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A WORKING KEY TO THE COMMON SPECIES OF JUVENILE PENAEID
PRAWNS FROM MORETON BAY, QUEENSLAND, AUSTRALIA
(PENAEIDAE : NATANTIA)

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By

P.C. YOUNG

INTRODUCTION

Although juvenile and postlarval penaeid prawns are amongst the most abundant invertebrates of littoral tropical and subtropical Australian estuaries, little is known of their morphology at these stages. Dall (1957) and Racek and Dall (1965) have reviewed the taxonomic status of Australian Penaeids, but their keys are based upon adult characters which do not appear until fairly late, and after the prawns have migrated to deeper water.

As part of a study of postlarvae and juvenile penaeid prawns from Moreton Bay, Queensland, (Young, 1975a; Young, 1975b; Young, Ms a, Young, Ms b, Young and Carpenter Ms) eight species of juvenile and postlarval penaeid prawns were commonly collected. These were:-

Eastern King prawns (*Penaeus plebejus* Hesse), Tiger prawns (*P. esculentus* Haswell), Endeavour prawns (*Metapenaeus endeavourii* (Schmitt)), School prawns (*Metapenaeus macleayi* (Haswell)), Greasyback prawns (*Metapenaeus bennettiae* Racek and Dall, *Metapenaeus ensis* de Haan), Hardback prawns (*Trachypenaeus fulvus* Dall), and New Guinea prawns (*Metapenaeus novaeguineae* Haswell).

Of these eight species, only the postlarvae of *Metapenaeus* sp., *Penaeus plebejus*, and *Trachypenaeus fulvus* have been adequately described (Morris and Bennett, 1951; Dakin, 1940; and Kirkegaard, 1969).

Because of the large number of individuals examined in the author's studies (>100,000) it was possible to identify specimens to species level by taking into account the gradual transition of genital, rostral and telson characters as a series of individuals ranging from adults to postlarvae were examined.

A working key was constructed and is presented here. This allows postlarval and juvenile prawns of up to 13 mm carapace length (c.l.) to be separated from each other, and accounts for the morphological changes which occur with growth during these stages.

The definition of postlarvae and juveniles appears, from the literature, to be indeterminate, so I have included all epibenthic littoral forms under this joint category. The key is not intended as a study of life history, morphology or phylogeny, but is presented here as an aid to identification for field ecologists. The terminology used is that of Dall (1957).

A WORKING KEY TO THE COMMON POSTLARVAL JUVENILE PENAEID PRAWNS

(PENAEIDAE) OF MORETON BAY, QUEENSLAND

1. One ventral tooth present on rostrum *P. plebejus* (Fig. 1 d-g)
Two or more ventral teeth present on rostrum
..... *P. esculentus* (Fig. 2 a-g)
Ventral teeth absent from rostrum 2
2. Two dorsal teeth of rostrum and an epigastric tooth behind posterior
border of orbit *P. plebejus* (Fig. 1 a-c)
Less than two dorsal teeth of rostrum and an epigastric tooth behind
posterior border of orbit..... 3
3. Rostrum extending beyond eye 4
Rostrum not extending beyond eye 5
4. Rostrum sigmoid; no dorsal teeth on anterior end
..... *M. macleayi* (Figs.4 f,g)
Rostrum more or less straight, dorsal teeth extending to anterior end..
..... 6
5. Rostrum straight, four nearly equidistant pairs of lateral spines on
telson, last pair slightly longer *M. macleayi* (Figs.4 a-e)
Rostrum straight, four nearly equidistant pairs of lateral spines on
telson, last pair much longer *M. bennettiae* (Figs.5 a-e)
Rostrum curved downwards anteriorly, four pairs of spines on telson,
last pair longer, with third pair closely applied to their base, three
pairs of papillae posterior to last pair *T. fulvus* (Figs.8 a-c)
6. Four pairs of lateral spines on telson 7
Less than four pairs of lateral spines on telson 10
7. Last pair of lateral spines on telson longer than others 8
Last pair of lateral spines on telson not longer than others 9
8. Last pair of lateral spines on telson with third pair closely applied
to their bases, three pairs of papillae posterior to last pair
..... *T. fulvus* (Figs.8 d-g)
Last pair of lateral spines on telson closer to third pair than third
is to second, one pair of lateral papillae posterior to last pair
..... *M. ensis* (Figs.6 a-c)
All four pairs of lateral spines on telson equally spaced. No papillae
posterior to last pair of lateral spines on telson
..... *M. bennettiae* (Figs.5 f-g)
9. Last pair of lateral spines on telson partially fused with telson at
bases, third pair overlap apical pair
..... *M. novaeguineae* (Figs.7 a-g)
All four pairs of lateral spines on telson separate from telson and
equidistant, third pair do not overlap last pair.....
..... *M. endeavouri* (Figs.3 a-c)

10. Paired spines absent from telson 11
 Three pairs of spines on telson, last pair longer than the rest
 *M. endeavouri* (Figs. 3 d,e)
 Three pairs of spines on telson, last pair not longer than the rest,
 single row of papillae reach (anteriorly) on each side from last pair
 of spines to preceding pair *M. ensis* (Figs. 6 d,e)
11. Usually with 9-10 dorsal rostral teeth (including epigastric), 2-3 rows
 of lateral papillae on each side of telson *M. ensis* (Figs. 6 f,g)
 Usually with 8 dorsal rostral teeth (including epigastric) 1 row of
 lateral papillae on each side of telson *M. bennettiae* (Figs. 5 h,i)

DISCUSSION

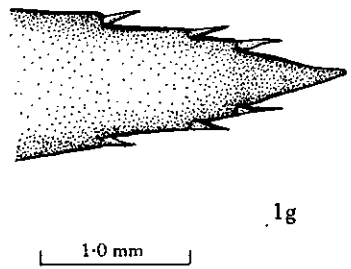
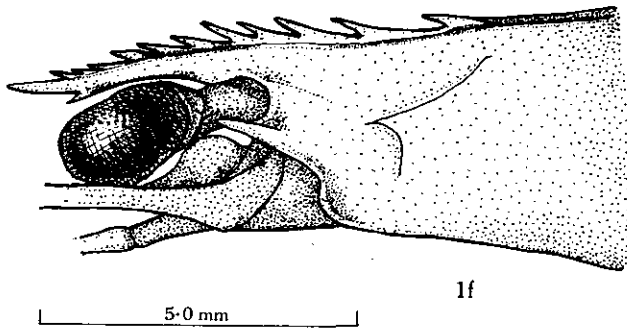
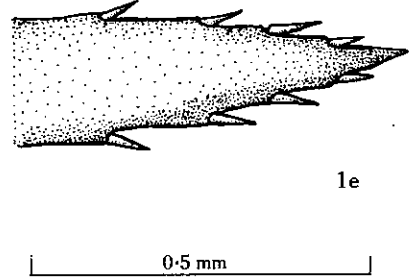
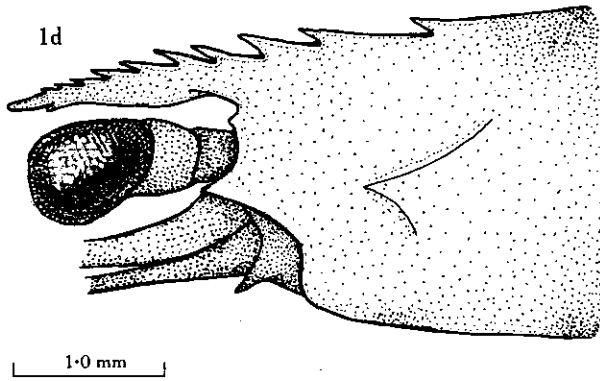
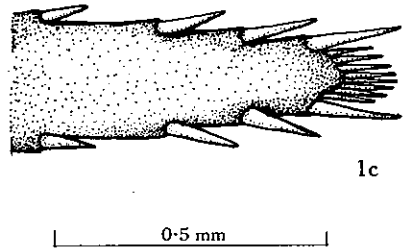
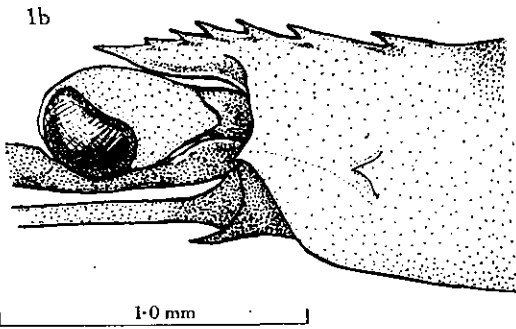
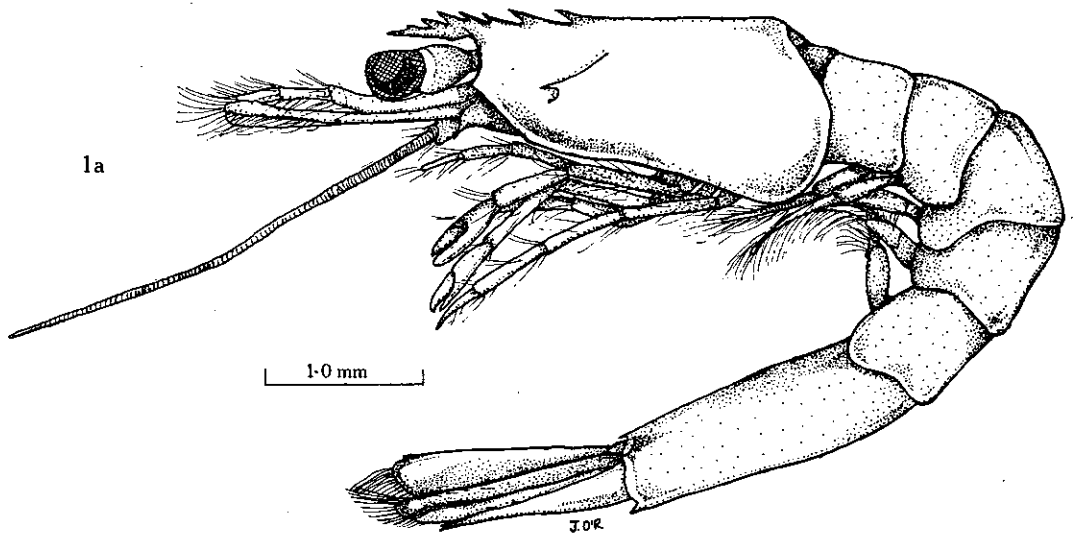
The anatomical characters used here to differentiate between species are a function of the size of individuals. Consequently they accurately discriminate between species at all sizes within the ranges given (1.1 - 13.0 mm carapace length). The predominating characters are shape and length of rostrum, number of rostral spines, and number and shape of telsonic spines. All these change with size, and often telsonic spines may be lost. Consequently the key has provided for separation on a number of characters, but although these are dependent upon the size of the individual, no assumptions concerning size are necessary in its use.

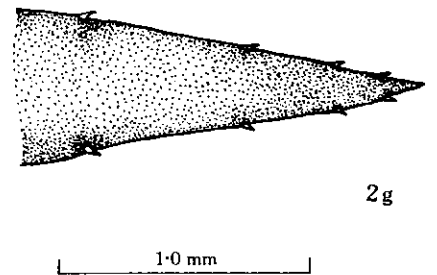
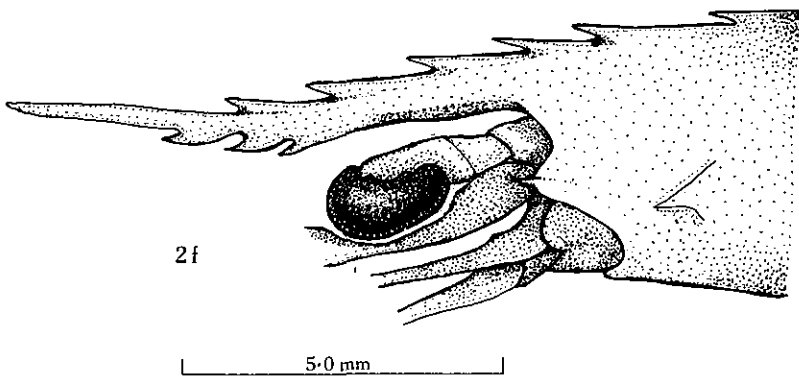
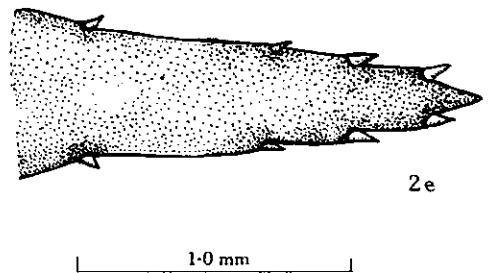
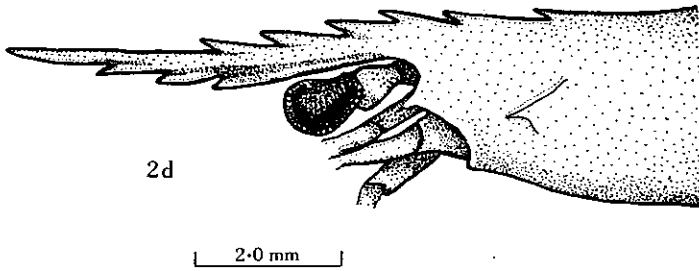
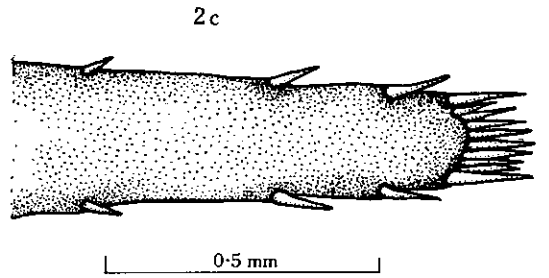
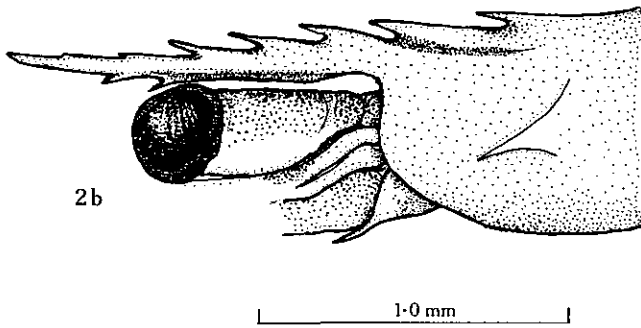
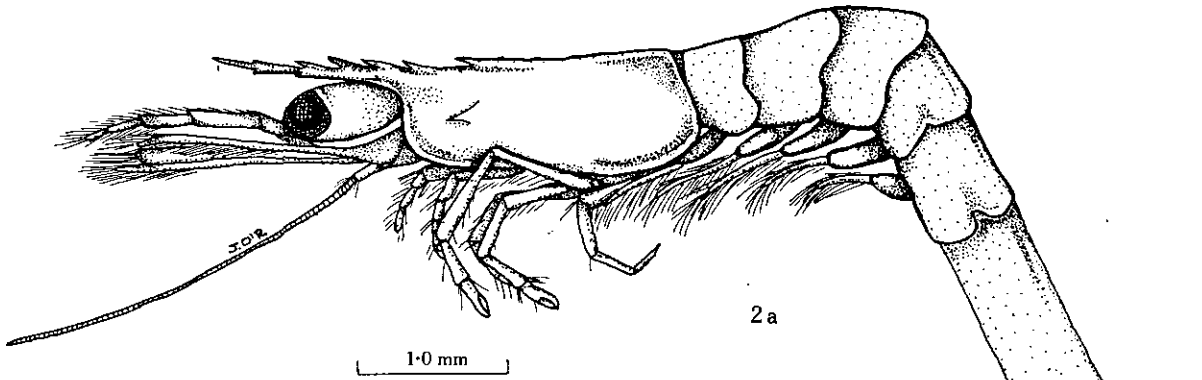
These descriptions agree with those of Dakin (1940) and Kirkegaard (1969). Morris and Bennett (1951) described postlarvae of the so-called "Dana" *Metapenaeus* sp. nov. They differentiated between this species and *M. macleayi* and thought it the same as those previously described as *M. monoceros* (Fabricus 1789) from eastern Australia.

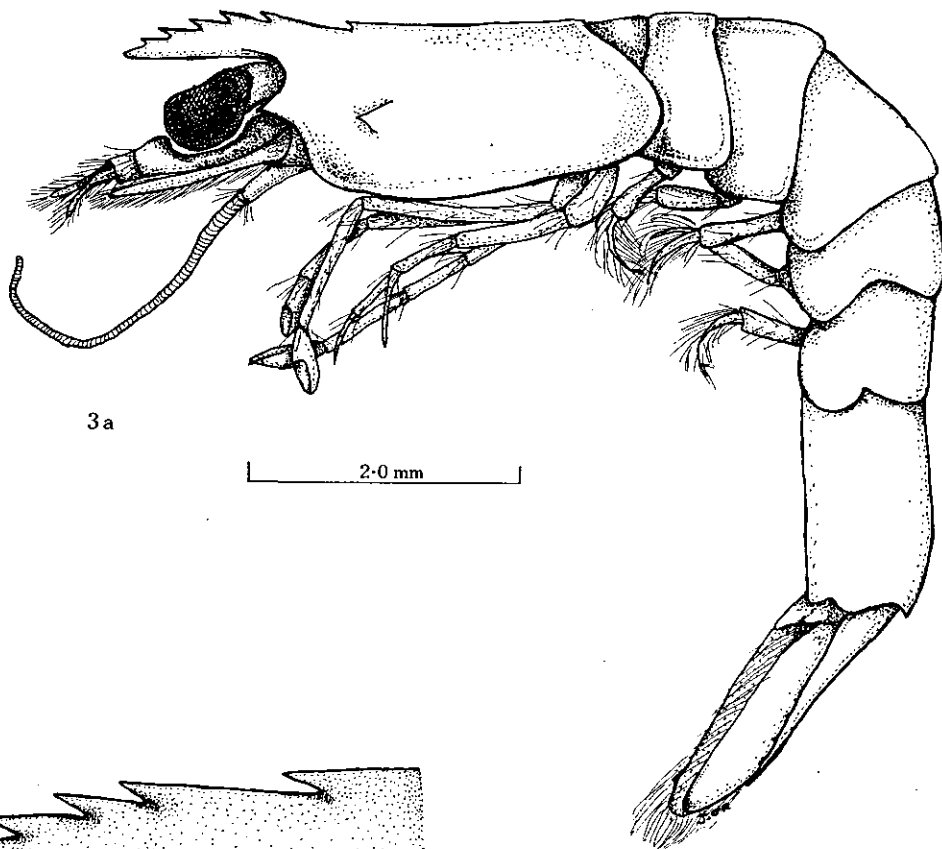
Specimens previously ascribed to *M. monoceros* were subsequently found by Racek and Dall (1965) to be *M. ensis* (de Haan) and *M. bennettiae* Racek and Dall. As both these species occur in similar areas and Morris and Bennett's are more similar to mine of *M. ensis* it is probable that the *Metapenaeus* sp. Morris and Bennett described was *M. ensis* and not *M. bennettiae*.

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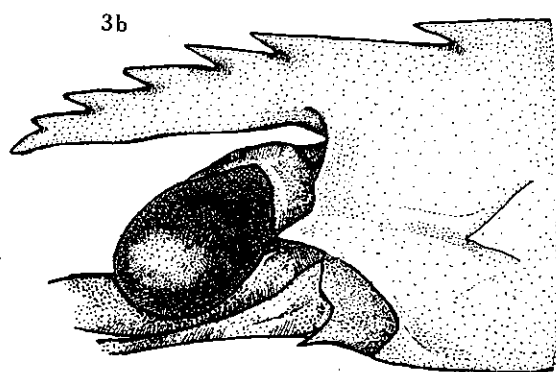






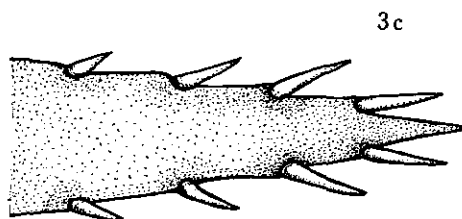
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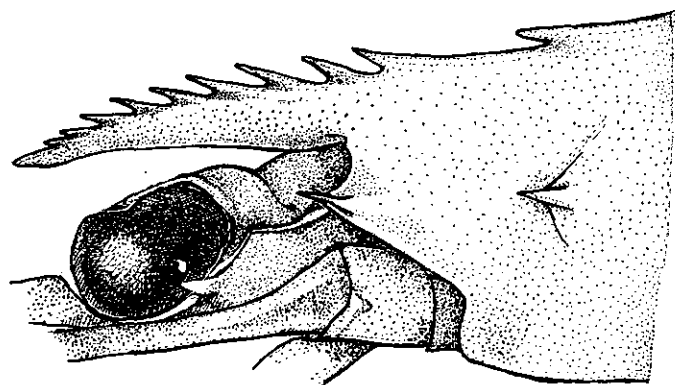
3b

1.0 mm



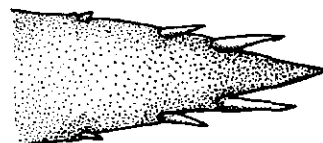
3c

0.5 mm



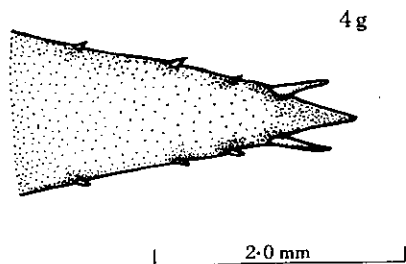
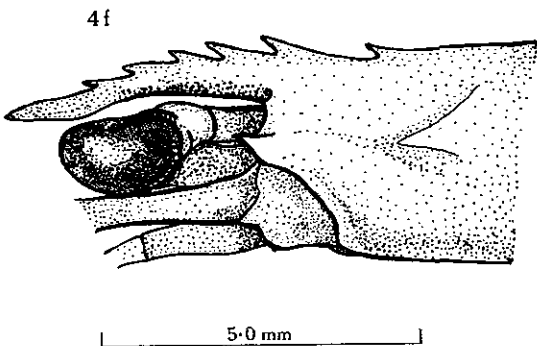
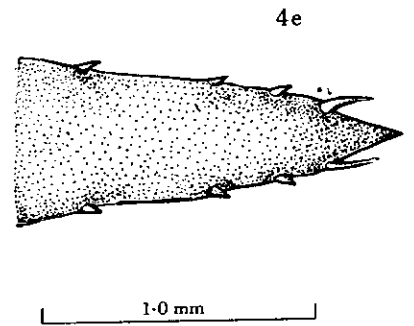
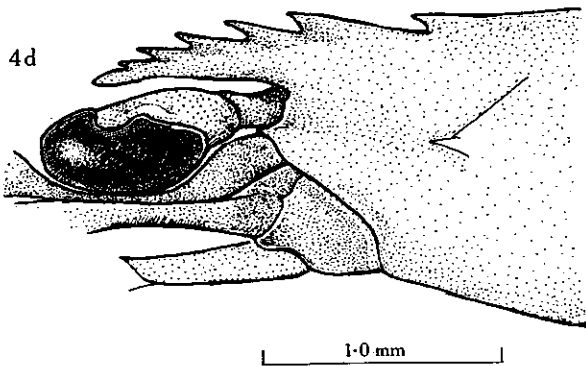
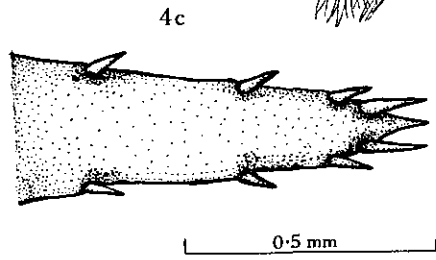
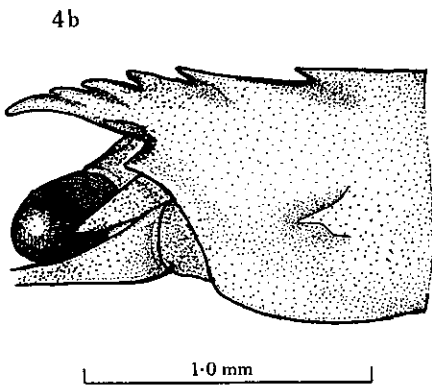
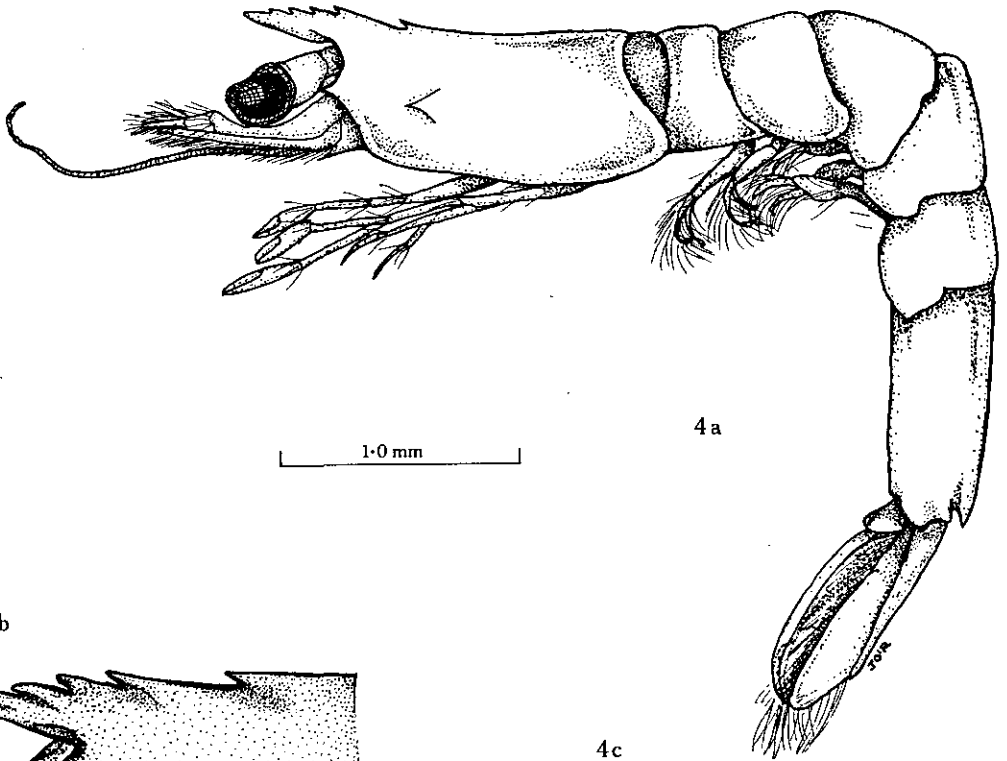
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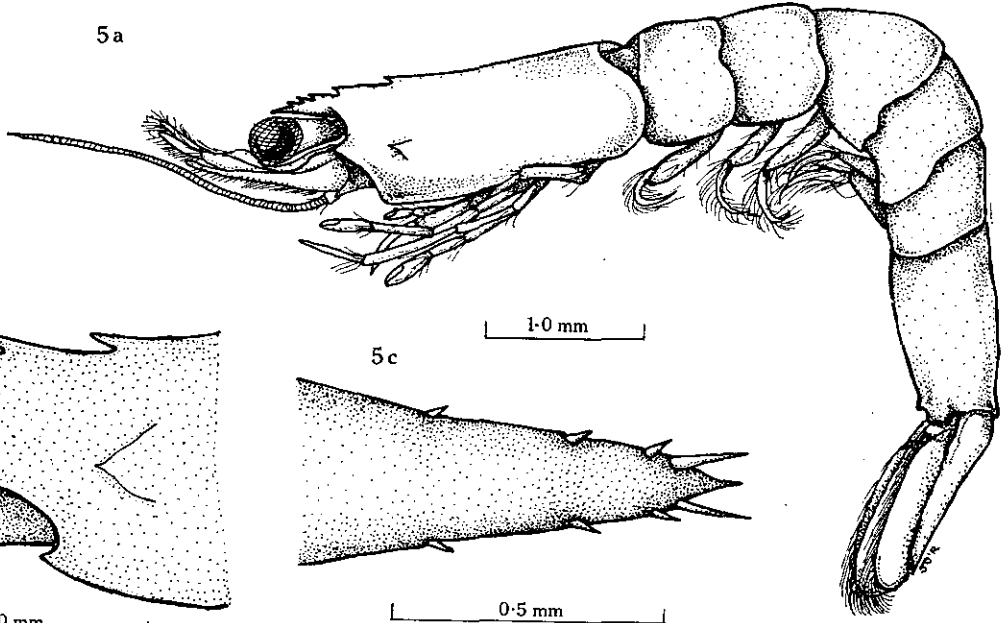


3e

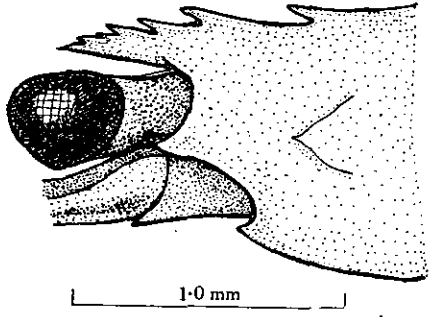
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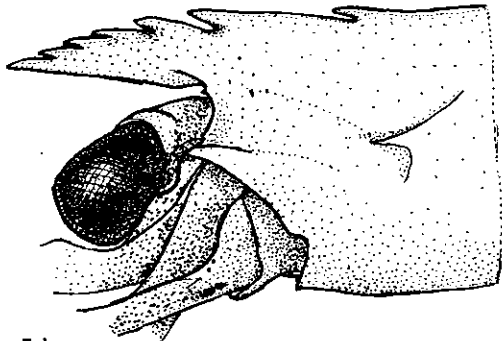
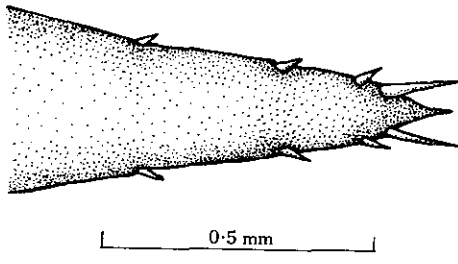
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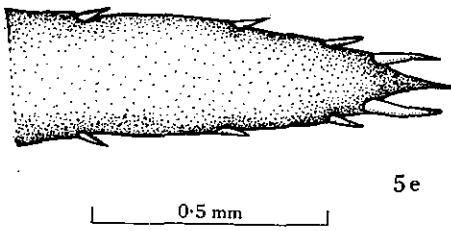
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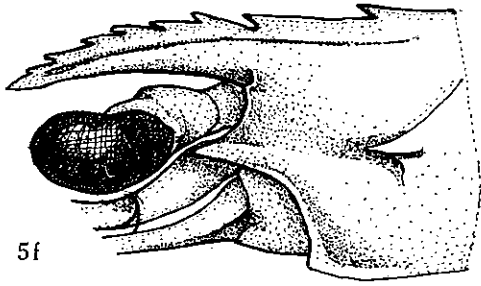
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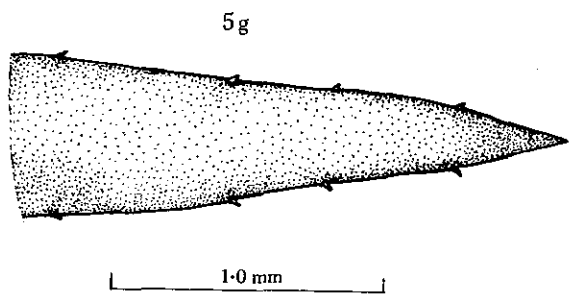
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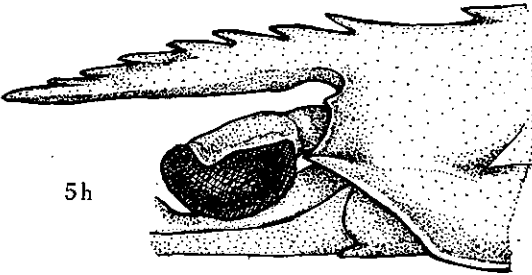
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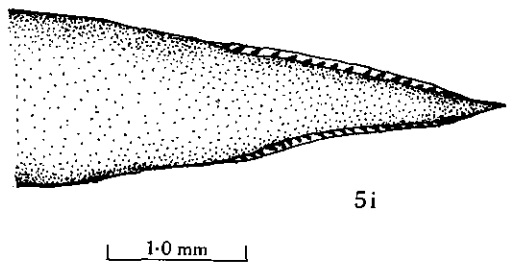
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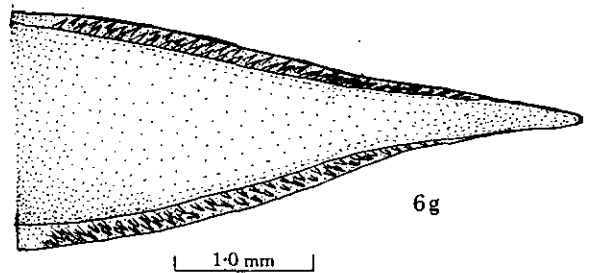
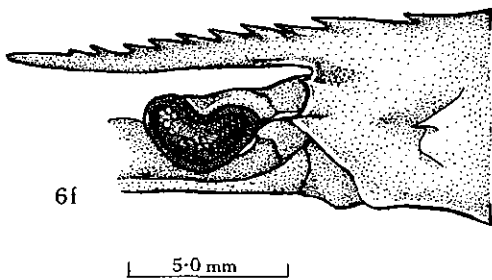
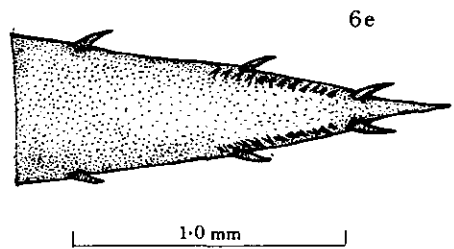
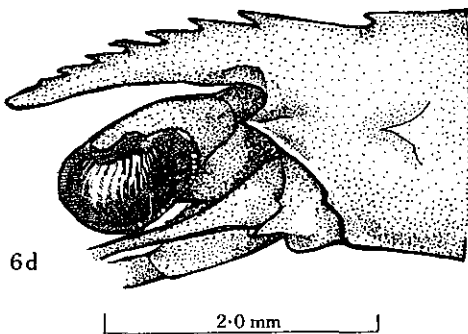
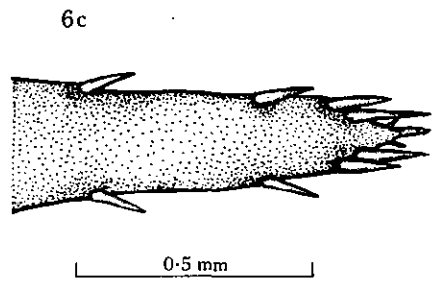
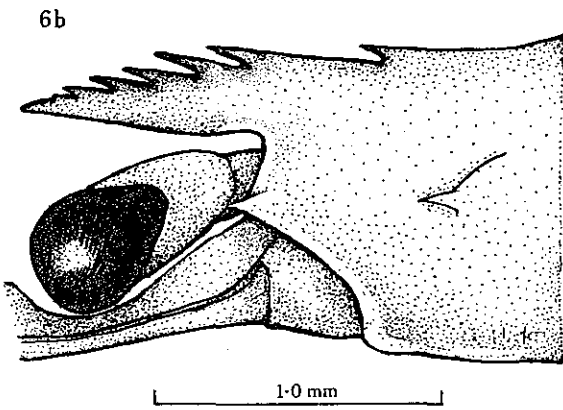
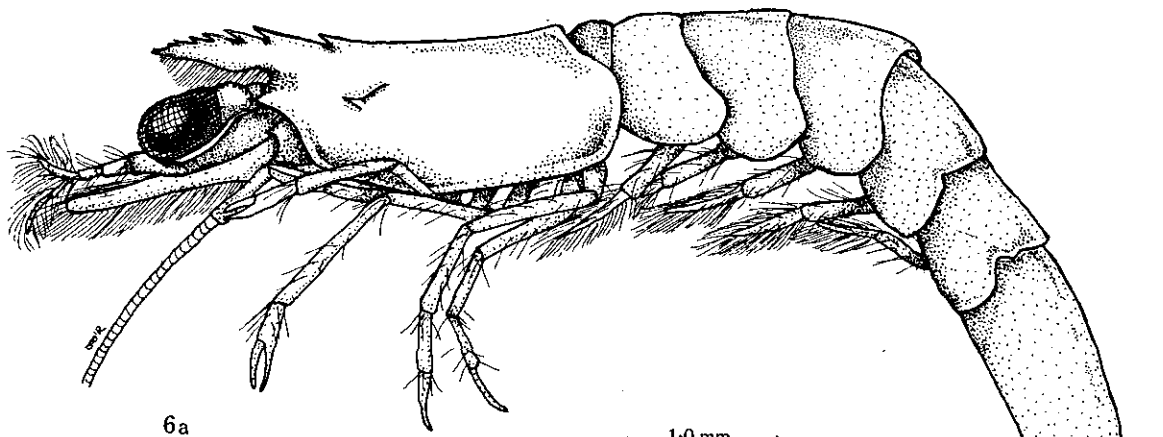
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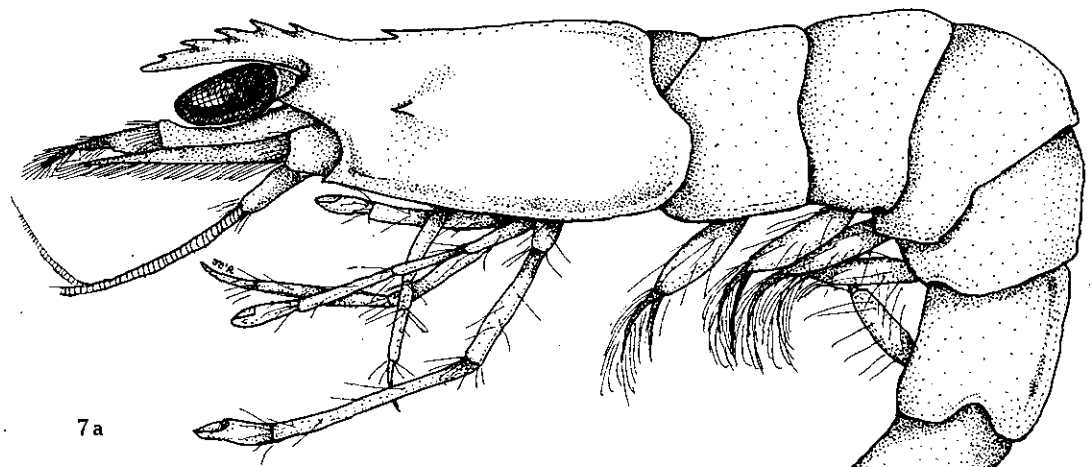


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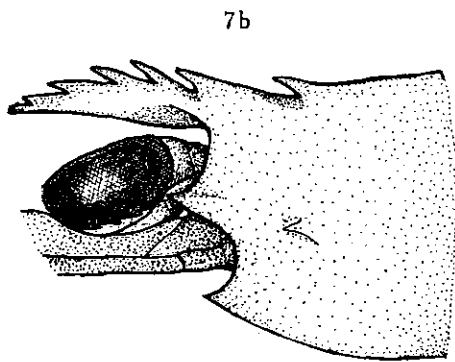
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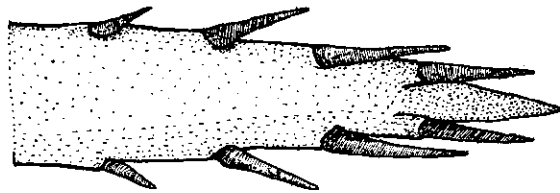
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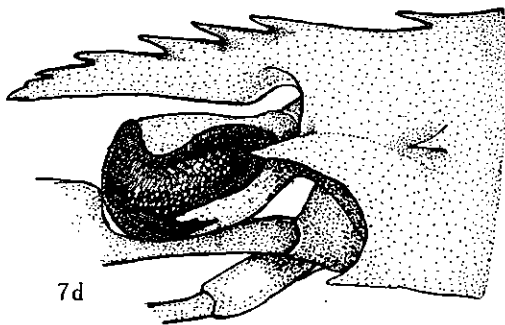
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1.0 mm



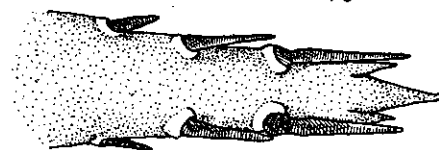
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0.5 mm



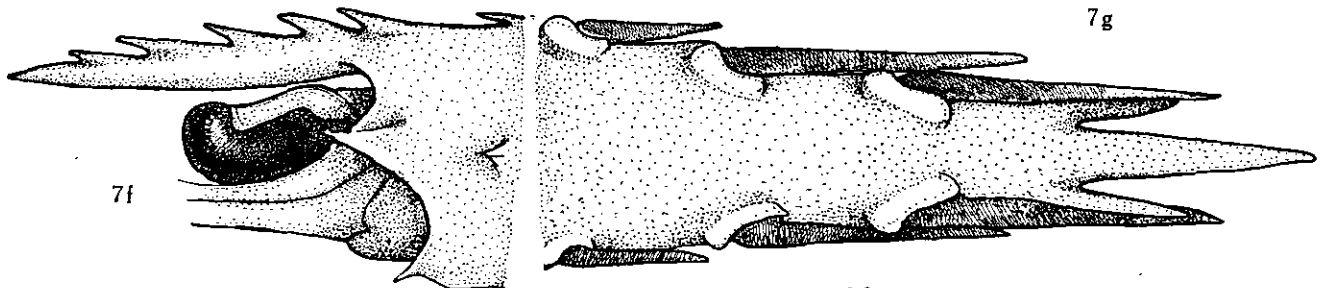
7d

1.0 mm



7e

0.5 mm



7f

5.0 mm

7g

1.0 mm

