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SOME COMMON COMPONENTS OF THE PLANKTON OF THE SOUTHEASTERN COASTAL WATERS OF TASMANIA

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(with 99 text-figures)

ABSTRACT

Zooplankton species found during studies of the zooplankton of the southeastern coastal waters of Tasmania are recorded, and discussed taxonomically where appropriate. A brief account is given of the distribution of the 71 pelagic copepods, eight euphausids, one sergestid, 11 chaetognaths and seven pelagic tunicates. Except for two copepod species which are assigned only to a genus, the remaining are positively identified to species level. Amongst the species recorded, 22 copepods are new to Australian waters whereas 38 copepods, one euphausid and two chaetognaths are new records for Tasmanian waters. Keys to the copepod genera and species are also given.

INTRODUCTION

The knowledge of Tasmanian marine plankton fauna, especially the copepods, is based almost exclusively upon materials collected by a few expeditions. The earliest contribution was from the Australian Antarctic Expedition (1911-1914) which operated a station off Maria Island and a station off the west coast of Tasmania. The Discovery Investigation Expeditions (1925-1927) operated a few stations around Tasmanian waters and another two stations were occupied by the British, Australian and New Zealand Antarctic Research Expedition (1929-1931) in southern Tasmanian waters.

Thomson (1947) and Thompson (1948) reported on the extensive studies of chaetognaths and pelagic tunicates respectively, found in the plankton hauls made by the C.S.I.R. Research Vessel "Warren" where the stations extended from the southern Queensland coast to South Australia and Tasmania.

Recently, the knowledge of Tasmanian euphausids was supplemented by a few stations operated around Tasmanian waters by Bradbury (1972) during his study on the seasonal distribution of Euphausiidae in the southern ocean adjacent to Australia.

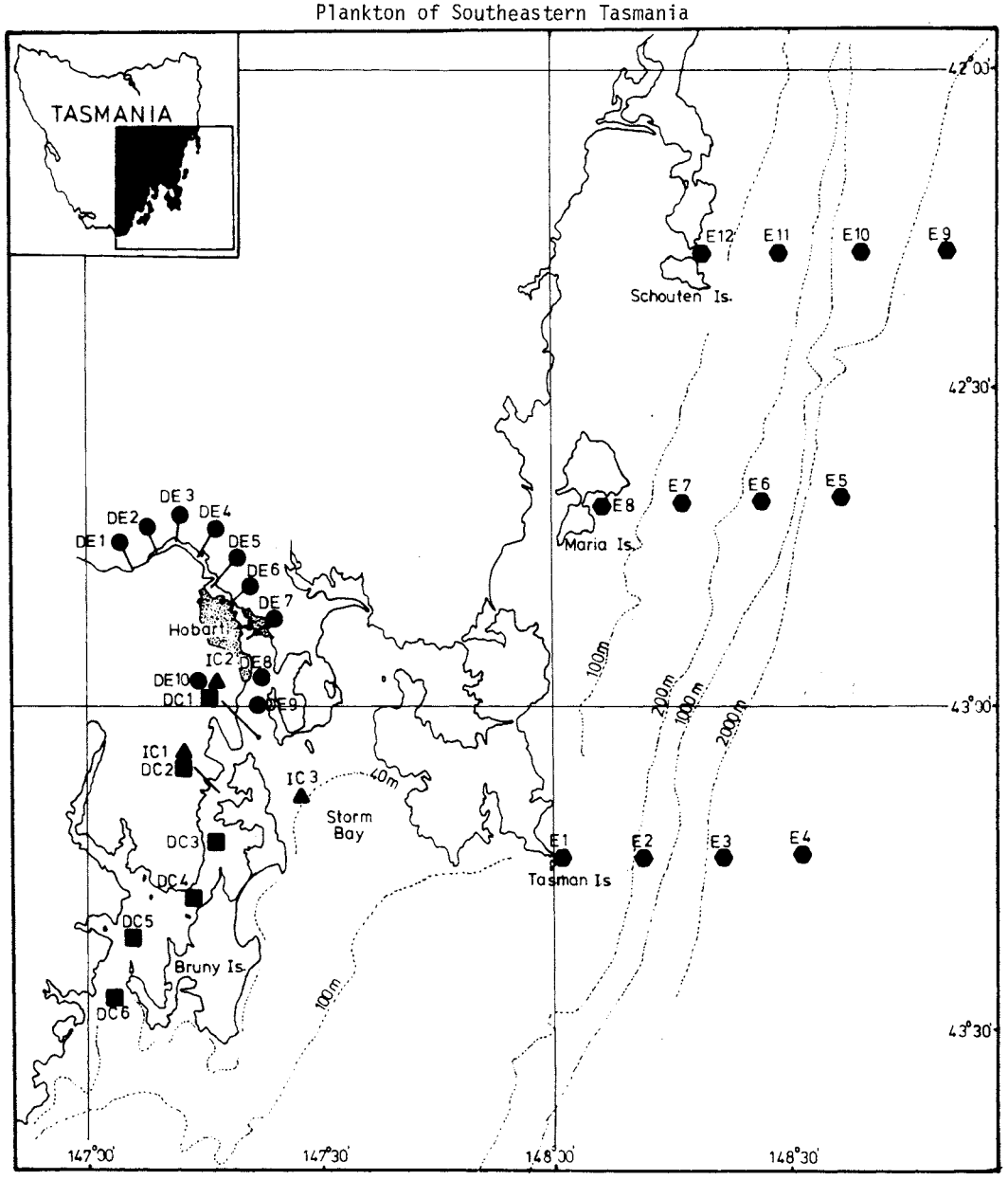
Dall (1957a & b, 1958) reported the distribution of zooplankton, mainly copepods, from the north and northeast of Tasmania. Kott (1957) reported the occurrence and composition of zooplankton on the material collected off New South Wales coast and Tasman Sea. Ong (1967) studied the zooplankton on the Derwent Estuary and recorded a few species.

The most extensive work on Australian marine plankton was done by Dakin and Colefax (1933, 1940) on the plankton samples collected off the coast of New South Wales.

Apart from these few studies, no detailed or lengthy study has been made on the Tasmanian marine and estuarine zooplankton. In particular, the copepod fauna, an important part of the marine plankton has not been investigated in detail.

The present paper provides a list, with figures, and key, of the major and common zooplankton groups found in the samples collected in the southeastern coastal waters of Tasmania. A more detailed account of their distribution has been presented by Nyan Taw (1975b).

Plankton of Southeastern Tasmania



(E) - indicates east-coast day stations: samples taken over a period of 2 years (June 1971 to May 1973) during which a total of 10 cruises were made approximately 1 to 3 months apart.

(IC) - indicates inshore coastal day and night stations: sampled once a month for a period of a year (August 1971 to July 1972).

(DC) - indicates D'Entrecastreaux Channel day stations: sampled once every 2 months for a period of a year (August 1972 to July 1973).

(DE) - indicates Derwent Estuary day stations: sampled during 2 cruises (October 1973 and April 1974).

FIG. 1. - Zooplankton stations in the southeast coastal waters of Tasmania.

Source of Material and Methods

The systematic account of the zooplankton presented in this paper was from the zooplankton samples collected in the southeastern coastal waters of Tasmania (fig. 1). The plankton samples were collected for four different studies, namely:

i. Water masses study off the east coast of Tasmania - stations indicated by the prefix 'E' (day stations; samples taken over a period of 2 years - June 1971 to May 1973 - during which a total of 10 cruises were made approximately 1 to 3 months apart),
ii. A comparative study on the seasonal diurnal vertical distribution of zooplankton in the inshore coastal waters of southeastern Tasmania - stations indicated by the prefix 'IC' (day and night stations; samples once a month for a period of a year - August 1971 to July 1972),
iii. A study on the zooplankton of D'Entrecasteaux Channel - stations indicated by the prefix 'DC' (day stations; sampled once every 2 months for a period of a year - August 1972 to July 1973), and,
iv. A study on the zooplankton of the Derwent Estuary - stations indicated by the prefix 'DE' (day stations; sampled during 2 cruises - October 1973 and April 1974).

Except for the comparative study of zooplankton in the inshore coastal waters, oblique tows were made in collecting the plankton samples: bottom to surface in D'Entrecasteaux Channel and Derwent Estuary zooplankton studies and 50m to surface in shallow water stations and 100m to surface in deep water stations in the East Coast water masses study. The plankton samples were preserved in approximately 5% formalin after each collection.

The East Coast water mass study plankton collections were made from F.R.V. "Penghana". The Zoology Department Research vessel "Neotrigonia" was used to collect the plankton samples for the remaining studies.

For taxonomic work on planktonic crustacea, the formalin preserved animal was immersed in a liquid mixture of glycerine and water having the ratio of 1:2 respectively. The mixed media containing the animal was kept in an oven (60°C) for about an hour, during which time the water in the mixed liquid evaporated and the animal was cleared and left in the pure glycerine. Thus the whole animal may be observed and studied from several angles.

The animal was dissected in the glycerine medium with a pair of minutent needles. The dissected parts were mounted in polyvinyl alcohol mounting fluid for detailed microscopic examination. A camera lucida was used to draw the animals and the parts dissected. Both compound and phase contrast microscopes were used in examining the whole animal and the parts dissected.

For salps and chaetognaths a dark-field condenser (Heron 1969) was used in identifying the specimens.

To be able to present a brief account of the occurrence of the zooplankton species, the study area is divided into four regions. The east coast area is divided according to the nomenclature given by Miller (1950) as coastal and oceanic, the oceanic waters being the region beyond 200m depth, and as such the stations in that area will be referred to as 'Oceanic' in giving the occurrence of a species. The remaining stations in the east coast is referred to as 'Coastal'. The stations occupied during the D'Entrecasteaux Channel zooplankton study and the comparative study of zooplankton in the inshore coastal waters are referred to as 'Inshore Coastal', due to the fact that the area is well inside the coastal region. The Derwent Estuary zooplankton study stations are divided according to Guiler's (1955) zonation such as freshwater to tidal and marine, in the present study they will be referred to as 'Estuarine' and 'Inshore Coastal' respectively.

The following list shows the stations in their appropriate regions:
OCEANIC - E2, E3, E4, E5, E6, E9 & E10.
COASTAL - E1, E7, E8, E11, & E12.
INSHORE COASTAL - IC1, IC2, IC3, DC1, DC2, DC3, DC4, DC5, DC6, DE7, DE8, DE9, & DE10.
ESTUARINE - DE1, DE2, DE3, DE4, DE5, & DE6.

If a species occurred five times or less, the stations where it was found are given, but if it occurred more than five times it will be assigned to the appropriate region or water mass.

Systematics

A total of 98 zooplankton species were recorded. The species consisted of 71 copepods, eight euphausids, one sergestid, 11 chaetognaths and seven pelagic tunicates. Except for two copepod species which were assigned only to a genus, the remaining were positively identified to specific level. Of all the species recorded, 22 copepod species are new to the Australian waters whereas 38 copepods, one euphausid and two chaetognaths are new records for Tasmanian waters.

The keys to copepod genera and species given are designed for the identification of the genera and species found in the present study area of the southeastern coastal waters of Tasmania. The key to the copepod genera was based on the keys given by Wilson (1932), Rose (1933), Dakin and Colefax (1940) and Bradford (1972).

The previous distributional records of the species given are derived from studies in the southern ocean, Australian region and major studies on the other oceans.

COPEPODA

Key to the Genera of Order Calanoida

1. Endopodites of legs 3 and 4, 3 segmented 2
   Endopodites of legs 3 and 4, 2 segmented 35
2. Endopodites of 1st leg, 3 segmented 3
   Endopodites of 1st leg, 2 segmented 13
   Endopodites of 1st leg, 1 segmented 17
3. Circular brown knob on right or left side of 1st. segment of metasome; 5th leg uniramous, 2-4 segments in female, 5 segments in male and asymmetrical.
   Pleuromamma. ♂ & ♀
   No such circular brown knob 4
4. Basal segment of endopodite of 2nd. leg deeply invaginated; with spines on the side of the invagination; female 5th. leg uniramous; 3-4 segments; male 5th. legs, 5 segments.
   Metridia. ♂ & ♀
   No such invagination or spines present 5
5. 3rd expodite of 3rd. and 4th. legs with one lateral spine, one at distal corner, and one terminal 6
   3rd. expodite of 3rd. and 4th legs with two lateral spines, one distal, and one terminal 10
6. Terminal spines of 3rd. expodites of 3rd and 4th legs with both margins smooth 7
   Terminal spines of this segment with one or both margins pectinate, denticulate, or setaceous 9
7. Forehead conical, slightly crested, male 5th. legs prehensile.
   Calanoides. ♂ & ♀
   Forehead not conical or crested 8
8. Inner margin of 1st. basipodite of 5th. legs smooth; 2nd. legs, with a recurved spine at the outer distal border of the 1st expodite segment; left 5th. leg in

male modified; 1st. antennae exceeds the body length by a few segments or exceeds the body length by half. *Neocalanus*. ♂ & ♀

Inner margin of 1st basipodite of 5th legs smooth; 2nd legs, without a recurved spine at the outer distal border of the 1st. exopodite segment; left 5th. leg in male modified; 1st antennae exceeds the body length by half.
Mesocalanus. ♂ & ♀

Inner margin of 1st basipodite of 5th legs serrated (toothed); 2nd. legs without a recurved spine at the outer distal border of the 1st. exopodite segment; left 5th leg little modified in males; 1st antennae exceeds the body length by a few segments. *Calanus*. ♂ & ♀

9. 5th legs uniramous in female, 3 or 4 segmented; biramous in male, the endopod rudimentary or lacking, exopod 2 or 3 segmented, right uncinate.
Pseudodiaptomus. ♂ & ♀

5th. legs biramous in both sexes; asymmetrical with well developed endopodite in male; symmetrical, a curved serrated or smooth spine-like process on the inner middle segment of endopodite; 1st. basipodite of 4th. leg with a sword-like spine in female (except in *G. symmetricus*). *Gladioferens* ♂ & ♀

5th legs biramous in both sexes; asymmetrical in male exopodite 3 segmented forming a long narrow curved claw; symmetrical in female with toothed process on the inner middle segment of endopodite, two lobes on the last metasomal segment projected posteriorly in females. *Boeckella*. ♂ & ♀

10. Left and sometimes right furcal ramus with one seta thicker than the others and greatly elongated; rami of 2nd. antennae approximately equal length; middle segment of the exopodite of 5th. legs in female with smooth inner spine; 2nd basipodite of right 5th. leg in male with sausage-shaped process; all setae of 2nd maxilla transformed into stout spines. *Heterorhabdus*. ♂ & ♀

Setae of furcal rami neither thicker nor elongated 11

11. Females only; 1st antennae symmetrical; 5th. legs biramous, symmetrical with plumed setae, and with rami 3 segmented; middle segment of exopodite of 5th. legs with large inner spine; end segment with denticulate terminal spine, exopodite of 2nd. antennae 6 segmented. *Centropages*. ♀

Males only; 1st. antennae asymmetrical 12

12. Right 1st. antenna modified, geniculate; left exopodite of 5th. leg 2 segmented, right 3 segmented; endopodites symmetrical and 3 segmented; exopodite of 2nd antenna 6 segmented, its basal segment often very short.
Centropages. ♂

Left 1st. antenna geniculate; 5th. legs asymmetrical, rami of left 3 segmented, the right 2 segmented; distal segment of right exopodite shuts down against proximal one to form a chela. *Lucicutia*. ♂

13. Both rami of 5th. legs symmetrical, 3 segmented and armed with plumose setae; exopod of 1st. antennae 8 segmented; 5th. and 6th. metasomal segments fused.
Lucicutia. ♀

5th. legs asymmetrical in both sexes; uniramous and 3 segmented in female; left leg uniramous, right biramous both strongly modified in male; 2nd. maxilla bears unusually long, strong denticulate spine which reaches forward as far as the eyes. *Sulcanus*. ♂ & ♀

Endopodite of 5th. legs rudimentary or lacking; sometimes the whole leg is wanting on one or both sides. 14

14. Furcal rami only three times as long as wide or less; middle segments of endopodite of 3rd and 4th legs with 2 setae and end segment with 7 setae
... ... 15

Furcal rami as above; middle segment of endopodite of 3rd. and 4th. legs with one seta, end segment with 5 setae 16

15. End seta of exopodite of 2nd., 3rd. and 4th. legs with its outer margin smooth in both sexes; outer margin of 2nd., 3rd. and 4th. leg of exopodite not toothed; 5th legs uniramous; 3 or 4 segmented in females; in male, right 5th. leg 4 segmented, left 5 segmented. *Calocalanus*. ♂ & ♀

Outer margin of the exopodite of 2nd, 3rd. and 4th. legs toothed; 5th. legs present in both male and female, 2 segmented and uniramous in female, in male, right leg 2 segmented, left leg 5 segmented; exopodite of 2nd. antenna shorter than endopodite and 7 segmented. *Paracalanus.* ♂ & ♀

16. Exopodite of 1st. legs 2 segmented; female 5th. legs uniramous, 3 segmented; left male 5th. leg biramous, right uniramous with only one segment. *Rhincalanus.* ♂ & ♀

Exopodite of 1st. legs 3 segmented; 5th. legs absent in females; endopodite of 2nd. antenna longer than exopodite; end spines of the exopodite of 2nd. to 4th. legs with smooth margins; male 5th. legs uniramous. *Eucalanus.* ♂ & ♀

17. Endopodite of 2nd. legs 3 segmented; exopodite of 2nd. antennae half as long as endopodite; abdomen 3 segmented in female, 4 segmented in male; 5th. legs alike in both sexes, symmetrical and 5 segmented. *Mecynocera.* ♂ & ♀

Endopodite of 2nd. leg 2 segmented 18

Endopodite of 2nd. leg 1 segmented 29

18. Posterior surface of the rami of 3rd and 4th. legs armed with spines 19

Posterior surface of the rami of 3rd and 4th legs smooth ... 23

19. Metasome wide, always globular in shape *Phaenna* ♀

Metasome elongated, elliptical in shape 20

20. 5th. legs present, males only 21

5th legs absent, females only 22

21. 5th. legs biramous on one side only; 2nd. maxilla with worm-like appendages without spiny hooked setae; squat and thick stylet. *Scolecithrix.* ♂

5th legs biramous on both sides; left endopodite of 5th. leg much longer than exopodite with one segment, right endopodite with one segment. *Racovitzanus.* ♂

22. 3rd. exopodite segment of 2nd, 3rd. and 4th legs with 4 internal setae; posterior corner of metasome rounded; genital segment projecting ventrally. *Scolecithrix.* ♂

3rd. exopodite segment of 2nd., 3rd. and 4th. legs with 4 internal setae; genital segment without ventral projection; rostrum with two small points; second maxilla with special terminal setae. *Racovitzanus.* ♂

23. Basal segments and exopodite of 2nd. and 3rd. legs much broader than in 4th. leg; distal margin of 2nd. basal segment with strong teeth; terminal setae of exopodite of 3rd. leg broad and blade-like; female 5th. legs uniramous, 3 segmented; male 5th legs uniramous, left 5 segmented, right 1 to 3 segmented. *Clausocalanus.* ♂ & ♀

Basal segments and exopodites of 2nd. and 3rd. legs do not show the above differences with the 4th. legs 24

24. 1st. and 2nd. marginal setae of 3rd. and 4th. legs comb-like. *Ctenocalanus.* ♂ & ♀

1st. and 2nd. marginal setae of 3rd. and 4th. legs normal. 25

25. 5th legs present asymmetrical. 26

5th legs absent 27

26. Endopodite of 1st. leg with 2 external spines; right 5th leg absent. *Aetideus.* ♂

Endopodite of 1st. leg with 3 external spines; rostrum absent. *Chiridius.* ♂

27. Head without spine; exopodite of 3rd. segment of 3rd. and 4th. legs with 4 inner setae; inner margin of basipodite segment 1 of 4th. leg naked or setose; posterior corner of metasome rounded; genital segment more or less asymmetrical with a lateral or ventral spine. *Undeuchaeta.* ♀

Head without spine; exopodite of segment 3 of 3rd and 4th. leg with 4 inner setae; inner margin of basipodite segment 1 of 4th. leg naked or setose; posterior corner of metasome terminated by a sharp point. 28

28. Rostrum absent; exopodite of 2nd. antenna longer than endopod; exopodite of 1st.

leg with 3 external spines; 2nd. maxilla without worm-like appendages. *Chiridius.* ♀

Rostrum thick, the two points separated down at the base; exopodite of 1st leg with 2 external spines. *Aetideus.* ♀

29. Head without medium dorsal spine; 5th. leg absent. 30
Head without medium dorsal spine; 5th. leg present, asymmetrical ... 32

30. Posterior corner of metasome extended to a strong point; 1st. basipodite of 4th. leg without spines or spinules; rostrum absent. *Chiridius.* ♀
Posterior corner of metasome rounded or bluntly pointed. 31

31. 1st. basipodite of 4th. leg with one or many spines or spinules on the internal margin; endopodite of 2nd. antenna at the most half the length of exopodite; exopodite of 1st. leg 2 segmented. *Euchirella* ♀
1st. basipodite of 4th. leg without spines or spinules; both branches of 2nd. antenna nearly equal; maxilliped smaller, about as long as the head; two of the furcal setae always naked and usually much longer than others. *Euchaeta.* ♀

32. 5th. leg present on only one side, without endopodite or with very small exopodite. *Aetideus.* ♂
5th leg with endopodite well developed. 33

33. Exopodite of left 5th. leg terminated by one very long, very thin segment, often stylet-shaped; exopodite of right 5th leg end in short pincers; right endopodite always rudimentary, 1st. antenna with very long isolated setae. *Euchaeta.* ♂
These features absent. 34

34. Exopodite of left 5th. leg ends in a short pointed segment with a tuft of hairs on the inside; left endopodite less than half the length of right endopodite, basal segment very swollen. *Undeuchaeta.* ♂
Exopodite of left 5th. leg rarely pointed; either without hairs, or when hairs present never arranged in tufts; exopodite of 1st. leg with 2 segments; endopodite of 2nd. antenna at most half the length of exopodite. *Euchirella.* ♂

35. Head with a pair of dorsal lenses; endopodite of 1st. legs with 2 segments; 5th. legs biramous in female, rami 1 segmented; in male right 5th. leg uniramous with chela. *Labidocera.* ♂ & ♀
No dorsal lenses; 5th. legs uniramous in both sexes. 36

36. Maxilliped 3-4 segmented; exopodite of 2nd. antennae shorter than the distal segment of endopodite; 2nd. maxilla with long spiny bristles on proximal and distal parts. *Acartia.* ♂ & ♀
Maxilliped 7 segmented. 37

37. Furca at least six times as long as wide; maxilliped twice as long as 2nd. maxilla. *Temora.* ♂ & ♀
Furca at the most four times as long as wide; maxilliped shorter than 2nd. maxilla; 2nd. maxilla with short bristles on the proximal part and long scythe-like bristles on the distal part; proximal basal segment of maxilliped with few short bristles. *Candacia.* ♂ & ♀

Order CALANOIDA

Family CALANIDAE

Calanus australis Brodsky, 1959
(figs 2a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957); Mouth of River Derwent, D'Entrecasteaux Channel (Ong 1967, 1970; Ong and Lake 1970) as *Calanus helgolandicus*.

Occurrence: Inshore Coastal, Coastal and Oceanic.

Notes

The species encountered in the present study agrees with Brodsky's (1959, 1961) description of *Calanus australis*. This species was recorded by Ong (1967, 1970), Ong and Lake (1970) as *C. helgolandicus*. However, examination of the photographs (plate 19, lateral view of adult female and plate 20, serrated margin of the first basipodite of female 5th. legs) of Ong (1967) reveals that the number of teeth on the first basipodite of female 5th. legs was less than 17 on either side and the teeth were pointed and triangular.

Figure Explanations:

(a) male whole animal, lateral view,
(b) female whole animal, lateral view,
(c) male fifth leg, posterior aspect,
(d) female fifth leg, posterior aspect.

Calanus minor (Claus, 1863)
(figs 3a - d)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:

(a) male whole animal dorsal view,
(b) male fifth leg, posterior aspect,
(c) female last metasomal segment and urosome lateral view,
(d) female fifth leg, posterior aspect.

Calanoides carinatus (Kroyer, 1849)
(figs 4a - c)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) female fifth leg, posterior aspect,
(c) female whole animal, lateral view.

Mesocalanus tenuicornis (Dana, 1848)
(figs 5a - d)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:

(a) female whole animal, lateral view,
(b) male fifth leg, posterior aspect,
(c) female fifth leg, posterior aspect,
(d) female urosome, ventral view.

Neocalanus robustior (Giesbrecht, 1891)
(figs 6a - e)

Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) female first leg, anterior aspect,
(c) female last metasomal segment and urosome, lateral view,
(d) female second leg showing first endopodite and first exopodite, posterior aspect,
(e) female second maxilla, lateral view.

Neocalanus tonsus (Brady, 1883)
(figs 7a - d)

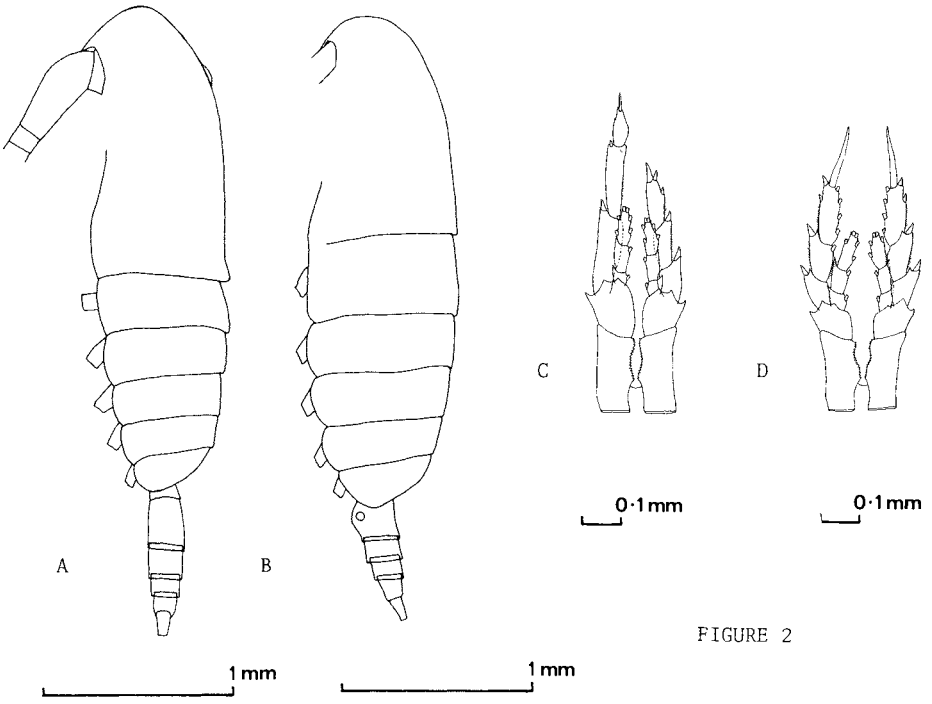


FIGURE 2

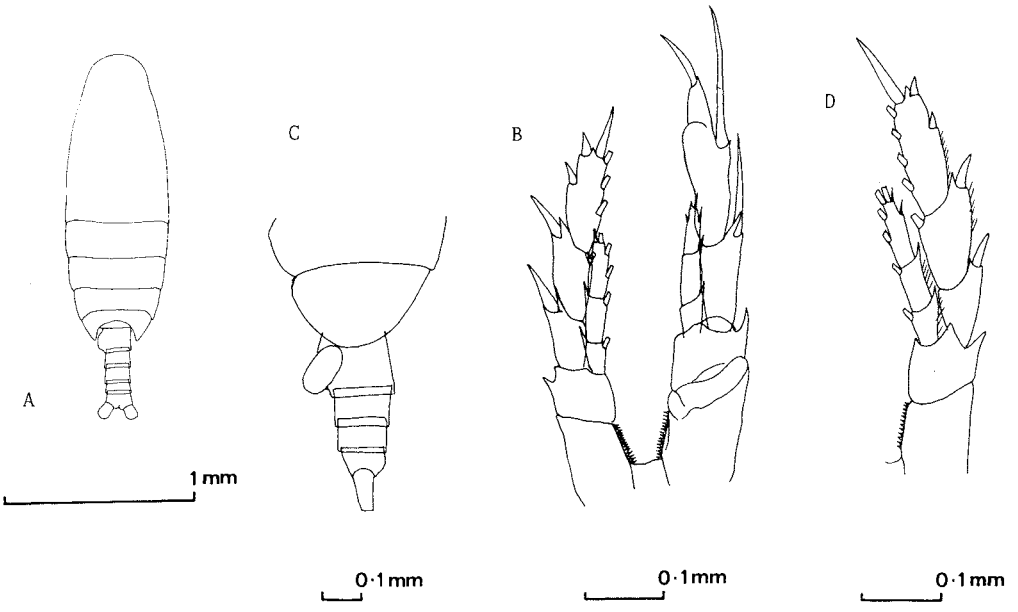


FIGURE 3

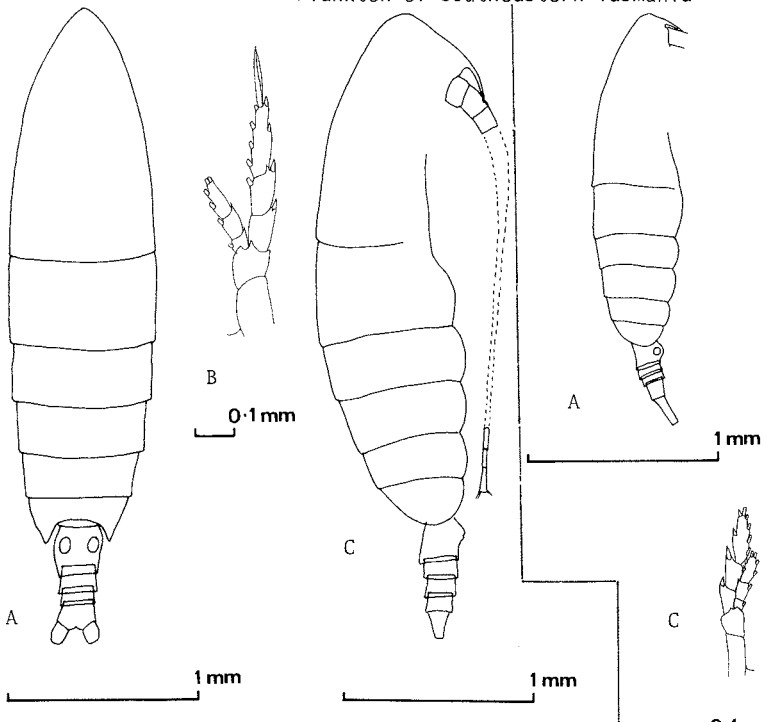


FIGURE 4

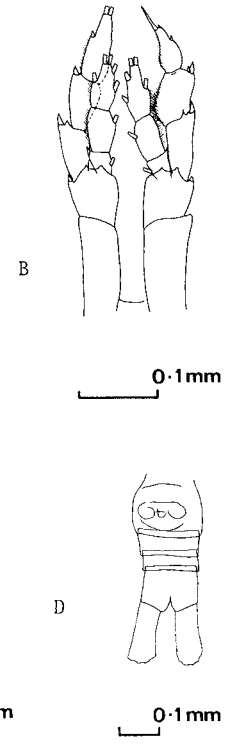


FIGURE 5

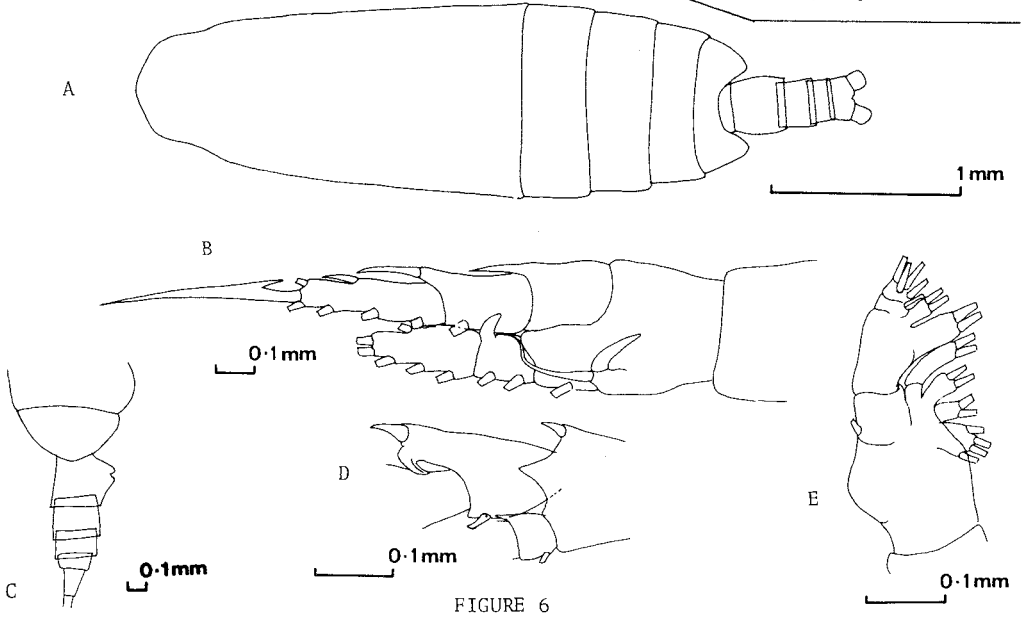


FIGURE 6

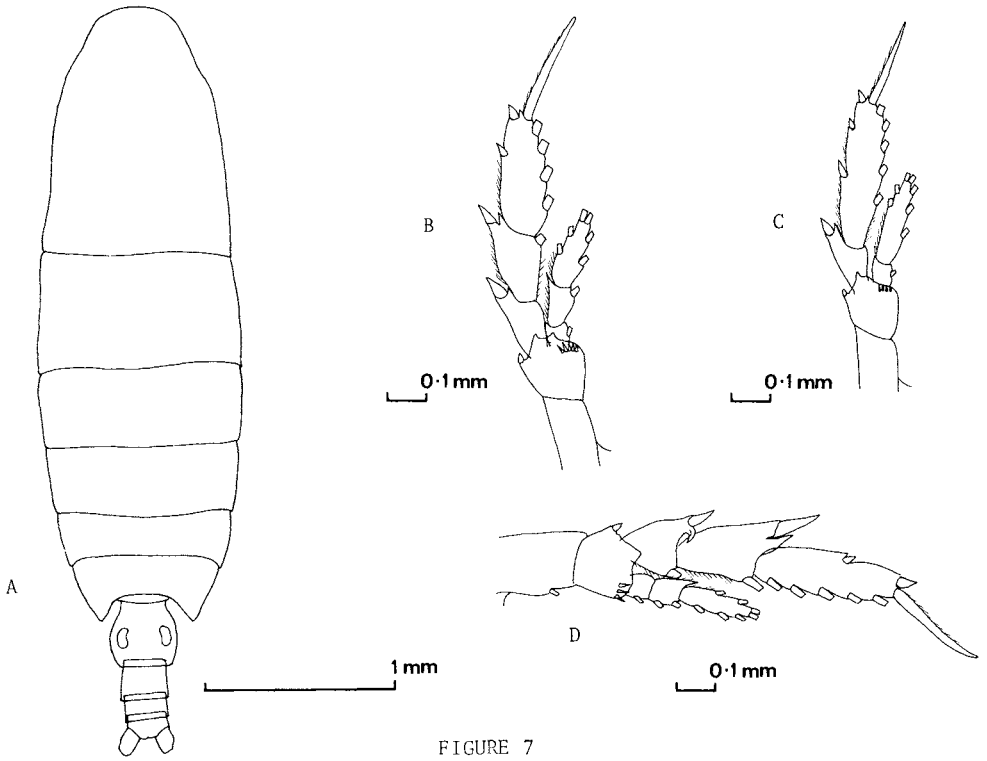


FIGURE 7

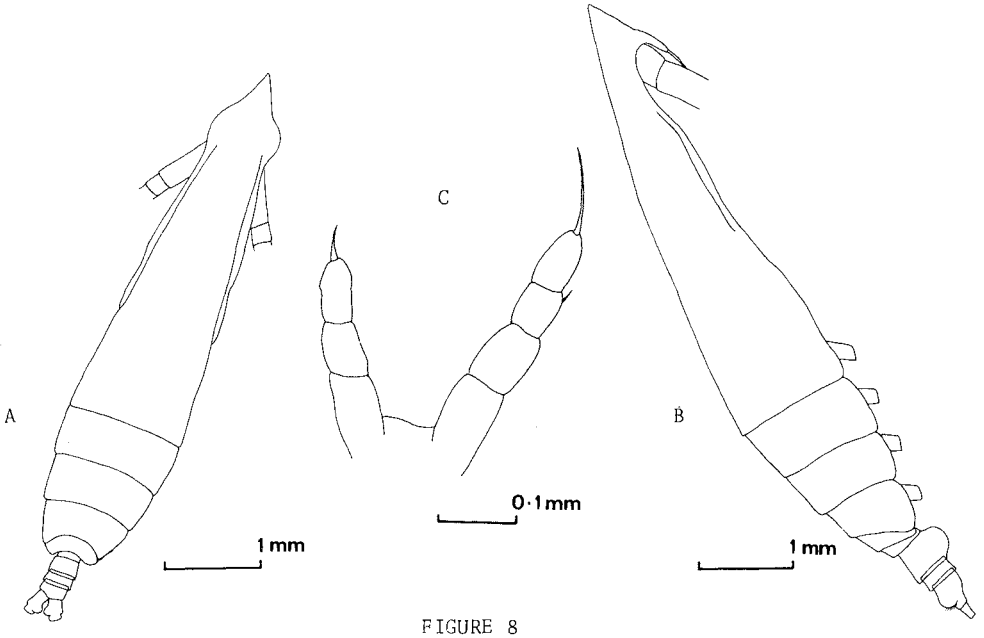


FIGURE 8

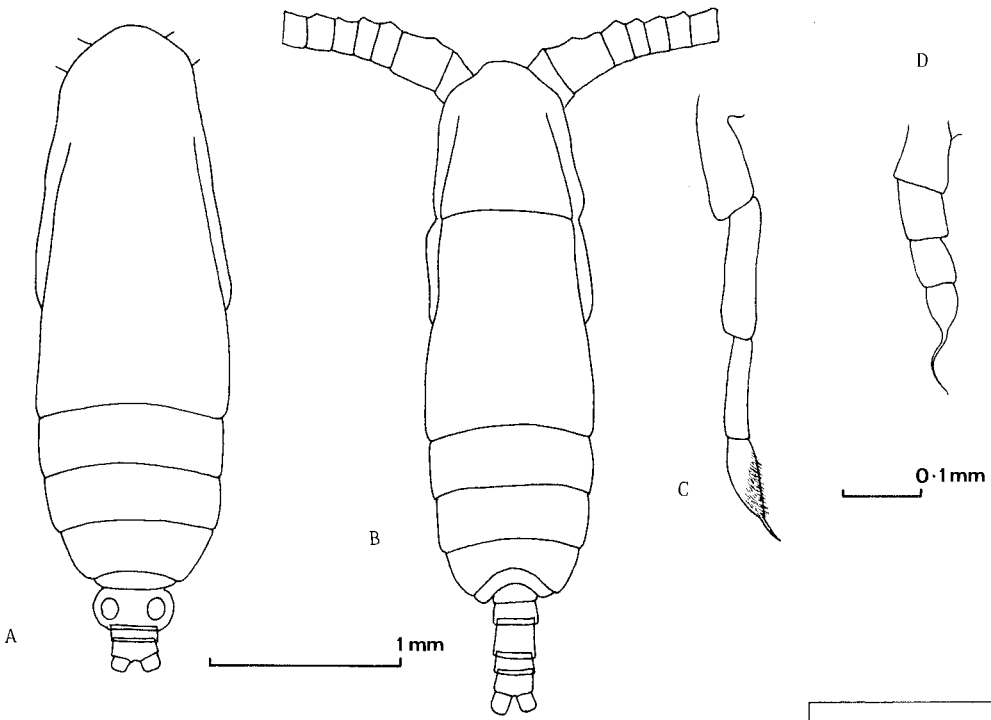


FIGURE 9

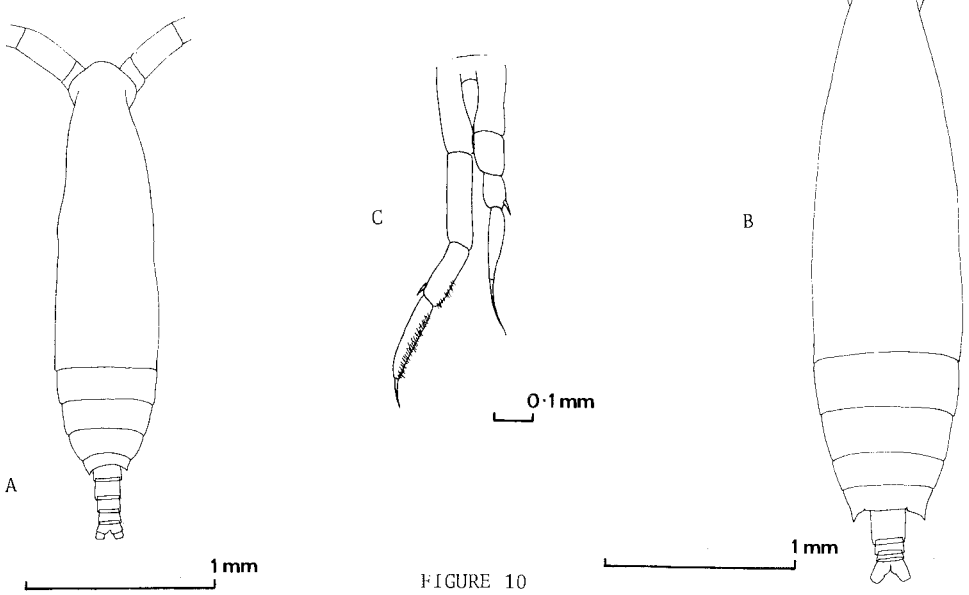


FIGURE 10

Reference Specimen: Tranter, C.S.I.R.O., Cronulla, Bottle No. 18, Sample No. South Coast N.S.W.
Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg, posterior aspect,
(c) female fifth leg of fifth copepodite stage, posterior aspect.
(d) female second leg, posterior aspect.

Family EUCALANIDAE
Genus *Eucalanus*

Key to the Species

Female - Urosome with 3 - 4 segments, the last of which is fused with the furca; genital aperture on the ventral surface, which is longer and broader than the following segment; fifth legs absent.
Male - Urosome with five segments; genital aperture on the left side of the first segment; fifth legs asymmetrical.

Key to the Females of the Species

1. Urosome 4 segmented. *E. elongatus*
   Urosome 3 segmented. 2
2. Forehead flatly rounded, genital segment onion shaped, much broader than long; tooth lacking on outer margin of second endopodite of second to fourth legs. *E. crassus*
   Forehead triangular, metasome elongated. 3
3. Forehead triangular and very elongate; furcal rami broader than long. *E. longiceps*
   Forehead triangular and elongate; furcal rami as long as broad or longer. *E. attenuatus*

Key to the Males of the Species

1. Both fifth legs present 2
   Only left fifth leg present 3
2. Forehead triangular, bluntly rounded anteriorly; posterior corner of the last metasomal segment pointed. *E. elongatus*
3. Forehead triangular, very elongated and pointed anteriorly metasome elongate. *E. longiceps*
   Forehead flatly rounded, metasome not elongate. *E. crassus*

Eucalanus attenuatus (Dana, 1848)
(figs 8a - c)

Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) immature male whole animal, dorsal view,
(b) female whole animal, lateral view,
(c) immature male fifth leg.

Eucalanus crassus (Giesbrecht, 1902)
(figs 9a - d)

Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) male whole animal, dorsal view,
(c) male fifth leg,
(d) immature male fifth leg.

Eucalanus elongatus (Dana, 1848)
(figs 10a - c)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) male whole animal, dorsal view,
(b) female whole animal, dorsal view,
(c) male fifth leg.

Eucalanus longiceps Matthews, 1925
(figs 11a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) male whole animal, lateral view,
(b) female whole animal, dorsal view,
(c) male head, lateral view,
(d) male fifth leg.

Mecynocera clausi Thompson, 1888
(figs 12a & b)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Figure Explanations:
(a) female whole animal, lateral view,
(b) female fifth leg.

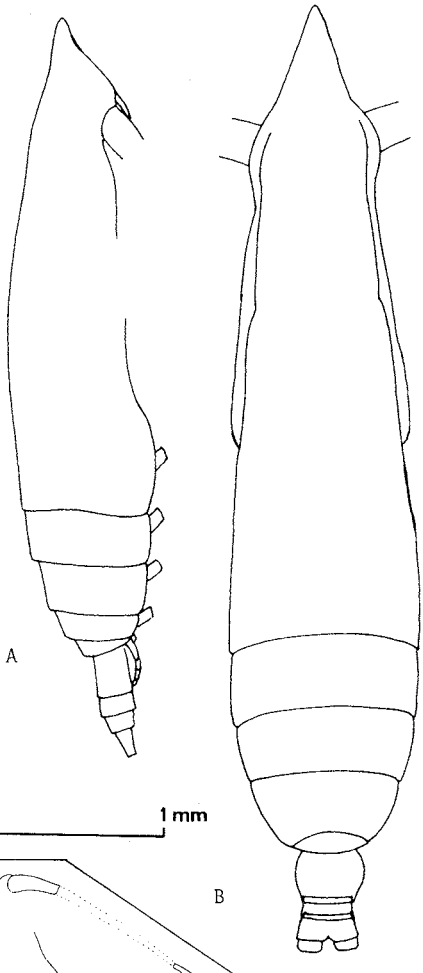
Rhincalanus nasutus (Geisbrecht, 1888)
(figs 13a - c)

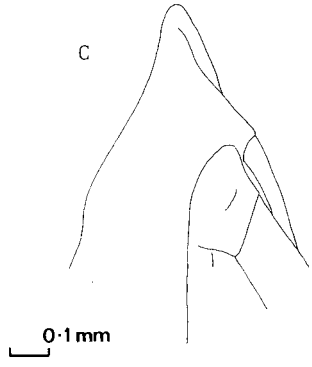
Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) male fifth leg,
(c) female fifth leg.

Family PARACALANIDAE
Genus *Calocalanus*

Key to the Females of the Species

1. Urosome 2 segmented; body stout; genital segment onion shaped, broader than long; female fifth leg 4 segmented with four or five apical setae; furcal rami two times as long as wide and widely divergent; length 0.88 - 1.2mm. *C. pavo*
   Urosome 3 segmented; body stout or slender; genital segment onion shaped or normal; furcal rami as long as wide. 2
2. Metasome slender and fusiform; genital segment longer than broad; fifth legs four segmented with three apical setae; furcal rami parallel. *C. tenuis*
   Metasome stout or little slender; genital segment onion shaped; fifth legs three segmented; furcal rami slightly divergent. 3
3. Metasome stout; genital segment partly covering the second segment; fifth legs with one terminal setae. *C. styliremis*
   Metasome little slender, fifth legs with two terminal setae. *C. contractus*





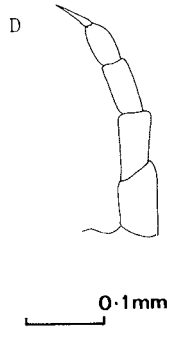
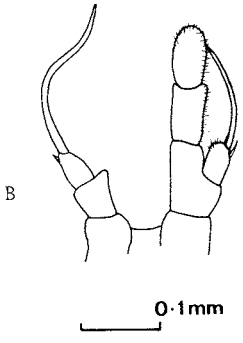


FIGURE 11



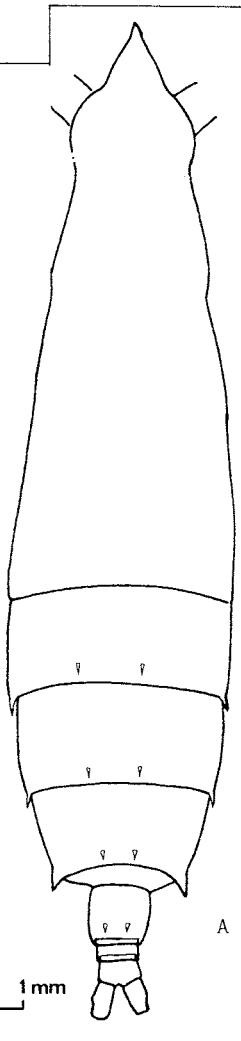


FIGURE 13

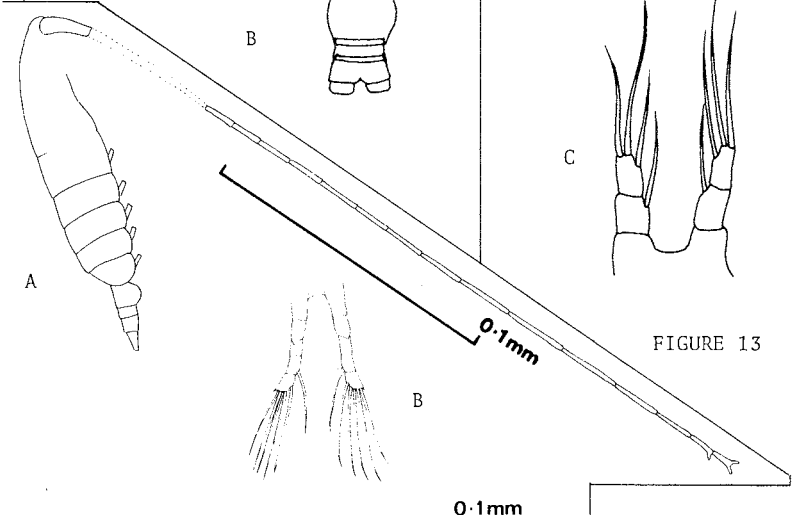


FIGURE 12

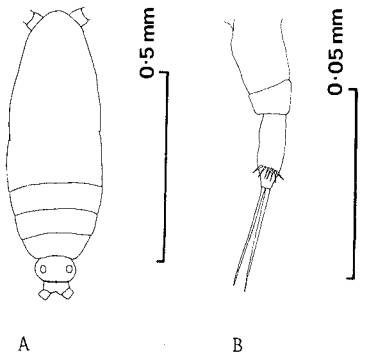


FIGURE 14

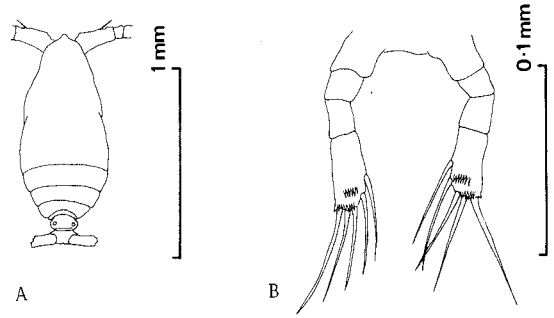


FIGURE 15

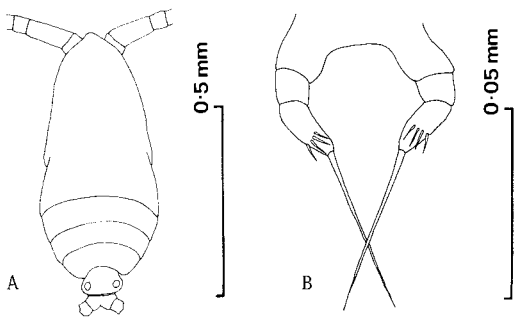


FIGURE 16

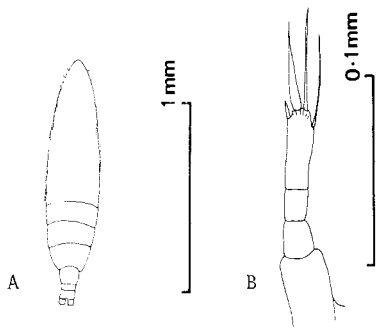


FIGURE 17

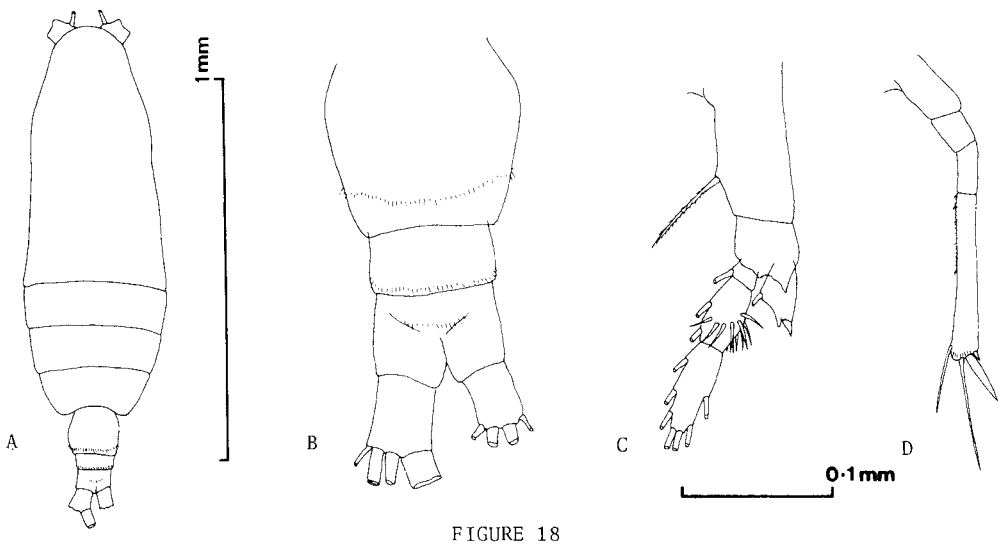


FIGURE 18

Nyan Taw

Calocalanus contractus (Farran, 1936)
(Figs 14a & b)

Previous Tasmanian Records: Nil.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg.

Calocalanus pavo (Dana, 1848)
(figs 15a & b)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg.

Calocalanus styliremis (Giesbrecht, 1888)
(figs 16 a & b)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg.

Calocalanus tenuis (Farran, 1926)
(figs 17a & b)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg.

Leptocalanus plumulosus (Claus, 1863)
(figs 18a - d)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female urosome, dorsal view,
(c) third leg (without distal expodite segment),
(d) female fifth leg.

Paracalanus parvus (Claus, 1863)
(figs 19a - g)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Estuarine, Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) male whole animal, lateral view,
(b) male fourth leg, posterior aspect,
(c) male fifth leg,
(d) female second leg, posterior aspect,
(e) female whole animal, lateral view,
(f) female mandible,
(g) female fifth leg.

Family PSEUDOCALANIDAE
Genus *Clausocalanus*

Key to adult females of the Species

1. In lateral view ventral profile of genital segment conspicuously protruberant anterior to genital pores; rostrum short, slender and curved in lateral view. *C. jobei*
   In lateral view ventral profile of genital segment not conspicuously protruberant anterior to genital pore. 2
2. Third segment of fifth legs less than 2.0 times as long as first segment of the same leg 3
   Third segment of fifth legs more than 2.0 times as long; as first segment of the same leg. 5
3. Forehead usually strongly vaulted spiniform of the second basipodite of the third leg narrow and uniformly taped from the base. *C. laticeps*
   Forehead not vaulted; spiniform processes of the second basipodite of the third leg thick and not uniformly tapered from base 4
4. In lateral view rostrum slender and curved, in lateral view forehead broadly rounded, protruberant above rostrum; in lateral view the dorsal lobe of seminal receptacle large and originates from the anterior part of the ventral lobe and is directed dorsoanteriorly. *C. ingens*
   In lateral view rostrum thick and usually curved ventroposteriorly; in lateral view forehead broadly rounded but not markedly protruberant above rostrum; in lateral view dorsal often inconspicuous, long and slender, usually directed dorsally or dorso-anteriorly. *C. mastigophorus*
5. In lateral view dorsal lobe of seminal receptical arising from anterior edge of ventral lobe (fig. 20d); dorsal lobe not bulb shaped; the spiniform processes thick and not uniformly tapered from base. *C. arcuicornis*
   In lateral view dorsal lobe of seminal receptical bulb shaped, constricted in the region of attachment to ventral lobe; furcal ramus more than 1.52 times as long as wide first antennae segment 2 more than 1.40 times as long as segment 24. *C. brevipes*
   In lateral view dorsal lobe of seminal receptical bulb shaped, constricted in the region of attachment to ventral lobe; furcal ramus less than 1.52 times as long as wide first antennae segment 2 less than 1.40 times as long as segment 24. *C. parapergens*

Clausocalanus arcuicornis (Dana, 1849)
(figs 20a - e)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal (The occurrence in the Coastal and Oceanic waters was not determined due to the difficulties involved in identification).
Figure Explanations:
(a) female whole animal, lateral view,
(b) female rostrum,
(c) female second basipodite of third leg, posterior aspect,
(d) female last metasomal segment and genital segment, lateral view,
(e) female fifth leg.

Clausocalanus brevipes Frost and Fleminger, 1968
(figs 21a - e)

Reference Specimen: Frost, C.S.I.R.O., Cronulla, Bottle No. 39, Sample No. Thala Dan 5H.
Previous Tasmanian Records: Nil.
Occurrence: A few specimens (6 in number) identified were taken from only one station

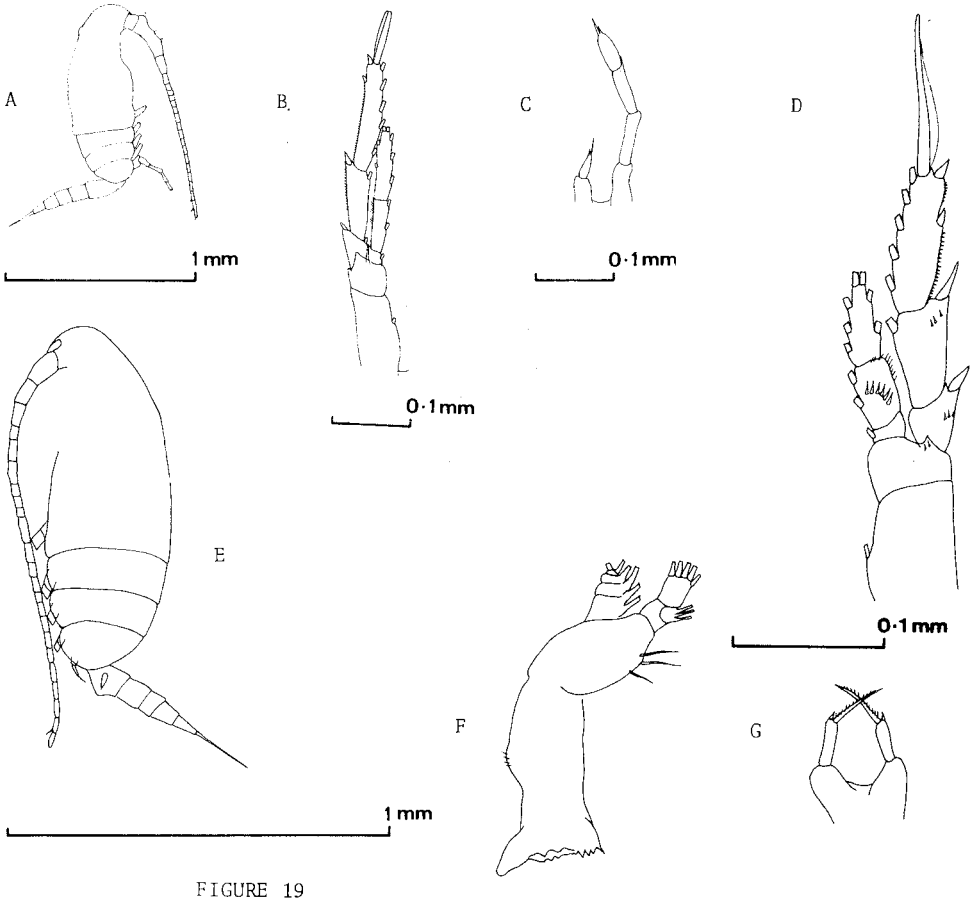


FIGURE 19

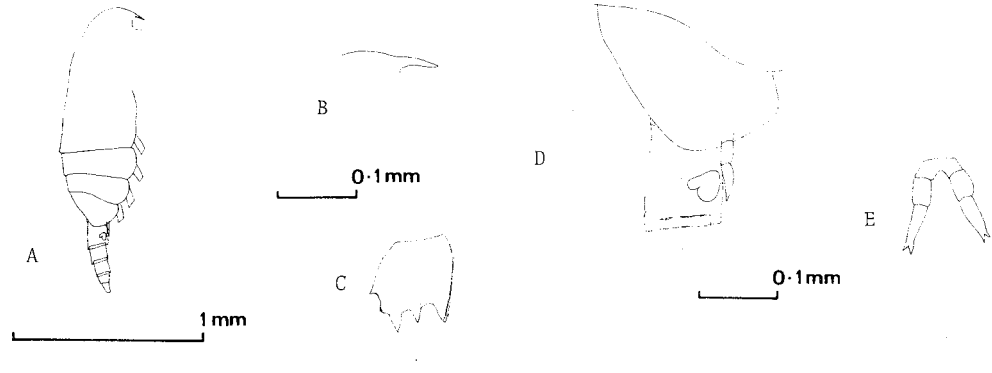


FIGURE 20

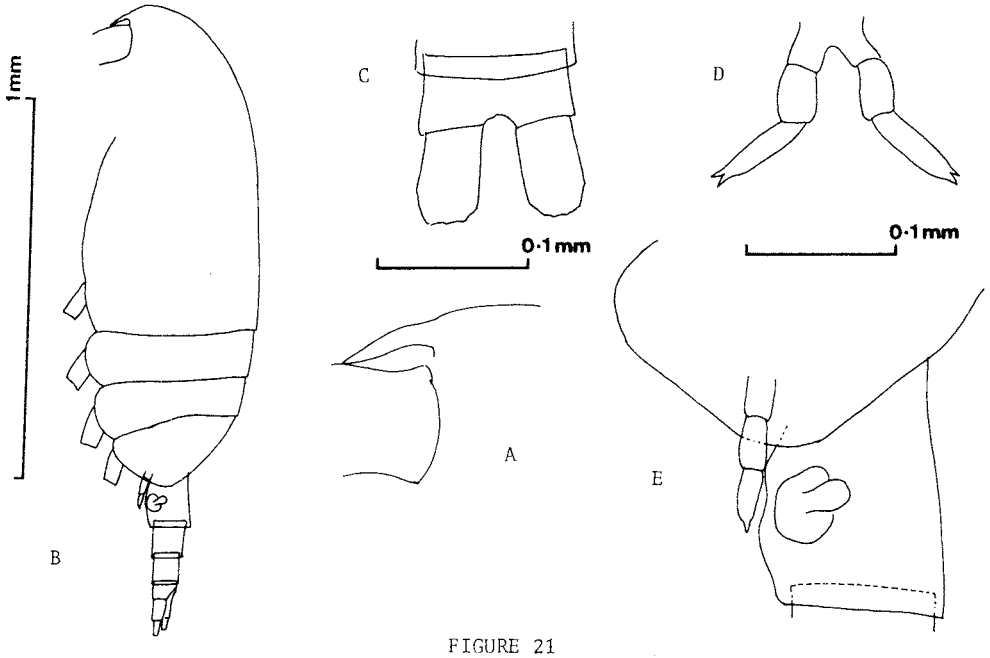


FIGURE 21

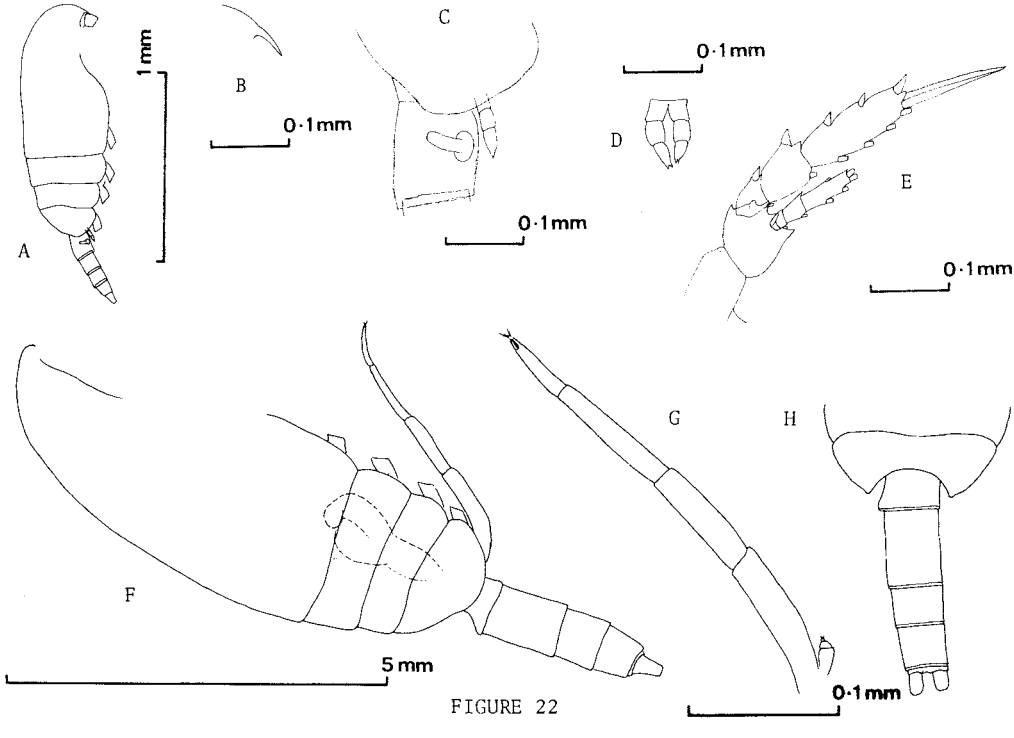


FIGURE 22

(St. E2, Nov. 1972). (The occurrence in the Coastal and Oceanic waters was not determined due to the difficulties involved in identification).
Figure Explanations:
(a) female rostrum, lateral view,
(b) female whole animal, lateral view,
(c) female furcal rami, dorsal view,
(d) female fifth leg,
(e) female last metasomal segment and genital segment, lateral view.

Clausocalanus ingens Frost and Fleminger, 1968
(figs 22a - h)

Reference Specimens: Frost, C.S.I.R.O., Cronulla, Bottle No. 38, Sample No. Thala Dan 5H.
Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, lateral view,
(b) female rostrum, lateral view,
(c) female last metasomal segment and genital segment, lateral view,
(d) female fifth leg,
(e) female third leg, posterior aspect,
(f) male whole animal, lateral view,
(g) male fifth leg,
(h) male last metasomal segment and urosome, dorsal view.

Clausocalanus jobei Frost and Fleminger, 1968
(figs 23a - c)

Reference Specimen: Frost, C.S.I.R.O., Cronulla, Bottle No. 39, Sample No. Patanela 2107E.
Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal. (The occurrence in the Coastal and Oceanic waters was not determined due to the difficulties involved in identification).
Figure Explanations:
(a) female whole animal, lateral view,
(b) female last metasomal segment and genital segment, lateral view,
(c) female fifth leg.

Clausocalanus laticeps Farran, 1929
(figs 24a - e)

Reference Specimen: Vervoort, C.S.I.R.O., Cronulla, Bottle No. 32, Sample No. Wm. Barondz A004.
Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort, 1957).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) female anterior of the head, lateral view,
(b) female whole animal (another specimen), lateral view,
(c) female second basipodite of third leg, posterior aspect,
(d) female urosome, dorsal view,
(e) female fifth leg.

Clausocalanus mastigophorus (Claus, 1863)
(figs 25a - d)

Reference Specimen: Frost, C.S.I.R.O., Cronulla, Bottle No. 40, Sample No. 1133E.
Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal. (The occurrence in the Coastal and Oceanic waters was not determined due to the difficulties involved in identification).

Figure Explanations:
(a) female whole animal, lateral view,
(b) female second basipodite of third leg, posterior aspect,
(c) female last metasomal segment and genital segment, lateral view,
(d) female fifth leg.

Clausocalanus parapergens Frost and Fleminger, 1968
(figs 26a - e)

Reference Specimen: Frost, C.S.I.R.O., Cronulla, Bottle No. 41, Sample No. 1178E.
Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal. (The occurrence in the Coastal and Oceanic waters was not determined due to the difficulties involved in identification).
Figure Explanations:
(a) female first antenna,
(b) female whole animal, lateral view,
(c) female furcal rami, dorsal view,
(d) female fifth leg,
(e) female seminal recepticle, lateral view.

Ctenocalanus vanus Giesbrecht, 1888
(figs 27a - e)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Distribution: Off the French Coast (Rose 1933); Southeastern Australian waters (Dakin and Colefax 1933, 1940); off Kaikoura, New Zealand (Bradford 1970, 1972); Hauraki Gulf, New Zealand (Jillett 1971).
Figure Explanations:
(a) female whole animal, dorsal view,
(b) male whole animal, dorsal view,
(c) female fourth leg, posterior aspect,
(d) female lateral serrated spines of the third exopodite of the fourth leg,
(e) male fifth leg.

Family AETIDEIDAE

Aetideus pseudarmatus Bradford, 1971
(figs 28a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E9, November 1972 - 1 female.
Figure Explanations:
(a) female whole animal, lateral view,
(b) female last metasomal segment and genital segment, lateral view,
(c) female mandible,
(d) female fourth leg.

Chiridius gracilis Farran, 1908
(figs 29a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Station E1, November, 1972 - 6 females.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female second leg,
(c) female fourth leg,
(d) mandible and palp.

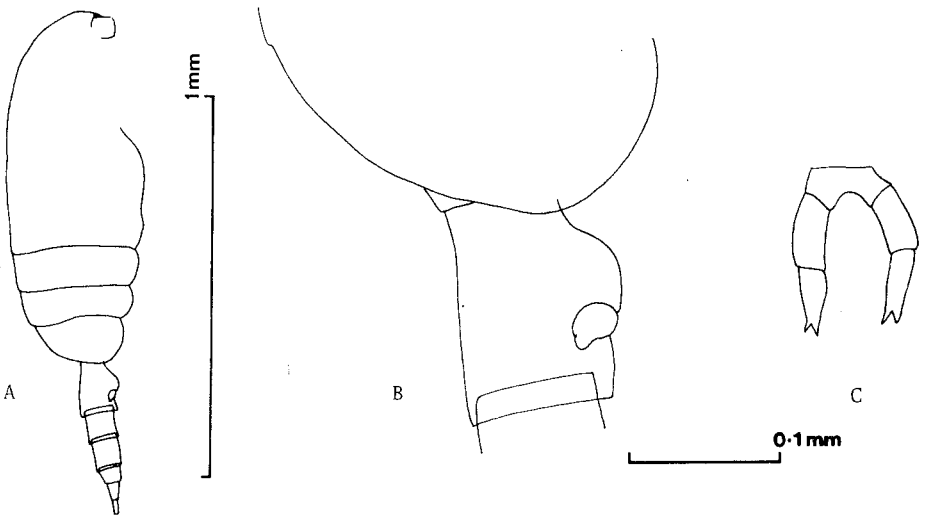


FIGURE 23

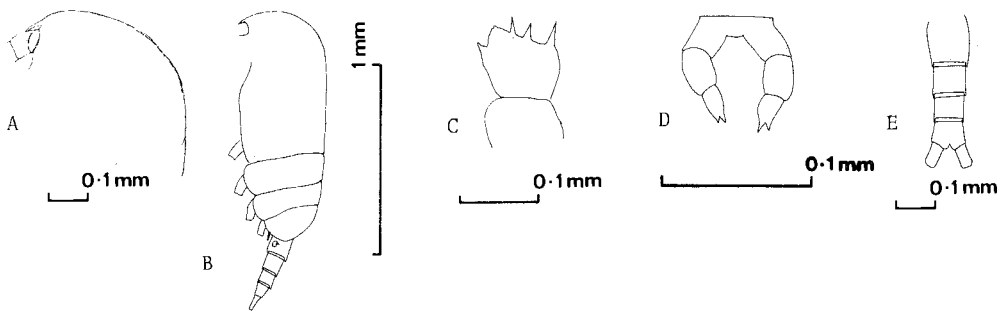


FIGURE 24

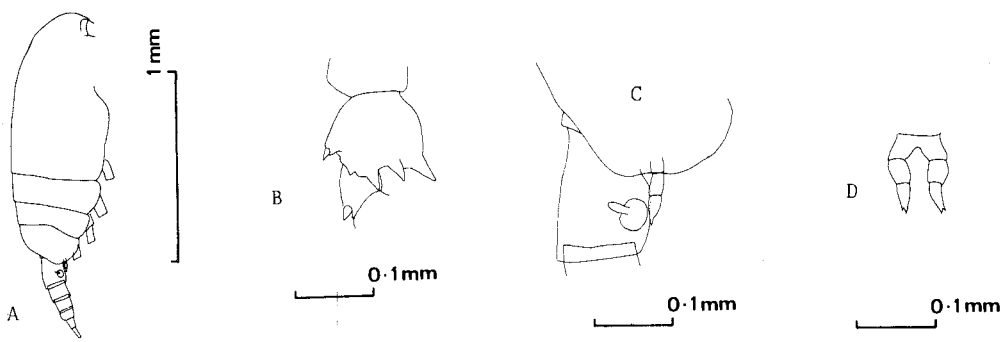


FIGURE 25

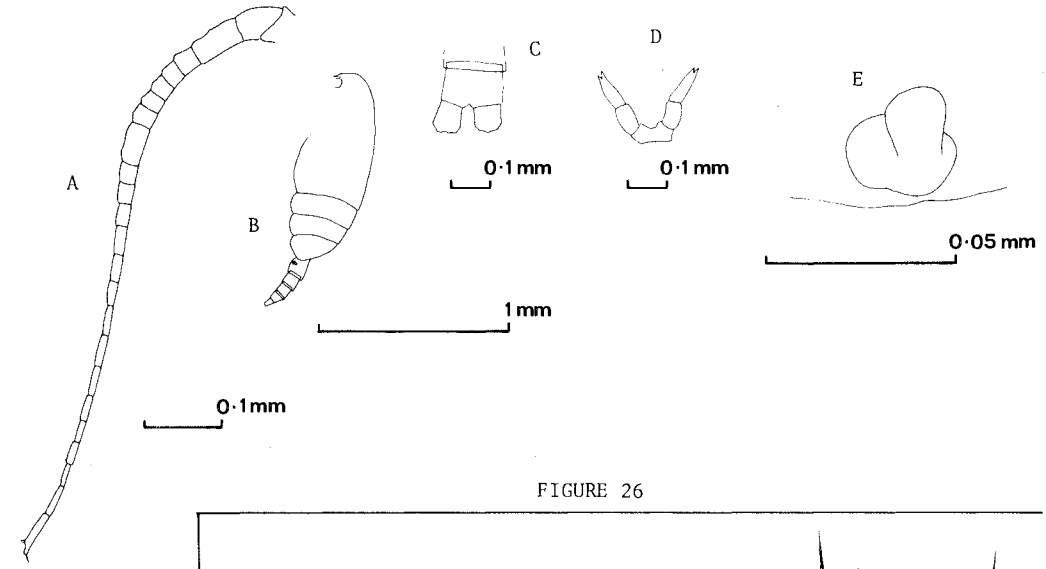


FIGURE 26

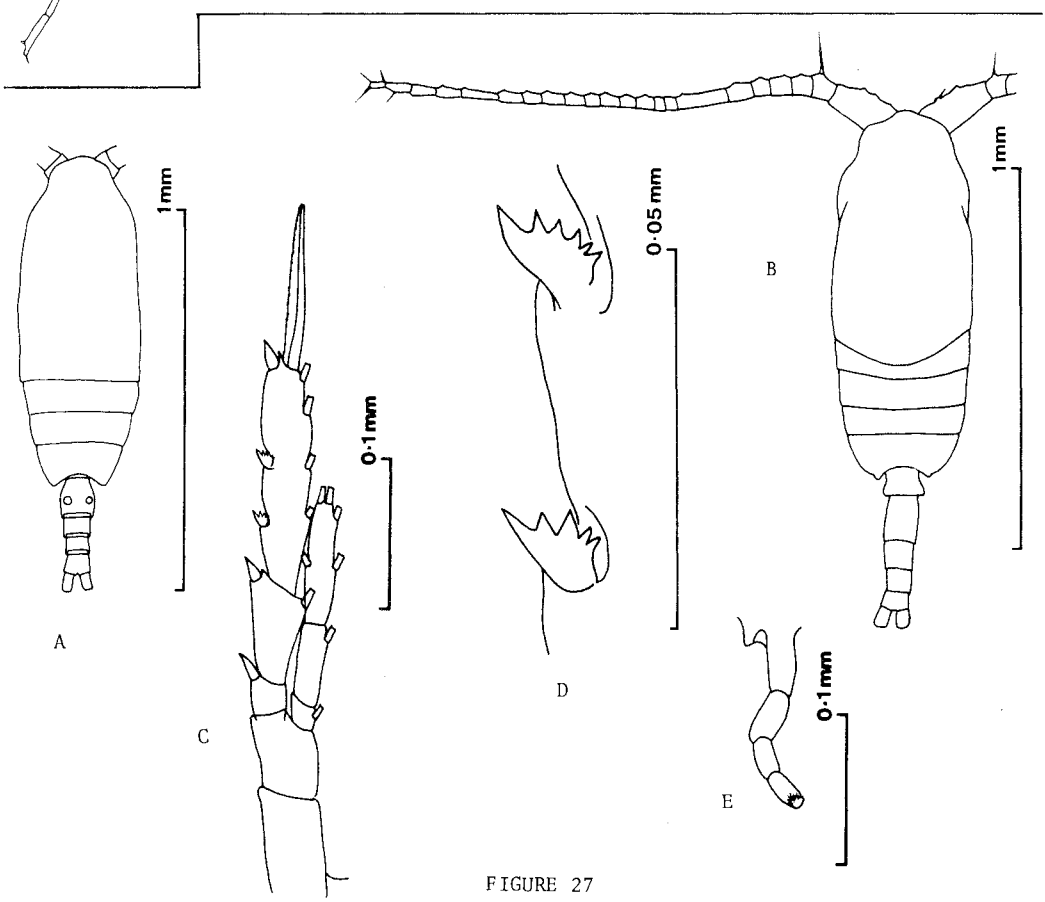


FIGURE 27

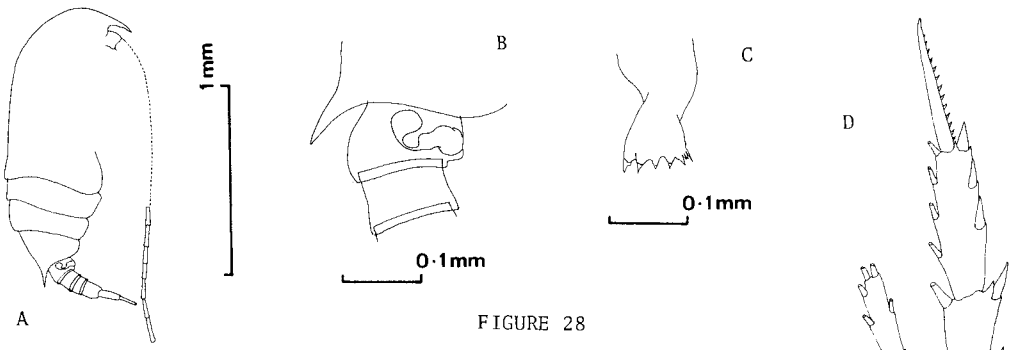


FIGURE 28

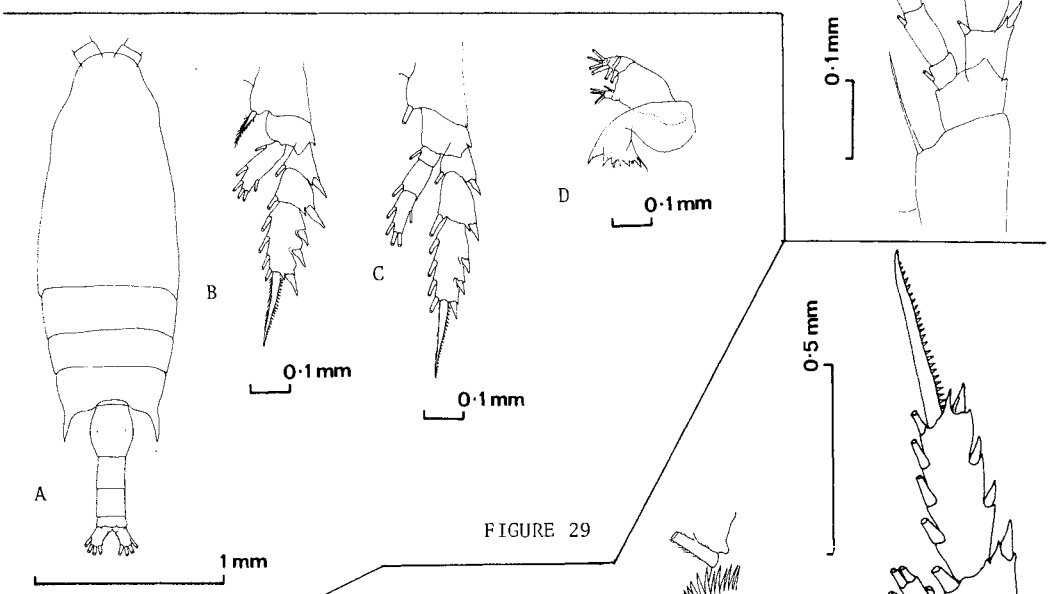


FIGURE 29

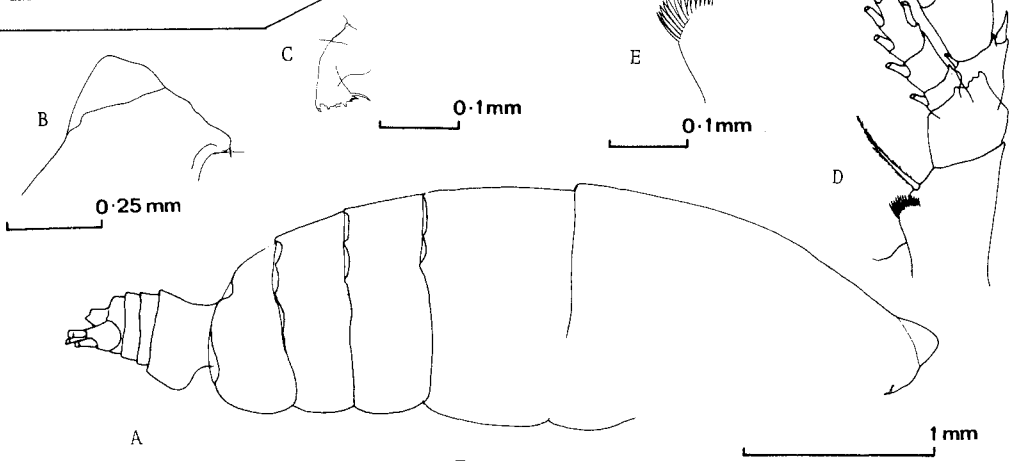


FIGURE 30

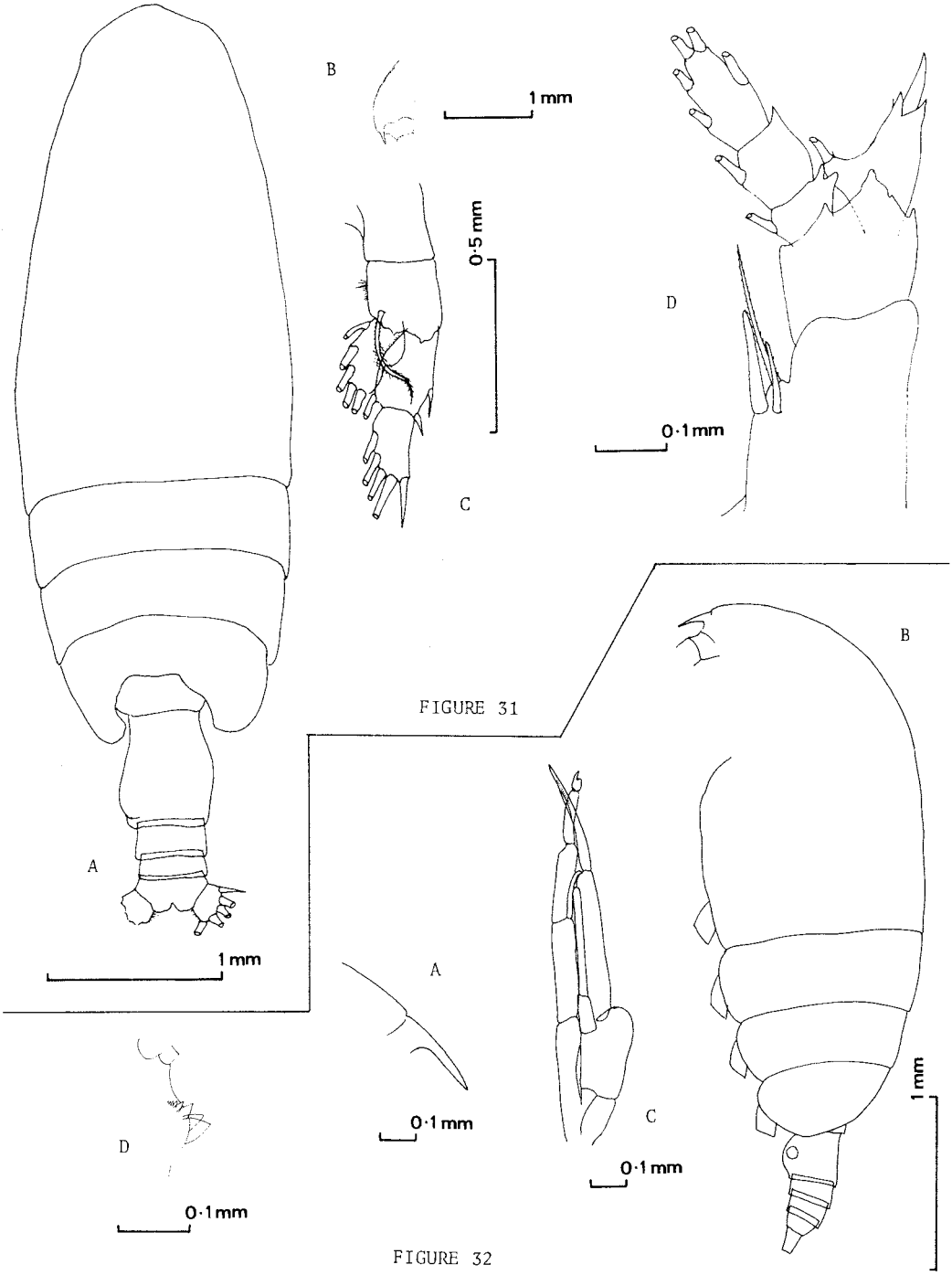


FIGURE 31

FIGURE 32

Euchirella curticauda Giesbrecht, 1888
(figs 30a - e)

Previous Tasmanian Records: Nil.
Occurrence: Station E6, May, 1973 - 1 female.
Figure Explanations:
(a) female whole animal, lateral view,
(b) female anterior region of head, lateral view,
(c) female mandible,
(d) female fourth leg, posterior aspect,
(e) inner region of first basal segment of female fourth leg, posterior aspect.

Euchirella formosa Vervoort, 1949
(figs 31a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E6, May, 1973 - 1 female.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female anterior region of head, lateral view,
(c) female first leg,
(d) female fourth leg, posterior aspect (without middle and distal segments of exopodite).

Euchirella rostrata (Claus)
(figs 32a - d)

Reference Specimen: Hammick and Fleminger, C.S.I.R.O., Cronulla, Bottle No. 19, Sample No. South Coast N.S.W.
Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female rostrum,
(b) female whole animal, lateral view,
(c) male fifth leg,
(d) female first basal segment of the fourth leg, posterior aspect.

Euchirella rostromagna (Wolfenden, 1911)
(figs 33a - d)

Reference Specimen: Vervoort, C.S.I.R.O., Cronulla, Bottle No. 31, Sample No. Wm Barends A029.
Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, lateral view,
(b) female rostrum, lateral view,
(c) female first basal segment of the fourth leg, posterior aspect,
(d) female fourth leg, posterior aspect.

Euchirella venusta Giesbrecht, 1892
(figs 34a - e)

Previous Tasmanian Records: Nil.
Occurrence: Station E11, January, 1972 - 1 female.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female anterior region of head, lateral view,
(c) female last metasomal segment and urosome, lateral view,
(d) female fourth leg, posterior aspect,
(e) inner region of first basal segment of female fourth leg, posterior aspect.

Euchirella sp.
(figs 35a - e)

Previous Tasmanian Records: Nil.
Occurrence: Station E 7, November, 1971 - 1 female.
Remarks: The male fifth legs of the present specimen generally resembles the fifth legs of the known species of *Euchirella*. The right leg is very similar in structure to the right leg of *E. messinensis*. However, as with other species of the genus *Euchirella*, the main character which differs is the structure of the terminal part of the 5th leg. In the present specimen the outer segment of the terminal part is claw-like (fig. 35e) in appearance.
Figure Explanations:

(a) male whole animal, lateral view,
(b) male rostrum, lateral view,
(c) terminal portion of male left fifth leg,
(d) male fifth leg,
(e) terminal portion of male right fifth leg.

Undeuchaeta plumosa (Lobbock, 1856)
(figs 36a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Coastal and Oceanic.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) male fifth leg,
(c) female last metosomal segment and genital segment, dorsal view,
(d) male whole animal, dorsal view.

Family EUCHAETIDAE

Euchaeta acuta Giesbrecht, 1892
(figs 37a - l)

Previous Tasmanian Records: Nil.
Occurrence: Station E 11, December, 1971 - 8 females, 1 male
Station E 12, December, 1971 - 1 female, 1 male
Station E 7, November, 1972 - 4 females
Station E 6, May, 1973 - 1 male
Figure Explanations:

(a) female whole animal, dorsal view,
(b) female genital segment, lateral view,
(c) exopodite of female fourth leg,
(d) rostrum, lateral view,
(e) exopodite of female first leg,
(f) apical spine of the second maxilla,
(g) male whole animal, dorsal view,
(h) male furcal rami, dorsal view,
(i) male rostrum, lateral view,
(j) male fifth leg,
(k) portion of distal segments of male left fifth leg,
(l) portion of distal segment of male left fifth leg. (another specimen).

Family PHAENNIDAE

Phaenna spinifera Claus, 1863
(figs 38a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E 5, May, 1973 - 1 female.

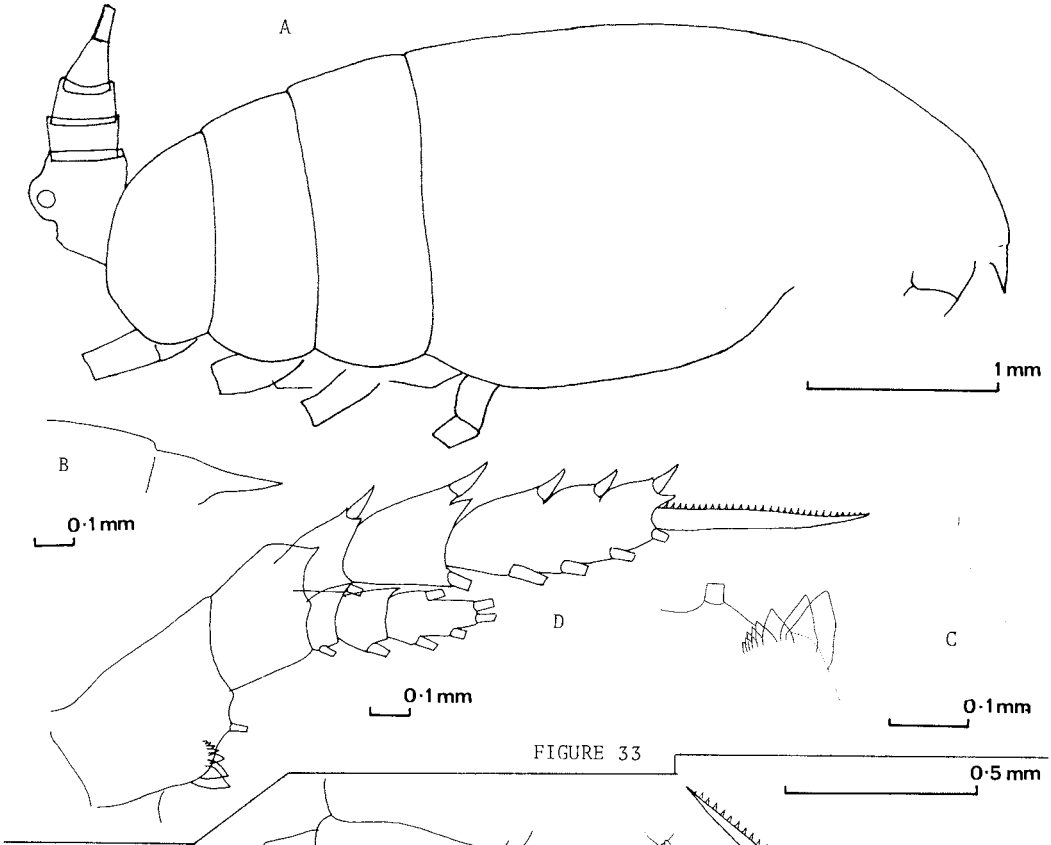


FIGURE 33

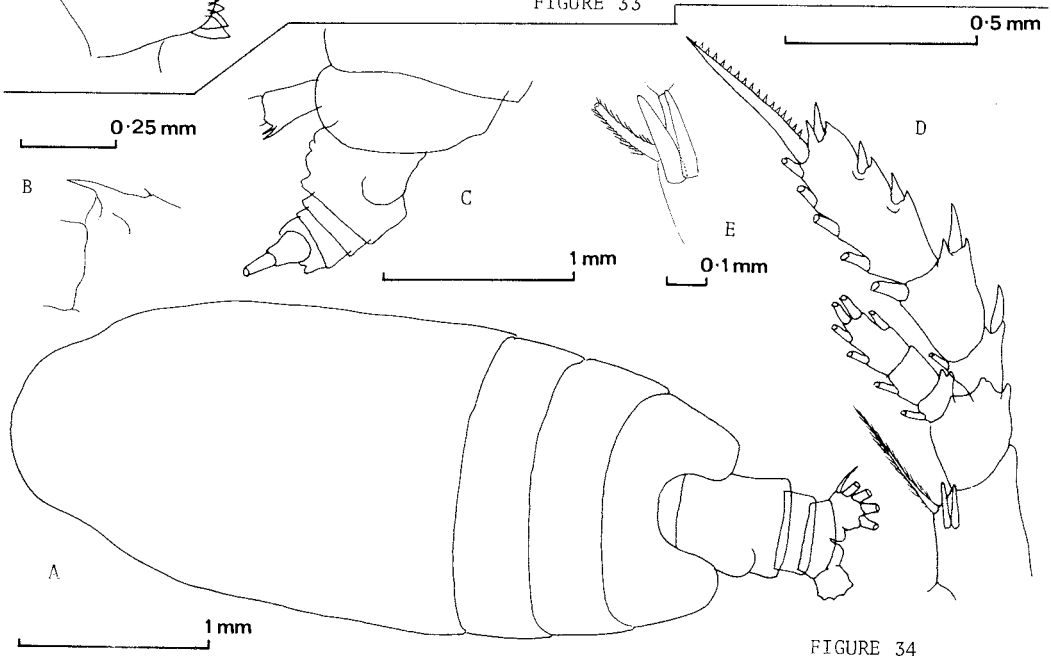


FIGURE 34

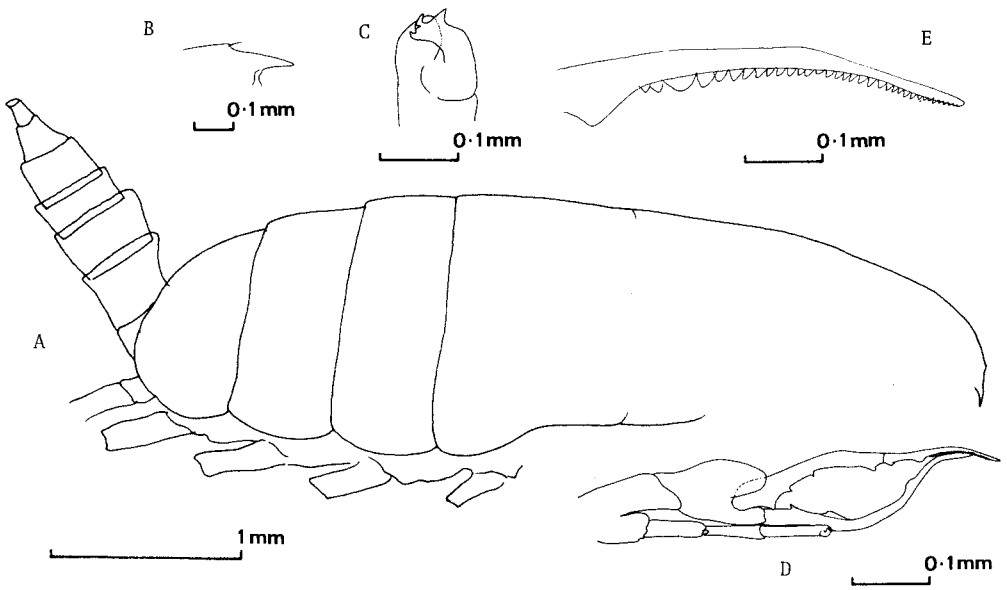


FIGURE 35

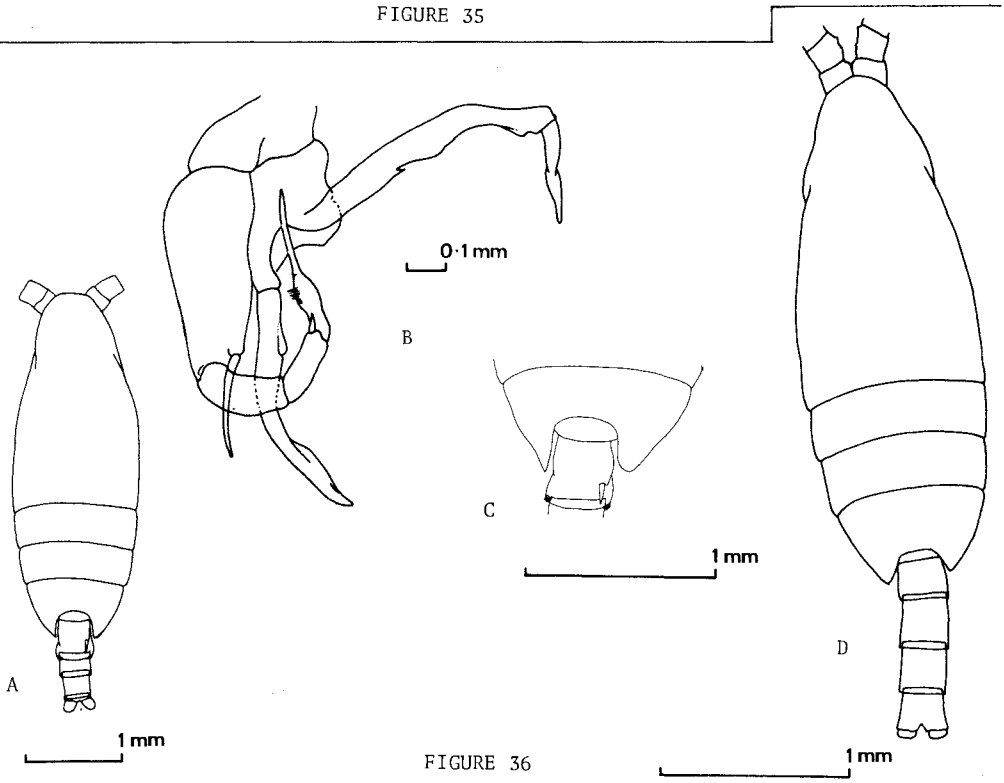


FIGURE 36

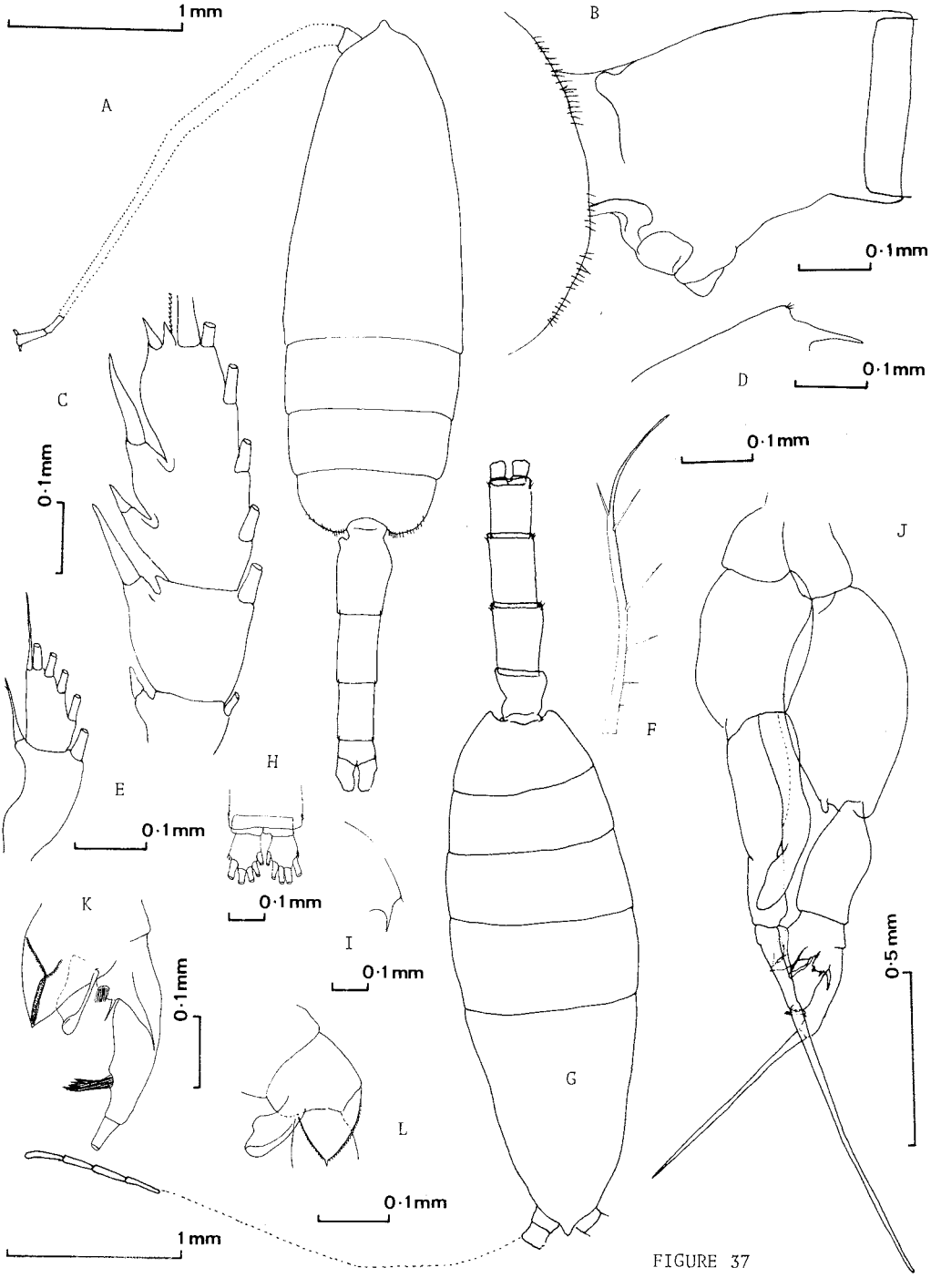

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FIGURE 37

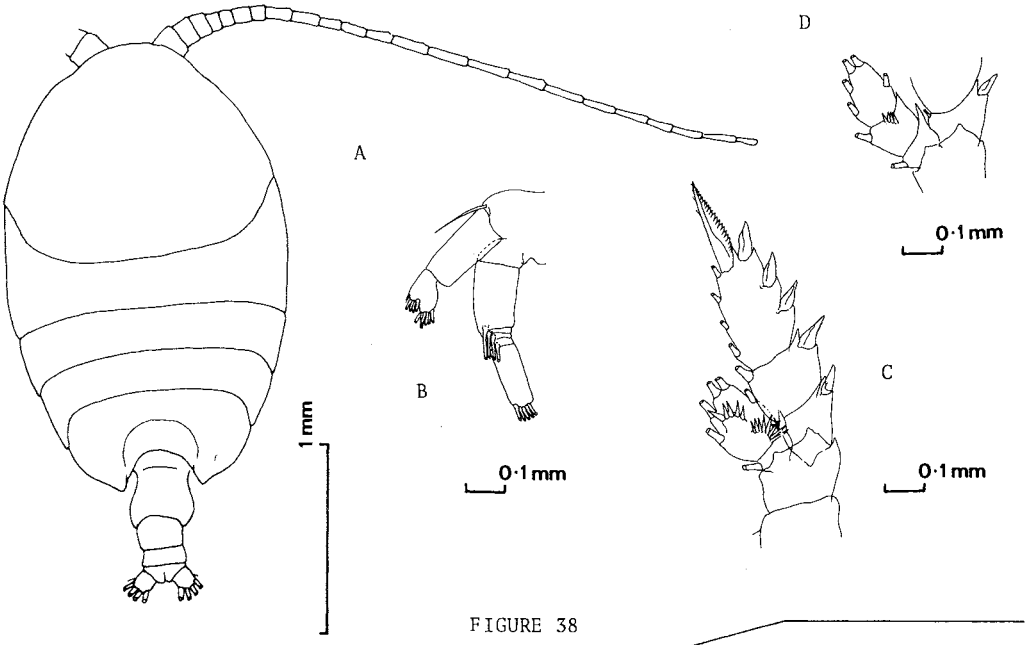


FIGURE 38

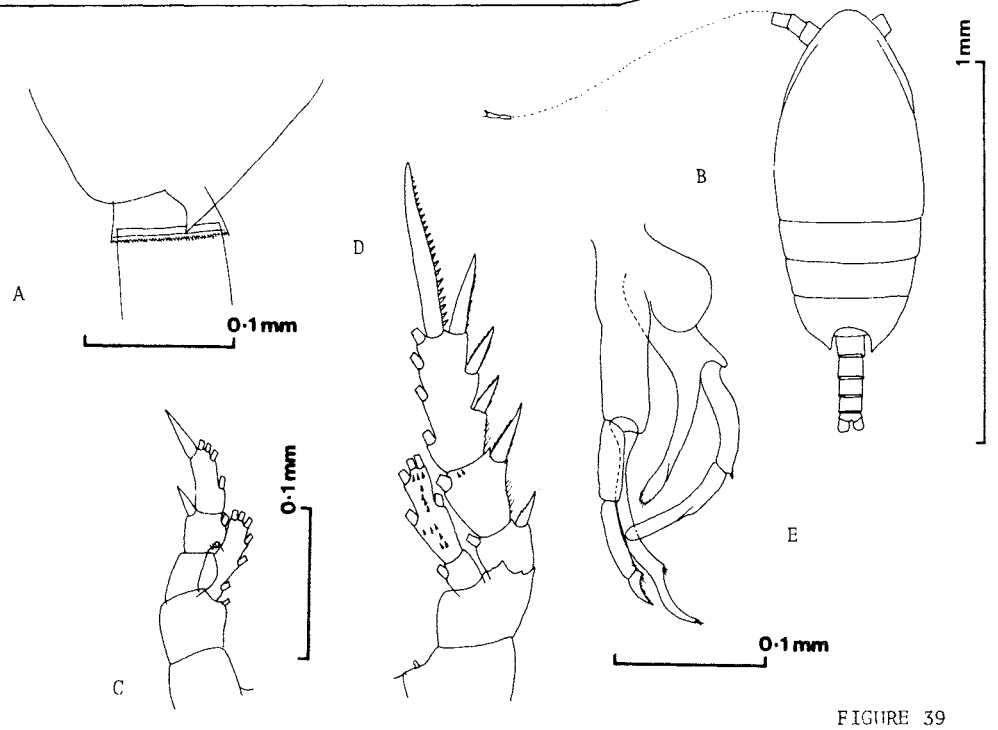


FIGURE 39

Figure Explanations:
(a) female whole animal, dorsal view,
(b) female second antenna,
(c) female second leg, posterior aspect,
(d) endopod and proximal exopodite segment of female fourth leg, posterior aspect.

Family SCOLECITHRICIDAE

Racovitzanus sp.
(figs 39a - e)

Previous Tasmanian Records: Nil.
Occurrence: Station IC 3, December, 1971, midwater night plankton tow - 1 male.
Figure Explanations:
(a) male posterior boarder of last metasomal segment and lateral view,
(b) male whole animal, dorsal view,
(c) male first leg, posterior aspect,
(d) male second leg, posterior aspect,
(e) male fifth leg.

Scolecithrix bradyi Geisbrecht
(figs 40a - c)

Previous Tasmanian Records: Nil.
Occurrence: Station E 7, November, 1971 - 3 females
Station E 12, November, 1971 - 1 male
Station E 2, November, 1972 - 1 female
Figure Explanations:
(a) male whole animal, dorsal view,
(b) male fifth leg,
(c) female whole animal, lateral view.

Scolecithrix danae (Lubbock, 1856)
(figs 41a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E 9, October, 1972 - 1 male and 1 female.
Figure Explanations:
(a) male whole animal, dorsal view,
(b) male fifth leg,
(c) female posterior region of metasome and urosome, lateral view.

Family CENTROPAGIDAE

Boeckella triarticulata (Thomson, 1883)
(figs 42a - f)

Previous Tasmanian Records: Freshwater Lakes and Lagoons of Tasmania (Bayly 1964)
Figure Explanations:
(a) female whole animal, lateral view,
(b) male last metasomal segment and urosome, dorsal view,
(c) female fourth leg,
(d) process on the middle exopodite segment of female fourth leg,
(e) male fifth leg,
(f) inner region of second basal segment of male fifth leg and endopodite.

Centropages australiensis Fairbridge, 1944
(figs 43a - d)

Previous Tasmanian Records: Mouth of River Derwent (Ong 1967).
Occurrence: Inshore coastal, Coastal and Oceanic.

Figure Explanations:
(a) female whole animal, dorsal view,
(b) male last metasomal segment and urosome, dorsal view,
(c) male right fifth leg,
(d) female fifth leg.

Centropages bradyi (Wheeler, 1899)
(figs 44a - c)

Previous Tasmanian Records: South of Tasmania 44°05'S, 147°35'E (Vervoort 1957).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) male right fifth leg,
(c) female fifth leg.

Gladioferens inermis Nicholls, 1944
(figs 45a - h)

Previous Tasmanian Records: Nil.
Occurrence: Estuarine, Inshore coastal.
Figure Explanations:
(a) male whole animal, lateral view,
(b) male fifth leg,
(c) male second leg,
(d) male right first and second exopodite,
(e) female whole animal, dorsal view,
(f) female urosome, ventral view,
(g) female fifth leg,
(h) female fourth leg.

Gladioferens pectinatus (Brady, 1883)
(figs 46a - h)

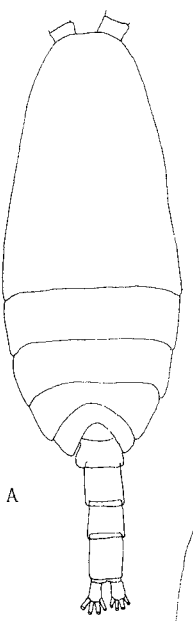
Previous Tasmanian Records: River Derwent estuary (Nicholls 1956, Ong 1967).
Occurrence: Estuarine, Inshore coastal.
Figure Explanations:
(a) male whole animal, dorsal view,
(b) male fifth leg,
(c) inner junction of proximal and middle segments of exopodite of male right (d), (e) fifth leg - variation in form of distal projection,
(f) female whole animal, lateral view,
(g) female fifth leg,
(h) female urosome ventral view.

Gladioferens spinosus Henry, 1922
(figs 47a - e)

Previous Tasmanian Records: Big Lake Waterhouse (Brehm, 1953).
Occurrence: Estuarine.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) posterior portion of metasome and genital segment of female, dorsal view,
(c) male last metasomal segment and urosome, dorsal view,
(d) male fifth leg,
(e) process on the inner proximal exopodite segment of male right fifth leg.

Gladioferens symmetricus Bayly, 1963
(figs 48a - d)

Previous Tasmanian Records: Nil.
Occurrence: Mouth of North West Bay River, D'Entrecasteaux Channel.



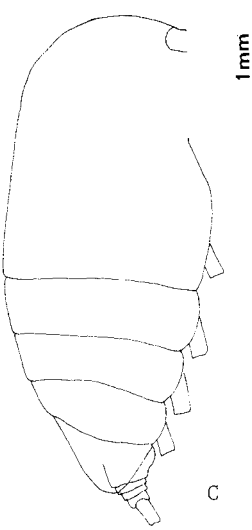
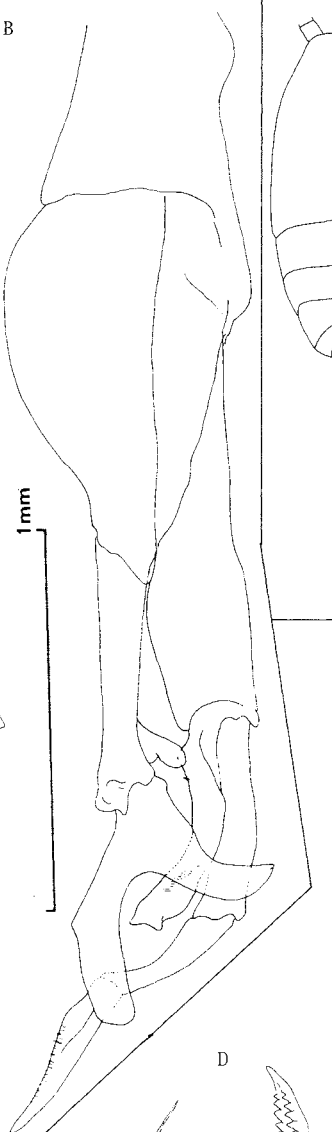


FIGURE 40



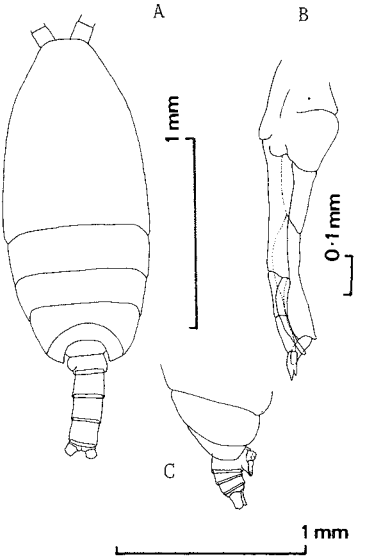
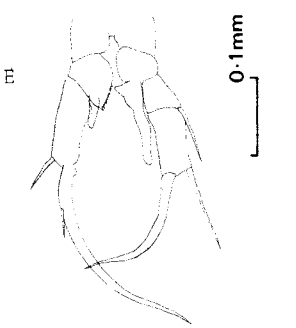
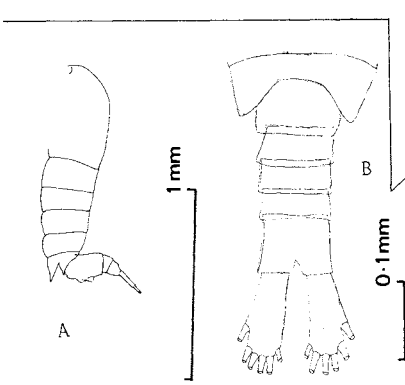
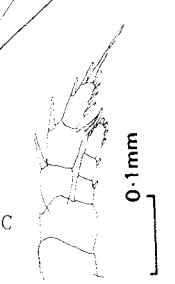


FIGURE 41







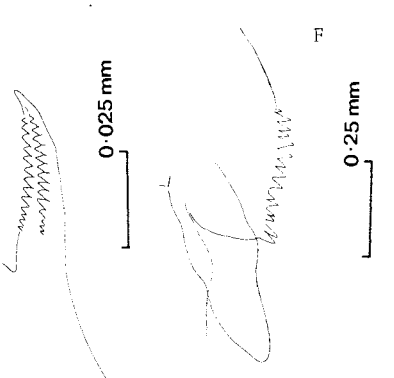


FIGURE 42

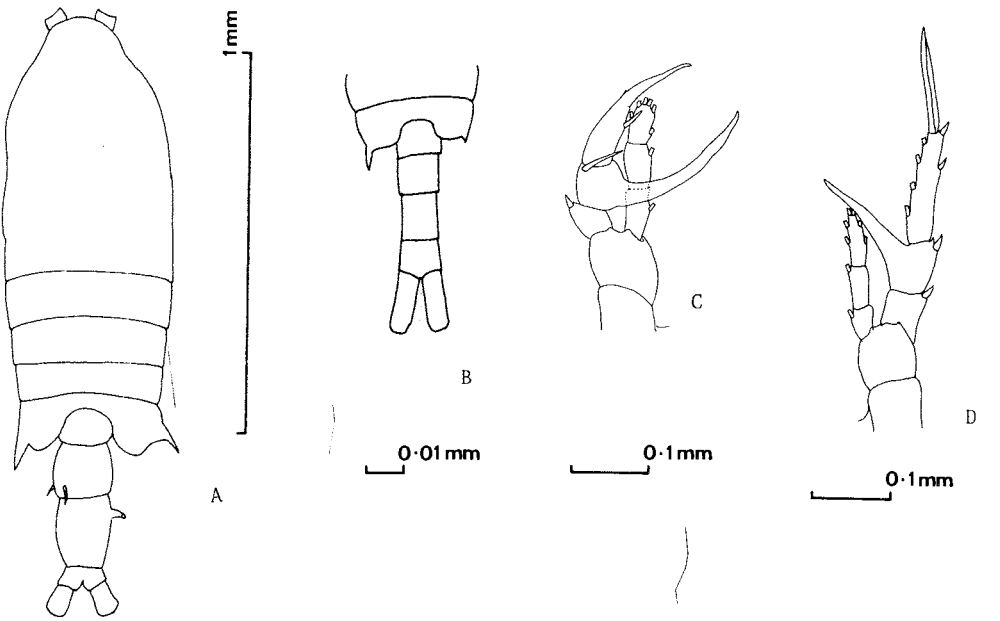


FIGURE 43

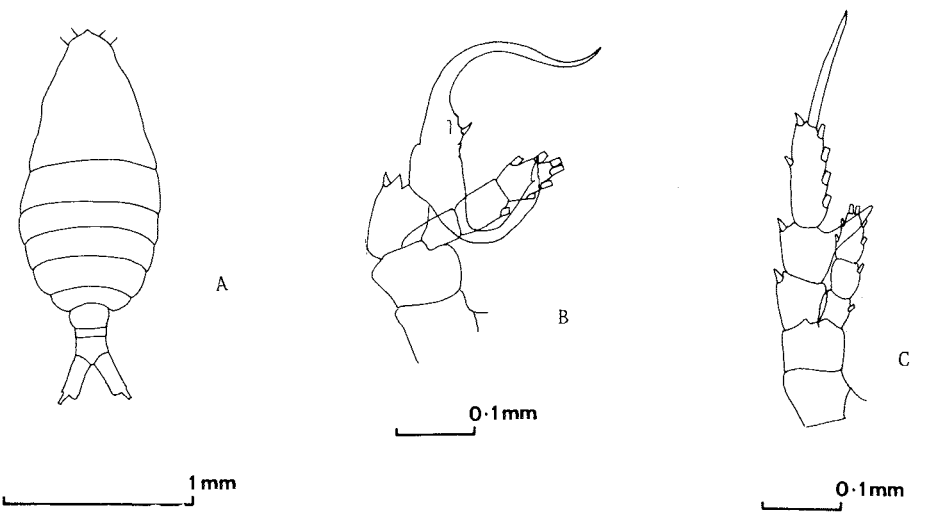


FIGURE 44

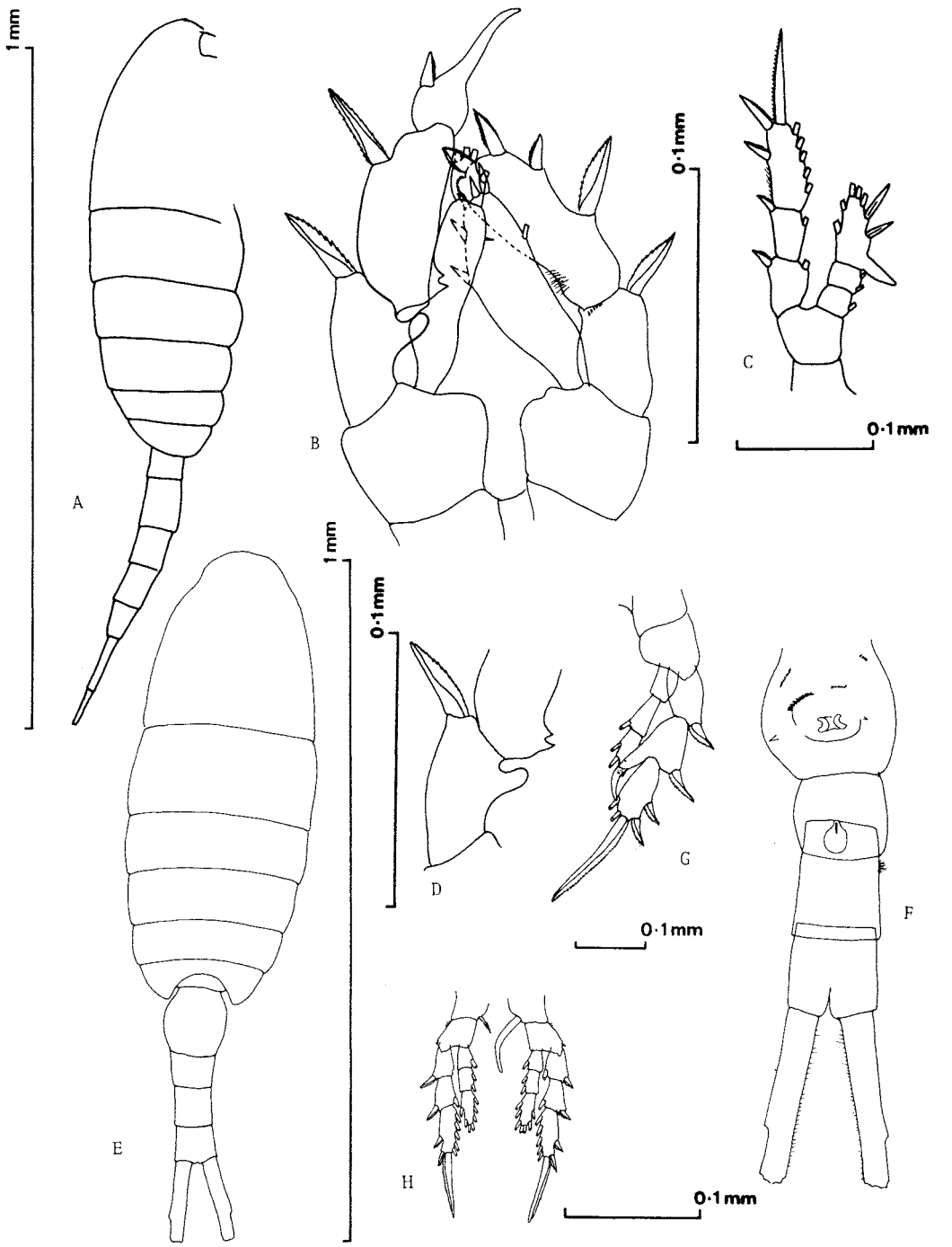


FIGURE 45

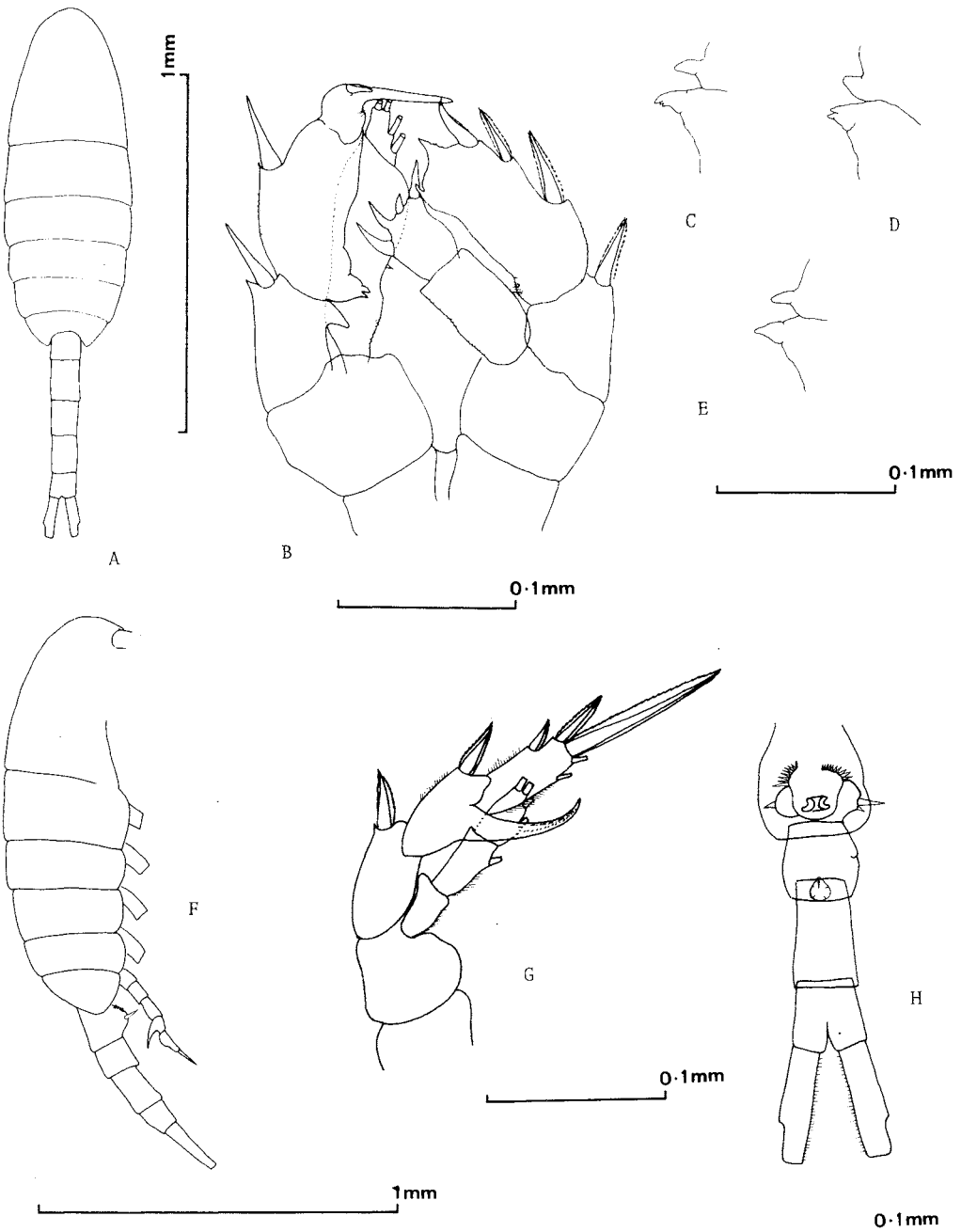


FIGURE 46

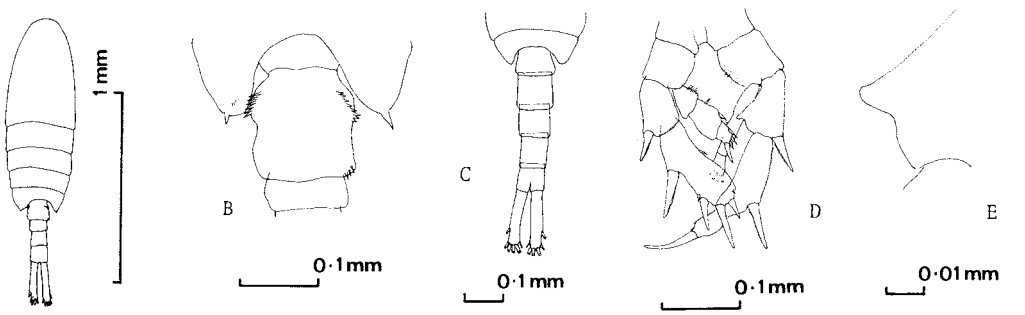


FIGURE 47

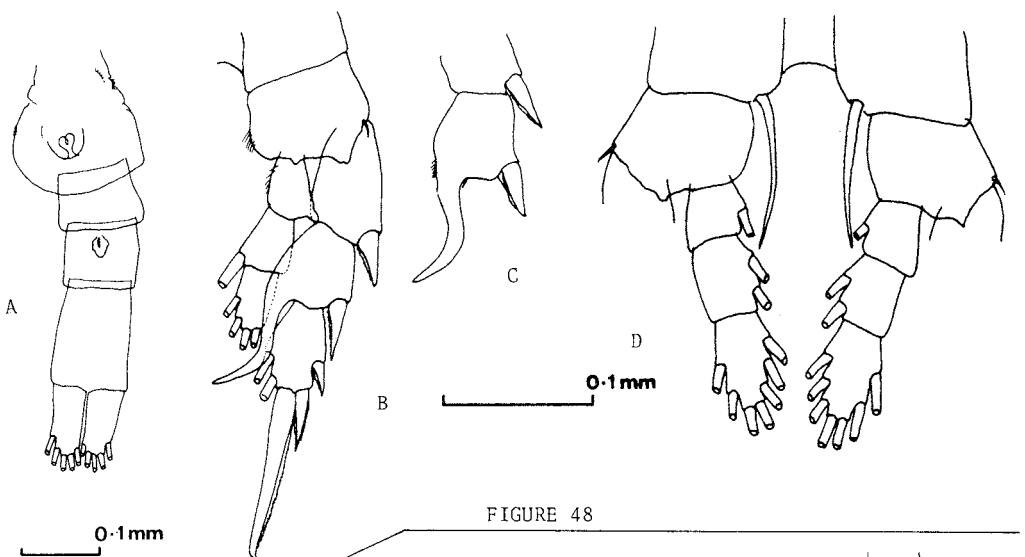


FIGURE 48

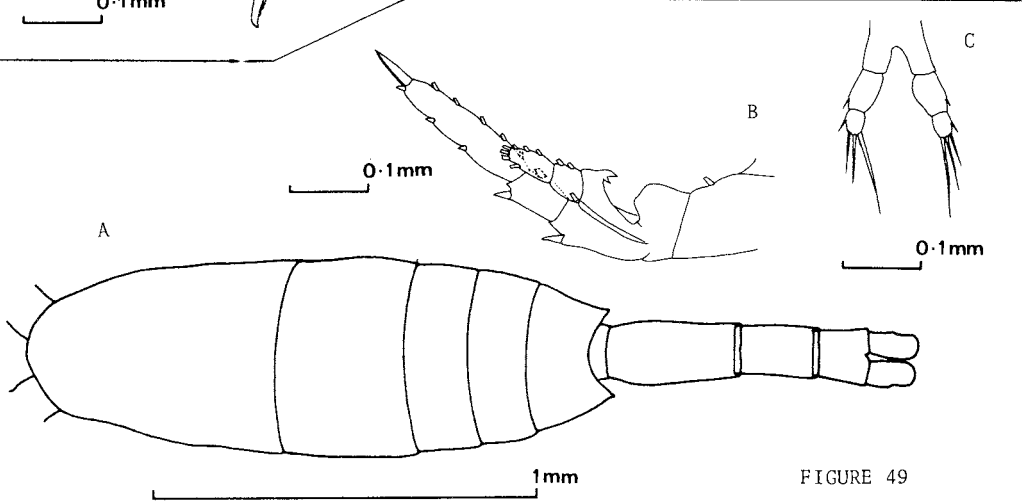


FIGURE 49

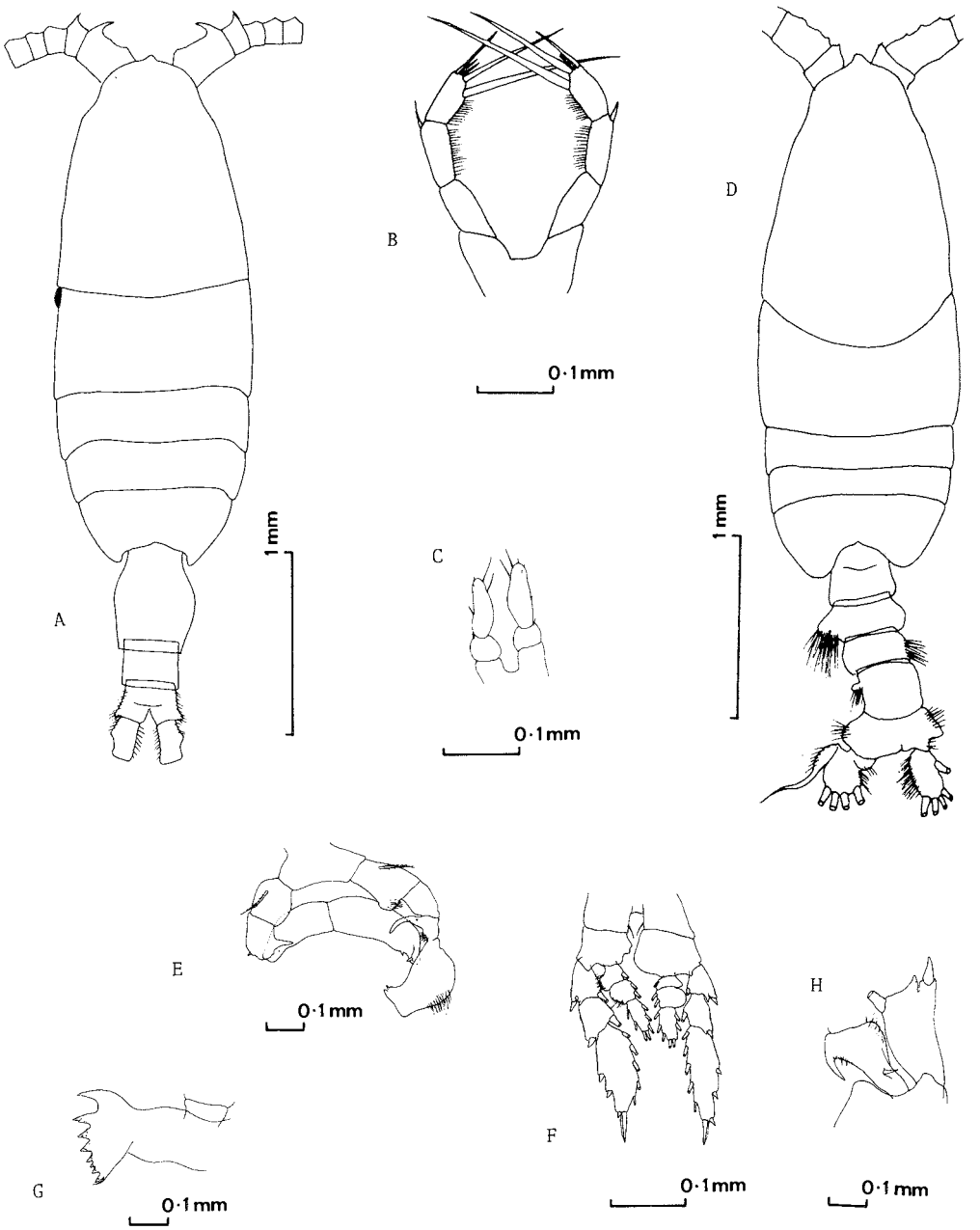


FIGURE 50

Figure Explanations:
(a) female urosome, ventral view,
(b) female fifth leg,
(c) middle exopodite segment of female fifth leg,
(d) female second leg without expodite.

Family METRIDIIDAE

Metridia lucens (Boeck, 1863)
(figs 49a - c)

Previous Tasmanian Records: Nil.
Occurrence: Station IC 3, June, 1972 - 1 female.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female second leg, posterior aspect,
(c) female fifth leg.

Pleuromamma abdominalis (Lubbock, 1856)
(figs 50a - h)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) immature female fifth leg,
(d) male whole animal, dorsal view,
(e) male fifth leg,
(f) male fourth leg,
(g) male mandible,
(h) proximal segments of male right second leg.

Pleuromamma gracilis (Claus, 1893)
(figs 51a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female genital segment, lateral view,
(c) female fifth leg,
(d) male fifth leg.

Pleuromamma xiphias (Giesbrecht, 1889)
(figs 52a - f)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Station E 6, May, 1973 - 6 males.
Figure Explanations:
(a) male whole animal, lateral view,
(b) male urosome, dorsal view,
(c) anterior region of male head, lateral view,
(d) proximal segments of male right first antenna,
(e) male fifth leg,
(f) male right second leg with part of left leg.

Family TEMORIDAE

Temora turbinata (Dana)
(figs 53a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E 9, October, 1972 - 2 females
Station E 10, October, 1972 - 2 feamels, 1 male.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) male fifth legs,
(c) female fifth legs,
(d) female fourth leg, posterior aspect.

Family PSEUDODIAPTOMIDAE

Pseudodiaptomus cornutus Nicholls, 1944
(figs 54a - g)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal.
Figure Explanations:
(a) male whole animal, lateral view,
(b) male right first antenna,
(c) male fifth leg,
(d) female whole animal, lateral view,
(e) female fifth legs,
(f) female last metasomal segment and genital segment,
(g) female fourth leg, posterior aspect.

Family LUCICUTIIDAE

Lucicutia flavicornis (Claus, 1863)
(figs 55a - c)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) male fifth leg.

Family HETERORHABDIDAE

Heterorhabdus pappilliger (Claus, 1863)
(figs 56a - e)

Previous Tasmanian Records: Nil.
Occurrence: Inshore Coastal, Coastal and Oceanic.
Figure Explanations:
(a) male whole animal, dorsal view,
(b) male fifth leg,
(c) female posterior region of metasome and urosome, lateral view,
(d) female second maxilla,
(e) female fifth leg.

Family CANDACIIDAE

Candacia armata (Boeck, 1863)
(figs 57a - e)

Previous Tasmanian Records: Nil.

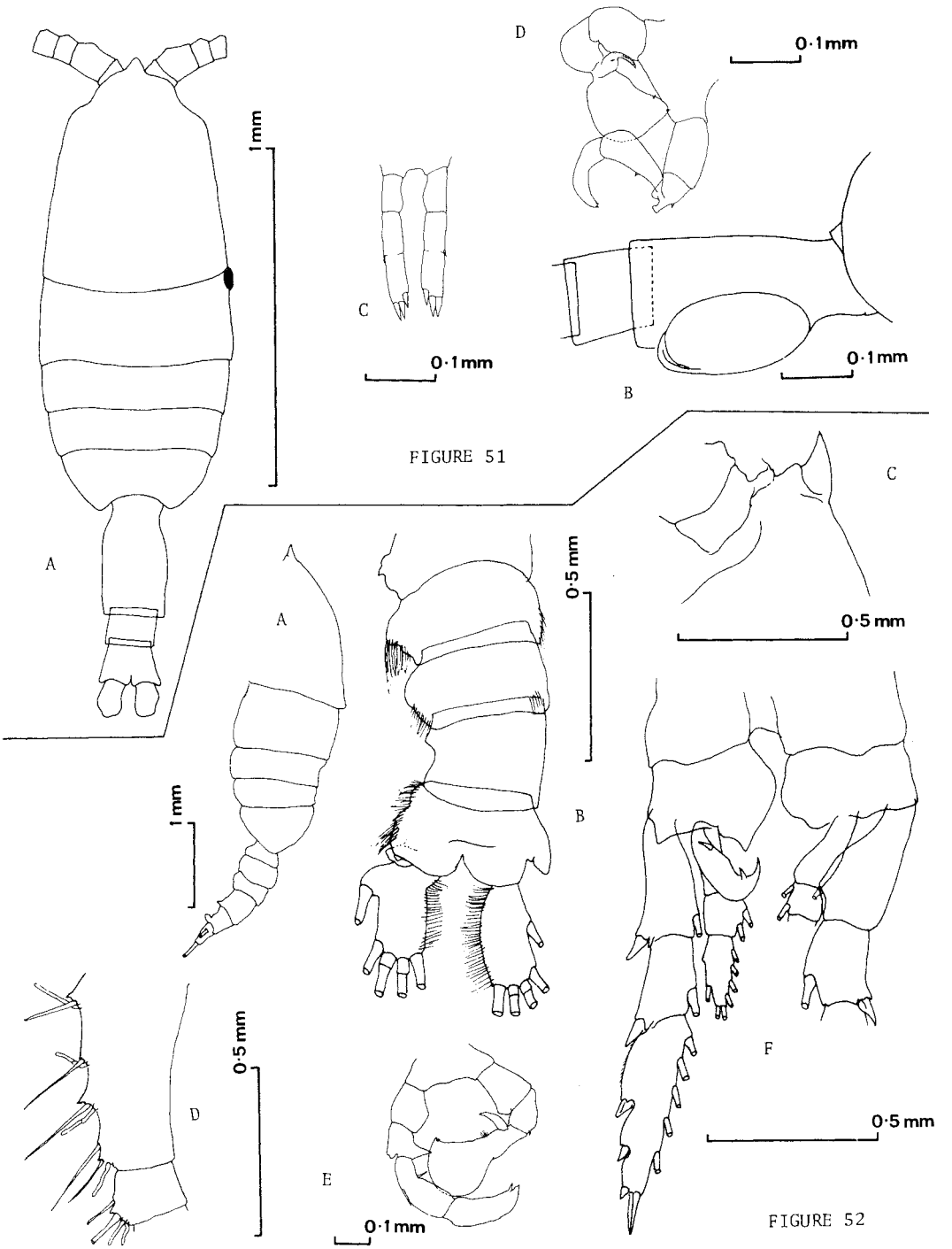


FIGURE 51

FIGURE 52

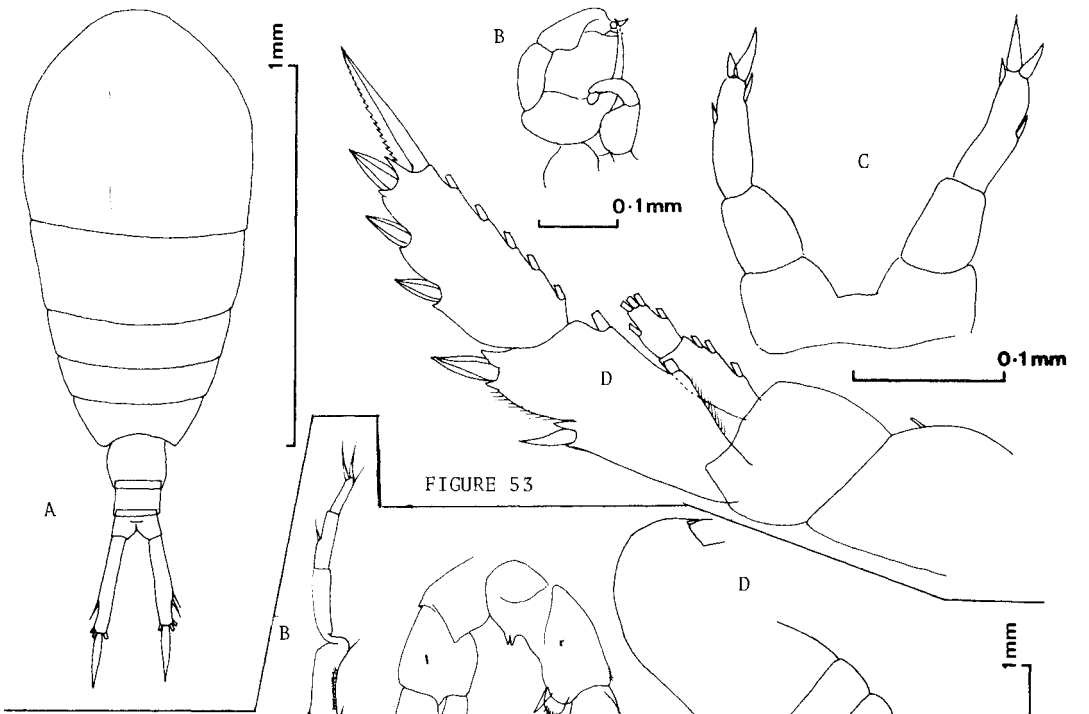


FIGURE 53

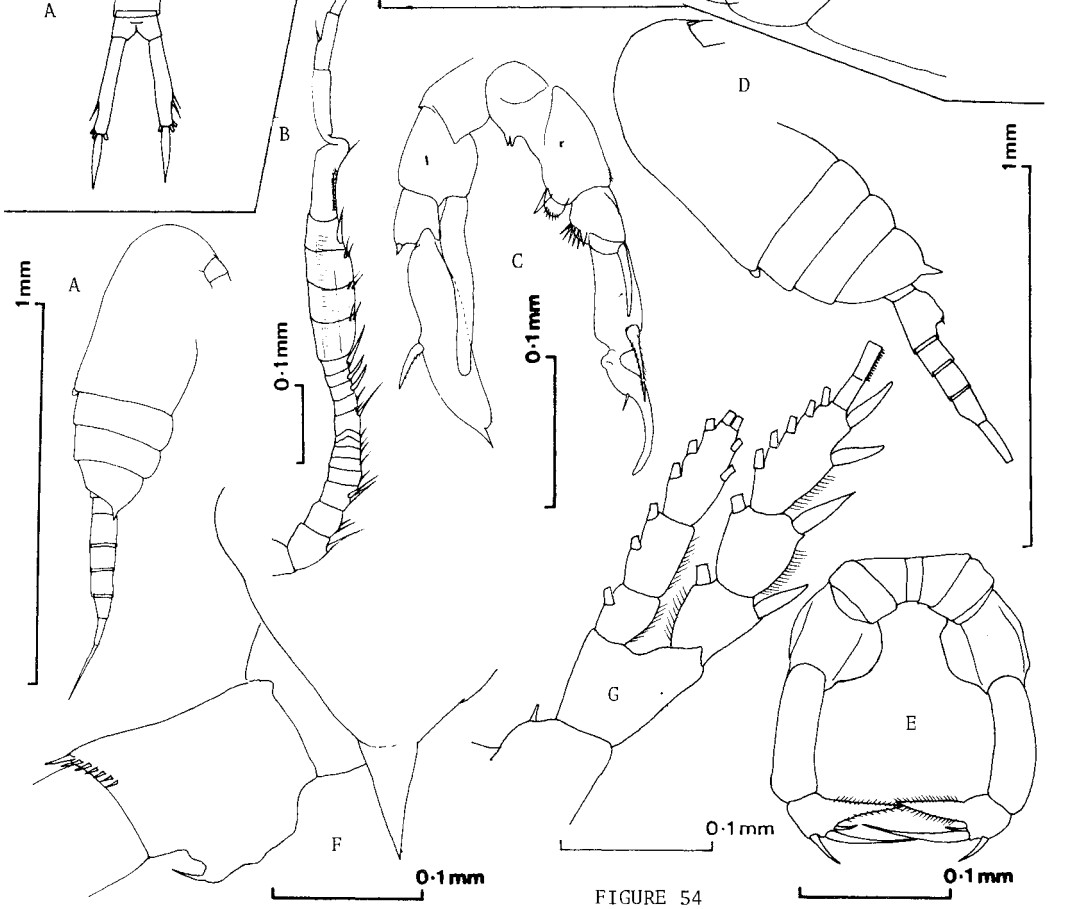


FIGURE 54

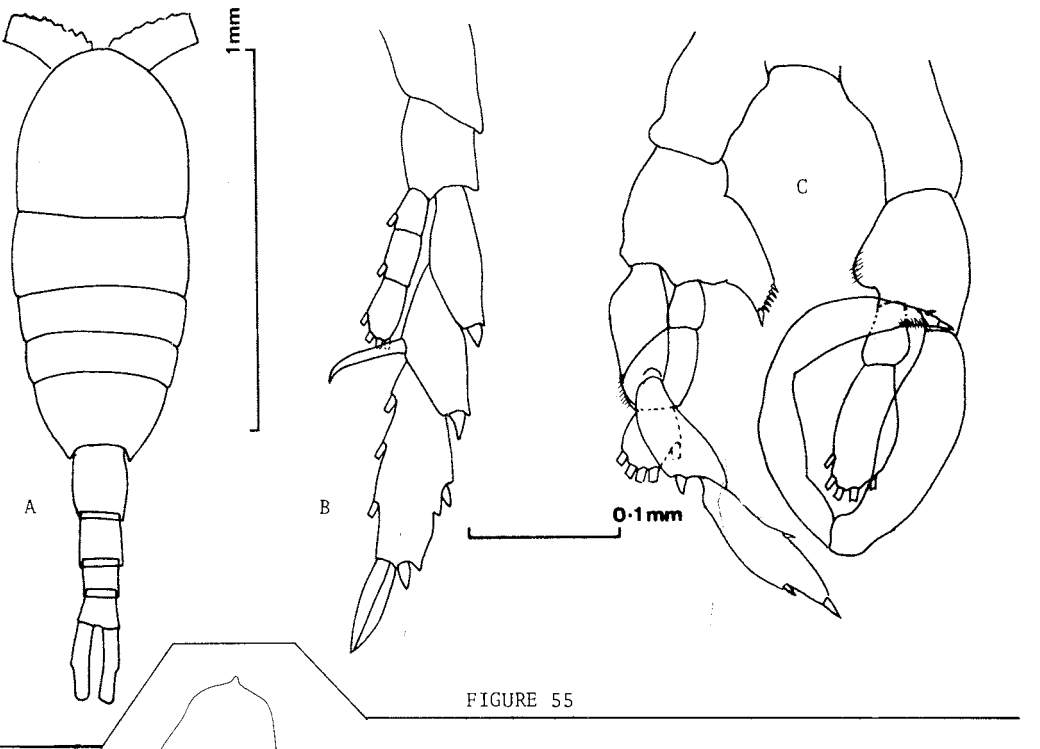


FIGURE 55

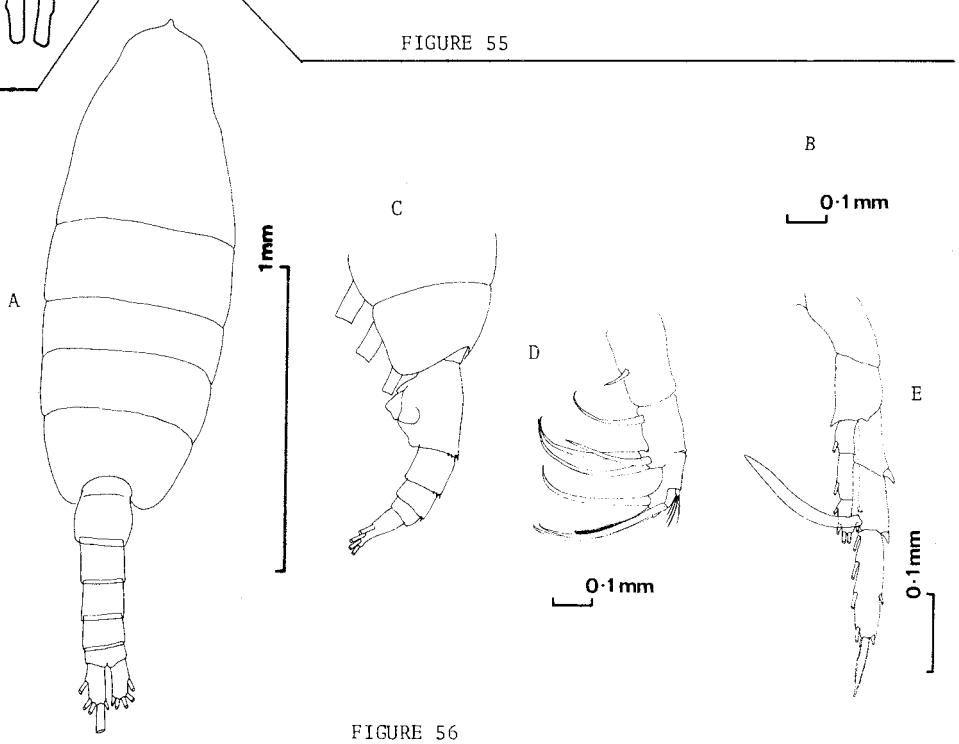


FIGURE 56

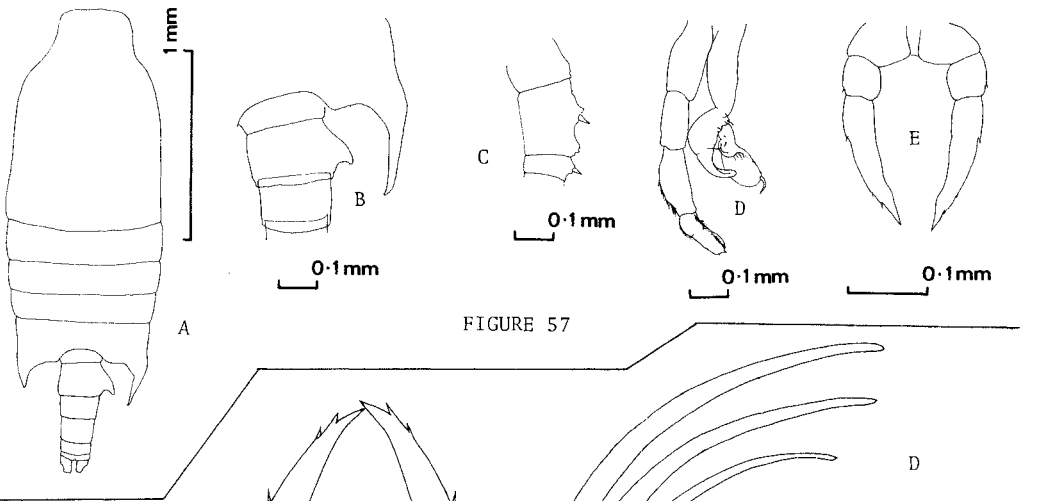


FIGURE 57

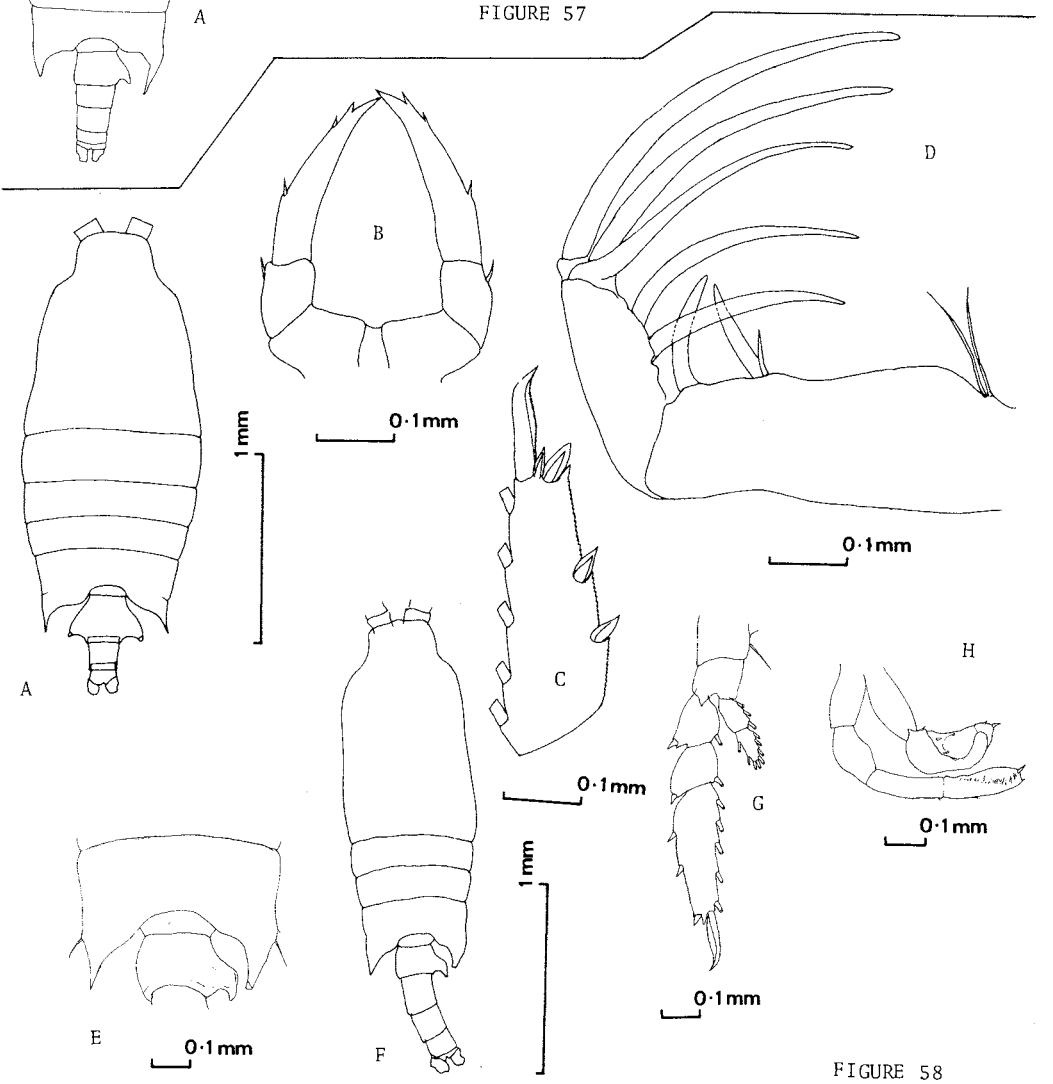


FIGURE 58

Occurrence: Station IC 3, September, 1971 - 1 female
Station E 11, November, 1972 - 1 male
Figure Explanations:
(a) male whole animal, dorsal view,
(b) posterior portion of metasome and anterior portion of urosome of male, dorsal view,
(c) proximal segments of male right first antenna,
(d) male fifth leg,
(e) female fifth leg.

Candacia bipinnata (Giesbrecht, 1888)
(figs 58a - h)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) terminal exopodite segment of male third leg,
(d) female first maxilliped,
(e) male last metasomal segment and first urosomal segment, dorsal view,
(f) male whole animal, dorsal view,
(g) male third leg,
(h) male fifth leg.

Candacia tenuimana (Giesbrecht, 1888)
(figs 59a - d)

Previous Tasmanian Records: Nil.
Occurrence: Station E 1, November, 1972 - 1 male.
Figure Explanations:
(a) male whole animal, dorsal view,
(b) posterior portion of male metasome and first urosomal segment, dorsal view,
(c) male left fifth leg,
(d) male right fifth leg.

Paracandacia simplex (Giesbrecht)
(figs 60a - c)

Previous Tasmanian Records: Nil.
Occurrence: Station E 1, October, 1972 - 1 female.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) female terminal exopodite segment of third leg.

Family PONTELLIDAE

Labidocera cervi Kramer, 1895
(figs 61a - g)

Previous Tasmanian Records: D'Entrecasteaux Channel (Ong, 1970).
Occurrence: Station IC 1, February, 1972 - 1 female. Off Roberts Point, D'Entrecasteaux Channel - 2 females, 3 males.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female last metasomal segment and urosome, lateral view,
(c) female mandible,
(d) female fifth leg,
(e) male last metasomal segment and urosome, dorsal view,
(f) male fifth leg,
(g) male terminal segments of right first antenna.

Labidocera tasmanica Nyan Taw, 1974
(figs 62a - g)

Previous Tasmanian Records: Storm Bay, Mouth of River Derwent and Northern parts of D'Entrecasteaux Channel (Nyan Taw 1974).
Occurrence: Inshore coastal and Coastal.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) female last metasomal segment and urosome, lateral view,
(c) male whole animal, dorsal view,
(d) male whole animal, lateral view,
(e) female fifth leg, posterior aspect,
(f) male fifth leg, posterior aspect,
(g) proximal expansion of distal segment of male right fifth leg.

Family ACARTIIDAE

Acartia tranteri Bradford 1976
(figs 63a - d)

Reference Specimen: Tranter and Hammick, C.S.I.R.O., Cronulla, Bottle No. 12.
Previous Tasmanian Records: Derwent River Estuary (Ong 1967 as *A. clausi*).
Occurrence: Estuarine, Inshore coastal, Coastal and Oceanic.
Identified as *A. clausi*, by Ong. Present specimens resemble *A. tranteri* and this name will be retained pending specialist examination.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) male whole animal, dorsal view,
(c) female fifth leg,
(d) male fifth leg.

Acartia danae Giesbrecht 1889
(figs 64a - d)

Reference Specimen: Tranter and Hammick, C.S.I.R.O., Cronulla, Bottle No. 20.
Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:

(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) female second leg,
(d) female fourth leg, posterior aspect.

Sulcanus conflictus Nicholls, 1945
(figs 65a - d)

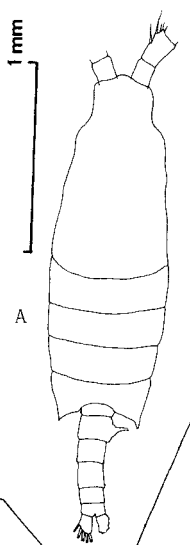
Previous Tasmanian Records: Derwent Estuary (Ong 1967, 1970).
Occurrence: Estuarine and Inshore coastal.
Figure Explanations:

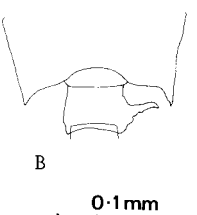
(a) female whole animal, lateral view,
(b) female fourth leg,
(c) female fifth leg,
(d) male fifth leg.

Order CYCLOPOIDA

Family OITHONIDAE

Oithona atlantica (Farran, 1908)
(figs 66a - f)





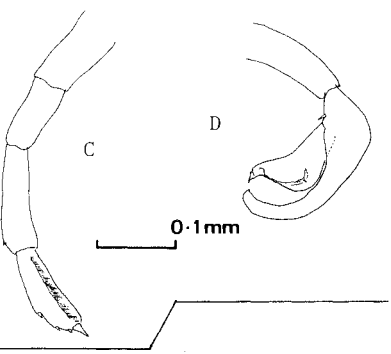


FIGURE 59

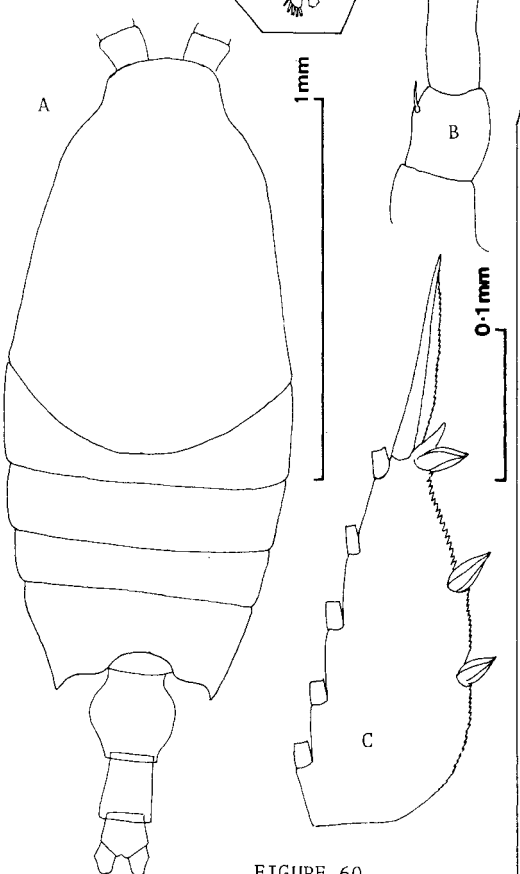


FIGURE 60

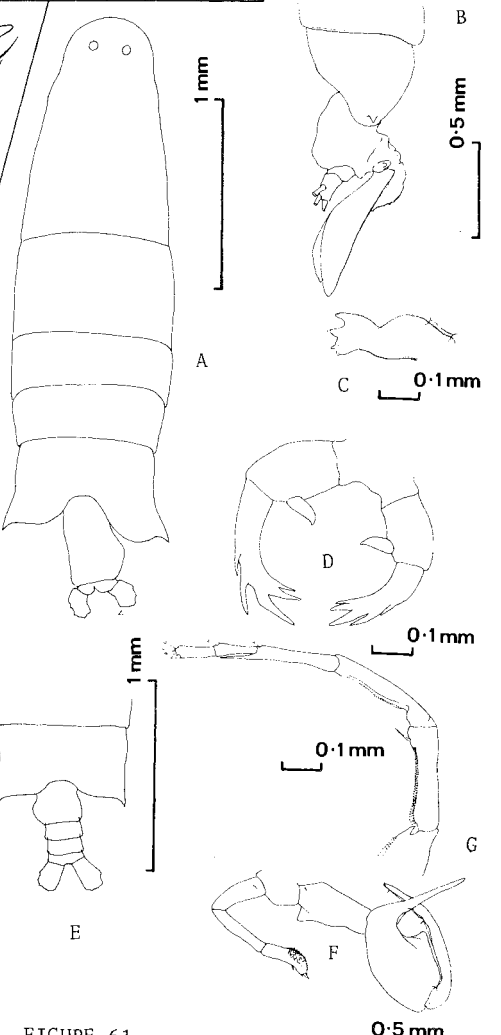


FIGURE 61

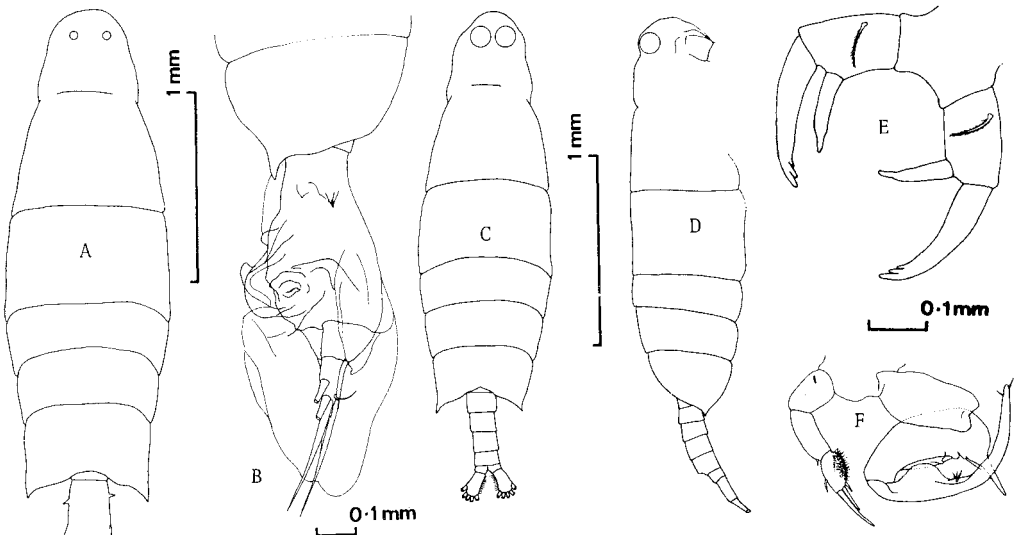


FIGURE 62

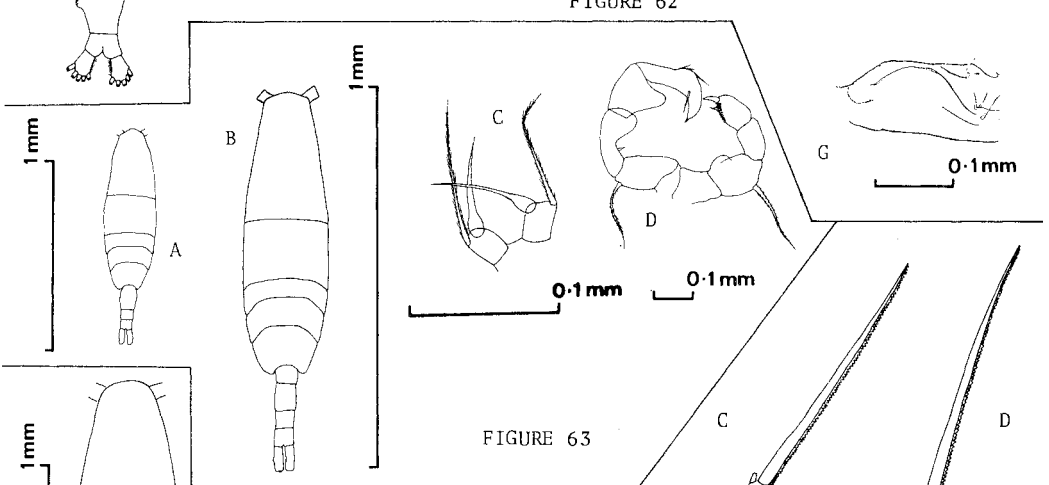


FIGURE 63

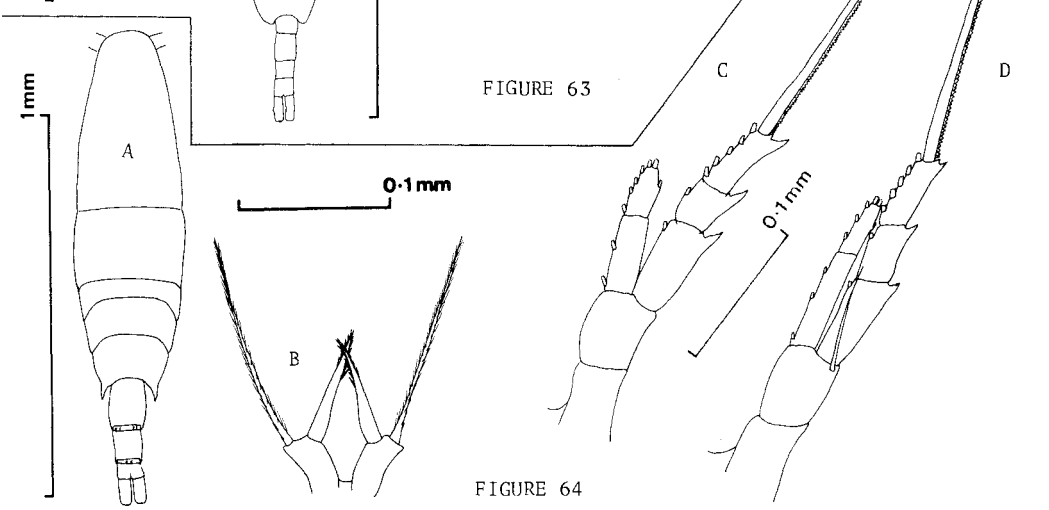


FIGURE 64

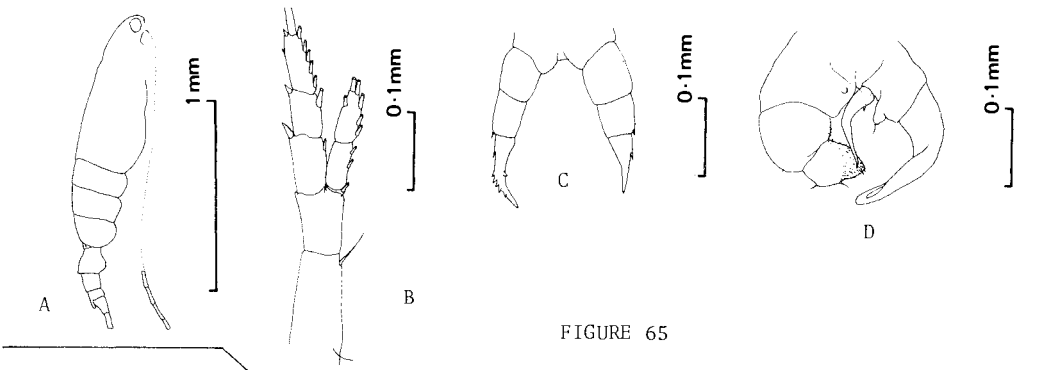


FIGURE 65

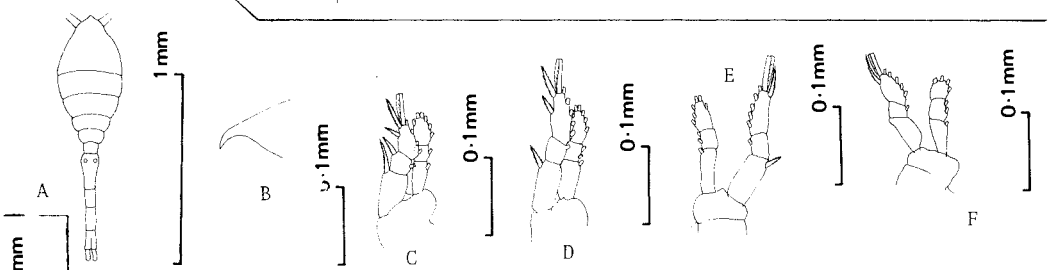


FIGURE 66

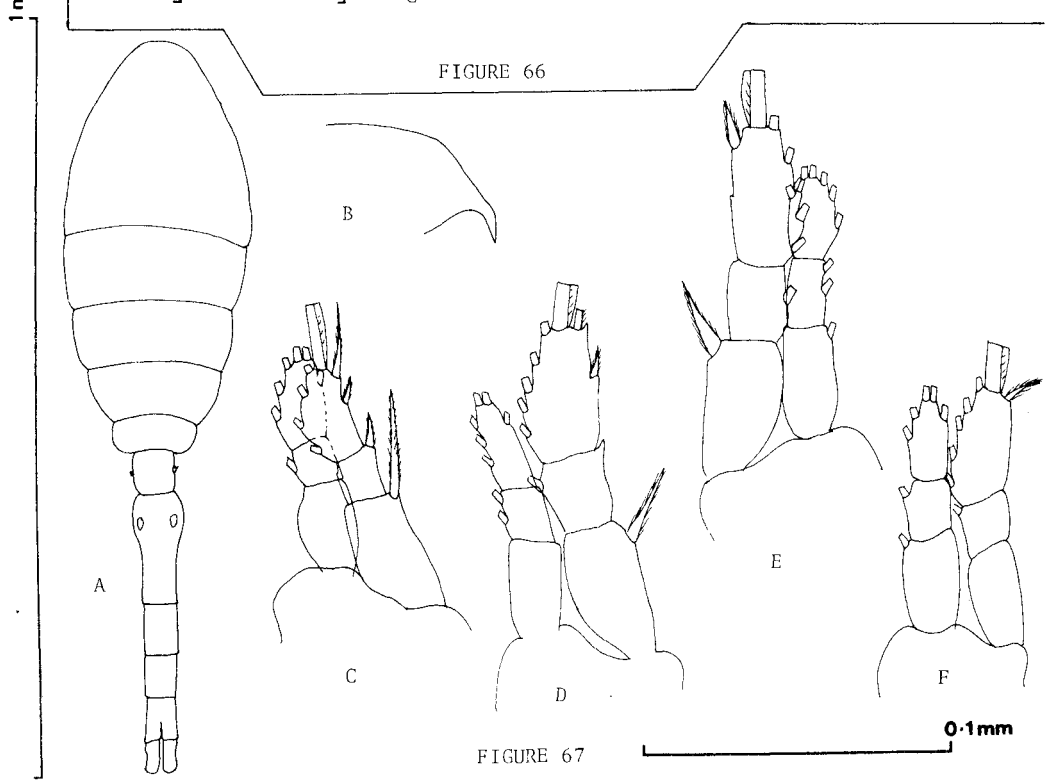


FIGURE 67

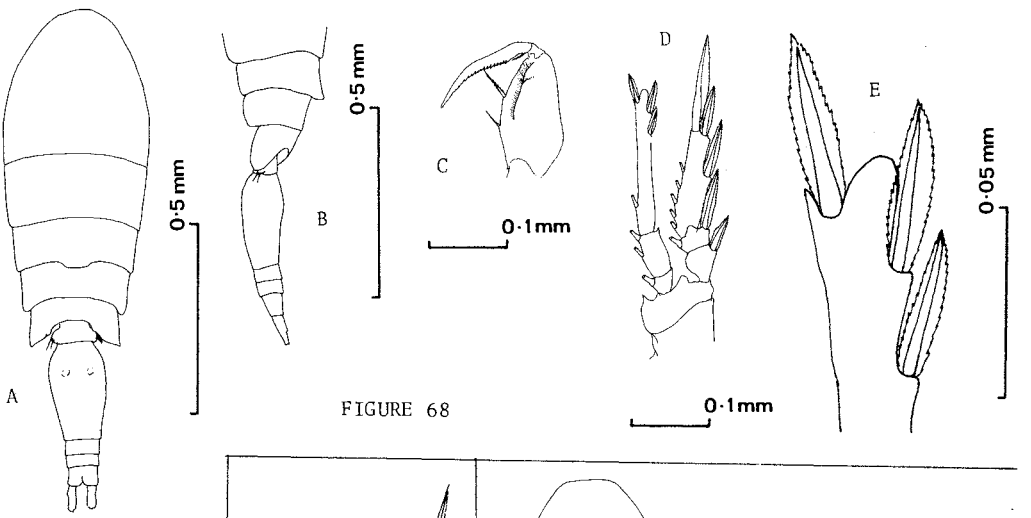


FIGURE 68

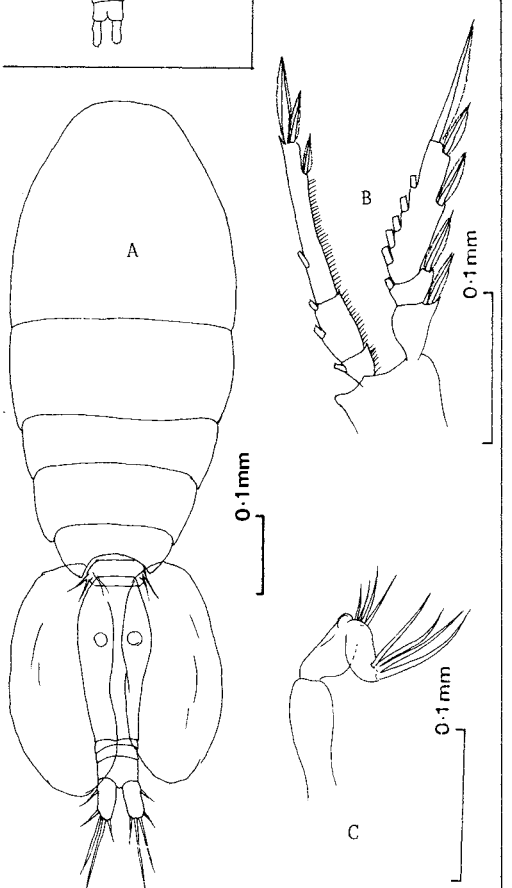


FIGURE 69

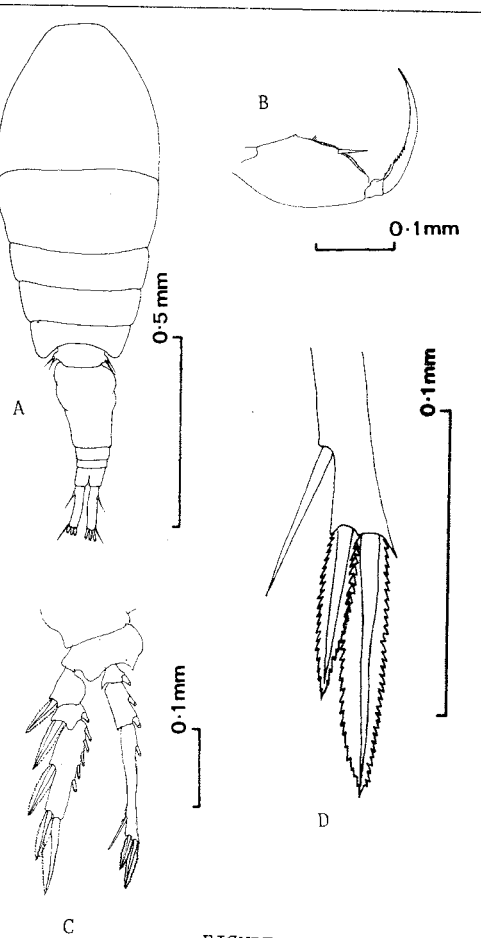


FIGURE 70

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal (the occurrence of this species in the remaining areas was not determined due to the difficulties involved in identification.)
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female rostrum, lateral view,
(c) female first leg,
(d) female second leg,
(e) female third leg,
(f) female fourth leg.

Oithona tenuis Rosendorn, 1917
(figs 67a - f)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal (the occurrence of this species in the remaining areas was not determined due to the difficulties involved in identification).
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female rostrum,
(c) female first leg,
(d) female second leg,
(e) female third leg,
(f) female fourth leg.

Family ONCAEDIDAE

Oncaea conifera Giesbrecht, 1891
(figs 68a - e)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1972).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) posterior portion of female metasome and urosome, lateral view,
(c) female maxilliped,
(d) female fourth leg,
(e) terminal portion of distal endopodite segment of female fourth leg.

Oncaea media Giesbrecht, 1891
(figs 69a - c)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fourth leg,
(c) female second antenna.

Oncaea mediterranea (Claus, 1863)
(figs 70a - d)

Previous Tasmanian Records: South of Tasmania (44°05'S, 147°35'E) (Vervoort 1957).
Occurrence: Coastal and oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female maxilliped,
(c) female fourth leg,
(d) terminal portion of distal endopodite segment of female fourth leg.

Oncaea venusta (Phillippi, 1843)
(figs 71a - f)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) terminal portion of distal endopodite segment of female fourth leg,
(c) terminal portion of distal endopodite segment of female third leg,
(d) female maxilliped,
(e) male maxilliped,
(f) male urosome, dorsal view.

Order HARPACTICOIDA

Family TACHIDIIDAE

Euterpina acutifrons (Dana, 1852)
(figs 72a - f)

Previous Tasmanian Records: Nil.
Occurrence: Estuarine and Inshore coastal.
Figure Explanations:
(a) female whole animal, dorsal view,
(b) female fifth leg,
(c) male whole animal, lateral view,
(d) male first antennae,
(e) male second antennae,
(f) male fourth leg.

Sub-Class MALACOSTRACA

Order EUPHAUSIACEA

Euphausia lucens (Hansen, 1905)
(figs 73a - c)

Previous Tasmanian Records: Water around Tasmania (John 1936; Bradbury 1972).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) anterior part of carapace and antennal peduncles of adult female, lateral view,
(c) adult male copulatory organ.

Euphausia recurva Hansen, 1905
(figs 74a - c)

Previous Tasmanian Records: Northwest of Tasmania (Bradbury 1972).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) anterior part of carapace and antennal peduncles of adult female, lateral view,
(c) adult male copulatory organ.

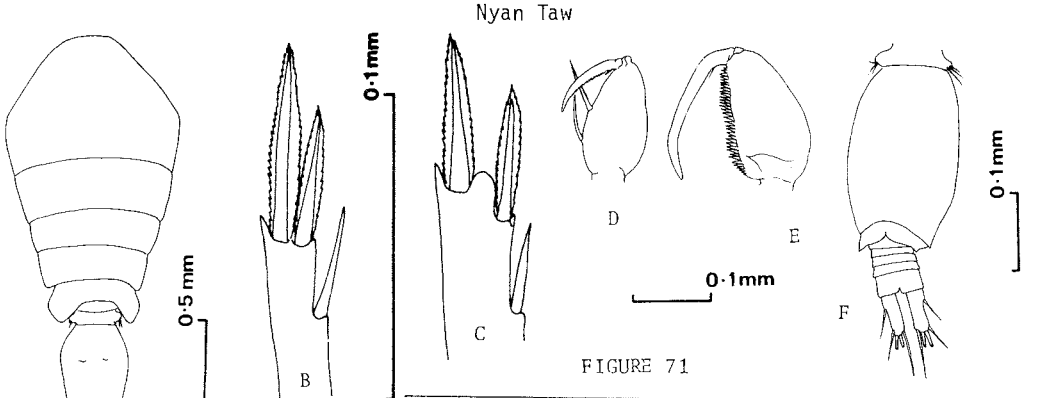


FIGURE 71

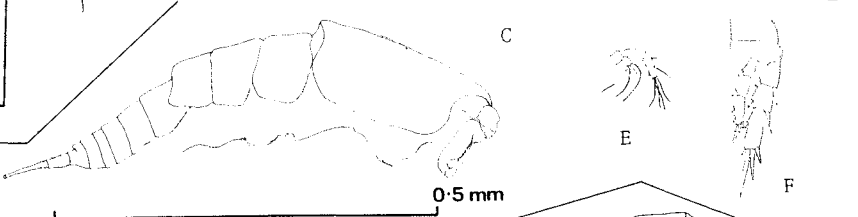
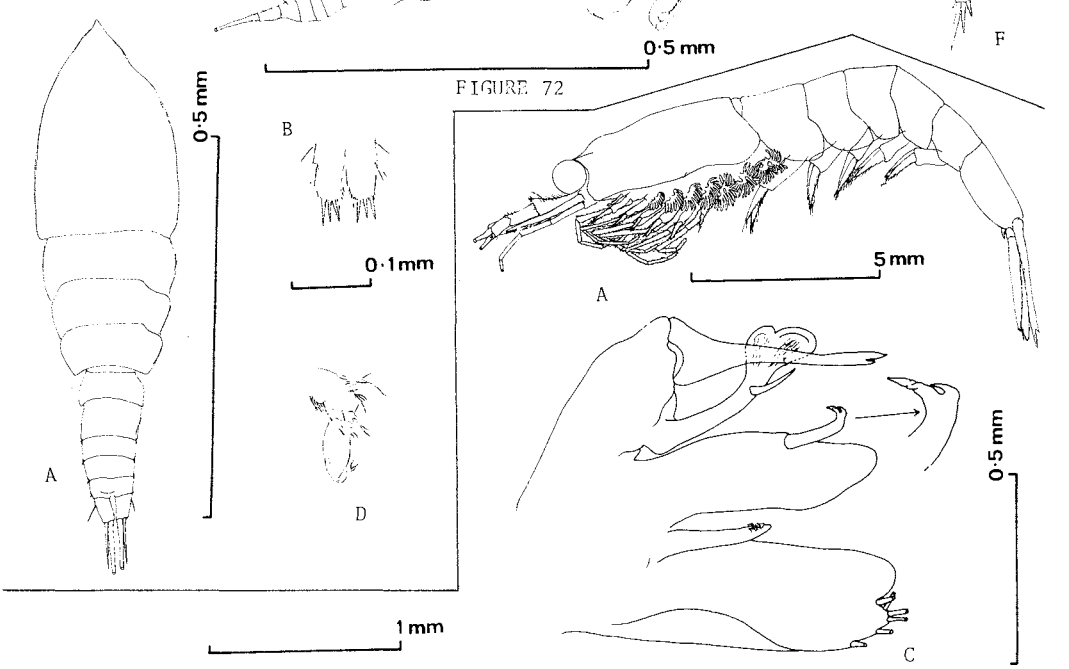


FIGURE 72



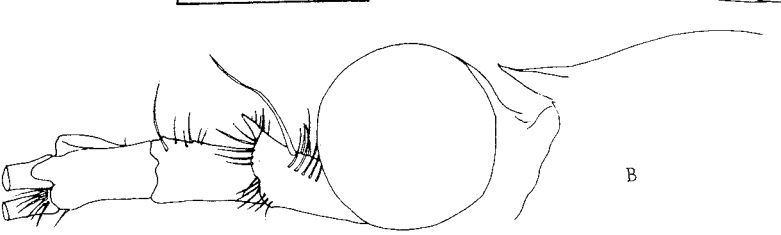


FIGURE 73

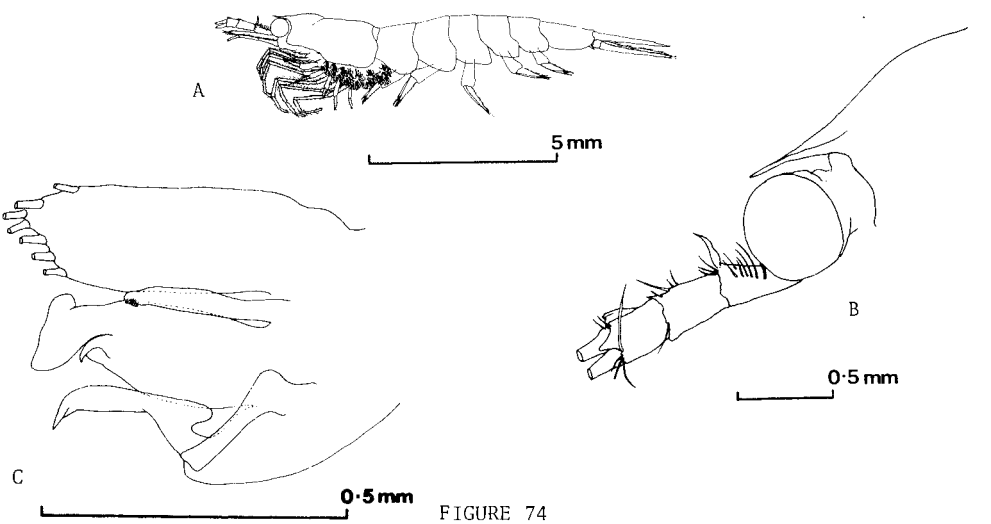


FIGURE 74

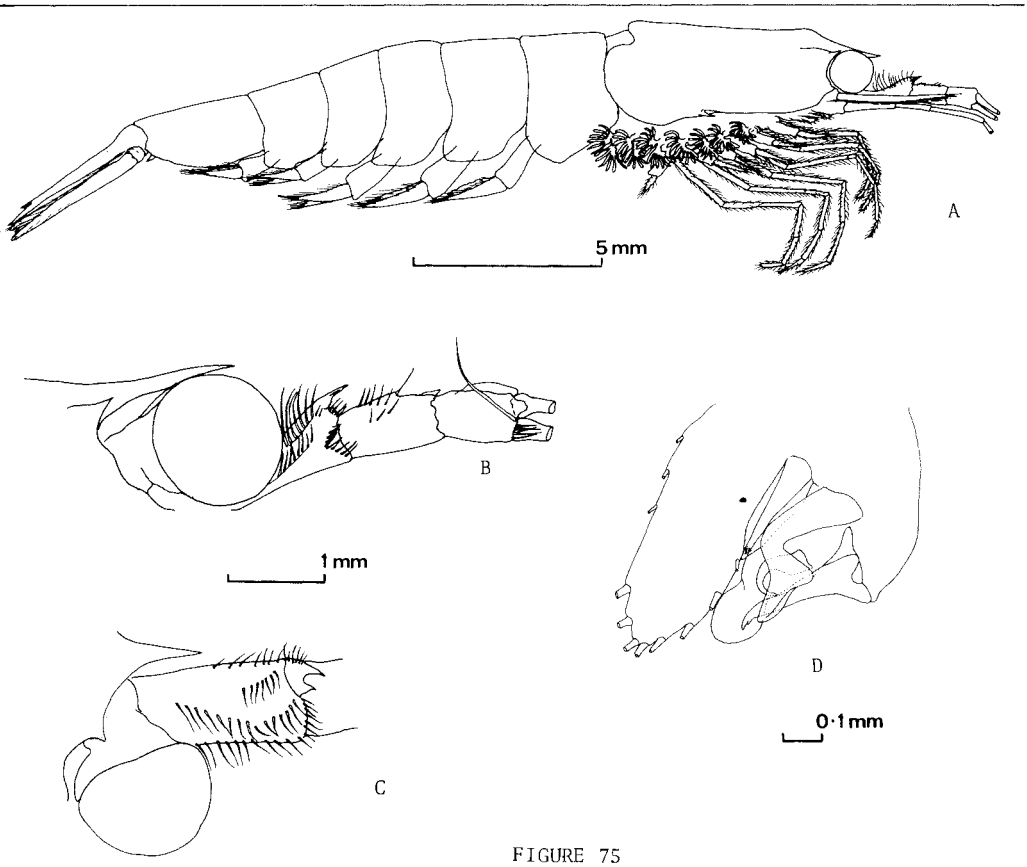


FIGURE 75

Euphausia similis (Sars, 1885)
(figs 75a - d)

Previous Tasmanian Records: South and eastern waters of Tasmania (John 1936; Bradbury 1972).
Occurrence: Station E 6, May, 1973 - 2 females, 2 males and 1 juvenile.
Figure Explanations:
(a) adult male whole animal, lateral view,
(b) anterior part of carapace and antennal peduncles of adult male, lateral
(c) and dorsal view,
(d) adult male copulatory organ.

Euphausia similis var. *armata* (Hansen, 1905)
(figs 76a - c)

Previous Tasmanian Records: Waters around Tasmania (John 1936; Bradbury 1972); Southwestern Tasmania (Sheard 1953).
Occurrence: Station E 6, November, 1971 - 8 females and 11 juveniles.
Station E 6, May, 1973 - 8 females, 2 males and 5 juveniles.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) adult male copulatory organ,
(c) female tooth on the mid-dorsal posterior margin of the third abdominal segment.

Euphausia longirostris (Hansen, 1905)
(figs 77a - c)

Previous Tasmanian Records: Southwest of Tasmania (Sheard 1953); South of Tasmania (Bradbury 1972).
Occurrence: Station E 6, May, 1973 - 1 adult female.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) anterior part of carapace and antennal peduncles of adult female,
(c) dorsal and lateral views.

Nyctiphanes australis Sars, 1885
(figs 78a - c)

Previous Tasmanian Records: Nil.
Occurrence: Inshore coastal and Coastal.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) adult male copulatory organ,
(c) anterior part of carapace and antennal peduncle of adult female, lateral view.

Nematoscelis megalops Sars, 1885
(figs 79a - d)

Previous Tasmanian Records: Water around Tasmania (Bradbury 1972).
Occurrence: Coastal and Oceanic.
Figure Explanations:
(a) adult female whole animal, lateral view,
(b) terminal segment of second thoracic leg,
(c) spine of the terminal segment of second thoracic leg,
(d) pre-anal spine.

Thysanoessa gregaria Sars, 1885
(figs 80a - e)

Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.

Figure Explanations:
(a) adult female whole animal, lateral view,
(b) distal segments of female second thoracic leg,
(c) adult male copulatory organ,
(d) adult female pre-anal spine,
(e) adult male pre-anal spine.

Sub-Class EUCARIDA

Order DECAPODA

Family SERGESTIDAE

Lucifer hanseni (Nobili, 1905)
(figs 81a - e)

Previous Tasmanian Records: Derwent Estuary (Ong 1967).
Occurrence: Inshore coastal (the occurrence in the coastal and oceanic waters was not determined).
Figure Explanations:
(a) female whole animal, lateral view,
(b) male last abdominal segment and telson, lateral view,
(c) male telson, lateral view,
(d) male telson, dorsal view,
(e) male copulatory organ

Phylum CHAETOGNATHA

Eukrohnia hamata (Mobius, 1875)
(figs 82a - c)

Previous Tasmanian Records: Eastern coastal waters (Thomson 1947).
Occurrence: Station E 1, November, 1972 - 1 specimen.
Figure Explanations:
(a) whole animal, ventral view,
(b) detail structure of head, ventral view,
(c) detail structure of the eyes, dorsal view.

Pterosagitta draco (Krohn 1853)
(fig. 83)

Previous Tasmanian Records: Eastern Coastal waters (Thomson 1947).
Occurrence: Coastal and Oceanic.
Figure Explanation: whole animal, ventral view.

Sagitta gazellae (Ritter-Zahony, 1909)
(fig. 84)

Sagitta gazellae, David, 1955, pp. 244-254, figs. 1, 5a and b, 6b-e.
Previous Tasmanian Records: Eastern waters of Tasmania (David 1955; Thomson 1947 ?).
Occurrence: Coastal and Oceanic.
Figure Explanation: whole animal, ventral view.

Sagitta lyra (Krohn, 1853)
(fig. 85)

Previous Tasmanian Records: Nil.
Occurrence: Coastal and Oceanic.
Figure Explanation: whole animal, ventral view.

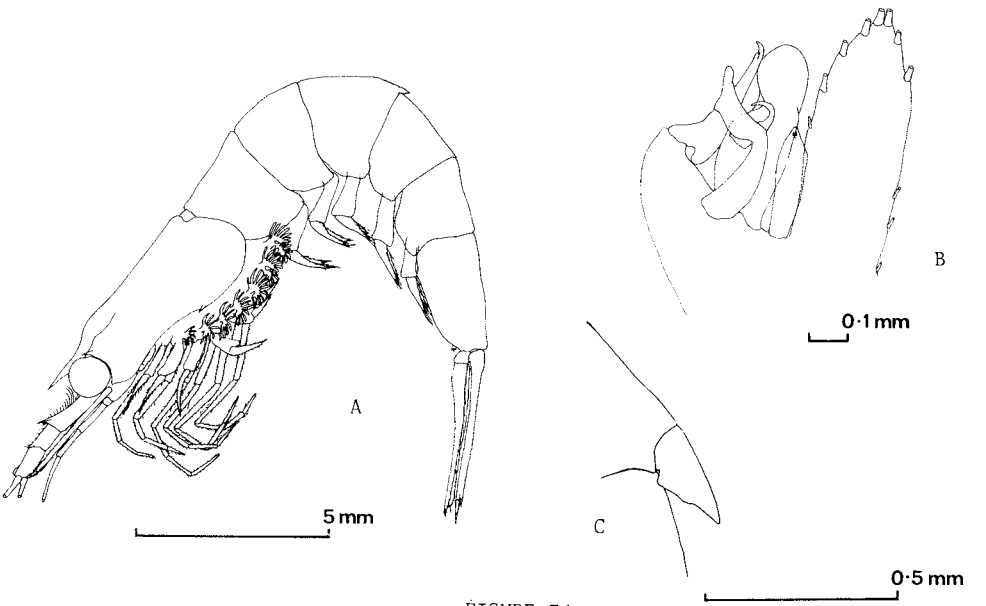


FIGURE 76

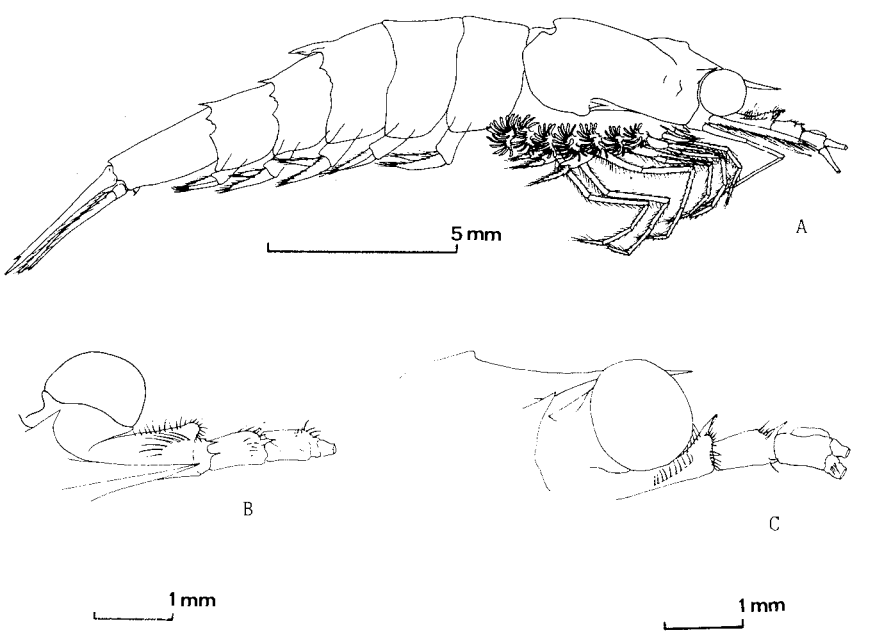


FIGURE 77

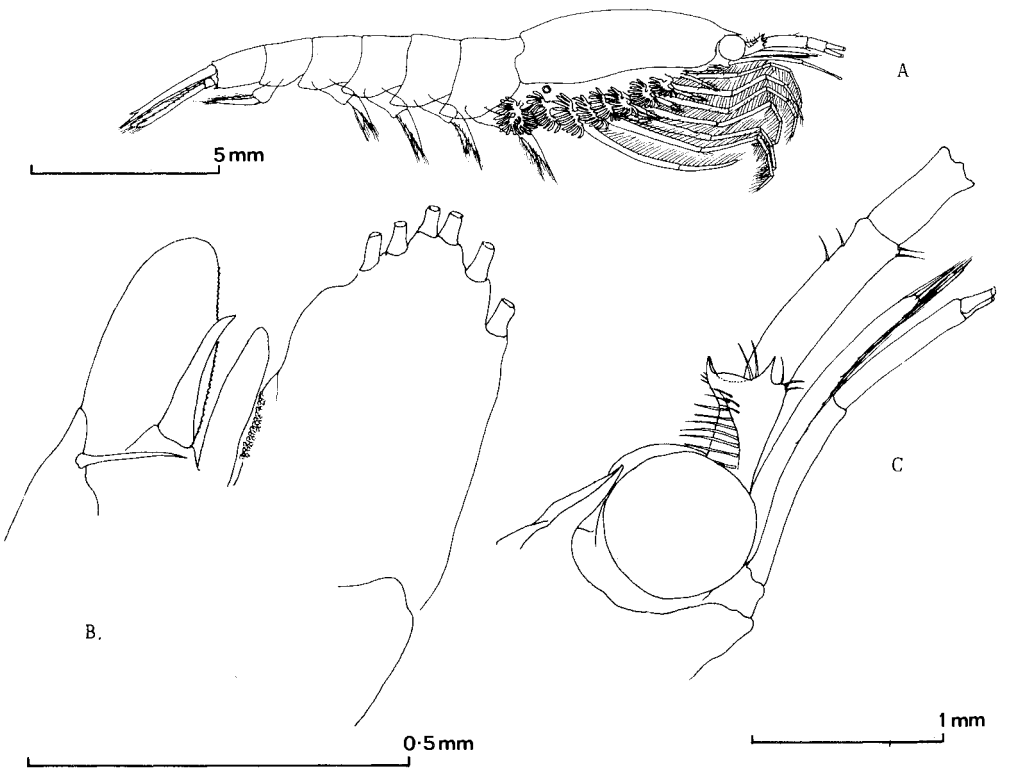


FIGURE 78

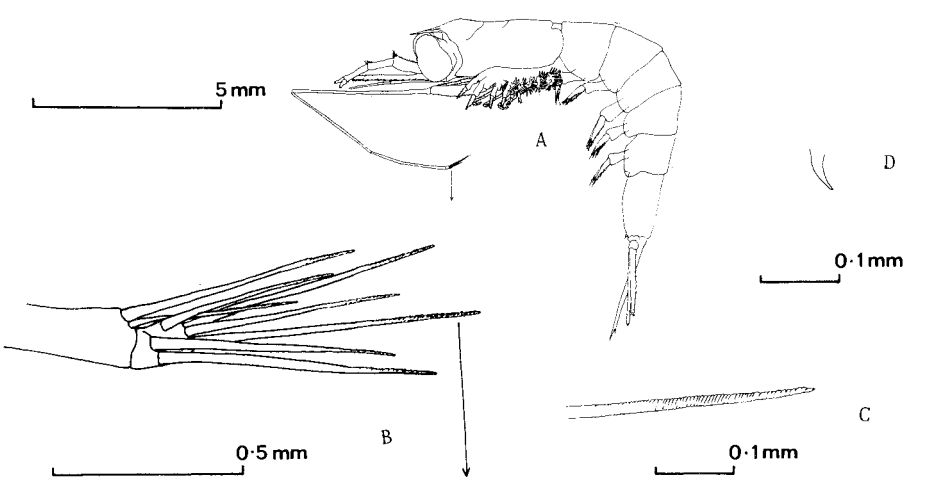


FIGURE 79

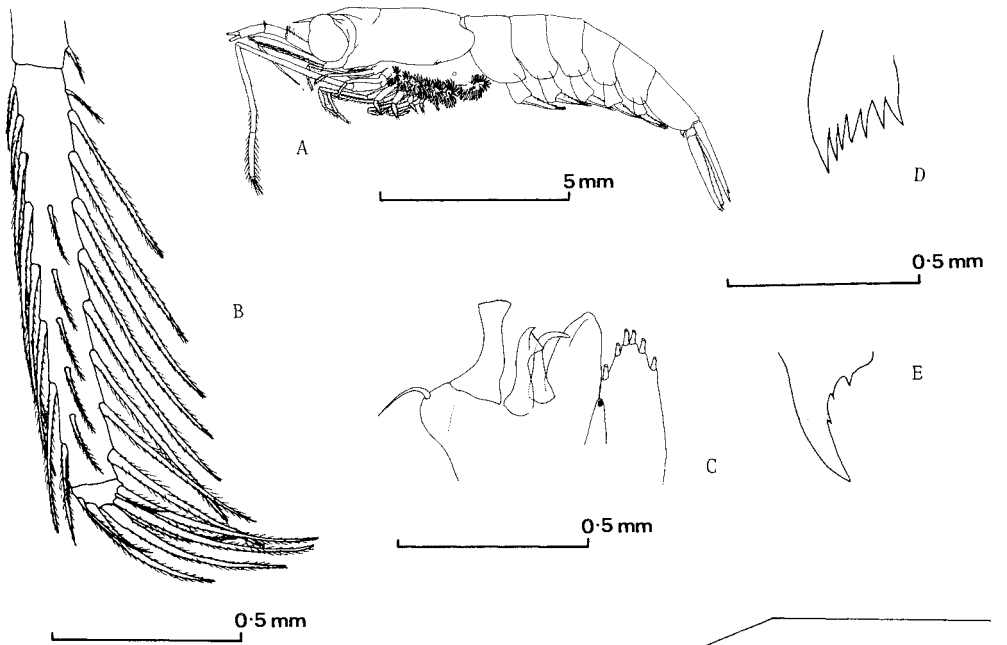


FIGURE 80

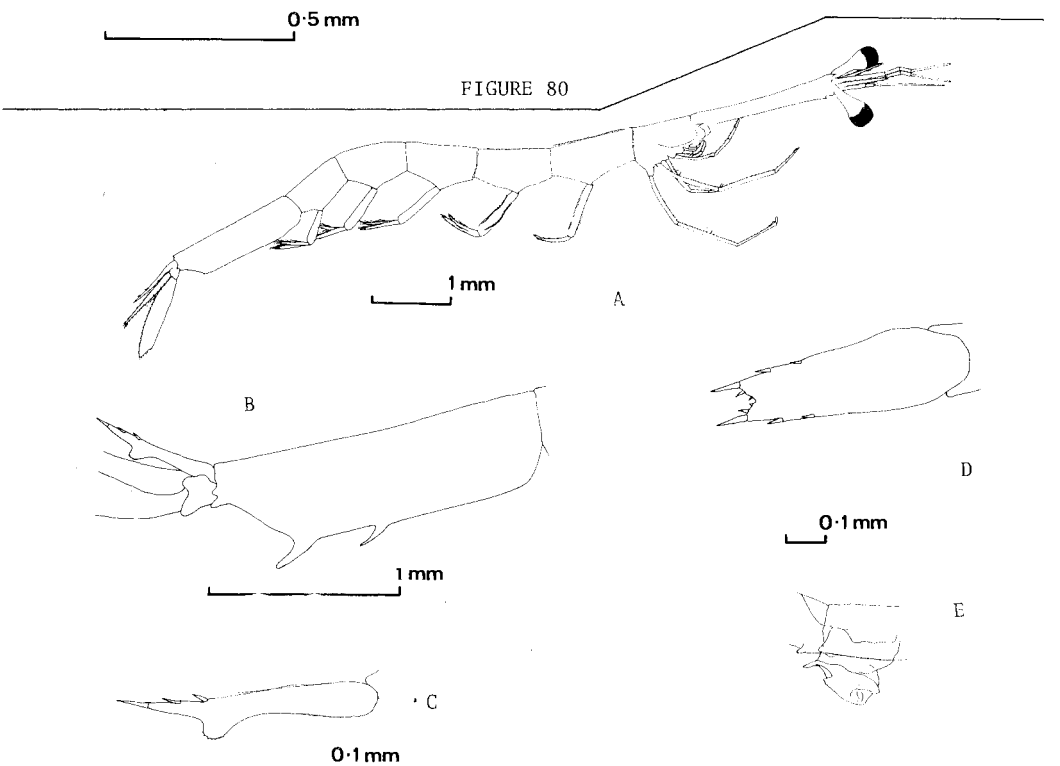


FIGURE 81

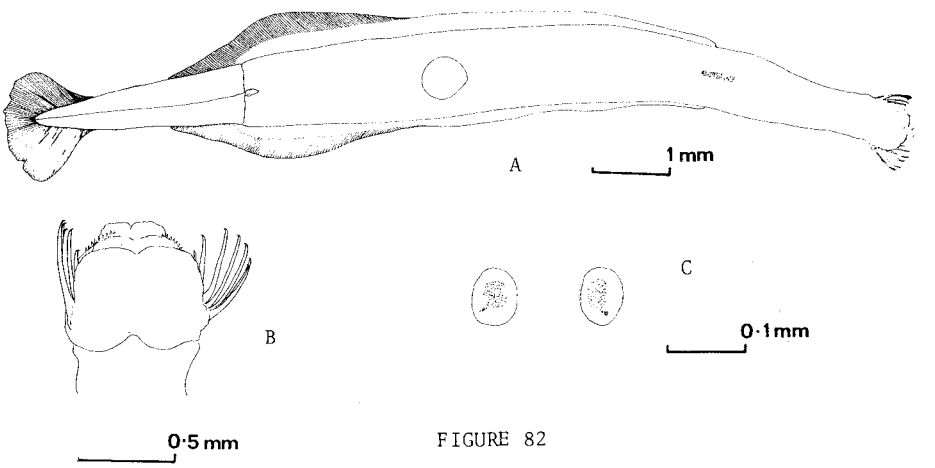


FIGURE 82

FIGURE 83

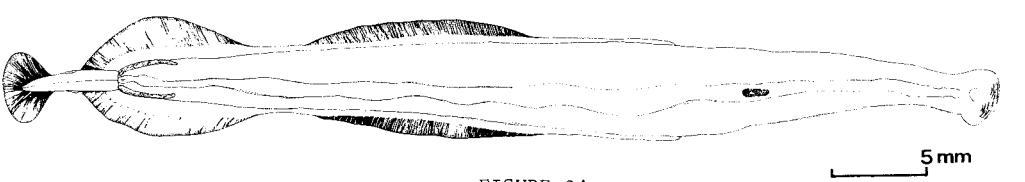


FIGURE 84

FIGURE 85

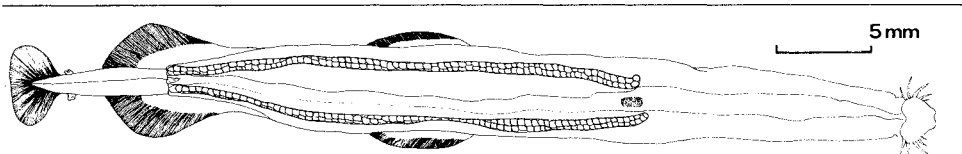


FIGURE 86

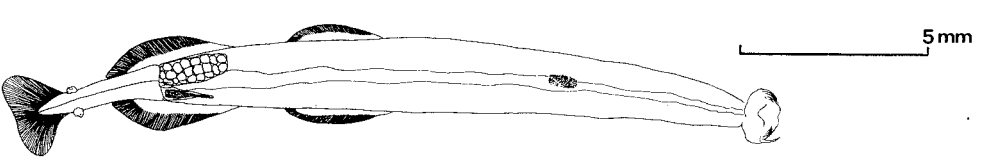


FIGURE 87

Sagitta hexaptera (D'Orbigny, 1853)
(fig. 86)

Previous Tasmanian Records: Eastern coastal waters (Thomson 1947).
Occurrence: Station E 11, August, 1971 - 3 specimens
Station E 1, March, 1972 - 1 specimen
Station E 7, April, 1972 - 1 specimen
Station E 10, May, 1973 - 1 specimen
Figure Explanation: whole animal, ventral view.

Sagitta enflata (Grassi, 1881)
(fig. 87)

Previous Tasmanian Records: Nil.
Occurrence: Station E 4, November, 1972 - 1 specimen.
Figure Explanation: whole animal, ventral view.

Sagitta serratodentata tasmanica Thomson, 1947
(figs 88a - b)

Previous Tasmanian Records: Eastern coastal waters (Thomson 1947).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) whole animal, ventral view,
(b) seminal vesical.

Sagitta serratodentata atlantica Tokioka, 1940
(fig. 89)

Previous Tasmanian Records: Nil.
Occurrence: Station E 6, November, 1971.
Figure Explanation: seminal vesical.

Sagitta planctonis (Steinhaus, 1896)
(fig. 90)

Previous Tasmanian Records: Eastern Coastal waters (Thomson 1947; David 1956).
Occurrence: Coastal and Oceanic.
Figure Explanation: whole animal, ventral view.

Sagitta minima (Grassi, 1881)
(fig. 91)

Previous Tasmanian Records: Eastern coastal waters (Thomson 1947).
Occurrence: Estuarine, Inshore coastal, Coastal and Oceanic.
Figure Explanation: whole animal, ventral view.

Sagitta guileri Nyan Taw, 1975
(figs 92a - g)

Previous Tasmanian Records: Nyan Taw (1975a).
Occurrence: Estuarine and Inshore coastal.
Figure Explanations:
(a) whole animal, ventral view,
(b) ventral view of anterior region of the head, showing anterior and posterior teeth,
(c) detail structure of eye,
(d) detail structure of third right (counted from ventral side) hook,
(e) detail structure of distal region of third right hook,
(f) mature seminal vesicle,
(g) mature seminal vesicle (bursting).

Phylum TUNICATA

Class ACOPA or CADUCICHORDATA

Order PYROSOMIDA

Pyrosoma atlanticum atlanticum (Peron, 1804)
Previous Tasmanian Records: Eastern coastal waters (Thomson 1948).
Occurrence: Inshore coastal, Coastal and Oceanic.

Order CYCLOMYARIA

Only oozooid stages (e.g. fig. 93) were taken in the present study.

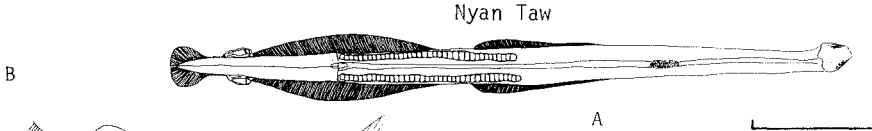
Order DESMOMYARIA

Thetys vagina (Tilesius, 1802)
(fig. 94)
Previous Tasmanian Records: Waters around Tasmania (Thompson 1948, 1954).
Occurrence: Station E 5, June, 1972 - 5 Aggregate forms
Station E 7, June, 1972 - 12 Aggregate forms
Station E 9, June, 1972 - 3 Aggregate forms
Figure Explanation: aggregate form.

Iasis zonaria (Pallas, 1774)
(figs 95a - b)
Previous Tasmanian Records: Waters around Tasmania (Thompson 1948, 1954).
Occurrence: Station E 3, November, 1971 - 8 Aggregate forms
Station E 4, December, 1971 - 7 Aggregate forms
Station E 1, March, 1972 - 1 solitary form, 4 Aggregate forms.
Figure Explanations:
(a) solitary form, dorsal view,
(b) aggregate form, dorsal view.

Thalia democratica (Forskal, 1775)
(figs 96a - b)
Previous Tasmanian Records: Eastern coastal waters (Thompson 1948).
Occurrence: Station E 10, October, 1972 - 2 Aggregate forms
Station E 7, November, 1972 - 2 Aggregate forms, 1 solitary form
Station E 9, November, 1972 - 3 Aggregate forms
Figure Explanations:
(a) solitary form, dorsal view,
(b) aggregate form, dorsal view.

Salpa fusiformis Cuvier, 1804
(figs 97a - b)
Previous Tasmanian Records: Waters around Tasmania (Thompson 1948, 1954).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanations:
(a) aggregate form, ventral view,
(b) solitary form, dorsal view.



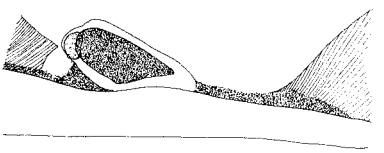


FIGURE 88

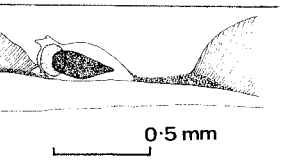


FIGURE 89

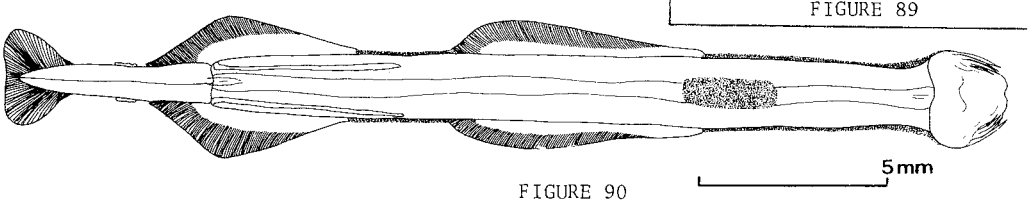


FIGURE 90

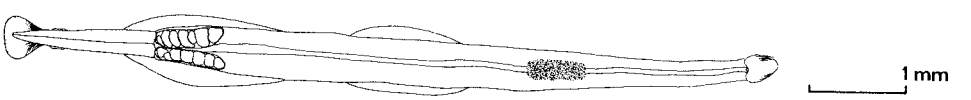
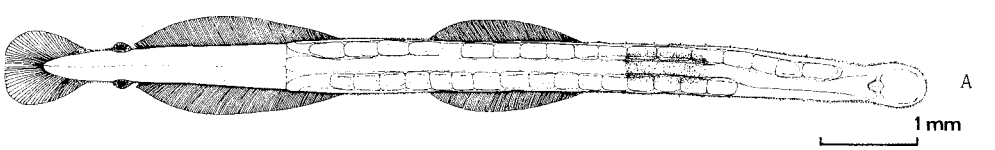


FIGURE 91



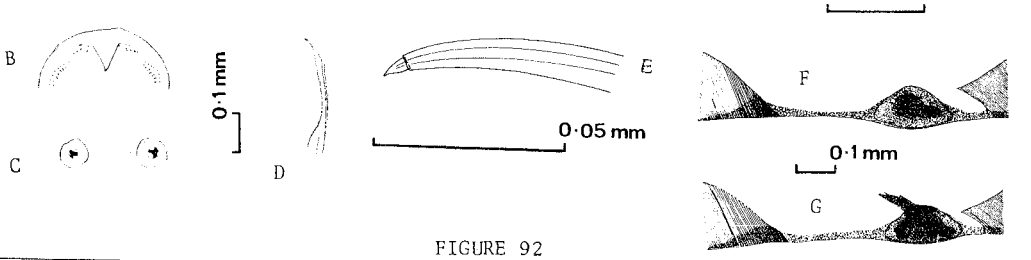


FIGURE 92

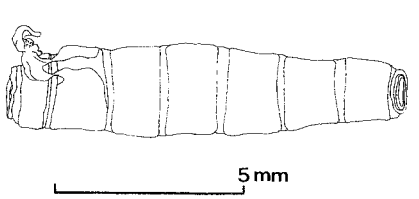


FIGURE 93

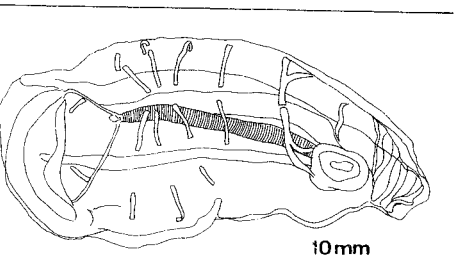


FIGURE 94

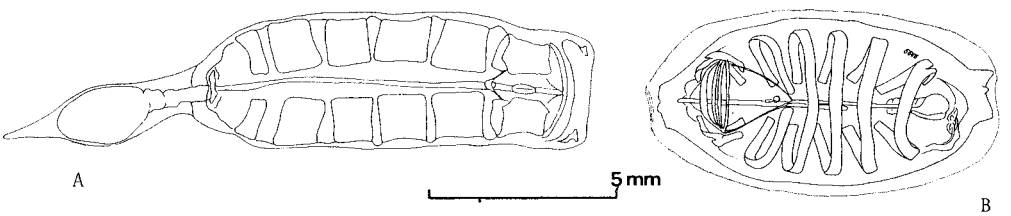


FIGURE 95

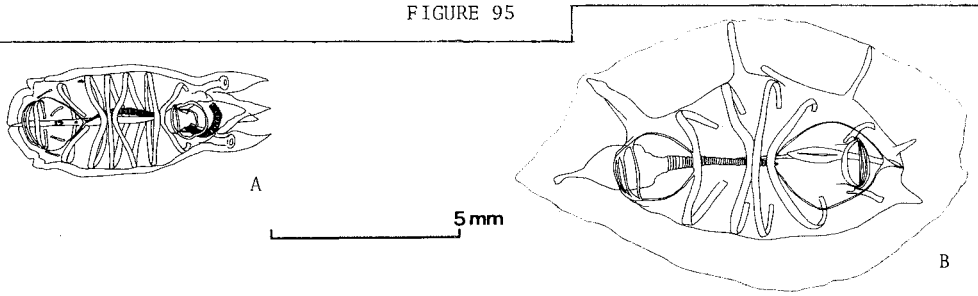


FIGURE 96

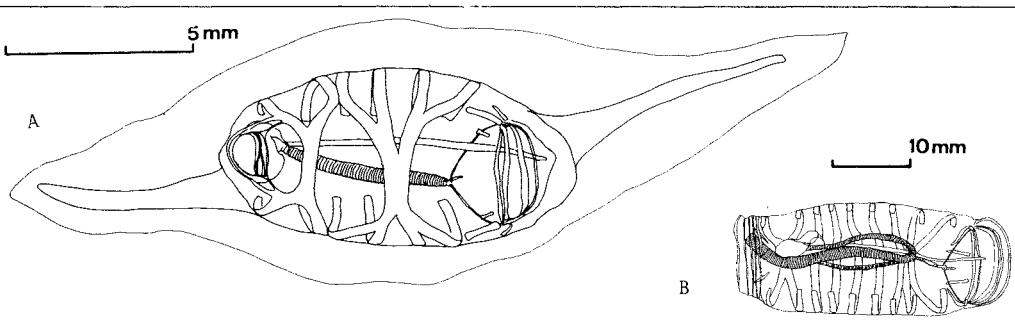


FIGURE 97

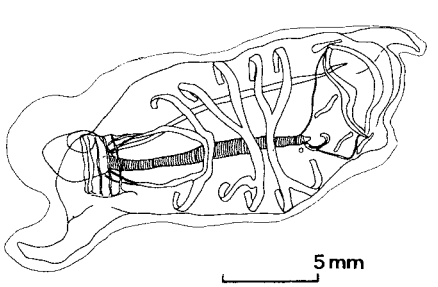


FIGURE 98

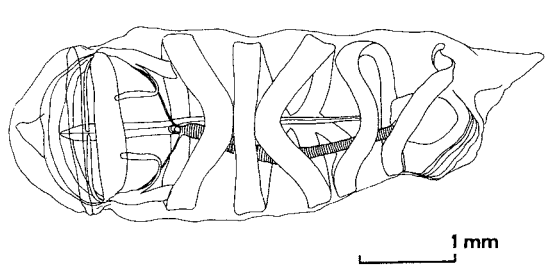


FIGURE 99

Salpa maxima (Forskal, 1775)
(fig. 98)
Previous Tasmanian Records: Eastern coastal waters (Thompson 1948).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanation: aggregate form, dorsal view.

Ihlea magalhanica (Apstein, 1894)
(fig. 99)
Previous Tasmanian Records: Eastern coastal waters (Thompson 1948).
Occurrence: Inshore coastal, Coastal and Oceanic.
Figure Explanation: aggregate form, dorsal view.

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