

Recent Bairdiinae (Crustacea, Ostracoda) from the Solomon Islands

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ABSTRACT—The Bairdiinae of the littoral and inner shelf of the Solomon Islands are both abundant and diverse. A total of 21 species have been recovered of which 13 are described as new 2 further species are left in open nomenclature. The new genus *Mydionobairdia* is erected, based on *Triebelina schyroconcha* Maddocks, 1969. The new species are: *Bairdoppilata paraalcyonicola*, *B. paracratericola*, *Neonesidea paragierloffii*, *N. vscripta*, *N. ? crepidula*, *N. ? rara*, *Paranesidea bipustulosa*, *P. corbita*, *P. equipunctata*, *P. petalona*, *P. stricta*, *P. ? confusa* and *P. ? paucipunctata*. Some of the difficulties involved in distinguishing species of *Neonesidea* and *Paranesidea* are discussed.

INTRODUCTION

Although there has been a considerable number of recent studies on the Ostracoda of the Indo-Pacific, the fauna of the Solomon Islands remains virtually unknown despite the zoogeographical importance of this region situated as it is between the Polynesian, Indonesian and Australasian regions. The present paper is the first in a series in which this fauna will be described. Harding (1962) described five new non-marine species recovered from the gut of fish. Apart from this, the only published work is by Whatley & Titterton (1981) who describe two new species and a new genus from marine environments. However, three unpublished theses produced at Aberystwyth reveal more than 170 Miocene to Recent species (Hughes, 1977a MS; Williams, 1980 MS; Titterton, 1984 MS).

This study is based on a series of sediment samples collected using a simple pipe dredge or by diving, by G. W. Hughes in Honiara Bay (samples 13–65) and by C. C. Turner in the same area (Samples 1–5). Their location and approximate depth is given in Fig. 2. An additional six samples (samples OS1–OS6) were collected by Turner from the northwestern coast of Shortland Island (Fig. 3). These samples from Shortland Island and samples 1–5 from Honiara Bay were the only ones to be preserved in buffered formalin.

Type specimens prefixed 1986. Numbers 438 to 500 are deposited in the collections of the Zoology Department, British Museum (Natural History). Specimen numbers prefixed RT/SIR (Rosemary Titterton/Solomon Islands Recent) are deposited in the Micropalaeontology Museum, Department Geology, University College of Wales, Aberystwyth.

THE BAIRDIINAE

This subfamily are an important and often dominant

group in shallow, tropical and sub-tropical seas, particularly in reef and reef-associated environments, where both their diversity and incidence reach high levels. They are particularly well represented in the Solomon Islands and dominate many of the sediment samples.

Recent members of this group were revised by Maddocks (1969), who proposed two new genera, *Neonesidea* and *Paranesidea*, which, together with *Bairdoppilata* Coryell, Sample & Jennings, 1935 and *Triebelina* Bold, 1946, were used to accommodate many species which had previously been referred to *Bairdia* McCoy, 1844, which genus Maddocks confined to the Upper Palaeozoic.

In our study of the Bairdiinae of the Solomon Islands, some difficulty was encountered in accommodating certain species within established genera. For example, some species which seem closest to *Noensidea*

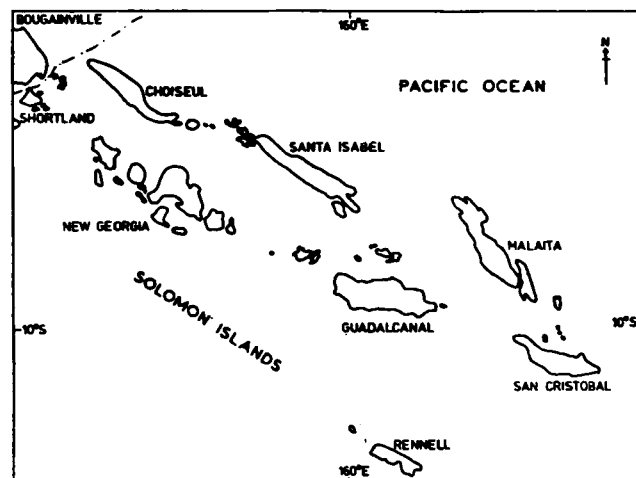


Fig. 1. The Solomon Islands.

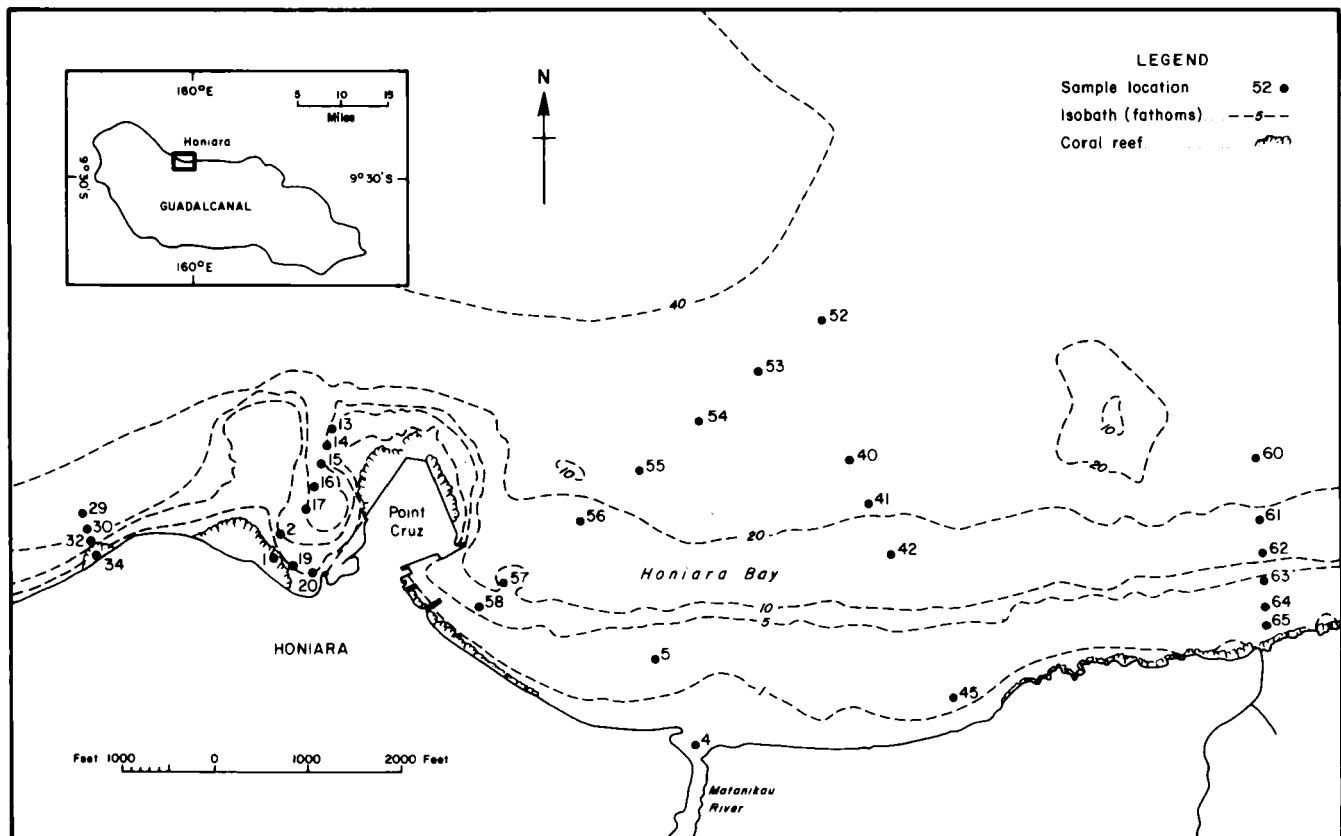


Fig. 2. Location of sample stations, Honiara Bay, N. Guadalcanal, Solomon Islands.

possess characters which are, according to Maddocks, diagnostic of *Paranesidea* and *vice versa*. Some species possess characters which have not been previously described in any of these genera.

Maddocks (1969) was aware of the shortcomings of her proposed classification in indicating that both *Neonesidea* and *Paranesidea* contained different morphological groups probably worthy of subgeneric status. She recognised at least three species with some characters intermediate between *Neonesidea* and *Paranesidea* and also remarked on a degree of convergence between species of *Paranesidea* and *Triebelina*.

The general validity of Maddocks classification can be demonstrated in that, with respect to *Neonesidea* and *Paranesidea*, most species can be readily accommodated within one or other of the two genera. There remains, however, a persistently difficult group of species which seem to possess an amalgam of the diagnostic characters of both genera. A possible solution to this problem is to more clearly distinguish those characters which are of greatest classificatory value, to employ them and to downgrade characters of lesser significance. This, however, tends to lead to reliance on single characters, such as auxiliary dentition to recognise *Bairdoppilata*.

Bolz (1971), in his study of the Late Triassic Bairdiidae and Healdiidae considered this problem and concluded that the "previous taxonomic conception" of the Bairdiidae was too often based on a single morphological character. He concluded that many Triassic genera were invalid and advocated an examination and assessment of "all available morphological features of a species in their interrelations and dependencies from each other. By comparing interrelated groups of markers in different species one may really succeed in establishing units in line with the natural system."

In the present study the authors have tried to take into account all available characters in assessing the various taxa encountered with respect to their specific and generic assignments. Certain taxa remain problematical. These are discussed individually below.

Notwithstanding the problems we have encountered, we consider that it is beyond the scope of the intention of this paper and its material, limited as it is by its geographical confines, to attempt a revision of the Bairdiinae at the generic level.

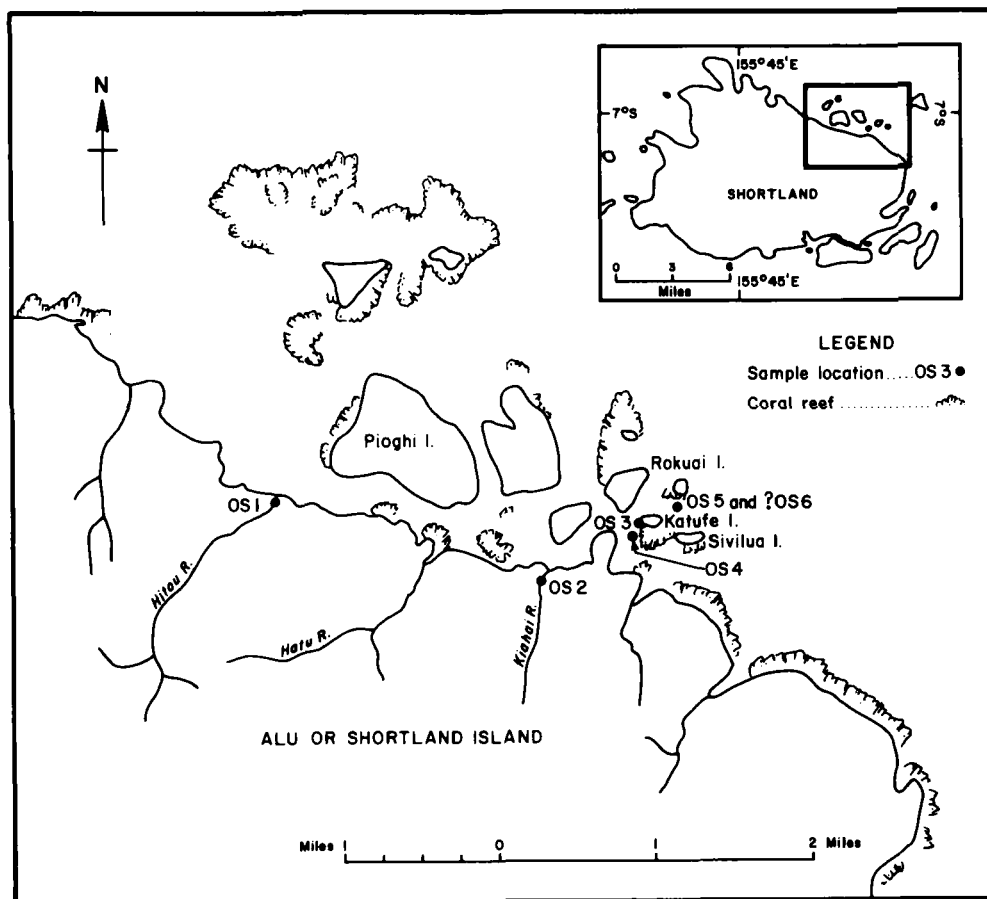


Fig. 3. Location of sample stations, Shortland Island, Solomon Islands.

SYSTEMATIC DESCRIPTIONS

Order	Podocopida	Müller, 1894
Suborder	Podocopina	Sars, 1866
Superfamily	Bairdiacea	Sars, 1888
Family	Bairdiidae	Sars, 1888
Subfamily	Bairdiinae	Sars, 1888
Genus	<i>Bairdoppilata</i>	Coryell, Sample & Jennings, 1935

Bairdoppilata paraalcyonicola sp. nov.
(Fig. 5, Nos., 1-2; Pl. 1, Figs. 1-8)

Derivation of name. L. From the similarity in overall morphology of this species to *B. alcyonicola* Maddocks, 1969, from the Recent of Madagascar.

Diagnosis. Bairdoppilate; posterior excavated, slightly upswept. Surface with minute but deep and dense punctae evenly distributed over entire surface. Contact groove of RV with locellae; auxiliary dentition well developed. Small, subcentral, regularly ovate opaque patch and 2 smaller patches at anterodorsal angle and posterior extremity. Narrow, single, vestibule, continuous about anterior, ventral and posterior margins.

Holotype. LV 1986.438.

Material. 37 specimens: 29 adults, 8 juveniles to A-3.
Type locality and horizon. Sample 2, 500 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands. 1.5 fathoms. Medium coral sand. Recent.
Description. Large to very large. Thick-shelled. Translucent with small, subcentral, regularly ovate opaque patch and 2 smaller patches at posterior extremity and anterodorsal angle. Bairdoppilate in lateral view; elliptical in dorsal. Anterior asymmetrically rounded: anterodorsal slope slightly concave; anteroventral slope broadly convex; extremity just above mid-height. Posterior excavated, slightly upswept, extremity below mid-height: posterodorsal slope almost straight, slightly concave near extremity; posteroventral slope convex. Dorsally convex in LV; straight in RV. Cardinal angles rounded in LV; pronounced in RV. Ventral margin biconvex; obscured by lateral inflation in LV. Maximum length just below mid-height in LV, well below mid-height in RV; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Lateral surface densely covered with minute but relatively deep punctae. Internal features typical of

genus with auxiliary dentition of 4–6 teeth in RV and dorsal contact groove of RV with distinct locellae.

Dimensions (mm)

			sample length	height	
Holotype	LV	1986.438	2	1.00	0.67
Paratype	RV	1986.439	2	0.99	0.55
Paratype	RV	1986.440	15	0.93	0.51
Paratype	LV	1986.441	1	0.94	0.59
Paratype	RV	1986.442	2	0.94	0.52
Paratype	LV	RT/SIR/134	16	0.95	0.61

Mean and range of dimensions (mm)

			length	height
8	LV		0.98 (0.90–1.05)	0.63 (0.57–0.70)
16	RV		0.96 (0.85–1.04)	0.52 (0.43–0.59)
3	RV	A-1	0.83 (0.79–0.87)	0.43 (0.41–0.47)
4	A-2		0.75 (0.73–0.78)	0.41 (0.38–0.46)
1	A-3		0.68	0.34

Remarks. Topotypic material from Maddocks collection from Madagascar, has been examined and compared with the present species. *Bairdoppilata alcyoncola* is very similar but is smaller and differs in shape, particularly posteriorly being slightly more caudate and the posterior extremity is more dorsal than in the present species. The pattern of the opaque patches (fig. 5, nos. 1–2) is more simple and well defined in the present species, covering a smaller surface area. Insufficient specimens were available to ascertain sexual dimorphism with certainty, but some right valves were much larger than others; they may represent females. *B. paraalcyoncola* is densely and finely punctate, while *B. paracratericola* sp. nov. is coarsely punctate (more typical of the genus *Paranesidea*).

Distribution. Samples: 1, 2, 13, 14, 15, 16, 29, OS5, OS6, Guadalcanal and Shortland Islands.

Bairdoppilata paracratericola sp. nov.
(Fig. 5, Nos. 3–4; Pl. 1, Figs. 9–16)

Derivation of name. L. from the similarity in overall morphology of this species to *B. cratericola* Maddocks, 1969, from the Recent of Madagascar.

Diagnosis. Bairdoppilate; posterior excavated, up-swept. Valve surface coarsely punctate; puncta decrease in size peripherally. Contact groove of RV divided lengthwise, smooth dorsally and with fine locellae ventrally; auxiliary dentition well developed. Large opaque patch elliptical, subcentral, irregular in outline.

Holotype. LV 1986.443.

Material. 57 specimens: 16 adults, 41 juveniles to A-3.

Type locality and horizon. Sample 60, 550 feet offshore, east of the Matanikau River, Honiara Bay, Guadalcanal, Solomon Islands. 19 fathoms. Fine coral sand. Recent.

Description. Large. Thick-shelled. Translucent with single, small, elliptical opaque patch subcentrally. Bairdoppilate in lateral view; elliptical in dorsal.

Anterior asymmetrically rounded; anterodorsal slope slightly concave; anteroventral slope broadly convex; apex almost a right angle at mid-height in LV, just above mid-height in RV. Posterior cavolate, upswept, more so in RV, extremity well below mid-height; posterodorsal slope gently convex, concave near extremity; posteroventral slope more convex in LV than RV. Weak marginal frill antero- and posteroventrally in RV and posteroventrally in LV; small, spinose denticles anteroventrally in LV. Dorsally convex in LV; straight and inclined to posterior in RV. Cardinal angles rounded. Ventral margin gently biconvex, RV with pronounced convexity anteroventrally. Maximum length below mid-height in LV, well below mid-height in RV; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Lateral surface covered with large, circular punctae, decreasing in size peripherally, absent around margins, generally concentric about mid-point. Internal features typical of subgenus but RV dorsal contact groove with distinct locellae along ventral half, smooth dorsally.

Dimensions (mm)

			sample length	height	width	
Holotype	LV	1986.443	60	0.92	0.60	
Paratype	RV	1986.444	29	0.92	0.49	
Paratype	Car.	1986.445	14	0.89	0.56	0.40
Paratype	RV	1986.446	57	0.89	0.50	
Paratype	LV	1986.447	57	0.86	0.56	
Paratype	RV	1986.448	30	0.92	0.53	
Paratype	LV	1986.449	30	0.91	0.59	

Mean and range of dimensions (mm)

			length	height	width
9	LV		0.89 (0.78–0.95)	0.58 (0.50–0.60)	
7	RV		0.88 (0.80–0.92)	0.48 (0.42–0.51)	
1	Car.	A-1	0.73	0.45	0.33
12	LV	A-1	0.75 (0.71–0.77)	0.46 (0.42–0.48)	
12	RV	A-1	0.74 (0.69–0.78)	0.41 (0.40–0.44)	
1	Car.	A-2	0.59	0.32	0.26
11	A-2		0.57 (0.55–0.59)	0.33 (0.29–0.36)	
4	A-3		0.42 (0.41–0.43)	0.25 (0.23–0.28)	

Remarks. Topotypic material from Maddocks collection from Madagascar, has been examined and compared with the present species. *Bairdoppilata cratericola* differs in shape in that the anterior and posterior extremities are slightly more dorsal. Three adult valves are distinctly smaller and may represent males.

Distribution. Quaternary. Indispensable Reefs, Solomon Islands (Williams, 1980, MS). Samples: 1, 2, 13, 14, 15, 16, 20, 29, 30, 53, 54, 55, 56, 57, 58, 60, OS6, Guadalcanal and Shortland Islands.

Genus *Neonesidea* Maddocks, 1969
Neonesidea schulzi (Hartmann, 1964) *sensu lato*
(Fig. 5, Nos. 5–7; Pl. 2, Figs. 1–10)

Table 1. Sample Data

(a) *Honiara Bay*

SAMPLE NUMBER	WEIGHT (grammes)	DEPTH (fathoms)	DISTANCE OFFSHORE (feet)	SEDIMENT (unconsolidated)
1	105.0	1.5	200	Medium coral sand
2	101.0	1.5	500	Medium coral sand
4	171.0	—	River mouth	Coral sand
5	57.4	3.0	800	Medium sand
13	2.6	11.0	1,800	Medium coral sand
14	7.6	10.0	1,400	Medium coral sand
15	12.5	13.0	1,350	Medium coral sand
16	4.1	13.0	1,100	Medium coral sand
17	10.8	10.0	850	Medium coral sand
19	14.1	1.5	300	Medium coral sand
20	14.9	2.0	100	Medium coral sand
29	6.3	19.0	550	Fine coral sand
30	10.9	18.0	400	Medium coral sand
32	14.5	5.0	250	Medium coral sand
34	17.1	0.5	50	Medium coral sand
40	14.7	20.0	3,100	Medium sand
41	8.7	19.0	2,600	Medium sand
42	13.6	15.0	2,000	Medium sand
45	52.3	2.0	350	Medium sand
52	10.9	36.0	5,200	Fine sand
53	6.4	30.0	4,400	Very fine sand
54	7.7	24.0	3,600	Very fine sand
55	9.8	19.0	2,700	Very fine sand
56	11.3	15.0	1,900	Very fine sand
57	9.0	8.0	850	Very fine sand
58	7.7	7.0	500	Very fine sand
60	8.3	24.0	2,000	Very fine sand
61	11.2	20.0	1,350	Very fine sand
62	20.0	6.0	1,000	Fine sand
63	23.5	5.0	700	Medium sand
64	21.2	4.0	450	Fine sand
65	13.9	4.0	250	Very fine sand

(b) *Shortland Island*

SAMPLE NUMBER	WEIGHT (grammes)	LOCATION	SEDIMENT
OS1	15.3	River mouth	Medium sand
OS2	16.7	River mouth	Medium sand
OS3	15.6	Coral reef	Medium coral sand
OS4	15.5	Coral reef	Coarse coral sand
OS5	509.0	Coral reef	Coarse coral sand
OS6	311.0	Coral reef	Coarse coral sand

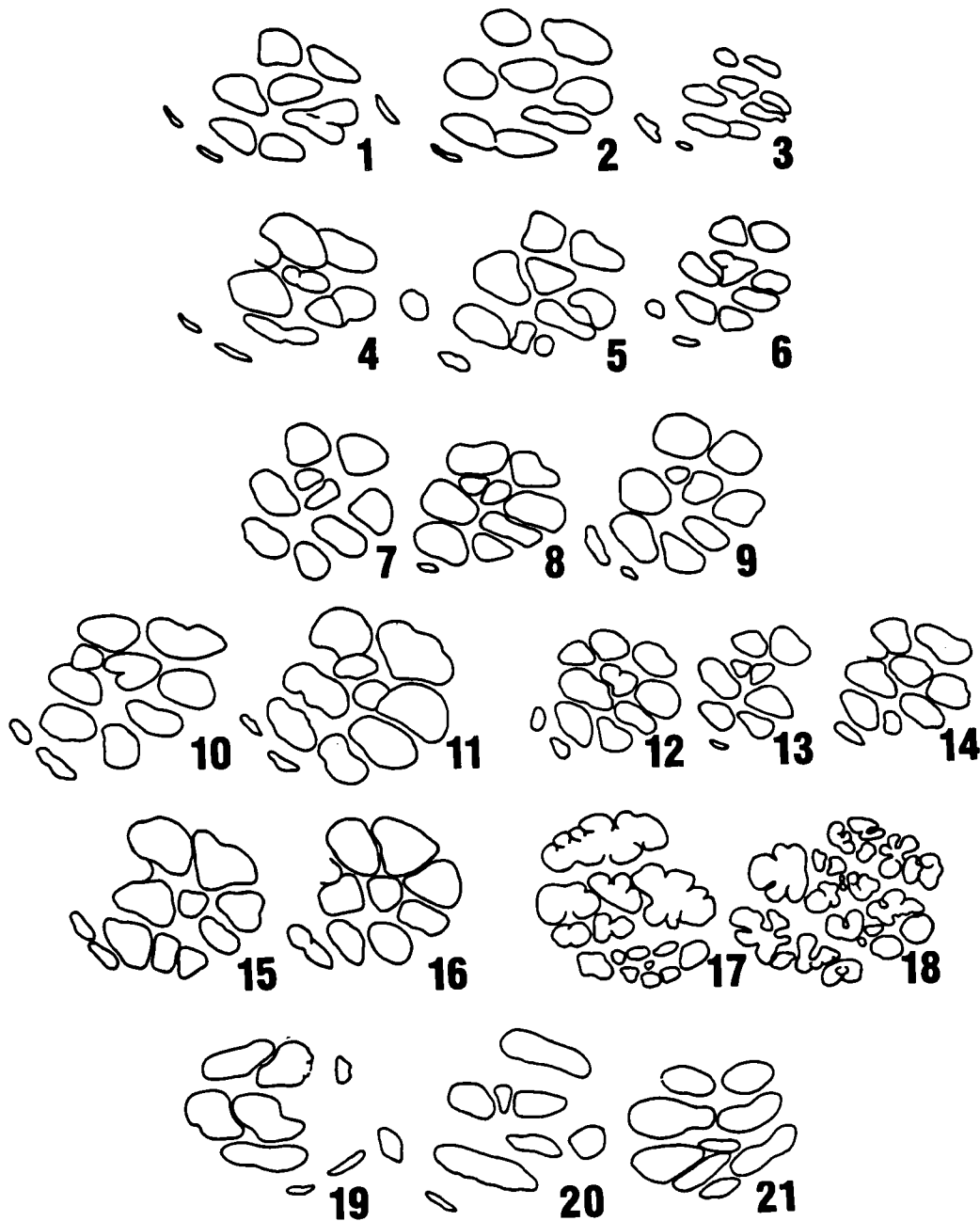


Fig. 4. Muscle Scar patterns (outlines from S.E.M. photographs). 1, *Neonesidea schulzi* (Hartmann, 1964). RT/SIR/6 RV; 2, *Neonesidea vscripta* sp. nov. Paratype 1986.459 RV; 3, *Neonesidea* sp. A. RT/SIR/31 RV; 4, *Neonesidea paragierloffii* sp. nov. Paratype 1986.453 RV; 5, *Neonesidea* sp. aff. *N. woodwardiana* (Brady, 1880), RT/SIR/34 RV; 6, *Paranesidea? confusa* sp. nov. Paratype 1986.500 RV; 7, *Paranesidea stricta* sp. nov. Paratype 1986.490; 8, *Triebelina bradyi* Triebel, 1948, RT/SIR/107 RV; 9, *Paranesidea?* sp. cf. *P. globulus* (Brady, 1880), 1986.494 RV; 10, *Paranesidea bipustulosa* sp. nov. Paratype 1986.473 RV; 11, *Paranesidea corbita* sp. nov. Paratype 1986.477 RV; 12, *Paranesidea equipunctata* sp. nov. Paratype 1986.480 RV; 13, *Triebelina sertata* Triebel, 1948. RT/SIR/133 RV; 14, *Paranesidea algicola* Maddocks, 1969. RT/SIR/66 RV; 15, *Bairdoppilata paraalcyonicola* sp. nov. Paratype 1986.442 RV; 16, *Bairdoppilata paracractericola* sp. nov. Paratype 1986.448 RV; 17, *Paranesidea petalona* sp. nov. Paratype 1986.485 LV; 18, *Neonesidea?* sp. B RT/SIR/38 RV; 19, *Neonesidea? rara* sp. nov. Holotype 1986.466 LV; 20, *Neonesidea? crepidula* sp. nov. Paratype 1986.463 RV; 21, *Pterobairdia briggsae* McKenzie, 1986. RT/SIR/137 LV.

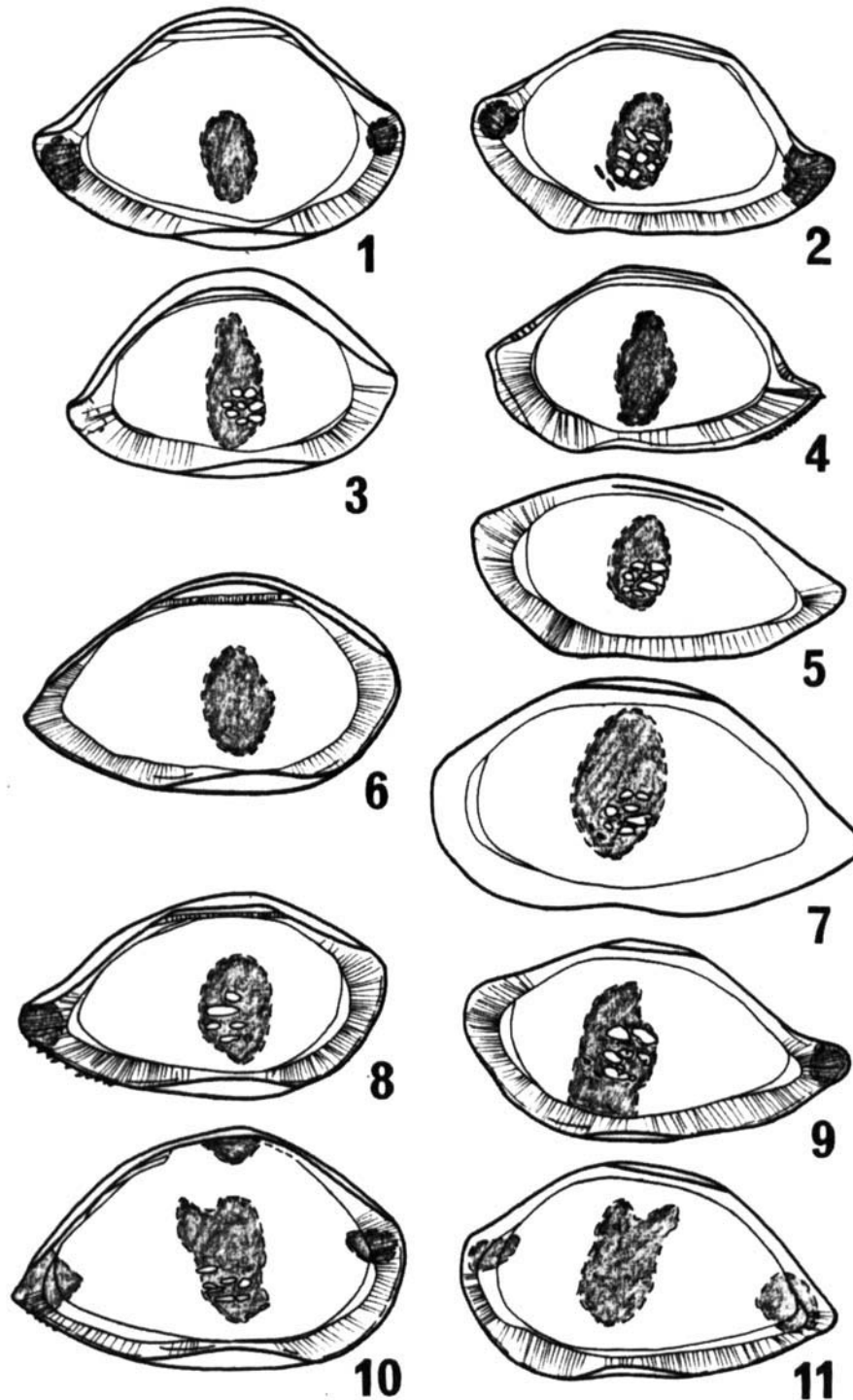


Fig. 5. *Bairdoppilata paraalcyonicola* sp. nov. 1, Paratype RT/SIR/134 LV, int. lat. ($\times 53$); 2, Paratype 1986.442 RV, int. lat. ($\times 52$). *Bairdoppilata paracratericola* sp. nov. 3, Paratype 1986.449 LV, int. lat. ($\times 49$); 4, Paratype 1986.446 RV, int. lat. ($\times 52$). *Neonesidea schulzi* (Hartmann, 1964). 5, RT/SIR/11 LV, LV, int. lat. ($\times 55$); 6, RT/SIR/10 RV, int. lat. ($\times 53$); 7, RT/SIR/9 RV, int. lat. ($\times 52$). *Neonesidea paragierloffii* sp. nov. 8, Paratype RT/SIR/20 LV, int. lat. ($\times 50$); 9, Paratype RT/SIR/21 RV, int. lat. ($\times 53$). *Neonesidea vscripta* sp. nov. 10, Paratype RT/SIR/30 LV, int. lat. ($\times 55$); 11, Paratype RT/SIR/29 RV, int. lat. ($\times 51$).

- 1964 *Triebelina schulzi* sp. nov. Hartmann: 44, figs. 14–22; pls. 4–5.
 1966 Species BA Maddocks: 47, fig. 22.
 1969 *Neonesidea schulzi* (Hartmann); Maddocks: 20, figs. 4a–d, 5–6.
 ?1976 *Neonesidea schulzi* (Hartmann); Holden: 12, pl. 7, figs. 9–11.
 1976 *Neonesidea schulzi* (Hartmann): Bonaduce *et al.*: 376, pl. 4, fig. 6.

Material. Over 700 specimens, adults and juveniles to A–4.

Mean and range of dimensions (mm)

	length	height
10 LV (large)	1.03 (0.95–1.19)	0.61 (0.55–0.68)
10 RV (large)	1.00 (0.95–1.02)	0.56 (0.51–0.59)
10 LV (small)	0.87 (0.78–0.92)	0.51 (0.44–0.54)
10 RV (small)	0.89 (0.81–0.94)	0.46 (0.41–0.51)

Remarks. This species in its shape, surface ornament, marginal denticulation and internal characters is characteristic of the genus *Neonesidea*. It may be distinguished initially by its single, elliptical central opaque patch.

There is a great variation in size in the adults and A–1 juveniles in the present material; some A–1 instars are larger than the smallest adults; although there is a continual range in size. Details can be seen in Titterton (1984, MS). This variation in size indicates the probable presence of more than one species or subspecies. The lack of soft parts and distinctive size clusters precludes accurate and consistent identification of these very closely related species. All specimens at present are, therefore, placed in *N. schulzi*. A study being conducted by K. Watson (in press) on the ostracod faunas from reefal environments in the Java Sea, has allowed this problem to be more satisfactorily resolved, due to the availability of more bairdiid material. Watson (verb. comm., 1987) discriminates two further new species within the *N. schulzi* plexus *sensu* this work.

Distribution. Miocene, Midway Island (Holden, 1976). Quaternary, Indispensable Reefs, Solomon Islands (Williams, 1980, MS). Recent, shallow water and

littoral sediments along the eastern coast of Africa, around Madagascar, the Red Sea and Gulf of Aqaba (Hartmann, 1964, 1974; Maddocks, 1966, 1969; Bonaduce *et al.*, 1976).

Samples: 1, 2, 5, 13, 14, 15, 16, 17, 20, 29, 30, 32, 40, 41, 53, 54, 55, 56, 57, 58, OS4, OS5, OS6, Guadalcanal and Shortland Islands.

Neonesidea paragierloffii sp. nov.
 (Fig. 5, Nos. 8–9; Pl. 3, Figs. 1–10)

Derivation of name. L. From the similarity in overall morphology of this species to *N. gierloffii* Hartmann, 1959, from the Recent of El Salvador.

Diagnosis. Typical *Neonesidea* in shape; posterodorsal slope straight, becoming strongly concave near posterior; posteroventral slope with 12 triangular marginal denticles in LV only. Valve surface with dense minute, punctae, translucent with large, oval central opaque patch and two small patches at posterior extremity and anterodorsal angle.

Holotype. LV 1986.450.

Material. 132 specimens: 45 adults, 87 juveniles to A–4.

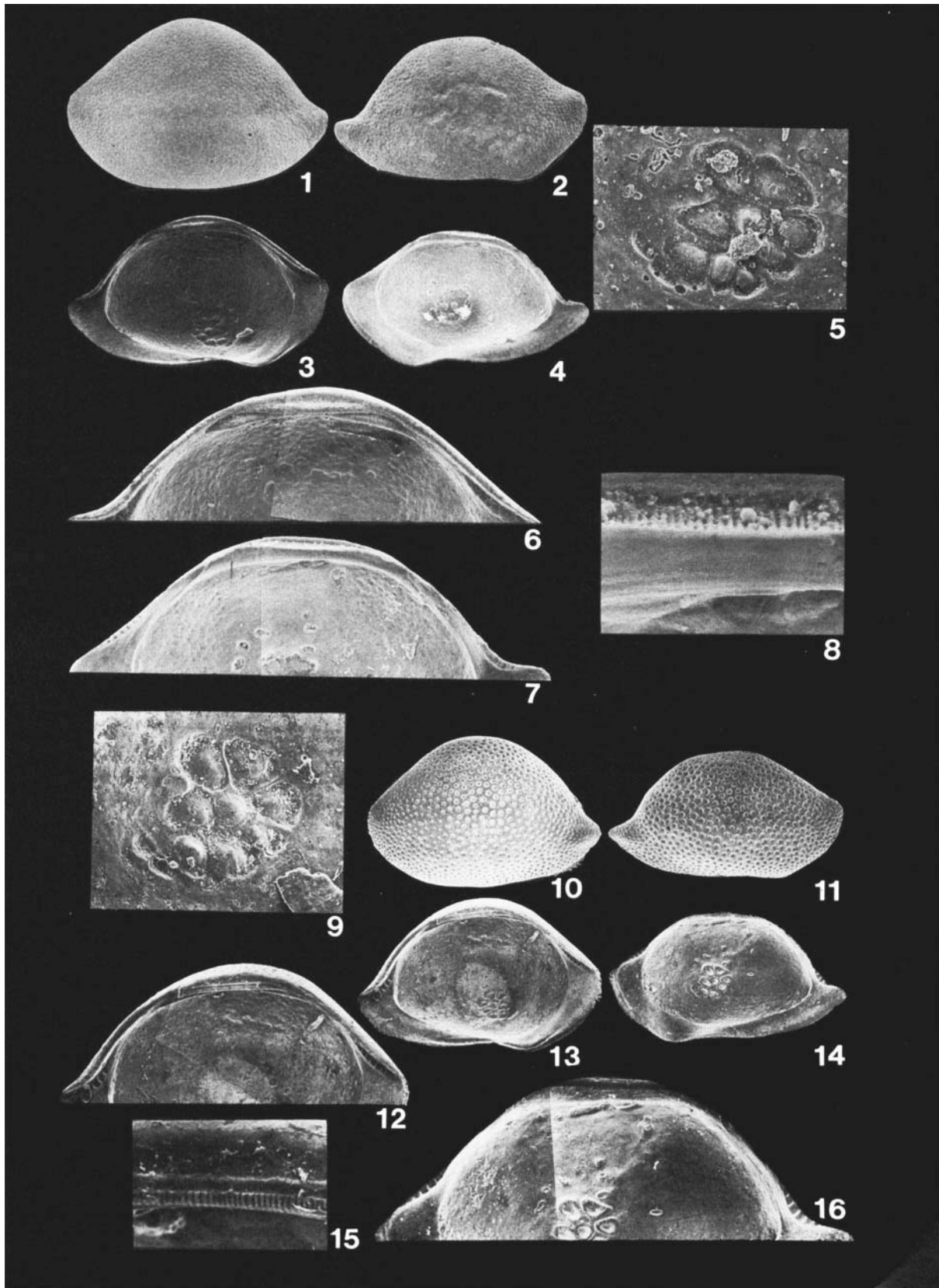
Type locality and horizon. Sample 14, 1,400 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands. 10 fathoms. Medium coral sand. Recent.

Description. Large to very large. Moderately thin-shelled. Translucent with central oval opaque patch and two smaller patches at posterior extremity and anterodorsal angle. Shape typical of genus in lateral and dorsal views. Anterior asymmetrically rounded: anterodorsal slope gently concave; anteroventral slope broadly convex; apex a pronounced right angle above mid-height. Posterior slightly upswept, acuminate, extremity at mid-height in LV, below in RV, posterodorsal slope straight becoming strongly concave towards extremity; posteroventral slope convex with 12 small, triangular marginal denticles in LV only. Dorsally convex in LV; straight in RV. Cardinal angles rounded in LV; pronounced in RV. Ventral margin gently convex in LV, biconvex in RV. Maximum length

Explanation of Plate 1

Figs. 1–8. *Bairdoppilata paraalcyonicola* sp. nov.: fig. 1, Holotype 1986.438 LV, ext. lat. ($\times 45$); fig. 2, Paratype 1986.439 RV, ext. lat. ($\times 45$); fig. 3, Paratype 1986.441 LV, int. lat. ($\times 49$); fig. 4, Paratype 1986.440 RV, int. lat. ($\times 47$); fig. 5, Paratype 1986.442 RV, detail of central muscle scars ($\times 160$); fig. 6, Paratype 1986.441 LV, detail of hinge ($\times 95$); fig. 7, Paratype 1986.440 RV, detail of hinge ($\times 92$); fig. 8, Paratype 1986.440 RV, detail of hinge ($\times 450$).

Figs. 9–16. *Bairdoppilata paracratericola* sp. nov.: fig. 9, Paratype 1986.448 RV, detail of central muscle scars ($\times 205$); fig. 10, Holotype 1986.443 LV; ext. lat. ($\times 44$); fig. 11, Paratype 1986.444 RV, ext. lat. ($\times 44$); fig. 12, Holotype 1986.443 LV, detail of hinge ($\times 63$); fig. 13, Holotype 1986.443 LV, int. lat. ($\times 47$); fig. 14, Paratype 1986.446 RV, int. lat. ($\times 48$); fig. 15, Holotype 1986.443 LV, detail of hinge ($\times 420$); fig. 16, Paratype 1986.446 RV, detail of hinge ($\times 94$).



mid-height in LV, below mid-height in RV; maximum height median in LV, at anterior 1/3 of length in RV; maximum width at anterior 1/3 of length. Lateral surface covered with dense minute punctae. Internal characters typical of genus.

Dimensions (mm)

	sample	length	height	width
Holotype LV 1986.450	14	1.01	0.64	
Paratype Car. 1986.451	13	1.01	0.58	0.46
Paratype RV 1986.452	15	1.03	0.55	
Paratype RV 1986.453	1	1.02	0.55	
Paratype LV 1986.454	14	0.95	0.54	
Paratype RV RT/SIR/18	1	1.00	0.54	
Paratype LV RT/SIR/19	14	1.02	0.61	
Paratype LV RT/SIR/20	15	1.00	0.57	
Paratype RV RT/SIR/21	1	0.98	0.54	

Mean and range of dimensions (mm)

	length	height
8 LV (large)	1.06 (1.02–1.13)	0.58 (0.57–0.64)
11 RV (large)	1.02 (0.99–1.09)	0.63 (0.59–0.70)
8 LV (small)	0.98 (0.95–1.00)	0.56 (0.54–0.60)
9 RV (small)	0.98 (0.91–1.04)	0.53 (0.50–0.56)
20 LV A-1	0.83 (0.78–0.92)	0.49 (0.44–0.53)
11 RV A-1	0.82 (0.77–0.89)	0.46 (0.42–0.48)
22 A-2	0.62 (0.54–0.70)	0.35 (0.31–0.37)
18 A-3	0.46 (0.40–0.52)	0.26 (0.20–0.30)
6 A-4	0.34 (0.32–0.35)	0.19 (0.18–0.20)

Remarks. This species differs from the *N. schulzi* in that the posterior is upswept so that the posterodorsal slope is concave. This feature, and the consistent presence of anterior and posterior opaque patches, distinguish it from *N. schulzi* to which it is most similar among the present material. It most closely resembles *N. gierloffii* (Hartmann, 1959) from Recent sediments from El Salvador in shape, but differs in that the caudal process is more upturned.

Like *N. schulzi* and *N. vscripta* in the present material, *N. paragierloffii* is very variable in size with a difference of over 0.20 mm in length between the largest and smallest adults.

Distribution. Samples: 1, 2, 5, 13, 14, 15, 16, 17, 19, 29, 30, 45, 53, 55, 56, 57, 58, Guadalcanal.

Neonesidea vscripta sp. nov.

(Fig. 5, Nos. 10–11; Pl. 2, Figs. 11–19)

Derivation of name. L. With reference to the v-shaped central opaque patch.

Diagnosis. Typical *Neonesidea* in shape; dorsal margin asymmetrically convex towards anterior. Valve surface with dense, minute punctae. Translucent with large, v-shaped central opaque patch with two small oval patches at anterodorsal angle and posterior extremity.

Holotype. LV 1986.455.

Material. 59 specimens: 37 adults and 22 juveniles to A-2.

Type locality and horizon. Sample 14, 1,400 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands. 10 fathoms. Medium coral sand.

Description. Large to very large. Moderately thin-shelled. Translucent with large v-shaped central opaque patch and two small oval patches at anterodorsal angle and posterior extremity. Shape typical of genus in lateral and dorsal views. Anterior asymmetrically rounded; anterodorsal slope almost straight, anteroventral slope convex; apex above mid-height. Posterior acuminate, extremity well below mid-height; posterodorsal slope straight, posteroventral slope convex. Dorsally asymmetrically convex towards anterior in LV; straight in RV. Cardinal angles rounded in LV; pronounced in RV. Ventral margin gently convex in LV; biconvex in RV. Maximum length below mid-height; maximum height median in LV, at anterior 1/3 of length in RV; maximum width just anterior of mid-length. Lateral surface densely covered with minute punctae. Internal features typical of genus.

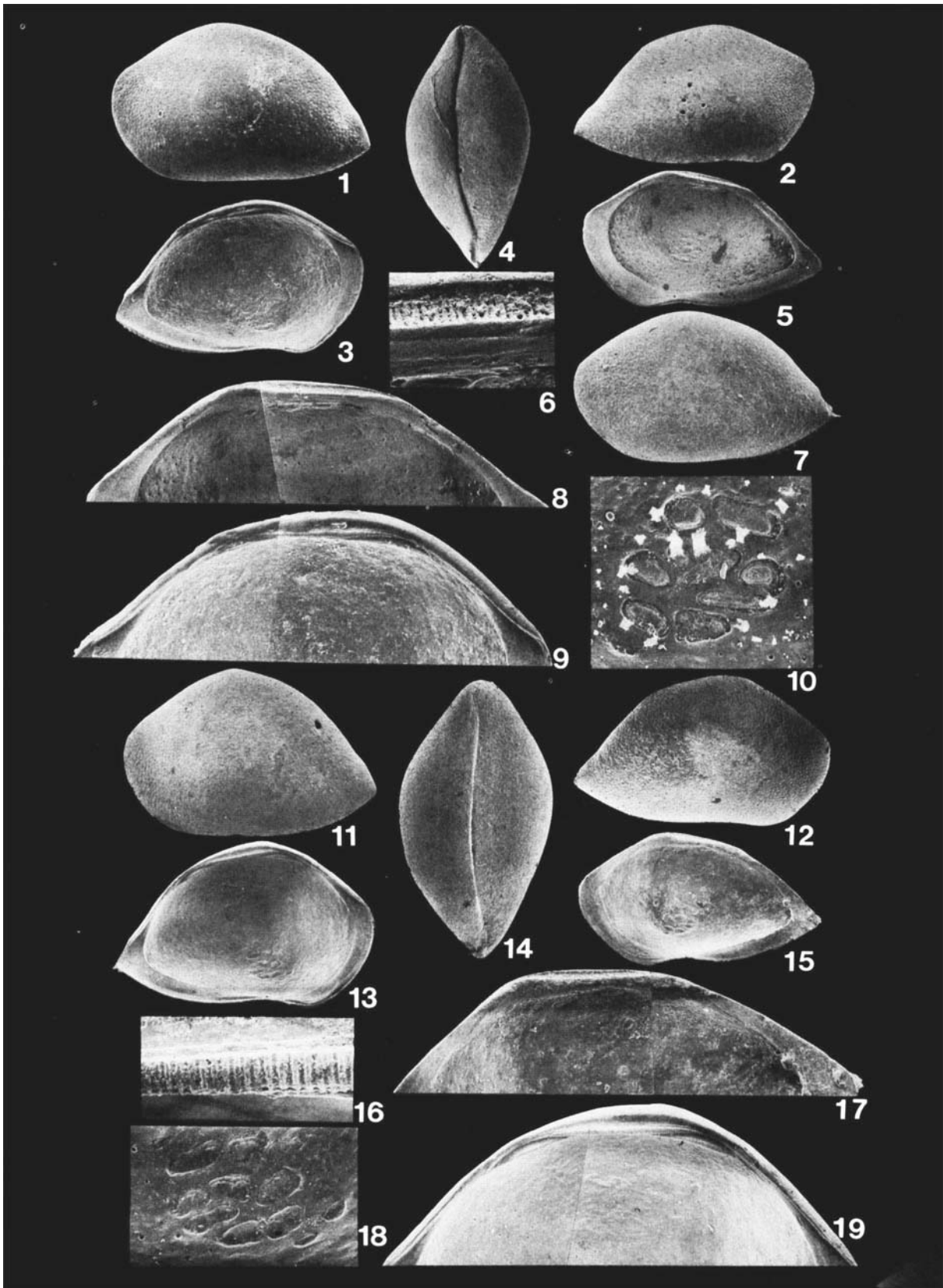
Dimensions (mm)

	sample	length	height	width
Holotype LV 1986.455	14	1.04	0.69	
Paratype Car. 1986.456	16	0.99	0.62	0.54
Paratype RV 1986.457	16	1.01	0.59	
Paratype LV 1986.458	15	1.05	0.68	
Paratype RV 1986.459	14	0.97	0.53	
Paratype RV RT/SIR/27	15	1.04	0.62	
Paratype LV RT/SIR/28	14	1.02	0.69	
Paratype RV RT/SIR/29	2	1.00	0.61	
Paratype LV RT/SIR/30	2	0.97	0.60	

Explanation of Plate 2

Figs. 1–10. *Neonesidea schulzi* (Hartmann): fig. 1, RT/SIR/3 LV, ext. lat. ($\times 40$); fig. 2, RT/SIR/2 RV, ext. lat. ($\times 39$); fig. 3, RT/SIR/5 LV, int. lat. ($\times 38$); fig. 4, RT/SIR/1, Car, ext. dorsal ($\times 42$); fig. 5, RT/SIR/6 RV, int. lat. ($\times 42$); fig. 6, RT/SIR/6 RV, detail of hinge ($\times 493$); fig. 7, RT/SIR/4 A-1 LV, ext. lat. ($\times 55$); fig. 8, RT/SIR/6 RV, detail of hinge ($\times 90$); fig. 9, RT/SIR/5 LV, detail of hinge ($\times 76$); fig. 10, RT/SIR/7 RV, detail of central muscle scars ($\times 220$).

Figs. 11–19. *Neonesidea vscripta* sp. nov.: fig. 1, Holotype 1986.455 LV, ext. lat. ($\times 42$); fig. 12, Paratype 1986.457 RV, ext. lat. ($\times 44$); fig. 13, Paratype 1986.458 LV, int. lat. ($\times 43$); fig. 14, Paratype 1986.456 Car, ext. dorsal ($\times 50$); fig. 15, Paratype 1986.459 RV, int. lat. ($\times 44$); fig. 16, Paratype 1986.458 LV, detail of hinge ($\times 525$); fig. 17, Paratype 1986.459 RV, detail of hinge ($\times 104$); fig. 18, Paratype 1986.458 LV, detail of central muscle scars ($\times 166$); fig. 19, Paratype 1986.458 LV, details of hinge ($\times 86$).



Mean and range of dimensions (mm)

	length	height	width
2 Car.	0.99, 1.00	0.62, 0.63	0.52, 0.54
14 LV	1.00 (0.89–1.08)	0.62 (0.53–0.69)	
12 RV	0.99 (0.92–1.04)	0.56 (0.51–0.62)	
10 LV A-1	0.79 (0.76–0.83)	0.49 (0.47–0.50)	
9 RV A-1	0.78 (0.74–0.80)	0.45 (0.42–0.46)	
2 LV A-2	0.55, 0.57	0.33, 0.34	

Remarks. This species possesses a unique v-shaped central opaque patch. Although *N. vscripta*, like *N. schulzi*, has the characteristic shape of the genus, detailed analysis of their outlines show *N. vscripta* to be relatively higher dorsally, less tapering posteriorly, lacking a posterior spine in the LV and the dorsal margin is asymmetrically convex so that the posterodorsal slope is less convex towards the posterior extremity. *Neonesidea kauaiensis* Holden, 1967 from the Neogene to Recent of Hawaii, is similar in shape but is about 0.6mm longer, possesses a different muscle scar pattern and wider vestibulae.

The adults show a similar range in size as *N. schulzi* and *N. paragierloffii* in the present material.

Distribution. Quaternary, Indispensable Reefs and offshore Guadalcanal, Solomon Islands (Williams, 1980, MS).

Samples: 1, 2, 14, 15, 16, 17, 30, 56, OS5, OS6, Guadalcanal and Shortland Islands.

Neonesidea sp. A

(Fig. 6, Nos. 1–2; Pl. 3, Figs. 11–18)

Material. Three specimens.

Dimensions (mm)

	sample	length	height
RV RT/SIR/31	29	1.13	0.63
LV RT/SIR/32	19	1.11	0.70
LV RT/SIR/33	13	0.99	0.63

Remarks. Although these three specimens are almost identical to *N. paragierloffii* sp. nov., they differ in possessing a large, distinctive vesibule which is continuous around the anterior, ventral and posterior margins.

Distribution. Samples: 13, 19, 29, Guadalcanal.

Neonesidea? sp. aff. *Neonesidea woodwardiana* (Brady, 1880)

(Fig. 6, Nos. 8–9; Pl. 4, Figs. 1–6)

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

Material. 18 specimens: 4 adults, 14 juveniles to A-3.

Dimensions (mm)

	sample	length	height
LV RT/SIR/35	OS3	0.76	0.39
RV RT/SIR/34	1	0.77	0.37
LV RT/SIR/36	OS6	0.74	0.38
LV RT/SIR/37	15	0.76	0.39

Remarks. This species is tentatively assigned to *Neonesidea* because the finely punctate surface ornament, its muscle scar pattern and smooth hinge are typical of the genus. However, its elongate, subrectangular shape is not typical. In addition, the antero- and posteroventral margins in the LV bear spinose marginal denticles. The present material has been compared with S.E.M. photographs of the type specimens of *N. woodwardiana* which is very similar in shape but is 0.2mm longer and possesses 4 wedge-shaped scars, whereas the present species has a rosette pattern of 8 wedge-shaped scars encircling a central scar. In addition, *N. woodwardiana* possesses opaque patches (illustrated by Puri & Hulings, 1976); the present species does not.

Distribution. ?Quaternary, off Guadalcanal, Solomon Islands (Williams, 1980, MS). Samples: 1, 2, 14, 15, 16, 17, 55, 57, OS3, OS6, Guadalcanal and Shortland Islands.

Neonesidea? *crepidula* sp. nov.

(Fig. 6, Nos. 5–6; Pl. 4, Figs. 7–13)

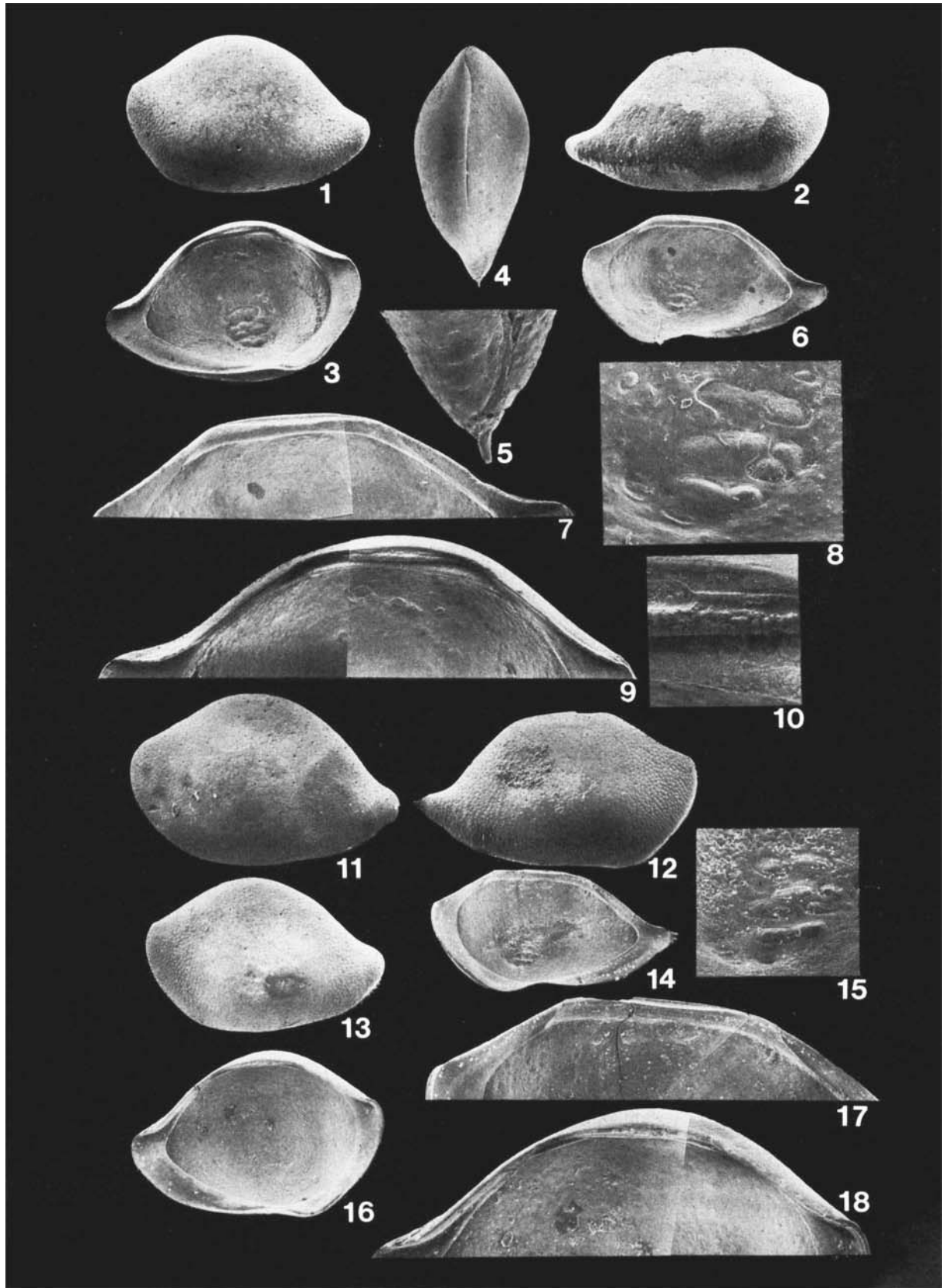
Derivation of name. L. With reference to the shape of this species which resembles a medieval shoe.

Diagnosis. Shape subtrapezoidal in lateral view; broadly elliptical in dorsal view, maximum width median. Posterior strongly acuminate, extremity ventral. 12 small, triangular marginal denticles posteroventrally. Valve surface with dense, minute, punctae.

Explanation of Plate 3

Figs. 1–10. *Neonesidea paragierloffii* sp. nov.: fig. 1, Holotype 1986.450 LV, ext. lat. ($\times 42$); fig. 2, Paratype 1986.452 RV, ext. lat. ($\times 45$); fig. 3, Paratype 1986.454 LV, int. lat. ($\times 47$); fig. 4, Paratype 1986.451 Car, ext. dorsal ($\times 42$); fig. 5, Paratype 1986.451 Car, detail of posterior spine ($\times 220$); fig. 6, Paratype 1986.453 RV, int. lat. ($\times 43$); fig. 7, Paratype 1986.453 RV, detail of hinge ($\times 89$); fig. 8, Paratype 1986.453 RV, detail of central muscle scars ($\times 266$); fig. 9, Paratype 1986.454 LV, detail of hinge ($\times 90$); fig. 10, Paratype 1986.454 LV, details of hinge ($\times 515$).

Figs. 11–18. *Neonesidea* sp. A: fig. 11, RT/SIR/32 LV, ext. lat. ($\times 40$); fig. 12, RT/SIR/31 RV, ext. lat. ($\times 42$); fig. 13, RT/SIR/33 LV, ext. lat. ($\times 41$); fig. 14, RT/SIR/31 RV, int. lat. ($\times 34$); fig. 15, RT/SIR/31 RV, detail of central muscle scars ($\times 155$); fig. 16, RT/SIR/33 LV, int. lat. ($\times 45$); fig. 17, RT/SIR/31 RV, detail of hinge ($\times 81$); fig. 18, RT/SIR/33 LV, detail of hinge ($\times 90$).



Selva forms a small notch at posterior extremity in RV. Central muscle scars variable, may be fused, 6–8 arranged in 3 horizontal rows.

Holotype. LV 1986.460.

Material. 11 specimens: 6 adults, 5 juveniles to A–2.

Type locality and horizon. Sample 1, 200 feet offshore west of Point Cruz, Haniara Bay, Guadalcanal, Solomon Islands. 1.5 fathoms. Medium coral sand. Recent.

Description. Large. Moderately thick-shelled. Translucent with indistinct, oval, opaque patch subcentrally. Shape subtrapezoidal in lateral view; broadly elliptical in dorsal view. Anterior asymmetrically rounded: anterodorsal and anteroventral slopes almost straight, apex a rounded right angle above mid-height. Posterior strongly acuminate; posterodorsal slope long, straight, becoming concave near ventral extremity. Dorsal margin convex in LV; short, straight in RV; cardinal angles rounded. Ventral margin almost straight; oral concavity more pronounced in RV. 12 small, triangular, marginal denticles posteroventrally in RV. Maximum length subventral; maximum height median in LV, at anterior 1/3 of length in RV, maximum width median. Surface of valves with dense minute, punctae. Internal features typical of *Neonesidea* except unusual, variable muscle scar pattern comprising a loose ovate cluster of 6–8 wedge-shaped scars in 3 horizontal rows; 2 dorsal and 2 ventral scars may be fused into an elongate scar.

Dimensions (mm)

		sample length	height	width
Holotype LV	1986.460	1	0.84	0.50
Paratype Car.	1986.461	14	0.82	0.50 0.54
Paratype RV	1986.462	OS6	0.84	0.46
Paratype RV	1986.463	1	0.84	0.47
Paratype LV	1986.464	15	0.89	0.51
Paratype LV	1986.465	15	0.89	0.54

Remarks. The shape of this species is unusual in that the posterior extremity is ventral and the valves are strongly inflated medianly. Although the species is typical of *Neonesidea* in many features, particularly its surface ornament, its shape is not; the central muscle scar is also unusual. *Neonesidea dinochelata* (Kornicker, 1961) from Recent sediments from Bimini is most

similar in shape, in possessing a posterior selva notch and variable muscle scar, but differs in that the dorsal margin is longer and more inclined posteriorly and the hinge is weaker.

The tendency for the dorsal and ventral scars to form single scars and the inflated, smooth carapace indicate a relationship with *Aponesidea* Maddocks, 1986 (Recent, Bermuda). The present species differs from *A. iliffei*, the only species described, in that the maximum width of the carapace is median, and not at a quarter of the height; it possesses a central opaque patch and it lacks marginal denticles in the left valve with only very small, marginal denticles posteroventrally in the right valve and not a marginal frill. Until the full scope of the genus *Aponesidea* can be established, the present species has been questionably assigned to *Neonesidea*.
Distribution. Samples: 1, 13, 14, 15, OS6, Guadalcanal and Shortland Islands.

Neonesidea? rara sp. nov.

(Fig. 6, Nos. 7, 10; Pl. 5, Figs. 10–14)

Derivation of name. L. With reference to the rarity of this species in the present material.

Diagnosis. Medium. Shape subtrapezoidal in lateral view, anteroventral margin broadly convex, dorsal margin weakly convex; almost straight posterior and ventral margins meet at a ventral caudal process. Central muscle scars in 3 horizontal rows, 2 dorsal, 2 median and 1 ventral scar; scars fused.

Holotype. LV 1986.466.

Material. 18 specimens: 6 adults, 12 juveniles to A–3.
Type locality and horizon. Sample 15, 1,350 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands. 13 fathoms. Medium coral sand. Recent.

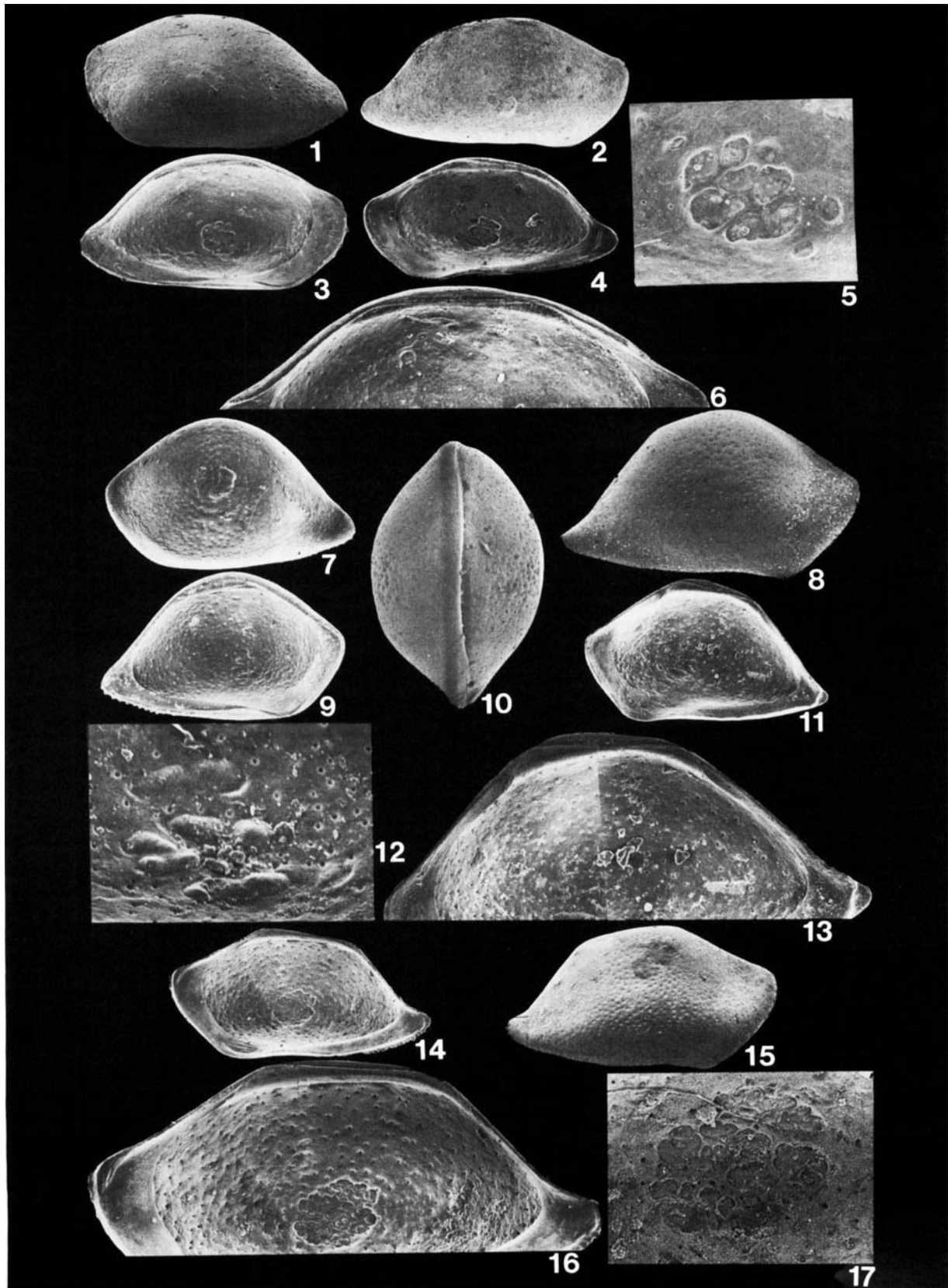
Description. Medium. Moderately thin-shelled. Translucent. Shape subtrapezoidal in lateral view. Anterior asymmetrically rounded; a short anterodorsal slope merges with dorsal margin; a broadly convex anteroventral slope; apex rounded, well above mid-height. Posterior acuminate ventrally so posteroventral

Explanation of Plate 4

Figs. 1–6. *Neonesidea? sp. aff. Neonesidea woodwardiana* (Brady): fig. 1, RT/SIR/36 LV, ext. lat. ($\times 62$); fig. 2, RT/SIR/34 RV, ext. lat. ($\times 61$); fig. 3, RT/SIR/35 LV, int. lat. ($\times 61$); fig. 4, RT/SIR/34 RV, int. lat. ($\times 54$); fig. 5, RT/SIR/35 LV, detail of central muscle scars ($\times 213$); fig. 6, RT/SIR/35 LV, detail of hinge ($\times 119$).

Figs. 7–13. *Neonesidea? crepidula* sp. nov.: fig. 7, Holotype 1986.460 LV, ext. lat. ($\times 51$); fig. 8, Paratype 1986.462 RV, ext. lat. ($\times 66$); fig. 9, Holotype 1986.460 LV, int. lat. ($\times 49$); fig. 10, Paratype 1986.461 Car, ext. dorsal ($\times 61$); fig. 11, Paratype 1986.463 RV, int. lat. ($\times 51$); fig. 12, Paratype 1986.464 LV, detail of central muscle scars ($\times 251$); fig. 13, Paratype 1986.463 RV, detail of hinge ($\times 101$).

Figs. 14–17. *Neonesidea? sp. B*: fig. 14, RT/SIR/38 RV, int. lat. ($\times 57$); fig. 15, RT/SIR/40 RV, ext. lat. ($\times 64$); fig. 16, RT/SIR/38 RV, detail of hinge and central muscle scars ($\times 113$); fig. 17, RT/SIR/39 RV, detail of central muscle scars ($\times 236$).



slope absent; posterodorsal slope almost straight, obliquely sloping. Dorsal margin gently convex in LV; short, straight in RV; cardinal angles rounded. Ventral margin almost straight. Maximum length subventral; maximum height at anterior 1/3 of length; maximum width median. Valve surface smooth. Internal features typical of *Neonesidea* except unusual muscle scar pattern of 3 horizontal rows with 2 dorsal, 2 median and 1 ventral scar; scars appear to be fused.

Dimensions (mm)

	sample	length	height
Holotype LV 1986.466	15	0.64	0.37
Paratype RV 1986.467	15	0.54	0.32
Paratype LV RT/SIR/58	33	0.59	0.33
Paratype RV 1986.468	55	0.62	0.34

Remarks. This species can only be tentatively placed in *Neonesidea* because of its unusual, subtrapezoidal shape and adductor muscle scar pattern. *Neonesidea* sp. 1 of Maddocks, 1969 recorded in Recent sediments from Nosy Bé, Madagascar, is of a similar shape but differs in muscle scar pattern and in possessing a caudal spine. *Neonesidea dinochelata* (Kornicker, 1961) from the Recent off Bimini, is also of a similar shape but is larger than the present species and the anteroventral slope is less broadly convex.

Distribution. Samples: 1, 14, 15, 32, 33, 54, 55, 56, 58, Guadalcanal.

Neonesidea? sp. B
(Fig. 6, No. 11; Pl. 44, Figs. 14–17)

Material. 5 specimens.

Dimensions (mm)

	sample	length	height
RV RT/SIR/38	17	0.79	0.39
RV RT/SIR/39	OS6	0.73	0.35
RV RT/SIR/40	OS6	0.77	0.38

Remarks. This species is most similar to *N.*? sp. aff. *N. woodwardiana* from the present material, and likewise has been tentatively placed in *Neonesidea* but the dorsal cardinal angles are more pronounced and the

posterior extremity is more upswept. Further, this species is distinct as it possesses an unusual muscle-scar pattern as the scars have become highly sutured and marginally lobate, although the overall bairdioid pattern can still be recognised. A similar pattern occurs in *Paranesidea petalona* sp. nov., but this latter species has stronger ornament, is less acuminate posteriorly and more inflated ventrolaterally.

Distribution. Samples: 1, 17, OS6, Guadalcanal and Shortland Islands.

Genus *Paranesidea* Maddocks, 1969

Paranesidea algicola Maddocks, 1969
(Fig. 7, Nos. 1–2; Pl. 6, Figs. 1–9)

1969 *Paranesidea algicola* sp. nov. Maddocks: 46, figs. 22–24; pl. 1, figs. 7–8.

Material. 200 specimens, adults and juveniles to A–3.

Mean and range of dimensions (mm)

	length	height
16 LV	0.71 (0.67–0.77)	0.44 (0.39–0.48)
29 RV	0.74 (0.65–0.82)	0.40 (0.33–0.43)
10 LV A–1	0.65 (0.60–0.67)	0.38 (0.35–0.39)
10 RV A–1	0.64 (0.62–0.66)	0.34 (0.32–0.39)
10 A–2	0.52 (0.50–0.54)	0.30 (0.29–0.31)
3 A–3	0.41 (0.40–0.42)	0.25 (0.24–0.25)

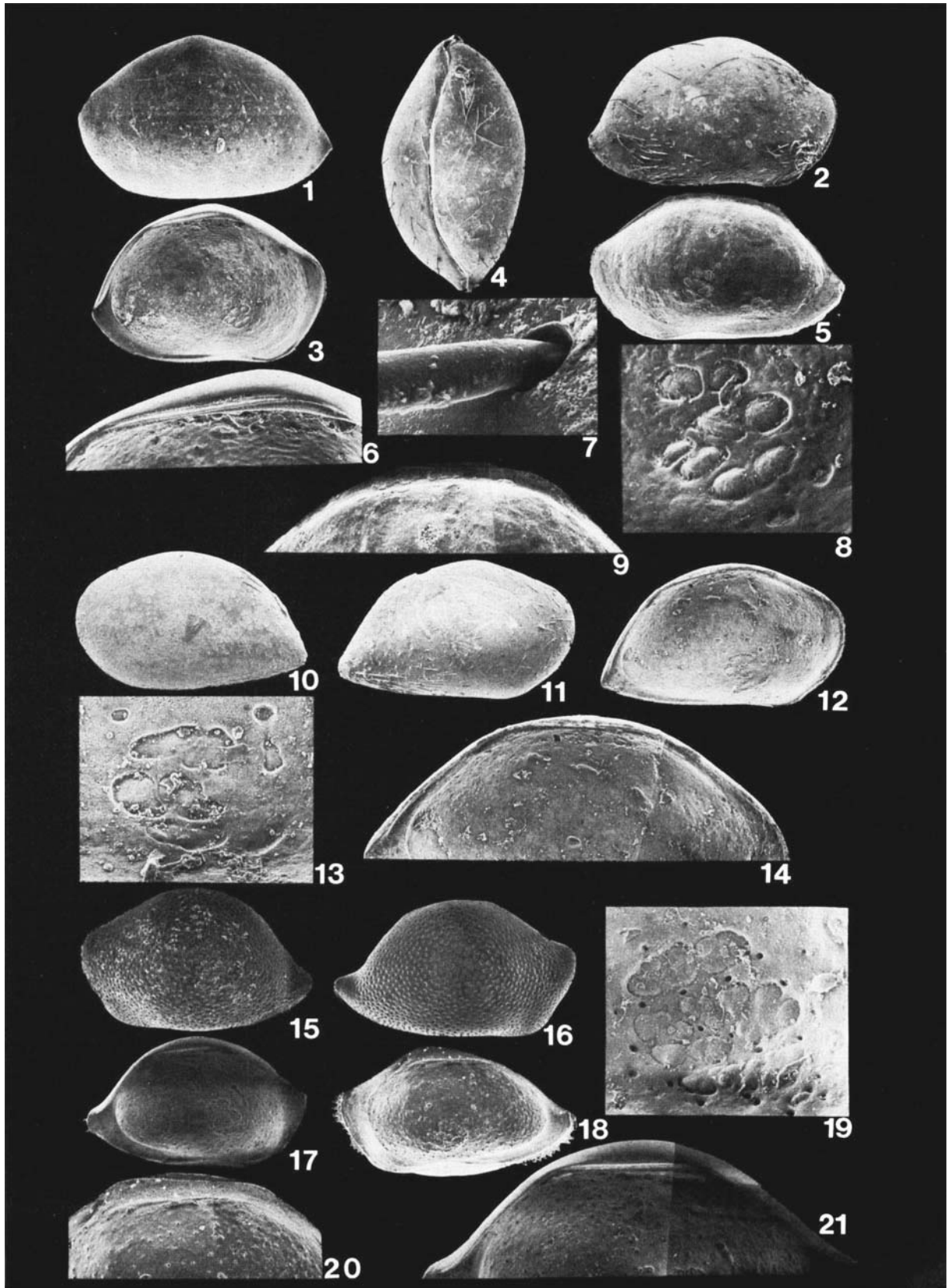
Remarks. This species is characteristic of the genus and as such is difficult to distinguish from other species except by careful examination of the outline of both valves. *Paranesidea parva* Hartmann, 1978, from the Recent of Western Australia, is closest, but is less convex dorsally. Adult size measurements cluster into 2 groups, this is believed to reflect sexual dimorphism; the larger group represents the females. As soft parts are not preserved this cannot be proven, however, Maddocks (1969) gave size measurements for both sexes in which the females tended to be the larger. Precocious sexual dimorphism is not apparent.

Explanation of Plate 5

Figs. 1–9. *Paranesidea? confusa* sp. nov.: fig. 1, Paratype 1986.498 LV, ext. lat. ($\times 40$); fig. 2, Paratype 1986.497 RV, ext. lat. ($\times 40$); fig. 3, Holotype 1986.496 LV, int. lat. ($\times 42$); fig. 4, Paratype RT/SIR/47 Car, ext. dorsal ($\times 41$); fig. 5, Paratype 1986.500 RV, int. lat. ($\times 45$); fig. 6, Holotype 1986.496 LV, detail of hinge ($\times 106$); fig. 7, Paratype RT/SIR/47 Car, detail of normal pore ($\times 2045$); fig. 8, Holotype 1986.496 LV, detail of central muscle scars ($\times 197$); fig. 9, Paratype 1986.500 RV, detail of hinge ($\times 81$).

Figs. 10–14. *Neonesidea? rara* sp. nov.: fig. 10, Holotype 1986.466 LV, ext. lat. ($\times 63$); fig. 11, Paratype 1986.467 RV, ext. lat. ($\times 78$); fig. 12, Holotype 1986.466 LV, int. lat. ($\times 68$); fig. 13, Holotype 1986.466 LV, detail of central muscle scars ($\times 270$); fig. 14, Holotype 1986.466 LV, detail of hinge ($\times 119$).

Figs. 15–21. *Paranesidea petalona* sp. nov.: fig. 15, Holotype 1986.483 LV, ext. lat. ($\times 45$); fig. 16, Paratype 1986.484 RV, ext. lat. ($\times 45$); fig. 17, Paratype 1986.485 LV, int. lat. ($\times 42$); fig. 18, Paratype 1986.486 RV, int. lat. ($\times 42$); fig. 19, Paratype 1986.487 LV, detail of central muscle scars ($\times 213$); fig. 20, Paratype 1986.486 RV, detail of hinge ($\times 80$); fig. 21, Paratype 1986.485 LV, detail of hinge ($\times 92$).



Distribution. Recent. Shallow water, Nosy Bé, Madagascar (Maddocks, 1969). Samples: OS5, OS6, Shortland Island.

Paranesidea bipustulosa sp. nov.
(Fig. 7, Nos. 3–4; Pl. 6, Figs. 10–17)

Derivation of name. L. With reference to the pustules developed on the anterior and posterior lateral surfaces.

Diagnosis. Dorsal margin strongly convex in LV; posterior cavolate, slightly upturned; posterodorsal slope concave near extremity. 10–12 marginal denticles antero- and posteroventrally in LV; well developed marginal frill in RV. Valve surface with dense punctae; pustulose tubercles, variable in number, on anterior and posterior lateral surfaces, each bearing a large, simple pore. Internally, posterior margin truncate in RV, outlined by the sub-vertical selvage which is overreached by an extended flange.

Holotype. LV 1986.469.

Material. 169 specimens: 29 adults, 140 juveniles to A–3.

Type locality and horizon. Sample 14, 1,400 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands. 10 fathoms. Medium coral sand. Recent.

Description. Large. Thick-shelled. Translucent with complex opaque patches: subcentral patch shaped like an amphora without handles, anteriorly and posteriorly large, irregular, trifurcating patches. Shape bairdioid in lateral view; subelliptical in dorsal. Anterior asymmetrically rounded; anterodorsal slope straight; anteroventral slope broadly convex with 12 marginal denticles in LV; strong, radially striate frill in RV. Posterior cavolate, slightly upturned, more so in RV; extremity just below mid-height. Posterodorsal slope gently convex to strongly concave near extremity; posteroventral slope convex with 10 digitate marginal denticles in LV and strong, radially striate frill in RV. Dorsal margin strongly convex in LV, straight in RV; cardinal angles rounded in LV, pronounced in RV. Ventral margin gently convex in LV; biconvex in RV. Maximum length just below mid-height; maximum height median in LV, anterior to mid-length in RV; maximum width median. Lateral surface covered with dense circular punctae which decrease in size peripherally, absent around margins. Pustules variably developed on anterior and posterior lateral surfaces, each with large, simple pore. Normal pore canals large, simple, not within punctae. Internal features characteristic of genus.

Dimensions (mm)

		sample length	height	width
Holotype LV	1986.469	14	0.87	0.57
Paratype RV	1986.470	1	0.89	0.46

Paratype RV	1986.471	15	0.94	0.54
Paratype LV	1986.472	2	0.86	0.57
Paratype RV	1986.473	1	0.90	0.51
Paratype LV	RT/SIR/79	62	0.88	0.58
Paratype Car.	RT/SIR/80	2	0.90	0.60 0.48

Mean and range of dimensions (mm)

	length	height	width
2 Car.	0.89, 0.92	0.57, 0.61	0.46, 0.49
5 LV	0.87 (0.85–0.91)	0.58 (0.57–0.61)	
18 RV	0.87 (0.81–0.97)	0.50 (0.46–0.55)	
20 LV A–1	0.71 (0.68–0.74)	0.46 (0.44–0.49)	
17 RV A–1	0.70 (0.69–0.73)	0.41 (0.39–0.45)	
17 A–2	0.55 (0.49–0.57)	0.33 (0.30–0.36)	
7 A–3	0.41 (0.38–0.42)	0.26 (0.24–0.27)	

Remarks. This species is similar to both *P. spongicola* and *P. fracticorallicola* Maddocks, 1969, from Madagascar. The posterior extremity in *P. spongicola*, however, is less upturned and the pattern of the opaque patches differs in that they are all joined. The most conspicuous difference between this species and *P. fracticorallicola* is that the maximum width of the carapace is median, and not ventral, it is also relatively higher.

Distribution. Quaternary, Guadalcanal and Shortland Islands (Williams, 1980, MS). Samples: 1, 2, 14, 15, 16, 17, 19, 20, 30, 32, 33, 53, 55, 56, 57, 58, 60, 62, OS5, OS6, Guadalcanal and Shortland Islands.

Paranesidea corbita sp. nov.
(Pl. 7, Figs. 1–6)

Derivation of name. L. With reference to the shape of this species which resembles a cumbersome boat.

Diagnosis. Shape of LV suboval in lateral view; RV typically bairdioid; posterior cavolate, upswept in both valves, extremity about mid-height. Strong, spinose marginal denticles antero- and posteroventrally in LV, strong marginal frill in RV. Valve surface with deep and dense punctae. Feebly translucent without opaque patches.

Holotype. LV 1986.474.

Material. 53 valves: 16 adults, 37 juveniles to A–4. **Type locality and horizon.** Sample 2, 500 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal, Solomon Islands, 1.5 fathoms. Medium coral sand. Recent.

Description. Large. Thick-shelled. Feebly translucent without opaque patches. Shape of LV suboval in lateral view; RV typically biardioid; elliptical in dorsal view. Anterior asymmetrically rounded; anterodorsal slope gently concave, anteroventral slope broadly convex with 10 robust, spinose marginal denticles in LV, strong marginal frill in RV; apex an obtuse angle above mid-height. Posterior cavolate, upswept in both valves; posterodorsal slope straight becoming strongly concave near extremity; posteroventral slope convex with 14, strong, spinose marginal denticles in LV, strong mar-

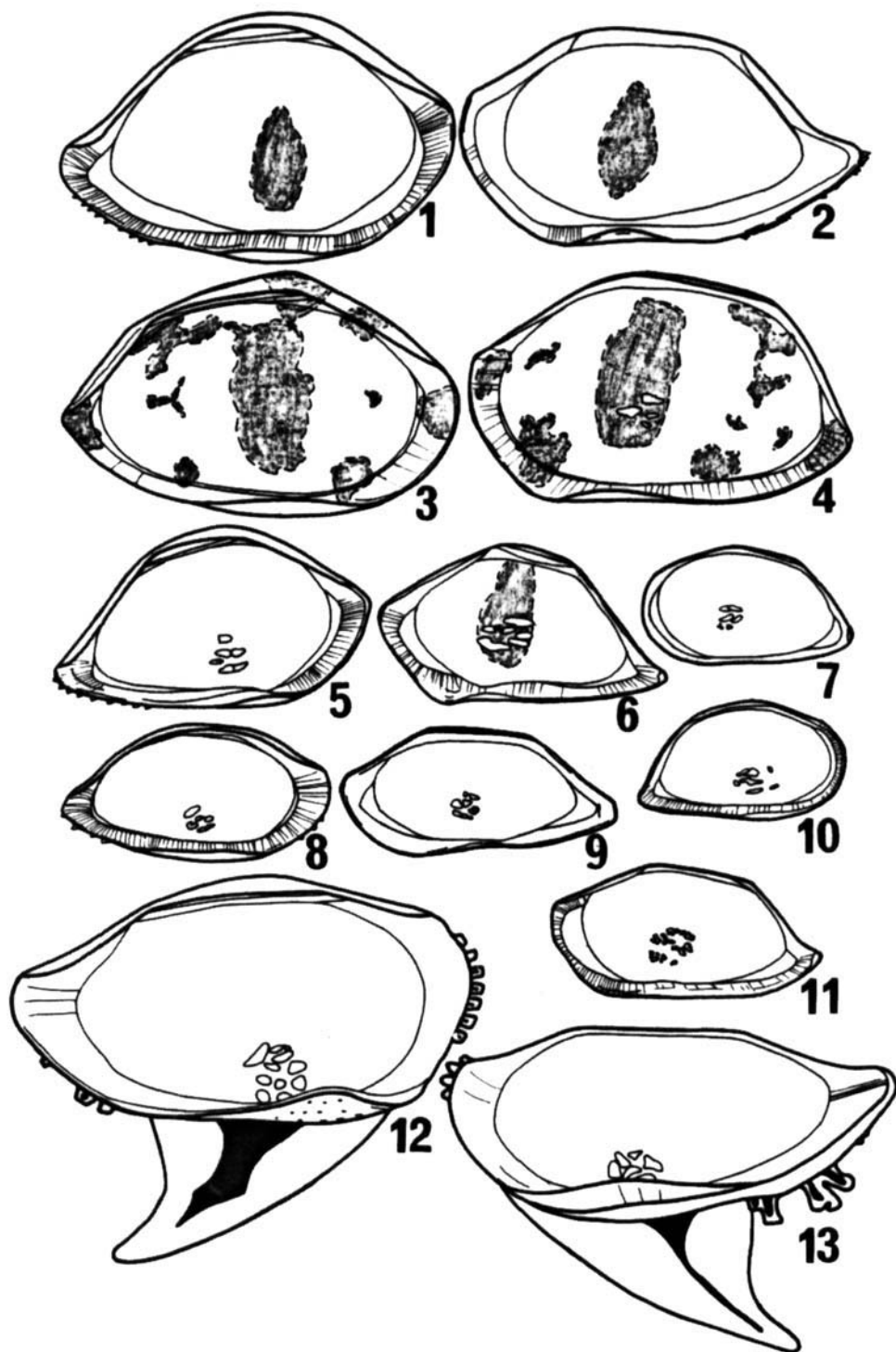


Fig. 6. *Neonesidea* sp. A. 1, RT/SIR/32 LV, int. lat. ($\times 50$); 2, RT/SIR/31 RV, int. lat. ($\times 52$). *Paranesidea? confusa* sp. nov. 3, Paratype RT/SIR/54 LV, int. lat. ($\times 52$); 4, Paratype RT/SIR/53 RV, int. lat. ($\times 50$). *Neonesidea? crepidula* sp. nov. 5, Holotype 1986.460 LV, int. lat. ($\times 53$); 6, Paratype 1986.462 RV, int. lat. ($\times 50$). *Neonesidea? rara* sp. nov. 7, Paratype 1986.468 RV, int. lat. ($\times 49$); 10, Paratype RT/SIR/58 LV, int. lat. ($\times 50$). *Neonesidea? sp. aff. N. woodwardiana* (Brady, 1880). 8, RT/SIR/36 LV, int. lat. ($\times 52$); 9, RT/SIR/34 RV, int. lat. ($\times 51$). *Neonesidea? sp. B*. 11, RT/SIR/39 RV, int. lat. ($\times 53$). *Pterobairdia briggsae* McKenzie, 1986. 12, RT/SIR/135 LV, int. lat. ($\times 87$); 13, RT/SIR/136 RV, int. lat. ($\times 88$).

ginal frill in RV; posterior extremity at mid-height in LV, just below mid-height in RV. Dorsal margin strongly convex in LV; straight in RV; cardinal angles pronounced in RV only. Ventral margin gently biconvex; oral concavity shallow. Maximum length just below mid-height; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Valve surface with deep and dense, circular punctae, which are concentric about mid-point. Internal features characteristic of genus.

Dimensions (mm)

	sample	length	height	width
Holotype LV 1986.474	2	0.82	0.58	
Paratype Car. RT/SIR/85	19	0.77	0.51	0.39
Paratype RV 1986.475	2	0.85	0.45	
Paratype LV 1986.476	2	0.83	0.55	
Paratype RV 1986.477	2	0.83	0.40	
Paratype LV RT/SIR/90	20	0.85	0.57	

Mean and range of dimensions (mm)

	length	height
7 LV	0.81 (0.78–0.85)	0.53 (0.49–0.58)
3 RV	0.83 (0.81–0.85)	0.43 (0.42–0.46)
10 LV A-1	0.69 (0.67–0.71)	0.42 (0.40–0.45)
6 RV A-1	0.71 (0.70–0.71)	0.39 (0.38–0.41)
9 A-2	0.54 (0.50–0.58)	0.31 (0.30–0.33)
7 A-3	0.44 (0.41–0.46)	0.26 (0.25–0.27)
1 A-4	0.34	0.20

Remarks. This species is closest to *P. stricta* sp. nov. but the posterior is more upswept, the punctae are less deeply incised subcentrally, the marginal denticulation is stronger and the valves are less inflated. The upswept cavolate posterior distinguishes it from those species of the genus described by Maddocks (1969) from the Recent of Nosy Bé, Madagascar except *Paranesidea* sp. 4. The present species differs in that the anterior and posterior extremities are slightly lower. The posterior extremity of *P. onslowensis* Hartmann, 1978, described from the western coast of Australia, is less extended and the surface ornament is finer.

Like *P. algicola* in the present material, the range in size observed, particularly of the adult left valves, may reflect sexual dimorphism.

Distribution. Samples: 1, 2, 13, 14, 15, 17, 19, 20, 29, 32, 54, 57, 58, 60, Guadalcanal.

Paranesidea equipunctata sp. nov.
(Fig. 7, Nos. 5–6; Pl. 7, Figs. 7–13)

Derivation of name. L. With reference to the regular nature of the punctae which comprise the ornament of this species.

Diagnosis. Shape of LV elongate, suboval in lateral view; RV typically bairdioid. Dorsal margin broadly convex in LV; posterior bluntly caudate in LV; cavolate and gently upturned in RV. Posterodorsal slope more strongly concave near posterior extremity in

RV than in LV. Valve surface with deep, dense punctae, of equal size. Narrow marginal frill on antero- and posteroventral margins, opaque patches absent.

Holotype. LV 1986.478.

Material. 16 specimens: all adults.

Type locality and horizon. Sample OS6. Exact location unknown but thought to be from the intertidal zone, near a coral reef, off the north-east coast of Shortland Island, Solomon Islands, in the vicinity of Rokuai Island. Coarse coral sand. Recent.

Description. Large. Very thick-shelled. Feebly translucent without opaque patches. Shape of LV elongate, suboval in lateral view; RV typically bairdioid; elliptical in dorsal view. Anterior asymmetrically rounded; anterodorsal slope almost straight to gently concave near extremity; anteroventral slope broadly convex with narrow, strong marginal frill in both valves; apex an obtuse angle well above mid-height. Posterior bluntly caudate in LV; cavolate, slightly upturned in RV; extremity just below mid-height. Posterodorsal slope convex becoming concave near extremity in LV, straight to becoming concave near extremity in RV. Posteroventral slope concave with narrow marginal frill in RV. Dorsal margin broadly convex in LV; straight in RV; cardinal angles more pronounced in RV. Ventral margin almost straight in LV; biconvex in RV. Maximum length at about mid-height; maximum height median in LV, at anterior 1/3 of length in RV. Valve surface covered with deep, dense, circular punctae of equal size, concentric about mid-point. Internal features typical of genus.

Dimensions (mm)

	sample	length	height
Holotype LV 1986.478	OS6	0.90	0.56
Paratype RV 1986.479	OS6	0.91	0.47
Paratype RV 1986.480	OS6	0.92	0.47
Paratype LV 1986.481	OS6	0.87	0.53
Paratype RV 1986.482	OS6	0.89	0.48

Mean and range of dimensions (mm)

	length	height
6 RV	0.90 (0.85–0.94)	0.46 (0.43–0.51)

Remarks. This species most closely resembles *P. spongicola* in the present material, but the posterior extremity is more dorsal, the dorsal margin is longer and the anterodorsal slope correspondingly shorter. The marginal frill in the RV is less well developed and the present species is approximately 0.15 mm longer. In addition, *P. spongicola* differs in that the valves are thickened around the anterior and posterior margins.

Distribution. Sample: OS6, Shortland Island.

Paranesidea petalona sp. nov.
(Fig. 7, Nos. 7–8; Pl. 5, Figs. 15–21)

Derivation of name. Gr. With reference to the petal-like shape of the central muscle scars.

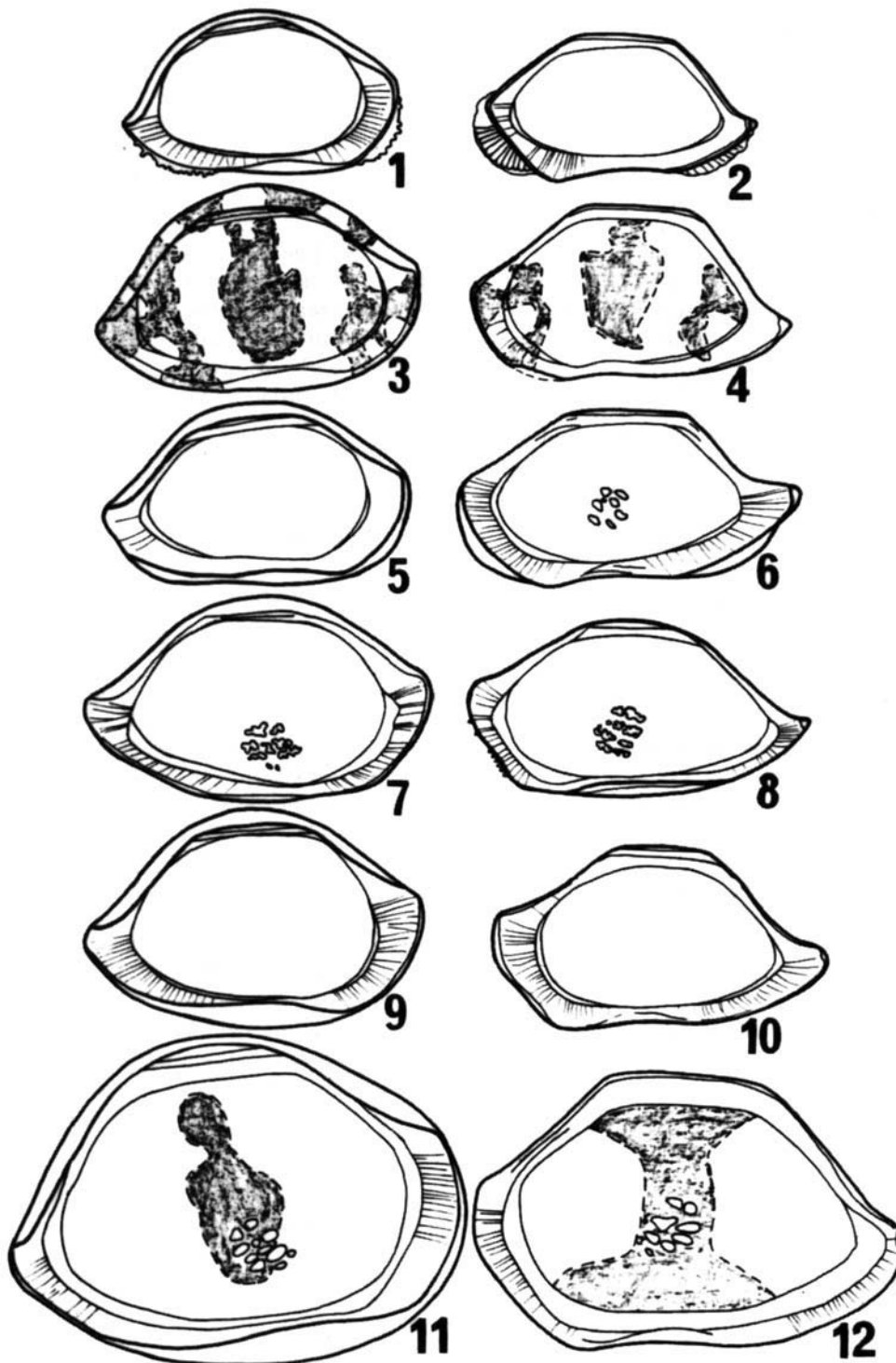


Fig. 7. *Paranesidea algicola* Maddocks, 1969. 1, RT/SIR/67 LV, int. lat. ($\times 52$); 2, RT/SIR/66 RV, int. lat. ($\times 57$). *Paranesidea bipustulosa* sp. nov. 3, Paratype RT/SIR/79 LV, int. lat. ($\times 52$); 4, Paratype 1986.473 RV, int. lat. ($\times 51$). *Paranesidea equipunctata* sp. nov. 5, Paratype 1986.481 LV, int. lat. ($\times 51$); 6, Paratype 1986.482 RV, int. lat. ($\times 55$). *Paranesidea petalona* sp. nov. 7, Paratype RT/SIR/96 LV, int. lat. ($\times 52$); Paratype RT/SIR/97 RV, int. lat. ($\times 52$). *Paranesidea stricta* sp. nov. 9, Holotype 1986.488 LV, int. lat. ($\times 53$); 10, Paratype RT/SIR/84 RV, int. lat. ($\times 52$). *Paranesidea?* sp. cf. *P. globulus* (Brady, 1880); 11, RT/SIR/105 LV, int. lat. ($\times 71$); 12, RT/SIR/106 RV, int. lat. ($\times 79$).

Diagnosis. Typically bairdioid in shape. Valve surface densely punctate, punctae becoming smaller peripherally but denser. 8–10 strong marginal spines antero- and posteroventrally in LV; marginal frill with denticles antero- and posteroventrally in RV. CMS pattern an ovate patch of highly sutured and marginally lobate scars, the bairdioid pattern recognisable.

Holotype. LV 1986.483.

Material. 49 specimens: 11 adults, 38 juveniles to A–3.

Type locality and horizon. Sample 13, 1,800 feet offshore west of Point Cruz, Honiara Bay, Guadalcanal. 11 fathoms. Medium coral sand. Recent.

Description. Large. Thick-shelled. Translucent. Typically bairdioid in shape in lateral view; subelliptical in dorsal view. Anterior asymmetrically rounded; anterodorsal slope gently concave, anteroventral slope gently convex becoming concave ventrally with 8 strong spinose denticles in LV; 12 smaller denticles extending from marginal frill in RV; apex a rounded right angle well above mid-height. Posterior acuminate; extremity just below mid-height, more sharply rounded in RV. Posterodorsal slope straight to concave near extremity; posteroventral slope gently convex with 7 spinose denticles in LV and marginal frill with ragged denticles in RV. Dorsal margin convex in LV, straight in RV; cardinal angles rounded in LV, pronounced in RV. Ventral margin gently biconvex. Maximum length just below mid-height; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Valve surface densely punctate; punctae decrease in size peripherally but are denser. Internal features characteristic of genus, except for central muscle scar pattern which comprises a large oval patch of highly sutured and marginally lobate scars.

Dimensions (mm)

	sample	length	height
Holotype LV 1986.483	13	0.90	0.55
Paratype RV 1986.484	15	0.91	0.49
Paratype LV 1986.485	30	0.92	0.57
Paratype RV 1986.486	57	0.92	0.50
Paratype LV 1986.487	14	0.90	0.54
Paratype LV RT/SIR/96	2	0.94	0.56
Paratype RV RT/SIR/97	2	0.93	0.49

Mean and range of dimensions (mm)

	length	height
6 LV	0.92 (0.89–0.96)	0.57 (0.54–0.58)
4 RV	0.92 (0.89–0.93)	0.50 (0.49–0.50)
4 LV A–1	0.75 (0.74–0.76)	0.45 (0.45–0.46)
5 RV A–1	0.74 (0.73–0.74)	0.42 (0.40–0.43)
12 A–2	0.56 (0.54–0.58)	0.33 (0.31–0.35)
4 A–3	0.42 (0.40–0.43)	0.25 (0.25–0.26)

Remarks. The unusual, complex central muscle scar pattern of highly sutured scars is very distinctive. A similar pattern was observed in *Neonesidea* sp. B in the present material but the present species differs in being more strongly ornamented, less acuminate posteriorly and more inflated ventrolaterally. *Nesidea mulleri* Fyan, 1916 from the Timor Pliocene, is about 0.5 mm longer and the LV is less high than the present species.

The adult valves of this species are all of similar size.

Distribution. Samples: 1, 2, 13, 14, 15, 16, 17, 30, 41, 54, 57, 58, Guadalcanal.

Paranesidea stricta sp. nov.

(Fig. 7, Nos. 9–10; Pl. 7, Figs. 14–17)

Derivation of name. Gr. With reference to the surface ornament, which appears to be punctured all over.

Diagnosis. Typically bairdioid in shape; valves strongly inflated ventrolaterally, robust. Posterior excavated, extremity well below mid-height; anterodorsal slope gently concave. Valve surface with deep, dense punctae. Opaque. Marginal denticulation weakly developed. Selvage peripheral, forms small “notch” at posterior extremity in RV.

Holotype. LV 1986.488.

Material. 22 specimens: 12 adults, 10 juveniles to A–2.

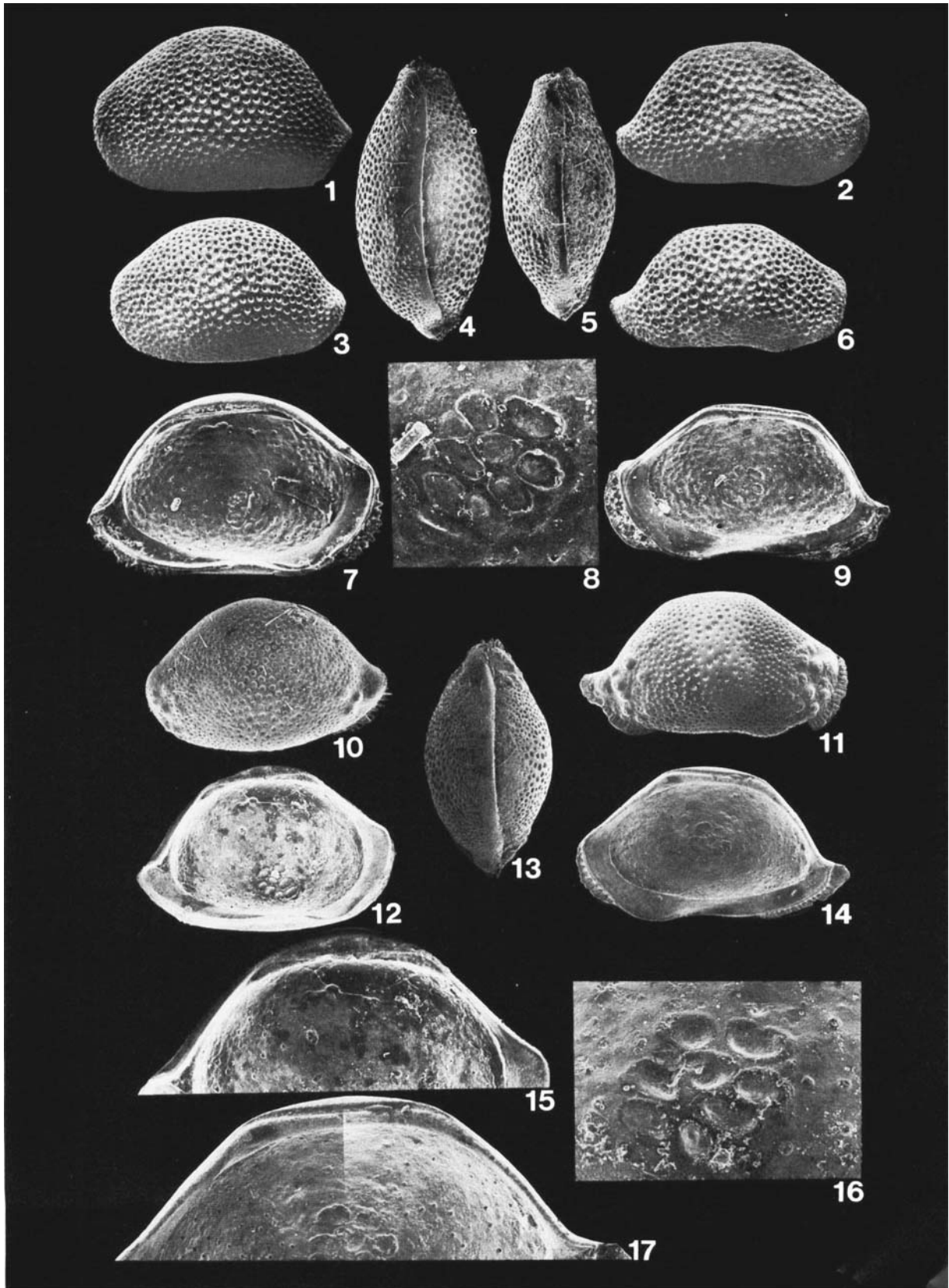
Type locality and horizon. Sample OS6. Exact location unknown but thought to be from the intertidal zone, near a coral reef, off the north-east coast of Shortland Island, Solomon Islands, in the vicinity of Rokuai Island. Coarse coral sand. Recent.

Description. Large. Very thick-shelled. Opaque. Shape typically bairdioid in lateral view; subelliptical in dorsal view, strongly inflated ventrolaterally. Anterior asymmetrically rounded; anterodorsal slope gently concave;

Explanation of Plate 6

Figs. 1–9. *Paranesidea algicola* Maddocks: fig. 1, RT/SIR/61 LV (large), ext. lat. ($\times 60$); fig. 2, RT/SIR/62 RV (large), ext. lat. ($\times 60$); fig. 3, RT/SIR/64 LV (small), ext. lat. ($\times 60$); fig. 4, RT/SIR/60 Car (large), ext. dorsal ($\times 62$); fig. RT/SIR/63 Car (small), ext. dorsal ($\times 63$); fig. 6, RT/SIR/65 RV (small), ext. lat. ($\times 60$); fig. 7, RT/SIR/67 LV, int. lat. ($\times 64$); fig. 8, RT/SIR/66 RV, detail of central muscle scars ($\times 220$); fig. 9, RT/SIR/66 RV, int. lat. ($\times 62$).

Figs. 10–17. *Paranesidea bipustulosa* sp. nov.: fig. 10, Holotype 1986.469 LV, ext. lat. ($\times 48$); fig. 11, Paratype 1986.470 RV, ext. lat. ($\times 49$); fig. 12, Paratype 1986.472 LV, int. lat. ($\times 49$); fig. 13, Paratype RT/SIR/73 Car, ext. dorsal ($\times 45$); fig. 14, Paratype 1986.471 RV, int. lat. ($\times 48$); fig. 15, Paratype 1986.472 LV, detail of hinge ($\times 85$); fig. 16, Paratype 1986.473 RV, detail of central muscle scars ($\times 242$); fig. 17, Paratype 1986.471 RV, detail of hinge ($\times 99$).



anteroventral slope broadly convex with weak marginal denticles; apex a rounded right angle well above mid-height. Posterior cavolate, extremity well below mid-height; posterodorsal slope straight becoming concave near extremity, concavity more pronounced in RV; posteroventral slope convex with narrow, delicate marginal frill near extremity in RV only. Dorsal margin convex in LV; straight in RV; cardinal angles rounded in LV; pronounced in RV. Ventral margin biconvex; obscured by lateral inflation in LV. Maximum length at mid-height; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Lateral surface covered by very deep, dense punctae which are slightly larger and less densely distributed subcentrally; concentrically arranged around mid-point. Internal features typical of genus.

Dimensions (mm)

	sample	length	height
Holotype LV 1986.488	OS6	0.89	0.55
Paratype RV 1986.489	OS6	0.94	0.52
Paratype RV 1986.490	OS6	0.90	0.51
Paratype RV RT/SIR/84	OS6	0.92	0.52

Remarks. This species most closely resembles *P. petalona* sp. nov. but is more deeply punctate, less caudate posteriorly, the dorsal margin is less broad and the muscle scars are not sutured.

Distribution. Sample OS6, Shortland Island.

Paranesidea? confusa sp. nov.

(Fig. 6, Nos. 3–4; Pl. 5, Figs. 1–9)

Derivation of name. L. With reference to the uncertain taxonomic status of this species.

Diagnosis. Shape of LV subtriangular in lateral view; RV subquadrate: subelliptical in dorsal view. LV dorsal margin angularly convex. Posterior bluntly caudate; extremity acutely rounded in LV. Complex pattern of opaque patches with large, suboval central patch and surrounded by smaller variable, irregular patches. Narrow, delicate marginal frill antero- and posteroventrally in RV. Valve surface with dense,

minute punctae. Selvage peripheral, forming a small "notch" at posterior extremity in RV.

Holotype. LV 1986.496.

Material. 81 specimens: 20 adults, 41 juveniles to A–3. **Type locality and horizon.** Sample OS3, Katufe Island, off the north-east coast of Shortland Island. Medium coral sand from coral reef. Recent.

Description. Large to very large. Moderately thick-shelled. Translucent with a complex pattern of opaque patches: large central patch irregular, suboval surrounded by many variable, irregular patches. Shape of LV subtriangular in lateral view; RV subquadrate: subelliptical in dorsal view. Anterior asymmetrically rounded: anterodorsal slope slightly convex in LV, almost straight in RV; anteroventral slope convex; apex rounded; obtuse, just above mid-height: RV with narrow, delicate marginal frill anteroventrally. Posterior bluntly caudate, extremity well below mid-height, more acutely rounded in LV. Posterodorsal slope convex to gently concave towards extremity; posteroventral slope convex. LV with 10–12 small, triangular marginal denticles, RV with narrow, delicate marginal frill posteroventrally. Dorsal margin angularly convex in LV; straight, obliquely sloping to posterior in RV; cardinal angles rounded. Ventral margin almost straight in LV; biconvex in RV. Maximum length well below mid-height; maximum height median in LV, at anterior 1/3 of length in RV; greatest width at anterior 1/3 of length. Valve surface with dense, minute punctae. Internal features, in particular the central muscle scar pattern characteristic of *Paranesidea*.

Dimensions (mm)

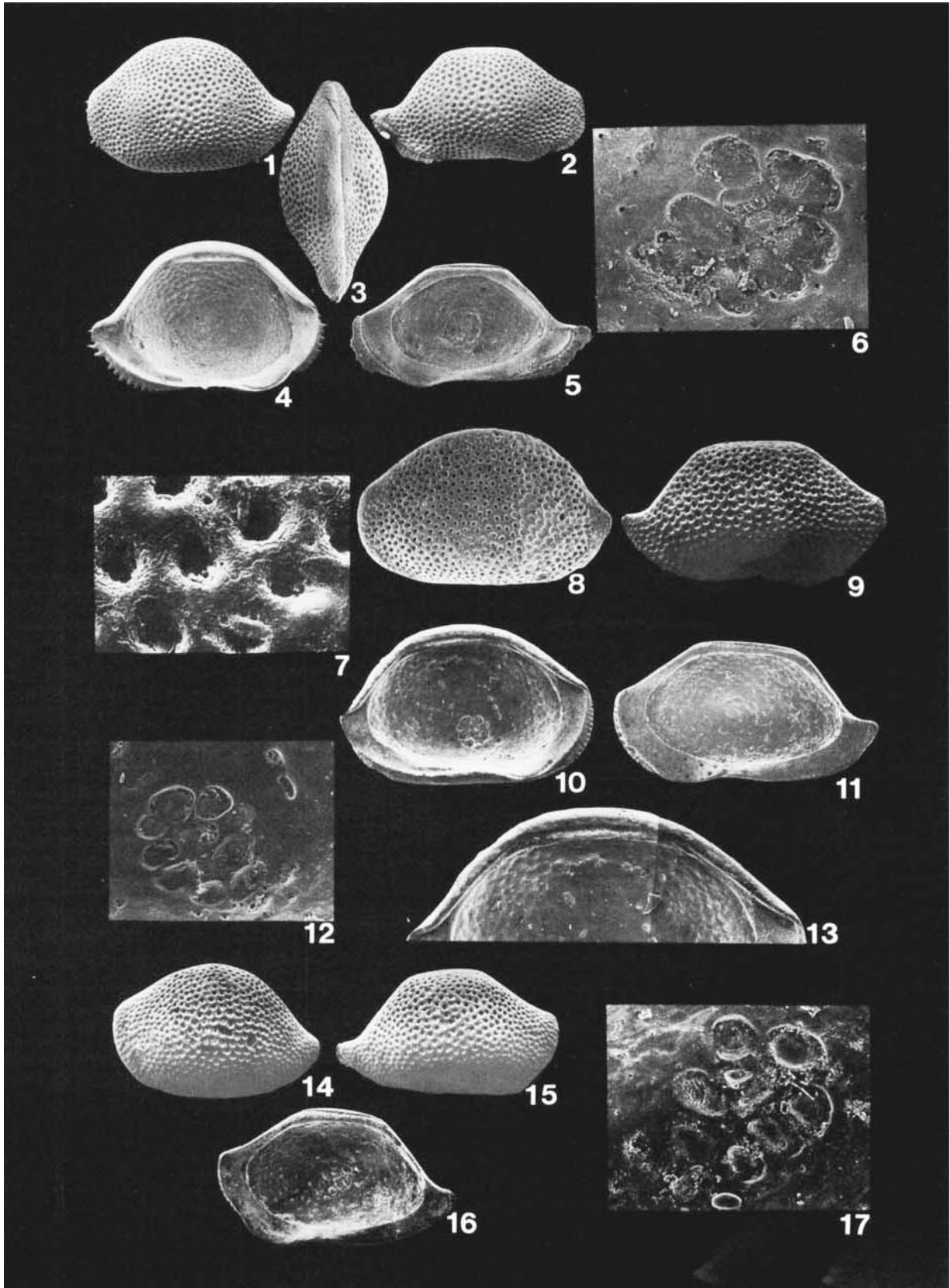
	sample	length	height	width
Holotype LV 1986.496	OS3	1.07	0.68	
Paratype LV 1986.498	OS3	1.11	0.73	
Paratype RV 1986.497	OS3	1.12	0.67	
Paratype RV 1986.500	OS5	1.03	0.60	
Paratype LV RT/SIR/52	OS4	1.10	0.71	
Paratype RV RT/SIR/53	OS5	1.10	0.66	
Paratype LV RT/SIR/54	OS5	1.09	0.67	
Paratype Car. 1986.499	OS5	1.08	0.71	0.60

Explanation of Plate 7

Figs. 1–6. *Paranesidea corbita* sp. nov.: fig 1, Holotype 1986.474 LV, ext. lat. ($\times 44$); fig. 2, Paratype 1986.475 RV, ext. lat. ($\times 45$); fig. 3, Paratype RT/SIR/85 Car, ext. dorsal ($\times 49$); fig. 4, Paratype 1986.476 LV, int. lat. ($\times 48$); fig. 5, Paratype 1986.477 RV, int. lat. ($\times 49$); fig. 6, Paratype 1986.477 RV, detail of central muscle scars ($\times 248$).

Figs. 7–13. *Paranesidea equipunctata* sp. nov. fig. 7, Paratype 1986.479 RV, detail of lateral ornament ($\times 409$); fig. 8, Holotype 1986.478 LV, ext. lat. ($\times 49$); fig. 9, Paratype 1986.479 RV, ext. lat. ($\times 51$); fig. 10, Holotype 1986.478 LV, int. lat. ($\times 48$); fig. 11, Paratype 1986.480 RV, int. lat. ($\times 49$); fig. 12, Holotype 1986.478 LV, detail of central muscle scars ($\times 154$); fig. 13, Holotype 1986.478 LV, detail of hinge ($\times 82$).

Figs. 14–17. *Paranesidea stricta* sp. nov.: fig. 14, Holotype 1986.488 LV, ext. lat. ($\times 40$); fig. 15, Paratype 1986.489 RV, ext. lat. ($\times 40$); fig. 16, Paratype 1986.490 RV, int. lat. ($\times 44$); fig. 17, Paratype 1986.490 RV, detail of central muscle scars ($\times 228$).



Mean and range of dimensions (mm)			
	length	height	width
2 Car.	1.05, 1.08	0.71, 0.68	0.60, 0.59
5 LV	1.09 (1.07–1.11)	0.70 (0.67–0.74)	
12 RV	1.03 (0.91–1.12)	0.59 (0.52–0.68)	
1 Car. A-1	0.85	0.52	0.44
10 LV A-1	0.84 (0.81–0.87)	0.52 (0.50–0.54)	
10 RV A-1	0.83 (0.80–0.86)	0.48 (0.46–0.49)	
3 Car. A-2	0.63 (0.60–0.67)	0.38 (0.37–0.39)	0.32 (0.31–0.33)
3 LV A-2	0.63	0.38 (0.38–0.39)	
3 A-3	0.48 (0.45–0.50)	0.27 (0.26–0.28)	

Remarks. The muscle scar pattern and marginal denticulation of this species is typical of *Paranesidea* but the surface ornamentation of very fine punctae and shape of the LV are more typical of *Neonesidea*. *Neonesidea parilihamata* Maddocks, 1969 recorded from Madagascar is similar in shape but the dorsal margin is less angularly convex and the muscle scar pattern differs.

The adults vary greatly in size, although the A-1 instars are all of a similar size.

Distribution. Samples: 13, 15, 17, 30, 58, OS3, OS4, OS5, OS6, Guadalcanal and Shortland Islands.

Paranesidea? paucipunctata sp. nov.
(Fig. 7, Nos. 11–12; Pl. 8, Figs. 1–9)

Derivation of name. L. Referring to the sparsely punctate surface of the adult.

Diagnosis. LV suboval in lateral view, RV typically bairdoid; strongly inflated dorsally. Very robust. Translucent with large subcentral opaque patch; skittle-shaped in LV; larger, capstan-shaped in RV. Valve surface with fine, sparse punctae in adults and A-1 juveniles; stronger punctae in younger juveniles. Caud-

al spine and small marginal spine antero- and posteroventrally in LV.

Holotype. LV 1986.491.

Material. 133 valves: 29 adults, 104 juveniles to A-4.

Type locality and horizon. Sample 17.

Description. Large to very large. Very thick-shelled. Translucent with large subcentral opaque patch, skittle shaped in LV, larger, capstan-shaped extending to dorsal and ventral margins in RV. LV suboval in shape in lateral view, RV typically bairdoid. Anterior asymmetrically rounded; anterodorsal slope almost straight, gently convex in LV, concave in RV; anteroventral slope broadly convex with 16 small spinose denticles in LV; apex well above mid-height. Posterior bluntly caudate in LV; slightly more cavolate in RV; extremity well below mid-height; posterodorsal slope gently convex in posteroventral slope convex with approximately 15, small spinose denticles. Strong posterior caudal spine in LV. Dorsal margin strongly convex in LV; straight in RV; cardinal angles rounded in LV, pronounced in RV. Ventral margin biconvex; obscured by lateral inflation particularly in LV. Maximum length well below mid-height; maximum height median in LV, at anterior 1/3 of length in RV; maximum width median. Valve surface with very fine and sparse punctae in adult and A-1 juvenile; strong punctae in younger juveniles. Internal features typical of *Paranesidea*.

Dimensions (mm)

		sample length	height
Holotype LV	1986.491	17	1.24 0.90
Paratype RV	1986.492	15	1.14 0.77
Paratype LV	1986.493	16	1.11 0.80
Paratype RV	1986.494	30	1.11 0.71
Paratype LV	RT/SIR/102	17	1.12 0.81
Paratype RV	RT/SIR/103	19	1.17 0.78
Paratype RV	A-2 1986.495	56	0.66 0.45
Paratype LV	RT/SIR/105	1	1.21 0.91
Paratype RV	RT/SIR/106	1	1.17 0.78

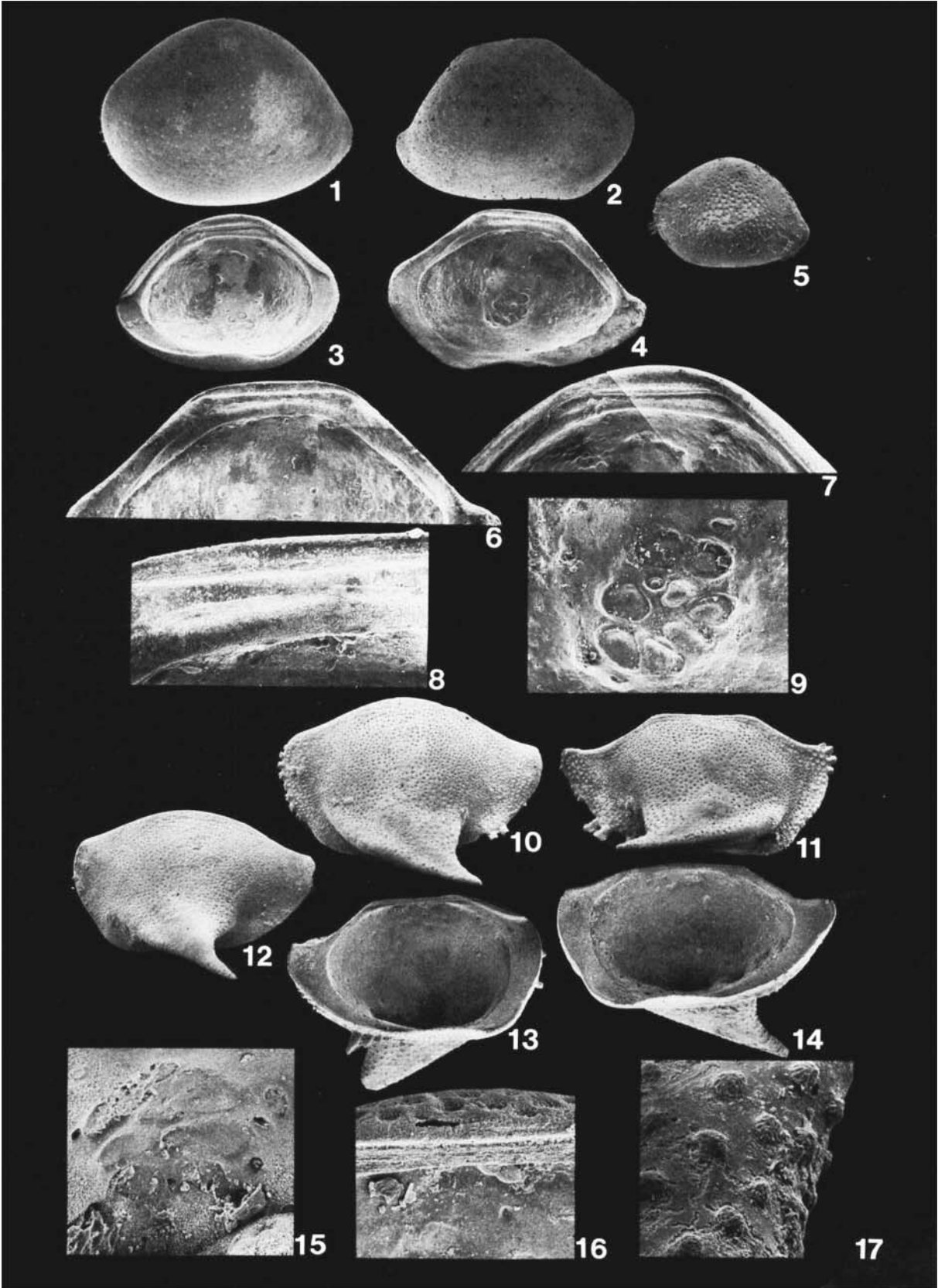
Mean and range of dimensions (mm)

	length	height
6 LV	1.16 (1.12–1.25)	0.85 (0.81–0.92)
15 RV	1.13 (1.07–1.20)	0.75 (0.68–0.80)

Explanation of Plate 8

Figs. 1–9. *Paranesidea? paucipunctata* sp. nov.: fig. 1, Holotype 1986.491 LV, ext. lat. ($\times 33$); fig. 2, Paratype 1986.492 RV, ext. lat. ($\times 32$); fig. 3, Paratype 1986.493 LV, int. lat. ($\times 31$); fig. 4, Paratype 1986.494 RV, int. lat. ($\times 37$); fig. 5, Paratype 1986.495 A-2 RV, ext. lat. ($\times 39$); fig. 6, Paratype 1986.494 RV, detail of hinge ($\times 71$); fig. 7, Paratype 1986.493 LV, detail of hinge ($\times 74$); fig. 8, Paratype 1986.494 RV, detail of hinge ($\times 193$); fig. 9, Paratype 1986.494 RV, detail of central muscle scars ($\times 156$).

Figs. 10–17. *Pterobairdia briggsae* McKenzie: fig. 10, RT/SIR/135 LV, ext. lat. ($\times 60$); fig. 11, RT/SIR/136 RV, ext. lat. ($\times 64$); fig. 12, RT/SIR/139 A-1 LV, ext. lat. ($\times 65$); fig. 13, RT/SIR/137 LV, int. lat. ($\times 62$); fig. 14, RT/SIR/138 RV, int. lat. ($\times 63$); fig. 15, RT/SIR/137 LV, detail of central muscle scars ($\times 345$); fig. 16, RT/SIR/137 LV, detail of hinge ($\times 292$); fig. 17, RT/SIR/135 LV, detail of ornament on ala ($\times 632$).



20 LV A-1	0.90 (0.88-0.94)	0.64 (0.61-0.67)
11 RV A-1	0.88 (0.84-0.92)	0.58 (0.54-0.61)
10 LV A-2	0.68 (0.65-0.72)	0.46 (0.45-0.49)
10 LV A-3	0.52 (0.49-0.56)	0.34 (0.33-0.37)
10 LV A-4	0.40 (0.38-0.46)	0.26 (0.25-0.28)

Remarks. The shape of the LV and the fine ornament of the adults and A-1 juveniles of this species are not typical of *Paranesidea* although the A-2 and younger juveniles are more typical of the genus. The central muscle scars pattern of this species, however, is typical of *Paranesidea*. The present species conforms fairly closely with Brady's (1880) original description and illustrations of *Bairdia globulus* but differs principally in the pattern of the opaque patches and in shape. Hartmann (1978) illustrated a RV of an unnamed species of *Bairdia* from the northwest coast of Australia, which is similar, but is more strongly caudate posteriorly and more strongly punctate.

The large range in size of the adults and A-1 juveniles may reflect sexual and precocious sexual dimorphism, although the sizes do not fall into distinct clusters.

Distribution. Samples: 1, 2, 13, 14, 15, 16, 17, 19, 29, 30, 32, 45, 56, 57, 58, Guadalcanal.

Genus *Pterobairdia* McKenzie & Keij, 1977

Pterobairdia briggsae McKenzie, 1986

(Fig. 6, Nos. 12-13; Pl. 8, Figs. 10-17)

1986 *Pterobairdia briggsae* sp. nov. McKenzie: 92, 93, pl. 1, figs. 1-7.

Material. 17 specimens: 10 adults and 7 juveniles to A-3.

Dimensions (mm)

		sample	length	height	width (across ala)
LV	RT/SIR/135	OS6	0.77	0.44	0.49
RV	RT/SIR/136	OS6	0.74	0.37	0.41
LV	RT/SIR/137	OS6	0.74	0.44	
RV	RT/SIR/138	OS6	0.79	0.40	
LV A-1	RT/SIR/139	OS6	0.65	0.39	

RV A-2 OS6 0.54 0.27

LV A-3 OS6 0.44 0.26

Remarks. This is only the second species of the genus to be described. It may be distinguished from the type species *P. maddocksae* McKenzie & Keij, 1977, described from Holocene and Recent sediments from Onotoa, Gilbert Islands and the Flores Sea by the fact that in the type species the dorsal surface of the alae are covered with coarse pustules which are absent in the present species. In the latter, the alae are somewhat more recurved, and the nature of the anterodorsal and posteroventral marginal denticles in the two species is also distinct, those of the type species being more regular and less strongly developed.

Distribution. Sample OS6, Shortland Island. The type material is from the Ontong Java Lagoon.

Genus *Triebelina* Bold, 1946

Triebelina bradyi Triebel, 1948

(Pl. 9, Figs. 1-8)

1890 *Bairdia truncata* (non. Kirkby); Brady: 494, pl. 2, figs. 1-2.

1946 *Triebelina* sp. Bold: 78.

1948 *Triebelina bradyi* sp. nov. Triebel: 18.

1969 *Triebelina bradyi* Triebel; Maddocks: 63, pl. 2, figs. 3; figs. 32a, 33a-d.

1974 *Triebelina bradyi* Triebel; Keij: 352, pl. 2, figs. 13-14.

1977 *Triebelina bradyi* Triebel; McKenzie & Keij: 372.

Material. 27 specimens: 18 adults and 9 juveniles to A-3.

Dimensions (mm)

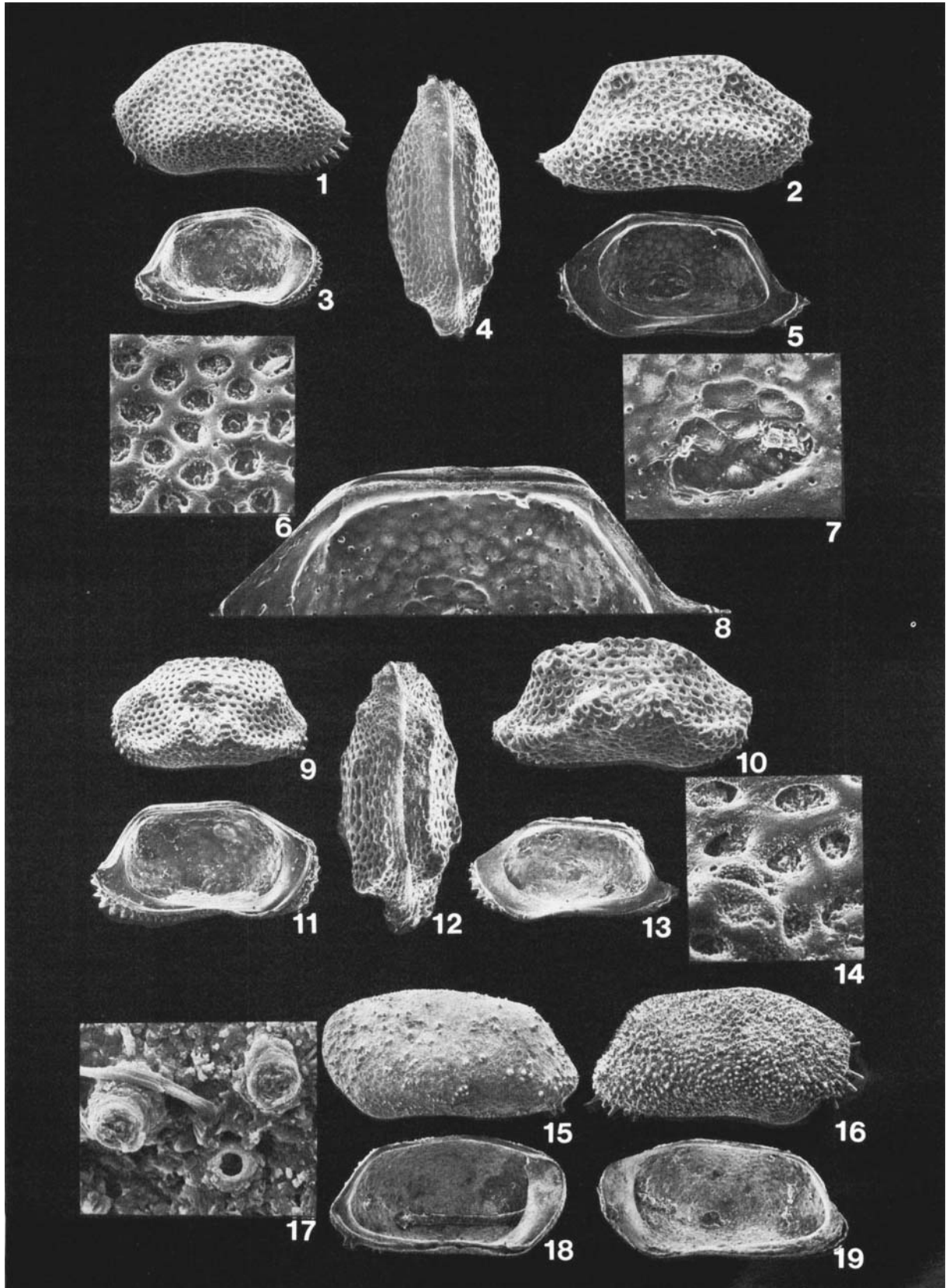
		length	height	width
RV	RT/SIR/107	0.67	0.32	
LV	RT/SIR/108	0.57	0.30	
Car.	RT/SIR/112	0.54	0.30	0.24
LV A-1		0.53	0.32	
RV A-1		0.55	0.30	
RV A-2		0.44	0.24	
LV A-3		0.37	0.22	

Explanation of Plate 9

Figs. 1-8. *Triebelina bradyi* Triebel: fig. 1, RT/SIR/108 LV, ext. lat. ($\times 74$); fig. 2, RT/SIR/107 RV, ext. lat. ($\times 76$); fig. 3, RT/SIR/110 LV, int. lat. ($\times 48$); fig. 4, RT/SIR/112 Car, ext. dorsal ($\times 90$); fig. 5, RT/SIR/107 RV, int. lat. ($\times 72$); fig. 6, RT/SIR/108 LV, detail of lateral ornament ($\times 358$); fig. 7, RT/SIR/107 RV, detail of central muscle scars ($\times 198$); fig. 8, RT/SIR/107 RV, detail of hinge ($\times 115$).

Figs. 9-14. *Triebelina sertata* Triebel: fig. 9, RT/SIR/114 Car, ext. lat. of LV ($\times 59$); fig. 10, RT/SIR/113 RV, ext. lat. ($\times 90$); fig. 11, RT/SIR/115 LV, int. lat. ($\times 77$); fig. 12, RT/SIR/114 Car, ext. dorsal ($\times 92$); fig. 13, RT/SIR/116 RV, int. lat. ($\times 71$); fig. 14, RT/SIR/113 RV, detail of lateral ornament ($\times 451$).

Figs. 15-19. *Mydionobairdia schyroconcha* Maddocks: fig. 15, RT/SIR/118 LV, ext. lat. ($\times 74$); fig. 16, RT/SIR/117, RV, ext. lat. ($\times 92$); fig. 17, RT/SIR/117 RV, detail of lateral ornament and normal pore ($\times 2307$); fig. 18, RT/SIR/118 LV, int. lat. ($\times 69$); fig. 19, RT/SIR/119 RV, int. lat. ($\times 72$).



Remarks. *Triebelina sertata* Triebel, 1948 is more strongly inflated dorsolaterally and the ventrolateral swellings are sited further from the anterior and posterior. *Triebelina reticulopunctata* Benson, 1959, from the Recent of Todos Santos Bay, California is less inflated mediolaterally and lacks swellings at the cardinal angles.

Distribution. Uppermost Miocene – Lower Pliocene; Fiji (Keij, 1974). Pleistocene; Midway Island (Holden, 1976).

Holocene – subfossil; Onotoa, Gilbert Islands (McKenzie & Keij, 1977); Batu Island off W. Sumatra (Bold, 1950); Nosy Bé, Madagascar (Maddocks, 1969).

Recent; Nouméa, New Caledonia and Upolu, Samoa (Brady, 1890); Seran, Irian (Sarong) and Tanimbar Island in the East Indonesian Seas (Keij, 1953); South China Sea near Lucania Shoals (Keij, 1974 and Nosy Bé, Madagascar (Maddocks, 1969).

Samples: 1, 2, 13, 14, 17, 61, OS5, OS6, Guadalcanal and Shortland Islands.

Triebelina sertata Triebel, 1948
(Pl. 9, Figs. 9–14)

1946 *Triebelina indopacifica* Bold (pars): 74.

1948 *Triebelina* sp. cf. *Triebelina cubensis* Bold; Kingma: 69, pl. 7, fig. 4.

1948 *Triebelina sertata* sp. nov. Triebel: 19, figs. 1–2.

1969 *Triebelina sertata* Triebel; Maddocks: pl. 61, figs. 31, 32b–e.

1974 *Triebelina sertata* Triebel; Keij: 356, pl. 2, figs. 6–12.

Material. 14 specimens: 13 adults, 1 A–2 juvenile.

Dimensions (mm)

		length	height
RV	RT/SIR/113	0.54	0.26
Car. – LV	RT/SIR/114	0.58	0.31
	– RV RT/SIR/114	0.54	0.26
LV	A–2	0.40	0.22

Remarks. This species is most similar to *T. indopacifica* Bold, 1948 but the ventrolateral carina is not thickened over the muscle scar area but swollen onto 2 nodes which are sited on either side. The mid-lateral ridge of *T. indopacifica* is more strongly developed and swollen into nodes at its extremities and the reticula fossae are more rounded in shape.

Distribution: Upper Miocene; Cebu, Philippines (Keij, 1974).

Lower Pliocene; Andaman Islands (Guha, 1968); Northern Sumatra (Kingma, 1948).

Recent, cosmopolitan: Caribbean (Puri, 1960; Tetter, 1973; Bold, 1946); Clipperton Island and Fiji (Allison & Holden, 1971); Nosy Bé and Tulear, Madagascar (Maddocks, 1969); Red Sea (Triebel, 1948; Keij, 1974); Massawa, Ethiopia; Cyprus and the Persian Gulf (Keij, 1974); Reunion Island, S.W. Indian

Ocean (Keeler, 1981, MS).

Samples: 14, 57, OS5, OS6, Guadalcanal and Shortland Islands.

Mydionobairdia Gen. nov.

Type species. *Triebelina schyroconcha* Maddocks, 1969.

Derivation of name. Gr. Mydion a boat. From the overall resemblance of this genus to a boat.

Diagnosis. A small robust genus of the Bairdiinae, subrhomboidal in lateral view, subcylindrical to sub-elliptical in dorsal view. Anterior margin with long convex antero-ventral slope and apex above mid height; posterior margin with subventral apex and long straight or slightly concave posterodorsal slope. Dorsal surface covered with small spines and papillae. Long thin marginal spines anteriorly and posteroventrally. Hinge adont, narrow. Auxiliary dentition absent. Adductor muscle scars usually 8 in two obliquely curved rows.

Remarks. This genus is closely related to *Triebelina* but differs in its more elongate and subrhomboidal shape and in lacking the ribs and strong punctate or reticulate ornament of that genus. From *Papillatabairdia* Bentley (1981) it differs in shape (this genus being reniform with a rounded anterior and subrounded posterior margins) and in ornament, *Papillatabairdia* being densely covered with very small hemispherical papillae.

Keij (1974, p. 346) doubted that *Triebelina schyroconcha* belonged to *Triebelina* because of its unusual shape and ornament.

There are other species in the subfamily which somewhat resemble *M. schyroconcha* in shape, such as *Bairdia hanaumaensis* Holden, 1967, from the late Cainozoic and Recent of Hawaii, but this species is densely and minutely punctate. *Bairdia* sp., Allison & Holden, 1971, while similar in shape, is punctate. These two species and a number of as yet undescribed species known to one of us (RCW) from Indonesia could be subsequently included in *Mydionobairdia* if the diagnosis was amended to embrace punctate species.

Bold, 1966 illustrated two species; *B. tuberculata* Brady and *B. sp. aff. tuberculata* Brady (Recent, Panama) which are of a similar rhomboidal shape and possess antero- and posteroventral marginal spines, but are punctate. These two species also may be included in *Mydionobairdia* if the diagnosis is emended to include punctate forms.

Mydionobairdia schyroconcha (Maddocks, 1969)
(Pl. 9, Figs. 15–19)

?1880 *Bairdia tuberculata* Brady; Brady, 60, pl. 10, figs. 3a–d.

?1890 *Bairdia tuberculata* Brady; Brady, 495.

1969 *Triebelina schyroconcha* sp. nov. Maddocks : 65, pl. 2, figs. 7–8; figs. 33g–h.

1974 *Triebelina schyroconcha* Maddocks; Keij, pl. 1, fig. 7.

?non 1867 *Bairdia tuberculata* Brady (= *Bairdia rhomboidea* Brady (non Kirkby)).

non 1966 *Bairdia tuberculata* Brady: Bold, pl. 2, figs. 3a–6.

Materials. 6 specimens, 3 adults, 3 juveniles.

Dimensions (mm)

		length	height
RV	RT/SIR/117	0.55	0.28
LV	RT/SIR/118	0.63	0.32
A-1 RV		0.56	0.27
A-2 LV		0.42	0.22
A-3 RV		0.36	0.18

Remarks: Brady (1867, p. 162, pl. 19, figs. 14, 15) described *Bairdia rhomboidea*, from the Recent of Mauritius as sybrhomboidal in shape and possessing a punctate surface ornament. In 1880 he redescribed *B. tuberculata* (= *B. rhomboidea* Brady, 1867 (non Kirkby)) from the Recent of the Admiralty Islands. Despite remarking that the species is exactly like that from Mauritius, he described *B. tuberculata* as “rather rough, with small closely-set tubercular prominences” and not punctate.

Triebelina schyroconcha Maddocks, 1969 (Recent, Madagascar) is considered by her to be questionably synonymous with *B. tuberculata* Brady of Brady, 1880 and 1890, but not with *B. tuberculata* Brady, 1867 (= *B. rhomboidea* Brady (non Kirkby)). The species illustrated by Maddocks is almost certainly conspecific with the present material and material from the Java Sea (Karen Watson pers. comm., 1986).

Hartmann (1978, 1981) illustrates a species he assigned to *Bythocypris* from the Recent of Australia, which resembles the present species in possessing a spinose ornament, but it is less acuminate posteriorly. This species should be included in *Mydionobairdia*.

In the present study *M. schyroconcha* was recovered from samples 1, 14, 58 in Honiara Bay, Guadalcanal and sample OS6, Shortland Island.

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