(s) in some species may present a quite different appearance in this region to the adults, e.g., *T. carneus*. However, it seems possible that the juvenile described might possibly represent a separate species as the mandible possesses an incisor process, absent in the adults. *Typton wasini* exhibits a somewhat intermediate degree of development, with a distinct acute process situated on the lateral orbital margin lateral to rather than below (or above) the level of the eye. In some pontonine shrimps both antennal spines and inferior orbital angles are present and clearly distinct; in others, such as *Typton* spp., the homologies are much less evident. In all species, one of the most characteristic features of the genus is the shearing opposition of the fingers of at least the minor second pereopod.

In the genus *Typton*, the corpus of the appendix masculina, in those species where information is available, may be reduced or absent. It may be similarly reduced or absent in other sponge associated genera, such as *Periclimenaeus* Borradaile and *Onycocaris* Nobili.

The six Indo-West Pacific species of the genus *Typton* are now known to associate with five genera of sponge hosts: *Dysidea*, *Ircinia*, *Iotrochota*, *Psammopemma* and *Reniera*.

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