

# DESIGNATION OF LECTOTYPES OF SOME OSTRACODS FROM THE CHALLENGER EXPEDITION

By H. S. PURI and N. C. HULINGS

## CONTENTS

	<i>Page</i>
SYNOPSIS . . . . .	254
INTRODUCTION . . . . .	254
GENUS <i>Phlyctenophora</i>	
<i>P. zealandica</i> Brady . . . . .	256
GENUS <i>Aglaia</i>	
<i>A. clavata</i> Brady . . . . .	256
<i>A. (?) meridionalis</i> Brady . . . . .	257
<i>A. (?) obtusata</i> Brady . . . . .	257
<i>A. (?) pusilla</i> Brady . . . . .	257
GENUS <i>Pontocypris</i>	
<i>P. simplex</i> Brady . . . . .	258
<i>P. (?) subreniformis</i> Brady . . . . .	258
GENUS <i>Argilloecia</i>	
<i>A. eburnea</i> Brady . . . . .	259
(?) <i>A. badia</i> Brady . . . . .	259
GENUS <i>Macrocypris</i>	
<i>M. canariensis</i> Brady . . . . .	260
<i>M. setigera</i> Brady . . . . .	260
<i>M. similis</i> Brady . . . . .	260
<i>M. tenuicauda</i> Brady . . . . .	261
<i>M. tumida</i> Brady . . . . .	261
GENUS <i>Bythocypris</i>	
<i>B. elongata</i> Brady . . . . .	262
<i>B. reniformis</i> Brady . . . . .	262
GENUS <i>Bairdia</i>	
<i>B. abyssicola</i> Brady . . . . .	263
<i>B. attenuata</i> Brady . . . . .	263
<i>B. exaltata</i> Brady . . . . .	264
<i>B. expansa</i> Brady . . . . .	264
<i>B. fortificata</i> Brady . . . . .	264
<i>B. globulus</i> Brady . . . . .	265
<i>B. hirsuta</i> Brady . . . . .	265
<i>B. minima</i> Brady . . . . .	266
<i>B. simplex</i> Brady . . . . .	266
<i>B. villosa</i> Brady . . . . .	266
<i>B. woodwardiana</i> Brady . . . . .	267
GENUS <i>Cythere</i>	
<i>C. acanthoderma</i> Brady . . . . .	267
<i>C. acupunctata</i> Brady . . . . .	268
<i>C. arata</i> Brady . . . . .	268
<i>C. bicarinata</i> Brady . . . . .	269



	<i>Page</i>
<i>C. circumdentata</i> Brady . . . . .	269
<i>C. clavigera</i> Brady . . . . .	270
<i>C. craticula</i> Brady . . . . .	271
<i>C. cristatella</i> Brady . . . . .	271
<i>C. cumulus</i> Brady . . . . .	271
<i>C. curvicostata</i> Brady . . . . .	272
<i>C. cytheropteroides</i> Brady . . . . .	272
<i>C. dasyderma</i> Brady . . . . .	273
<i>C. dictyon</i> Brady . . . . .	273
<i>C. dorsoserrata</i> Brady . . . . .	274
<i>C. ericea</i> Brady . . . . .	275
<i>C. exfoveolata</i> Neviani . . . . .	275
<i>C. exilis</i> Brady . . . . .	276
<i>C. falklandi</i> Brady . . . . .	276
<i>C. flabellucostata</i> Brady . . . . .	276
<i>C. floscardui</i> Brady . . . . .	277
<i>C. fulvotincta</i> Brady . . . . .	277
<i>C. hardingi</i> nom. nov. . . . .	277
<i>C. impluta</i> Brady . . . . .	278
<i>C. inconspicua</i> Brady . . . . .	278
<i>C. irpex</i> Brady . . . . .	278
<i>C. irrorata</i> Brady . . . . .	279
<i>C. kerguelenensis</i> Brady . . . . .	279
<i>C. (?) laganella</i> Brady . . . . .	280
<i>C. lauta</i> Brady . . . . .	280
<i>C. lepralioides</i> Brady . . . . .	280
<i>C. lubbockiana</i> Brady . . . . .	281
<i>C. mackenziei</i> nom. nov. . . . .	281
<i>C. moseleyi</i> Brady . . . . .	281
<i>C. murrayana</i> Brady . . . . .	282
<i>C. obtusalata</i> Brady . . . . .	282
<i>C. packardi</i> Brady . . . . .	282
<i>C. papuensis</i> Brady . . . . .	283
<i>C. parallelogramma</i> Brady . . . . .	284
<i>C. patagoniensis</i> Brady . . . . .	284
<i>C. quadriaculeata</i> Brady . . . . .	284
<i>C. radula</i> Brady . . . . .	285
<i>C. rastromarginata</i> Brady . . . . .	286
<i>C. sabulosa</i> Brady . . . . .	286
<i>C. scalaris</i> Brady . . . . .	287
<i>C. scintillulata</i> Brady . . . . .	287
<i>C. securifer</i> Brady . . . . .	288
<i>C. (?) serratula</i> Brady . . . . .	288
<i>C. scabrocuneata</i> Brady . . . . .	289
<i>C. squalidentata</i> Brady . . . . .	289
<i>C. stolonifera</i> Brady . . . . .	289
<i>C. subrufa</i> Brady . . . . .	290
<i>C. suhmi</i> Brady . . . . .	290
<i>C. sulcatoperforata</i> Brady . . . . .	291
<i>C. torresi</i> Brady . . . . .	292
<i>C. tricristata</i> Brady . . . . .	292
<i>C. tetrica</i> Brady . . . . .	293
<i>C. velivola</i> Brady . . . . .	293







	<i>Page</i>
GENUS <i>Polycope</i>	
<i>P. cingulata</i> Brady . . . . .	311
<i>P. (?) favus</i> Brady . . . . .	311
GENUS <i>Cytherella</i>	
<i>C. cribrosa</i> Brady . . . . .	312
<i>C. dromedaria</i> Brady . . . . .	312
<i>C. irregularis</i> Brady . . . . .	312
<i>C. lata</i> Brady . . . . .	313
<i>C. latimarginata</i> Brady . . . . .	313
<i>C. venusta</i> Brady . . . . .	313
REFERENCES . . . . .	314

### SYNOPSIS

Syntype material of recent ostracods described by G. S. Brady from the Challenger Expedition and deposited in the British Museum (Natural History) and the Hancock Museum, Newcastle upon Tyne, is redescribed. Lectotypes are selected where appropriate and topotypic material identified. Neotypes are established for *Xestoleberis tumefacta* Brady, *Bythocythere velifera* Brady and *Cytherella latimarginata* Brady. New names are proposed for *Cythere ovalis* Brady and *C. pyriformis* Brady.

### INTRODUCTION

IN order to stabilize ostracod nomenclature, one of us (H. S. P.) initiated a restudy and redescription of the classic European collections of G. W. Müller, G. S. Brady and G. O. Sars. The present contribution is a study of some syntype material deposited in the British Museum (Natural History) and the Hancock Museum, Newcastle upon Tyne. A complete list of species collected during the voyage of the H.M.S. *Challenger* and catalogued at the British Museum (Natural History) was prepared by Dr R. H. Bate (see Bate, 1963).

We would like to express our gratitude to Dr J. P. Harding, formerly Keeper of Zoology, Mrs Patricia Barker and Dr K. G. McKenzie for their encouragement ; and to Dr R. H. Bate, Dr K. G. McKenzie, Mr G. Bennell and Miss Ann Gurney for editorial assistance. The stereoscan photographs for Plates 26 and 27 were taken by Miss Gurney. Through the courtesy of Mr A. M. Tynan, Curator, The Hancock Museum, Newcastle upon Tyne, we were able to examine Brady's syntype material deposited in the Hancock Museum. Dr H. V. Howe kindly made available to us his exhaustive index on ostracods. We wish to thank Dr R. H. Benson for critically reading the manuscript and offering helpful comments. The study of Brady's Challenger ostracods was supported by NSF Grant GB 6706.

The descriptive notes which follow the designation of each lectotype are meant to supplement the descriptions given by Brady. The species are arranged in the text and the plates in the same order as they appear in the Challenger monograph and we have used Brady's nomenclature except for two homonyms which are renamed. Short synonymies are given with each species.

Originally it was planned to prepare scanning electron micrographs of the British Museum (Natural History) types, but it was decided not to use this method for fear of damaging the specimens. Consequently, photographs were taken by Dr



R. H. Benson at the Smithsonian Institution in Washington, and these are published as Pls 1-25. Through the kindness of Dr R. H. Bate, we were able to obtain a small portion of the original Challenger sediment samples. Specimens obtained from these samples were used to supplement Brady's syntype material.

Scanning electron photomicrographs of these specimens were prepared by Mr Ron Parker, in Tallahassee, and at the Department of Geology, University of Delaware, Newark, Delaware, through the courtesy of Dr F. W. Swain. These are lodged at the British Museum (Natural History) together with the topotypic material. Two plates of scanning photomicrographs are included in this paper. Lectotypes of seven species described by Brady (1880) have already been established. Type specimens of *Cythere scabrocuneata* Brady were established by Harding & Sylvester-Bradley (1953). Benson (1971) established an early instar as lectotype for *Cythere squalidentata* Brady (considered by Benson as a *nomen dubium*), and he subsequently (Benson, 1972) established lectotypes for *Cythere arata* Brady, *Cythere dictyon* Brady, *Cythere rastromarginata* Brady, *Cythere radula* Brady and *Cythere vimea* Brady. Illustrations of the above lectotypes established by Benson appear in this paper.

Richard H. Benson prepared the following text on photographic techniques. 'The photographic equipment used was the Leitz Aristophot Microscope with Ultrapac lenses and 35 mm camera. The specimens were placed either dry (for incident illumination) or in immersion (for transmitted and black light) on glass so that extraneous light would pass through rather than be reflected by the background. A single light source was used for incident illumination in conjunction with a paper diffusing ring held close to the specimen. The background of incident light photographs could be varied from light to dark with the aid of an off-centre substage light and variable rheostat. Conventional techniques were used for the transmitted light photographs, but the lenses had a longer working distance and greater depth of field than those usually employed in photomicrography. Inadequate depth of field still is a limitation to the use of conventional photomicrography for illustration of ostracods. One will notice this in many of the figures in the present work. Every photograph was a compromise of some kind, especially with the large or thick specimens.

'With the use of transmitted light and immersion of the specimen in water or glycerine many features that Brady did not illustrate could be seen. Many muscle-scar patterns, hinges, surface ornament, and marginal area features are now shown for comparison with specimens collected elsewhere. It is regretted that all of these characters could not be illustrated by photography for all forms. Attempts were made to obtain photographs of these features wherever they could be seen.'

Illustration was confined to new species found and described by Brady from the Challenger samples. There are many others which had been previously described and which he identified. Four of these are illustrated on Pl. 25. These were thought to have special interest and were included while the opportunity was at hand. These include *Cythere melobesioides* Brady, 1869, *Cythere cymba* Brady, 1869, *Cythere polytrema* Brady, 1878, and *Cythere euplectella* Brady, 1869.

The following species have not been illustrated as specimens could not be found either in the collection or in the topotype material: *Cythere fortificata*, *Bythocypris*



*compressa* and *Cytherura obliqua*. Type specimens of *Cytherella latimarginata* were lost and a neotype is selected.

There are some discrepancies between Brady's description of stations and the narrative of the Challenger cruise (Tizard *et al.*, 1885). Under each type locality, data provided by Brady on the slides are given and the additional data which are documented in the narrative are given in parentheses after each station.

### Genus **PHLYCTENOPHORA**

#### ***Phlyctenophora zealandica*** Brady

(Pl. 1, figs 17, 18)

*Phlyctenophora zealandica* Brady, 1880 : 33, pl. 3, figs 1a-m.

FIGURED SPECIMEN. Articulated carapace (split), BM 81.5.7. Length 0.88 mm ; height 0.38 mm. *Type locality*: Humboldt Bay, Papua, 37 fathoms.

DESCRIPTION. *Shape and ornamentation* essentially as given by Brady (1880). *Inner lamella*: anterior and posterior vestibula present, latter larger ; ventral shelf present. *Marginal pore canals* anteriorly branching, several main canals each giving off numerous smaller canals ; posteriorly, simple straight canals. *Hinge* difficult to discern. Right valve apparently with anterior and posterior sockets and median bar.

REMARKS. Pl. 1, figs 17, 18 represent the specimen labelled by Brady as '*Phlyctenophora zealandica*' in the British Museum collection and may not represent Brady's concept of this species. Brady also figured the soft parts of this species. The selection of a lectotype is deferred until living specimens are found in adequate quantity and described. *Topotypic material*: disarticulated left and right valves, BM 1974.246.

### Genus **AGLAIA**

#### ***Aglaia clavata*** Brady

(Pl. 2, figs 16, 17)

*Aglaia clavata* Brady, 1880 : 34, pl. 6, figs 4a-d.

LECTOTYPE. Disarticulated left and right valves, BM 81.5.1 (separated after photography). Length of articulated carapace 0.56 mm ; greatest height 0.23 mm. *Type locality*: Wellington Harbour, New Zealand (trawl-net).

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), see Pl. 2, figs 16 and 17. *Inner lamella*: marginal zone narrow in anterior and posterior ends ; wide along middle two-thirds of ventral margin. Anterior and posterior vestibula large. Line of concrescence irregular. *Marginal pore canals*: anterior canals numerous and simple. No pore canals seen on ventral or posterior end. *Hinge* adont. *Central muscle scars*: five scars divided into an anterior row of three and two posterior.



*Aglaia (?) meridionalis* Brady

(Pl. 20, figs 4-6)

*Aglaia (?) meridionalis* Brady, 1880 : 34, 35, pl. 30, figs 7a-d.

LECTOTYPE. Left valve with outer margin fractured, BM 1961.12.4.63. Length 0.65 mm ; height 0.28 mm. *Type locality*: Stat. 316, Stanley Harbour, Falklands, 6 fathoms. (51°32'0"N, 58°06'0"W, dredged, 4 fathoms, mud, surface temp. 51.2°F, February 3, 1876.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella* not distinguishable on lectotype. *Central muscle scars*: see Pl. 20, fig. 6.

*Aglaia (?) obtusata* Brady

(Pl. 20, figs 7, 8)

*Aglaia (?) obtusata* Brady, 1880 : 35, pl. 30, figs 8a-d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.4 (separated after photography). Right valve: length 0.55 mm ; height 0.27 mm ; left valve: length 0.52 mm ; height 0.24 mm. *Type locality*: Stat. 149, Balfour Bay, Kerguelen Island. (49°08'0"S, 70°12'0"E, dredged, 20-50 fathoms, dark mud, January 9, 1874.)

DESCRIPTION. *Shape* as given by Brady (1880) for right valve. Left valve smaller, anterior and posterior ends less broadly rounded than right valve, ventral surface sinuate near middle. *Ornamentation* as given by Brady (1880). *Inner lamella*: line of concrescence irregular ; anterior and posterior vestibula, the former large and the latter reduced, marginal area narrow anteriorly and posteriorly, wide ventrally. *Marginal pore canals* numerous and simple at anterior end, few and simple, some false at posterior end. *Hinge* adont. *Central muscle scars*: anterior row of three and posterior row of two making a total of five scars. *Overlap*: right valve overlaps the left valve.

*Aglaia (?) pusilla* Brady

(Pl. 20, figs 1-3)

*Aglaia (?) pusilla* Brady, 1880 : 34, pl. 30, figs 6a-d.

LECTOTYPE. Disarticulated right and left valves, BM 81.5.2. Right valve: length 0.51 mm ; height 0.22 mm ; left valve: length 0.50 mm ; height 0.20 mm. *Type locality*: Stat. 162, dredged off East Moncœur Island, Bass Strait, 38-40 fathoms. (39°10'30"S, 146°37'0"W, surface temp. 63.2°F, April 2, 1874.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: line of concrescence irregular, anterior and posterior vestibula with anterior larger, marginal area narrow anteriorly and posteriorly, wide ventrally. See Pl. 20, figs 1 and 3. *Marginal pore canals* numerous and simple anteriorly. *Hinge* adont.



*Central muscle scars*: five scars, vertical row of three anteriorly and two posteriorly. See Pl. 20, fig. 2. *Overlap*: right valve overlaps the left.

REMARKS. Brady (1880, p. 34) found this species only at Stat. 162; sediment sample M-195, which represents this station, yielded a single articulated carapace. *Topotypic material*: a complete carapace, BM 1974.250.

### Genus *PONTOCYPRIS*

#### *Pontocypris simplex* Brady

(Pl. 1, figs 6-8)

*Pontocypris simplex* Brady, 1880: 37, pl. 1, figs 5a-d.

LECTOTYPE. Disarticulated right and left valves of a complete specimen, BM 81.5.4 (separated during photography). Right valve: length 0.62 mm; height 0.31 mm; left valve: length 0.62 mm; height 0.31 mm. *Type locality*: Stat. 344. Off Ascension Island, 71 fathoms.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: large anterior and posterior vestibula. Duplicature widest ventrally. Inner margin coincides with the line of concrescence only ventrally. Ventral margin expanded to form a small shelf in both valves. *Marginal pore canals* short, simple, straight, most numerous anteriorly. A few false canals ventrally. *Hinge* adont. Groove in right valve. *Normal pores* numerous, small, open. *Central muscle scars*: adductor consists of five scars.

#### *Pontocypris (?) subreniformis* Brady

(Pl. 3, fig. 16)

*Pontocypris (?) subreniformis* Brady, 1880: 38, 39; pl. 7, figs 5a-d, not *Pontocypris (?) subtriangularis* Brady, 1880: pl. 15, figs 6a-d (*nom. nud.*).

LECTOTYPE. Disarticulated right and left valves, right valve cracked ventrally, BM 81.5.5 (separated after photography). Right valve: length 0.65 mm; height 0.34 mm; left valve: length 0.62 mm; height 0.34 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape* of left valve as given by Brady (1880), except that on the type, the anterior end is rounded rather than depressed, the posterior is more acutely rounded. Right valve the same but with the dorsal surface more evenly arched. See Pl. 3, fig. 16. *Ornamentation* as given by Brady (1880). *Inner lamella*: anterior and posterior vestibula present with the former the largest, line of concrescence and inner margin coincide ventrally where the lamella is the widest. Ventral margin expanded to form a shelf. *Marginal pore canals* short, straight and simple. *Hinge* adont. Right valve with a groove for the dorsal border of the left valve. *Normal pores* small and open.



REMARKS. Brady (1880, pp. 38, 39) described this species from two stations (Stat. 140, Simon's Bay, South Africa, 15–20 fathoms, and Port Jackson). Port Jackson is the type locality of the lectotype. The lectotype resembles Brady's illustration on pl. 7 (figs 5a–d), the topotypes are much longer and may represent forms figured by Brady on pl. 7 (figs 5a–d) as '*subtriangularis*'. Both of these forms belong to *Propontocypris* as shown by muscle scars and other internal features. *Topotypic material*: BM 1974.249.

Genus **ARGILLOECIA**  
***Argilloecia eburnea*** Brady  
(Pl. 2, figs 5, 6)

*Argilloecia eburnea* Brady, 1880 : 40, pl. 4, figs 1–15.

LECTOTYPE. Left valve, BM 80.38.9. Length 0.81 mm ; height 0.34 mm. *Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20–50 fathoms, January 1874.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: anterior and posterior vestibula large, marginal area narrow. *Marginal pore canals* simple. *Hinge* adont. *Central muscle scars*: five scars, anterior vertical row of three and posterior row of two. See Pl. 2, fig. 6.

REMARKS. Brady (1880, p. 40) reported this species as occurring 'plentifully' from two dredgings from Kerguelen Island–Balfour Bay (20–50 fathoms) and off Christmas Harbour (120 fathoms). The lectotype is from Stat. 149 (Balfour Bay) and the topotypic specimen was obtained from sediment sample M-183 which represents the Christmas Harbour dredging. *Topotypic material*: a complete carapace, BM 1974.251.

***Argilloecia badia*** Brady  
(Pl. 27, figs 1, 2)

*Argilloecia badia* Brady, 1880 : 40, pl. 6, figs 3a–d.

FIGURED SPECIMEN. Complete carapace, BM 1974.252. Length 0.84 mm ; height 0.40 mm. *Type locality*: Port Jackson, Australia, 2–10 fathoms, April 20, 1874.

REMARKS. Brady (1880) reported this species from Port Jackson. Sediment sample M-198 yielded several specimens and a right valve is figured on Pl. 27. The type specimens of this species were evidently lost. There are no specimens in British Museum (Natural History) and none are at the Hancock Museum (*fide* letter by Mrs O. Marshall, secretary to Mr A. M. Tynan, Curator, Hancock Museum, dated July 24, 1967, to H. S. Puri). The form questionably identified and figured here is twice as large as the one figured by Brady, 1880 (length 0.4 mm). More material is needed in order to select a neotype.



Genus **MACROCYPRIS*****Macrocypris canariensis*** Brady

(Pl. 1, figs 15, 16)

*Macrocypris canariensis* Brady, 1880 : 42, pl. 2, figs 3a-d.

LECTOTYPE. Disarticulated right and left valves. Both valves eroded, BM 81.5.6 (separated after photography). Right valve : length 1.94 mm ; height 0.68 mm ; left valve : length 1.98 mm ; height 0.60 mm. *Type locality*: off Canary Island, 620 fathoms. (28°03'15"N, 17°27'0"W, dredged, surface temp. 64.5°F.)

DESCRIPTION. *Shape and ornamentation* essentially as given by Brady (1880). *Inner lamella*: wide anteriorly and posteriorly with vestibulum present at both ends. Ventral shelf present. *Marginal pore canals* straight, simple. *Hinge* merodont-entomodont. Right valve with anterior and posterior terminal sockets and median bar. Left valve with anterior and posterior terminal teeth and median groove. Teeth, sockets and terminal portions of median bar smooth. *Normal pores* small, open, mostly on ventral half of valves.

***Macrocypris setigera*** Brady

(Pl. 1, figs 1-5)

*Macrocypris setigera* Brady, 1880 : 43, pl. 1, figs 1a-d.

LECTOTYPE. Left and right valves of a disarticulated specimen, BM 80.38.2 (separated after photography). Right valve : length 1.20 mm ; height 0.50 mm ; left valve : length 1.21 mm ; height 0.54 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880) except for absence of setae. *Inner lamella*: wide anteriorly and posteriorly, narrow ventrally. Line of concrescence and inner margin coincide for a very short distance ventrally. Wide vestibula ventrally. *Marginal pore canals* numerous and branching, some false. Longest ventrally, short anteriorly and posteriorly. See Pl. 1, figs 4 and 5. *Hinge* adont. Left valve with a shallow groove. *Normal pores* numerous, scattered, small open. *Central muscle scars*: see Pl. 1, fig. 3, the complex consists of seven adductor scars.

REMARKS. *Topotypic material*: a complete carapace, BM 1974.245.

***Macrocypris similis*** Brady

(Pl. 1, figs 13, 14)

*Macrocypris similis* Brady, 1880 : 42, pl. 2, figs 2a-d.

LECTOTYPE. Right valve, BM 80.38.14. Length 1.72 mm ; height 0.62 mm. *Type locality*: Stat. 120, off Pernambuco, 675 fathoms. (8°37'0"S, 34°28'0"W, trawled, red mud, surface temp. 78°F, September 9, 1873.)



DESCRIPTION. *Shape*: Brady's (1880) description appears to be based on a left valve. Present type has an almost straight ventral margin, dorsal gently arched and anterior end evenly rounded. *Ornamentation* as given by Brady (1880). *Inner lamella*: line of concrescence very narrow and coincides with inner margin only ventrally; anterior and posterior vestibula present, ventral shelf narrow. See Pl. 1, fig. 13. *Marginal pore canals* numerous, short, straight, simple. *Hinge* merodont-entomodont. Right valve with anterior and posterior crenulated sockets and smooth median bar. *Normal pores* few, small, open. *Central muscle scars*: see Pl. 1, fig. 14. Dorsal cluster of three and ventral cluster of seven.

REMARKS. *Topotypic material*: a left valve, BM 1974.243, and a complete carapace, BM 1974.244, were recovered from sediment sample M-140 (Stat. 120).

### *Macrocypris tenuicauda* Brady

(Pl. 1, figs 11, 12)

*Macrocypris tenuicauda* Brady, 1880: 41, 42, pl. 2, figs 1a-f; pl. 3, figs 2a-b.

LECTOTYPE. Left valve, eroded and encrusted, BM 80.38.16. Length 1.70 mm; height 0.60 mm. *Type locality*: Stat. 24, off Culebra Island, West Indies, 390 fathoms. (18°38'30"N, 65°05'30"W, pteropod ooze, surface temp. 76°F, March 25, 1873.)

DESCRIPTION. *Shape*: the present type differs from Brady's (1880) description in the following ways; the anterior end of type is broader and more truncated; the mid-portion of the dorsal surface is gently arched, sinuated anteriorly and gently sloping posteriorly; ventral surface sinuated near anterior. *Ornamentation* as described by Brady (1880). *Inner lamella*: anterior and posterior vestibula present. *Marginal pore canals*: anteriorly, five major canals each giving off numerous branches. Remainder of canals single and straight. *Hinge* merodont-entomodont.

REMARKS. *Topotypic material*: several specimens (BM 1974.242) of this species were recovered from sediment sample M-44 (Stat. 24).

### *Macrocypris tumida* Brady

(Pl. 2, figs 13-15)

*Macrocypris tumida* Brady, 1880: 43, pl. 6, figs 2a-d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.17. Right valve: length 0.71 mm; height 0.31 mm; left valve: length 0.71 mm; height 0.28 mm. *Type locality*: Stat. 149, Royal Sound, Kerguelen Island, 28 fathoms. (49°08'0"S, 70°12'0"E, 20 fathoms, dredged, volcanic mud, January 9, 1874.)

DESCRIPTION. *Shape* as described by Brady (1880) except that height is less than one-half length and ventral region is sinuate. *Ornamentation* as described by Brady (1880). *Inner lamella*: line of concrescence irregular throughout, ventrally coincides with the inner margin, large anterior and posterior vestibula present. *Marginal*



*pore canals* numerous, straight and simple anteriorly, less numerous ventrally and posteriorly. *Hinge* adont. *Central muscle scars*: adductor scars consist of an anterior vertical row of three and a posterior row of two scars.

Genus **BYTHOCYPRIS**

***Bythocypris elongata*** Brady

(Pl. 2, figs 11, 12)

*Bythocypris elongata* Brady, 1880 : 47, pl. 6, figs 1a-c.

LECTOTYPE. Right valve, BM 81.5.8. Length 1.36 mm ; height 0.59 mm.  
*Type locality*: Stat. 335, north of Tristan d'Acunha, 1425 fathoms.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: line of concrescence regular, following outer margin. Marginal area narrow. *Hinge* adont. *Normal pores* open and scattered. *Central muscle scars*: four scars, three elongate and aligned in a vertical row anteriorly. Posterior scar rounded.

***Bythocypris reniformis*** Brady

(Pl. 2, figs 7-10 ; Fig. 1)

*Bythocypris reniformis* Brady, 1880 : 46, pl. 5, figs 1a-l.

LECTOTYPE. Right valve, BM 80.38.19. Length 1.09 mm ; height 0.52 mm.  
*Type locality*: Stat. 24, north of St Thomas, West Indies, 390 fathoms. (18°38'30"N, 65°05'30"W, dredged, pteropod ooze, surface temp. 76°F, March 25, 1873.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Hinge* adont. *Normal pores* open and scattered. *Central muscle scars*: adductor scars arranged in

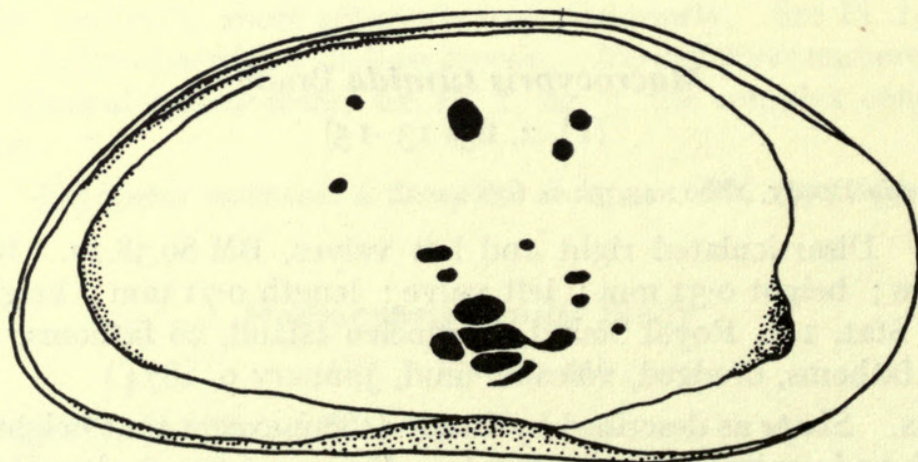


FIG. 1. *Bythocypris reniformis* Brady : interior view of left valve of topotype, BM 1974.255 ( $\times 85$ ).



a vertical row of three horizontal (always split) and a posteroventral scar. Antennal, frontal, mandibular and dorsal are also present (see Fig. 1).

REMARKS. Brady (1880, p. 46) reported this species from Stat. 24 (off Cubebra Island, West Indies, mud), Stats. 120 and 122 (off Prince Edward's Island and off Moncœur Island, Bass Strait). Topotypes were separated from sediment sample M-169 (Prince Edward's Island, 50–150 fathoms) where this species is common. It is also common in Stat. 122 (M-142). *Topotypic material*: a complete carapace, BM 1974.254, and a left valve, BM 1974.255.

### Genus *BAIRDIA*

#### *Bairdia abyssicola* Brady

(Pl. 3, fig. 15)

*Bairdia abyssicola* Brady, 1880 : 52, 53, pl. 7, figs 4a–c.

LECTOTYPE. Right valve, Hancock Museum. Length 1.60 mm ; height 0.93 mm. *Type locality*: Stat. 246, North Pacific, 2050 fathoms. (36°10'0"N, 178°0'0"E, trawled, grey ooze, bottom temp. 35.1°F, surface temp. 73.0°F, July 2, 1875.)

DESCRIPTION. *Shape* as given by Brady (1880). *Ornamentation* smooth. *Inner lamella*: anterior vestibule larger than posterior one. *Hinge* with weak terminal teeth. *Central muscle scars*: three elongate scars arranged vertically. Dorsal scar the shortest, the ventral scar the largest, and with a constriction two-thirds toward the posterior. The dorsal scar also has a constriction near the middle.

#### *Bairdia attenuata* Brady

(Pl. 5, figs 4–6)

*Bairdia attenuata* Brady, 1880 : 59, pl. 11, figs 3a–e.

LECTOTYPE. Eroded right valve, BM 80.38.27. Length 1.30 mm ; height 0.80 mm. *Type locality*: Stat. 185, Torres Straits, 155 fathoms. (11°35'25"S, 144°02'0"E, dredged, 135 fathoms, coral sand, surface temp. 77°F, August 31, 1874.)

DESCRIPTION. *Shape* as given by Brady (1880), except that the posterior extremity is blunt rather than pointed and the dorsal surface is flat rather than arched. *Ornamentation* obscure because of worn surface. *Inner lamella* widest anteriorly. Anterior and posterior vestibula present. *Hinge*: posterior terminal tooth in right valve. *Central muscle scars*: adductor made up of a subcentral group of eight scars. The anteriormost 'scar' of the ventral row, see Pl. 5, fig. 6, is not a scar but a hole in the shell.

REMARKS. Brady (1880, p. 59) reported this form from the Torres Straits (Stat. 185) and reefs at Honolulu. Topotype specimens have been recovered from sediment sample M-237 (Stat. 185). *Topotypic material*: a right valve, BM 1974.256, and a left valve, BM 1974.257.



***Bairdia exaltata* Brady**

(Pl. 4, figs 12-15)

*Bairdia exaltata* Brady, 1880 : 51, pl. 9, figs 2a-d.

LECTOTYPE. Right and left valves, BM 81.5.10. Right valve : length 1.24 mm ; height 0.74 mm ; left valve : length 1.28 mm ; height 0.90 mm. *Type locality*: Stat. 218, Bismarck Sea northeast of New Guinea, 1070 fathoms. ( $2^{\circ}23'0''S$ ,  $144^{\circ}04'0''E$ , trawled, blue mud, bottom temp.  $36.4^{\circ}F$ , surface temp.  $84^{\circ}F$ , March 1, 1875.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 4, figs 12, 13 for details of right valve. *Inner lamella*: marginal area wide ; vestibule varies in width ; widest anteroventrally, narrowing mid-ventrally, increasing in width in posterior half of ventral region, narrowing again and finally disappearing about mid-posterior. See Pl. 4, figs 12, 13 and 15. *Marginal pore canals* simple, straight and continuous, number about the same from anterior to posterior. *Hinge*: right valve with weak terminal teeth. *Central muscle scars*, see Pl. 4, fig. 14. Also note accessory scars.

***Bairdia expansa* Brady**

(Pl. 5, figs 1-3)

*Bairdia expansa* Brady, 1880 : 58, 59, pl. 11, figs 2a-e.

LECTOTYPE. Disarticulated right and left valves of a complete carapace, BM 81.5.11. Right valve : length 0.71 mm ; height 0.40 mm ; left valve : length 0.71 mm ; height 0.43 mm. *Type locality*: reef off Honolulu, 40 fathoms, July 1875.

DESCRIPTION. *Shape* as described by Brady (1880) for left valve. See Pl. 5, fig. 3 for right valve. *Ornamentation* as given by Brady (1880) *Inner lamella*: narrow marginal area, vestibule widest at anterior, narrows greatly at ventral sinus (right valve) increases in width again posterior to ventral sinus, then disappears about mid-posterior. See Pl. 5, figs 1 and 3. *Hinge* adont. *Normal pores* open, evenly distributed. *Central muscle scars* about twelve, very irregularly shaped scars. See Pl. 5, fig. 2.

***Bairdia fortificata* Brady**

(Pl. 5, figs 7-9)

*Bairdia fortificata* Brady, 1880 : 59, pl. 11, figs 4a-b.

LECTOTYPE. Left valve, BM 81.5.12. Length 1.09 mm ; height 0.56 mm. *Type locality*: Stat. 187, off Booby Island, north of Australia. ( $10^{\circ}36'0''S$ ,  $141^{\circ}55'0''E$ , dredged, 6 fathoms, coral mud, surface temp.  $77.7^{\circ}F$ , September 9, 1874.)

DESCRIPTION. *Shape* as given by Brady (1880). See Pl. 5, fig. 7. *Ornamentation*: see Pl. 5, figs 7 and 8. *Inner lamella*: marginal zone wide, vestibule very



reduced and restricted to anterior and posterior extremities. *Marginal pore canals* simple, straight and numerous. *Hinge* adont. Left valve with straight, smooth groove. *Central muscle scars*: see Pl. 5, fig. 8.

REMARKS. The only specimen of this species (a left valve) found by Brady (1880, p. 59) is designated lectotype. Two left valves and a complete carapace were recovered from sediment sample M-242 (Stat. 187). *Topotypic material*: two left valves, BM 1974.271-272.

***Bairdia globulus* Brady**

(Pl. 4, figs 6-11)

*Bairdia globulus* Brady, 1880 : 54, pl. 9, figs 1a-d.

LECTOTYPE. Right and left valves of an articulated specimen, BM 80.38.34 (separated after photography). Right valve: length 1.05 mm; height 0.62 mm; left valve: length 1.09 mm; height 0.71 mm. *Type locality*: Nares Harbour, Admiralty Islands, 16 fathoms, March 2, 1875.

DESCRIPTION. *Shape* as described by Brady (1880) for left valve. Notable differences between the description by Brady and the left valve of the lectotype include the anterior extremity, the latter not being 'very broadly rounded', absence of teeth at the anterior end and their presence on the posteroventral end, the ventral margin not being considerably arched and the height of the left valve being closer to two-thirds of the length, rather than three-fourths. See Pl. 4, fig. 6 for other features of left valve and Pl. 4, figs 8 and 9 for shape of right valve. *Ornamentation*: 'distinct small impressed puncta' of Brady not present on lectotype. *Inner lamella*: see Pl. 4, figs 6 and 8. *Marginal pore canals* simple and straight. *Hinge*: right valve with weak terminal teeth. *Normal pores* open, evenly distributed. *Central muscle scars*: see Pl. 4, fig. 10.

***Bairdia hirsuta* Brady**

(Pl. 4, figs 4, 5)

*Bairdia hirsuta* Brady, 1880 : 50, 51, pl. 8, figs 3a-d.

LECTOTYPE. Right valve, BM 80.38.35. Length 1.46 mm; height 0.90 mm. *Type locality*: Stat. 300, near Juan Fernandez Island, west of Chile, 1375 fathoms. (33°42'0"S, 78°10'0"W, trawled, *Globigerina* ooze, bottom temp. 35.5°F, surface temp. 62.5°F, December 17, 1875.)

DESCRIPTION. *Shape* as given by Brady (1880). *Ornamentation*: smooth and glossy, hairy. *Inner lamella*: marginal zone well developed, anterior and posterior vestibula equal in size. *Hinge* adont. *Central muscle scars*: anteriorly, three elongated scars arranged vertically, plus a single posterior scar.



***Bairdia minima* Brady**

(Pl. 3, figs 17, 18 ; Pl. 4, figs 1-3)

*Bairdia minima* Brady, 1880 : 53, pl. 7, figs 6a-g.

LECTOTYPE. Right and left valves of a complete carapace, BM 80.38.37. Right valve : length 0.65 mm ; height 0.39 mm ; left valve : length 0.63 mm ; height 0.40 mm. *Type locality*: Port Jackson, Australia, 6 fathoms, April 20, 1874.

DESCRIPTION. *Shape* as described by Brady (1880) for left valve. See Pl. 3, fig. 18, for details of right valve. *Ornamentation* as given by Brady (1880). *Inner lamella* : marginal area very narrow. *Hinge*: right valve 'toothless'. *Normal pores* open and numerous, especially numerous outside the central muscle scar field. *Central muscle scars*: see Pl. 4, fig. 2. The right valve has eight scars, the left valve nine, each valve having two frontal and two mandibular scars.

***Bairdia simplex* Brady**

(Pl. 3, figs 11-14)

*Bairdia simplex* Brady, 1880 : 51, pl. 7, figs 1a-d.

LECTOTYPE. Right and left valves of a complete carapace, BM 81.5.13. Right valve : length 0.49 mm ; height 0.78 mm ; left valve : length 1.49 mm ; height 0.81 mm. *Type locality* : Stat. 151, off Heard Island, 75 fathoms. (52°59'30"S, 73°33'30"E, dredged, volcanic mud, surface temp. 36.2°F, February 7, 1874.)

DESCRIPTION. *Shape* as described by Brady (1880) for left valve. See Pl. 3, figs 11 and 12 for left valve and figs 13 and 14 for right valve. *Inner lamella*: marginal zone wide, vestibule well developed and widest at anterior end, see Pl. 3, figs 12 and 14. *Marginal pore canals* numerous, simple and straight. *Hinge*: right valve 'toothless'. *Normal pores* numerous, open and evenly distributed. *Central muscle scars*: eight somewhat rounded scars in each valve arranged in a circular manner. Mandibular scar appears to be single although it is elongate and constricted near the centre ; frontal and other scars distinguishable.

***Bairdia villosa* Brady**

(Pl. 2, figs 1-4)

*Bairdia villosa* Brady, 1880 : 50, pl. 3, figs 3a-b, pl. 5, figs 2a-g, pl. 8, figs 4a-f.

LECTOTYPE. Right and left valves of a complete carapace, BM 80.38.44. Right valve : length 1.30 mm ; height 0.80 mm ; left valve : length 1.33 mm ; height 0.92 mm. *Type locality*: Stat. 149, Balfour Bay, Kerguelen Island. (49°08'0"S, 70°12'0"E, dredged, 20 fathoms, volcanic mud, January 9, 1874.)

DESCRIPTION. *Shape* essentially as described by Brady (1880). See Pl. 2, figs 1 and 3. *Inner lamella*: marginal areas widest anteroventrally. Anterior and posterior vestibula well developed. *Marginal pore canals* numerous, straight and



simple. *Hinge*: right valve 'toothless'. *Normal pores* open. *Central muscle scars*: see Pl. 2, fig. 2.

REMARKS. Brady (1880, p. 50) reported this species from Stats. 135 and 149; off Christmas Harbour, Kerguelen Island; off Prince Edward's Island and off Moncœur Island, Bass Strait (Stat. 162). This form is common in sediment sample M-169 and a left valve and right valve (with appendages) have been obtained. *Topotypic material*: a right valve, BM 1974.269, and a left valve, BM 1974.270.

***Bairdia woodwardiana* Brady**

(Pl. 4, figs 16–18)

*Bairdia woodwardiana* Brady, 1880: 57, 58, pl. 11, figs 1a–e.

LECTOTYPE. Right and left valves of a complete specimen, BM 80.38.46. Right valve: length 0.98 mm; height 0.47 mm; left valve: length 0.96 mm; height 0.50 mm. *Type locality*: Stat. 172, off Tongatabu, 18 fathoms. (20°58'0"S, 175°09'0"W, dredged, coral mud, surface temp. 75°F, July 22, 1874.)

DESCRIPTION. *Shape* essentially as described by Brady (1880). See Pl. 4, figs 16 and 18. Note opaque areas. *Ornamentation*: surface very finely punctate. *Inner lamella*: see Pl. 4, figs 16 and 18. Marginal zone widest anteriorly. Anterior vestibule large, posterior very reduced and subparallel to outer margin. *Marginal pore canals* simple, straight. *Normal pores* open, numerous, evenly distributed. *Central muscle scars*: see Pl. 4, fig. 17.

REMARKS. Brady found 'about a dozen' (1880, pp. 57, 58) specimens of this species at a single station. Sediment sample M-220 from this Stat. 172 yielded twelve complete carapaces and detached valves. *Topotypic material*: a complete carapace, BM 1974.258, a left valve, BM 1974.259, and a right valve, BM 1974.260. Additional specimens registered BM 1974.261–8.

Genus **CY THERE**

***Cythere acanthoderma* Brady**

(Pl. 11, figs 16–18)

*Cythere scabra* Brady, 1866 (non Münster), 1866: 380, pl. 61, figs 8a–d.

*Cythere acanthoderma* Brady, 1880: 104, 105, pl. 18, figs 5a–e.

LECTOTYPE. Left valve of a late instar, BM 80.38.48A. Length 0.99 mm; height 0.59 mm. *Type locality*: Stat. 146, deep sea, east of Prince Edward's Island, 1375 fathoms. (46°46'0"S, 45°31'0"E, trawled, *Globigerina* ooze, bottom temp. 35.6°F, surface temp. 43°F, December 29, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella* very narrow. *Marginal pore canals* mostly straight, a few divided marginal pore canals with several false canals. See Pl. 11, fig. 17. *Hinge* holamphidont:



the hinge in the left valve is not completely developed as the type is a late instar. See Pl. 11, fig. 17. *Normal pores* present. *Central muscle scars*: four adductor muscle scars vertically arranged, somewhat elongated. The frontal scar is on the anterior edge of the subcentral tubercle and appears as a small transversely elongated scar.

REMARKS. *Topotypic material*: a complete carapace, BM 1974.277, and a right valve, BM 1974.276, were found in sediment sample M-170 (Stat. 146).

***Cythere acupunctata* Brady**

(Pl. 8, fig. 5)

*Cythere acupunctata* Brady, 1880 : 68, pl. 14, figs 1a-h.

LECTOTYPE. Whole carapace, BM 80.38.50. Right valve : length 0.72 mm ; height 0.32 mm ; left valve : length 0.72 mm ; height 0.32 mm. *Type locality*: Stat. 233 B, Inland Sea of Japan, 15 fathoms. (34°18'0"N, 133°35'0"E, trawled, 15 fathoms, blue mud, surface temp. 66.3°F, May 26, 1875.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 5, fig. 5. *Hinge* gonglyodont. *Central muscle scars*: adductor muscle scars consist of four vertically arranged central scars.

REMARKS. *Topotypic material*: a right valve, BM 1974.292.

***Cythere arata* Brady**

(Pl. 16, figs 9-10 ; Fig. 2)

*Cythere arata* Brady, 1880 : 101, pl. 24, figs 2a-c.

LECTOTYPE. Right valve of penultimate instar, BM 80.38.52 ; designation by Benson (1972, p. 34, pl. 11, figs 16, 17). Length 0.96 mm ; height 0.53 mm. *Type locality*: Stat. 167, west of New Zealand, 150 fathoms. (39°32'0"S, 171°48'0"E, trawled, blue mud, surface temp. 58.5°F, June 24, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 16, fig. 10. *Inner lamella*: anterior and posterior vestibula present but poorly developed. The posterior vestibule is as wide as the anterior one but not as long. The limits of the anterior vestibule are not defined. *Marginal pore canals*: posterior end has several canals whose endings are indistinct. Anteriorly, the canals are more evenly spaced, but more obscure ; this is particularly true on the ventral side where their vague image can be seen along the edge. *Central muscle scars*: a vertical row of four and frontal scar (see Fig. 2). *Hinge* highly modified, antimerodont type ; the anterior crenulate tooth is present. The median groove is only slightly crenulate, a slightly raised area with two points on the ends exists in the middle of the groove. The posterior tooth is smaller than the anterior tooth and is slightly crenulate.

REMARKS. *Cythere arata* Brady is the type species of *Bradleya*, Hornibrook, 1952.



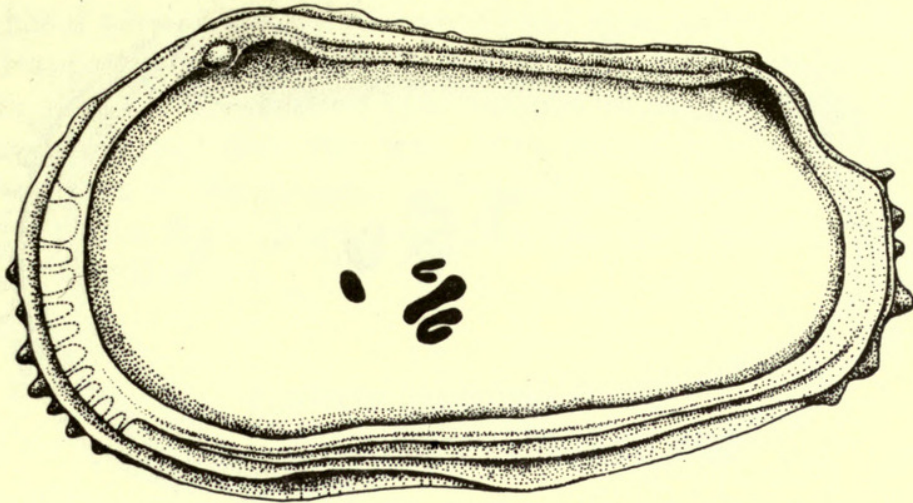


FIG. 2. *Cythere arata* Brady: interior view of lectotype ( $\times 92$ ).

***Cythere bicarinata* Brady**

(Pl. 10, figs 12, 13)

*Cythere bicarinata* Brady, 1880: 70, pl. 16, figs 6a-d.

LECTOTYPE. Whole carapace, BM 80.38.50. Right valve: length 0.63 mm; height 0.27 mm; left valve: length 0.63 mm; height 0.28 mm. *Type locality*: Stat. 233 B, Inland Sea of Japan, 15 fathoms. ( $34^{\circ}20'0''N$ ,  $133^{\circ}35'0''E$ , trawled, 15 fathoms, blue mud, surface temp.  $66.3^{\circ}F$ , May 26, 1875.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 10, figs 12 and 13.

REMARKS. *Topotypic material*: a left valve, BM 1974.282, and a right valve, BM 1974.281.

***Cythere circumdentata* Brady**

(Pl. 17, figs 3-6; Fig. 3)

*Cythere circumdentata* Brady, 1880: 106, pl. 26, figs 2a-c.

LECTOTYPE. Left valve, probably a penultimate stage, BM 80.38.58. Length 1.21 mm; height 0.68 mm. *Type locality*: Stat. 276, off the northwestern end of the Tuamotu Archipelago, 2350 fathoms. ( $13^{\circ}28'0''S$ ,  $149^{\circ}30'0''W$ , trawled, red clay, bottom temp.  $35.1^{\circ}F$ , surface temp.  $80^{\circ}F$ , September 16, 1875.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella*: two vestibula of which the anterior vestibule is the larger. *Marginal pore canals*: only one straight and unbranched canal visible in the anterior region. *Hinge* amphidont, see Fig. 3. *Normal pores* scattered over the surface with more in the anterior and central regions. Most of the pores appeared to be open but several show resemblance to a sieve type. *Central muscle scars*: four vertically arranged adductor scars of which the uppermost scar is rather obscure. The dorsal



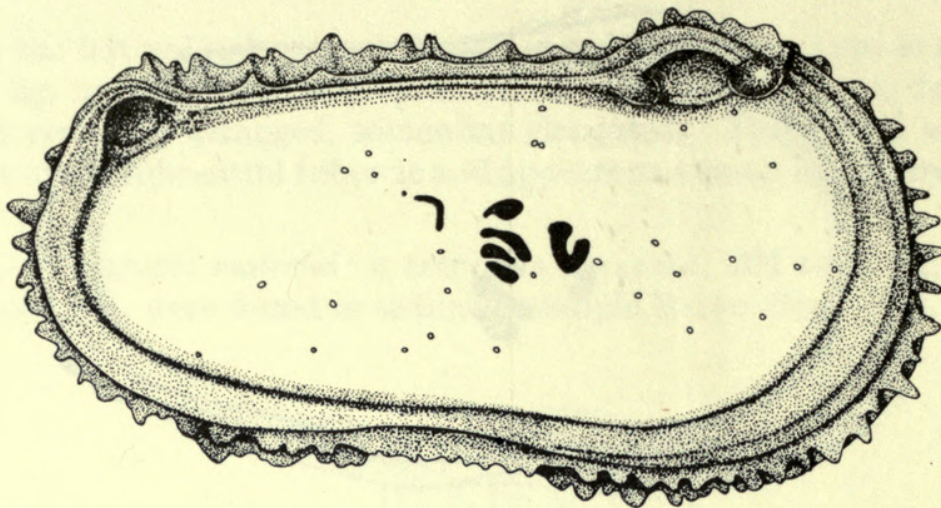


FIG. 3. *Cythere circumdentata* Brady : interior view of lectotype ( $\times 73$ ).

middle scar is flattened U-shape with the largest end extending over the scars beneath. Frontal scar V-shaped. A small dumb-bell shaped scar in the dorsal muscle scar field is present behind the adductor scars (see Fig. 3).

***Cythere clavigera* Brady**

(Pl. 16, figs 1, 2 ; Fig. 4)

*Cythere clavigera* Brady, 1880 : 109, 110, pl. 23, figs 7a-d.

LECTOTYPE. Right valve (moult), BM 80.38.59. Length 0.90 mm ; height 0.47 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella*: the area is so restricted in width that vestibula are non-existent. *Marginal pore canals*: none observed. *Hinge* modified between the antimerodont and hemimerodont types ; the anterior end consists of a flat, smooth tooth which is somewhat

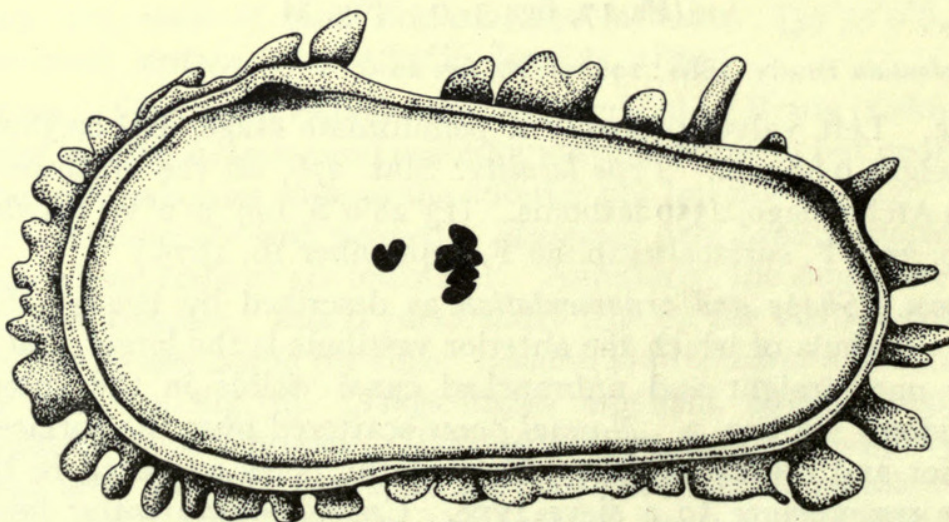


FIG. 4. *Cythere clavigera* Brady : interior view of lectotype ( $\times 92$ ).



rounded and has a very slight crenulation on the right valve. See Fig. 4. *Normal pores*: several apparent sieve types. *Central muscle scars*: adductor muscle scars four in number with the two bottom scars fused into one; the middle scar is square on one end and is larger than the rest. The frontal scar is V-shaped, partially obscured by the base of the external protuberance. There are two round scars in the dorsal area and a slight depression below the eye spot area of the side. See Fig. 4. *Eyespot* prominent.

***Cythere craticula* Brady**

(Pl. 14, figs 9-12)

*Cythere craticula* Brady, 1880: 89, pl. 21, figs 7a-d.

LECTOTYPE. Left valve, BM 81.5.16. Length 0.74 mm; height 0.34 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 14, figs 9 and 10. *Marginal pore canals*: both anterior and posterior ends have numerous mostly straight pores; a few false pore canals are present. At the anterior margin one canal is branched and a few are curved. *Hinge* holamphidont. See Pl. 14, fig. 11. *Eyespots* present, but not well developed.

***Cythere cristatella* Brady**

(Pl. 26, figs 5 and 7)

*Cythere cristatella* Brady, 1880: 90, pl. 19, figs 6a-d.

LECTOTYPE. Complete carapace, BM 80.38.63. Length 0.65 mm; height 0.37 mm. *Type locality*: Stat. 187, off Booby Island, 6-8 fathoms.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 26, figs 5 and 7.

REMARKS. Brady (1880, p. 90) described this species from only one locality (Stat. 187). Of several specimens present in sediment sample M-242, two are figured on Pl. 26, figs 5 and 7. *Topotypic material*: two complete carapaces, BM 1974.184-5.

***Cythere cumulus* Brady**

(Pl. 6, figs 13-18; Pl. 7, fig. 5; Fig. 5)

*Cythere cumulus* Brady, 1880: 71, pl. 13, figs 2a-d.

LECTOTYPE. Disarticulated left and right valves, BM 81.5.17 (separated after photography). Right valve: length 0.50 mm; height 0.28 mm; left valve: length 0.50 mm; height 0.28 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.



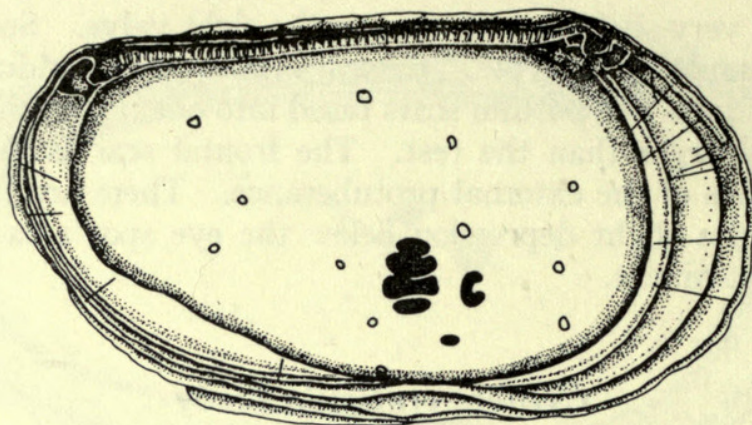


FIG. 5. *Cythere cumulus* Brady: interior (disarticulated) left valve view of lectotype ( $\times 150$ ).

**DESCRIPTION.** *Shape and ornamentation* as described by Brady (1880). See Pl. 6, figs 13, 14 and 17. *Inner lamella:* anterior vestibule much wider than posterior vestibule present only on the lower half of the posterior end. *Marginal pore canals* few, straight to slightly curved, widely spaced anterior and posterior marginal pore canals. See Pl. 6, figs 16 and 17 and Fig. 5. *Hinge* gongylodont. See Pl. 6, figs 16 and 18 and Fig. 5. *Normal pores* of sieve type with two configurations; the more regular pore type and pores which seem to be linear openings in the sieve. *Central muscle scars:* adductor muscle scars, four, elongated, closely stacked, forming a crescent-shaped outline. A frontal scar is present in a somewhat flattened area (see Fig. 5).

**REMARKS.** Sediment sample M-198 (Port Jackson, Australia, 2-10 fathoms) yielded several specimens of this species. *Topotypic material:* a complete carapace, a right valve and two left valves, BM 1974.343-46.

### *Cythere curvicostata* Brady

(Pl. 5, figs 16-19)

*Cythere curvicostata* Brady, 1880: 84, 85, pl. 12, figs 4a-d.

**LECTOTYPE.** Whole carapace, BM 80.38.64. Length 0.59 mm; height 0.34 mm. *Type locality:* Stat. 187, off Booby Island, 6 fathoms. ( $10^{\circ}36'0''S$ ,  $141^{\circ}55'0''E$ , dredged, coral sand, surface temp.  $77.7^{\circ}F$ , September 9, 1874.)

**DESCRIPTION.** *Shape and ornamentation* as described by Brady (1880). *Hinge* holamphidont.

### *Cythere cytheropteroides* Brady

(Pl. 9, figs 5-8)

*Cythere cytheropteroides* Brady, 1880: 78, pl. 15, figs 5a-d.

**LECTOTYPE.** Right valve, BM 80.38.67. Length 0.89 mm; height 0.56 mm. *Type locality:* Stat. 142, off Cape of Good Hope, 150 fathoms. ( $35^{\circ}04'0''S$ ,  $18^{\circ}37'0''E$ , dredged, sand, bottom temp.  $47.0^{\circ}F$ , surface temp.  $65.5^{\circ}F$ , December 18, 1873.)



DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 9, figs 5 and 7. *Inner lamella*: the anterior and posterior vestibula are not well developed. *Hinge* hemiamphidont. See Pl. 9, figs 6 and 8. The anterior element is a worn tooth. Posterior tooth or lobe is broken and the median groove is worn so that crenulations cannot be seen. *Central muscle scars*: adductor muscle scars consist of four vertically stacked scars. One small V-shaped frontal scar is present.

REMARKS. A complete carapace and a right valve were found in sediment sample M-166 (Stat. 142). *Topotypic material*: a complete carapace and a right valve, BM 1974.333-4.

### *Cythere dasyderma* Brady

(Pl. 11, figs 10, 11)

*Cythere dasyderma* Brady, 1880: 105, 106, pl. 17, figs 4a-f; pl. 18, figs 4a-f.

LECTOTYPE. Left valve (probably a penultimate stage), BM 1961.12.4.39. Length 1.20 mm; height 0.71 mm. *Type locality*: Stat. 296. (38°6'0"S, 88°2'0"W, 1825 fathoms, bottom temp. 1.2°C, red clay, November 9, 1875.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880). *Hinge* holamphidont (imperfect). The anterior tooth and the anterior and posterior pits are not well developed. *Central muscle scars*: four adductor muscle scars are arranged vertically with a single frontal scar.

REMARKS. Brady described this species from 20 stations, including Stat. 296. The lectotype is from Stat. 296 and is probably a penultimate stage of left valve. A right valve was found in sediment sample M-237 (Stat. 185). Brady (1880) figured four complete carapaces, one from Stat. 317 (pl. 17, figs 4a-d) and the second from Stat. 122 (pl. 17, figs 4e, f); the third from Stat. 246 (pl. 18, figs 4a-d) and the fourth from Stat. 300 (pl. 18, figs 4e, f). *Topotypic material*: right valve, BM 1974.275 (Stat. 185, Torres' Straits, 155 fathoms, sand, August 31, 1874).

### *Cythere dictyon* Brady

(Pl. 16, figs 6-8; Fig. 6)

*Cythere dictyon* Brady, 1880: 99-101, pl. 24, figs 1a-y.

LECTOTYPE. Left valve, BM 1961.12.4.32; designation by Benson (1972, p. 36, pl. 11, fig. 18); see Fig. 6. Length 1.24 mm; height 0.53 mm. *Type locality*: Stat. 78. (37°26'0"N, 25°13'0"W, dredged, 1000 fathoms, surface temp. 71.0°F, July 10, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella*: both the anterior and posterior vestibula are well developed. *Marginal pore canals* numerous, unevenly spaced, bifurcated, trifurcated, and straight (see Fig. 6). *Hinge* holamphidont. The left valve with an anterior socket and tooth, a median, slightly crenulate bar and a posterior socket. See Fig. 6. *Normal pores* numerous, occupying positions in the centre of the reticulations. Some appear to be



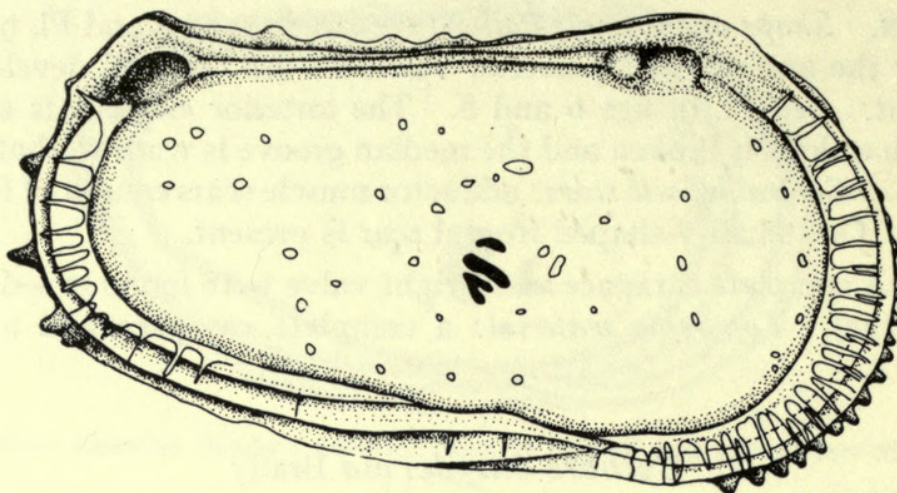


FIG. 6. *Cythere dictyon* Brady : interior view of lectotype ( $\times 70$ ).

sieve types but others are indefinite and may be open normal pores. *Central muscle scars*: the adductor muscle pattern consists of four scars vertically arranged. The lower two are fused to form a V-shaped scar. The ventral scar touches the middle scar, the dorsal scar is elongate and separated from the rest. The frontal scar is divided into separate scars, one circular and the other cylindrical in shape. There are two scars visible in the dorsal muscle field.

REMARKS. Humboldt Bay, Papua, 37 fathoms (M-277) is one of the many localities Brady (1880) reported this species to occur. Five specimens are from this station where the species is common. *Topotypic material*: a left valve, BM 1974.293, right valve, BM 1974.294, a left valve, BM 1974.295, a right valve, BM 1974.296, and a complete carapace, BM 1974.297.

### *Cythere dorsoserrata* Brady

(Pl. 15, figs 1-4)

*Cythere dorsoserrata* Brady, 1880 : 102, 103, pl. 23, figs 1a-d (*dorsiserrata* on pl. 23, figs 1a-d).

LECTOTYPE. Right valve, BM 81.5.19. Length 0.56 mm ; height 0.47 mm. *Type locality*: Stat. 335, north of Tristan d'Acunha. (32°24'0"S, 13°5'0"W. 1425 fathoms, bottom temp. 2.3°C, *Globigerina* ooze, March 16, 1876.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880). *Inner lamella*: both the anterior and posterior vestibula are well developed. The anterior vestibule is long and narrow ; the posterior one is shorter but its width gradually increases to a point where it is wider than the anterior vestibule. *Marginal pore canals*: the anterior pores are generally straight, a few are bifurcated. False pore canals are particularly numerous anteriorly ; several straight canals are present but most are rather obscure. *Hinge* holamphidont. Right valve with a two-level cardinal tooth anteriorly, a mid-hinge groove that is coarsely crenulated anteriorly and changes at the mid-point and becomes smooth, and a posterior tooth which is broad, flat and smooth. *Central*



*muscle scars*: the adductor muscles are placed vertically with two flat bars on the top, the bottom two are fused to form an upside-down triangle. The entire group has a forward slant. The frontal muscle scar is V-shaped with the top of the arms of the V poorly visible.

***Cythere ericea* Brady**

(Pl. 10, figs 14–18)

*Cythere ericea* Brady, 1880 : 107, pl. 17, figs 1a–d.

LECTOTYPE. Right valve, BM 80.38.76. Length 1.13 mm ; height 0.71 mm. *Type locality*: Stat. 120, off Pernambuco. (8°37'0"S, 34°28'0"W, 675 fathoms, trawled, mud, surface temp. 28.0°F, September 9, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella*: vestibula present at both anterior and posterior ends ; anterior vestibule larger than posterior one. *Marginal pore canals* straight, few and widely spaced. *Hinge* lophodont. Right valve with anterior and posterior tooth with slightly crenulated groove between. *Central muscle scars* very prominent with the adductor muscle consisting of four vertically arranged elongated scars with the dorsal scar slightly tipped away.

REMARKS. Brady (1880, p. 107) found this species at only one station (Stat. 120) and figured two left valves, one ornamented with spines (pl. 17, figs 1a–c) and the other denuded of spines (pl. 17, fig. 1d). Sediment sample M-140, which represents this station yielded a right valve. *Topotypic material*: a right valve, BM 1974.283.

***Cythere exfoveolata* Neviani**

(Pl. 7, figs 16–19)

*Cythere foveolata* Brady, 1880 : 75, 76, pl. 13, figs 5a–h.

non *Cythere foveolata* Sequenza, 1880 : 324, pl. 17, fig. 23.

*Cythere exfoveolata* Neviani, 1928 : 106 (new name for *C. foveolata* Brady).

LECTOTYPE. Whole carapace, male, BM 80.38.81. Right valve: length 0.62 mm ; height 0.31 mm ; left valve: length 0.62 mm ; height 0.31 mm. *Type locality*: Stat. 51, off Heard Island, 75 fathoms. (52°59'30"S, 73°33'30"E, dredged, mud, surface temp. 36.2°F, February 7, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 7, figs 16, 17 and 19. *Eyespots* present, as upraised tubercles. *Inner lamella*: not observed. *Marginal pore canals*: none observed. *Hinge*: not observed.

REMARKS. Brady (1880, pp. 75, 76) reported this from two stations (Stat. 149 and 151) and figured complete carapaces of a female (pl. 13, figs 5a–d) and a male (pl. 13, figs 5e–h). The lectotype is from off Heard Island (Stat. 151) and a single left valve, which represents a female, was recovered from sediment sample M-185, which represents Stat. 151. *Topotypic material*: a left valve, BM 1974.288.



***Cythere exilis* Brady**

(Pl. 10, figs 1-11)

*Cythere exilis* Brady, 1880 : 69, pl. 16, figs 5a-h.

LECTOTYPE. Disarticulated right and left valves, BM 81.5.20. Right valve : length 0.87 mm ; height 0.37 mm ; left valve : length 0.87 mm ; height 0.39 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 10, figs 1, 3. *Marginal pore canals* numerous, few curved, others straight. *Hinge* holamphidont, see Pl. 10, figs 9-11. *Normal pores* present, but type unclear. *Central muscle scars*: three adductor scars, one round frontal scar. *Overlap*: left valve is larger than the right valve.

REMARKS. Brady (1880, p. 69) found this species at only one station (Stat. 140) and figured a complete female carapace (pl. 16, figs 5a-d) and a male (pl. 16, figs e-h). A complete carapace, a right valve and a left valve (moult) were recovered from sediment sample M-164. *Topotypic material*: a complete carapace, BM 1974.278, a right valve, BM 1974.279, and a left valve, BM 1974.280.

***Cythere falklandi* Brady**

(Pl. 6, figs 4-9)

*Cythere falklandi* Brady, 1880 : 65-66, pl. 12, figs 6a-f.

LECTOTYPE. Left valve, BM 80.38.78.A. Length 0.65 mm ; height 0.28 mm. *Type locality*: Stat. 316, Stanley Harbour, Falkland Islands, 6 fathoms. (51°32'0"S, 58°06'0"W, anchor mud, surface temp. 51.2°F, February 1, 1876.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: the vestibule extends from the dorsal portion of the carapace near the anterior end of the hinge along the ventral edge narrowing at a point below the muscle scars and widening again as it follows through to the posterior end of the hinge. The anterior vestibule is wider than the posterior vestibule. *Marginal pore canals* few, straight, widely spaced. *Hinge* modified entomodont.

***Cythere flabellcostata* Brady**

(Pl. 8, figs 1-4)

*Cythere flabellcostata* Brady, 1880 : 88, 89, pl. 13, figs 6a-h.

LECTOTYPE. Disarticulated left and right valves, BM 80.38.79. Right valve : length 0.75 mm ; height 0.37 mm ; left valve : length 0.75 mm ; height 0.37 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 8, figs 1-4. *Inner lamella*: the anterior and posterior vestibula are well developed with the former being the best developed. *Marginal pore canals* usually straight, although a few are branched, closely spaced, numerous marginal pore canals with a few false canals



mostly at the posterior end. *Hinge* holamphidont (modified). Right valve in the anterior part has a tooth adjacent to a large antero-median socket, a corresponding tooth on the left valve. Posteriorly, the right valve has a lobed tooth. Left valve has a crenulated median bar. *Normal pores* of open type. *Overlap*: left valve larger than the right valve.

REMARKS. Brady (1880, pp. 88, 89) found this species only at Simon's Bay station and figured a complete female carapace (pl. 13, figs 6a-d) and a male carapace (pl. 13, figs 6e-j). Sediment sample M-164 yielded three valves, a male left and right valve and one female left valve. *Topotypic material*: a left valve, BM 1974.315, a right valve, BM 1974.316, and a left valve, BM 1974.317.

***Cythere floscardui* Brady**

(Pl. 7, figs 1-4, 6, 7)

*Cythere floscardui* Brady, 1880 : 71, 72, pl. 13, figs 3a-h.

LECTOTYPE. Whole carapace, BM 80.38.80. Right valve : length 0.40 mm ; height 0.25 mm ; left valve : length 0.40 mm ; height 0.25 mm. *Type locality*: Stat. 246, reefs off Honolulu, 40 fathoms, July 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See also Pl. 7, figs 1, 3, 4, 7. *Central muscle scars*: see Pl. 7, fig. 2. *Eyespots* very slightly hyaline.

REMARKS. Brady (1880, pp. 71, 72) found this species occurring off reefs, Honolulu (Stat. 246). He figured a complete carapace of (?) female (pl. 13, figs 3a-d) and a (?) male (pl. 13, figs 4e-h). A female left valve recovered here from sediment sample M-324 (Stat. 246) where this species is common. *Topotypic material*: a female left valve, BM 1974.287.

***Cythere fulvotincta* Brady**

(Pl. 8, figs 10-12)

*Cythere fulvotincta* Brady, 1880 : 67, pl. 14, figs 5a-d.

LECTOTYPE. Whole carapace, BM 81.5.21. Right valve : length 0.68 mm ; height 0.37 mm ; left valve : length 0.68 mm ; height 0.37 mm. *Type locality*: Stanley Harbour, Falkland Islands, 6 fathoms.

DESCRIPTION. *Shape* as described by Brady (1880). *Ornamentation*: see Pl. 8, figs 10 and 12. *Eyespots* present but not well developed. *Overlap*: none.

***Cythere hardingi* nom. nov.**

(Pl. 8, figs 8, 9)

*Cythere ovalis* Brady, 1880 : 66, 67, pl. 14, figs 4a-d.

non *Cythere ovalis* Stoddart, 1861 : 489, pl. 18, figs 5, 5A, 5B (Carboniferous, England).



LECTOTYPE. Whole carapace, BM 80.38.97. Right valve: length 0.74 mm; height 0.34 mm; left valve: length 0.74 mm; height 0.34 mm. *Type locality*: Stat. 187, off Booby Island, north of Australia, 6–8 fathoms. ( $10^{\circ}36'0''$ S,  $141^{\circ}55'0''$ E, dredged, coral and sand, surface temp.  $77.7^{\circ}$ F, September 9, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 8, fig. 8.

***Cythere impluta* Brady**

(Pl. 9, figs 15, 16)

*Cythere impluta* Brady, 1880: 76, 77, pl. 16, figs 3a–d; pl. 26, figs 6a–d.

LECTOTYPE. Whole carapace (damaged), BM 1961.12.4.30. Right valve: length 0.73 mm; height 0.45 mm; left valve: length 0.74 mm; height 0.43 mm. *Type locality*: Stat. 316, Stanley Harbour, Falkland Island, 6 fathoms. February, 1876.

DESCRIPTION. *Shape and ornamentation*: See Brady (1880) and Pl. 9, figs 15 and 16.

***Cythere inconspicua* Brady**

(Pl. 6, figs 10–12)

*Cythere inconspicua* Brady, 1880: 70, 71, pl. 13, figs 1a–d.

LECTOTYPE. Whole carapace, BM 81.5.22. Right valve: length 0.40 mm; height 0.22 mm; left valve: length 0.40 mm; height 0.21 mm. *Type locality*: Stat. 185, Torres' Straits, 155 fathoms. ( $11^{\circ}35'25''$ S,  $144^{\circ}03'0''$ E, dredged, sand and shell, surface temp.  $77.0^{\circ}$ F, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880), and Pl. 6, figs 10 and 12.

REMARKS. Brady (1880, pp. 70, 71) found this species only at one station (Torres' Straits) and figured a complete carapace. A damaged left valve was recovered from sediment sample M-237, which represents Stat. 185. *Topotypic material*: a damaged left valve, BM 1974.286.

***Cythere irpex* Brady**

(Pl. 11, figs 1–9)

*Cythere irpex* Brady, 1880: 107, pl. 17, figs 2a–d.

LECTOTYPE. Left valve, BM 80.38.86. Length 1.17 mm; height 0.71 mm. *Type locality*: Stat. 73, near Azores, 1000 fathoms. ( $38^{\circ}30'0''$ N,  $31^{\circ}14'0''$ W, dredged, *Globigerina* ooze, bottom temp.  $39.4^{\circ}$ F, surface temp.  $69.0^{\circ}$ F, June 30, 1873.)



DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. II, figs 1-4. *Inner lamella*: vestibula extremely narrow at both the anterior and posterior ends, the anterior vestibule being larger. *Marginal pore canals* numerous, straight, with a few false canals. *Hinge* holamphidont (modified). In the left valve, the hinge consists of an anterior socket, a tooth, a slightly crenulated bar, and a larger rounded socket. See Pl. II, figs 6-9. *Central muscle scars*: see Pl. II, fig. 5.

REMARKS. Brady (1880, p. 107) found this species at three stations (Stat. 73, 78, and 335). He figured a left valve (Brady 1880, pl. 17, figs 2a-d); the lectotype is a left valve from Stat. 73. A left and a right valve were recovered from sediment sample M-100. *Topotypic material*: a right valve, BM 1974.273, and a left valve, BM 1974.274.

*Cythere irrorata* Brady

(Pl. II, figs 12-14)

*Cythere irrorata* Brady, 1880: 108, 109, pl. 28, figs 2a-d.

LECTOTYPE. Whole carapace, BM 80.38.86A. Length 0.74 mm; height 0.40 mm. *Type locality*: off Admiralty Island, 16-25 fathoms, March 7, 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. II, figs 12-14.

*Cythere kerguelenensis* Brady

(Pl. 12, figs 14-18)

*Cythere kerguelenensis* Brady, 1880: 78, 79, pl. 4, figs 16-18, pl. 20, figs 1a-f.

LECTOTYPE. Whole specimen, BM 80.38.88. Right valve: length 0.68 mm; height 0.40 mm; left valve: length 0.67 mm; height 0.39 mm. *Type locality*: Stat. 162, off East Moncœur Island, Bass Strait, 38 fathoms. (39°10'30"S, 146°37'0"E, dredged, surface temp. 63.2°F, April 2, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 12, figs 14-18.

REMARKS. Brady (1880) reported this species from Balfour Bay (20-50 fathoms); Royal Sound, Kerguelen Island (28 fathoms); off Prince Edward's Island (50-150 fathoms); off East Moncœur Island (Stat. 162) and Port Jackson, Australia (2-10 fathoms). He figured a complete carapace of a female (pl. 20, figs 1a-c) and of a male (pl. 20, figs 1d-f). The lectotype is from Stat. 162. A right valve was recovered from M-195 (Stat. 162) and a complete carapace from sediment sample M-169 (off Prince Edward's Island, 50-150 fathoms). *Topotypic material*: a whole carapace, BM 1974.313, and a right valve, BM 1974.314.



***Cythere (?) laganella* Brady**

(Pl. 27, figs 7-9)

*Cythere (?) laganella* Brady, 1880 : 63, pl. 16, figs 7a-d.

LECTOTYPE. Complete carapace, BM 81.5.23. Length 0.47 mm ; height 0.25 mm. *Type locality*: Stat. 185, Torres Straits, 155 fathoms. (11°35'0"S, 144°3'0"E, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880).

REMARKS. *Topotypic material*: a complete carapace, BM 1974.320.

***Cythere lauta* Brady**

(Pl. 14, figs 5-8)

*Cythere lauta* Brady, 1880 : 85, pl. 21, figs 4a-d.

LECTOTYPE. Whole carapace, BM 81.5.24. Length 0.62 mm ; height 0.26 mm. *Type locality*: Stat. 187, off Booby Island, north of Australia. (10°36'0"S, 141°55'0"E, dredged, 6-8 fathoms, coral mud, surface temp. 77.7°F, September 9, 1874.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 14, figs 5-8. *Eyespots* well developed. Internal features not observed.

REMARKS. Brady (1880, p. 85) described this species from only one station (Stat. 187) and figured a complete carapace (pl. 21, figs 1a-d). Sediment sample M-242 yielded a left valve and a complete carapace. *Topotypic material*: a left valve, BM 1974.290, and a complete carapace, BM 1974.291.

***Cythere lepralioides* Brady**

(Pl. 12, figs 10, 11)

*Cythere lepralioides* Brady, 1880 : 94, pl. 19, figs 5a-d.

LECTOTYPE. Right valve of a late instar, BM 80.38.91. Length 0.75 mm ; height 0.47 mm. *Type locality*: Stat. 142, off Cape of Good Hope, 150 fathoms. (35°04'0"S, 18°37'0"E, dredged, sand, bottom temp. 47.0°F, surface temp. 65.5°F, December 18, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 12, fig. 10. *Inner lamella*: the anterior vestibule is very small but the posterior vestibule is even smaller and narrower. *Hinge* lophodont. The hinge is not fully developed, but the anterior and posterior elements have a smooth broad tooth, each with a smooth groove. See Pl. 12, fig. 11. *Central muscle scars*: adductor muscle scar consists of four elongated scars vertically arranged.

REMARKS. Brady (1880, p. 94) reported this species from two stations (Simon's Bay, Stat. 140, and off Cape of Good Hope, Stat. 142) and he figured a complete carapace. The lectotype is a late instar of a right valve from Stat. 142. This



species is common in Simon's Bay sediment sample M-164. *Topotypic material*: a right valve, BM 1974.312.

***Cythere lubbockiana* Brady**

(Pl. 8, figs 13, 14)

*Cythere lubbockiana* Brady, 1880 : 68, 69, pl. 14, figs 6a-d.

LECTOTYPE. Whole carapace, BM 81.5.25. Left valve: length 0.81 mm; height 0.34 mm; right valve: length 0.79 mm; height 0.33 mm. *Type locality*: Stat. 187, Booby Island, north of Australia, 6-8 fathoms. (10°36'0"S, 141°55'0"E, dredged, coral and sand, surface temp. 77.7°F, September 9, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 8, fig. 13. *Overlap*, slight overlap of right valve by the left.

REMARKS. Brady (1880, pp. 68, 69) reported this species from only one station and he figured a complete carapace (pl. 14, figs 6a-d). Two specimens, one complete and the other a left valve, were recovered from sediment sample M-242, which represents this station. *Topotypic material*: a complete carapace, BM 1974.321, and a left valve, BM 1974.322.

***Cythere mackenziei* nom. nov.**

(Pl. 9, figs 1-4)

*Cythere pyriformis* Brady, 1880 : 77, 78, pl. 15, figs 3a-d.

non *Cythere amygdaloides pyriformis* Cornuel, 1846 : 198, fig. 11 (Lower Cretaceous, France).

LECTOTYPE. Left valve, BM 80.38.103. Length 1.09 mm; height 0.68 mm. *Type locality*: Stat. 120, off Pernambuco, Brazil, 675 fathoms. (8°37'0"S, 34°28'0"W, trawled, mud, surface temp. 78.0°F, September 9, 1873.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880). *Inner lamella*: anterior vestibule very well developed. *Marginal pore canals* mostly straight, a few branched and many marginal pore canals present in the anterior and posterior vestibula. *Hinge* amphidont/heterodont. *Normal pores* open. *Central muscle scars*: the central muscle scars consist of four prominent, vertical, closely arranged adductor muscles and one V-shaped frontal scar. See Pl. 9, fig. 2. *Eyespot* present.

REMARKS. Brady (1880, pp. 77, 78) reported this species only from Stat. 120 and figured a left valve (pl. 20, figs 3a-d); the lectotype designated in this paper is also a left valve. A broken left valve was recovered from sediment sample M-140. *Topotypic material*: a broken left valve, BM 1974.332.

***Cythere moseleyi* Brady**

(Pl. 6, figs 1-3)

*Cythere moseleyi* Brady, 1880 : 64, 65, pl. 12, figs 5a-f.

LECTOTYPE. Whole carapace (male), BM 80.38.93. Right valve: length 0.68 mm; height 0.33 mm; left valve: length 0.68 mm; height 0.34 mm. *Type*



*locality*: Stat. 316. Stanley Harbour, Falkland Islands, 6 fathoms. ( $51^{\circ}32'0''S$ ,  $58^{\circ}06'0''W$ , anchor mud, February 1, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella* well developed, as observed through the shell. *Hinge* modified entomodont. *Central muscle scars*: the adductor scars are vertically arranged.

***Cythere murrayana* Brady**

(Pl. 9, figs 17–19)

*Cythere murrayana* Brady, 1880 : 69, 70, pl. 16, figs 4a–h.

LECTOTYPE. Whole carapace, BM 80.38.94. Right valve: length 0.46 mm; height 0.25 mm; left valve: length 0.47 mm; height 0.25 mm. *Type locality*: Wellington Harbour, New Zealand. (Trawl-net at trawl, between June 24, and July 8, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Cythere obtusalata* Brady**

(Pl. 5, figs 10–12)

*Cythere obtusalata* Brady, 1880 : 91, pl. 12, figs 1a–c.

LECTOTYPE. Right valve, BM 80.38.96. Length 0.64 mm; height 0.34 mm. *Type locality*: Stat. 162, off East Moncœur Island, Bass Straits, 38–40 fathoms. ( $39^{\circ}10'30''S$ ,  $146^{\circ}37'0''E$ , dredged, sand, surface temp.  $63.2^{\circ}F$ , April 2, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 5, figs 10 and 12. *Inner lamella* narrow, widest anteriorly; no vestibula present. *Marginal pore canals* straight, few, moderately spaced. *Hinge* holamphidont, see Pl. 5, fig. 11. *Central muscle scars*: see Pl. 5, fig. 12.

REMARKS. Brady (1880, p. 91) described this species from Stat. 162 and off Admiralty Islands. The lectotype is a right valve from Stat. 162 (Brady, 1880, pl. 12, figs 1a–c also figured a right). Two specimens, a right and a left valve, were recovered from sediment sample M-195 (Stat. 162). *Topotypic material*: a right valve, BM 1974.330, and a left valve, BM 1974.331.

***Cythere packardi* Brady**

(Pl. 12, figs 4–6)

*Cythere packardi* Brady, 1880 : 88, pl. 19, figs 2a–d.

LECTOTYPE. Whole carapace, BM 81.5.26. Left valve: length 0.56 mm; height 0.33 mm; right valve: length 0.54 mm; height 0.31 mm. *Type locality*: Stat. 187, Booby Island, north of Australia, 6–8 fathoms. ( $10^{\circ}36'0''S$ ,  $141^{\circ}55'0''E$ , dredged, coral and sand, surface temp.  $77.7^{\circ}F$ , September 9, 1874.)



DESCRIPTION. *Shape and ornamentation*: see Brady (1880), and Pl. 12, figs 4 and 6. *Eyespots*: a small eyespot is present.

REMARKS. Brady (1880, p. 88) reported this species from only one station (off Booby Island) and he figured a complete carapace (pl. 9, figs 3a-d). A left valve was recovered from sediment sample M-242, which represents this station. *Topotypic material*: a left valve, BM 1974.311.

***Cythere papuensis* Brady**

(Pl. 16, figs 11-18; Fig. 7)

*Cythere papuensis* Brady, 1880: 95, pl. 25, figs 5a-d.

LECTOTYPE. Left valve, BM 80.38.98. Length 0.78 mm; height 0.48 mm. *Type locality*: Humboldt Bay, Papua, 37 fathoms, March 24, 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 16, figs 11, 12, 17. *Marginal pore canals*: the posterior pore canals are straight, some angled, and are mostly obscured except for two canals. Anterior pore canals are moderately numerous, straight and some are at an angle toward the dorsum. (See Fig. 7.) *Hinge* holamphidont (modified). See Pl. 16, figs 15, 16, 18 and Fig. 7. *Normal pores*: the open normal pores are numerous, usually one or two per reticulation on the carapace. *Central muscle scars*: the adductor muscle consists of four scars; the middle dorsal scar resembles a down-facing, partially flattened L, the bottom two scars are very close together with the ventral-most scar being slightly anterior. The frontal scar is a somewhat, flattened V whose apex points to the bottom of the adductor muscle. In the dorsal scar field, one scar is visible directly above the gap between the adductor scars and the frontal scar (see Pl. 16, fig. 17 and Fig. 7).

REMARKS. Brady (1880, p. 95) described and figured this species from only one station (Humboldt Bay, Papua). A right and a left valve were recovered from sediment sample M-277. *Topotypic material*: a right valve, BM 1974.298, and a left valve, BM 1974.299.

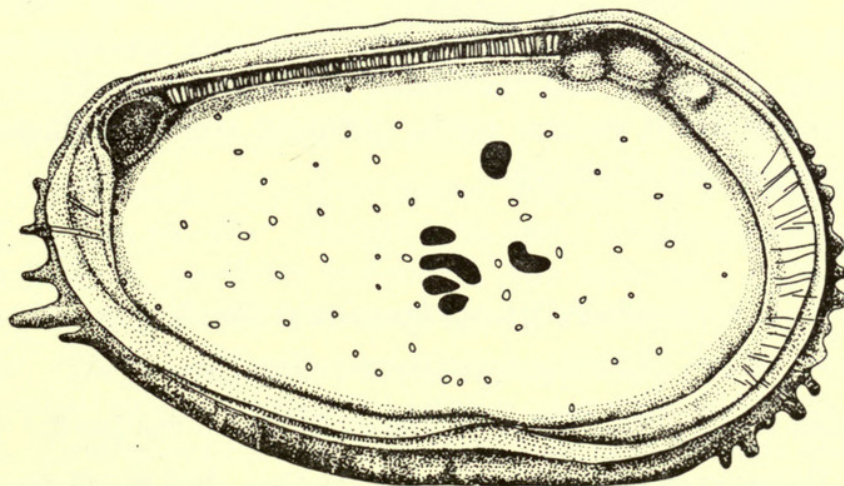


FIG. 7. *Cythere papuensis* Brady: interior view of lectotype ( $\times 97$ ).



***Cythere parallelogramma* Brady**

(Pl. 8, figs 15–18)

*Cythere parallelogramma* Brady, 1880 : 82, 83, pl. 15, figs 1a–e.

LECTOTYPE. Right valve, BM 80.38.99. Length 0.99 mm ; height 0.43 mm. *Type locality*: off Prince Edward's Island, 50–150 fathoms, December 26, 1874, near Stat. 145.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 8, fig. 15. *Inner lamella*: anterior vestibule narrow. *Marginal pore canals* straight, evenly spaced and numerous. *Hinge* holamphidont (see Pl. 8, figs 16 and 18). *Central muscle scars*: central muscle scar area has a vertical adductor muscle pattern which consists of four scars, the second from the bottom is elongated into a dumb-bell shape and the top scar is divided into two with one V-shaped. The frontal muscle consists of three separate scars forming a V in outline. Three dorsal muscle scars are present (see Pl. 8, fig. 17).

REMARKS. This species was reported by Brady (1880, pp. 82, 83) from only one station (off Prince Edward's Island) and he figured a male left valve (pl. 15, figs 1a–b) and a male right valve (pl. 15, figs 1c–e). A right and a left valve were recovered from sediment sample M-169, which represents this station. *Topotypic material*: a right valve, BM 1974.325, and a left valve, BM 1974.326.

***Cythere patagoniensis* Brady**

(Pl. 15, figs 5–8)

*Cythere patagoniensis* Brady, 1880 : 93, pl. 23, figs 3a–d.

LECTOTYPE. Whole carapace, BM 81.5.27. Right valve: length 0.68 mm ; height 0.38 mm ; left valve: length 0.71 mm ; height 0.38 mm. *Type locality*: Stat. 308, off Argentina, 175 fathoms. (50°08'30"S, 74°41'0"W, trawled, mud, surface temp. 51.7°F, January 5, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 15, figs 5 and 6. *Central muscle scars*: four vertically arranged adductor muscle scars, the top being separated, the next being the largest and slightly curved downward over the closely fitted ventral scars. Frontal scar is V-shaped. *Hinge* and details of *inner lamella* not observed.

***Cythere quadriaculeata* Brady**

(Pl. 14, figs 14–18 ; Fig. 8)

*Cythere quadriaculeata* Brady, 1880 : 86, pl. 22, figs 2a–d, pl. 25, figs 4a–d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.50. Right valve: length 0.52 mm ; height 0.34 mm ; left valve: length 0.53 mm ; height 0.34 mm.



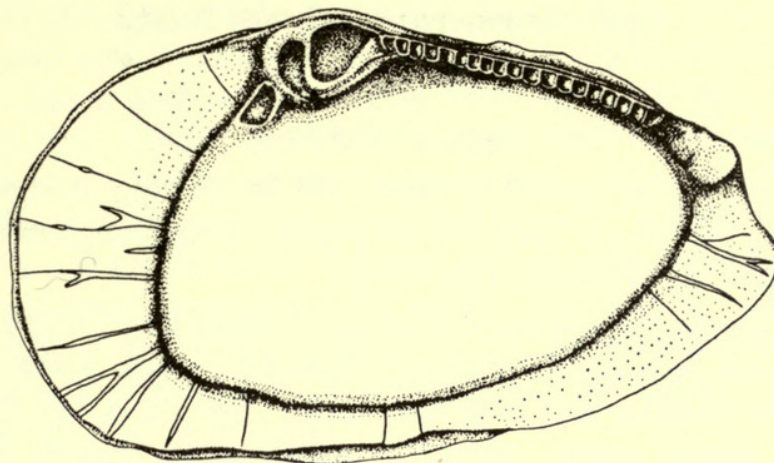


FIG. 8. *Cythere quadriculeata* Brady : interior (disarticulated) right valve view of lectotype ( $\times 149$ ).

*Type locality*: Stat. 233b, Inland Sea of Japan, 15 fathoms. ( $34^{\circ}18'0''N$ ,  $133^{\circ}35'0''E$ , trawled, mud, surface temp.  $66.3^{\circ}F$ , May 26, 1875.)

**DESCRIPTION.** *Shape and ornamentation* as described by Brady (1880), see Pl. 14, fig. 14. *Marginal pore canals* widely spaced, branching canals with a few false and straight canals. Some of the canals have a bulbous area midway along their length, see Fig. 8. *Hinge* holamphidont. See Pl. 14, figs 16 and 17 and Fig. 8. *Overlap*: left valve slightly larger than the right.

**REMARKS.** *Cythere quadriculeata* Brady is the type species of *Spinileberis* Hanai, 1961. Brady (1880, p. 86) reported this species from two stations (Stat. 233b and off the reefs at Honolulu) and he figured a complete carapace from Honolulu Stat. (pl. 22, figs 2a–d) and another complete carapace from Stat. 233b (pl. 25, figs 4a–d). The lectotype is from the Inland Sea of Japan (Stat. 233b). A left valve recovered from sediment sample M-298 represents this station. *Topotypic material*: a left valve, BM 1974.329.

### *Cythere radula* Brady

(Pl. 12, figs 7–9)

*Cythere radula* Brady, 1880 : 102, pl. 19, figs 4a, b.

**LECTOTYPE.** Left valve of a late instar, BM 81.5.28 ; designation by Benson (1972, p. 74, pl. 14, figs 16–18). Length 0.99 mm ; height 0.59 mm. *Type locality*: Stat. 191a, Ki Islands, southern Indonesia, 580 fathoms. ( $5^{\circ}26'0''S$ ,  $133^{\circ}19'0''E$ , mud, surface temp.  $81.5^{\circ}F$ , bottom temp.  $40.7^{\circ}F$ , September 24, 1874.)

**DESCRIPTION.** *Shape and ornamentation*: see Brady (1880), see Pl. 12, fig. 8. *Inner lamella*: very narrow anterior and the posterior vestibula present. *Hinge* holamphidont. *Central muscle scars*: the adductor muscle scars are four in number, vertically arranged, elongate and positioned on the posterior rim of the subcentral tubercle. The V-shaped frontal scar is positioned in the subcentral tubercle.



***Cythere rastromarginata* Brady**

(Pl. 9, figs 9-14)

*Cythere rastromarginata* Brady, 1880 : 83, pl. 16, figs 1a-d, 2a-d.

LECTOTYPE. Left valve, probably male, BM 80.38.105 ; designation by Benson (1972, p. 112, pl. 1, figs 1-4). Length 0.74 mm ; height 0.37 mm. *Type locality*: off reefs at Honolulu, 40 fathoms, July 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 9, figs 9, 10. *Marginal pore canals* straight, numerous, with a few branching canals present at both the anterior and posterior ends. See Pl. 9, fig. 13. *Hinge* holamphidont. *Central muscle scars*: adductor muscle scars consist of four vertically arranged scars, with a V-shaped frontal scar.

REMARKS. *Cythere rastromarginata* Brady was selected type species of *Cleto-cythereis* by Swain, 1963. Brady (1880, p. 83) reported this species from three stations (off reefs, Honolulu ; Stat. 162 and Stat. 167) and he figured probable male (pl. 16, figs 1a-d) and female carapaces. The lectotype is a left valve, probably male, from reefs off Honolulu. Sediment sample M-324 which represents this station yielded three left valves. *Topotypic material*: three left valves, BM 1974.335-7.

***Cythere sabulosa* Brady**

(Pl. 12, figs 1-3 ; Fig. 9)

*Cythere sabulosa* Brady, 1880 : 80, pl. 19, figs 1a-h (*fabulosa* on pl. 19).

LECTOTYPE. Disarticulated right and left valves, BM 80.38.107. Right valve : length 0.68 mm ; height 0.40 mm ; left valve : length 0.68 mm ; height 0.40 mm.

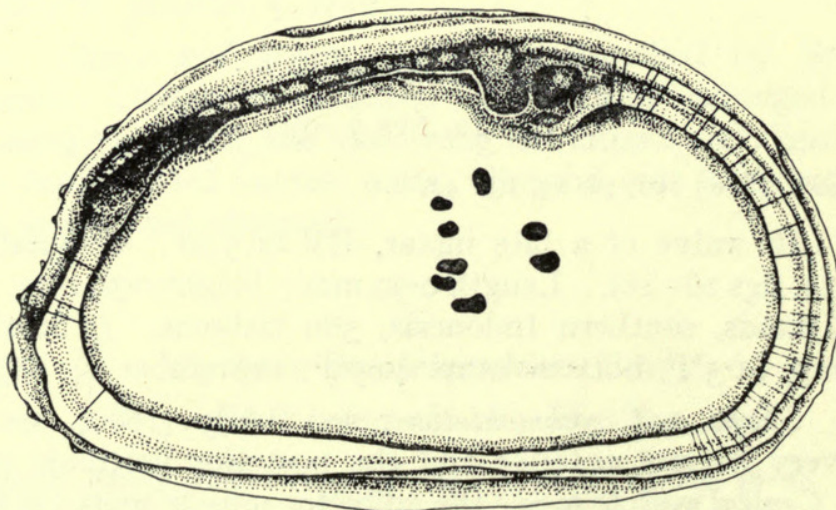


FIG. 9. *Cythere sabulosa* Brady : interior (disarticulated) left valve view of lectotype ( $\times 115$ ).



*Type locality*: Stat. 187, Booby Island, north of Australia, 6–8 fathoms. (10°36'0"S, 141°55'0"E, dredged, coral and sand, surface temp. 77.7°F, September 9, 1874.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880), and Pl. 12, figs 1 and 2. *Marginal pore canals*: posterior margin has few pores. Anteriorly, the pore canals are most numerous on the ventral edge. Most are straight and moderately spaced. *Hinge* holamphidont (modified type). Anterior end of the right valve with a tooth pointed in front, flat and step-shaped behind. The median bar is smooth. The posterior element is a flat tooth. See Fig. 9. *Central muscle scars*: there is a widely spaced row of four adductor scars, second from the bottom split into two, a split frontal scar and a dorsal (?) fulcral scar; see Fig. 9. *Eyespots*: a simple, unstalked, definite eyespot is present.

REMARKS. Brady (1880, p. 80) reported this species from only one station (Booby Island) and figured a complete female carapace (pl. 19, figs 1a–d) and a complete male carapace (pl. 19, figs 1e–h). A female right and a female left valve were recovered from sediment sample M-242 where this species is common. *Topotypic material*: right and left valves, BM 1974.300–10.

### *Cythere scalaris* Brady

(Pl. 14, fig. 13)

*Cythere scalaris* Brady, 1880 : 87, 88, pl. 21, figs 8a–c.

LECTOTYPE. Broken right valve (a moult with the centre portion missing), BM 80.38.109. Length 1.00 mm; height 0.53 mm. *Type locality*: Stat. 305, 100 fathoms, January 13, 1876.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Inner lamella*: the vestibula are nearly non-existent. *Marginal pore canals* not seen. *Hinge* of hemimerodont type (modified), the anterior element with a rather reduced broad crenulated tooth with the posterior having a similar, but slightly larger and more conspicuous tooth. The median area is a smooth groove. *Central muscle scars*: the carapace of the lectotype is broken in the muscle scar region.

REMARKS. Brady (1880, pp. 87, 88) reported this species from two stations (Stat. 185 and 305) and he figured a broken left valve (pl. 21, fig. 8a) and a broken right valve (pl. 21, figs 8b, c). The lectotype is a broken right valve from Stat. 305. A right and a left valve were recovered from sediment sample M-237, which represents Stat. 185. *Topotypic material*: a right and a left valve, BM 1974.327–8.

### *Cythere scintillulata* Brady

(Pl. 8, figs 6, 7)

*Cythere scintillulata* Brady, 1880 : 62, 63, pl. 14, figs 3a–d.

LECTOTYPE. Whole carapace, BM 80.38.110. Right valve: length 0.68 mm; height 0.31 mm; left valve: length 0.68 mm; height 0.31 mm. *Type locality*:



Stat. 313, Straits of Magellan, 55 fathoms. ( $52^{\circ}2'0''S$ ,  $6^{\circ}0'0''W$ , trawled, sand, bottom temp.  $57.8^{\circ}F$ , surface temp.  $48.2^{\circ}F$ , January 20, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 8, fig. 6. *Inner lamella*: an anterior vestibule which is moderately wide is present in the paralectotype, BM 80.38.110. *Marginal pore canals*: few straight marginal pore canals present. *Central muscle scars* and *Hinge* not observed. *Normal pores* of open type.

REMARKS. Brady (1880, pp. 62, 63) reported this species from only one station (Straits of Magellan) and he figured a complete carapace (pl. 14, figs 3a-d) of a possible male. *Topotypic material*: two specimens, one a left valve, BM 1974.319, and the other a complete carapace of a probable female, BM 1974.318, were found in sediment sample M-369.

### *Cythere securifer* Brady

(Pl. 7, figs 8-15)

*Cythere securifer* Brady, 1880 : 76, pl. 13, figs 4a-h.

LECTOTYPE. Left valve, BM 80.38.112. Length 0.59 mm ; width 0.31 mm. *Type locality*: near Stat. 145, off Prince Edward's Island, 50-150 fathoms, December 26, 1874.

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 7, figs 8, 9, and 12. The apparent dimorphic posteroventral velate structures are shown on Pl. 7, figs 8-10. *Inner lamella*: the anterior vestibule is well developed and larger than the posterior vestibule which is widest on the dorsal side near the posterior hinge. *Marginal pore canals* straight, widely and regularly spaced. *Hinge* lophodont. see Pl. 7, figs 11, 14, and 15. *Central muscle scars*: adductor muscle scars consist of four elongate scars arranged vertically but forming a slanted group. A frontal scar is present but the rest are obscured by ornamentation. See Pl. 7, fig. 12.

### *Cythere (?) serratula* Brady

(Pl. 24, figs 15, 16)

*Cythere (?) serratula* Brady, 1880 : 77, pl. 43, figs 7a-d.

LECTOTYPE. Right valve, BM 80.38.113, length 1.09 mm ; height 0.62 mm, *Type locality*: Stat. 24, off Culebra Island, West Indies, 390 fathoms. ( $18^{\circ}38'30''N$ .  $65^{\circ}05'30''W$ , dredged, coral mud, surface temp.  $76.0^{\circ}F$ , March 25, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 24, fig. 15. *Hinge*: undifferentiated type. Selvage forming valve edge. See Pl. 24, fig. 16. *Central muscle scars*: two curved parallel rows (Cytherellid type) with four and five scars respectively.



REMARKS. Brady (1880, p. 77) reported this species from Stat. 24, Stat. 85, and Stat. 335. The lectotype, a right valve, is from Stat. 24. *Topotypic material*: a left valve, BM 1974.387, was picked from sediment sample M-44 (Stat. 24). Two small specimens recovered from sediment sample M-106 (Stat. 85, off Canaries, 1125 fathoms) may belong to this species.

***Cythere scabrocuneata* Brady**

(Pl. 26, figs 6 and 8)

*Cythere scabrocuneata* Brady, 1880 : 103, pl. 17, figs 5a-f ; pl. 23, figs 2a-c.

non *Trachyleberis scabrocuneata* (Brady), Brady, 1898 : 444, pl. 47, figs 1-7, 18-25.

non *Trachyleberis scabrocuneata* (Brady), Hornibrook, 1952 : 32-33, pl. 3, figs 38, 39, 48.

LECTOTYPE. BM 1952.12.10, 1, 2 (specimen lost) ; designation by Harding & Sylvester Bradley (1953 p. 12). *Type locality*: Stat. 233b, Inland Sea, Japan, 15 fathoms (34°20'0"N, 133°35'0"E).

DESCRIPTION. *Shape and ornamentation*: see Pl. 26, figs 6 and 8. *Hinge* holamphidont. *Normal pores* simple.

REMARKS. *Topotypic material*: two specimens, a right and a left valve, BM 1974.324, were found in sediment material from Stat. 233b. The left valve is figured (Pl. 26, figs 6 and 8).

***Cythere squalidentata* Brady**

(Pl. 16, figs 3-5)

*Cythere squalidentata* Brady, 1880 : 110, pl. 23, figs 8a-d (*squabidentata* on pl. 23).

LECTOTYPE. Whole carapace (early instar), BM 81.5.29 ; designated by Benson (1971 p. 8, pl. 1, fig. 9 ; *nomen dubium*). Right valve : length 0.43 mm ; height 0.26 mm ; left valve : length 0.43 mm ; height 0.25 mm. *Type locality*: Stat. 323, off the coast of Uruguay, 1900 fathoms. (35°39'0"S, 50°47'0"W, trawled, grey ooze, bottom temp. 33.1°F, surface temp. 73.5°F, February 28, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 16, figs 3 and 4. *Overlap*: none.

***Cythere stolonifera* Brady**

(Pl. 14, fig. 4)

*Cythere stolonifera* Brady, 1880 : 89, pl. 21, figs 3a-d.

LECTOTYPE. Articulated carapace with the anterior end damaged, BM 80.38.115. Right valve : length 0.74 mm ; height 0.37 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation*: see Brady (1880) and Pl. 14, fig. 4.



*Cythere subrufa* Brady

(Pl. 13, figs 1-9)

*Cythere subrufa* Brady, 1880 : 81, pl. 20, figs 3a-f.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.117. Right valve : length 0.78 mm ; height 0.38 mm ; left valve : length 0.81 mm ; height 0.40 mm. *Type locality* : Stat. 149, Balfour Bay, Kerguelen, 20-50 fathoms, January 1874.

DESCRIPTION. *Shape and ornamentation* : see Brady (1880) and Pl. 13, figs 1, 4 and 5. *Marginal pore canals* : posterior canals, few mostly straight. Anteriorly the canals are most numerous on the ventral edge of the vestibula. They are all straight with a few false canals present, more frequently on the ventral edge. *Hinge* hemiamphidont, see Pl. 13, figs 7 and 8. *Normal pores* of open type. *Central muscle scars* : see Pl. 13, fig. 9. *Eyespots* present but not greatly developed.

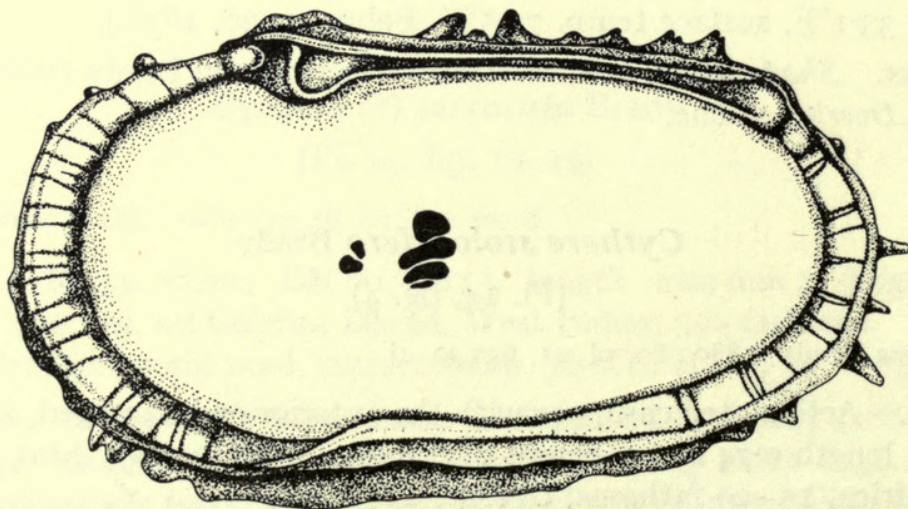
REMARKS. Brady (1880, p. 81) reported this species from two stations (Balfour Bay, Kerguelen Island, Stat. 149, and off Prince Edward's Island) and he figured a male (pl. 20, figs 3a-d) and a female (pl. 20, figs 3e, f). *Topotypic material* : a right, BM 1974.347, and a left valve, BM 1974.348, were recovered from sediment sample M-169 which represents Prince Edward's Island, 50-150 fathoms.

*Cythere suhmi* Brady

(Pl. 17, figs 7-12 ; Fig. 10)

*Cythere suhmi* Brady, 1880 : 106, 107, pl. 26, figs 3a-h.

LECTOTYPE. Disarticulated right and left valves, BM 80.30.119. Right valve : length 1.21 mm ; height 0.68 mm ; left valve : length 1.15 mm ; height 0.68 mm. *Type locality* : Stat. 241, northwest Pacific, 2300 fathoms. (35°41'0"N, 157°42'0"E, trawled, red clay, bottom temp. 35.1°F, surface temp. 69.2°F, June 23, 1875.)

FIG. 10. *Cythere suhmi* Brady : interior view of lectotype ( $\times 72$ ).



DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 17, figs 7, 8 and 10. *Inner lamella*: narrow anterior and posterior vestibula developed. *Marginal pore canals* more numerous at the anterior end; mostly straight with a few false canals. See Fig. 10. *Hinge* holamphidont. See Pl. 17, figs 9 and 10 and Fig. 10. *Central muscle scars*: adductor muscle scars four in number and arranged vertically. The two central scars are the larger and somewhat elongate. The dorsal scar is circular but faint, while the ventral scar is small and nearly fused with the one above. The frontal scar has two very close scars, one circular on the ventral side and one elongate on the more dorsal side; see Fig. 10.

REMARKS. Brady (1880, pp. 106, 107) reported this species from two stations (Prince Edward's Island and Stat. 241). He figured a female carapace (pl. 24, figs 3a-d) and a complete male (pl. 24, figs 3e-h). *Topotypic material*: a left valve, BM 1974.289, was recovered from sediment sample M-169 which represents Prince Edward's Island, 50-150 fathoms.

*Cythere sulcatoperforata* Brady

(Pl. 17, figs 1-2; Fig. 11)

*Cythere sulcatoperforata* Brady, 1880: 99, pl. 26, figs 1a-d.

LECTOTYPE. Left valve, BM 81.5.30. Length 1.33 mm; height 0.81 mm. *Type locality*: Stat. 300, off Juan Fernandez Islands, west of Chile, 1375 fathoms. (33°42'0"S, 78°18'0"W, *Globigerina* ooze, trawled, bottom temp. 35.5°F, surface temp. 62.5°F, December 17, 1875.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 17, fig. 1. *Marginal pore canals*: the evidence of the canals is obscured and their width is very thin, straight and not bifurcated; see Fig. 11. *Hinge*: hemimerodont

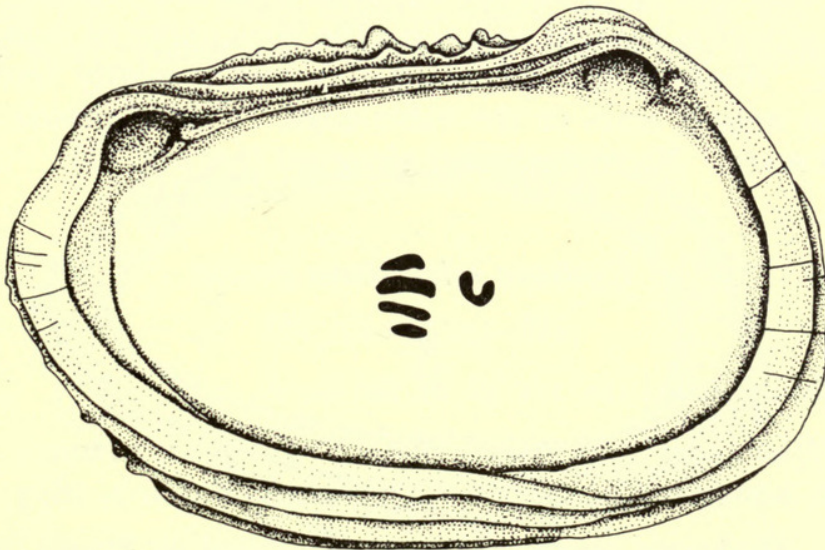


FIG. 11. *Cythere sulcatoperforata* Brady: interior view of lectotype ( $\times 62$ ).



type : the left valve hinge consists of a broad anterior socket, a non-crenulate median bar, with a slight point two-thirds of the way back and a broad posterior socket, see Pl. 17, fig. 2, and Fig. 11. *Central muscle scars*: four oval adductor scars with a U-shaped frontal scar, see Pl. 17, fig. 2 and Fig. 11.

***Cythere torresi* Brady**

(Pl. 12, figs 12, 13 ; Fig. 12)

*Cythere torresi* Brady, 1880 : 67, 68, pl. 19, figs 8a-c (*torresii* on plate 19).

LECTOTYPE. Right valve, BM 81.5.31. Length 0.34 mm ; height 0.22 mm. *Type locality*: Stat. 185, Torres Straits, 155 fathoms. (11°38'15"S, 143°59'38"E, dredged, sand and shells, surface temp. 77.0°F, August 31, 1874.)

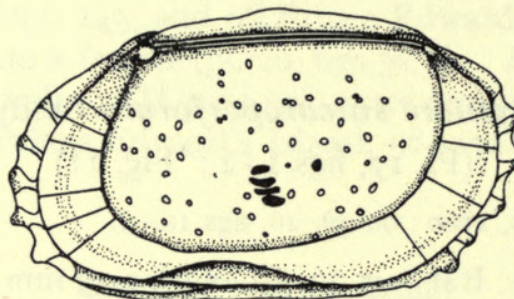


FIG. 12. *Cythere torresi* Brady : interior view of lectotype ( $\times 150$ ).

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 12 figs 12 and 13. *Inner lamella*: line of concrescence coincides with inner margin. *Marginal pore canals* few, widely spaced, mostly straight, one branched. There appears to be a number which are false but the determination is difficult because of the opaqueness of the inner lamella, see Fig. 12. *Hinge* between lophodont and antimerodont. The right valve has two terminal teeth that are very thin and appear crenulate. The groove is straight and gives the appearance of being slightly crenulate (see Fig. 12). *Normal pores* numerous and open ; mostly terminally situated and not near the muscle scars or the valve edge. *Central muscle scars*: four prominent flattened scars. No frontal scars observed (see Fig. 12).

***Cythere tricristata* Brady**

(Pl. 15, figs 17, 18)

*Cythere tricristata* Brady, 1880 : 110, 111, pl. 23, figs 6a-d.

HOLOTYPE. Whole carapace, BM 80.38.121. Length 0.78 mm ; height 0.37 mm. *Type locality*: off Admiralty Island, 16-25 fathoms, March 2, 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 15, figs 17 and 18. *Hinge* holamphidont.



REMARKS. *Topotypic material*: a left valve, BM 1974.340, and two right valves, BM 1974.339 & 341.

*Cythere tetrica* Brady

(Pl. 27, figs 4–6)

*Cythere tetrica* Brady, 1880: 104, pl. 23, figs 5a–d.

LECTOTYPE. Complete carapace, BM 80.38 (lost during photography). Length 0.54 mm; height 0.27 mm. *Type locality*: Stat. 187, off Booby Island, lat.  $10^{\circ}36'0''\text{S}$ , long.  $141^{\circ}44'0''\text{E}$ , 6–8 fathoms.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), see Pl. 27, figs 4–6.

REMARKS. The lectotype was lost during photography by R. H. Benson. *Topotypic material*: one complete carapace was recovered from sediment sample M-242, which represents Stat. 187 and is figured here (Pl. 27, figs 4–6). This specimen (BM 1974.338), a complete carapace, measures: length 0.64 mm; height 0.32 mm.

*Cythere velivola* Brady

(Pl. 15, figs 9–16; Fig. 13)

*Cythere velivola* Brady, 1880: 111, pl. 23, figs 4a–c.

LECTOTYPE. Left valve (moult), BM 80.38.122. Length 0.71 mm; height 0.37 mm. *Type locality*: Stat. 189, Arafura Sea, 8 fathoms. ( $9^{\circ}36'0''\text{S}$ ,  $137^{\circ}50'0''\text{E}$ , trawled, mud, surface temp.  $79.0^{\circ}\text{F}$ , September 11, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 15, figs 9, 15 and 16. *Inner lamella*: extremely narrow posterior and anterior vestibula, almost non-existent (Pl. 15, fig. 12). *Marginal pore canals* straight to slightly curved, evenly spaced, bifurcating (one trifurcating) with several false canals. See Pl. 15, fig. 12, and Fig. 13. *Hinge* holamphidont, see Pl. 15, figs 13 and 14, and Fig. 13. *Normal pores* present over most of the surface and appear to be of sieve

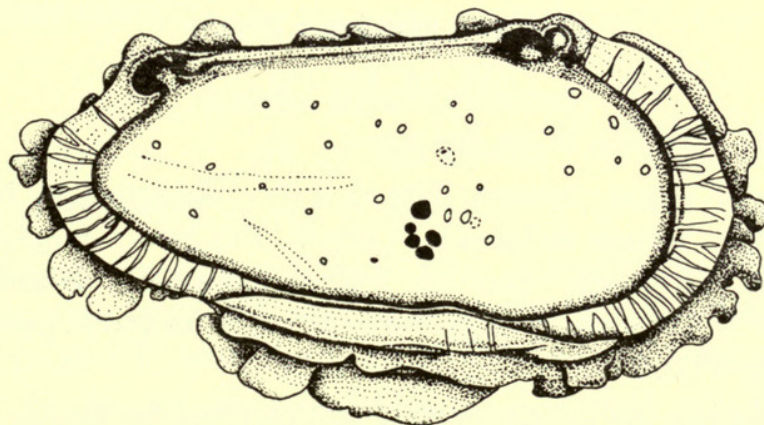


FIG. 13. *Cythere velivola* Brady: interior view of lectotype ( $\times 97$ ).



type. *Central muscle scars*: adductor muscle scars a vertical row of four, the third scar from the dorsal side is divided into two; frontal scar is made up of three scars in a horizontal line. A dorsal muscle scar is present above the adductor scars, see Fig. 13.

***Cythere vellicata* Brady**

(Pl. 5, figs 13–15; Fig. 14)

*Cythere vellicata* Brady, 1880: 64, pl. 12, figs 2a–d.

LECTOTYPE. Disarticulated left and right valves, BM 81.5.32 (separated after photography). Length 0.50 mm; width 0.19 mm. *Type locality*: Port Jackson, depth 2–10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 5, fig. 13. *Inner lamella*: anterior vestibule irregular in outline, posterior vestibule narrow (see Fig. 14). *Marginal pore canals* branching, anterior and posterior canals arising from very broad bases at the inner edge of the vestibule. *Hinge*: see Fig. 14. *Normal pores* clustered in the anterior half of the carapace. *Central muscle scars*: adductor muscle scar has three close, vertically stacked scars with a large kidney-shaped frontal scar.

REMARKS. *Topotypic material*: a complete carapace, BM 1974.365.

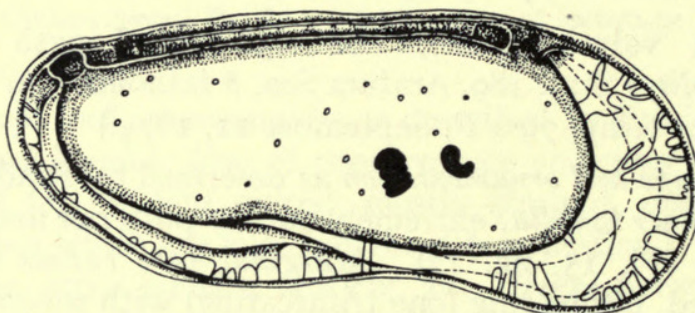


FIG. 14. *Cythere vellicata* Brady: interior (disarticulated) left valve view of lectotype ( $\times 142$ ).

***Cythere viminea* Brady**

(Pl. 11, fig. 15)

*Cythere viminea* Brady, 1880: 94, pl. 18, figs 3a–c.

HOLOTYPE. Right valve, broken, BM 81.5.33; designation by Benson (1972, p. 50, pl. 11, fig. 15; *nomen dubium*.) Length 0.81 mm; height 0.43 mm. *Type locality*: Stat. 146, deep-sea, east of Prince Edward's Island, 1375 fathoms. ( $46^{\circ}46'0''S$ ,  $45^{\circ}31'0''E$ , trawled, *Globigerina* ooze, bottom temp.  $35.6^{\circ}F$ , surface temp.  $43^{\circ}F$ , December 29, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). *Eyespots* well developed.



***Cythere wyvillethomsoni* Brady**

(Pl. 13, figs 10–18 ; Pl. 14, figs 1–3)

*Cythere wyvillethomsoni* Brady, 1880 : 82, pl. 20, figs 4a–f.

LECTOTYPE. Disarticulated left and right valves, BM 80.38.123. Left valve : length 0.83 mm ; height 0.38 mm ; right valve : length 0.83 mm ; height 0.38 mm. *Type locality*: Christmas Harbour, Kerguelen Island, 20–50 fathoms (on slide) ; January 29, 1874. (Stat. 149 ; depth 120 fathoms on p. 17.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 13, figs 10 and 11. *Inner lamella*: both the anterior and the posterior vestibula are well developed with the anterior vestibule slightly larger. *Marginal pore canals* numerous on antero-ventral corner reducing in number towards dorsal corner. Mostly straight, a few branched and a few false. Posterior canals mostly straight and few in number, see Pl. 13, figs 12 and 15. *Hinge* holamphidont. *Normal pores* of open type. *Central muscle scars*: muscle scar pattern present not easily discerned. *Eyespots* present, but not well developed. *Second antenna*: see Pl. 13, fig. 18. Obtained from the lectotype. *Penis*: see Pl. 13, fig. 18. Obtained from the lectotype.

REMARKS. Brady (1880, p. 82) reported this species from Stat. 149, Balfour Bay, Stat. 150, 151 and questionably from Stat. 185. He figured a female carapace (pl. 20, figs 4a–d) and a male (pl. 20, figs 4e, f). *Topotypic material*: four specimens, BM 1974.349–52, of this species were recovered from sediment sample M-185 (Stat. 151).

Genus **KRITHE*****Krithe hyalina* Brady**

(Pl. 18, figs 1, 2)

*Krithe hyalina* Brady, 1880 : 115, pl. 27, figs 3a–d.

LECTOTYPE. Whole carapace, BM 81.5.34. Length 0.59 mm ; height 0.31 mm. *Type locality*: Stat. 233b, Inland Sea, Japan, 15 fathoms. (34°18'0"N, 133°35'0"E, trawled, mud, surface temp. 66.3°F, May 26, 1875.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880) and see Pl. 18, fig. 1. *Hinge* adont.

***Krithe producta* Brady**

(Pl. 17, figs 16–18)

*Krithe producta* Brady, 1880 : 114, 115, pl. 27, figs 1a–j.

LECTOTYPE. Whole carapace, BM 80.38.127. Length 0.84 mm ; height 0.47 mm. *Type locality*: Stat. 146, 1375 fathoms. (46°46'0"S, 45°31'0"E, trawled, *Globigerina* ooze, bottom temp. 35.6°F, surface temp. 43.0°F, December 29, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 17, fig. 18. *Hinge* adont. *Central muscle scars*: see Pl. 17, figs 16 and 17.



REMARKS. Brady (1880, pp. 114, 115) lists this species from seventeen stations ranging in depth from 50 to 1675 fathoms and considered it to be cosmopolitan. The lectotype is from Stat. 146, depth 1375 fathoms. *Krithe producta* is common in sediment sample M-169 (off Prince Edward's Island, 50-150 fathoms) and as a species should be split into several subspecies. *Topotypic material*: two left valves, BM 1974.353 & 355, and a right valve, BM 1974.354.

***Krithe tumida* Brady**

(Pl. 18, figs 3-5)

*Krithe tumida* Brady, 1880 : 115, 116, pl. 27, figs 4a-d.

LECTOTYPE. Whole carapace, BM 81.5.36 (valves separated after photography). Length 0.62 mm ; height 0.37 mm. *Type locality*: Stat. 323. (35°39'0"S, 50°47'0"W, trawled, grey ooze, 1900 fathoms, bottom temp. 33.1°F, surface temp. 73.5°F, February 28, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1800). See Pl. 18, fig. 3. *Hinge* adont.

REMARKS. Brady (1880, pp. 115, 116) reported this species from Stat. 323 although he also lists (p. 13) *Krithe tumida* from Stat. 64 (35°35'0"N, 50°27'0"W, 2750 fathoms, grey ooze, June 20, 1873.) A left valve was recovered from sediment sample M-86 (Stat. 64) and is registered BM 1974.356.

Genus **LOXOCONCHA**

***Loxoconcha africana* Brady**

(Pl. 18, figs 13, 14)

*Loxoconcha africana* Brady, 1880 : 118, pl. 28, figs 3a-d.

LECTOTYPE. Disarticulated right and left valves, portion of anteroventral margin missing, BM 80.28.130. Right valve : length 0.59 mm ; height 0.40 mm ; left valve : length 0.59 mm ; height 0.37 mm. *Type locality*: St Vincent, Cape Verde, 1070-1150 fathoms, April 26, 1876.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), except for absence of papillae on lectotype. See Pl. 18, fig. 13. *Inner lamella* narrow anteriorly and posteriorly with anterior and posteroventral vestibula. *Marginal pore canals*: about 17 simple canals. *Hinge*: aberrant amphidont type. In the right valve there is an anterior crescent-shaped socket within which there is a small tooth. The median element is crenulated. The posterior element consists of a divided tooth with a socket between. *Normal pores* large, scattered, round and elongate sieve-type. *Central muscle scars*: row of four adductor scars, single V-shaped frontal scar. *Eyespot* present.



***Loxoconcha anomala* Brady**

(Pl. 18, figs 6-9)

*Loxoconcha anomala* Brady, 1880: 123, pl. 27, figs 5a-d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.132. Right valve: length 0.65 mm; height 0.43 mm; left valve: length 0.62 mm; height 0.43 mm. *Type locality*: from reefs at Honolulu, 40 fathoms, July 1875.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 18, figs 6-9. *Inner lamella* wide throughout, line of concrescence and inner margin coincide; no vestibula. *Marginal pore canals* about 22 branching, mostly bifurcate, a few trifurcate and single. *Hinge* adont. *Central muscle scars*: adductors consist of a vertical row of four elongate scars and a frontal scar. *Eyespot* present.

REMARKS. *Topotypic material*: one specimen, a left valve (lost) and a right valve, BM 1974.360, was found in sediment sample M-324 (reefs at Honolulu).

***Loxoconcha australis* Brady**

(Pl. 18, figs 17, 18; Pl. 19, figs 1-4)

*Loxoconcha australis* Brady, 1880: 119, 120, pl. 28, figs 5a-f; pl. 29, figs 3a-d.

LECTOTYPE. Left valve, BM 80.38.133. Length 0.78 mm; height 0.37 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 19, figs 2 and 4. *Inner lamella*: see Pl. 18, fig. 18; Pl. 19, figs 2 and 3, the anterior vestibule is present but posteroventral vestibule absent. *Inner lamella* of about uniform width, selvage strong. *Marginal pore canals*: nine anterior and six ventral and posterior simple, straight canals. See Pl. 19, fig. 3. *Hinge*: see Pl. 19, fig. 3, aberrant amphidont, anteriorly a strong tooth followed by a crenulate bar. Posteriorly a large crescent-shaped socket with weak tooth. *Normal pores* scattered, large, rounded, sieve-type pore canals. *Central muscle scars*: vertical rows of four adductors, frontal scar kidney-shaped. *Eyespot* present and located low on carapace.

REMARKS. Sediment sample M-242 (Stat. 187, off Booby Island, lat. 10°36'0"S, long. 141°5'0"E, 6-8 fathoms) yielded six complete carapaces, one of which was disarticulated. *Topotypic material*: disarticulated carapace, BM 1974.363.

***Loxoconcha honoluliensis* Brady**

(Pl. 19, figs 5, 6)

*Loxoconcha honoluliensis* Brady, 1880: 117, 118, pl. 28, figs 6a-f.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.136. Right valve: length 0.62 mm; height 0.43 mm; left valve: length 0.59 mm; height 0.43 mm. *Type locality*: reefs off Honolulu, 40 fathoms, July 1875.



DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 18, figs 5 and 6. Lectotype and topotype pitted. Opaque areas present over most of the valves. *Inner lamella* widest anteriorly and posteroventrally. Line of concrescence irregular and indistinct. *Marginal pore canals*: most of the branching type terminating in two, mostly three branches near the outer margin. Less than 30 canals somewhat evenly spaced throughout, a few false canals at the anterior end. *Hinge* adont. Right valve with a medium groove between two bars. Left valve with a median bar. *Normal pores*: sieve type, large and numerous. *Central muscle scars*: a vertical row of four elongate scars with the dorsal-most the longest and concave dorsally. Frontal scar V-shaped. *Eyespots* low and somewhat indistinct.

REMARKS. Type locality for the lectotype, sediment sample M-324, yielded only two specimens, a right and a left valve. *Loxoconcha honoluluensis* was selected as type species of *Loxoconchella* by Triebel, 1954. *Topotypic material*: a right valve, BM 1974.361; a left valve lost.

### ***Loxoconcha pumicosa* Brady**

(Pl. 18, figs 10–12)

*Loxoconcha pumicosa* Brady, 1880: 118, 119, pl. 28, figs 2a–d.

LECTOTYPE. Whole carapace, BM 81.5.37 (left valve lost after photography). Length 0.50 mm; height 0.34 mm. *Type locality*: Nares' Harbour, Admiralty Islands, 16 fathoms, March 2, 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 18, figs 10 and 11. *Inner lamella* widest anteriorly, anterior and posteroventral vestibula present. Selvage strong. *Marginal pore canals* simple and straight. *Hinge*: aberrant amphidont hinge. Anteriorly, a crescent-shaped socket with a weak tooth followed by a crenulate bar. Posteriorly, a large crescent-shaped and incompletely divided tooth with a small socket inside the crescent. *Eyespot* present but inconspicuous.

REMARKS. Two complete carapaces of this species were recovered from sediment sample M-279 (Nares' Harbour). Brady (1880, pp. 118, 119) also reported this species from off Booby Island (Stat. 187). *Topotypic material*: a complete carapace, BM 1974.359.

### ***Loxoconcha subrhomboidea* Brady**

(Pl. 18, figs 15, 16)

*Loxoconcha subrhomboidea* Brady, 1880: 121, pl. 28, figs 4a–d.

LECTOTYPE. Whole carapace, Hancock Museum (left valve missing after photography). Length 0.37 mm; height about 0.24 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15–20 fathoms, October, 1873.

DESCRIPTION. *Shape* as given by Brady (1880) except that the posterior is more angular than rounded and the caudal process is present but weak (see Pl. 18, fig. 15).



*Ornamentation* as given by Brady (1880) plus a heavy ventral ridge and deep furrow (see Pl. 18, fig. 15). *Inner lamella*: anterior and posteroventral vestibula present. Well-developed posteroventral flange. *Marginal pore canals* simple and straight. *Hinge*: median element smooth. Posterior element comprises a large crescentic tooth which is incompletely divided, and a small socket inside the crescent. *Normal pores* few, large rounded sieve-type pores.

REMARKS. *Topotypic material*: a left valve, BM 1974.362, was recovered from sediment sample M-164 (Stat. 140, Simon's Bay), this is the only locality where Brady (1880, p. 121) found this species.

Genus **XESTOLEBERIS**

***Xestoleberis africana*** Brady

(Pl. 19, figs 15, 16)

*Xestoleberis africana* Brady, 1880 : 126, pl. 30, figs 4a-c.

LECTOTYPE. Disarticulated right and left valves. Portion of anteroventral region missing on left valve, BM 81.5.40 (valves separated after photography). Right valve: length 0.40 mm; height 0.31 mm; left valve: length 0.40 mm; height 0.28 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880) except for absence of papillae. *Inner lamella* widest anteriorly narrowing posteroventrally; anterior and posteroventral vestibula present. *Marginal pore canals* short, simple canals throughout. About 20 canals, anteriorly. *Hinge* merodont. Right valve with terminal crenulated teeth. Crenulations continue into groove for median bar of left valve. Median bar smooth. *Normal pores* large, of sieve type. *Central muscle scars*: four elongate adductor scars, others obscure. *Eyespot*: eyepit large and '*Xestoleberis* spot' small. The spot, located low, is short and semicircular in shape.

REMARKS. This species was reported by Brady (1880, p. 126) from only one station (Simon's Bay). *Topotypic material*: sediment sample M-164 (Stat. 140) yielded a single right valve, BM 1974.388.

***Xestoleberis expansa*** Brady

(Pl. 19, figs 13, 14)

*Xestoleberis expansa* Brady, 1880 : 129, 130, pl. 30, figs 3a-d.

LECTOTYPE. Left valve, BM 81.5.41. Length 0.31 mm; height 0.19 mm. *Type locality*: Stat. 323, off Uruguay, 1900 fathoms. (35°39'0"S, 50°47'0"W, trawled, grey ooze, bottom temp. 33.1°F, surface temp. 73.5°F, February 28, 1876.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). The surface is extremely smooth and polished. *Hinge* merodont. *Central muscle scars* consist of four scars and a frontal scar. *Eyespot*: eyepit and '*Xestoleberis* spot' present.



REMARKS. Brady (1880, p. 129) found one specimen, a complete carapace, which he figured (pl. 30, figs 3a-d). The British Museum slide catalogued as BM 81.5.41 contained two specimens, a complete carapace figured here on Pl. 19, figs 13 and 14, which, unfortunately, is not a *Xestoleberis*. Consequently the other specimen, a left valve, is designated lectotype.

***Xestoleberis foveolata* Brady**

(Pl. 19, figs 11, 12)

*Xestoleberis foveolata* Brady, 1880 : 130, pl. 30, figs 1a-g.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.141 (valves separated after photography). Right valve : length 0.54 mm ; height 0.37 mm ; left valve : length 0.54 mm ; height 0.40 mm. *Type locality*: Stat. 187, Booby Island, north of Australia, 6-8 fathoms. (10°36'0"S, 141°55'0"E, dredged, coral and sand, surface, temp. 77.7°F, September 9, 1874.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). See Pl. 19, fig. 11. *Inner lamella* widest anteriorly ; anterior and posteroventral vestibula present, the former is wider. *Marginal pore canals* simple, straight and short. Most numerous anteroventrally. *Hinge* merodont. Right valve with anterior and posterior crenulate teeth connected by a smooth ridge with a groove above. Left valve with smooth median bar and crenulate sockets joined by a narrow groove and above the latter, an accommodation groove. *Normal pores* large and open. *Central muscle scars*: four elongate adductor scars arranged vertically and a frontal scar. *Eyespots*: eyepit small and not visible externally. '*Xestoleberis* spot' long, slender and uniform in width. *Overlap*: left valve larger than right valve.

REMARKS. The type locality is Stat. 187 and topotypes have been recovered from sediment sample M-242 (Stat. 187). *Topotypic material*: two carapaces, a left and a right valve, BM 1974.364 and 366-8.

***Xestoleberis granulosa* Brady**

(Pl. 19, figs 17, 18)

*Xestoleberis granulosa* Brady, 1880 : 125, 126, pl. 30, figs 5a-d.

LECTOTYPE. Disarticulated right and left valves, Hancock Museum (valves separated after photography). Right valve : length 0.61 mm ; height 0.33 mm ; left valve : length 0.63 mm ; height 0.35 mm. *Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), except for the absence of papillae. *Inner lamella* wide anteriorly, narrowing towards posterior. Lamella widest posteriorly in region of posteroventral vestibule. Anterior vestibule wider than posterior. Line of concrescence more irregular in anteroventral region, less irregular elsewhere. *Marginal pore canals* most numerous anteriorly, with



about 35 simple canals and a few false canals. Concentrated anteroventrally, and less numerous ventrally and posteriorly. Some branching canals occur ventrally. *Hinge* merodont. Right valve with anterior and posterior crenulate teeth. Left valve with median bar. Bar as prominent as the teeth. *Normal pores* large and of sieve type. *Central muscle scars*: a vertical row of four elongate scars and a frontal scar. *Eyespot*: eyepit obscure. '*Xestoleberis* spot' large and about twice as long as wide. *Overlap*: left valve larger than right.

REMARKS. Brady (1880, pp. 125, 126) reported this species from only two localities (Stat. 162, East Moncœur Island, Bass' Strait, 38–40 fathoms, and Port Jackson). The lectotype is from Port Jackson and 10 complete carapaces and detached valves were recovered from sediment sample M-198 (Port Jackson). *Topotypic material*: a complete carapace, BM 1974.323, and a right valve, BM 1974.324.

### *Xestoleberis nana* Brady

(Pl. 20, figs 14, 15)

*Xestoleberis nana* Brady, 1880 : 126, pl. 31, figs 5a–c.

LECTOTYPE. Right valve, BM 80.38.143. Length 0.43 mm ; height 0.28 mm. *Type locality*: Stat. 172, off Nukualofa, Tongatabu, 18 fathoms. (20°58'0"S, 175°09'0"W, dredged, coral, surface temp. 75.0°F, July 22, 1874.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), see Pl. 20, figs 14 and 15. *Inner lamella*: see Pl. 20, fig. 15. Widest anteriorly, vestibula present anteriorly and posteroventrally. *Marginal pore canals* short, simple and straight ; about 30 anteriorly with most of them concentrated anteroventrally. *Hinge* merodont. Right valve with anterior and posterior crenulate teeth and median groove. *Normal pores* large and open. Many with a 'halo' around the pore on the surface. *Central muscle scars*: a vertical row of four adductor scars and additional scars. *Eyespot*: eyepit indistinct, '*Xestoleberis* spot' of two distinctly separate slender filaments, one below the other. Both slightly convex anteriorly.

### *Xestoleberis setigera* Brady

(Pl. 20, figs 9–11)

*Xestoleberis setigera* Brady, 1880 : 125, pl. 31, figs 2a–d and figs 3a–c.

LECTOTYPE. Disarticulated right and left valves. Portion of ventral surface of right valve missing, BM 80.38.145 (valves separated after photography). Right valve : length 0.59 mm ; height 0.31 mm ; left valve : length 0.59 mm ; height 0.25 mm. *Type locality*: off Prince Edward's Island, 50–150 fathoms. (46°48'0"S, 37°49'30"E, dredged, grey sand, surface temp. 41.0°F, December 26, 1873.)

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), except for the papillae which are absent in the lectotype but are present in the topotype. *Inner*



*lamella* widest anteriorly; anterior and ventral vestibula present with the former the larger. The ventral vestibule is very narrow and terminates at the postero-ventral corner. *Marginal pore canals* most abundant anteriorly with about 20 simple straight and short canals plus a few false canals anteroventrally. Ventral canals simple and straight. *Hinge* merodont. Right valve with anterior and posterior crenulate teeth, left valve with smooth median bar. *Normal pores* large and open. *Central muscle scars* consist of four scars, the uppermost in the shape of a wide and shallow U. Frontal scar heart-shaped. *Eyespot*: eyepit present, 'Xestoleberis spot' club shaped. *Overlap*: left valve larger than right.

REMARKS. Brady (1880, p. 125) reported this species from three places (off Christmas Harbour, Kerguelen Island, 120 fathoms; the station from which he figured this species; Stat. 151 and off Prince Edward's Island). The lectotype is from Prince Edward's Island. *Topotypic material*: a complete carapace, BM 1974.369, from sediment sample M-169, Prince Edward's Island.

### *Xestoleberis tumefacta* Brady

(Pl. 20, figs 12, 13; Pl. 26, figs 1-3)

*Xestoleberis tumefacta* Brady, 1880: 128, 129, pl. 31, figs 4a-d.

NEOTYPE. Complete carapace, BM 1974.370. Length 0.54 mm; height 0.33 mm. *Type locality*: Nares' Harbour, Admiralty Islands, 16 fathoms, March 2, 1875.

DESCRIPTION. *Shape* as described by Brady (1880). See Pl. 26, figs 1-3. *Ornamentation*, smooth, see Pl. 26, figs 1 and 2. *Inner lamella* wide throughout. *Hinge* merodont. *Eyespot*: external eyespot absent, but internal 'Xestoleberis spot' is present.

REMARKS. Brady (1880, pp. 128, 129) apparently was dealing with two different forms; the form figured by him (pl. 31, figs 4a-d) is a true *Xestoleberis* but in his description he says, 'This has very much the general aspect of *Loxoconcha*'. The only specimen in the BM collection (BM 81.5.44) (see Pl. 20, figs 12 and 13) is a *Loxoconcha*, the specimen of *Xestoleberis* being lost. Brady found *Loxoconcha pumicosa* and *Xestoleberis tumefacta* only at Nares' Harbour (see p. 24) and several specimens of the only *Xestoleberis* present at this station were found in sediment sample M-279. One of these is here made neotype and figured (see Pl. 26, figs 1-3). *Topotypic material*: two right valves, BM 1974.371-2.

### *Xestoleberis variegata* Brady

(Pl. 20, figs 16-18)

*Xestoleberis variegata* Brady, 1880: 129, pl. 31, figs 8a-g.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.146. Right valve: length 0.52 mm; height 0.37 mm; left valve: length 0.50 mm; height 0.34 mm.



*Type locality*: Stats 93, 94, off St Vincent, Cape Verde, 1070–1150 fathoms. (16°42'0"N, 25°12'0"W, mud, surface temp. 78.0°F, August 5, 1873.)

DESCRIPTION. *Shape* as given by Brady (1880) for the left valve, except for the absence of a ventral sinus; the right valve is characterised by a flat dorsal surface in the region of the median bar/groove and a truncated posterior end, especially the dorsal half. See Pl. 20, figs 16–18. *Ornamentation*: the lectotype has only two small opaque spots, both posteriorly rather than variegated all over as indicated by Brady (1880). *Inner lamella*: anterior and posteroventral vestibula present with the former the widest. *Marginal pore canals* simple, straight canals, in excess of 20 anteroventrally. Also, numerous ventrally, but decreasing in number posteriorly. Some false canals present. *Hinge* merodont. Right valve with anterior and posterior crenulate teeth. Left valve with median smooth bar. *Normal pores* large and open. *Central muscle scars*: a vertical row of four adductor scars; frontal scar kidney shaped. *Eyespot*: 'Xestoleberis spot' long and of uniform width except at the dorsal tip where it is narrow. The spot has a coarse granular appearance. *Overlap*: left valve larger than right.

#### Genus *CYTHERURA*

##### *Cytherura clavata* Brady

(Pl. 19, figs 7–10)

*Cytherura clavata* Brady, 1880: 133, pl. 29, figs 7a–d.

LECTOTYPE. Left valve, BM 80.38.148. Length 0.60 mm; height 0.29 mm. *Type locality*: Stat. 316, Stanley Harbour, Falkland Islands, 6 fathoms. (51°32'0"N, 58°06'0"W, dredged, 4 fathoms, mud, surface temp. 51.2°F, February 3, 1876.)

DESCRIPTION. *Shape and ornamentation*: see Brady (1880).

##### *Cytherura clausi* Brady

(Pl. 21, figs 9, 10)

*Cytherura clausi* Brady, 1880: 134, pl. 32, figs 8a–d.

LECTOTYPE. Left valve, BM 81.5.47. Length 0.49 mm; height 0.26 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15–20 fathoms, October 1873.

DESCRIPTION. *Shape and ornamentation* as given by Brady. Surface strongly reticulate. *Inner lamella* very wide anteriorly where the inner margin runs a normal course; very wide posteriorly where it forms a strong curve. *Normal pores* moderately small, numerous, open.

REMARKS. Brady's syntypes (BM 81.5.17 and BM 81.5.45) labelled '*Cytherura clausi*' really represent *C. mucronata* Brady. Several specimens of *C. clausi* Brady were found in sediment sample M-164. Hornibrook (1952, p. 51, pl. 15, figs 242–244) reported and figured *Cytherura clausi* Brady from New Zealand, conspecific with the form described here.



***Cytherura costellata* Brady**

(Pl. 21, figs 7, 8)

*Cytherura costellata* Brady, 1880 : 134, pl. 32, figs 7a-d.

LECTOTYPE. Right valve, BM 80.38.149. Length 0.47 mm ; height 0.23 mm.  
*Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20-50 fathoms, mud, January 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Cytherura cribrosa* Brady**

(Pl. 21, fig. 2)

*Cytherura cribrosa* Brady, 1880 : 132, pl. 32, figs 5a-d.

LECTOTYPE. Whole carapace, BM 80.38.150. Length 0.59 mm ; height 0.37 mm.  
*Type locality*: Stat. 305, 160 fathoms. (47°48'0"S, 74°46'0"W, trawled, mud, surface temp. 55.0°F, January 1, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Cytherura cryptifera* Brady**

(Pl. 21, fig. 1)

*Cytherura cryptifera* Brady, 1880 : 134, 135, pl. 32, figs 4a-c.

LECTOTYPE. Left valve (damaged) Hancock Museum. Length 0.40 mm ; height 0.22 mm.  
*Type locality*: Stat. 162, off East Moncœur Island, Bass Strait, 38-40 fathoms. (39°10'30"S, 146°37'0"E, dredged, sand, surface temp. 63.2°F, April 2, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Cytherura curvistriata* Brady**

(Pl. 21, fig. 13)

*Cytherura curvistriata* Brady, 1880 : 131, pl. 32, figs 10a-d.

LECTOTYPE. Whole carapace, BM 81.5.46. Length 0.37 mm ; height 0.21 mm.  
*Type locality*: Port Jackson, Australia, 2-10 fathoms, April 20, 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Cytherura lilljeborgi* Brady**

(Pl. 21, figs 3-6)

*Cytherura lilljeborgi* Brady, 1880 : 132, 133, pl. 32, figs 6a-d.

LECTOTYPE. Whole carapace, BM 80.38.151. Length 0.43 mm ; height 0.25 mm.  
*Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20-50 fathoms, mud, January 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).



***Cytherura mucronata* Brady**

(Pl. 21, figs 11, 12)

*Cytherura mucronata* Brady, 1880 : 133, 134, pl. 32, figs 9a-d.

LECTOTYPE. Whole carapace, BM 81.5.45. Length 0.50 mm ; height 0.28 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 18, 1873.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 21, fig. 11.

REMARKS. Brady (1880, pp. 133, 134) described both *Cytherura mucronata* and *Cytherura clausi* from Stat. 140 (Simon's Bay). The lectotype of *C. mucronata* (BM 81.5.45) and syntype specimens labelled by Brady as '*C. clausi*' really represent *C. mucronata*. Several specimens of Brady's *C. clausi* were found in sediment sample M-164 (Stat. 140).

Genus **CYTHEROPTERON*****Cytheropteron abyssorum* Brady**

(Pl. 23, fig. 8)

*Cytheropteron abyssorum* Brady, 1880 : 138, pl. 34, figs 3a-d.

LECTOTYPE. Whole carapace, BM 81.5.49. Length 0.37 mm ; width (from ala of right to ala of left valve) 0.50 mm. *Type locality*: Stat. 160, Southern Australian Basin, 2600 fathoms. (42°42'0"S, 134°10'0"E, trawled, red clay, bottom temp. 33.9°F, surface temp. 55.0°F, March 13, 1874.)

DESCRIPTION. *Shape*: a large portion of each valve is missing and no attempt was made to study the specimen in detail. The description given by Brady (1880) fits the lectotype.

***Cytheropteron (?) angustatum* Brady**

(Pl. 23, figs 15-17)

*Cytheropteron (?) angustatum* Brady, 1880 : 137, pl. 34, figs 5a, b ('*angustum*' on explanation to pl. 34).

LECTOTYPE. Left valve, BM 80.38.152. Length 0.46 mm ; height 0.28 mm. *Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20-50 fathoms, mud, January 1874.

DESCRIPTION. *Shape* as given by Brady (1880), except that the entire dorsal margin slopes towards the posterior. See Pl. 23, figs 15 and 16. *Ornamentation* as given by Brady (1880). *Inner lamella* widest at anterior end. Line of concrescence and inner margin coincide throughout, no vestibule at either end. *Hinge* of *Infra-cytheropteron* type (holoperatodont). *Central muscle scars*: see Pl. 23, fig. 17.

REMARKS. Brady (1880, p. 137) reported this species from Stat. 149 (Balfour Bay) and Stat. 185 (Torres' Straits, 155 fathoms) and he figured a left valve (pl. 34,



figs 5a, b). The lectotype is also a left valve from Stat. 149. *Topotypic material*: sediment sample M-237 (Stat. 185) yielded a single right valve, BM 1974.375.

***Cytheropteron assimile* Brady**

(Pl. 23, figs 1-7)

*Cytheropteron assimile* Brady, 1880 : 138, 139, pl. 34, figs 2a-d.

LECTOTYPE. Whole carapace, BM 80.38.153. Length 0.70 mm ; height 0.42 mm. *Type locality*: Stat. 151, off Heard Island, 75 fathoms. (52°59'30"S, 73°33'30"E, dredged, mud, surface temp. 36.2°F, February 7, 1874.)

DESCRIPTION. *Shape* as described by Brady (1880), except for posterior portion of dorsal margin. See Pl. 23, fig. 1. *Ornamentation* as given by Brady (1880). *Inner lamella*: vestibule present at anterior end. Otherwise line of concrescence and inner margin coincide. *Marginal pore canals* few in number and most are simple. *Hinge* with only the terminal portions of the median element crenulate, see Pl. 23, figs 3-7. *Normal pores* open and scattered. *Central muscle scars*: four undivided adductors. Frontal scar single and V-shaped.

REMARKS. Brady (1880, pp. 138, 139) described this species from off Christmas Harbour (Stat. 149) and off Heard Island (Stat. 151). The lectotype is from Stat. 151. *Topotypic material*: this species is common in sediment sample M-183 (Stat. 149) and two right valves and a left valve are registered, BM 1974.376-8.

***Cytheropteron fenestratum* Brady**

(Pl. 23, fig. 18 ; Pl. 24, figs 1-6)

*Cytheropteron fenestratum* Brady, 1880 : 139, 140, pl. 34, figs 6a-d.

LECTOTYPE. Right valve, BM 80.38.154-155. Length 0.93 mm ; height 0.56 mm. *Type locality*: Stat. 149, off Christmas Harbour, Kerguelen Island, 120 fathoms. (48°43'45"S, 69°6'15"E, dredged, mud, surface temp. 38.8-39.0°F, January 29, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), except that the ventral surface is not 'irregularly nodulated'. *Inner lamella*: see Pl. 23, fig. 18. Line of concrescence and inner margin coincide except anteriorly where a vestibule is present. *Marginal pore canals* numerous and mostly simple. *Hinge*: see Pl. 24, figs 5 and 6. Terminal elements lobed, groove of median element smooth. *Normal pores*, numerous, scattered and open. *Central muscle scars*: five adductor scars arranged in a vertical row ; middle three more elongate than the dorsal- or ventralmost scars. Single frontal scar.

REMARKS. Brady (1880, pp. 139, 140) reported this species from two stations (149 and 335). He figured a complete carapace (pl. 34, figs 6a-d). The lectotype is a right valve from Stat. 149. *Topotypic material*: sediment sample M-183 (Stat. 149, off Christmas Harbour) yielded a right valve, BM 1974.379.



***Cytheropteron mucronalatum* Brady**

(Pl. 22, figs 14-18)

*Cytheropteron mucronalatum* Brady, 1880 : 140, 141, pl. 33, figs 8a-d.

LECTOTYPE. Left valve, BM 80.38.157. Length 1.30 mm ; height 0.84 mm. *Type locality*: Stat. 296, near the Chile Rise in the eastern Pacific, 1825 fathoms. (38°6'0"S, 88°2'0"W, trawled, *Globigerina* ooze, bottom temp. 35.3°F, surface temp. 59.8°F, November 9, 1875.)

DESCRIPTION. *Shape*: the lectotype differs from description of *C. mucronalatum* by Brady (1880) in the following ways : height is not equal to more than two-thirds of the length, anterior end scarcely dentate, posterior end devoid of spines, dorsum not broadly arched, see Pl. 22, figs 15 and 18. *Ornamentation*: the elevated ridge mentioned by Brady (1880) is practically absent anteriorly and does not terminate in a strong short spine on the lectotype. Right valve does show the spine. *Inner lamella*: line of concrescence and inner margin coincide, vestibula absent. *Marginal pore canals* few, mostly simple, few false. *Hinge*: median element smooth. *Normal pores*, scattered and open. *Central muscle scars*: see Pl. 22, figs 15 and 17.

REMARKS. Brady (1880, pp. 140, 141) described this species from Stats 70, 224, 246, 296, 300 and 302 and he figured a complete carapace (pl. 33, figs 8a-d). The lectotype is a right valve from Stat. 296. *Topotypic material*: sediment sample M-92 (Stat. 70, 38°25'0"N, 35°50'0"W, 1675 fathoms) yielded a single left valve, BM 1974.380.

***Cytheropteron patagoniense* Brady**

(Pl. 22, figs 12, 13)

*Cytheropteron patagoniense* Brady, 1880 : 139, pl. 33, figs 7a-d.

LECTOTYPE. Left valve, eroded, BM 80.38.158. Length 0.56 mm ; height 0.37 mm. *Type locality*: Stat. 305, 160 fathoms. (47°48'0"S, 74°46'0"W, trawled, mud, surface temp. 55.0°F, January 1, 1876.)

DESCRIPTION. *Shape*: see Pl. 22, fig. 12. Exceptions to Brady's (1880) description include broadly rounded anterior, anterior half of dorsal margin regular and gently sloping, posterior half of dorsal margin steeply sloping. *Ornamentation*: the ridge mentioned by Brady is absent on the lectotype. A posterior dorsal knob is present at about the position where the ridge terminates on Brady's specimen. *Hinge*: median element smooth. *Central muscle scars*: four adductor scars with single kidney-shaped frontal scar.

***Cytheropteron scaphoides* Brady**

(Pl. 21, figs 14-18)

*Cytheropteron scaphoides* Brady, 1880 : 136, pl. 33, figs 1a-d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.159. Right valve : length 0.37 mm ; height 0.19 mm ; left valve : length 0.37 mm ; height 0.15 mm.



*Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20–50 fathoms, mud, January 1874.

DESCRIPTION. *Shape and ornamentation* as given by Brady (1880). *Inner lamella*: anterior and posterior vestibula present with the former the larger of the two. *Marginal pore canals* few and simple. *Hinge* as follows: in the larger right valve, the sequence of elements anterior to posterior is socket, wedge-shaped (in dorsal view) tooth, crenulate bar, rounded (in dorsal view) tooth, socket. In smaller left valve, crenulate groove, socket, wedge-shaped tooth. In both valves, the high point of the wedge is towards the anterior end. See Pl. 21, figs 17 and 18. *Central muscle scars*: adductor scars consist of four adjacent but distinct scars arranged in a vertical row. Frontal scar single somewhat circular and large. *Overlap*: right valve larger than left.

### *Cytheropteron wellingtoniense* Brady

(Pl. 23, figs 9–14)

*Cytheropteron wellingtoniense* Brady, 1880: 136, 137, pl. 34, figs 4a–d.

LECTOTYPE. Right and left valves of a once articulated specimen, BM 80.38.160. Right valve: length 0.56 mm; height 0.34 mm. *Type locality*: Wellington Harbour, New Zealand, depth unknown.

DESCRIPTION. *Shape* essentially as given by Brady (1880). Notable exception is prominent indentation in dorso-anterior region. See Pl. 23, fig. 10. *Ornamentation* as given by Brady (1880). *Inner lamella*: anterior vestibule present. *Hinge*: see Pl. 23, figs 11–13; terminal and median element crenulate. *Central muscle scars*: see Pl. 23, fig. 14, frontal scar V-shaped.

### Genus *BYTHOCYTHERE*

#### *Bythocythere arenacea* Brady

(Pl. 22, figs 1–5)

*Bythocythere arenacea* Brady, 1880: 142, pl. 33, figs 3a–g (*arenosa* on pl. 19).

LECTOTYPE. Left valve, BM 81.5.50. Length 0.75 mm; height 0.37 mm. Tip of posterior caudal process broken off and missing. *Type locality*: Stat. 185, Torres' Straits, 155 fathoms. (11°35'0"S, 144°3'0"E, dredged, sand and shells, surface temp. 77.0°F, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880). See Pl. 22, fig. 1. *Inner lamella*: see Pl. 22, figs 2 and 3. Well defined anterior vestibule present. *Hinge*: see Pl. 22, figs 4 and 5. *Central muscle scars*: five, arcuate, vertically arranged, elongate adductor scars and two frontal scars.

REMARKS. Brady (1880, p. 142) found 'several examples' from Stat. 185 and figured (see pl. 33, fig. 3) complete carapaces of both a male and a female. *Topotypic material*: two specimens, both left valves, were found in sediment sample M-237; one left valve is registered BM 1974.382.



***Bythocythere (?) exigua* Brady**

(Pl. 3, figs 6-10)

*Bythocythere (?) exigua* Brady, 1880 : 143, 144, pl. 6, figs 7a-d (*exigna* on pl. 6).

LECTOTYPE. Disarticulated right and left valves, BM 81.5.51. Right valve : length 0.50 mm ; height 0.28 mm ; left valve : length 0.50 mm ; height 0.28 mm. *Type locality*: Stat. 313, Straits of Magellan, 55 fathoms. (52°21'0"S, 68°0'0"W, trawled, sand, bottom temp. 47.8°F, surface temp. 48.2°F, January 20, 1876.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Bythocythere pumilio* Brady**

(Pl. 22, figs 6-8)

*Bythocythere pumilio* Brady, 1880 : 142, 143, pl. 33, figs 4a-d.

LECTOTYPE. Whole carapace, BM 81.5.52. Length 0.45 mm ; height 0.21 mm. *Type locality*: Stat. 149, Balfour Bay, Kerguelen Island, 20-50 fathoms, mud, January 1874.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

***Bythocythere velifera* Brady**

(Pl. 22, figs 9-11 ; Pl. 27, fig. 3)

*Bythocythere velifera* Brady, 1880 : 143, pl. 33, figs 5a-c.

NEOTYPE. Left valve, BM 1974.381. Length 0.59 mm ; height 0.47 mm. *Type locality*: Stat. 185, Torres' Straits, 155 fathoms. (11°35'0"S, 144°3'0"E, dredged, sand and shells, surface temp. 77.0°F, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).

REMARKS. The only specimen in the British Museum labelled *Bythocythere velifera* (BM 81.5.53) is a *Cytheropteron* (see Pl. 22, figs 9-11), one of the two velate *Bythocythere* specimens found at the type locality is designated neotype.

**Genus *PSEUDOCY THERE******Pseudocythere fuegiensis* Brady**

(Pl. 1, figs 9, 10)

*Pseudocythere fuegiensis* Brady, 1880 : 145, pl. 1, figs 7a-d.

HOLOTYPE. Right valve, BM 81.5.54. (This is the only specimen found by Brady and figured as 7a-c.) Length 1.18 mm ; height 0.50 mm. *Type locality*: Stat. 311, 245 fathoms. (52°51'0"S, 73°53'0"W, trawled, mud, bottom temp. 46.0°F, surface temp. 50.0°F, January 11, 1876.)



DESCRIPTION. *Shape and ornamentation* as given by Brady (1880), except that the longitudinal striae are present over the entire surface but stronger in the posterior half. *Inner lamella*: anterior and posteroventral vestibula present, see Pl. 1, fig. 9. *Marginal pore canals* straight and simple. Cluster of three near centre of caudal process. *Hinge* adont. *Central muscle scars*: see Pl. 1, fig. 10.

### Genus *CYTHERIDEIS*

#### *Cytherideis laevata* Brady

(Pl. 2, fig. 18; Pl. 3, figs 1-5)

*Cytherideis laevata* Brady, 1880: 146, 147, pl. 6, figs 5a-d; pl. 35, figs 6a-d.

LECTOTYPE. Disarticulated right and left valves, BM 80.38.164. Right valve: length 0.88 mm; height 0.34 mm; left valve: length 0.90 mm; height 0.34 mm. *Type locality*: Stat. 151, off Heard Island, 75 fathoms. (52°59'30"S, 73°33'30"E, dredged, mud, surface temp. 36.2°F, February 7, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 2, fig. 18. *Hinge* adont, see Pl. 3, fig. 3. *Central muscle scars*: see Pl. 3, fig. 2.

REMARKS. Brady (1880, pp. 146, 147) did not mention the frequency of this species and he figures two complete carapaces (pl. 6, fig. 5; pl. 35, fig. 6). *Topotypic material*: this species is a common form in the sediment sample M-185 and a right and a left valve are registered BM 1974.385-6.

### Genus *XIPHICHILUS*

#### *Xiphichilus* (?) *arcuatus* Brady

(Pl. 24, figs 7, 8)

*Xiphichilus* (?) *arcuatus* Brady, 1880: 148, 149, pl. 35, figs 2a-d.

LECTOTYPE. Disarticulated right and left valves, BM 81.5.55. Right valve: length 0.53 mm; height 0.19 mm; left valve: length 0.53 mm; height 0.19 mm. *Type locality*: Stat. 174c, 610 fathoms. (19°07'50"S, 178°19'35"E, trawled, *Globigerina* ooze, bottom temp. 39.0°F, surface temp. 78.0°F, August 3, 1874.)

DESCRIPTION. *Shape*: the lectotype differs from the description by Brady (1880) in that the anterior end is more rounded, ventral margin slightly concave anteriorly and convex posteriorly. *Ornamentation*: entire surface with many small longitudinal ridges that follow the general curvature of the dorsum. Ridges can be seen with transmitted light. *Inner lamella* widest anteriorly where a vestibule is present. Elsewhere the line of concrescence and inner margin coincide. *Marginal pore canals* few, straight and mostly single. Few false canals ventrally. *Hinge* merodont-lophodont. Right valve with small, terminal teeth and a long groove between. Left valve with a long smooth median bar between terminal sockets, the posterior



tooth is the largest. *Central muscle scars*: adductor scars consist of four closely adjacent scars.

***Xiphichilus complanatus* Brady**

*Xiphichilus complanatus* Brady, 1880 : 148, pl. 35, figs 4a-d.

LECTOTYPE. Left valve, BM 81.5.56 [specimen lost]. *Type locality*: Stat. 149, off Christmas Harbour, Kerguelen Island, 120 fathoms, January 29, 1874.

DESCRIPTION. *Shape* as given by Brady (1880). *Inner lamella*, very wide anteriorly and posteriorly. *Hinge* adont. *Normal pores* frequent, open.

REMARKS. Brady described this species only from Stat. 149. Three specimens (one adult and two juveniles) were found in sediment sample M-183. *Topotypic material*: a complete carapace, BM 1974.253.

Genus **POLYCOPE**

**(?) *Polycope cingulata* Brady**

(Pl. 26, fig. 4)

*Polycope cingulata* Brady, 1880 : 170, pl. 35, figs 7a-d.

MATERIAL. Complete carapace, BM 1974.384. Length 0.49 mm. *Type locality*: None. Brady (1880, p. 170) mentioned that there is no record of the locality in which the only specimen of this species was found.

REMARKS. A single complete, eroded carapace, which may represent *Polycope cingulata*, was found in sediment sample M-198 (which represents Challenger Stat. Port Jackson, Australia, 2-10 fathoms, April 20, 1874.) The only articulated specimen which was figured by Brady as 7a-d on pl. 35 was never deposited either in the British Museum (Natural History) or in the Hancock Museum (*vide* letter by Mrs O. Marshall, secretary to Mr A. M. Tynan, Curator, Hancock Museum, dated 24 July 1967 to H. S. Puri).

***Polycope* (?) *favus* Brady**

(Pl. 24, fig. 9)

*Polycope* (?) *favus* Brady, 1880 : 170, pl. 36, figs 4a-b.

LECTOTYPE. Left valve, BM 81.5.64. Length 0.44 mm ; height 0.40 mm. *Type locality*: Stat. 185, Torres' Straits, 155 fathoms. (10°35'0"S, 144°03'0"E, dredged, sand and shells, surface temp. 77.0°F, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880).



REMARKS. Brady (1880, p. 170) found 'one or two' valves from Stat. 185, and he figured a left valve. *Topotypic material*: two valves, one broken, were found from sediment sample M-237. A left valve is registered BM 1974.383.

Genus **CYTHERELLA**

***Cytherella cribrosa*** Brady

(Pl. 17, fig. 13)

*Cytherella cribrosa* Brady, 1880 : 176, pl. 26, figs 5a-c.

LECTOTYPE. Left valve, BM 81.5.66. Length 0.62 mm ; height 0.34 mm. *Type locality*: Stat. 172, off Nuknalofa, Tongatabu, 18 fathoms. (20°58'0"S, 175°09'0"W, dredged, coral, mud, surface temp. 75.0°F, July 22, 1874.)

REMARKS. The form described and illustrated by Brady does not resemble the lectotype. Brady (1880, p. 176) observed that the 'surface of the shell is destitute of ridges or undulations, but marked with numerous rather large oblong excavations'. The left valve figured by him as figs 5a-c is not as long (0.49 mm) as the lectotype (0.62 mm) which is obviously a *Cytherelloidea*. We have designated this specimen the lectotype as it was the *only* specimen found in the collection labelled as '*Cytherella cribrosa*, No. 172, D.18, off Tongatabu'. This is the only species of *Cytherella* in the dredging at Stat. 172, and Brady found it only at its type locality.

***Cytherella dromedaria*** Brady

(Pl. 24, fig. 14)

*Cytherella dromedaria* Brady, 1880 : 173, pl. 43, figs 6a-b.

LECTOTYPE. Left valve, BM 81.5.67. Length 0.77 mm ; height 0.47 mm. *Type locality*: Stat. 140, Simon's Bay, South Africa, 15-20 fathoms, October 1873.

REMARKS. Brady (1880, p. 173) described this species from Stat. 140 (Simon's Bay) and he figured a left valve (pl. 43, figs 6a-b). The lectotype is also a left valve from Simon's Bay. *Topotypic material*: sediment sample M-164 (Simon's Bay, Stat. 140) yielded a right valve and a left valve, BM 1974.357-8.

***Cytherella irregularis*** Brady

(Pl. 24, fig. 10)

*Cytherella irregularis* Brady, 1880 : 178, pl. 43, figs 3a-c.

LECTOTYPE. Left valve (damaged), Hancock Museum. (Same specimen as illustrated by Brady, pl. 43, figs 3a-c, photographed on original museum slide as the specimen is too fragile to transfer.) Length 0.72 mm ; height 0.33 mm. *Type locality*: Stat. 33, off Bermuda, 435 fathoms. (32°21'30"N, 64°35'55"W, dredged, coral mud, surface temp. 68.0°F, April 4, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 24, fig. 10.



***Cytherella lata* Brady**

(Pl. 24, figs 17, 18)

*Cytherella lata* Brady, 1880 : 173, pl. 44, figs 5a-e.

LECTOTYPE. Right valve, BM 80.38.172. Length 0.81 mm ; height 0.56 mm. *Type locality*: Stat. 75, off Azores, 450 fathoms. (38°38'0"N, 28°28'30"W, dredged, sand, surface temp. 70.0°F, July 2, 1873.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 24, fig. 17. *Central muscle scars*: two curved transverse rows of six and nine elongate scars respectively.

REMARKS. Brady (1880, p. 173) reported this species from the following stations : off Culebra Island, West Indies, 390 fathoms, mud (Stat. 24) ; off Azores, lat. 38°37'0"N, long. 28°30'0"W, 450 fathoms, sand (Stat. 75) ; off Pernambuco, lat. 8°37'0"S, long. 34°28'0"W, 675 fathoms, mud (Stat. 120) ; Torres' Straits, lat. 11°35'0"S, long. 144°03'0"E, 155 fathoms, sand (Stat. 185) ; off Ki Islands, 580 fathoms, lat. 5°26'0"S, long. 133°19'0"S, mud (Stat. 191a). The lectotype is from Stat. 75. *Topotypic material*: a left valve recovered from sediment sample M-237 (Stat. 185), BM 1974.389.

***Cytherella latimarginata* Brady**

(Pl. 17, figs 14, 15)

*Cytherella latimarginata* Brady, 1880 : 178, 179, pl. 36, figs 7a-d.

NEOTYPE. Disarticulated left and right valves, BM 81.5.69. Right valve : length 0.41 mm ; height 0.28 mm ; left valve : length 0.41 mm ; height 0.25 mm. *Type locality*: Stat. 185, Torres' Straits, 155 fathoms. (11°35'0"S, 144°03'0"E, dredged, sand and shells, surface temp. 77.0°F, August 31, 1874.)

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 17, figs 14 and 15.

REMARKS. Specimens of this species were never deposited either in the British Museum (Natural History) or the Hancock Museum (letter by Mrs O. Marshall, secretary to Mr A. M. Tynan, Curator, Hancock Museum, dated 24 July 1967, to H. S. Puri) and have been lost. Sediment sample M-237 (Stat. 185) yielded a single articulated valve, which is designated as neotype.

***Cytherella venusta* Brady**

(Pl. 24, figs 11-13)

*Cytherella venusta* Brady, 1880 : 176, pl. 43, figs 4a-d.

LECTOTYPE. Right valve, BM 80.38.180. Length 0.71 mm ; height 0.34 mm. *Type locality*: off reefs at Honolulu, 40 fathoms, July 1875.

DESCRIPTION. *Shape and ornamentation* as described by Brady (1880), see Pl. 24, figs 11 and 13. *Central muscle scars*: see Pl. 24, fig. 12.



REMARKS. Off reefs at Honolulu is the only locality where Brady (1880, p. 176) found this species. *Topotypic material*: sediment sample M-324, which represents the type locality, yielded a right and a left valve, which are designated topotypes BM 1974.390-1.

## REFERENCES

- BATE, R. H. 1963. The Ostracoda collected during the voyage of H.M.S. Challenger. *Micro-paleontology* **9**: 79-84.
- BENSON, R. H. 1971. A new Cenozoic deep-sea genus, *Abyssocythere* (Crustacea: Ostracoda: Trachyleberididae), with description of five new species. *Smithson. Contr. Paleobiol.* **7**: 1-25, 3 pls.
- 1972. The *Bradleya* problem. With descriptions of two new psychrospheric ostracode genera, *Argenocythere* and *Poseidonamicus* (Ostracoda: Crustacea). *Smithson. Contr. Paleobiol.* **12**: 1-138, 14 pls, 67 figs.
- BRADY, G. S. 1866. On new or imperfectly known species of marine Ostracoda. *Trans. zool. Soc. Lond.* **5**: 359-393, pls 57-62.
- 1867-1871. In: *Les Fonds de la Mer*, vol. 1.
- 1878. A monograph of the Ostracoda of the Antwerp Crag. *Trans. zool. Soc. Lond.* **10** (8): 379-409, pls 62-69.
- 1880. Report on the Ostracoda dredged by 'H.M.S. Challenger' during the years 1873-1876. *Rep. scient. Results Voy. Challenger* **1** (3): 1-184, 44 pls.
- 1898. On new or imperfectly known species of Ostracoda, chiefly from New Zealand. *Trans. zool. Soc. Lond.* **14**: 429-452, pls 43-47.
- CORNUEL, J. 1846. Description des entomostraces fossils du terrain Crétace inférieur du Département de la Haute-Marne suivie d'indications sur les profondeurs de la mer qui a déposé ce terrain. *Mém. Soc. géol. Fr. ser. 1*, **1** (2): 193-205, 7 pls.
- HARDING, J. P. & SYLVESTER-BRADLEY, P. C. 1953. The ostracode genus *Trachyleberis*. *Bull. Br. Mus. nat. Hist. (Zool.)* **2**: 1-15, 2 pls.
- HORNIBROOK, N. DE B. 1952. Tertiary and Recent marine Ostracoda of New Zealand. *Palaeont. Bull. Wellington*, **18**: 1082, pls 1-18.
- NEVIANI, A. 1928. Ostracodi fossil d'Italia. 1. Vallebajia (Calabriano). *Memorie Accad. pont. Nuovi Lincei ser. 2*, **11**: 1-120.
- SEGUENZA, G. 1880. Le formazioni terziarie nella provincia di Reggio (Calabria). *Memorie Accad. pont. Nuovi Lincei* **6**: 3-443, pls 4-17, 2 maps.
- STODDART, W. W. 1861. On a Microzoa bed in the Carboniferous limestone of Clifton, near Bristol. *Ann. Mag. nat. Hist. ser. 3*, **8**: 486-490.
- SWAIN, F. M. 1963. Pleistocene Ostracoda from the Gubik Formation, Arctic coastal plain, Alaska. *J. Paleont.* **37** (4): 798-834.
- TIZARD, T. H., MOSELEY, H. N., BUCHANAN, J. Y. & MURRAY, J. 1885. Narrative of the cruise of 'H.M.S. Challenger' with a general account of the scientific results of the expedition. *Rep. scient. Results Voy. Challenger. Narrative* **1**: 1-1110.



DR HARBANS S. PURI  
BUREAU OF GEOLOGY  
903 WEST TENNESSEE ST  
TALLAHASSEE  
FLORIDA 32304  
U.S.A.

DR NEIL C. HULINGS  
*Faculty of Science*  
UNIVERSITY OF JORDAN  
AMMAN  
JORDAN





Puri, H S and Hulings, N C. 1976. "Designation of lectotypes of some ostracods from the Challenger expedition." *Bulletin of the British Museum (Natural History) Zoology* 29, 251–315. <https://doi.org/10.5962/bhl.part.6924>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/19532>

**DOI:** <https://doi.org/10.5962/bhl.part.6924>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/6924>

**Holding Institution**

Natural History Museum Library, London

**Sponsored by**

Natural History Museum Library, London

**Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: The Trustees of the Natural History Museum, London

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <http://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.