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A NEW SPECIES OF *METAPENAEOPSIS* (CRUSTACEA-DECAPODA)
FROM NORTHERN AUSTRALIAN WATERS

A. A. RACEK

School of Biological Sciences, University of Sydney

(Plates XII-XIII)

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Synopsis

A new penaeid prawn from shallow waters of the continental shelf of Western Australia and the Gulf of Carpentaria is described. A number of unusual morphological features, in particular its aberrant petasma and thelycum, are of interest.

INTRODUCTION

The new species here described was first detected in a comprehensive series of penaeid prawns recently collected by Mr. Vernon Wells in the Exmouth Gulf area, Western Australia, and sent to the author for a routine examination. Just after the draft of its description was completed, the author received 2 additional specimens from the Gulf of Capentaria, Queensland, through the kindness of Mr. Donald Tuma, C.S.I.R.O., Division of Fisheries and Oceanography. Considering the increasing prawn trawling activities in both these regions during the past 10 years, and the voluminous material collected there for the most recent and extensive taxonomic revision (Racek and Dall, 1965), the discovery of a new penaeid species in rather shallow waters certainly is surprising. The new species of *Metapenaeopsis* has been named after Mr. Wells in recognition of his unflinching cooperation on many occasions. For the nomenclature of the various morphological criteria the reader is referred to Kubo (1949), Dall (1957) and Racek and Dall (1965).

TAXONOMY

METAPENAEOPSIS WELLSI, sp. n.

(Plate XII: Plate XIII, Figs. 1-3)

Material—Exmouth Gulf, Western Australia, 7-10 fm, mud, 9. August 1967, coll. Vernon Wells; *holotype* female 110 mm, carapace 30 mm; *allotype* male 103 mm, carapace 25 mm; *paratype* female 109 mm, carapace 29 mm.

Gulf of Carpentaria, Queensland, C.S.I.R.O. Grid 6800, 18, April 1966, coll. D. J. Tuma: male, 111 mm (approximate, rostrum broken), carapace 28 mm; female, 97 mm (approximate, rostral tip broken), carapace 26 mm.

Description—Rostrum short, almost straight, upper margin slightly convex, moderately wide at base, tapering to a sharp and somewhat upturned tip; reaching to anterior margin of basal antennular segment; armed dorsally with 5-7 teeth plus epigastric; penultimate tooth in level with frontal margin of carapace. Postrostral carina of females feebly developed for a very short distance behind epigastric tooth, altogether absent in males.

Carapace entirely covered with short tomentum except along pleural carinae, setae in sulci longer and dense; orbital spine minute though well-defined; orbito-antennal sulcus shallow and obscured by dense tomentum; hepatic spine mod-

erately large, cervical and hepatic sulci distinct in spite of tomentum; antennal spine well-developed, almost reaching cornea, carina ill-defined; pterygostomial spine large and sharp. Branchiocardiac carina conspicuous and arcuate, ascending in anterior half, bending sharply ventrad at posterior 9/10 of branchiostegite, parallel to posterior margin of carapace. Between the branchiocardiac and pterygostomial carinae another glabrous ridge, extending from level of hepatic spine posteriorly to 8/10 of carapace. Stridulating ridges on branchiostegite absent.

Antennular flagella subequal, length of lower 9/10 of peduncle, slightly more than 1/2 carapace in both sexes; lower flagella sexually dimorphic, with a dorsal bulbous swelling on proximal 1/3 length in male (see Plate i), of normal conical shape in female. Prosartema not quite reaching as far as eye, stylocerite reaching to tip of basal antennular segment. Distomedian spine of basal segment vestigial, distolateral spine long, slender, inclined slightly upwards.

Third maxillipeds reaching to middle of 2nd antennular segment; 1st pereopod reaching to, or slightly exceeding base of carapocerate, 2nd exceeding carapocerate by dactyl or entire propodus; 3rd not quite reaching to tip of basal antennular segment, 4th reaching as far as carapocerate, 5th exceeding it by dactyl. Ischial spine of 1st pereopods prominent.

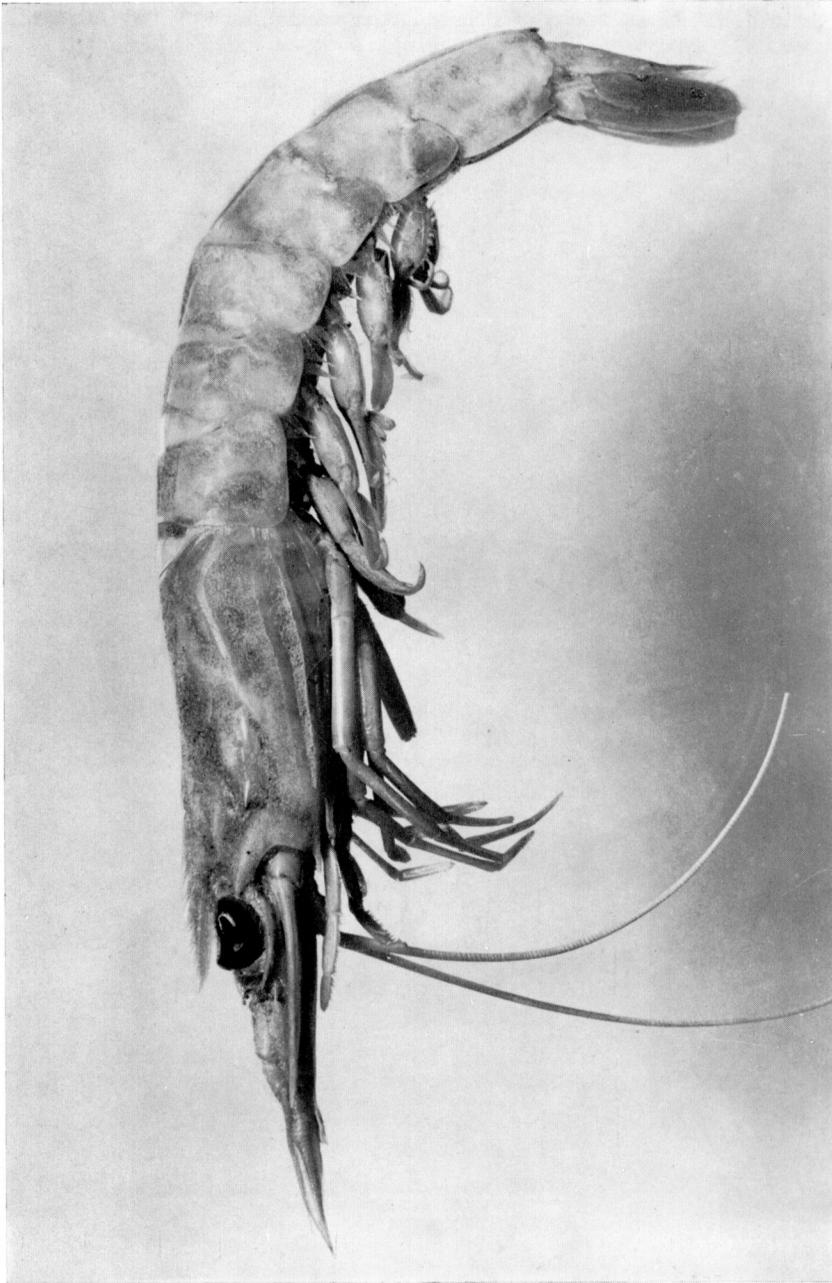
Abdomen sculptured with extensive setose patches; 2nd abdominal somite with a short dorsal carina in posterior half; 3rd to 6th somites with a strong carina, that of the 3rd without a trace of a sulcus, the carina of the 6th ending in a small acute tooth. Length of 6th somite 1.3 that of 5th. Telson slightly shorter than inner uropods, armed with 3 pairs of mobile and 1 pair of fixed lateral spines; 1st mobile spines 1/2 length of that of the posterior 2 pairs, the fixed spines the smallest of the series.

The petasma is shown on Plate ii, Figs 1 and 2. Right distoventral projection larger than left, broadly leaf-like, widest in distal 1/3, distally carrying 1-3 blunt tubercles; distoventral flap large; left distoventral projection flattish and dorsoventrally curved, distally carrying a triangular inward-bent projection with a series of very small spines. Inner and outer intermediate strips fused in form of a rounded and strongly calcified plate with a distal broad tooth; distomedian lobule, covered by the "dust-cap" of right distoventral projection, with a sinuous and distinctly crenulated apical plate. Appendix masculina typical for the genus, one-segmented with a small soft process just inside of distal part of rim.

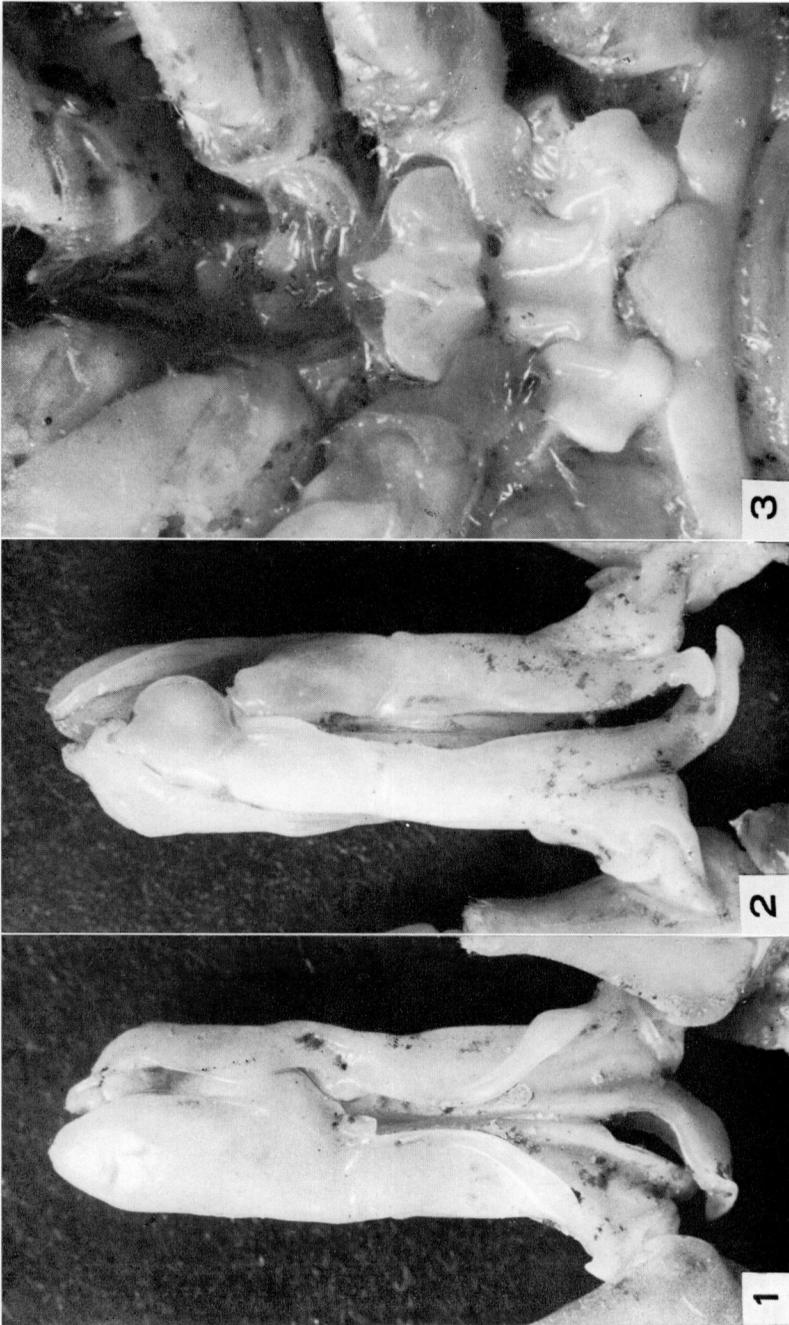
The thelycum is shown on Plate ii, Fig 3. Sternum of female 2nd pereopods with 2 long spinous processes arising from a broad base, that of the 3rd with 2 rather closely set blunt tubercles. Thelycal plate subrectangular with a large acicular spine at centre of anterior margin, and with evenly rounded anterolateral corners; arising from the posterior border of this plate a pair of parallel blunt ridges anteriorly converging to base of acicular spine. Intermediate plate strongly concave, semitubular, with raised blunt lateral ridges of sigmoid appearance; posteriorly this plate is confluent with the anterior sternal plate which consists of a slightly curved transverse bar and laterally of a pair of strongly calcified projections; the lateral parts of the transverse bar bent anteriorad and abutting lateral borders of intermediate plate; the calcified projections kidney-shaped, inserted at about 45° to longitudinal axis of sternites, forming anteriorly and posteriorly a pair of broad and blunt teeth.

Colour in life—Not yet reliably assessed, freshly preserved specimens (in formalin) pinkish, without apparent mottlings, pereopods orange, posterior half of uropods maroon.

Location of types—In the Australian Museum Collection; *holotype* Reg. No. P 15518, *allotype* P 15519, *paratype* P 15520.



Metapenaeopsis wellsi



Metapenaeopsis wellsi

DISCUSSION

In view of the comparatively limited material available, the intrageneric relationship of *M. wellsi* cannot as yet be fully assessed. While the stridulating species of *Metapenaeopsis*, as well as those with a long 6th abdominal somite, more or less form homogenous groups, the interrelationship of the remaining species is difficult to demonstrate. From most Indo-West Pacific congeners *M. wellsi* differs by having its right petasmal lobe longer than the left, a condition found only in *M. borradilei* (de Man), *M. sibogae* (de Man), and to a certain extent in *M. sinuosa* Dall. However, the petasma of *M. wellsi* is structurally quite different from and fully incomparable with that of any of these three species. In general form its thelycal plate is comparable with that of *M. borradilei*, *M. lamellata* (de Haan) and *M. insona* Racek and Dall, but the remaining thelycal structures are not shared by any other species of the genus.

In size, development of the branchiocardiac carina, and length as well as sexual dimorphism of the antennular flagella, *M. wellsi* on the other hand possesses some features found only in the *M. coniger* group of species; however, it does not share a number of other decisive criteria of that group: its 6th abdominal somite is comparatively short, its thelycum and petasma is strikingly different, there is no distomedian spine on the basal antennular segment, and its optimal habitat seems to be the shallow regions of the continental shelf.

The sudden appearance of *M. wellsi* in two distant and intensively trawled areas of Australia's northwest and north is difficult to explain. Its optimal habitat could well be the deeper parts of the shelf, from where trawling records remain extremely scarce. On the other hand it is possible that it normally occurs on "hard" bottoms which are difficult to trawl. It would seem that this latter assumption is supported by the fact that the trawl containing the two specimens from the Gulf of Carpentaria consisted of several baskets of dead mollusc shells covered with bryozoa.

References

- DALL, W., 1957.—A revision of the Australian species of Penacinae (Crustacea Decapoda: Penaeidae). *Aust. J. mar. freshw. Res.* 8 (2): 136-231.
 KUBO, I., 1949.—Studies on the penaeids of Japanese and its adjacent waters. *J. Tokyo Coll. Fish.* 36 (1): 1-467.
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EXPLANATION OF PLATES XII - XIII

Plate xii. *Metapenaeopsis wellsi*, allotype, male 103 mm.

Plate xiii. Fig. 1. *M. wellsi*, petasma, ventral view. Fig. 2. *M. wellsi*, petasma, dorsal view. Fig. 3. *M. wellsi*, thelycum and genital sterna.