

New Species of Pycnogonida from New Britain and Tonga¹

W. C. CLARK²

ABSTRACT: *Pallenopsis tongaensis* n. sp. is described from material from Tonga, and *Anoplodactylus squalida* n. sp. is described from material from New Britain. *Pycnothea flynni* Williams and *Endeis meridionalis* (Böhm) are recorded from New Britain for the first time.

THE PYCNOGONIDA OF NEW BRITAIN are completely unknown to science, and the only recorded species from Tonga is "*Endeis mollis* (Carpenter, 1904)" recorded by Calman, 1923. Many of the species reported on by Calman in his 1923 paper are in the British Museum (Natural History) collections, but unfortunately the specimen from Tonga is not amongst them. Calman was clearly unhappy about his treatment of the genus *Endeis*: Stock (1968) has indicated that Calman's specimen from Kilakarai almost certainly belongs to Stock's *E. biseriata*; whilst my own examination of the material shows that the specimens from Christmas Island are clearly referable to *E. meridionalis* (Böhm). The significance of these confusions is to establish that there can be no certainty about the identity of the Tongan specimen, especially as it was a female in a genus where females are notoriously difficult to identify.

A small collection of pycnogonids from New Britain and a single tube from Tonga form the basis of this paper. The New Britain material establishes the following species as the known pycnogonid fauna of the islands: *Anoplodactylus squalida* n. sp., *Pycnothea flynni* Williams, 1940, and *Endeis meridionalis* (Böhm, 1879), whilst *Pallenopsis tongaensis* n. sp. may be added to *Endeis mollis* (?) to constitute the only known representatives of the group from Tonga.

FAMILY CALLIPALLENIDAE

Pallenopsis tongaensis n. sp.

Fig. 1A-J

Material

One male (holotype), Riffed fusel, Tonga. Collector, Koch. British Museum registration number 1971: 262.

Description

TRUNK small with very prominent cuticular lines demarcating the segments and parts of segments. Trunk compact, of "Rigona type," with second and third lateral processes separated at their bases by about half their own diameter; first and second, and third and fourth, lateral processes touching at their bases. Distal ends of lateral processes ornamented with a few very small spines. Fourth trunk segment extremely short (Fig. 1A). Cephalon almost equal in length to the rest of the trunk, with the region anterior to the first lateral processes broad and well developed.

Ocular tubercle situated at the anterior extremity of the cephalon: one and one-half times as high as the diameter at base. Tubercle rounded above with a small apical papilla and a pair of lateral "pressure receptors." Eyes four, pigmented.

ABDOMEN erect, fusiform, with a circlet of setae at about three-quarters of its length (Fig. 1D), anus terminal.

CHELOPHORE scape of one segment, wider distally than proximally, finely setose, but without any cluster of setae about the middle suggestive of fusion of two scape segments as is common in similar species. Chela palm solid, heavy, setose, at right angles to scape, and with fingers at right angles to palm. Fingers much shorter than palm. Immobile finger with an irregularly serrate margin. Dactylus margin entire. A small, sparingly setose pad at the base of dactylus. Tips of fingers cross slightly when closed.

¹ Manuscript received 16 March 1972.

² Zoology Department, University of Canterbury, Christchurch, New Zealand.

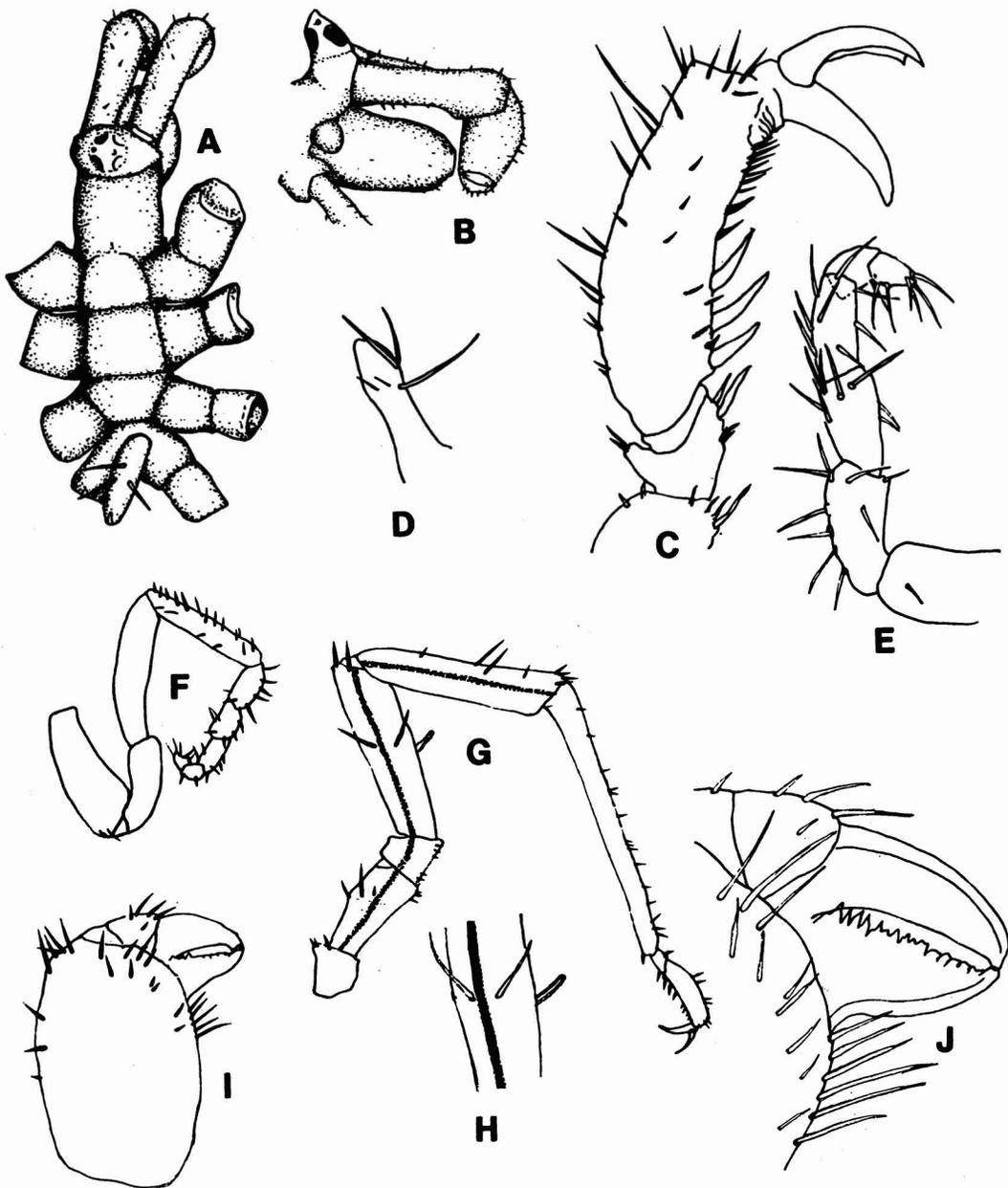


FIG. 1. *Pallenopsis tongaensis* n. sp. holotype, male. A, dorsal view of trunk; B, lateral view of anterior part of trunk; C, propodus; D, lateral view of abdomen; E, tip of oviger; F, oviger; G, third leg; H, detail of third femur to show cement gland; I, chela; J, detail of fingers of chela.

PALP reduced to a single buttonlike segment.
 PROBOSCIS short, almost twice as long as broad, cylindrical except in distal quarter where it tapers abruptly to rather prominent lips.

OVIGER (male) of 10 segments (first segment omitted from Fig. 1F); segments four and five the longest segments, but segment five more slender and setose than segment four. Distal

segments with simple setae arranged as in figure 1E.

THIRD LEG robust. Second coxa with well-developed sexual process. Femoral cement gland ventral and situated about halfway along the femur. Length of tubular duct almost equal to width of femur at the point of origin of the duct. Second coxa as long as first and third combined. Femur and first tibia almost equal in length. Second tibia almost half as long again as femur. Setae on second tibia not longer than width of tibia. Tarsus short; propodus slightly arcuate, armed with three large proximal sole spines and a few much finer ones on the more distal parts of the sole (Fig. 1C). Terminal claw half as long as propodus; auxiliary claws two-thirds as long as main claw.

GENITAL PORES on marked genital processes on the ventral distal ends of all second coxae.

MEASUREMENTS (in millimeters). Length trunk, 5.0; length cephalon, 2.34; length chelophore scape, 1.73; width across second lateral processes, 2.34; length abdomen, 1.34; length proboscis, 1.73; greatest width proboscis, 0.96. Third leg: first coxa, 0.38; second coxa, 0.84; third coxa, 0.38; femur, 4.2; first tibia, 4.6; second tibia, 6.15; tarsus, 0.46; propodus, 1.65.

Remarks

P. tongaensis n. sp. is smaller and less compact than other "Rigona type" *Pallenopsis* species known from this general area (*P. virgatus*, *P. ovalis*, *P. hoekii*, and *P. denticulata*). The wide separation of the second and third lateral processes as well as features of the chelae and the sparse setation of the terminal oviger segments all indicate a new species.

Pycnothea flynni Williams

Pycnothea flynni Williams, 1940: 202-204, fig. 6-9. Clark, 1963: 46-48, fig. 23A-G.

Material

One male, two juveniles, Isle of Pines, New Britain. Collector, Willey, 1 July 1896. British Museum registration number 1971: 263.

Remarks

These specimens are typical examples of this species, originally recorded from Rottneest Island, Western Australia. Later (Clark, 1963), reported on material from Norfolk Island and from near the mouth of the Clarence River, New South Wales. This new record extends the known range northward by 23 degrees of latitude. The only other species in the genus, *P. selkirki* Loman, 1920, has not been recorded since the original description of material from Juan Fernandez.

FAMILY PHOXICHLIDIIDAE

Anoplodactylus squalida n. sp.

Fig. 2A-G

Material

One male (holotype) Nivani Reef, New Britain. Collector, Willey, 26 January 1896. British Museum registration number 1971: 260. One female (paratype) Sandal Bay, New Britain. Collector, Willey, 1897. British Museum registration number 1971: 261.

Description

TRUNK very small, squat, segmentation lines scarcely visible, more distinct ventrally than dorsally; cuticle slightly roughened. Lateral processes touching or almost touching at their bases and separated by less than one-half their own diameter distally. Cephalon almost equal in length to remainder of trunk. Dorsum without spines or tubercles.

OCULAR TUBERCLE situated at anterior limit of cephalon, low, erect, one and one-half times as high as diameter at base, rounded to obtuse above. Four eyes present.

PROBOSCIS directed anteroventrally, cylindrical in proximal four-fifths, distal fifth conical. Length of proboscis almost twice the maximum diameter.

ABDOMEN short, not more than one and one-half times as long as broad. Carried almost vertically; nonsetose.

CHELOPHORE scape of one segment; diameter proximally about half as great as diameter dis-

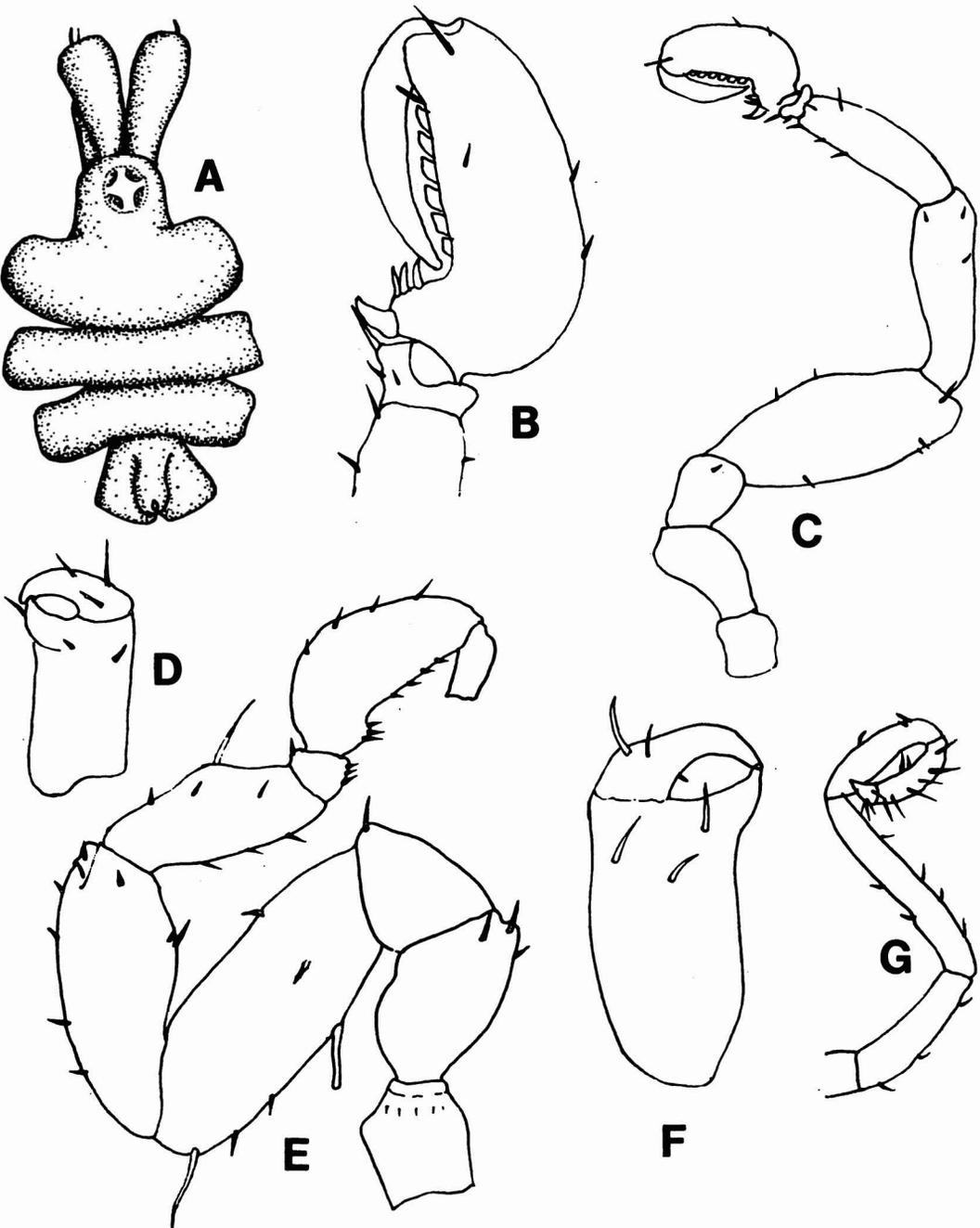


FIG. 2. *Anoplodactylus squalida* n. sp. A, dorsal view of female trunk; B, female propodus; C, female third leg, D, female chela; E, male third leg; F, male chela; G, male oviger.

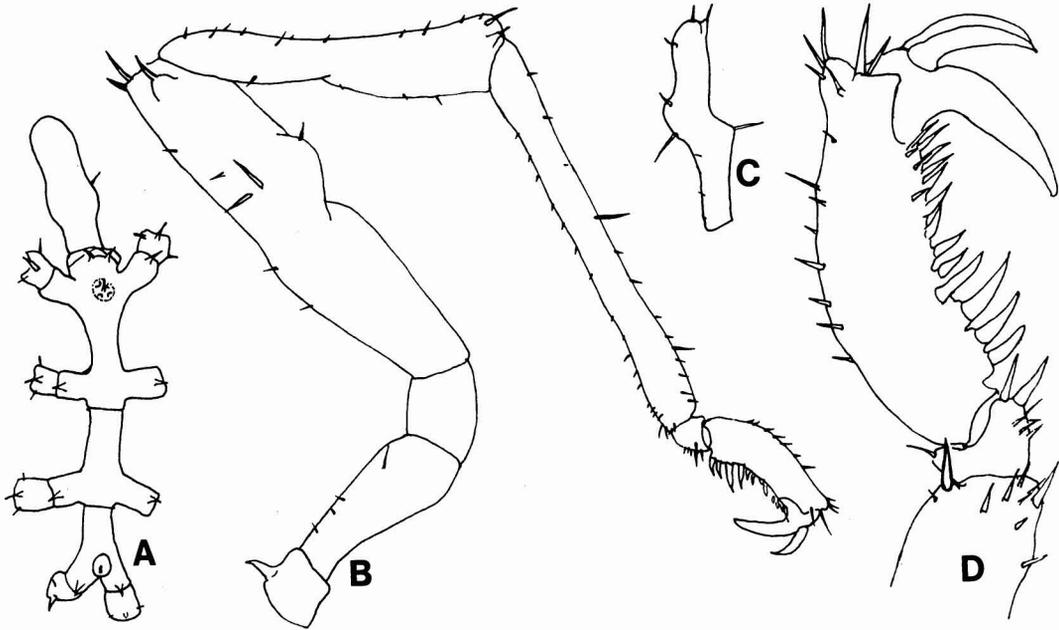


FIG. 3. *Endeis meridionalis* (Böhm), female. *A*, dorsal view of trunk of female; *B*, third leg of female; *C*, dorsal view of femur to show angularity; *D*, propodus.

tally. Distal part of scape with fine setae. Scapes touching each other in proximal part, diverging distally (Fig. 2*A*). Palm linear, somewhat cylindrical, about one and one-half times as long as broad. Fingers at right angles to palm. Immobile finger rather weak. Dactylus stronger, arcuate. Fingers meet at tips when closed. Both fingers armed with a few spinules (Fig. 2*D* and 2*F*).

PALPS absent.

OVIGER of six segments in male; wanting in female. Form typical of genus. Length of segments (in millimeters): segment two, 0.25; segment three, 0.36; segment four, 0.17; segment five, 0.15; segment six, 0.02.

THIRD LEG: second coxa half as long again as first; femur more than twice as long as second coxa, strongly inflated with eggs in female paratype; second tibia shorter than first tibia which in turn is shorter than femur. All long segments sparingly setose. Tarsus very short; propodus with a strong heel bearing three spines; sole with a series of six platelike teeth (Fig. 2*B*). Terminal claw strong, as long as sole; auxiliary claws wanting.

GENITAL PORES on ventral surfaces at distal ends of all second coxae. MEASUREMENTS (in millimeters) (female paratype in parentheses). Length trunk (tip cephalon to tip fourth lateral processes), 0.8 (0.66); length cephalon, 0.41 (0.32); width across second lateral processes, 0.56 (0.42); length chelophore scape, 0.25 (0.23); length proboscis, 0.36 (0.28); greatest width proboscis, 0.15 (0.15); length abdomen, 0.12 (-). Third leg: first coxa, 0.2 (0.14); second coxa, 0.3 (0.24); third coxa, 0.22 (0.18); femur, 0.63 (0.56); first tibia, 0.44 (0.48); second tibia, 0.36 (0.36); tarsus, 0.07 (0.06); propodus, 0.34 (0.32).

Remarks

This new species shares its small size with several other members of the genus: *A. minutissimus* Stock, 1954, *A. pygmaeus* (Hodge, 1864), and *A. minusculus* Clark, 1970. It may be distinguished from these species by the shape of the chelophores which are more reduced and puny in *A. squalida* than in the others, and from *A. minutissimus* by the lateral processes which are well spaced in the latter. *A. minutissimus* has

auxiliary claws. The six platelike sole teeth on the propodus also appear to be a unique character of *A. squalida*.

FAMILY ENDEIDAE

Endeis meridionalis (Böhm)

Fig. 3A–D

Phoxichilus meridionalis Böhm, 1879: 189, pl. ii, fig. 4a–b. Non Loman, 1908: 78, pl. XI, fig. 153–155 (*teste* Stock, 1968: 58).

Endeis meridionalis Calman, 1923: 291–293, fig. 15.

Endeis mollis Calman, 1923, in part (only Christmas Island specimens): 293–294.

Material

One female, one juvenile, Nivani Reef, New Britain. Coll. Willey, 26 January 1896. British Museum registration number 1971: 264.

Remarks

The recognition of species in this genus is particularly difficult, especially when only female specimens are available. *E. meridionalis* does, however, appear to be a fairly well-marked species characterized by the possession of “kinked” femora (Fig. 3C). The species may possibly differ from *E. mollis* not only in the shape of the femora but also in the development of the terminal setae and associated tubercles, if any. The setae and modest lateral tubercles on the distal ends of the femur in this material (Fig. 3B) serve to distinguish the species from *E. biseriata* Stock. The well-spaced lateral processes serve at once to distinguish *E. meridionalis* from the geographically close Queensland species *E. strangbani* Clark, 1970, the only *Endeis* species not included in Stock’s key (1968) (Fry’s and Hedgpeth’s key [1969] omits several species).

LITERATURE CITED

- BÖHM, R. 1879. Über die Pycnogoniden des Königl. Zoologischen Museums in Berlin, insbesondere über die von S.M.S. “Gazelle” mit gebrachten Arten. Mber. Ak. Berlin, 1879. P. 170–195, pl. i and ii.
- CALMAN, W. T. 1923. Pycnogonida of the Indian Museum. Rec. Indian Mus. 25: 265–299.
- CLARK, W. C. 1963. Australian Pycnogonida. Rec. Aust. Mus. 26 (1): 1–81.
- . 1970. New Pycnogonida from Queensland. Trans. Roy. Soc. N.Z. (Biol. Sci.) 12 (3): 13–20.
- FRY, W. G., and J. W. HEDGPETH. 1969. The Fauna of the Ross Sea, Part 7. Pycnogonida, 1, Colossendeidae, Pycnogonidae, Endeidae, Ammotheidae. Bull. N.Z. Dep. Sci. Industr. Res. 198: 1–139.
- HODGE, G. 1864. List of British Pycnogonidea with descriptions of several new species. Ann. Mag. Nat. Hist. 3, 13: 113–117.
- LOMAN, J. C. C. 1908. Die Pantopoden der Siboga-Expedition. Siboga Exped., Monogr. 40: 1–88.
- . 1920. Pycnogoniden von Juan Fernandez. In: C. Skottsberg [ed.] The natural history of Juan Fernandez and Easter Island. Vol. 3.
- STOCK, J. H. 1954. Pycnogonida from the Indo-West-Pacific, Australian, and New Zealand waters. Vidensk. Medd. dansk naturh. Foren. Kbh. 116: 1–168.
- . 1968. Pycnogonida collected by the Galathea and Anton Brunn in the Indian and Pacific Oceans. Vidensk. Medd. dansk naturh. Foren. Kbh. 131: 7–65.
- WILLIAMS, G. 1940. Contributions to the fauna of Rottneest Island. 11, Pycnogonida of Western Australia. J. Roy. Soc. W. Aust. 25: 197–205.