

MYTILOCYPRIS, A NEW OSTRACODE GENUS FROM TASMANIA

By

K. G. MCKENZIE

Department of Zoology and Comparative Physiology, Monash University

(With one figure.)

ABSTRACT

Mytilocypris tasmanica, a new cypridid ostracode genus and species (subfamily Cypridinae, tribe Eucypridini), is described.

INTRODUCTION

During the Australia and New Zealand Association for the Advancement of Science Meeting in Hobart (August, 1965) the opportunity was taken to sample from nearby lagoons and ponds and from the Derwent River. One of the samples, from Calverts Lagoon, a body of shallow, brackish water on the South Arm peninsula, about 19 road miles from Hobart, yielded a population of an unusually large ostracode which upon inspection has proved to be a new genus and species.

The population sampled consisted of 81 individuals, including both males and females, ranging in size from 0.6 mm to 4.0 mm, representing several moult stages of the one species. The size range most frequently encountered was 3.3-3.6 mm (54 individuals), and only 6 individuals were true adults (3.8-4.0 mm), i.e. fully developed males and ovigerous females. Of the rest, 12 individuals were in the 2.4-2.6 mm range, 6 individuals in the 1.6-1.8 mm range, 2 individuals in the 1.1-1.2 mm range, and a single individual measured 0.6 mm.

Two individuals 3.3 mm in length (one male, one female) and two others nearly 4.0 mm long (also one male, one female) were dissected. The description below refers to the larger series.

SYSTEMATIC DESCRIPTION

Subclass	Ostracoda	Latreille, 1806
Order	Podocopida	Müller, 1894
Family	Cyprididae	Baird, 1845
Subfamily	Cypridinae	Baird, 1845
Tribe	Eucypridini	Bronstein, 1947
Genus	<i>Mytilocypris</i> n. gen.	

Type species: *Mytilocypris tasmanica* n. gen., n. sp.
Derivation of name: *mytilus* (Lat.) = a mussel, and generic name *Cypris*.

Diagnosis: Subtriangular eucypridid; dorsal margin sloping backwards, posterodorsal margin inflexed, posterior subacuminate in contrast to the broadly rounded anterior, ventral margin almost straight; left valve larger than right valve; surface of valves smooth or micropunctate with peripheral hairs, and pigmented (brownish-yellowish, with green zebra-like markings to deep

greenish); size large (adults more than 3 mm long in the known species); greatest height antero-medial; dorsal view elliptical, slightly compressed anteriorly; selvage marginal in both valves; inner list prominent in both valves, upraised more in the larger left valve than in the right valve; inner lamellae broad both anteriorly and posteriorly; radial pore canals numerous, short, usually branched; normal pore canals scattered, small, open; ridge and groove hingement; muscle scars comprising an adductor cluster (of five large and three small scars in the type species) with large mandibulars in front and below this, and small antennal scars in front and slightly above, and several dorsal scars. Anatomically, the genus appears to be characterised by more slender first antennae than other eucyprididids and by a single or double row of small spines on the posterior margin of each furcal shaft. Further, the left and right prehensile palps of the male second maxilla appear to differ less from each other in this genus than in other eucyprididids, and the chitinous ejaculatory process contains a very large number of rosettes.

Remarks: This genus resembles in shape several genera in the subfamilies Paracypridinae Sars, Pontocypridinae Müller, Dispontocypridinae Mandelstam and Clinocypridinae Mandelstam but in this respect is unlike any genus in the Cypridinae. Anatomically, however, and in its size and such internal shell features as the prominent inner list and the muscle scars, it is undoubtedly a member of the Cypridinae (tribe Eucypridini). It populates a littoral lagoon resembling environments in which such genera as *Propontocypris* Sylvester-Bradley and *Phlyctenophora* Brady could reasonably be expected to occur at higher salinities (>15‰) and thus is a good example of morphologic convergence possibly due to gross similarities in habitats.

Mytilocypris tasmanica n. sp.

Derivation of name: from the state in which this species was collected

Type Material:

Holotype; adult ovigerous female; Australian Museum Number P 15016

Paratype; adult male; Australian Museum Number P 150117

Syntypes; male and female, 1st stage, Tasmanian Museum Accession Numbers G 1160 (♂) and G 1161 (♀)

Description: Carapace large; subtriangular in shape; margins as in generic diagnosis; surface smooth with peripheral hairs; colour of the valves deep olive green, anatomy greenish dark brown in colour, ova varying from orange to bright yellow, after some time in alcohol the colour of the valves changes to dark bluish green; greatest height anteromedial, at about one-quarter of the length from the front, and little less than half the length in both sexes; in dorsal view as described for the genus, greatest breadth medial and about one-third the length. Internally: lamellae broad anteriorly and posteriorly but narrow ventrally; selvage marginal; zone of conrescence narrow throughout; radial pore canals as in the generic diagnosis; inner list prominent; duplicature apparently smooth between inner list and line of conrescence, but distinctly reticulate between inner list and inner margin; list itself transversely striated (especially noticeable in the right valve); normal pore canals as in the generic diagnosis, more numerous anteriorly and in the postero-ventral corner; hingement consisting of a ridge in the right valve (most prominent antero-dorsally and near the beginning of the postero-dorsal inflexure) which fits into an accommodation in the larger, overlapping left valve; muscle scars comprising a subcentral adductor cluster of five large and three small scars, with two large oval mandibulars in front and below this main group, and two small antennal scars in front and slightly above it and at least six dorsal scars. Anatomically: the length: height ratios of the 3rd to 7th joints of the 1st antenna are 20:5, 10:4, 8:3, 6:2, 4:1.5 in both sexes; natatory setae of the 2nd antenna reach almost to the tips of the claws, exopodite of the 2nd antenna a small plate bearing 2 or 3 unequally long bristles, barbed bristle of the male 2nd antenna very strong measuring 350μ ; epipodial appendage of the mandible has one medial and five distal strahlen in both sexes, but in females carries in addition a small distal bristle, coxale of the mandible very strong, masticatory process reddish brown in colour, with a short stout anterior bristle and two short curved posterior bristles, the two bristles between the 1st and 2nd molars are both serrate as is the longer bristle between the 2nd and 3rd molars, there are seven molars in all which decrease in strength from front to rear; lobes of the first maxilla elongate-cylindrical, 3rd lobe with two Zahnborsten (toothed bristles), palp with an elongate distal joint (length: height ratio, 2:1), epipod with about 20 strahlen; palp of the 2nd maxilla different for the two sexes, in females consisting of a lobe bearing three bristles, the two shorter bristles approximately equal in length, the third about $2\frac{1}{2}$ times their length, in males the palps are prehensile and rather similar although the left palp is less strongly curved than the right palp, the posterior lobe in both males and females bears thirteen pilose bristles, the epipod in both sexes carries five strahlen; 1st leg bearing two smooth bristles on the geniculate 2nd joint with 5 small dorsal spines and one ventrodiscal bristle on the 3rd joint, 4th and 5th joints fused, ventrodiscal bristle of the 4th joint much longer than the 5th and 6th joints combined, 5th joint with two unequal ventrodiscal bristles, 6th joint small with 2 distal bristles (one ventral, the other dorsal),

claw long, slender, curved, pectinate, length:height ratios of the 3rd to 6th joints are 21:8, 12:5, 13:4, 3:2.5; 2nd leg with a small distal joint bearing two setae, one of these hook-shaped and annulate, penultimate joint elongate and slender; furca well-developed, 800μ long, with two claws and two bristles, the anterior bristle $\frac{5}{6}$ the length of the posterior bristle the anterior claw $\frac{5}{3}$ the length of the posterior claw and four times longer than the anterior bristle, both claws pectinate, posterior margin of the furcal shaft adorned with a double row of short spines extending from the posterior bristle almost to the proximal end of the shaft, in addition the furca is adorned with several scattered hairs; male ejaculatory process with about 60 chitin rosettes; male penis as illustrated and about 960μ long.

Dimensions: Holotype, female: length 3.9 mm, height 1.85 mm, breadth 1.30 mm. Paratype, male: length 3.8 mm, height 1.80 mm, breadth 1.20 mm.

Type locality: Calverts Lagoon, South Arm, near Hobart, Tasmania.

Distribution: Tasmania.

Discussion: This distinctive genus appears to be endemic to southern Australia. In 1886, G. S. Brady described *Cypris mytiloides*, which was "collected by Professor R. Tate in fresh water, at Kangaroo Island, Australia". This South Australian form undoubtedly belongs in the same genus but is specifically distinct since it is about 20% larger, differently pigmented ("Colour in life light brown, with darker zebra-like markings", Professor R. Tate in G. S. Brady op. cit. p. 90), and has a furca which bears only one long claw instead of two claws as in *Mytilocypris tasmanica* (according to the type illustration). Recently, I. A. E. Bayly collected a species which is probably identical with Brady's, from a swampy lagoon (salinity 0.3‰) near Kilcunda, Victoria, close to the mouth of the Powlett River and only separated from the sea by a dune (I. A. E. Bayly personal communication). This Victorian form has similar markings to Brady's species and is of the same size, but differs in that there are two claws on the furca. However, Brady's specimen may have been damaged prior to illustration and, as the type appears to be lost, the collection of further topotypes from Kangaroo Island will be necessary to decide whether or not the Victorian and South Australian forms belong to the same species. The Victorian species differs from the Tasmanian type species in at least the following anatomical characters, apart from its greater size and distinctive shell markings; there is only one posterior bristle on the masticatory process of the female mandible coxale; there are a single pilose bristle and a clump of hairs on the geniculate 2nd joint of the 1st leg, and only 4 small dorsal spines plus a ventrodiscal bristle on the 3rd joint of this limb; it bears only a single row of small spines on the posterior margin of the furca, and the anterior furcal claw is twice the posterior claw in length; further the length:height ratios of joints in general are dissimilar.

No other species referable to the genus are known to me, with the possible exception of one collected at Rottnest Island, W.A. (Chapman personal communication).

ASSOCIATED FAUNA AND SALINITY

Other ostracodes in the sample were *Gomphocythere* sp. and *Ilyocypris* sp., both probably new but represented only by single specimens. The associated fauna included the copepods *Boeckella triarticulata* (Thomson) and *Microcyclops arnaudi* (Sars) (I. A. E. Bayly personal communication), the amphipod *Austrochiltonia australis* (Sayce) (W. D. Williams personal communication), and a gastropod, *Coxiella* sp., the latter in great abundance on the supralittoral margin. The concentration of total dissolved solids in a water sample collected at the same time was about 6.8°/oo, which is equivalent to a salinity of about 6°/oo. This is the highest value recorded for the concentration of total dissolved solids from Calverts Lagoon for which the range in T.D.S. was previously known to be 3.52-4.25°/oo. (W. D. Williams personal communication in Bayly 1964, p. 236). It is likely to be the upper limit of *Mytilocypris*' salinity tolerance, in view of the data provided by Bayly for the Victorian species, and the lower salinities recorded previously from Calverts Lagoon.

ACKNOWLEDGEMENTS

The research has been carried out during tenure of the inaugural Shell Research Fellowship for Monash University at the Department of Zoology and Comparative Physiology. Grants-in-aid have been made by Delhi Australian Petroleum Pty. Limited, Mobil Exploration Pty. Ltd. and Alliance Oil Management Pty. Limited. Drs. I. A. E. Bayly and W. D. Williams reviewed the manuscript. Charles McCubbin inked my original drawings, and Miss G. Meredith typed the final manuscript.

Holotype and paratype are located at the Australian Museum, Sydney; syntypes at the Tasmanian Museum, Hobart.

BIBLIOGRAPHY

- BAYLY, I. A. E., 1964—A revision of the Australasian species of the freshwater genera *Boeckella* and *Hemiboeckella* (Copepoda: Calanoida). *Aust. J. Mar. Freshw. Res.*, 15 (2): 180-238.
- BRADY, G. S., 1886—Notes on freshwater Entomostraca from South Australia. *Proc. Zool. Soc. Lond.*, 1886 (1): 82-93.

FIG. 1 [See next page.]

FIG. 1.—*Mytilocypris tasmanica* n. gen., n. sp., holotype, adult ♀, Aust. Mus. No. P 15016: 1. Internal view, right valve; 2. Dorsal view of carapace; 3. Ventral view, left valve; 4. Epipod of the mandible; 5. 3rd-7th joints of the first antenna; 6. Detail of bristle between 1st and 2nd (anterior) molars on mandible coxale; 7. Detail, radial pore canals, antero-ventral region of right valve; 8. Lobes of the 1st maxilla; 9. Endopodite joints and coxale of mandible; 10. Palp of the 1st maxilla; 11. Distal 2nd antenna; 12. Proximal 2nd antenna; 13. Zahnborste of 3rd lobe of 1st maxilla (detail); 15. 2nd maxilla; 17. Proximal 1st leg; 18. Furca; 20. Distal 1st leg; 21. Distal 2nd leg (detail); 23. Second leg; paratype, adult ♂, Aust. Mus. No. P 15017; 14. Palp and lobes of 1st maxilla; 16. Left palp, 2nd maxilla; 19. Right palp, 2nd maxilla; 22. Penis. Magnifications: 1-3 × 20 approx.; 4, 5, 7-12, 14-20, 22, 23, × 65 approx.; 6, 13, 21, × 150 approx.

