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DEMANIA MACNEILLI, A NEW SPECIES OF XANTHID CRAB FROM NORTHERN QUEENSLAND (CRUSTACEA: DECAPODA)¹.

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SUMMARY

The first occurrence of the genus *Demania* in Australian waters is reported with the description and illustration of *D. macneilli*, new species, from off northeastern and central eastern Queensland in from 17 to 20 fathoms. The new species is compared with other members of the genus, which inhabits the Indian and western Pacific oceans and is known to contain species poisonous to man:

INTRODUCTION

While on sabbatical leave from the University of Southern California during the early part of 1973, the writer spent a fortnight, March 15-29, at the Australian Museum, Sydney, reviewing the crabs of the family Xanthidae preparatory to undertaking field studies along the Queensland coast. He was greatly assisted in this familiarization process by an unpublished list of Australian Decapoda prepared by F. A. McNeill, J. C. Yaldwyn and D. J. G. Griffin, late past, recent past, and present curators of Crustacea, respectively, that enabled him to tell at a glance which of the Australian species were known to occur in Queensland waters, as distinct from those of New South Wales on the one hand and the Northern Territory on the other. Having recently described a poisonous species of the genus *Demania* Laurie (1906) from the Philippines, *D. toxica* Garth (1971), the writer was particularly interested to find listed from Queensland a *Demania* sp. which on preliminary inspection appeared unlike any with which he was familiar. That he should be entrusted with the study of these crabs, and with their ultimate description, did not occur to him at the time; however, when after his return to the United States in August, 1973, at the suggestion of J. C. Yaldwyn, now at the National Museum of New Zealand, Wellington, he was asked by Diane E. Brown, assistant in the Department of Marine Invertebrates, to have a further look at them, he accepted with alacrity. They proved, as Miss Brown had surmised, not to fit the characteristics of *D. toxica* or of other known species of the genus, and are accordingly described as new. Types are deposited in the Australian Museum (AM), Sydney, N.S.W.

¹Allan Hancock Foundation Contribution No. 355

Records of The Australian Museum, 1976, **30**, 113-117, Figure 1.

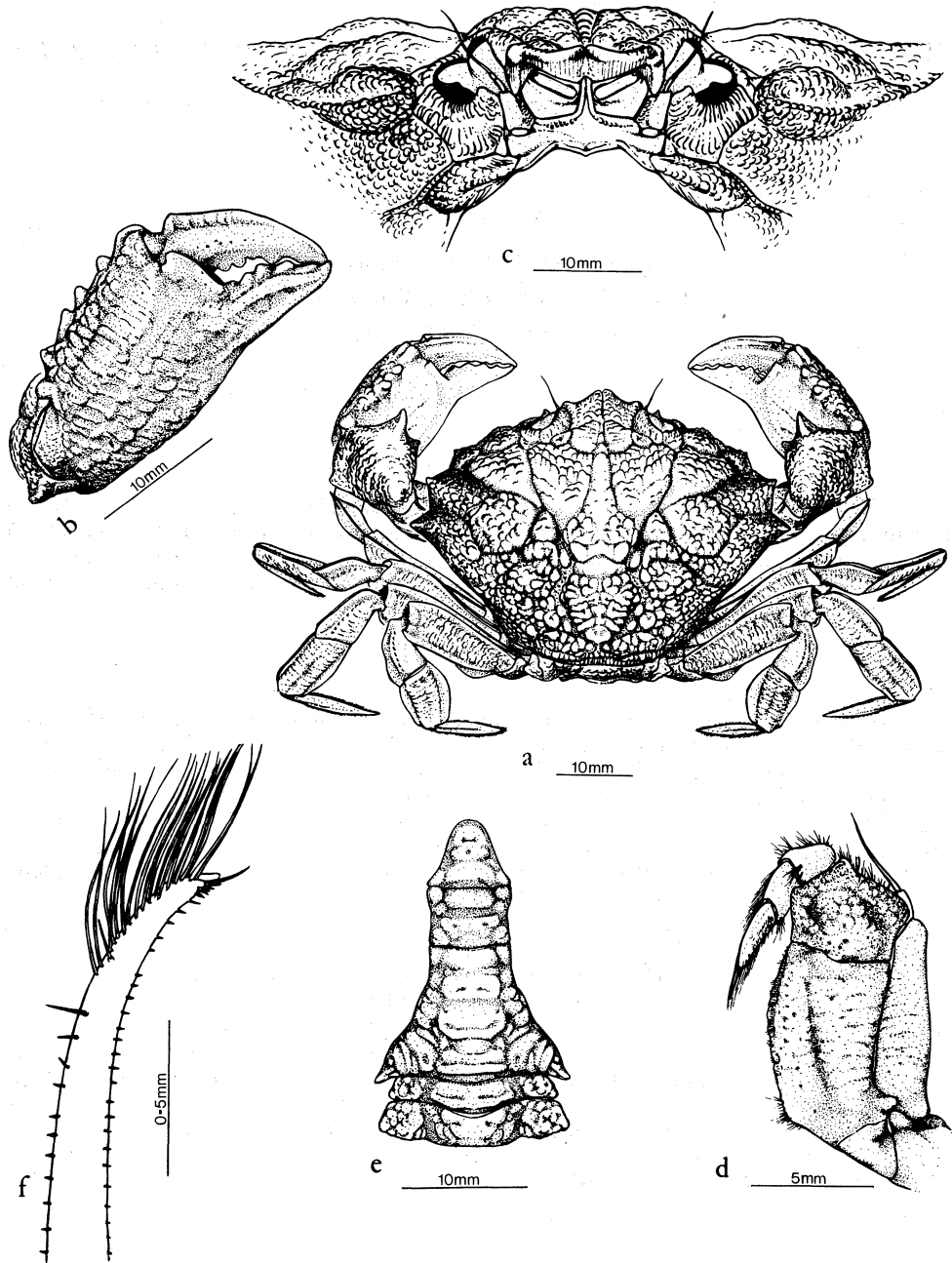


Fig. 1.—*Demania macneilli*, new species. Male holotype: a, dorsal view; b, right chela; c, frontal view; d, left outer maxilliped; e, abdomen; f, first pleopod.

SYSTEMATIC ACCOUNT

Demia macneilli new species

Fig. 1, a-f

TYPES: Male holotype, AM P. 20629, and one male and two female paratypes, AM P. 14786, from Townsville-Cairns area, northeast Queensland, Australia; November, 1964; trawled in 20 fathoms; T. Nielson, collector. Female paratype, AM P. 14785, from off Cape Bowling Green, near Townsville, northeast Queensland; late October, 1964; trawled in 17-18 fathoms; T. Nielson, collector. Female paratype, AM P. 14780, from off Gladstone, central eastern Queensland; mid-1963; trawled; Miss J. Booth, collector.

MEASUREMENTS: Male holotype, length of carapace 39.1 mm, width of carapace 50.3 mm, of front 12.2 mm, of fronto-orbit 22.8 mm, length of right chela 31.7 mm, of dactyl 15.6 mm, height of palm 15.2 mm. Male paratype, length 19.1 mm, width 24.3 mm. Female paratype, length 45.4 mm, width 58.4 mm.

DIAGNOSIS: Front produced, median notch narrow, frontal lobes concave. Carapace with squamous tubercles becoming smoother anteriorly and medially. Anterolateral margins triangularly dentate. Walking legs faintly sculptured, cristate above and below. Male first pleopod with a row of 20 longer setae on convex margin.

DESCRIPTION: Carapace pentagonal, front produced, biconcave, anterolateral margins arcuate, strongly dentate, posterolateral margins concave. Surface convex anteroposteriorly, slightly so from side to side. Regions well separated by clearly incised, pilous grooves, areoles covered with squamiform tubercles tending toward obsolescence on proto- and mesogastric, hepatic and epibranchial regions (2M, 3M, 2L, 5L of Dana, 1852:29), particularly in older specimens. Posterior two-fifths of carapace with larger tubercles becoming more numerous and densely packed laterally and anteriorly, where they extend onto the anterolateral teeth. Front strongly produced medially, divided by a narrow (button-hole) slit into two concave, receding lobes, each with an outer lobule. Orbital border smooth, inner margin swollen, two superior notches on outer margin and one inferior notch; a blunt tooth at inner angle. Anterolateral margin arcuate, edge thin, divided into four lobes exclusive of the small exorbital lobe, third and fourth lobes largest, triangularly dentate, tipped with a small tubercle, fourth tooth laterally directed, forming an obtuse angle with third tooth and a concavity with the posterolateral border.

External maxilliped smooth and punctate proximally, ischium longitudinally grooved, merus irregularly pentagonal, broadening distally, tuberculate anteriorly, a depression in line with ischial groove.

Pterygostomian region densely and finely granulate; sternum with coalesced tubercles forming a vermiculated pattern.

Chelipeds equal, upper, outer, and lower surfaces of merus, carpus, and manus tuberculate. Merus with crest on superior margin terminating in two well separated, lamellate lobes. Carpus broadening distally, faintly grooved anteriorly and medially, tubercles inward of medial groove obsolescent, a prominent inner spine and a tubercle beneath. Manus with five larger superior tubercles, of which one or two are double, tubercles of outer surface superimposed on a reticulating pattern of vertical and horizontal ridges and arranged in longitudinal rows of which two extend onto pollex. Dactylus compressed, ridged, and grooved, superior ridge entire, meeting pollex with a slight gape, pollex slightly deflexed, bearing five teeth, the last tooth terminal.

Walking legs compressed, merus, carpus, and propodus faintly sculptured, cristate above, merus and propodus crested beneath, merus doubly so, propodus of last leg broadened, foliaceous; dactyl long, straight or slightly incurving, margins setose.

Male abdomen with segment 3 slightly broader than segment 1, segments 3-5 fused, segments 2-6 with two transverse bars medially and two or more rounded tubercles externally, segment 6 rectangular, longer than broad, segment 7 narrowly triangular, length and breadth equal, sides concave, tip rounded.

Male first pleopod slender, cylindrical, gradually tapering, and curving toward tip; convex margin with a row of short setae proximally and a row of about 20 longer, plumose setae distally; concave margin with a row of short setae proximally and a cluster of short setae terminally, with one longer seta extending beyond recurved and hollowed-out tip.

REMARKS: The new species from northern Queensland compares best with *Demania scaberrima* (Walker, 1887) from Singapore, from which it differs in having the carapace less scabrous, especially on 2M, 3M, 2L, and 5L, the front more advanced medially, the anterolateral teeth more prominent, especially the last, imparting a concavity to the posterolateral border, the chelipeds less scabrous, the superior margin of the dactylus non-granulate, with only one outer carina, the walking legs all alike (the merus of the last not spinulose), smoothly rimmed above and below (not serrate), the meri of the walking legs lacking a subterminal notch, the abdomen of the male with the rows of rounded tubercles fused into transverse bars. It differs from *D. cultripes* (Alcock, 1898) (not Sakai, 1939) in having the tubercles near the inner angle of the wrist and near the base of the thumb (pollex) not noticeably more "worn" than elsewhere and the raised rows of granules on the dorsal surfaces of the leg-joints obsolete, rather than obsolescent. It resembles *D. cultripes* in having the tubercles of the mesogastrum still more "worn" than in *D. baccalipes* (Alcock, 1898), and in having a stout spine at the inner angle of the carpus of the cheliped (this character obtained from the Serène key, in manuscript). Closer comparison with *D. cultripes* from Singapore and *D. baccalipes* from Ceylon is not possible, as their brief descriptions depend on the more complete description of *D. scaberrima* given by Alcock (1898), they have never been illustrated, and specimens said by Serène (personal communication) to be found in the National Museum, Singapore, were not available to the writer when he visited Singapore in July, 1973.

I take pleasure in naming this handsome crab in honour of the late Frank A. McNeill, whose report on the decapod and stomatopod Crustacea of the Great Barrier Reef Expedition (McNeill, 1968) first directed my attention to the carcinological richness of the Queensland coast.

NOTE OF CAUTION

The writer would be remiss, in describing the first species of *Demania* to have been reported from Australian waters, not to caution collectors, fishermen, SCUBA divers, and reef walkers who might encounter this crab, of the poisonous nature of some of its relatives. *D. toxica* Garth, as its name implies, is highly toxic and its ingestion has caused the death of at least one person in the Philippines (Alcala and Halstead, 1970). The toxicity of *D. reynaudii* Milne Edwards in the Gulf of Tonkin is also well known (André, 1931; Holthuis, 1968). Like poisonous reef fishes, poisonous crabs are usually brightly coloured; unfortunately, the colour of *D. macneilli* was not recorded in life; the four specimens have lost all traces of colour after ten years in spirit.

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REFERENCES

- Alcala, A. C., and B. W. Halstead, 1970. Fatality due to ingestion of the crab *Demania* sp. in the Philippines. *Clin. Toxicol.* 3(4): 609-611.
- Alcock, A., 1898. Materials for a carcinological fauna of India. No. 3. The Brachyura Cyclometopa. Part I. The family Xanthidae. *J. Asiat. Soc. Bengal* 67: 67-233.
- André, M., 1931. Crustacés Décapodes provenant de l'Institut Océanographique de Nha-Trang (Annam). *Bull. Mus. natn. Hist. nat. Paris, Sér. 2*, 3(7): 638-650.
- Dana, J. D., 1852. United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U.S.N. Vol. 13 Crustacea: (viii) 1618pp. Philadelphia.
- Garth, J. S., 1971. *Demania toxica*, a new species of poisonous crab from the Philippines. *Micronesica* 7: 179-183.
- Holthuis, L. B., 1968. Are there poisonous crabs? *Crustaceana* 15(2): 215-222.
- Laurie, R. D., 1906. On the Brachyura. In W. A. Herdman (ed.), Report to the government of Ceylon on the pearl oyster fisheries of the Gulf of Manaar, Part V. Suppl. Rep. 40: 349-432.
- McNeill, F. A., 1968. Crustacea, Decapoda & Stomatopoda. In Great Barrier Reef Expedition, 1928-29. *Scient. Rep.* 7(1): 1-98, pls. 1, 2.
- Sakai, T., 1939. Studies on the crabs of Japan. IV. Brachygnatha, Brachyrhyncha. 365-731. Tokyo.
- Walker, A. O., 1887. Notes on a collection of Crustacea from Singapore. *J. Linn. Soc. London, Zool.* 20: 107-117.