The Ostracode Family Cypridinidae and the Genus *Pterocypridina*

LOUIS S. KORNICKER

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY • NUMBER 379

SERIES PUBLICATIONS OF THE SMITHSONIAN INSTITUTION

Emphasis upon publication as a means of "diffusing knowledge" was expressed by the first Secretary of the Smithsonian. In his formal plan for the Institution, Joseph Henry outlined a program that included the following statement: "It is proposed to publish a series of reports, giving an account of the new discoveries in science, and of the changes made from year to year in all branches of knowledge." This theme of basic research has been adhered to through the years by thousands of titles issued in series publications under the Smithsonian imprint, commencing with *Smithsonian Contributions to Knowledge* in 1848 and continuing with the following active series:

Smithsonian Contributions to Anthropology
Smithsonian Contributions to Astrophysics
Smithsonian Contributions to Botany
Smithsonian Contributions to the Earth Sciences
Smithsonian Contributions to the Marine Sciences
Smithsonian Contributions to Paleobiology
Smithsonian Contributions to Zoology
Smithsonian Studies in Air and Space
Smithsonian Studies in History and Technology

In these series, the Institution publishes small papers and full-scale monographs that report the research and collections of its various museums and bureaux or of professional colleagues in the world of science and scholarship. The publications are distributed by mailing lists to libraries, universities, and similar institutions throughout the world.

Papers or monographs submitted for series publication are received by the Smithsonian Institution Press, subject to its own review for format and style, only through departments of the various Smithsonian museums or bureaux, where the manuscripts are given substantive review. Press requirements for manuscript and art preparation are outlined on the inside back cover.

S. Dillon Ripley
Secretary
Smithsonian Institution

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY • NUMBER 379

The Ostracode Family Cypridinidae and the Genus *Pterocypridina*

Louis S. Kornicker

SMITHSONIAN INSTITUTION PRESS
City of Washington
1983

ABSTRACT

Kornicker, Louis S. The Ostracode Family Cypridinidae and the Genus *Pterocypridina. Smithsonian Contributions to Zoology*, number 379, 29 pages, 9 figures, 4 plates, 2 tables, 1983.—A classification of the Cypridinidae is proposed based on the morphology of the suckers on the b- and c-bristles of the 1st antenna of the adult male. Two new species of *Pterocypridina* are described and illustrated, one from off southeastern Australia and the other from off southeastern North America. The latter species is the first record of the genus in the Atlantic. In addition to a key to species of *Pterocypridina*, keys are presented to subfamilies, tribes, groups, and genera of the Cypridinidae.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. SERIES COVER DESIGN: The coral *Montastrea cavernosa* (Linnaeus).

Library of Congress Cataloging in Publication Data
Kornicker, Louis S., 1919–
The Ostracode family Cypridinidae and the genus Pterocypridina.
(Smithsonian contributions to zoology ; no. 379)
Bibliography: p.
1. Cypridinidae—Classification. 2. Pterocypridina—Classification. 3. Crustacea—Classification. I. Title. II. Series.
QL1.S54 no. 379 [QL444.085] 591s [595.3'3] 82-19266

Contents

The Ostracode Family Cypridinidae and the Genus *Pterocypridina*

Louis S. Kornicker

Introduction

The genus *Pterocypridina* in the family Cypridinidae was proposed by Poulsen (1962:234) for three new species: *P. alata* Poulsen, 1962:236 based on 21 males, females, and juveniles collected at depths of 10–20 m off Thailand, *P. excreta* Poulsen, 1962:240 based on a single female collected in a trawl at 60–90 m off SE Australia, and *P. birostrata* Poulsen, 1962:243 based on a single female collected off Singapore in shallow water.

A single specimen, an ovigerous female, which I have proposed as a new species, *P. dedeckkeri*, herein, collected off Long Reef, Sydney, New South Wales, Australia, and sent to me by Patrick De Deckker, provided the opportunity to study the shell of a member of the genus with a Scanning Electron Microscope. Later, another new species of the genus (*P. sex*) was identified from collections off southeastern North America (from North Carolina to Florida) at depths of 5.5–40 m. The collection contained two males in addition to adult females and juveniles. Previously, the male was known from only *P. alata*. The suckers on the b- and c-bristles of the 8th joint of the 1st antenna of the adult males of the two species differ considerably from those of other genera of the Cypridinidae. Examination of the suckers of *P. sex* stimulated my reviewing the morphology of the suckers on other members of the Cypridinidae, and to propose a classification of the Cypridinidae in which five informal groups are included in the Tribe Cypridinini.

ACKNOWLEDGMENTS.—I wish to thank the following individuals and Institutions for the specimens upon which this study was based: Donald Weston, Virginia Institute of Marine Science; Dr. Willis E. Pequegnat, TerEco Corporation, College Station, Texas; John Miller, Harbor Branch Foundation, Fort Pierce, Florida; and Patrick De Deckker for a specimen collected by personnel of the Australian Museum Benthic Survey. My thanks also to Mrs. Carolyn Bartlett Gast for rendering shaded drawings of carapaces; Kathryn Schroeder Brown for assisting in preparation and inking of appendage drawings; Walter R. Brown and Mary J. Mann, Smithsonian Institution, who operated the Scanning Electron Microscope; Dr. Roland Hower, Smithsonian Institution, who assisted in freeze-drying of specimens in preparation for the SEM; and Jack Korytowski for final editing and preparation of the manuscript for publication. My appreciation also to Dr. K.G. McKenzie, Dr. R. B. Manning and Mrs. Anne C. Cohen for reviewing all, or part of the manuscript.

DISPOSITION OF SPECIMENS.—Specimens have been deposited at the National Museum of Natural History, Smithsonian Institution. These have been given USNM numbers in the text.

Louis S. Kornicker, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

CYPRIDINIDAE Baird, 1850

Skogsberg (1920:168) considered the family Cypridinidae to consist of two subfamilies: the Cypridininae and Philomedinae. That concept has been followed by Poulsen (1962:14), Hartmann (1965:552), Hartmann and Puri (1974:11), and Hartmann (1975:672, 673). Previously, Müller (1912:7) had considered the Cypridininae and Philomedinae to have equal status with the subfamilies Sarsiellinae and Asteropinae (= Cylindroleberidinae), all in the family Cypridinidae. Skogsberg (1920:168) raised the Sarsiellinae and Asteropinae to family rank, but retained the Cypridininae and Philomedinae as subfamilies of Cypridinidae. Kornicker (1968:448, 1975:83) considered the Cypridininae and Philomedinae to have family status equivalent to the families Cylindroleberididae, Sarsiellidae, and Rutidermatidae, all members of the Cypridinacea. I continue to adhere to that classification. Therefore, the category Cypridininae of Skogsberg, Poulsen, Hartmann, and Puri, is equivalent to my concept of Cypridinidae. I have indicated this in the text by following Cypridininae by (= Cypridinidae) where warranted.

After consideration of many of the morphological characters to be found in the Cypridininae (= Cypridinidae), Skogsberg (1920:194) considered the equipment of the b- and c-bristles of the 1st antenna of the adult male, and also the morphology of the endopodite of the 2nd antenna of the adult male to be "the most noteworthy" in classifying the Cypridininae.

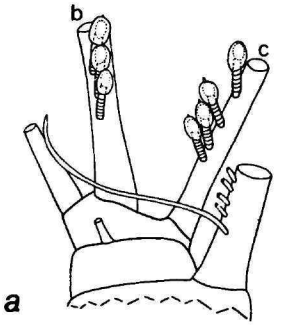
The b- and c-bristles of the adult male Cypridinidae have discs that have been considered by many to be suctorial organs used by the adult male for grasping the female during copulation (Figure 1). Discs similar in morphology to some on the Cypridinidae were described and illustrated on the cladocopid ostracode *Metapolycope hartmanni* Kornicker and van Morkhoven, 1976:16, fig. 14. The discs on that species form a row on the two ventral bristles of the 4th joint of the male 2nd antenna. The two bristles were termed sensory bristles by Kornicker and van Morkhoven (1976: fig. 14). Several halocyprid species have a single "sucker" on the e-bristle of the male 1st antenna (see Poulsen, 1973:11, item 4 in key; Martens, 1979:341). I consider the presence of suckers on cladocopes and halocyprids in comparison with those on the Cypridinidae to be the result of convergence. In this paper, following Skogsberg (1920:195), the discs on the Cypridinidae are termed suckers, although it is quite possible that some may have a sensory function.

Skogsberg (1920:195) thought that the cypridinid genus *Crossophorus* (= *Azygocypridina*) was without suckers. There is no evidence that Skogsberg had examined males of the genus; however, Müller (1906:29, fig. 4: 8) observed broad tips on filaments of bristles of the male 1st antenna of *Crossophorus gibber* Müller, 1906, and speculated (p. 29) that they might be olfactory organs "(Riechborsten?)." Similar discs were observed on adult males of *Azygocypridina rudjakovi* Kornicker, 1970:10 by Kornicker (1970; fig. 5h), *Isocypridina quatuorsetae* Kornicker, 1975:206, by Kornicker (1975, fig. 121d-f) and *Azygocypridina imperialis* (Stebbing, 1901:100) by Athersuch (1980,

---

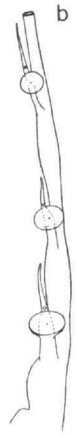
FIGURE 1.—Tips of 1st antenna of adult males of the Cypridinidae illustrating differences in types of "suckers" on b- and c-bristles of 7th joint: *a*, Azygocypridininae: *Isocypridina quatuorsetae* (8th joint not shown), from Kornicker, 1975; fig. 118a. *b–n*, Cypridininae: *b*, Gigantocypridinini: *Gigantocypris muelleri* base of b-bristle, from Skogsberg, 1920, fig. XXVI: 6. *c–n*, Cypridinini: *c–e*, *Cypridina* Group: *c*, *Paradoloria australis*, tip of 1st antenna, from Poulsen, 1962, fig. 78d; *d*, *Cypridinodes acuminata*, b-bristle, from Skogsberg, 1920, fig. LXIII: 13; *e*, detail of proximal sucker at base of b-bristle, from Skogsberg, 1920, fig. LXIII: 14. *f–h*, *Monopia* Group: *f*, *Monopia flaveola*, 1st antenna, from Poulsen, 1962, fig. 126e; *g,h*, side and medial views of 2nd filament of b-bristle, from Poulsen, 1962, fig. 126f. *i–l*, *Codonocera* Group: *Codonocera polygonia*, *i*, tip of antenna, from Poulsen, 1962, fig. 143b; *j*, proximal part of c-bristle, from Poulsen, 1962, fig. 143c. *Codonocera couenta*, *k*, proximal part of c-bristle, from Poulsen, 1962, fig. 145d′; *l*, detail of suckers forming cluster on c-bristle, from Poulsen, 1962, fig. 145d″. *m,n*, *Pterocypridina* Group: *Pterocypridina alata*, *m*, 1st antenna (not all filaments of f- and g-bristles shown), from Poulsen, 1962, fig. 111d; *n*, detail of suckers of b- and c-bristles, from Poulsen, 1962, fig. 111d′,d″. (The small letters b and c on illustrations refer to the b- and c-bristles commonly used to designate specifically located bristles on the 7th joint of members of the Myodocopina; (see Skogsberg, 1920:188).

AZYGOCYPRIDININAE



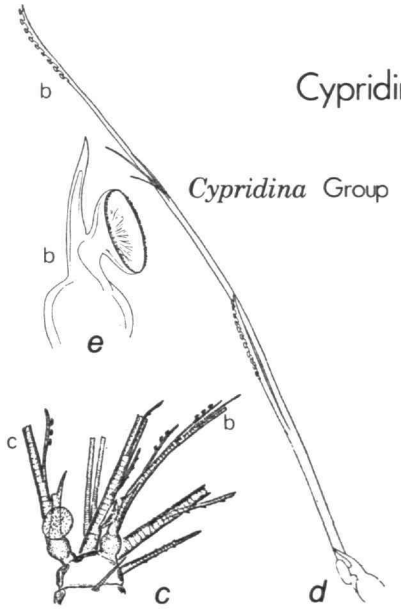
CYPRIDININAE

Gigantocypridinini

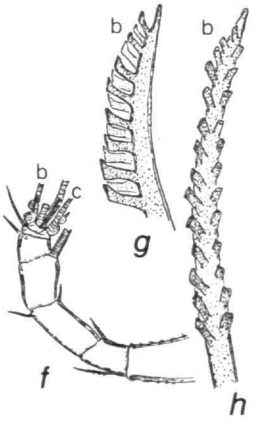


Cypridinini

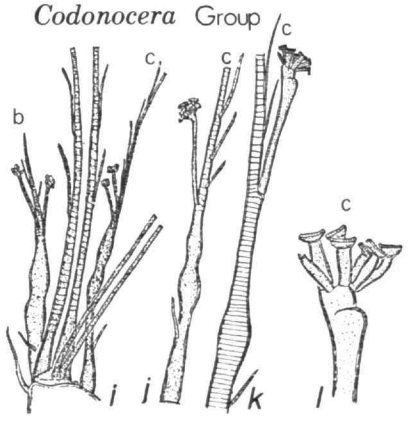
Cypridina Group



Monopia Group



Codonocera Group



Pterocypridina Group

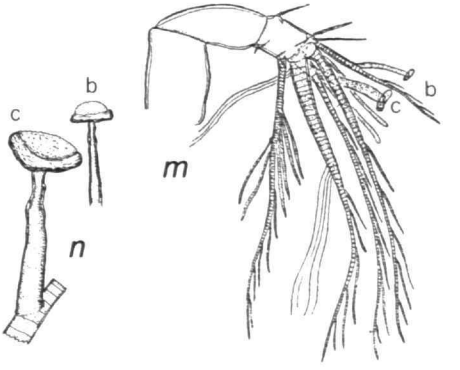


TABLE 1.—Classification of the Cypridinidae and diagnoses of taxa based on distribution of suckers on b- and c-bristles of adult males

Taxon	Diagnosis
Family CYPRIDINIDAE Baird, 1850	Suckers present on b- and c-bristles of adult male (Figure 1).
Subfamily AZYGOCYPRIDININAE Kornicker, 1970	Both bristles with numerous (about 20) short, marginal, medial filaments bearing near tip a single oval sucker facing medially (Figure 1*a*).
Subfamily CYPRIDININAE Baird, 1850	Both bristles bearing at least 1 short, stout, proximal filament with large sucker or cluster of suckers (Figure 1*b-n*).
Tribe GIGANTOCYPRIDININI Hartmann, 1974 (in Hartmann and Puri, 1974)	b-bristle with 3 or 4 short, stout, proximal filaments, each with large sucker near middle facing medially (Figure 1*b*); c-bristle with 1, or at most 2, similar filaments.
Tribe CYPRIDININI Baird, 1850	b- and c-bristles with not more than 1 short, stout, proximal filament with large sucker near middle facing medially, or with 1 or more large terminal suckers; long additional filaments bearing small marginal suckers may or may not be present (Figures 1*c-n*).
Cypridina Group	The short, stout, proximal filament on b- and c-bristles bearing large marginal sucker, followed by generally 2 (rarely none or 1) long slender filaments with single row of 2 to 13 small, round, marginal suckers (Figure 1*c-e*).
Monopia Group	The short, stout, proximal filament on b- and c-bristles followed by 2 long slender filaments, each with double row of 20–40 small marginal suckers, each consisting of narrow shaft and a broader, flattened tip (Figure 1*f-h*).
Codonocera Group	b- and c-bristles each with 1 (rarely 2) stout proximal filaments, each with cluster of 6–10 terminal branches, each branch bearing single terminal sucker (Figure 1*i-l*).
Pterocypridina Group	b- and c-bristles each with stout proximal filament with single *terminal* sucker (Figure 1*m,n*).
Group ?	This group is necessary because adult males are unknown for 4 recognized genera. (See Table 2 for names of genera.)

fig. 6f). I interpret the discs to be equivalent to suckers on other cypridinids. The fact that they occur on the b- and c-bristles makes this interpretation probable.

The male *Monopia* was not known until 1962 when it was described (Poulsen, 1962:273, fig. 126e,f). The distribution of suckers on the b- and c-bristles differed from those previously known. Discovery of the new genus, *Pterocypridina* Poulsen, 1962:234, also revealed a previously unknown type of sucker on the b- and c-bristles (in 1962 the male of only *P. alata* Poulsen, 1962:236, was known, but the male of a new species, *P. sex*, is described herein). The adult males of four genera remain unknown: *Paracypridina* Poulsen, 1962:245; *Amphisiphonostra* Poulsen, 1962:249; *Hadacypridina* Poulsen, 1962:230; and *Rugosidoloria* Kornicker, 1975:197.

Whether or not the endopodite of the male 2nd antenna is developed as a clasping organ was apparently considered by Skogsberg (1920:195) to be of secondary importance in the classification of the Cypridininae (= Cypridinidae). I concur with that view.

A classification based on morphology and distribution of the suctorial organs on adult males of the Cypridinidae is listed along with diagnoses of the taxa in Table 1 and illustrated on Figure

TABLE 2.—Genera referred to higher categories

Category	Genera
Subfamily AZYGOCYPRIDININAE	*Azygocypridina, Isocypridina*
Subfamily CYPRIDININAE	
Tribe GIGANTOCYPRIDININI	*Gigantocypris*
Tribe CYPRIDININI	
Cypridina Group	*Bathyvargula, Cypridina, Cypridinodes, Doloria, Macrocypridina, Melavargula, Metavargula, Paradoloria, Paravargula, Sheina, Siphonostra, Skogsbergia, Vargula*
Monopia Group	*Monopia*
Codonocera Group	*Codonocera*
Pterocypridina Group	*Pterocypridina*
Group? (males unknown)	*Amphisiphonostra, Hadacypridina, Paracypridina, Rugosidoloria*

1. Informal group names are given for divisions within the Cypridinini; no new formal names are proposed.

This classification is useful in understanding relationships among members of the Cypridinidae. Unfortunately, the groups into which the Cypridinini have been subdivided are of very limited value in practice for two reasons: (1) adult males are unknown for four genera (*Paracypridina, Amphisiphonostra, Hadacypridina*, and *Rugosidoloria*) and (2) adult males are unknown for many of the remaining species of Cypridinini. A reason for this is that adult males are relatively sparse in collections. For example, of the five described species of *Pterocypridina*, adult males are known for only two; there is no assurance that when the adult males of the remaining three species are identified, those species will not have to be referred to a different genus. Similar taxonomic uncertainty also applies to species currently referred to many other genera of Cypridinini. The genera referred to the taxa in the present classification are listed in Table 2; referrals are tentative for those genera in which the male is unknown.

Females of species are generally referred to higher taxa based on the morphology of the carapace, upper lip, endopodite of the 2nd antenna, furca, and for some genera, the mandible, maxilla, 5th, 6th, and 7th limbs as well as eyes and organ of bellonci are useful. There is relatively little difficulty in separating females of the subfamilies Azygocypridininae and Cypridininae, because of the flap-like, hirsute appendage in place of the lateral eye found only on members of the Azygocypridininae. Within the Cypridininae, the tribes Cypridinini and Gigantocypridinini are also relatively easy to identify because of the globose thin shell and large medial eye of the latter. Within the Cypridinini, the small number of claws (4) on the furca of members of the *Codonocera* Group permits its separation from other groups, but identification of members of many remaining groups cannot always be made with a high degree of certainty if adult males are lacking.

To assist identification an Appendix has been included presenting keys to subfamilies, tribes, groups, and genera of the Cypridinidae. My initial drafts of the keys were tested by Anne C. Cohen, mainly by working with descriptions in the literature. This resulted in many revisions. Therefore, I consider the keys, especially the "Key to Genera of the *Cypridina* Group and Group ?" to be a joint effort with Mrs. Cohen.

Pterocypridina Poulsen, 1962

TYPE-SPECIES.—*Pterocypridina excreta* Poulsen, 1962 (subsequent designation, Kornicker, 1975: 142).

COMPOSITION.—This genus contains 5 species: *P. alata* Poulsen 1962:236, from off Thailand at depths of 10–20 m; *P. birostrata* Poulsen, 1962:243, from shallow water off Singapore; *P. excreta* Poulsen, 1962:240, from off SE Australia, at trawl depth of 60–90 m; *P. dedeckkeri*, new species, from

off SE Australia at a depth of 43 m; and *P. sex*, new species, from off the SE coast of North America (North Carolina to Florida) at depths of 5.5–40 m.

A species described by Brady (1897:89, pl. XV: figs. 20, 21) from a single specimen collected in Flinders Passage, Australia, at a depth of 12.8 m, and named by him *Cypridina* (?) *armata*, bears 2 lateral processes on each valve, suggesting that it might belong in the genus *Pterocypridina*. Until the appendages are known the species should be retained in the category to which it was referred by Müller (1912:50), "Cypridinidarum genera dubia et species dubiae."

Key to Species of *Pterocypridina*

1. Lateral process on the posterodorsal part of each valve 2
   Without lateral posterodorsal processes 3
2. Furcal claw 2 fused to lamella 4
   Furcal claws 2 and 4 fused to lamella ..... ***P. alata*** Poulsen
3. Furcal claw 2 fused to lamella ..... ***P. birostrata*** Poulsen
   Furcal claws 2 and 4 fused to lamella ..... ***P. sex***, new species
4. Posterodorsal process on each valve located near middle of posterodorsal margin; 6th limb with 11–12 epipodial bristles ..... ***P. dedeckkeri***, new species
   Posterodorsal process on each valve close to tip of caudal process; 6th limb with 7–8 epipodial bristles ..... ***P. excreta*** Poulsen

Pterocypridina dedeckkeri, new species

FIGURES 2–4; PLATES 1–4

ETYMOLOGY.—The species is named for Patrick De Deckker, from whom I received the holotype.

HOLOTYPE.—Ovigerous female on slides and in alcohol; unique specimen, USNM 158240.

TYPE-LOCALITY.—Off Long Reef, Sydney, New South Wales, Australia, depth 43 m. Collected 27 Apr 1972 at a diving station of the Australian Museum Shelf Benthic Survey.

DISTRIBUTION.—Collected only at type-locality.

DESCRIPTION OF ADULT FEMALE (Figures 2–4; Plates 1–4).—Carapace oval in lateral view with well-developed rostrum and incisur; caudal process longer on right valve than on left; each valve with small triangular process near middle of posterodorsal margin, and with very low bulge on anterodorsal quarter of valve at about same level as triangular process (Figure 2; Plates 1*a,b*, 2*a*); left valve only with small bulge at posterodorsal corner (Figure 2); lateral process present on rostrum and near anteroventral margin of each valve (Figure 2; Plate 1*a,b*).

Ornamentation (Figures 2, 3*d*; Plates 1*a,b*, 2*a,b*, 3*a,b*): Valve surface with ridges forming reticulations; upper edge of ridges bearing 1 or 2 rows of minute tubercles. (These tubercles are more clearly visible using a compound microscope and transmitted light than on the SEM micrographs; see Figure 3*d*.) Surface with sparsely distributed bristles emerging from open pore encircled by rim bearing a single process (Plate 3*a,b*).

Infold (Figure 3*a,b*; Plates 1*c,d*, 3*c,d*, 4*a,b*): Rostral infold with 30–40 bristles (Figure 3*a*; Plate 1*c,d*); 2 bristles present at edge of valve at inner end of incisur; anteroventral and anterior half of ventral margin with about 39 divided bristles, each consisting of a short bare part and a long branching part (Figure 3*a*), these bristles forming row close to valve edge; anteroventral infold also with about 15 short branching bristles proximal to outer row of divided bristles; posterior half of ventral infold, extending from middle of ventral margin to point where list curves away from valve edge anterior to caudal process with about 15 short bristles; edge of list anterior to caudal process with minute protuberances, each

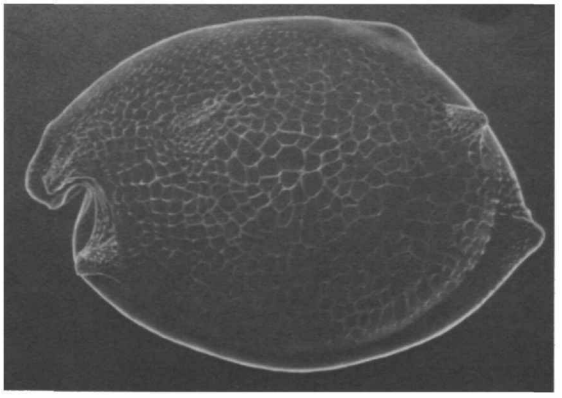


FIGURE 2.—*Pterocypridina dedeckkeri*, new species, adult female, holotype, USNM 158240, lateral view of complete specimen, length 1.57 mm.

bearing a pore with small bristle (Figure 3*b*; Plates 1*c*, 3*c*,*d*, 4*a*,*b*).

Selvage: Anterior and ventral margin with broad lamella prolongation with smooth outer edge; prolongation divided at inner end of incisur, and absent, or very narrow, along edge of caudal process and posterior margin; prolongation along anterior half of ventral margin with second prolongation reaching middle of wider prolongation; prolongations with closely spaced striations perpendicular to valve edge; the striations tending to be wavy along anterior half of ventral margin.

Central Adductor Muscle Attachments (Plates 1*a*, 2*b*, 4*c*–*f*): Consisting of round and oval attachments located just anterior and ventral to valve middle (Plates 1*a*, 2*b*, 4*c*,*d*); remnants of muscles where pulled away from shell appearing as closely spaced irregular tufts (Plate 4*e*,*f*).

Dorsal Muscle Attachments (Figure 3*c*; Plates 1*c*, 2*c*,*d*): Consisting of several muscles near middle of dorsal margin.

Size: Holotype, length 1.57 mm, height 1.08 mm.

First Antenna (Figure 3*e*): 1st joint bare. 2nd joint with medial and ventral spines. 3rd joint short, with 2 bristles (1 ventral, short; 1 dorsal, longer than ventral bristle). 4th joint elongate with well-defined proximal and distal margins, and with 2 bristles (1 ventral, 1 dorsal). Sensory bristle of 5th joint with 7 stout proximal filaments and 4 slender, shorter, distal, marginal filaments. 6th joint with slender medial bristle. 7th joint: a-bristle longer and stouter than bristle of 6th joint; b-bristle about 1/3 longer than a-bristle, with 4 short proximal filaments; c-bristle about 1/4 longer than sensory bristle of 5th joint, with about 7 marginal filaments. 8th joint: d- and e-bristles bare with blunt tips; d-bristle about 1/4 longer than b-bristle; e-bristle slightly shorter (tip broken off on illustrated limb); f-bristle shorter than c-bristle, with about 7 marginal filaments; tip of g-bristle missing on both appendages of holotype, with 8 marginal filaments on remaining part on left limb. Some marginal filaments of c-, f-, and g-bristles with faint spines.

Second Antenna (Figure 3*f*): Protopodite with short, spinous, medial bristle (Figure 3*f*). Endopodite 1-jointed, with 3 proximal bristles (1 short, 2 longer), and 1 long terminal bristle (broad base of terminal bristle could be interpreted as being a minute 2nd joint). Exopodite: 1st joint without minute medial bristle on distal margin; bristle of 2nd joint reaching to 9th joint, with 7 ventral spines, no hairs; bristles of 3rd and 4th joints long, with elongate ventral spines near middle, and natatory hairs; bristles of joints 5–8 long, with natatory hairs; 9th joint with 3 bristles (1 short with long, slender, marginal spines or hairs; 2 long with natatory hairs); joints 3–8 with basal spines increasing in length on distal joints; basal spine of 8th joint slightly longer than 9th joint; lateral spine of 9th joint about same length as spine of 8th joint; joints 3–8 with faint lateral spines forming row along distal margin.

Mandible (Figure 3*g*): Coxale endite spinous, with 2 stout spines at tip having peg between them. Basale: ventral margin with 3 medial a-bristles, 1 lateral b-bristle quite close to a-bristles, 1 minute b-bristle with base on ventral margin about half-way between a- and c-bristles, 2 short c-bristles of similar length, and 1 long spinous d-bristle; dorsal margin with 1 midbristle and 2 subterminal bristles; a few faint spines forming row present just proximal to midbristle of dorsal margin. Exopodite about 3/4 length of dorsal


a
b
c
d
e
f
g
h
s
a
b
c
d
e
f
g

margin of 1st endopodial joint, hirsute distally, and with 2 subterminal bristles. 1st endopodial joint with 4 ventral bristles (2 long, 2 short). 2nd endopodial joint: ventral margin with bristles forming 3 groups (1 bristle in each of proximal groups, 2 in distal group); dorsal margin with 7 or 8 bristles (1 of these short, spinous); spines present on medial surface and proximally on ventral and dorsal margins. End joint with 3 short claws (shortest about 3/4 length of longest) and 4 bristles.

Maxilla (Figures 3*h*, 4*a*): Endite I (proximal endite) with 9 claws and bristles; endite II with 7 bristles; endite III with 5 distal bristles. Precoxale and coxale with hairs forming dorsal fringe. Coxale with spinous dorsal bristle. Basale with 3 bristles (1 dorsal, 2 ventral; 2 latter bristles shown beneath endite I on illustrated left limb). Exopodite well developed, with 1 short proximal and 2 long distal bristles (short bristle and middle long bristle hirsute proximally and with small spines distally). 1st endopodial joint with 2 long bare alpha-bristles and 2 beta-bristles (outer of these pectinate); cutting edge of large tooth with small indentation terminally; surface of joint with spines forming rows. End joint with 3 bare a-bristles, 2 pectinate b-bristles, 2 pectinate c-bristles, and 3 pectinate d-bristles (anterior of these with fewer teeth than other 2).

Fifth Limb (Figure 4*b*,*c*): Endite I with 5 bristles; endite II also with 5 bristles; endite III with 7 bristles, including a small, triangular, tooth-like bristle. Protopodite with long, slender, anterior, finger-like process. 1st exopodial joint: anterior side with 1 proximal bristle with long proximal hairs and distal group of 3 bristles (larger of these pectinate and with stout proximal spines) (Figure 4*c*); main tooth consisting of 5 pectinate teeth and proximal small broad peg; bristle with long proximal hairs near proximal peg (Figure 4*b*). 2nd exopodial joint with 3 pectinate, unringed a-bristles, a total of 5 pectinate, ringed b- and b′-bristles, 1 posterior c-bristle with long proximal hairs, and 1 anterior d-bristle with long proximal hairs. 3rd exopodial joint with 3 bristles (2 with long hairs, 1 bare, unringed) on inner lobe, and 2 bristles (with long proximal hairs) on outer lobe. Fused 4th and 5th joints with 3 bristles.

Sixth Limb (Figure 4*d*): Endite I with 1 terminal and 2 medial bristles; endite II with 2 or 3 terminal and 2 medial bristles; endite III with 3 terminal and 1 medial bristle; endite IV with 4 terminal and 1 medial bristle. End joint with 9 bristles (posterior 2 hirsute, remaining bristles with only short spines, or with long proximal and short distal spines); ventral margin with long hairs, some spine-like; 11 or 12 bare bristles in place of epipodial appendage.

Seventh Limb (Figure 4*e*,*f*): 10 bristles (5 on each side) in terminal group; 2 bristles in proximal group (1 on each side); each bristle with up to 7 bells. Comb consisting of about 4 short teeth on each side of a longer recurved tooth. Tooth opposite comb obscure but consisting of sclerotized ridge having numerous spines (Figure 4*f*). (One of the 7th limbs on holotype lost.)

Furca (Figure 4*g*): Each lamella with 7 or 8 claws; claw 2 not separated from lamella by suture; claw 3 more slender than claw 4 and slightly longer; all claws with teeth along posterior margin; right lamella slightly anterior to left lamella.

Bellonci Organ (Figure 4*h*): Small, oval, with button-like process at tip.

Eyes: Medial eye with brown pigment (Figure 4*h*). Lateral eye about same diameter as medial eye, with black pigment and about 20 ommatidia (Figure 4*h*; not all ommatidia shown).

Upper Lip (Figure 4*h*): Anterior unpaired part

FIGURE 3.—*Pterocypridina dedeckkeri*, new species, adult female, holotype, USNM 158240: *a*, rostrum and incisur of right valve, inside view; *b*, caudal process and posteroventral infold of right valve, inside view; *c*, inside view of mid-dorsal part of right valve showing attachment to valve of distal ends of muscles attached to body and appendages, anterior towards left; *d*, outside view of mid-area of right valve viewed with transmitted light showing reticulated ornamentation formed of ridges bearing minute tubercules, anterior towards right; *e*, right 1st antenna, medial view; *f*, distal part of protopodite, endopodite, and proximal part of 1st joint of exopodite of left 2nd antenna, medial view; *g*, right mandible, medial view; *h*, part of left maxilla showing dorsal bristle of coxale, 3 bristles of basale, dorsal spines and terminal ventral tooth of 1st endopodial joint, anterior view.

FIGURE 4.—*Pterocypridina dedeckkeri*, new species, adult female, holotype, USNM 158240: *a*, right maxilla, anterior view; *b*, right 5th limb, posterior view; *c*, part of left 5th limb, anterior view; *d*, right 6th limb, medial view; *e*, distal part of 7th limb (all marginal bristles shown); *f*, detail of ridge opposite comb of 7th limb shown in *e*; *g*, left lamella of furca, left Y-sclerite, left genitalia; *h*, lateral eye, medial eye and bellonci organ, anterior process, and upper lip, anterior towards left.

with both anterior and ventral glandular processes and projecting ventrally past paired posterior part. Paired posterior part with ventral glandular processes; each paired part followed by 2 small lateral processes.

Genitalia (Figure 4*g*): Consisting of rounded process with attached spermatophore on each side of body anterior to furca.

Anterior of Body (Figure 4*h*): A single sclerotized process with rounded tip present between upper lip and medial eye.

Posterior of Body: Bare, evenly rounded posterodorsal corner.

Y-*Sclerite* (Figure 4*g*): Normal for family.

Eggs: Holotype with 7 eggs in marsupium.

COMPARISONS.—*Pterocypridina dedeckkeri* resembles closely *P. excreta* Poulsen, 1962:240, and both species were collected in the same general area off southeast Australia. Because only 1 specimen of each species is known, their intraspecific variability is unknown. Both specimens are adult females. Because they differ in so many minor characters,

proposing *P. dedeckkeri* as a new species seems warranted. The length of the carapace of *P. dedeckkeri* is 1.57 mm compared to 1.87 mm for *P. excreta*. The posterodorsal process on each valve of *P. dedeckkeri* is smaller and more dorsally located than that of *P. excreta*. The ridges on valves of *P. excreta* are formed by rows of minute tubercles (Poulsen, 1962:241, fig. 113d) whereas the tubercles project from a ridge on *P. dedeckkeri* (Figure 3*d*; Plate 2*b*). The end joint of the 6th limb extends much farther past the end of the 4th endite on *P. excreta* than it does on *P. dedeckkeri*. The 9th exopodial joint of the 2nd antenna of *P. dedeckkeri* bears 3 bristles. Although Poulsen indicates in a key and table 24 (1962:235, 236) that *P. excreta* bears 4 bristles, in the text (p. 242) he ambiguously writes: ". . . the end-joint has 3 bristles, also the somewhat shorter dorsal bristle has natatory hairs." The endopodite of the 2nd antenna of *P. excreta* bears 5 bristles compared to 4 on *P. dedeckkeri*. Needless to say, if additional collections produce intermediate forms, the 2 species should be synonomized.

Pterocypridina sex, new species

FIGURES 5–9

ETYMOLOGY.—The name of the species from the Latin *sex* (six), in reference to the presence of 6 claws on each lamella of the furca of the holotype.

HOLOTYPE.—USNM 157760, ovigerous female, on slide and in alcohol.

TYPE-LOCALITY.—BLM sta 6E, on continental shelf off Jacksonville, Florida, 30°23′N, 80°26′W, depth 39 m, collected on 1 Mar 1977.

PARATYPES.—North Carolina continental shelf: USNM 159078, 1 adult male, sta 016-1, R/V *Eastward*, cruise E-2-77, 34°37′54″N, 76°08′00″-W, depth 40 m, collected in June 1977. South Carolina continental shelf: USNM 158257, 1 female (probably adult), BLM sta 2C, 32°50′N, 79°04′W, depth 22 m, collected on 13 Feb 1977. East Florida continental shelf: USNM 158256, 3 juveniles, USNM 158255, 1 juvenile, same station data as holotype; USNM 158254, 1 early instar, BLM sta 6C, 30°23′N, 80°51′W, depth 29 m, collected on 28 Feb 1977; USNM 158364, 1 adult male, sta LD-19B, 27°29′36″N, 80°17′18″W, depth 5.5 m, collected on 28 Jun 1977.

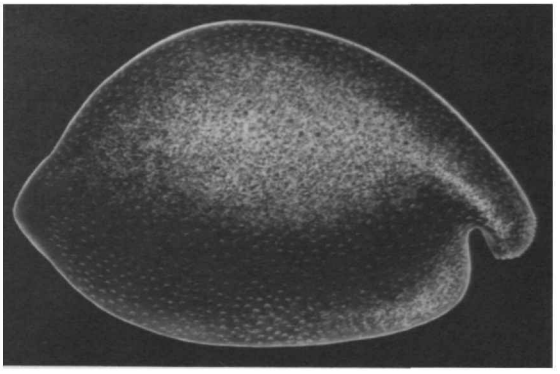


FIGURE 5.—*Pterocypridina sex*, new species, adult female, holotype, USNM 157760, lateral view of complete specimen, length 1.66 mm.

DISTRIBUTION.—Continental shelf off SE North America. Known depth range 5.5–40 m.

DESCRIPTION OF ADULT FEMALE (Figures 5–8).—Carapace in lateral view more convex dorsally than ventrally; posterior margin with projecting caudal process (Figure 5); incisur fairly deep.

Ornamentation: Surface with well-developed punctae; outer edge of rostrum with minute scallop-like processes (Figure 6*a*); small, low, lateral process present on rostrum of each valve.

Infold (Figure 6*a–c*): Infold of rostrum with 11 or 12 divided bristles paralleling outer ridge of rostrum and 1 divided proximal bristle (Figure 6a); infold posterior to incisur with 1 proximal bristle and 2 longer bifurcate bristles near outer edge; infold ventral to incisur with 1 short bristle followed by space and then 14–17 divided bristles forming row parallel to anteroventral edge of valve; a few small bristles present proximal to the row of anteroventral bristles; ventral infold bare or with only 2 or 3 small bristles; infold of caudal process complex; that of left valve with large process (Figure 6*c*), that of right valve with long narrow process overlapping pocket (Figure 6*b*); processes with few small bristles; minute bristles


a
b
c
d
e
f
g
a
b
c
d
e
f
g
s

present along outer edge of caudal process.

Selvage: Wide lamellar prolongation with smooth outer edge present along anterior and ventral valve margins; prolongation divided at inner end of incisur.

Size: USNM 157760, length 1.66 mm, height 1.13 mm; USNM 158257, length 1.52 mm, height 1.02 (probably adult, contains fairly large unextruded eggs).

First Antenna (Figure 6*d*): 1st joint bare. 2nd joint with few lateral, ventral, and dorsal spines and many medial spines forming rows. 3rd joint short with 2 bristles (1 ventral, 1 dorsal). 4th joint long with 2 bristles (1 short, ventral, subterminal; 1 longer, dorsal terminal). Sensory bristle of squarish 5th joint with 5 long proximal filaments (a minute filament present adjacent to each of 2 long proximal filaments), 2 short filaments with bases just distal to 5th proximal filament, and 1 small filament near tip. 6th joint squarish with 1 short medial bristle. 7th joint: a-bristle spinous, slightly longer than bristle of 6th joint; b-bristle about twice length of a-bristle, with 3 marginal filaments; c-bristle reaching past tip of sensory bristle of 5th joint, with about 8 marginal filaments. 8th joint: d- and e-bristles bare with blunt tips, about twice length of b-bristle; f-bristle longer than d- and e-bristles, with about 9 marginal filaments; g-bristle longer than f-bristle, with about 8 marginal filaments.

Second Antenna (Figure 6*e*): Protopodite with short, spinous, medial bristle, otherwise bare. Endopodite with minute 2nd joint fused to 1st joint: 1st joint with 4 bristles (2 of these much shorter than others); minute 2nd joint with 1 long filament-like bristle. Exopodite: bristle of 2nd joint about same length as combined joints 2–9, with about 11 stout ventral spines but no natatory hairs; bristles of joints 3 and 4 with proximal ventral spines and both proximal and distal natatory hairs; bristles of joints 5–8 with natatory hairs; 9th joint with 2 bristles with natatory hairs and stout dorsal spines, and 1 shorter dorsal bristle with only natatory hairs; joints 3–8 with basal spines increasing in length on distal joints; basal spine of 8th joint and lateral spine of 9th joint about same length as 9th joint; joints 2–8 with minute spines forming row along distal margin.

Mandible (Figure 7*a*): Coxale endite spinous with bifurcate tip; small bristle present near base of endite on left limb of USNM 157760 but not observed on right limb. Basale: medial side near ventral margin with 2 short a-bristles, 1 minute b-bristle, 2 small c-bristles, and 1 long spinous d-bristle; dorsal margin with 3 bristles (1 near middle, 2 subterminal). Exopodite hirsute, reaching to about middle of dorsal margin of 1st endopodial joint, with 2 spinous bristles (distal outer bristle less than 1/2 length of proximal bristle). First endopodial joint with 4 ventral bristles (2 long, 1 short, 1 minute). Second endopodial joint: ventral margin spinous and with 3 groups of short slender bristles containing 1, 1, and 2 bristles; dorsal margin with 9 spinous bristles; medial surface with short spines forming rows. End joint with 4 bristles and 3 claws (all claws with few proximal teeth along ventral margin).

Maxilla (Figure 7*b,c*): Endites (not all bristles shown on illustrated limb): endite I with about 8 spinous or pectinate bristles; endite II with about 6 spinous or pectinate bristles; endite III with 1 proximal bristle and about 6 terminal spinous or pectinate bristles. Precoxale with hairs forming dorsal fringe. Usual plumose bristle of coxale not observed on either limb, but both limbs are obscure on slide; small bare bristle present either on dorsal margin of coxale or basale; basale with 2 additional longer bristles. Exopodite broad with 1 short, spinous, proximal bristle and 2 long, spinous, terminal bristles (middle bristle and proximal bristle with long marginal hairs) (Figure

FIGURE 6.—*Pterocypridina sex*, new species, adult female, holotype, USNM 157760: *a*, rostrum and incisur of right valve, inside view; *b*, *c*, caudal process and infold of right and left valves, inside view; *d*, right 1st antenna, lateral view; *e*, distal part of protopodite and endopodite of left 2nd antenna, medial view; *f*, left lamella of furca, lateral view; *g*, right side of anterior of body showing right lateral eye, medial eye and bellonci organ, anterior process, and upper lip, anterior of body towards right.


a
b
c
d
e
f
g
h

7*c*). First endopodial joint with triangular cutting tooth with bifurcate tip, 2 alpha-bristles with short marginal spines, and 2 beta-bristles (1 slender with short marginal spines; 1 stout, pectinate). End joint with total of about 10 bristles, some claw-like, pectinate, others ringed and with either marginal spines or both marginal spines and few marginal teeth.

Fifth Limb (Figure 7*d*,*e*): Epipodial appendage with 54 bristles. Endites I to III with up to 6 bristles (not all shown in illustrated limb). Protopodite with small, sclerotized, anterior process on distal margin (Figure 7*e*). First exopodial joint with 3 anterior bristles (the inner of these stout, pectinate) (Figure 7*e*); main tooth consisting of 5 pectinate teeth and proximal peg (Figure 7*d*); a short bristle present proximal to peg. Second exopodial joint with 1 posterior c-bristle, 1 anterior d-bristle, 3 a-bristles, and 6 b-bristles. Third exopodial joint: inner lobe with 1 proximal and 1 terminal bristle, outer lobe with 2 spinous bristles; 4th and 5th joints divided on left limb of USNM 157760, each joint with 2 bristles, fused on right limb, with total of 4 bristles.

Sixth Limb (Figure 8): 4 short bristles in place of epipodial appendage. Endites I and II somewhat fragmented on USNM 157760, but each apparently with 2 spinous bristles; endites III and IV each with 4 spinous bristles. End joint with 13–15 bristles (2 posterior bristles plumose, others either with short distal spines and long proximal hairs, or just short spines).

Seventh Limb (Figure 7*f*,*g*): Each limb with 2 proximal bristles (1 on each side) and 8 distal (4 on each side); each bristle with 3–7 bells. Terminal ventral comb with 4 short blunt teeth on either side of 3 elongate teeth; sclerotized ridge opposite comb with curved tip bearing 5 or 6 minute teeth along edge (not all teeth shown on illustrated limb).

FIGURE 7.—*Pterocypridina sex*, new species, adult female, holotype, USNM 157760: *a*, right mandible, medial view; *b*, left maxilla, inside view; *c*, right maxilla showing exopodite, distal tooth and proximal parts of alpha-bristles of 1st endopodial joint; *d*, distal part of left 5th limb, posterior view; *e*, distal part of right 5th limb, not all bristles and claws shown; *f*, 7th limb; *g*, detail of tip of *f*. Female (probably adult), paratype, USNM 158257, *h*, upper lip, anterior towards left.

FIGURE 8.—*Pterocypridina sex*, new species, adult female, holotype, USNM 157760, left 6th limb, medial view.

Furca (Figure 6*f*): Each lamella with 6 claws; claws 2 and 4 fused to lamella, remaining claws separated from lamella by suture; claw 3 weaker than claw 4; posterior edge of claws with teeth forming 1 or 2 rows.

Bellonci Organ (Figure 6*g*): Short with small process at tip.

Eyes (Figure 6*g*): Lateral eyes pigmented black, with about 19 ommatidia. Medial eye about same size as lateral eye, with some black pigment.

Upper Lip (Figures 6*g*, 7*h*): Consisting of narrow, anterior, unpaired part and broader, posterior, paired part; short proximal tusk present laterally near posterior edge of paired part; spines present along posterior edge of lip just in front of mouth (see illustrations of male upper lip for details).

Posterior of Body: Without process.

Eggs: USNM 157760 with 8 eggs in marsupium.

DESCRIPTION OF ADULT MALE (Figure 9).—Carapace similar in shape to that of adult female (Figure 9*a*).

Ornamentation: Surface with well-developed punctae (Figure 9*c*); outer edge of rostrum with minute scallop-like processes; small, low, lateral process present on rostrum of each valve (Figure 9*b*).

Infold: Not examined from the inside, but appearing similar to that of female when viewed from outside in transmitted light.

Selvage: Similar to that of female.

Size: USNM 158364, length 1.41 mm, height 0.95 mm.

First Antenna (Figure 9*d*,*e*): 1st and 2nd joints bare. 3rd joint short, with 2 small bristles (1 ventral, 1 dorsal). 4th joint with 2 small terminal bristles (1 ventral, 1 dorsal). Sensory bristle of 5th joint with 7 long and 3 small proximal filaments and 3 slender, short, distal filaments (all bare except for spine at tip of small proximal and short distal filaments). 6th joint with small, bare, me-

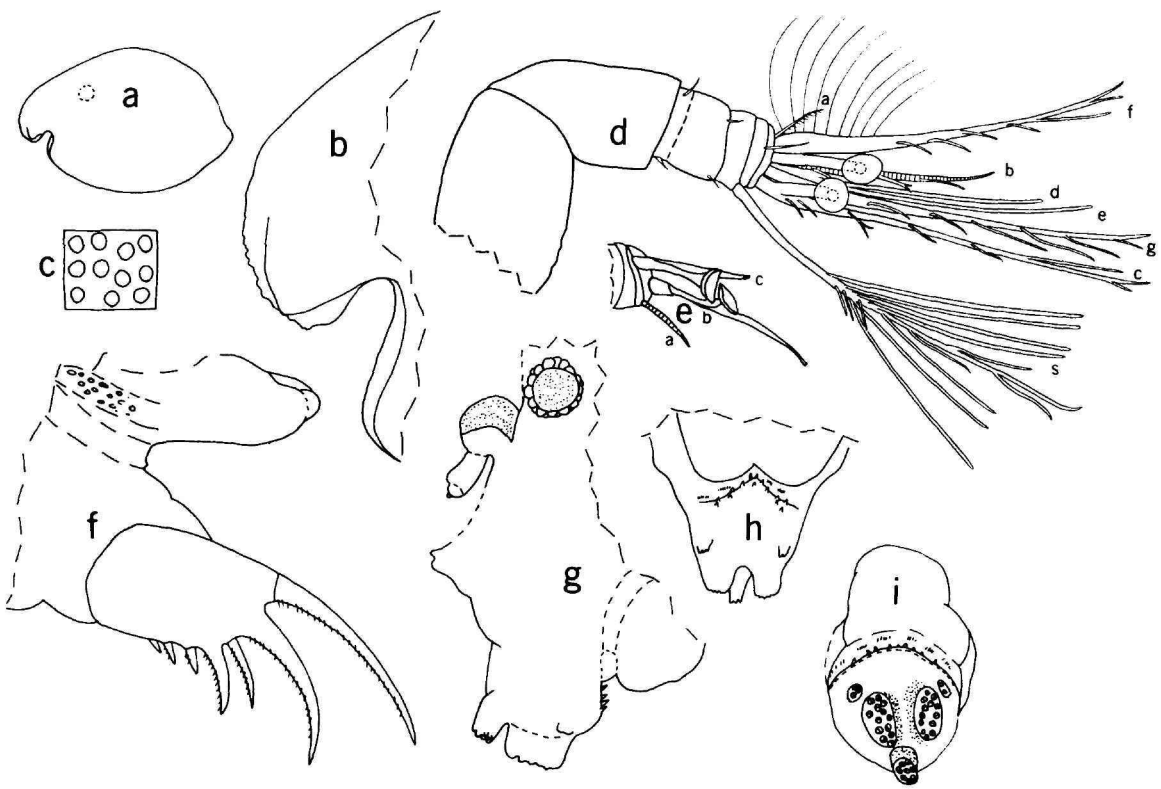


FIGURE 9.—*Pterocypridina sex*, new species, adult male, paratype, USNM 158364: *a*, lateral view of complete specimen, length 1.41 mm; *b*, anterior of carapace showing rostrum bearing lateral process; *c*, detail of surface punctae, from specimen shown in *a*; *d*, left 1st antenna, medial view; *e*, tip of right 1st antenna showing a-bristle and proximal parts of b- and c-bristles, medial view drawn with specimen not under cover slip; *f*, right lamella of furca and copulatory process; *g*, anterior of body from left showing left lateral eye, medial eye and bellonci organ, anterior process, upper lip, and opening of mouth with part of esophagous dashed; *h*, upper lip, posterior view, ventral edge towards bottom; *i*, upper lip, ventral view, anterior towards bottom.

dial bristle. 7th joint: a-bristle slightly longer than bristle of 6th joint, with short marginal spines; b-bristle with stout proximal filament bearing thin disc at distal end; b-bristle also with 3 slender marginal filaments; c-bristle almost twice length of b-bristle and with proximal filament bearing terminal disc similar to that of b-bristle, but filament slightly shorter; c-bristle also with 9 marginal filaments (2 or 3 of the distal filaments much longer than others; all filaments bare except for spine at tip). 8th joint: d- and e-bristle bare with blunt tips (both bristles longer than b-bristle but shorter than c-bristle); f-bristle slightly shorter than c-bristle, with stout proximal part bearing abundant, long, slender filaments, and slender distal part with about 6 shorter filaments; g-bristle about same length as c-bristle, with broad proximal part bearing abundant, long, slender filaments, and slender distal part with 6 or 7 shorter filaments.

Second Antenna: Similar to that of adult female except for 9th exopodial joint having only middle bristle with proximal dorsal spines.

Mandible: Similar to that of adult female, except exopodite almost reaching distal end of dorsal margin of 1st endopodial joint.

Maxilla: Similar to that of adult female.

Fifth Limb: Anterior tooth of protopodite about twice length of that of adult female and with constriction near middle. Left limb of USMN 158634 with 5 bristles on fused 4th and 5th exopodial joints; right limb with 4 bristles. Limb otherwise similar to that of adult female.

Sixth Limb: Endite I with 1 long terminal and 3 short medial bristles; endite II with 1 long terminal and 2 short medial bristles; endite III with 3 terminal bristles and 1 long medial bristle; endite IV with 3 terminal bristles and 1 fairly long medial bristle. Distal margin of end joint with 7 anterior spinous bristles followed by space and then 3 stout hirsute bristles. 4 small bristles present in place of epipodial appendage.

Seventh Limb, Bellonci Organ (Figure 9*g*), *Upper Lip* (Figure 9*g–i*), *Posterior of Body:* Similar to those of adult female.

Furca (Figure 9*f*): Each lamella with 7 claws, otherwise similar to that of female.

Copulatory Organ: Elongate, terminating in several lobes, smaller lobes with sclerotized ridges (Figure 9*f*).

COMPARISONS.—The new species, *Pterocypridina sex*, resembles *P. birostrata* Poulsen in not having lateral posterodorsal processes. Furcal claws 2 and 4 are fused to the lamella of *P. sex*, whereas, only claw 2 is fused to the lamella of *P. birostrata*. Each furcal lamella of *P. birostrata* bears 10 claws compared to only 6 or 7 for *P. sex*.

Appendix

Keys to Subfamilies, Tribes, Groups, and Genera of the Cypridinidae

CYPRIDINIDAE Baird, 1850

Key to Subfamilies of the Cypridinidae

(adult males and females)

Each lamella of furca with 18–29 claws; lateral eyes flaplike, hirsute, without ommatidia ..... AZYGOCYPRIDININAE
Each lamella of furca with 4–15 claws; lateral eyes absent, or bare, oval with ommatidia ..... CYPRIDININAE

AZYGOCYPRIDININAE Kornicker, 1970

Key to Genera of the Subfamily Azygocypridininae

(adult males and females)

Outer lobe of 3rd joint of 5th limb with 2 bristles; endopodite of 2nd antenna of male formed as clasper ..... ***Azygocypridina***
Outer lobe of 3rd joint of 5th limb with 4 bristles; endopodite of 2nd antenna of male similar to that of female ..... ***Isocypridina***

CYPRIDININAE Baird, 1850

Key to Tribes of the Subfamily Cypridininae

(adult males and females)

Shell halves united for 1/2 to 2/3 of margin, carapace globose, thin-shelled, large, length 9 mm or more, evenly rounded posteriorly, or at most with minute caudal process ..... GIGANTOCYPRIDININI
Shell halves united only along dorsal and posterodorsal margin, carapace either thin-shelled or well calcified, length less than 8 mm, generally elongate, if rounded bearing prominent caudal process ..... CYPRIDININI

GIGANTOCYPRIDININI Hartmann, 1974

The tribe contains only the genus *Gigantocypris*.

Cypridinini Baird, 1850

Key to Groups of the Tribe Cypridinini

(adult males and females; * = genera in Group ?)

1. Each lamella of furca with 4 claws ..... ***Codonocera*** Group
   Each lamella of furca with 5 claws ..... ***Monopia*** Group
   Each lamella of furca with more than 5 claws 2
2. Shell or rostrum without lateral processes .....
   .....***Cypridina*** Group (part), ***Hadacypridina*** *
   Shell or rostrum with lateral processes 3
3. Rostrum with dorsal opening .....***Amphisiphonostra*** *
   Rostrum without dorsal opening 4
4. Endopodite of 2nd antenna, elongate, 3-jointed .....
   ..... ***Cypridina*** Group (part), ***Rugosidoloria*** *
   Endopodite of 2nd antenna, short, 1- or 2-jointed 5
5. Proximal filaments of sensory bristle of 5th joint of 1st antenna about same length or shorter than most distal filaments ....***Paracypridina*** *
   Most proximal filaments longer than most distal filaments .....
   ..... ***Pterocypridina*** Group

Codonocera Group (new group)

This group contains only the genus *Codonocera*.

Monopia Group (new group)

This group contains only the genus *Monopia*.

Pterocypridina Group (new group)

The group contains only the genus *Pterocypridina*.

Cypridina Group (new group) and Group ?

See Table 1 for diagnosis.

Key to Genera of the *Cypridina* Group and Group ?

(adult males and females; * = genera in Group ?)

1. Carapace yellow to dark brown with round uncolored area in vicinity of lateral eye ..... ***Macrocypridina***
   Carapace unpigmented or with black pigment 2
2. Carapace with round opening on dorsal end of rostrum .....
   .....***Amphisiphonostra*** *
   Carapace without opening on dorsal end of rostrum 3

3. Upper lip with 2 unpaired anterior processes ..... ***Cypridina***
   Upper lip with less than 2 unpaired anterior processes 4
4. Carapace with black pigment spots ..... ***Melavargula***
   Carapace without black pigment spots 5
5. Upper lip with long paired tusks as long or longer than rest of lip ... 6
   Upper lip without or with short paired tusks, shorter than rest of lip 13
6. Proximal part of tusks of upper lip with serrate posterior lobe ..... ***Cypridinodes***
   Proximal part of tusks of upper lip without serrate lobe 7
7. Sensory bristle of 5th joint of 1st antenna with proximal filaments about same length or shorter than most distal filaments ... ***Paracypridina*** *
   Sensory bristle of 5th joint with most proximal filaments longer than distal filaments 8
8. Endopodite of 2nd antenna 3-jointed 9
   Endopodite of 2nd antenna 1- or 2-jointed[1] 10
9. Bristle present on 2nd joint of endopodite of 2nd antenna .... ***Vargula***
   No bristle present on 2nd joint of endopodite of 2nd antenna .. ***Sheina***
10. Lateral eyes well developed ..... ***Paravargula***
    Lateral eyes absent or small 11
11. Bristle on 2nd joint of exopodite of 2nd antenna with 1 spine ..... ***Bathyvargula***
    Bristle on 2nd joint of exopodite of 2nd antenna with numerous spines 12
12. Lateral eyes absent, caudal process short and strongly upturned ..... ***Hadacypridina*** *
    Lateral eyes usually present, caudal process long (sometimes upturned) ..... ***Metavargula***
13. Carapace rugose and with lateral ridges ..... ***Rugosidoloria*** *
    Carapace smooth and without lateral ridges 14
14. Endopodite of 2nd antenna 1-jointed, or with minute 2nd joint 15
    Endopodite of 2nd antenna with 2 or 3 well-developed and well-defined joints 16
15. Furca with claws 2 and 4 fused to lamella ..... ***Siphonostra***
    Furca with no claws fused to lamella, or with claws 2 and 3, or only claw 2 fused to lamella ..... ***Skogsbergia***
16. Endopodite of male 2nd antenna similar to that of female; furcal lamella with 9–11 claws ..... ***Paradoloria***
    Endopodite of male 2nd antenna formed as clasper; furcal lamella with 10–13 claws ..... ***Doloria***

---

[1] Some females of *Metavargula ampla* Kornicker, 1970, figure 3f with small 3rd joint on endopodite of 2nd antenna.

Literature Cited

Athersuch, John

1980. The Genus *Azygocypridina* Sylvester-Bradley (Crustacea: Ostracoda) with Particular Reference to *A. imperialis* (Stebbing, 1901). *Bulletin of the British Museum (Natural History), Zoology*, 39(3):139–160, 11 figures.

Baird, W.

1850. *The Natural History of the British Entomostraca*. 364 pages, 36 plates. London. [Printed for the Ray Society.]

Brady, G.S.

1897. A Supplementary Report on the Crustaceans of the Group Myodocopa Obtained during the *Challenger* Expedition, with Notes on Other New or Imperfectly Known Species. *Transactions of the Zoological Society of London*, 14(3)7:85–100, plates 15–17.

Hartmann, Gerd

1965. Neontological and Paleontological Classification of Ostracoda. *Pubblicazioni della Stazione Zoologica di Napoli*, supplement 33:550–587.

1975. Ostracoda. *In* H.G. Bronns, editor, *Klassen und Ordnungen des Tierreichs*, 5(4):569–786, figures 374–474.

Hartmann, Gerd, and Harbans S. Puri

1974. Summary of Neontological and Paleontological Classification of Ostracoda. *Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut*, 70:7–73.

Kornicker, Louis S.

1968. Bathyal Myodocopid Ostracoda from the Northeastern Gulf of Mexico. *Proceedings of the Biological Society of Washington*, 81:439–472, 10 figures, 2 plates.

1970. Ostracoda (Myodocopina) from the Peru-Chile Trench and the Antarctic Ocean. *Smithsonian Contributions to Zoology*, 32: 42 pages, 25 figures.

1975. Antarctic Ostracoda (Myodocopina). *Smithsonian Contributions to Zoology*, 163:720 pages, 432 figures, 9 plates.

Kornicker, Louis S., and F.P.C.M. van Morkhoven

1976. *Metapolycope*, a New Genus of Bathyal Ostracoda from the Atlantic (Suborder Cladocopina). *Smithsonian Contributions to Zoology*, 225: 19 pages, 24 figures.

Martens, J.M.

1979. Die pelagischen Ostracoden der Expedition Marchile I (Südost-Pazifik), II: Systematik und Vorkommen (Crustacea: Ostracoda: Myodocopida). *Mitteilingen aus dem Hamburgischen Zoologischen Museum und Institut*, 76:303–366.

Müller, G.W.

1906. Die Ostracoden der Siboga-Expedition. In *Uitkomsten op Zoologisch, Botanisch, Oceanographischen on Geologische Gebeid versameld in Nederlandsch Oost-Indie, 1899–1900*, 30: 40 pages, 9 plates.

1912. Ostracoda. In *Das Tierreich*, 31: 434 pages, 92 figures.

Poulsen, E.M.

1962. Ostracoda-Myodocopa, 1: Cypridiniformes-Cypridinidae. In *Dana Report*, 57:1–414, 181 figures.

1973. Ostracoda-Myodocopa, IIIB: Halocypriformes-Halocypridae, Conchoecinae. In *Dana Report*, 84:1–234, 113 figures.

Skogsberg, T.

1920. Studies on Marine Ostracods, 1: Cypridinids, Halocyprids, and Polycopids. *Zoologiska Bidrag från Uppsala*, supplement, 1: 784 pages, 153 figures.

Stebbing, Thomas R.

1901. Giant Ostracoda: Old and New. *Knowledge*, 24:100.

PLATE 1

Pterocypridina dedeckkeri, new species, adult female, holotype, USNM 158240, left valve: *a*, lateral view of valve with dorsal end tilted about 40° forward, edge of posterior part of dorsal margin missing, stereoscopic pair, × 58; *b*, lateral view of rostrum and incisur of valve shown in *a*, lamellar prolongation of selvage at inner edge of incisur torn, stereoscopic pair, × 275; *c*, inside view of valve, note distal ends of dorsal muscles near upper edge of valve, × 58; *d*, inside view of rostrum and incisur, lamellar prolongation of selvage at inner end of incisur torn, × 275. (Micrographs reduced to 79%.)

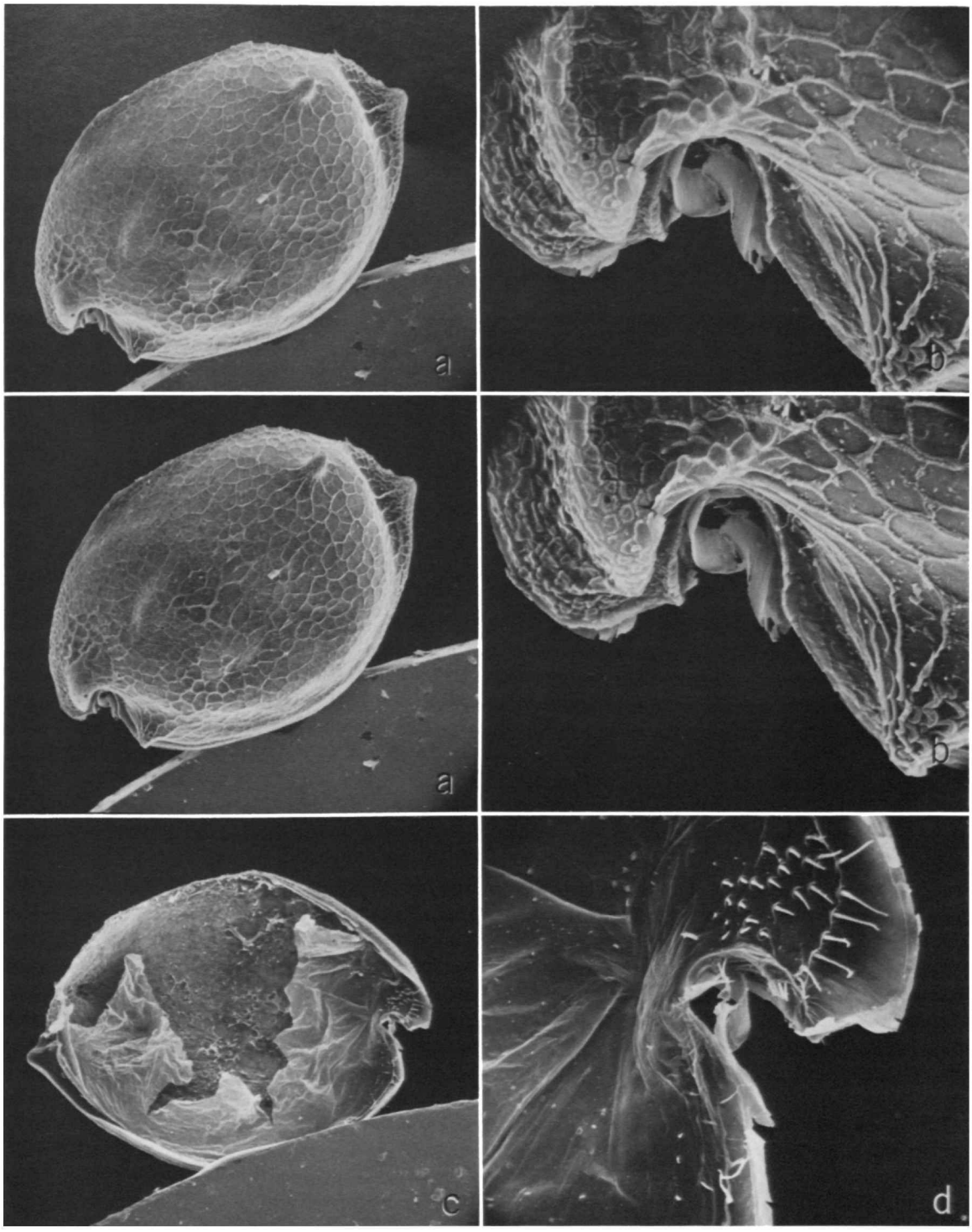

a
b
a
b
c
d

PLATE 2

Pterocypridina dedeckkeri, new species, adult female, holotype, USNM 158240, left valve: *a*, triangular process near middle of posterodorsal margin from Plate 1*a*, stereoscopic pair, × 400; *b*, low mound bearing central adductor muscle attachments, from lower left of Plate 1*a*, stereoscopic pair, × 375; *c*, inside view of valve showing remnants of dorsal muscles, from dorsal part of Plate 1*c*, × 370; *d*, detail of left set of muscles in *c*, × 1500. (Micrographs reduced to 78%.)

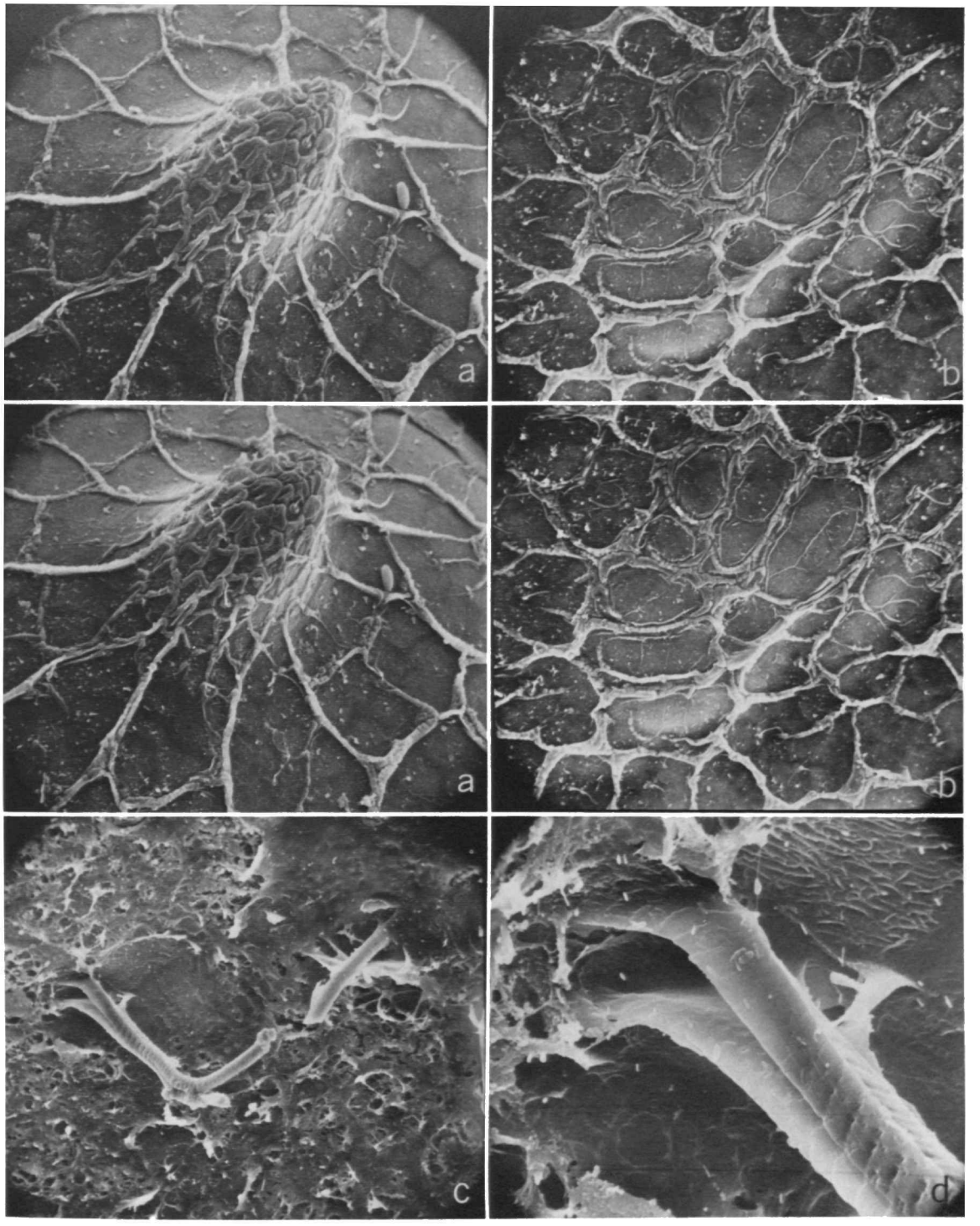

a
b
a
b
c
d

PLATE 3

Pterocypridina dedeckkeri, new species, adult female, holotype, USNM 158240, left valve: *a*, bristle and bristle pore from near top of posterodorsal triangular process, from Plate 2*a*, stereoscopic pair, × 900; *b*, bristle and bristle pore adjacent to tip of posterodorsal triangular process, stereoscopic pair, from Plate 2*a*, × 9000; *c*, caudal process from inside, from Plate 1*c*, × 250; *d*, minute protuberances bearing pore with small bristle along edge of list just anterior to caudal process, from right end of list shown in *c*, × 2100. (Micrographs reduced to 78%.)

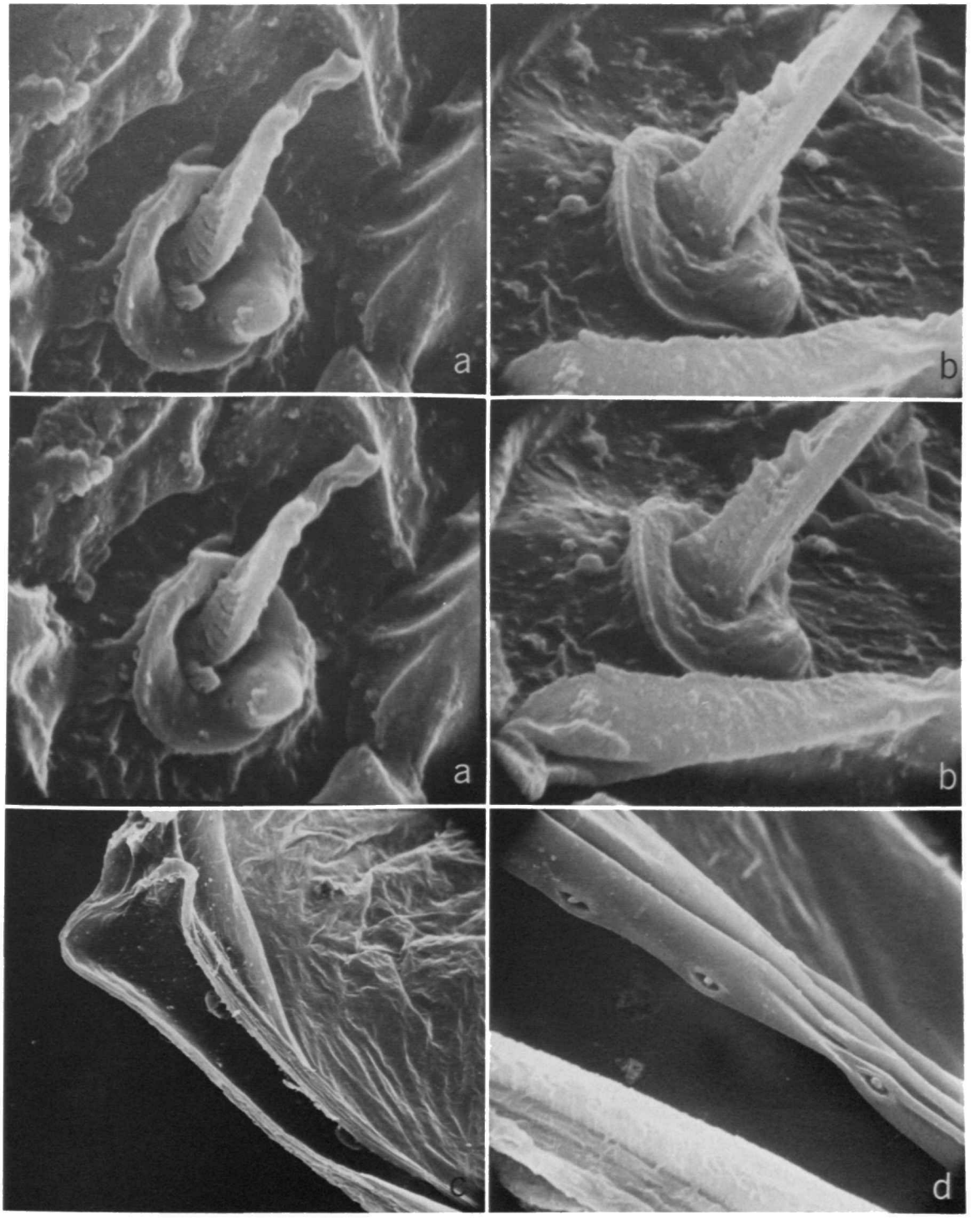
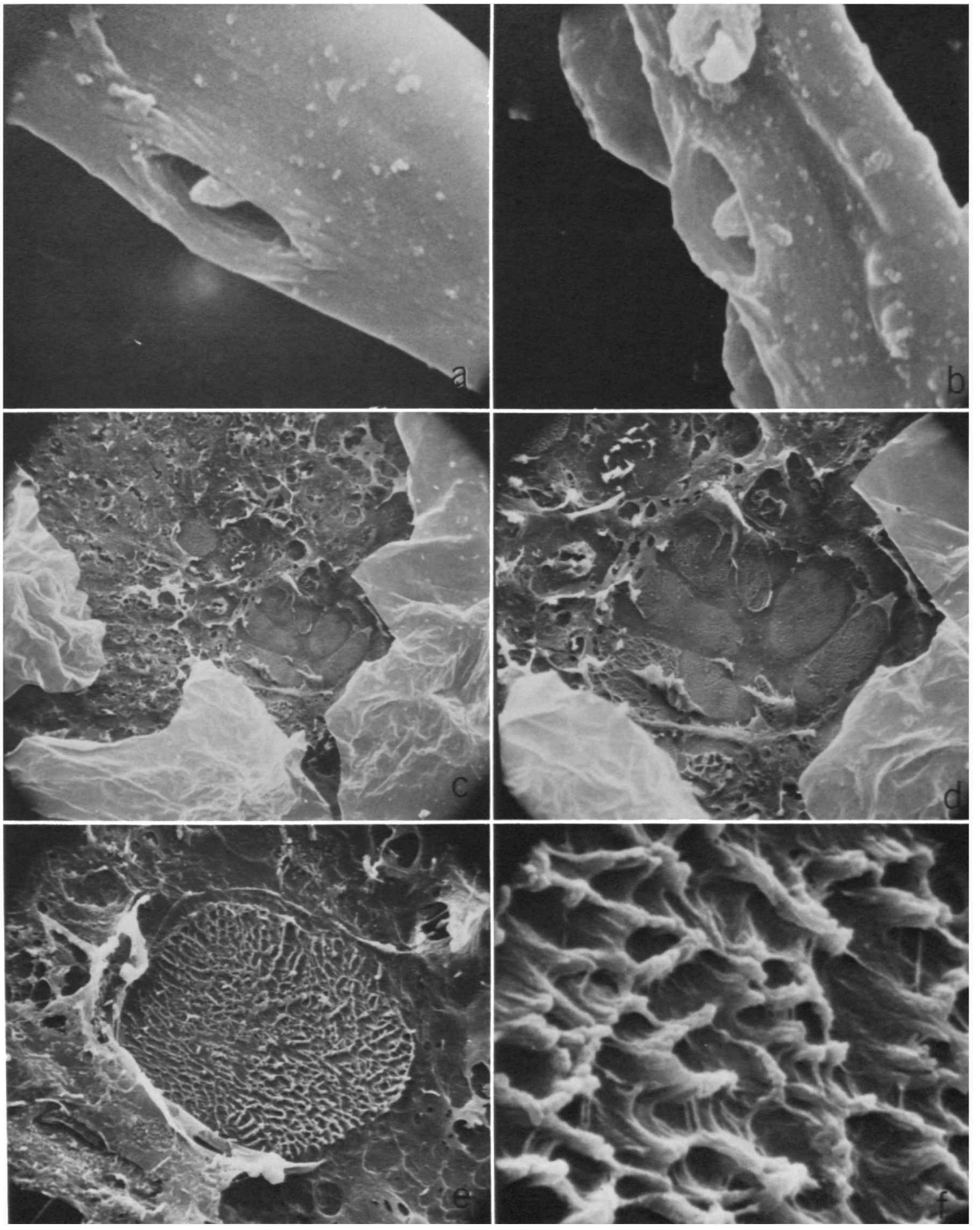

a
b
a
b
c
d

PLATE 4

Pterocypridina dedeckkeri, new species, adult female, holotype, USNM 158240, left valve: *a*, minute protuberance, bearing pore with small bristle, along edge of list just anterior to caudal process, from Plate 3*d*, × 10,000; *b*, same type pore and bristle from list of caudal process opposite posterior tip of process, from Plate 3*c*, × 10,000; *c*, central adductor muscle attachment scars, from Plate 1*c*, × 175; *d*, same, × 360; *e*, attachment scar located to upper left of main group of scars, from *c*, × 1250; *f*, detail of surface where muscle had been detached, from *e*, × 10,000. (Micrographs reduced to 78%.)


a
b
c
d
e
f

REQUIREMENTS FOR SMITHSONIAN SERIES PUBLICATION

Manuscripts intended for series publication receive substantive review within their originating Smithsonian museums or offices and are submitted to the Smithsonian Institution Press with Form SI-36, which must show the approval of the appropriate authority designated by the sponsoring organizational unit. Requests for special treatment—use of color, foldouts, case-bound covers, etc.—require, on the same form, the added approval of the sponsoring authority.

Review of manuscripts and art by the Press for requirements of series format and style, completeness and clarity of copy, and arrangement of all material, as outlined below, will govern, within the judgment of the Press, acceptance or rejection of manuscripts and art.

Copy must be prepared on typewriter or word processor, double-spaced, on one side of standard white bond paper (not erasable), with 1¼" margins, submitted as ribbon copy (not carbon or xerox), in loose sheets (not stapled or bound), and accompanied by original art. Minimum acceptable length is 30 pages.

Front matter (preceding the text) should include: **title page** with only title and author and no other information; **abstract** page with author, title, series, etc., following the established format; table of **contents** with indents reflecting the hierarchy of heads in the paper; also, **foreword** and/or **preface**, if appropriate.

First page of text should carry the title and author at the top of the page; **second page** should have only the author's name and professional mailing address, to be used as an unnumbered footnote on the first page of printed text.

Center heads of whatever level should be typed with initial caps of major words, with extra space above and below the head, but with no other preparation (such as all caps or underline, except for the underline necessary for generic and specific epithets). Run-in paragraph heads should use period/dashes or colons as necessary.

Tabulations within text (lists of data, often in parallel columns) can be typed on the text page where they occur, but they should not contain rules or numbered table captions.

Formal tables (numbered, with captions, boxheads, stubs, rules) should be submitted as carefully typed, double-spaced copy separate from the text; they will be typeset unless otherwise requested. If camera-copy use is anticipated, do not draw rules on manuscript copy.

Taxonomic keys in natural history papers should use the aligned-couplet form for zoology and may use the multi-level indent form for botany. If cross referencing is required between key and text, do not include page references within the key, but number the keyed-out taxa, using the same numbers with their corresponding heads in the text.

Synonymy in zoology must use the short form (taxon, author, year:page), with full reference at the end of the paper under "Literature Cited." For botany, the long form (taxon, author, abbreviated journal or book title, volume, page, year, with no reference in "Literature Cited") is optional.

Text-reference system (author, year:page used within the text, with full citation in "Literature Cited" at the end of the text) must be used in place of bibliographic footnotes in all Contributions Series and is strongly recommended in the Studies Series: "(Jones, 1910:122)" or "... Jones (1910:122)." If bibliographic footnotes are required, use the short form (author, brief title, page) with the full citation in the bibliography.

Footnotes, when few in number, whether annotative or bibliographic, should be typed on separate sheets and inserted immediately after the text pages on which the references occur. Extensive notes must be gathered together and placed at the end of the text in a notes section.

Bibliography, depending upon use, is termed "Literature Cited," "References," or "Bibliography." Spell out titles of books, articles, journals, and monographic series. For book and article titles use sentence-style capitalization according to the rules of the language employed (exception: capitalize all major words in English). For journal and series titles, capitalize the initial word and all subsequent words except articles, conjunctions, and prepositions. Transliterate languages that use a non-Roman alphabet according to the Library of Congress system. Underline (for italics) titles of journals and series and titles of books that are not part of a series. Use the parentheses/colon system for volume(number):pagination: "10(2):5–9." For alignment and arrangement of elements, follow the format of recent publications in the series for which the manuscript is intended. Guidelines for preparing bibliography may be secured from Series Section, SI Press.

Legends for illustrations must be submitted at the end of the manuscript, with as many legends typed, double-spaced, to a page as convenient.

Illustrations must be submitted as original art (not copies) accompanying, but separate from, the manuscript. Guidelines for preparing art may be secured from Series Section, SI Press. All types of illustrations (photographs, line drawings, maps, etc.) may be intermixed throughout the printed text. They should be termed **Figures** and should be numbered consecutively as they will appear in the monograph. If several illustrations are treated as components of a single composite figure, they should be designated by lowercase italic letters on the illustration; also, in the legend and in text references the italic letters (underlined in copy) should be used: "Figure 9b." Illustrations that are intended to follow the printed text may be termed **Plates**, and any components should be similarly lettered and referenced: "Plate 9b." Keys to any symbols within an illustration should appear on the art rather than in the legend.

Some points of style: Do not use periods after such abbreviations as "mm, ft, USNM, NNE." Spell out numbers "one" through "nine" in expository text, but use digits in all other cases if possible. Use of the metric system of measurement is preferable; where use of the English system is unavoidable, supply metric equivalents in parentheses. Use the decimal system for precise measurements and relationships, common fractions for approximations. Use day/month/year sequence for dates: "9 April 1976." For months in tabular listings or data sections, use three-letter abbreviations with no periods: "Jan, Mar, Jun," etc. Omit space between initials of a personal name: "J.B. Jones."

Arrange and paginate sequentially every sheet of manuscript in the following order: (1) title page, (2) abstract, (3) contents, (4) foreword and/or preface, (5) text, (6) appendixes, (7) notes section, (8) glossary, (9) bibliography, (10) legends, (11) tables. Index copy may be submitted at page proof stage, but plans for an index should be indicated when manuscript is submitted.