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A Revision of the Eatoniellidae of Australia (Mollusca, Gastropoda, Littorinacea)

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SUMMARY

The 20 Recent species and 1 fossil subspecies of the Eatoniellidae in Australia are reviewed, and 13 are described as new. The shells, radulae and opercula and, in some cases, the external appearance of the head-foot, are described and the distribution and habitat of each species is given. The species fall into 2 genera, *Eatoniella* Dall (with 2 subgenera, *Eatoniella* s.s. and *Albosabula* Ponder) and *Crassitoniella* Ponder. A list of the known species of the Eatoniellidae is given (with the exception of the New Zealand species). Replacement names are provided for *Eatoniella maculosa* Ponder, 1965 and *Rissoina pellucida* Preston, 1905

CONTENTS

INTRODUCTION

The family Eatoniellidae was introduced by Ponder (1965) for a group of marine micro-molluscs that are abundant in New Zealand and which were previously included in the Rissoidae and Rissoinidae. The family is also known to occur in the Antarctic and Subantarctic regions, Chile, Japan, South Africa, Sri Lanka, Hawaii (an undescribed species) and Australia. The Eatoniellidae reaches its greatest numbers in New Zealand (43 Recent species) and southern Australia (18 Recent species), there being only 3 species known from tropical Australia, and only one of these appears to be widespread.

The family is characterised by a simple, usually ovate-conical or conical shell with a strongly retracted outer lip, horny operculum bearing a peg, open male and female pallial genital ducts and the aphallate condition of the male. The animal has a simple foot with 0-2 tentacles on the opercular lobe and a posterior mucous-slit in the sole. The cephalic tentacles are long, simple, tapering and lash about as the animal crawls.

Records of The Australian Museum, 1977, **Vol. 31 No. 15**, 606-658, Figures 1-14.

[Published October 1978, Editor]

These animals are abundant in the lower littoral and shallow sublittoral zones, where they live mostly on algae, and a few species live on the continental shelf.

Golikov and Starobogatov (1975) have transferred the Eatoniellidae from the Littorinacea where it was placed by Ponder (1968) to the Cerithiacea (=Cerithioidea of their usage). They give no reasons for transferring the family except that it is "on the basis of Ponder's (1965, 1968) anatomical findings." In our view the presence of "oesophageal" (=buccal) pouches and an oesophageal gland, and the absence of a crystalline style and of strongly dimorphic sperm favour the placement of the Eatoniellidae with the Littorinacea.

The present revision is concerned with describing the Australian species currently in hand. Inadequate material of a number of additional species is also held but no further mention of these will be made herein. A few fossil specimens were available for examination but only one species has been included in this revision. The unidentifiable remainder are mostly single specimens in poor condition.

A key to the Recent species is given below and is based on shell features (including colour) and, in a few cases, the colour of the operculum.

MATERIAL AND METHODS

Most of the specimens used in this study were obtained from littoral or sublittoral samples washed from algae or from beneath stones. These "washings" were usually fixed in 10% neutral formalin and later preserved in 5% neutral formalin and/or dried. Other material was obtained from dredge samples. All samples were sorted beneath a stereomicroscope and the species initially separated mostly on shell characters. The radula was obtained by macerating the animal, after its removal from the shell, in concentrated, warm NaOH, and this was then washed thoroughly in distilled water. It was then mounted wet on to a piece of microscope-slide cover slip and this fixed to a scanning electron microscope (S.E.M.) stub by double-sided tape. The radula dried on to the glass with sufficient tenacity so that no additional adhesion was required. The operculum of each specimen was also mounted in the same way or directly to the double-sided tape. A shell was selected that best matched the one(s) crushed and this was mounted on the double sided tape on the same stub as the radula and operculum. In many cases more than one radula and operculum were examined from one population. The specimens were coated, usually with gold, and examined and photographed with the scanning electron microscope.

The S.E.M. stubs were given registered numbers (S.E.M. stub no.) and these are referred to in the text. All of this material, and other material referred to in the text, is housed in The Australian Museum collections unless otherwise stated.

Most of the material included in this revision was collected alive although a few species can be readily identified as "dead" shells.

ABBREVIATIONS

A.M. ..... Australian Museum, Sydney.
B.M.N.H. ..... British Museum (Natural History), London.
coll. ..... Collected by.
Coll. ..... Collection.
H.U.M. ..... Humboldt University Zoologischen Museum, E. Berlin.
N.M.V. ..... National Museum of Victoria, Melbourne.
N.S.W. ..... New South Wales.
P.M. ..... Museum National d'Histoire Naturelle, Paris.
Qld. ..... Queensland.
Q.M. ..... Queensland Museum, Brisbane.

S.A. ..... South Australia.
S.A.M. ..... South Australian Museum, Adelaide.
S.A.M.D. ..... Department of Mines, South Australia.
S.E.M. ..... Scanning Electron Microscope.
sev. ..... Several.
S.W.A. ..... South Western Australia.
Tasm. ..... Tasmania.
T.M. ..... Tasmanian Museum, Hobart.
U.S.N.M. ..... National Museum of Natural History, Smithsonian Institution, Washington, D.C.
Vic. ..... Victoria.
w ..... Used in material examined to indicate the number of "wet" (i.e. formalin preserved) specimens.
W.A. ..... Western Australia.
W.A.M. ..... Western Australian Museum, Perth.
Note: In the locality data, and sometimes elsewhere, compass points (north, south, etc.) are abbreviated to N., S., etc.

TERMINOLOGY

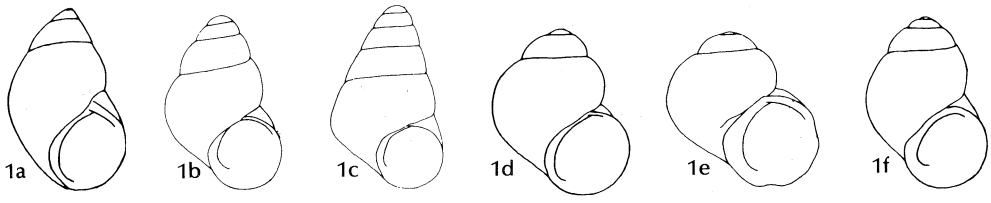
The terminology employed in the shell description follows that of Ponder and Yoo (1976) and in the description of the radula, operculum and animal it is based on Ponder (1965). Descriptions of the radula are abbreviated to a partial formula; the number of cusps for each tooth is indicated by figures (eg. 2 + 1 + 2; in this example there are 4 secondary cusps, 2 on each side of the single primary cusp [= median cusp on central teeth]). The numbers of denticles (tertiary cusps) are shown in parentheses (eg. (1) 2 + 1 + 2 (1), which indicates that there is a denticle on the outer side of the outermost secondary cusp on both sides of the tooth).

The operculum has a columellar edge (that edge facing the columella when the operculum is within the aperture), and the opposite edge is called the outer edge. It also bears a conspicuous peg arising from the nucleus of the opercular coil. Many species have an opaque muscle insertion area on the inner face which is readily distinguishable from the remainder of the translucent or transparent operculum.

KEY TO RECENT AUSTRALIAN SPECIES OF EATONIELLIDAE

This key is designed for use with material that has been collected alive, although, in some instances, it can be used with well-preserved "dead" specimens. The main problems in correctly using this key and in working with eatoniellids often lie in the subtle differences between species, and this necessitates considerable care in the initial sorting of the material. Another cause of difficulty will be the initial incorrect identification of various rissoaceans as eatoniellids.

1. (a) Shell ovate to conical (1a-c) 2
   (b) Shell depressed (1d-f) 17

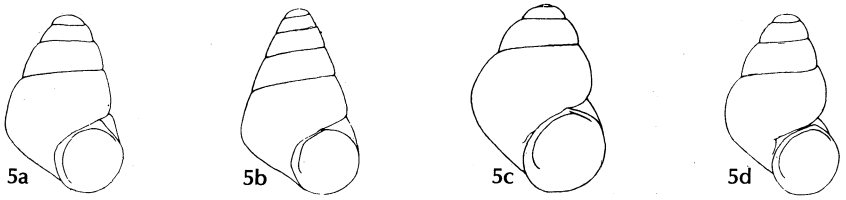


2. (a) Shell uniformly purplish-black, or with purplish-black aperture 3
   (b) Shell colourless, white, grey, yellow, orange or brown 4

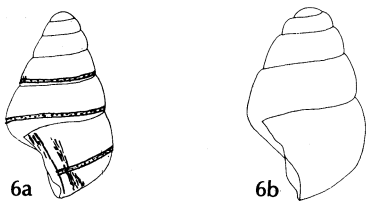
3. (a) Shell over 1.4 mm in length; operculum grey, black and yellow .....
   .....*Eatoniella (Eatoniella) melanochroma*
   (b) Shell less than 1.4 mm in length; operculum yellow .....
   .....*Eatoniella (Eatoniella) atrella*

4. (a) Shell brownish; operculum red-brown .....*Eatoniella (Eatoniella) fulva*
   (b) Shell colourless, white, yellow, grey or orange; operculum not red-brown. 5

5. (a) Shell with distinctly subangled periphery (5a, b) 6
   (b) Shell with evenly rounded periphery (5c, d) 7

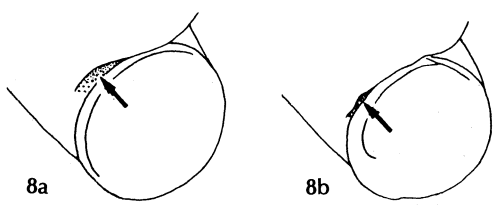


6. (a) Shell uniformly white or white with yellow or orange spiral bands; aperture with distinct varix (6a).....*Crassitoniella erratica erratica*
   (b) Shell white to orange, often with white axial streaks; aperture without distinct varix (6b).....*Crassitoniella flammea*



7. (a) Shell usually with umbilical chink, white or spotted..... 8
   (b) Shell without distinct umbilical chink, white, yellow-brown, yellow or pale grey..... 9

8. (a) Shell usually with umbilical chink, white or spotted; operculum yellow, white, grey or brown (8a)..... 10
   (b) Shell without distinct umbilical chink, yellow-brown, yellow or pale grey; operculum yellow and grey to black (8b) ...*Eatoniella (Eatoniella) galbinia*



9. (a) Shell more than 1mm in length, yellow-brown, yellow or pale grey; operculum yellow and grey to black .....*Eatoniella (Eatoniella) galbinia*
   (b) Shell less than 1mm in length, white; operculum white
   .....*Eatoniella (Eatoniella) talboti*

10. (a) Shell more or less uniformly coloured or banded 11
    (b) Shell with opaque-white base and usually with rows of spots ..... *Eatoniella (Eatoniella) australiensis*

11. (a) Shell white or colourless 12
    (b) Shell with 2 pink bands ..... *Eatoniella (Eatoniella) hewittae*

12. (a) Shell white, greater than 1.3mm in length 13
    (b) Shell white or colourless, less than 1.3mm in length 14

13. (a) Shell white; operculum yellow ..... *Eatoniella (Eatoniella) taylorae*
    (b) Shell white; operculum yellow and grey or brown ..... *Eatoniella (Eatoniella) victoriae*

14. (a) Shell solid, with evenly retracted, internally thickened outer lip 15
    (b) Shell thin to fragile with bisinuate, thin outer lip 16

15. (a) Shell opaque-white ..... *Eatoniella (Albosabula) pellucida*
    (b) Shell translucent, colourless ..... *Eatoniella (Eatoniella) juliae*

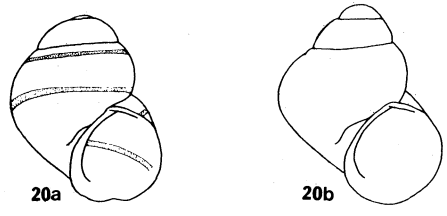
16. (a) Shell fragile, white; aperture expanded ..... *Eatoniella (Eatoniella) exigua*
    (b) Shell thin, white to yellow, often with 1-2 pink bands; aperture large but not expanded ..... *Eatoniella (Eatoniella) puniceolinea*

17. (a) Shell with uniformly red-purple or pink inner lip 18
    (b) Shell with white to grey inner lip 20

18. (a) Shell with pink band ..... *Eatoniella (Eatoniella) howensis*
    (b) Shell (excluding aperture) more or less uniformly coloured 19

19. (a) Shell (excluding aperture) colourless ..... *Eatoniella (Eatoniella) ansonae*
    (b) Shell pink to purple ..... *Eatoniella (Eatoniella) atropurpurea*

20. (a) Shell with convex spire outline (20a) 21
    (b) Shell with almost straight spire outline (20b) ..... *Eatoniella (Eatoniella) shepherdi*



20a 20b

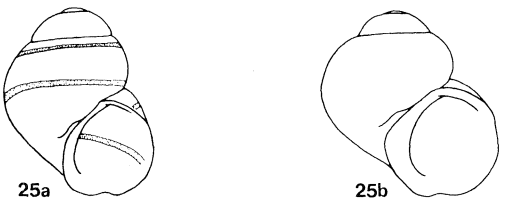
21. (a) Shell ovate, with medium spire (about equal to or greater than height of aperture), uniformly coloured; body whorl not greatly inflated 22
    (b) Shell depressed-ovate, with short spire (less than height of aperture), sometimes with pink bands; body whorl markedly inflated 25

22. (a) Shell white or spotted, with umbilical chink; operculum yellow 23
    (b) Shell yellow-brown, yellow or pale grey, without distinct umbilical chink; operculum yellow and grey to black ..... *Eatoniella (Eatoniella) galbinia*

23. (a) Shell with opaque white base and usually with spots ..... *Eatoniella (Eatoniella) australiensis*
    (b) Shell uniformly white 24

24. (a) Shell with bisinuate outer lip, thin, less than 1.2mm in length..... .....*Eatoniella (Eatoniella) exigua*
(b) Shell with simple outer lip, moderately solid, more than 1.4mm in length .....*Eatoniella (Eatoniella) taylorae*

25. (a) Shell yellowish, usually with pink bands, spire moderately short (25a)..... .....*Eatoniella (Eatoniella) puniceolinea*
(b) Shell uniformly whitish, spire very short (25b)..... .....*Eatoniella (Eatoniella) depressa*



TAXONOMY

Superfamily **LITTORINACEA**

Family **Eatoniellidae** Ponder, 1965

DIAGNOSIS. Shell small to minute, depressed-ovate to conical, with D-shaped to circular aperture; outer lip excavated; surface usually smooth or (rarely) with spiral lirae; protoconch smooth, simple, paucispiral. Animal: foot simple, with 0-2 short tentacles on opercular lobes, and a posterior mucous-slit in sole; cephalic tentacles long, tapering, with eyes at outer bases; snout moderately long; sexes separate; pallial genital ducts open; male aphallate; oesophageal pouches and oesophageal gland present. Operculum horny, rather solid, often rigid, with a peg emerging from the eccentric, marginal nucleus. Radula taenioglossan with moderately large, approximately square, central teeth bearing few cusps and 1-2 basal or latero-basal processes; lateral teeth short, approximately rectangular, with few moderately large cusps; inner marginal teeth narrow, curved, with larger and fewer cusps than outer marginal teeth. Jaw a series of chitinous rods.

Genus **Eatoniella** Dall, 1876 (nom. nov. pro *Eatonia* Smith, 1875, non Hall, 1857). Type species (subsequent designation Suter, 1913): *Rissoa kerguelenensis* Smith, 1875.

DIAGNOSIS. Shell small to minute, usually rather solid, whorls weakly to moderately convex, smooth except for growth lines and, sometimes, faint spiral serration. Animal; opercular lobe with or without a single opercular tentacle on each side. Radula; central tooth with only one latero-basal process. Operculum oval to pyriform with opaque muscle-insertion area extensive to very narrow; peg strong, curved, often grooved, set at moderate angle to surface of rest of operculum; columellar margin flat to convex, never strongly convex.

REMARKS. Two subgenera are here recognised for the Australian species, *Eatoniella* s.s. and *Albosabula* Ponder.

Subgenus **Eatoniella** s.s.

Synonyms

Dardania Hutton, 1882:147, non Stål, 1866.
Dardanula Iredale, 1915:453 (nom. nov. pro *Dardania* Hutton, 1882)

Type species (monotypy): *Dardania olivacea* Hutton, 1882.

Cerostraca Oliver, 1915:521.
Type species (original designation): *C. iredalei* Oliver, 1915.

Abscindostoma Ponder, 1965:55.
Type species (original designation): *Rissoina olivacea* var. *lutea* Suter, 1908.

Albitoniella Ponder, 1965:59.
Type species (original designation): *Dardanula pallida* Powell, 1937.

Dardaniopsis Ponder, 1965:69.
Type species (original designation): *Eatoniella (Dardaniopsis) notalabia* Ponder, 1965.

DIAGNOSIS. Shell, less than 4 mm in length. Radula with each central tooth having a straight to slightly convex basal margin between heavy latero-basal projections.

REMARKS. Ponder (1965) recognised a number of subgenera of *Eatoniella* which, while being distinctive groups within the New Zealand fauna, are not clearly defined amongst the Australian species dealt with in this revision. A simplification of the existing taxonomy is required and for this reason the names listed in the synonymy above are here considered to be synonyms of *Eatoniella*.

Eatoniella (Eatoniella) ansonae sp. nov. Figs 1a, b; 5a-f.

SHELL. minute, transparent, colourless, with purplish-pink inner lip and umbilical area. Protoconch of 1½ colourless whorls; teleoconch of 2½ moderately convex whorls. Aperture simple; inner lip broad, outer edge strongly concave, abapical portion considerably separated from base; outer lip evenly retracted. Umbilical chink small, a minute umbilicus sometimes present (figs 1a, b; 5a, b).

Dimensions	Length	Diameter
Holotype	1.10 mm	0.77 mm
Paratypes	1.04	0.70
	1.15	0.74
Figured specimens (S.E.M.) (Paratypes).	1.16	0.72
	1.02	-

OPERCULUM: typical, pale yellow, opaque; muscle insertion area spread over all surface except below peg (figs 5c, d).

RADULA: central (1) 2 + 1 + 2 (1) , lateral 2 + 1 + 2, inner marginal 2 + 1 + 1 (1), outer marginal (about 6) (one radula has a freak bifid median cusp on each central tooth) (figs 5e, f).

Opercula and radulae observed from the type locality.

ANIMAL: unpigmented except for some specimens showing some blackish pigmentation on the visceral mass which is visible through the shell (preserved material).

TYPES. Holotype A.M. (C. 102236). Paratypes (20/3w) A.M. (C. 102237), 3 W.A.M. (WAM 403-76), 2 shells, 2 opercula and 4 radulae on S.E.M. stub no. 129.

TYPE LOCALITY. Off Dunsborough, S.W.A., on *Cymodocea*, 1-2m, 24 Dec. 1971, coll. W. F. Ponder.

DISTRIBUTION AND HABITAT. Known only from the type locality (fig. 11).

REMARKS. This species is very similar to *E. (E.) atropurpurea* (Frauenfeld) which also occurs in south Western Australia although it was not collected with *E. (E.) ansonae* at the type locality. The two species both have a purplish-pink inner lip but in *E. (E.) ansonae* the remainder of the shell is colourless, whereas it is pink or purplish in *E. (E.) atropurpurea*. In addition, *E. (E.) ansonae* has a relatively taller spire than most specimens of *E. (E.) atropurpurea*. In all other respects the two species seem to be almost identical and, although it is possible that *E. (E.) ansonae* may prove to be a colourless form of *E. (E.) atropurpurea*, the complete lack of any similar colour variety throughout the range of *E. (E.) atropurpurea* suggests otherwise.

This species is named for Mrs. W. Anson of Western Australia who has kindly made much material available for study.

Eatoniella (Eatoniella) atrella sp. nov. Figs 3e, f; 9n-p.

SHELL: minute, solid, ovate-conical, black or purple-black. Protoconch of 1½ whorls, dark grey to black; teleoconch of 2-2½ weakly convex whorls, spire of moderate length, about equal in length to, or slightly greater than, length of aperture. Apertural lips slightly thickened, edge of inner lip distinctly concave, sharply raised from base abapically; outer lip evenly retracted. Umbilical chink minute or absent, non- umbilicate. Colour black to dark grey, purplish-black or pinkish-grey; outer lip with black inner rim, remainder of lip slightly paler; inner lip frequently black (figs 3e, f; 9n, o).

Dimensions	Length	Diameter
Holotype	1.23 mm	0.76 mm
Paratypes	1.12	0.72
	1.28	0.77
Figured specimens (S.E.M.) (Paratypes).	1.33	0.84
	1.18	-

OPERCULUM: opaque, (except below peg) black central area with some yellow or brown coloration.

RADULA: typical. central (1) 2 + 1 + 2 (1), lateral (1) 2 + 1 + 2, inner marginal 4 + 1 + 1, outer marginal 5 + 1 (fig. 9p).

Opercula and radulae observed from the type locality (S.E.M. stub no. 238).

ANIMAL: head-foot with black pigmentation over most of dorsal surface, white ventrally except for black edges of opercular lobes; no opercular tentacles (Eaglehawk Neck, S. Tasm.)

TYPES. Holotype A.M. (C. 102238). Paratypes (52) A.M. (C. 102239, C. 102531), 3 T.M. (E9240), 3 N.M.V. (F30004), 4 shells, 2 opercula and 3 radulae on S.E.M. stub nos. 238, 265.

TYPE LOCALITY. N. side of Black Head, Nadgee, N.S.W., on coralline algae (C. 102239) and large brown algae (C. 102531) on exposed rocks, 8 Jan. 1970, coll. W. F. Ponder & P. H. Colman.

ADDITIONAL MATERIAL EXAMINED. *S. Tasm.:* Ansons Bay, 28 Dec. 1966, coll. A. Dartnall (18) (T.M.). N. end of Pirates Bay, Eaglehawk Neck, on large brown algae, mid-shore, 2 Apr. 1970, coll W. F. Ponder (4). Pirates Bay, Eaglehawk Neck, on coralline algae (2); under stone, low tide (1), coll. W. F. Ponder. Eaglehawk Neck, 3 June 1967, coll. A. Dartnall (2) (T.M.). Fortescue Bay, E. side of Tasman Peninsula, on algae, littoral, 15 Dec. 1968, coll. A. Dartnall (4). Wedge Bay, S. Tasm., 13 m, J. Voorwinde Coll. (1). *E. Vic.:* Bastion Pt., S. tip of Mallacoota, intertidal, 19 Feb. 1973, coll. P. Hutchings (4). Red Bluff,

near Lake Tyers, E. of Lakes Entrance, on small red algae, on small exposed rocky point, 11 Jan. 1970, coll. W. F. Ponder & P. H. Colman (8/4w).

DISTRIBUTION AND HABITAT. On exposed shores, mostly on algae, in S. Tasm., southern N.S.W. and E. Vic. (fig. 12).

REMARKS. This species is very similar to *E. (E.) melanochroma* (Tate) and could be regarded as a minute form of that species except that it has a somewhat different geographical distribution, occurring in eastern Victoria where *E. (E.) melanochroma* does not appear to be found, and does not occur along the rest of the southern coast of Australia where *E. (E.) melanochroma* is prolific. It is sympatric with *E. (E.) melanochroma* in southern Tasmania, Bass Strait and in the extreme S. of N.S.W.

The new species can only be distinguished from *E. (E.) melanochroma* by its much smaller size and lack of opercular tentacles. It is similar to *E. (E.) atropurpurea* in size and is sympatric with it but can be distinguished by its taller spire, the lack of any pink or pinkish-purple coloration, the slightly different radula and the darkly pigmented operculum.

Eatoniella (Eatoniella) atropurpurea (Frauenfeld, 1867). Figs 1c-i; 5g-k.

Setia atropurpurea Frauenfeld, 1867:13, pl. 2, fig. 21; Angas, 1877:187.

Rissoa atropurpurea. — Weinkauff, 1885:186, pl. 24, f. 15, 16; Pritchard & Gatliff, 1902:105; Kesteven, 1902:206.

Rissoia (Microsetia) atropurpurea, — Tryon, 1887:355, pl. 71, fig. 1.

Rissoia (Setia) atropurpurea. — Tate, 1899:234.

Notosetia atropurpurea. — Hedley, 1918:M54; Cotton, 1944:304; Laseron, 1950:281, fig. 77.

Notosetia purpureostoma May, 1919:63, pl. 16, fig. 18; May, 1921:53; May, 1923, pl. 25, fig. 4; Cotton, 1944:304.

Notosetia fusca Laseron, 1950:280, fig. 74.

Notosetia aethiopia Laseron, 1950:280, fig. 75.

Eatoniella (Dardanula) minutocrassa Ponder, 1965:84, pl. 6, figs 13-15.

SHELL: minute, solid, short spired, semi-opaque to opaque, dark purplish-grey to grey, with large body whorl and aperture, non-umbilicate or narrowly umbilicate. Protoconch of 1½-2 colourless whorls; teleoconch of about 2 moderately to strongly convex whorls; spire outlines lightly convex. Aperture with inner lip broad, distinctly concave on its outer edge; outer lip evenly retracted. Umbilical chink distinct to absent and occasionally a very narrow umbilicus present. Colour greyish-purple when fresh, purplish-pink when dead, inner lip sometimes bright pinkish-purple; edge of outer lip darker than surrounding shell (figs 1c-i; 5g, i, j).

Dimensions	Length	Diameter	
Syntype	1.1 mm	0.75 mm	(from original description)
Holotype of *Notosetia purpureostoma*	1.0	0.8	(from original description)
Figured paratype of *Notosetia purpureostoma*	1.00	0.67	

Lectotype of			
Notosetia fusca	0.90	0.68	
Notosetia aethiopia	1.16	0.83	
Holotype of			
Eatoniella minutocrassa	0.93	0.60	(from original description)
Figured specimens			
(Forster, N.S.W.)	1.02	0.70	
(Nambucca Heads, N.S.W.)	0.86	-	
(N. Stradbroke Is., Qld)	0.80	064	

OPERCULUM: uniform pale yellow in colour, opaque, muscle insertion area over all surface above peg; internal ridge just inside columellar edge (fig. 5h).

RADULA: typical. central (1) 1-2+ 1 +2-1 (1), lateral 2 +1 +2 (1), inner marginal 3 +1 +1, outer marginal (about 8); most teeth long and sharp, primary cusp of central tooth not particularly broad (fig. 5k).

Opercula and radulae observed from Forster, N.S.W. (S.E.M. stub no. 104) and North Stradbroke Is., Qld (S.E.M. stub no. 190).

ANIMAL: unpigmented, translucent white head-foot, visceral mass black to unpigmented; no opercular tentacles (Sydney).

TYPES. Syntypes. Bondi (30+), "Botany Bay" (9), "Sidney"(=Sydney) (2), Botany Bay, ex Mohrenstern (3), Bondi, ex Mohrenstern (many), all Naturhistorisches Museum, Vienna. *N. purpureostoma.* Holotype lost from T.M., paratype in A.M. (C. 45967) and in S.A.M. *N. fusca.* Lectotype (here chosen) A.M. (C. 102535) and 9 paralectotypes (C. 102536). *N. aethiopia.* Lectotype (here chosen) A.M. (C. 102537) and 36 paralectotypes (C. 102538). *E. (D). minutocrassa.* Holotype and paratypes Auckland Institute and Museum, paratypes N.Z. Geological Survey, Canterbury Museum, Christchurch, and National Museum of New Zealand.

TYPE LOCALITIES. *S. atropurpurea.* See above. All Sydney area, N.S.W. *N. purpureostoma.* Penguin, N. Tasm., in shell sand. *N. fusca.* North Harbour, Sydney, N.S.W., on algae. *N. aethiopia.* North Harbour, Sydney, N.S.W., amongst *Galeolaria* tubes. *E. (D.) minutocrassa.* Goat Island Bay, Leigh, New Zealand, in *Corallina.*

ADDITIONAL MATERIAL EXAMINED. *S. Qld:* Noosa Heads (4). Caloundra (2). *N. Stradbroke Is.;* Shag Rock, on algae, 4-9m (9/10); Wreck 4.8 km off Amity Pt., on algae, 0-4m (10); S. end of Flat Rock, on algae, 21-27m (2); Off Flat Rock, on algae, 24-30m (6/3w); N.W. side of Pt. Lookout, on short red algae, low tide, S.E.M. stub no. 190 (55/50w). Moreton Bay (9). *N.S.W.:* Ballina, on algae (3). S.W. of Solitary Is., 15m (14). Nambucca Heads, on algae, low tide, S.E.M. stub no. 96 (40/32w). S. side of Fish Rock, 3km E. of Smoky Cape, on algae, 18m (1). Off Crowdy Head, 91m (3). Forster, on algae, low tide (4/3w); on coralline algae, on boulder beach, S.E.M. stub no. 104 (20/60w). Fingal Bay, Port Stephens (65). Off Patonga Beach, Broken Bay (1). *Sydney:* Collaroy Beach (23); N.E. end of Long Reef, Collaroy, on algae, low tide (10), on *Galeolaria,* low tide (7/8w); Long Reef, Collaroy, on algae, low tide (3), on short brown algae, low tide (1w), on *Galeolaria,* low tide (3w); North Harbour (10); Fairlight (5), on coralline algae, low tide (1), on short algae, low tide (5w); Wyargine Pt., Middle Harbour, on small algae (29); The Spit, Middle Harbour (3); Balmoral, on coralline and small red algae (4w), 11-15m (1); Off Chinamans Beach, Middle Harbour (28); Bottle & Glass Rocks (40); Sydney Harbour, 2 lots (40); Sow and Pigs Reef (16), 11-16m (30), 9m, 3 lots (40); Watsons Bay, 7m (1); Little Coogee Bay, 6 lots (75); Ocean Beach, Cronulla (1); Werri Beach (14). Honeymoon Beach, Jervis Bay,

under stones, low tide (8/5w). Ulladulla (3). S. side of Ulladulla, on small brown algae, low tide (5); on coralline algae, low tide (5); on medium brown algae, low tide (1). Wimbie Beach, Batemans Bay, on exposed rocks, low tide, on coralline algae (11); on large brown algae (6); under stones (27). Bitangabee, N. side of Green Cape, on coralline algae in sheltered pool, high exposure (11). Green Cape, Disaster Bay, under stones, 15m (17). S. side of Green Cape, on algae, vertical rock faces, 16m (2); on coralline and red algae, low to mid tide (1); on coralline algae, 10m (16). *N. Tasm.:* Bass Strait; Deal Is., on algae, 6m (8); Murray Pass., Deal Is., on algae, 2 lots, 30-50m (14/5w); Little Squally Cove, Deal Is., on algae, 10-30m (2); East Cove, Deal Is., 6-15m (7). Just W. of Cape Barren Is., 34m (1) (T.M). Boat Harbour, on coralline algae in pools (1). *E. Tasm.:* S. of Cape Lodi, 28m (7). Green Cape, Maria Is., on algae, 6m (4). *S. Tasm.;* Pirates Bay, Eaglehawk Neck, low tide, under stones (13), on *Caulerpa* (1), on coralline algae (4), on brown algae (1w). Primrose Pt., E. side of Frederick Henry Bay, on coralline algae, low tide (21). Off Fluted Cape, Bruny Is., on algae, 7-10m (10). Nubeena, Wedge Bay, 7m (1). *Vic.:* E.S.E. side of Gabo Is., on algae, 28m (15/3w). Monumental Bay, Gabo Is., on algae, 15-18m (6). Gabo Is., 26m (1). Bastion Pt., S. tip of Mallacoota, intertidal (7). Pt. Hicks, Cape Everard, *Phyllospora* holdfast (2). Red Bluff, near Lake Tyers, E. of Lakes Entrance, on small red algae (5/3w). Western Port (sev) (N.M.V.). Pt. Lonsdale, on coralline algae in pools (2), under stones, low tide (1). Port Fairy, on short algae, mid-tide (1), on coralline algae (3). *S.A.:* Off Middle Pt., Cape Northumberland, on red algae, 38m (3), on algae, 13m (3). Tumby Bay (25). Waldegrave Is., on algae, 1m (3). West Is., Nuyts Archipelago, 'kelp' holdfasts, 0-12m (2). *S.W.A.:* Mississippi Bay, on algae, 0-2m (52). Cape Naturaliste (11). *W.A.:* W. side Carnac Is., off Fremantle, on algae, 4-8m (13/8w). S.W. end of Garden Is., off Fremantle, on algae (1). Protected reef off North Pt., Rottnest Is., on coralline algae (1).

DISTRIBUTION AND HABITAT. Southern Qld, S. to Tasm. and W. to mid W.A. Abundant on algae, under stones, in crevices, amongst *Galeolaria* etc. in the intertidal zone in N.S.W, and also found on algae in the sublittoral. Less common in the southern and western parts of its range (fig. 13). Also found throughout New Zealand and the Chatham Islands (Ponder, 1965).

REMARKS. This species is rather variable both in shape and height of the spire (cf. figs 5g, j) and in the intensity of coloration. Paratype specimens of *Notosetia purpureostoma* have been examined (the holotype being lost) and agree exactly with N.S.W. material of *E. (E.) atropurpurea*. Some Tasmanian specimens do, however, reach a slightly larger size than the mainland populations. New Zealand specimens agree with Australian material very closely and no reasons for maintaining separate species identity can be found. Laseron's two species names *fusca* and *aethiopia* are based on specimens which are encompassed within the range of variation of *E. (E.) atropurpurea* in the Sydney area, the former being a small variety and the latter a large variety.

The species is easily recognised by its minute size, generally uniformly dark-coloured, rather solid shell which has a pinkish or purplish, rather heavy inner lip and short spire. It is very abundant in N.S.W. in the middle to lower intertidal zone where it is found mainly on algae and amongst *Galeolaria* tubes.

This species is one of a group of apparently closely related species which includes *E. (E.) ansonae* nov., *E. (E.) howensis* nov., *E. (E.) talboti* nov., and *E. (E.) shepherdi* nov. *E. (E.) atropurpurea* differs from all of these species in its uniform purple to pink coloration and it is larger than *E. (E.) howensis* and is usually smaller than *E. (E.) shepherdi*.

Eatoniella (Eatoniella) australiensis (Thiele, 1930). Figs 2i-k; 7j-l.

Cingula (Pseudosetia) australiensis Thiele, 1930:570, fig. 5.

Lucidestea maculosa Laseron, 1956:450, fig. 172.

SHELL: minute, ovate-conical, rather thin, translucent, very pale yellowish or dirty white, with 2 spiral rows of red-brown and dense-white spots. Protoconch of 1½ whorls; teleoconch of about 2½ weak to moderately convex whorls; spire of moderate height, although somewhat variable, outlines slightly convex. Aperture rather large, inner lip very narrow, separated from parietal area by a narrow groove; outer lip usually evenly retracted. Umbilical chink small, distinct, umbilicus very narrow or absent. Colour translucent pale yellowish-brown to dirty white with a row of spots at periphery and abapical to suture; spots chevron-shaped to rectangular and made up of smaller red-brown series alternating with dense white series; peripheral row of red-brown spots often double, lower on adapical part of base; occasional specimens with no spots or 1-2 pale purplish bands in place of the rows of spots; columellar-umbilical region dense white (figs 2i-k; 7j, l).

Dimensions	Length	Diameter	
Holotype	1.5 mm	1.0 mm	(from original description)
Holotype of *Lucidestea maculosa*	1.27	0.80	
Figured specimens (S.E.M.)			
(Garden Is., W.A.)	1.54	1.03	
(Exmouth, W.A.)	1.20	0.70	

OPERCULUM: opaque pale yellowish-white, muscle insertion area over most of surface; typical in structure with very weak ridge just inside margin of columellar edge (fig. 7k).

RADULA: central (1) 2 + 1 + 2 (1), lateral (1) * 2 + 1 + 2 (1), inner marginal 3 + 1 + 1, outer marginal (about 7). (*denticle only in Shark Bay specimen).

Opercula and radulae observed from Exmouth, W.A. (S.E.M. stub no. 98) and Garden Is., W.A. (S.E.M. stub no. 136).

ANIMAL: head and sides of foot (including dorsal side of opercular lobes) pale to dark brownish, ventral snout and sole white; no tentacles on opercular lobes (Lizard Is., Qld).

TYPES. Holotype, H.U.M. (67446). *Lucidestea maculosa*. Holotype A.M. (C. 102532), paratypes (10) A.M. (C. 102240).

TYPE LOCALITY. *C. australiensis*. Cockburn Sound, W.A., 15-18m (Michaelsen and Hartmeyer stn 48). *L. maculosa*. Lindeman Is., Qld, on algae.

ADDITIONAL MATERIAL EXAMINED. *Papua New Guinea:* Port Moresby (1). *New Caledonia:* Croissant Reef, off Noumea, coral rubble and algae, 0-1m (1). W. side of Ile Signal, off Noumea, on algae, 0-2m, on sandy and dead coral bottom (1). *Qld:* Lizard Is. (sev). Headland between Kings and Queens Beaches, Bowen (15). Lindeman Is., on algae, 3 lots (11). Curtis Is., off Gladstone (4). Facing Is. (8). *S.W.A.:* South Cowaramup (5). *W.A.:* Pt. Peron, S. of Fremantle, 4m (8). W. side Carnac Is., off Fremantle, on algae, low tide (4). S.W. end of Garden Is., off Fremantle, in shell sand (7); on algae, S.E.M. stub no. 136 (36/22w). Triggs, near Perth, on brown and red algae, 0-2m (4). Cottesloe Beach, 9km W. of Perth, on calcareous algae, 0.5m (4). W. end of Thomson Bay, Rottnest Is., on algae, 0-2m (1). W. end reef, Rottnest Is, on *Lithothamnion* on intertidal reef edge (12). Protected reef off North Pt., Rottnest Is., on coralline algae (15). Green River mouth (sev). Port Denison, 65km S. of Geraldton, on algae, 0-2m (2). Horrocks Beach, N. of Geraldton, on algae (9/6w). Denham, Shark Bay, on short algae, below low tide, on flat

4-8km out of township (4/2w). 16km N. of Denham, Shark Bay (5). E. side of Exmouth, on algae, low tide, S.E.M. stub no. 98 (10/6w). Turtle Beach, W. side of N.W. Cape (24). 27km S. of Exmouth, on brown algae (sev). Just S. of wreck of S.S. "Mildura", N.W. Cape, on limestone reef platform, 0-2m (20/14w). Warroora, S. of N.W. Cape, on green algae, low tide (16). Archer Is., off Onslow, on short brown algae, 1-2m (1).

DISTRIBUTION AND HABITAT. Papua New Guinea, New Caledonia, Qld and W.A. on algae in the intertidal and sublittoral (fig. 11).

REMARKS. This species is easily distinguished by its colour pattern. There is some variation in size, outline (cf. figs 7j, l) and in the details of the colour pattern, the spiral rows of dots being variable in form and intensity and occasionally are virtually absent. It does not appear to be closely related to any other known species.

The holotype is somewhat unusual in having a weakly bisinuate outer lip. The peripheral row of white spots noted by Thiele in his description and shown in his figure have faded so that they appear to be almost absent.

Eatoniella maculosa Ponder, 1965 from New Zealand is a secondary homonym of *Lucidestea maculosa* even though the latter species name is in synonymy. We therefore provide the replacement name *Eatoniella (Eatoniella) notata* nom. nov. for *E. maculosa* Ponder, 1965, non *E. maculosa* (Laseron, 1956).

Eatoniella (Eatoniella) depressa sp. nov. Figs 1l, m;6a-c.

SHELL: minute, with depressed spire, non-umbilicate or narrowly umbilicate, with relatively very large body whorl and aperture, yellowish-white, semi-translucent. Protoconch of 1½ whorls; teleoconch of about 1½ convex whorls, the last making up majority of the shell; spire outlines convex. Inner lip with a concave outer edge; outer lip strongly retracted, frequently weakly bisinuate, Umbilicus, when present, narrow, rather indistinct. Colour translucent yellowish or greyish-white (figs 1l, m; 6a, b).

Dimensions	Length	Diameter
Holotype	1.04 mm	0.96 mm
Paratypes	1.00	0.86
	0.98	0.85
Figured specimens (S.E.M.) (Paratypes)	1.04	0.94
	1.00	-

OPERCULUM: typical, mostly transparent pale yellowish; opercular lobes when pigmented show through as black edge to operculum; a very weak ridge immediately inside columellar edge; muscle insertion area pale yellowish-white, occupying about 1/3 of area immediately inside columellar edge (fig. 6c).

RADULA: typical, central (1) 2 + 1 + 2 (1), lateral 2 + 1 + 2 (1), inner marginal 2 + 1 (1), outer marginal (about 7); primary cusps of central and inner marginal teeth rather broad and blunt.

Opercula and radulae observed from the type locality and Point Grey, Lorne, Vic. (S.E.M. stub no. 272).

ANIMAL: head-foot translucent white, often with some grey to black pigment dorsally and on opercular lobes; visceral mass brown with variable amounts of black pigment and is easily seen through shell but sometimes completely black although

usually pigment in streaks (mostly axial) on body whorl and more uniform on spire. No opercular tentacles (Eaglehawk Neck, S. Tasmania).

TYPES. Holotype A.M.(C.102241). Paratypes (51) A.M. (C.102242), 3 T.M. (E9241), 3 N.M.V. (F30005), 3 S.A.M. (D. 15252), 2 shells, 2 opercula, 3 radulae on S. E.M. stub no. 99.

TYPE LOCALITY. Moonlight Beach, W. of Cape Otway, Vic., on algae on rock platform, 11 Mar. 1973, coll. Marine Study Group.

ADDITIONAL MATERIAL EXAMINED. *N.S.W.:* On exposed side of Wimbie Beach, Batemans Bay, on coralline algae, on fairly exposed rocks, 6 Jan. 1970, coll. W. F. Ponder and P. H. Colman (5). Bitangabee, N. side of Green Cape, on coralline algae in sheltered pool, 13 Feb. 1973, coll. W. F. Ponder (15). S. end of Green Cape, N.S.W., on algae, exposed coast, 2-4m, 13 Feb. 1973., coll. W. F. Ponder (6). S. side of Green Cape, on coralline algae, 10m, 13 Feb. 1973, coll. P. Hutchings (4). N. side of Black Head, Nadgee, on large brown algae, on exposed rocks, 8 Jan. 1970, coll. W. F. Ponder and P. H. Colman (7). *N. Tasm.:* East Cove, Deal Is., Bass Strait, 6-15m, 3-10 May 1974, coll. S. A. Shepherd (1). Boat Harbour, on brown algae, 19 Mar. 1975, coll. W. F. Ponder and R. Kershaw (4). *S. Tasm.:* N. end of Pirates Bay, Eaglehawk Neck, on large brown algae, low tide, 2 Apr. 1970, coll. W. F. Ponder (11). Pirates Bay, Eaglehawk Neck, under stones, low tide, 2 Apr. 1970, coll. W. F. Ponder (2). S.E. Pirates Bay, Eaglehawk Neck, on brown algae, 31 Mar. 1970, coll. W. F. Ponder (18). *Vic.:* Bastion Pt., S. tip of Mallocoota, intertidal, 19 Feb. 1973, coll. P. Hutchings (12). Western Port, Gatliff Coll. (sev) (N.M.V.). Honeysuckle Pt., Shoreham, on rocks and algae, 23 Apr. 1973, pres. N.M.V. (5). Shoreham, Gatliff Coll. (sev) (N.M.V.). Portsea, Vic., Gatliff Coll. (sev) (N.M.V.). Pt. Lonsdale, on coralline algae in pools (5), under stones in pools (2), on large brown algae (2), on short algae, exposed edge of platform (20), 22 Mar. 1975, coll. W. F. Ponder and R. Burn. Anglesea, in sand, coll. T. S. Hall, Gatliff Coll. (1), (N.M.V.). Pt. Grey, Lorne, on exposed brown algae, 23 Mar. 1975, coll. W. F. Ponder and R. Burn, S.E.M. stub no. 272 (40). Port Fairy, 4km W. of town, 2 lots, on brown algae (1), on coralline algae (6), 19 Aug. 1973, coll. W. F. Ponder and R. Burn. *S.A.:* Tumby Bay, in shell sand, coll. J. Thompson, 2 lots (4). Waldegrave Is., on algae, 1m, 25 Oct. 1973, coll. S.A. Shepherd (3). Near Salmon Pt., Elliston Bay, on *Cystophora,* 1m, Oct. 1973, coll. S. A. Shepherd (3). *S.W.A.:* Mississippi Bay, 48km E. of Esperance, on algae, on sheltered side of west head of bay, 0-2m, 6 Feb. 1972, coll. W. F. Ponder (4).

DISTRIBUTION AND HABITAT. Southern N.S.W., Tasm. and the S. coast to S.W.A. Usually on exposed shores on algae (fig. 11).

REMARKS. This species is distinctive with its very low spire and black visceral mass. It is somewhat similar to species of *Skenella* Martens and Pfeffer, 1886, in general form, although not so depressed, but has an operculum typical of the genus *Eatoniella*. *E. (E.) depressa* does not appear to be closely allied to any other described species of *Eatoniella*.

Specimens of this species in the N.M.V. (Gatliff Coll.) are identified as *Cirsonella translucida* (May), a much larger species of uncertain affinities and certainly not an eatoniellid.

Eatoniella (Eatoniella) exigua sp. nov. Figs 2c, d; 6k-n.

SHELL: minute, ovate, translucent-white, thin, with rather swollen body whorl and large aperture. Protoconch of 1¾ colourless whorls; teleoconch of about 2 convex whorls; spire outlines moderately convex. Aperture large; inner lip narrow, strongly concave on its outer edge, separated from base in its abapical portion; outer lip distinctly bisinuate. Umbilical chink small, distinct, umbilicus minute or absent (figs. 2c, d; 6k-m).

Dimensions	Length	Diameter
Holotype	0.98mm	0.68mm
Paratypes	0.98	0.70
	0.94	0.65
Figured specimens (S.E.M.)		
(Paratypes)	1.03	0.68
	0.98	-
(Deal Is., Tasm.)	0.92	0.65

OPERCULUM: pale yellowish, transparent, a separate muscle insertion area not visible; a weak ridge on columellar edge, peg narrower than typical.

RADULA: central 2 + 1 + 2, lateral 2 + 1 + 3, inner marginal 6 + 1 (1), outer marginal (about 6) (fig. 6n).

Operculum and radula observed from Deal Is., Tasm. (S.E.M. stub no. 128) and operculum from the type locality.

ANIMAL: head-foot unpigmented; visceral mass whitish-yellow to dark grey marbled with black; mantle often marbled with black; animal easily visible through shell (preserved material).

TYPES. Holotype A.M. (C. 102243). Paratypes (9) A.M. (C. 102244). 2 shells and 1 operculum on S.E.M. stub no. 265.

TYPE LOCALITY. S. end of Green Cape, N.S.W., on algae, on exposed coast, 2-4m, 13 Feb. 1973, coll. W. F. Ponder.

ADDITIONAL MATERIAL EXAMINED. *N. Tasm.:* East Cove, Deal Is., Bass Strait, 6-15m, 3-10 May 1974, coll. S. A. Shepherd, S.E.M. stub no. 128 (2/2w). Deal Is., Bass Strait, on algae, 6m, 6 May 1974, coll. S. A. Shepherd (3). *E. Tasm.:* Green Cape, Maria Is., on sublittoral algae, 6m, 26 Mar. 1970, coll. W. F. Ponder and D. C. Wolfe (2). *S. Tasm.:* N. end Pirates Bay, Eaglehawk Neck, low tide, on large brown algae (5); *Lessonia* holdfasts (1), 2 Apr. 1970, coll. W. F. Ponder. Pirates Bay, Eaglehawk Neck, low tide, under stones (3/2w); S. E. side, on brown algae (1/2w), 2 Apr. 1970, coll. W. F. Ponder. Fossil Is., Eaglehawk Neck, 3 June 1967, coll. A. Dartnall (3) (T.M.). *Vic.:* Ocean platform, Flinders on stones and algae in rock pools, low tide, 4 May 1967, coll. B. J. Smith (10w). Western Port, Vic., Gatliff Coll. (2) (N.M.V.). Pt. Lonsdale, on short algae (13); on large brown algae (4); on exposed brown algae (6), 23 Mar. 1975, coll. W. F. Ponder and R. Burn. Pt. Grey, Lorne, on exposed brown algae, 23 Mar. 1975, coll. W. F. Ponder and R. Burn (7w). Moonlight Beach, W. of Cape Otway, on algae on rock platform, 11 Mar. 1973, coll. Marine Study Group (6/3w). *S.A.:* Off Middle Pt., near Cape Northumberland, on algae, 13m (2); 600m from shore, 6m (40/20w), 19 Mar. 1974, coll. S. A. Shepherd. Elliston, on algae, 0-5m, Feb. 1974, coll. V. Taylor (2). *S.W.A.:* Mississippi Bay, 48km E. of Esperance, on sheltered side of west head of bay, 0-2m, on algae, 6 Feb. 1972, coll. W. F. Ponder (5). Bunker Bay, 11km W. of Dunsborough, on short algae, 0-3m, semi-sheltered open coast, 24 Dec. 1971, coll. W. F. Ponder and B. R. Wilson (1).

DISTRIBUTION AND HABITAT. Southern N.S.W., Bass Strait, Tasm., and the S. coast to S.W.A. Mostly found on low tidal or sublittoral algae in rather exposed situations (fig. 12).

REMARKS. This species is easily distinguished from the other small, white species of *Eatoniella* by its minute size, thin shell and strongly bisinuate outer lip. It is not closely allied to any other described species of *Eatoniella*. There is some variation in the relative length of the spire (cf. figs. 6k-m) but otherwise the shell characters are constant.

Eatoniella (Eatoniella) fulva sp. nov. Figs 3g, h; 8a-e.

SHELL: minute, ovate-conical to conical, semi-opaque, brown, with rounded or subangled periphery, non-umbilicate. Protoconch of about 1½ whorls; teleoconch of about 2½ very slightly to moderately convex whorls; body whorl with subangled periphery; spire rather long, outlines almost straight to slightly convex. Aperture simple; inner lip very narrow; outer lip evenly and moderately retracted. Occasionally a minute umbilical chink present. Colour dark yellow-brown, last third of body whorl and sometimes lower base translucent white (figs 3g, h; 8a, b, d).

Dimensions	Length	Diameter
Holotype	1.56mm	1.00mm
Paratypes	1.52	1.04
	1.44	0.98
Figured specimens (S.E.M.)		
(Deal Is., N. Tasm.)	1.66	0.96
	1.52	—
(Hopetoun, S.W.A.)	1.43	0.92

OPERCULUM: dark red-brown, opaque; typical in structure, no internal ridge (fig. 8c).

RADULA: central (1) 1-2 + 1 + 1-2 (1), lateral 2 + 1 + 2, inner marginal 3-4 + 1 (3-5), outer marginal (7) (fig. 8e).

Opercula and radulae observed from Deal Is., N. Tasm. (S.E.M. stub no. 109) and Hopetoun Jetty, S.W.A. (S.E.M. stub no. 182).

ANIMAL: not observed.

TYPES. Holotype A.M. (C. 102245). Paratypes (13) A.M. (C. 102246).

TYPE LOCALITY. South Pt., S. of Two Peoples Bay, near Albany, S.W.A., on algae on exposed shore, 3 Feb. 1972, coll. W. F. Ponder.

ADDITIONAL MATERIAL EXAMINED. *N. Tasm.:* Bass Strait; Deal Is., on algae , 6m, 6 May 1974, coll. S. A. Shepherd (7/9w); Murray Pass., Deal Is., on algae, 30-50m, 9 May 1974, coll. S. A. Shepherd (13/2w); East Cove, Deal Is., 6-15m, 3-10 May 1974, coll. S. A. Shepherd, S.E.M. stub no. 109 (3/5w); Little Squally Cove, Deal Is., on algae, 10-30m, coll. S. A. Shepherd (3w); E. of King Is., 46m, 30 Apr. 1973, B.M.R. stn 2163, M.T. "Sprightly" (2); S.E. of King Is., 55m, 12 Apr. 1973, B.M.R. stn 2112, M.T. "Sprightly" (1); E. of Grassy, King Is., ca. 55-77m, 23 July 1962, H.M.A.S. "Gascoyne" stn G2/68-70/62 (4).*E. Tasm.:* S. of Cape Lodi, 28m, 19 Mar. 1973, coll. P. H. Colman, B.M.R. stn 2015, M.T. "Sprightly" (15). Green Cape, Maria Is., on sublittoral algae, 6m, 26 Mar. 1970, coll. W. F. Ponder and D. C. Wolfe (10). Pirates Bay, Eaglehawk Neck, under stones, 2 Apr. 1970, coll. W. F. Ponder (1). Fossil Is., Eaglehawk Neck, 3 June 1967, coll. A. Dartnall (1) (S.A.M.). W. of West Pt., 80m, 14 Apr. 1973, B.M.R. stn 2117, M.T. "Sprightly" (2). *Vic.:* Warmeet Channel, Western Port, 4m, 15 Feb. 1969, coll. W. F. Ponder and B. J. Smith (15/7w). Pt. Leo, Western Port, Aug. 1956-Feb. 1957, coll. J. Kerslake (1). *S.A.:* Off Beachport, 73m (sev) (S.A.M.). Robe, J. C. Verco Coll. (3) (S.A.M.). W. of Cape Jaffa, 141m, H.M.A.S. "Gascoyne" stn G2/76/62 (9). Guichen Bay, J. C. Verco Coll. (1) (S.A.M.) *S. W.A.:* Mississippi Bay, 48km E. of Esperance,

on algae, 6 Feb. 1972, coll. W. F. Ponder (15). E. side of Hopetoun Jetty, on algae, W. side of sheltered limestone reef, 0-1m, 4 Feb. 1972, coll. W. F. Ponder (1). Hopetoun Jetty, semi-exposed reef and sand, 0-2m, 5 Feb. 1972, coll. W. F. Ponder, S.E.M. stub no. 182 (35/24w). King George Sound, J. C. Verco Coll. (1) (S.A.M.). *W.A.:* W. side Carnac Is., off Fremantle, on algae, 4-8m, 18 Dec. 1971, coll. W. F. and J. M. Ponder, B. R. Wilson and N. Coleman (1/2w). Sheltered part of S. side, Pt. Peron, S. of Fremantle, on algae and *Posidonia* — sand and rock substrate, 27 Jan. 1972, coll. W. F. and J. M. Ponder (2). S. W. end of Garden Is., off Fremantle, on algae, 0-3m, coll. W. F. and J. M. Ponder and N. Coleman (11/12w). W. end of Salmon Bay, Rottnest Is., on *Lithothamnion,* Aug. 1969, coll. S. Slack-Smith (1).

DISTRIBUTION AND HABITAT. Bass Strait, Tasm. and the S. coast to mid W.A., on intertidal and sublittoral algae. The records from the continental shelf refer to dead shells which have probably originated in shallower water (fig. 12).

REMARKS. This species can be distinguished from the other species of *Eatoniella* by its brown colour and red-brown operculum. The radula, too, is distinctive in having several denticles on the outer part of the cutting edge of the inner marginal teeth. Specimens from the western part of the range of this species tend to have a more depressed spire and less conical outline (figs. 3g, h; 8d) than those from Bass Strait (figs. 8a, b). The two forms, however, cannot be consistently separated.

Eatoniella (Eatoniella) galbinia (Laseron, 1950). Figs 2m, n; 8f-n.

Notosetia galbinia Laseron, 1950: 281 fig. 76.

SHELL: minute, rather short-spired, pale, translucent, yellowish to pale greyish, non-umbilicate, with relatively large body whorl and aperture. Protoconch of about 1¾ whorls, dome-shaped; teleoconch of 2½ moderately convex whorls; spire outlines moderately convex. Aperture with well-developed inner lip with a concave outer edge; outer lip strongly retracted, usually slightly to moderately sinuate, sometimes evenly curved. Colour translucent pale yellowish-brown, pale yellowish or pale greyish; lower base and inner lip often white; outer lip same colour as majority of shell (figs 2m, n; 8f-h, j, k, m).

Dimensions	Length	Diameter
Lectotype	1.30mm	0.83mm
Paralectotypes	1.32	0.95
	1.26	0.88
Figured specimens (S.E.M.)		
(North Harbour, N.S.W.)	1.33	0.94
	1.36	-
(Fairlight, N.S.W.)	1.40	0.95
	1.27	-
(Pt. Hicks, Vic.)	1.30	0.93
(Cape Otway, Vic.)	1.20	0.86

OPERCULUM: outer ⅓ and nuclear area dark grey to black, remainder pale yellowish-white, opaque; typical in structure, (figs. 8l, n) without an internal ridge; muscle insertion area over entire surface except below peg.

RADULA: typical; central (1) 2 + 1 + 2 (1), lateral 2 + 1 + 2 (1), inner marginal 4 + 1 + 1, outer marginal (about 5); teeth rather sharp and most moderately long although the secondary cusps on the central teeth are rather shorter than usual (fig. 8i).

Radulae and opercula examined from Cape Otway, Vic. (S.E.M.) stub no. 100), Pt. Hicks, Vic. (S.E.M. stub no. 126) and Fairlight, Sydney, N.S.W. (S.E.M. stub no. 102).

ANIMAL: head-foot yellowish-white except for dorsal foot which is grey to black and head (behind snout) pale grey, details somewhat variable; opercular lobes usually black, no opercular tentacles (Sydney).

TYPES. Lectotype (here chosen) A.M. (C. 102247). Paralectotypes (8) A.M. (C. 102248).

TYPE LOCALITY. North Harbour, Sydney, N.S.W., on algae.

ADDITIONAL MATERIAL EXAMINED. *N.S.W.:* Off Crowdy Head, 91m (1). Forster, on fine brown algae, low tide (5). Port Stephens (1). Little Beach, Port Stephens (3). Off Patonga Beach, Broken Bay (14). Pittwater, Broken Bay (3). *Sydney;* Narrabeen, Collaroy, on algae, 3 lots (22/18w), in shell sand (24); Manly Beach, 2 lots (8); North Harbour, 3 lots (100); Fairlight, on algae, low tide, S.E.M. stub no. 102 (11/8w), on coralline algae (1), under stones (1), on red algae, 7-11m (13/14w); N.E. side of Grotto Pt., Middle Harbour, 5-8m (1); Chinamans Beach, Middle Harbour (1); Middle Harbour (15); Balmoral, on brown algae (3w); Off Sow and Pigs Reef, 3 lots, 11-16m (14); Shark Is., (2); Port Jackson (2); Little Coogee Bay (32); Kurnell, Botany Bay (8); Simpson Bay, Port Hacking, on algae in brackish creek (1); Jibbon Pt., Port Hacking, on algae, 1-2m (13); Gunnamatta Bay, Port Hacking (3). Bass Pt., on brown algae, 20m (5). Werri Beach, (3). Huskisson (3). Honeymoon Beach, Jervis Bay, under stones, low tide (2/2w). Jervis Bay, on red algae, 5m (2). Ulladulla (24). S. side of Ulladulla, on small brown algae (5/7w), on coralline algae (5/3w). Batemans Bay, on coralline algae (20), on large brown algae (30/18w). Merimbula, brackish lake (1). Green Cape, Disaster Bay, under stones, 15m (2). S. end of Green Cape, on algae, 2-4m (50), on algae on vertical rock faces, 16m (50). *N. Tasm.: Bass Strait;* Deal Is., on algae, 6m (5); Murray Pass., Deal Is., on algae, 30-50m (18/43w); Little Squally Cove, Deal Is., 10-30m (13w). Boat Harbour, on short brown algae, 2m (32). *E. Tasm.:* Ansons Bay (2) (T.M.). S. of Cape Lodi, 28m (2). Spring Beach (5) (T.M.). Green Cape, Maria Is., on sublittoral algae, 6m (9). *S. Tasm.:* N. end of Pirates Bay, Eaglehawk Neck, on large brown algae, mid-tide (1), under stones (1), Wedge Bay, 13m (5), 7m (5). Off Fluted Cape, Bruny Is., on algae, 7-10m, (9). *W. Tasm.:* Near Granville Harbour (4) (T.M.). Marrawah (2) (T.M.). *Vic.:* Pt. Hicks (=Cape Everard), on *Phyllospora* holdfasts, 6-9m, S.E.M. stub no. 126 (6), on alcyonarian, 18m (10/7w). E.S.E. side of Gabo Is., on red algae, 28m (10/8w), in detritus, 15-18m (9/10w). San Remo, on algae (1). Honeysuckle Pt., Shoreham on rock and algae (4). Pt. Lonsdale, on short algae (3), on large brown algae (26), loose coralline algae (1). Anglesea (2) (N.M.V.). Pt. Grey, Lorne, on brown algae, low tide (9w). Moonlight Beach, W. of Cape Otway, S.E.M. stub no. 100 (30/12w).

DISTRIBUTION AND HABITAT. Very abundant in N.S. W. and common over the rest of its range (Bass Strait, Tasm, and E. Vic. to mid Vic.). On algae in a variety of exposures in the lower littoral and sublittoral (fig. 1).

REMARKS. Specimens from the vicinity of Bass Strait are generally more ovate (figs 8h, m) and tend to be greyish rather than yellowish like the typical N.S.W. form (figs 2m, n; 8f, g, j, k). The opercular and radular characters, however, do not differ between these populations so that they are considered to be conspecific.

The distinctive features of this species are the rather pale-coloured shell which is usually somewhat translucent, the rounded body whorl, the non-umbilicate base and the convex spire outlines, together with the usually bisinuate outer lip and the yellow and black operculum. *E. (E.) victoriae* nov. is probably the only species with which it can be confused, but that species is larger and has a distinct umbilical chink.

Eatoniella (Eatoniella) hewittae sp. nov. Figs 2g, h; 7m, n.

SHELL: minute, tall spired, translucent white, with 2 narrow purplish-pink bands. Protoconch colourless, of 1¾ whorls; teleoconch of about 2½ weakly convex whorls; spire rather tall, slightly greater than height of aperture, outlines very slightly convex. Aperture relatively small; inner lip narrow, rather thickened, sometimes separated from parietal area by a narrow groove; outer lip slightly bisinuate and retracted. Umbilical chink minute. Colour whitish, with 2 narrow dark purple-pink to paler orange-pink bands, one on periphery and one abapical to suture, both bands clearly visible on spire whorl (figs 2g, h; 7m).

Dimensions	Length	Diameter
Holotype	1.32 mm	0.76 mm
Paratype	1.30	0.80
Figured specimen (Carnac Is., W.A.) (S.E.M.)	1.60	0.84

OPERCULUM: typical, pale yellow in colour.

RADULA: central (1) 2 + 1 + 2 (1), lateral 3*+1*+ 2, inner marginal 5 + 1, outer marginal (about 7) (*These teeth bifurcate, presumably a freak condition. The bifurcation was ignored in the formula) (fig. 7n).

Radula observed from Carnac Is., W.A. (S.E.M. stub no. 246).

ANIMAL: not observed.

TYPES. Holotype A.M.(C. 102249). Paratypes (7) A.M. (C. 102250), 1 W.A.M. (WAM 404-76).

TYPE LOCALITY. Cape Naturaliste, S.W.A., in shell sand, Mar. 1970, coll. Mrs. J. Hewitt.

ADDITIONAL MATERIAL EXAMINED. *S.W.A.:* Ellensbrook, near Margaret River mouth, in shell sand, Jan. 1972, coll. W. Anson (1). Quininup, S.W.A., 1972, coll. J. Hewitt (6). S. of Cowaramup Bay, near Margaret River Mouth, S.W.A., in shell sand, 1972, coll. H. Baker, pres. J. Hewitt (3). Kilcarnup, N. side of Margaret River, in shell sand, 1 Jan. 1972, coll. W. F. Ponder (3). *W.A.:* W. side Carnac Is., off Fremantle, on algae, low tide, 18 Dec. 1971, coll. W. F. & J. M. Ponder, B. R. Wilson & N. Coleman, S.E.M. stub no. 246 (6). Pt. Peron, S. of Fremantle, in shell sand, 3.5m, 27 Jan. 1972, coll. W. F. & J. M. Ponder (2).

DISTRIBUTION AND HABITAT. Uncommon, mid W.A. to S.W.A. On algae in the lower littoral but probably more typical of the sublittoral (fig. 14).

REMARKS. Superficially similar to *E. (E.) puniceolinea* nov. but with a much taller spire, and relatively much smaller aperture. The radular features also separate these species. The primary type series consists of material collected from "shell-sand" and the specimens are slightly worn. The distinctive colour and shape, however, make even badly worn specimens of this species readily distinguishable.

This species is named for Mrs. J. Hewitt of Western Australia who has kindly made much material available to us for study.

Eatoniella (Eatoniella) howensis sp. nov. Figs 1p, q; 7a-c.

SHELL: superficially very similar to *E. (E.) puniceolinea* nov. but slightly smaller, with only 1 prominent median band and a narrow band at the suture. Protoconch of 1½ whorls; teleoconch of about 1¾ whorls. Inner lip of aperture rather broad, abapical portion well

separated from base; outer lip evenly retracted without indentations. Pale yellowish-brown, translucent, the band bright pink; inner lip usually pink or purple within (usually colourless or white in *E. (E.) puniceolinea);* some specimens pale purplish-pink, the band darker purple, inner lip dark purple (figs 1p,q; 7a,b).

Dimensions	Length	Diameter
Holotype	0.73 mm	0.60 mm
Paratypes	0.82	0.66
	0.74	0.60
	0.78	0.60
Figured specimens (S.E.M.) (Phillip Pt., Lord Howe Is.)	0.74	0.56
	0.82	-

OPERCULUM: pale yellowish-white, opaque over nearly all surface (due to extensive muscle insertion area), a narrow internal ridge along columellar edge (fig. 7c).

RADULA: central (1) 2 + 1 + 2 (1), marginal 2 + 1 + 2 (1), inner marginal (? 2) + 1 (1), outer marginal (about 6).

Opercula and radulae examined from off Phillip Point, Lord Howe Is. (S.E.M. stub no. 106).

ANIMAL: head-foot does not appear to be pigmented (preserved material).

TYPES. Holotype A.M. (C. 102251). Paratypes (30) A.M. (C. 102252).

TYPE LOCALITY. Lord Howe Is., outside reef, W. of Erscotts Passage, on steeply sloping bottom, 18-24m, Feb. 1973, coll. J. Randall.

ADDITIONAL MATERIAL EXAMINED. *Lord Howe Is.:* Lord Howe Is., coll. R. Bell (8); N. side of Rabbit Is., below low tide, in sheltered water, on brown algae on coral, 2 Feb. 1971, coll. P. H. Colman (2); Off Phillip Pt., Feb. 1973, coll. J. Randall, S.E.M. stub no. 106 (4/31w); Neds Beach, following storm, Feb. 1973, coll. J. Randall (4); S. W. Corner, W. of King Pt., on algae, littoral zone to 3m, in heavy surf area on rock face, 2 Feb. 1971, coll. P. H. Colman (36).

DISTRIBUTION AND HABITAT. Known only from Lord Howe Island where it occurs in the lower littoral and sublittoral on algae (fig. 11).

REMARKS. The few purple specimens available resemble *E. (E.) atropurpurea* but are smaller and they grade into the typical pink-banded form which they resemble in all other ways. The relationships of this species are with *E. (E.) atropurpurea* and possibly the New Zealand species *E. (E.) roseocincta* (Suter, 1908), rather than with *E. (E.) puniceolinea,* on the basis of the simple aperture and the opercular characters. It differs from the New Zealand species in its smaller size, shape and colour details, *E. (E.) roseocincta* being pink with white bands.

Eatoniella (Eatoniella) juliae sp. nov. Figs 2a, b; 7d-f.

SHELL: minute, rather solid, semi-translucent, colourless or with very pale yellowish tinge, ovate-conical, with rather thickened apertural lips, non-umbilicate. Protoconch of 1½-1¾ colourless whorls, teleoconch of about 2 very lightly convex whorls; spire sometimes lightly convex. Inner lip with usually concave outer edge, separated from base abapically; outer lip evenly retracted. Umbilical chink minute or absent (figs 2a, b; 7d, e).

Dimensions	Length	Diameter
Holotype	1.14 mm	0.80 mm

Paratypes	1.16	0.85
	1.20	0.80
Figured specimens (S.E.M.) (Paratypes)	1.16	0.75
	1.10	-

OPERCULUM: typical, pale yellowish, transparent; muscle insertion area usually very small, confined to a narrow strip along columellar edge, but sometimes broader (up to ⅓ of total surface area), its edge diffuse.

RADULA: central 2 + 1 + 2, lateral 2 + 1 + 2, inner marginal 2 + 1 + 1, outer marginal (? 4). All cusps sharp and rather long, median cusp on central teeth long and narrow (slightly more than 2 x length of adjacent lateral cusps) (fig. 7f).

Opercula and radulae examined from the type locality.

ANIMAL: head-foot and mantle generally unpigmented but sometimes partly grey, visceral mass white or parts of it are pigmented various shades of grey and sometimes uniformly grey (preserved material).

TYPES. Holotype A.M. (C. 102253). Paratypes (20/8w) A.M. (C. 102254), 3 S.A.M. (D. 15253), 3 W.A.M. (WAM 405-76), 10 shells, 1 operculum, 2 radulae on S.E.M.stub nos. 234, 265, 292,492, 507.

TYPE LOCALITY. Near Hopetoun Jetty, S.W.A., on algae, semi-exposed reef, 0.5-2m, 5 Feb. 1972, coll. W. F. Ponder.

ADDITIONAL MATERIAL EXAMINED. *S.A.:* Guichen Bay, J. C. Verco Coll. (1) (S.A.M.). *S.W.A.;* Mississippi Bay, 48km E. of Esperance, on sheltered side of west head of bay, 0-2m, on algae, 0-2m, 6 Feb. 1972, coll. W. F. Ponder (sev). Twilight Cove, 10km E. of Esperance, littoral, medium to high exposure, 8 Dec. 1971, coll. W. F. & J. M. Ponder (7/13w). E. side of Hopetoun Jetty, on algae, W. side of sheltered limestone reef, 0-1m, 4 Feb. 1972, coll. W. F. and J. M. Ponder (1). South Pt., S. of Two Peoples Bay, near Albany, on large brown algae, on exposed shore, 3 Feb. 1972, coll. W. F. Ponder (17). S. of Cowaramup Bay, near Margaret River mouth, coll. H.Baker, pres. J. Hewitt (1). Kilcarnup, N. side of Margaret River, in shell sand (10), on algae (42), 1 Jan. 1972, coll. W. F. Ponder. Yallingup, on limestone platform, on algae, 2 Jan. 1972, coll. W. F. Ponder and B. R. Wilson (52/34w). Cape Naturaliste, in shell sand, Mar. 1970, coll. J. Hewitt (2). N. side of Cape Naturaliste lighthouse, just below low tide, under stones, 30-31 Dec. 1971, coll. W. F. and J. M. Ponder and G. Wilson (4/4w). Bunker Bay, 11km W. of Dunsborough, on intertidal algae (9), on short algae, semi- sheltered open coast, 0-3m (10), 24 Dec. 1971, coll. W. F. Ponder and B. R. Wilson.

DISTRIBUTION AND HABITAT. S.W.A. and 1 dead specimen from S.A. which needs to be confirmed. On algae in the lower littoral and shallow sublittoral; often common (fig. 12).

REMARKS. This species is distinctive in its very small size, rather solid, virtually colourless shell and rather heavy apertural lips. It approaches *E. (E.) exigua* in general features but that species is smaller, has a thinner shell with a relatively larger aperture, shorter spire and has a sinuate outer lip and the radula and opercular features are also very different.

This species has been named for Mrs. Julie Ponder, for her considerable help in numerous ways to us.

Eatoniella (Eatoniella) melanochroma (Tate, 1899). Figs 3a-d; 9a-m.

Rissoa melanura T. Woods, 1877:153.

Rissoia (Cingulina) melanura. — Tryon, 1887:358, pl. 71, fig. 7.

Rissoia (Cingulina) melanochroma Tate, 1899:234 (nom. nov. pro *R. melanura* T. Woods, 1877, non C. B. Adams, 1850).

Rissoia melanochroma. — Tate and May, 1901:393.

Rissoa melanochroma. — Pritchard and Gatliff, 1902:106.

Dardanula melanochroma. — May, 1921:50; May, 1923, pl. 23, fig. 30; Cotton, 1944:305.

SHELL: conical, rather solid, thick-shelled, opaque to translucent, non-umbilicate, usually uniform grey to black, sometimes brown and white. Protoconch of 1½ usually pigmented whorls; teleoconch up to 3¼ weakly convex whorls; spire outline very slightly convex. Aperture with outer lip sharply and evenly retracted or weakly to moderately bisinuate; inner lip rather narrow, its outer edge concave. Usually paler in colour behind outer lip and within aperture than over rest of shell; outer lip usually with a dark grey, brown or black edge within, although some pale shells lack this feature; remainder of shell typically dark grey to black but sometimes (nearly always on the west coast) brown to yellowish-brown, with whitish bands on base and adapical to suture (figs 3a-d; 9a, b, g-j).

Dimensions	Length	Diameter
Lectotype	2.10 mm	1.20 mm
Figured specimens (S.E.M.)		
(Yallingup, S.W.A.)	1.52	0.94
	1.44	-
(Shoreham, Vic.)	1.80	1.14
	1.66	-
(Hopetoun, S.W.A.)	1.78	1.04
	1.55	-

OPERCULUM: externally grey thinly spread over yellow, with black edges, opaque, muscle insertion area over whole surface above peg; typical in structure (figs 9c, d, l), with a narrow ridge along columellar edge and a broad, low internal ridge; weak, indistinct spiral grooves externally.

RADULA: typical, central (1) 2 + 1 + 2 (1), lateral 2 + 1 + 2 (1), inner marginal 3-4 + 1 (1), outer marginal (6-8); all teeth rather long and sharp, 1 specimen with 3 teeth on inside of primary cusp on each lateral tooth (Elliston Bay, S.A.) (figs 9e, k, m).

Opercula and radulae examined from Shoreham, Vic. (S.E.M. stub nos 82, 95), Hopetoun Jetty, S.W.A. (S.E.M. stub no. 236) and Yallingup, S.W.A. (S.E.M. stub no. 235).

ANIMAL: head-foot lightly pigmented, greyish; snout sometimes black, tentacles colourless; opercular lobes grey to black, with a single black opercular tentacle on left lobe (Eaglehawk Neck, S. Tasm.)

TYPES. Lectotype (here chosen) and 2 paralectotypes T.M. (TM 5477).

TYPE LOCALITY. Blackmans Bay, S. Tasm.

ADDITIONAL MATERIAL EXAMINED. *N.S.W.:* Wimbie Beach, Batemans Bay, on large brown algae (2). Bitangabee, N. side of Green Cape, on coralline algae in sheltered pool (4). S. end of Green Cape, on algae, 2-4m (5), on coralline algae (1). *N. Tasm.:* East

Cove, Deal Is., Bass Strait, 6-15m (20), Bass Strait (1), Just N. of Waterhouse Is., 40m (1) (T.M.). Kelso (2). Badger Head, Tamar River mouth (5) (T.M.). Boat Harbour, on brown algae (65), on short brown algae (60), on coralline algae (5). Goat Is., near Ulverstone, on brown algae (2). Freestone Cove, Wynyard, on algae, low tide (22). West Head, Green Beach, under stones and on coralline algae, low tide (15). Fraser Bay, King Is. (2). Cowry Pt. (16) (T.M.). *E. Tasm.:* Green Cape, Maria Is., on algae, sublittoral (50). *S. Tasm.:* Pirates Bay, Eaglehawk Neck, on coralline algae (80/41w), on brown algae (183/17w), on *Caulerpa* (50/17w), under stones (30). Eaglehawk Neck (80) (4 in T.M.). Cape Pillar, 183m (1). Nubeena, Wedge Bay, 7m (42). Primrose Pt., E. side of Frederick Henry Bay, on coralline algae, low tide (35), on matted green algae (60/35w), on various brown algae (95/22w). Roches Beach, W. side of Frederick Henry Bay, semi-sheltered reef, on matted green algae (45), on brown algae (450/200w), on coralline algae, S.E.M. stub no. 33 (50/50w), on short brown algae (45/35w). Dunalley (3) (T.M.). Off Fluted Cape, Bruny Is., on algae, 7-10m (5). Tinderbox (sev) (T.M.). Browns River (sev). *W. Tasm.:* W. of West Pt., 80m (1). *Vic.:* Torquay (2) (N.M.V.) Queenscliff (sev) (N.M.V.). Merricks, Western Port, on coralline algae (24), on brown algae (5). Portsea, 2 lots (sev) (sev in N.M.V.). Flinders, on rocks and algae, low tide (150/120w). Honeysuckle Pt., Shoreham, on rocks and algae, S.E.M. stub nos. 82, 95 (150/100w). Fossil Beach, Mornington (4). Frankston (sev) (N.M.V.). Queenscliff, Port Phillip, on small algae (20/8w). Pt. Lonsdale, on large brown algae (22); on coralline algae (47); on short algae (20). Pt. Grey, Lorne, on brown algae, low tide (45/38w). Moonlight Beach, W. of Cape Otway (80/50w). Port Fairy, on brown algae (12), on coralline algae (9), on short algae (14) (1 in N.M.V. and 8 in S.A.M.). Portland (few) (N.M.V.). *S.A.:* McDonnell Bay (sev) (S.A.M.). Off Middle Pt., near Cape Northumberland, 600m from shore, on algae, 6m (16/5w). Robe (sev) (S.A.M.). Guichen Bay (sev) (S.A.M.). W. of Cape Jaffa, 141m (1). Kingstone (1) (S.A.M.). Normanville, Gulf St. Vincent, 2 lots (16). Yankalilla Bay (1) (S.A.M.). Blanche Pt., N. of Aldinga, on short brown algae (2). Hardwicke Bay, 2 lots (sev) (S.A.M.). Henley Beach (1). Off Cape Borda, 100m, 3 lots (sev-Pleistocene?) (S.A.M.). Arno Bay (4). Tumby Bay (sev). Near Salmon Pt., Elliston Bay, on *Cystophora,* 1m, S.E.M. stub no. 123 (54). Elliston, on algae, 0-5m (35). Waldegrave Is., on algae, 1m, 2 lots (6). Venus Bay (2) (S.A.M.). Franklin Is. (2) (S.A.M.). St. Francis Is., 11m, 2 lots (sev) (S.A.M.). Pt. Sinclair, on algae, 0-1m, semi-sheltered (sev). *S.W.A.:* Great Australian Bight (S.W. of Eucla), 75m (7). Mississippi Bay, 48km E. of Esperance, on algae, 0-2m (25). Twilight Cove, 9km E. of Esperance, on algae, low tide, 2 lots (3). E. side of Hopetoun Jetty, on algae, 0-1m (15). Hopetoun Jetty, on algae, 0-2m, S.E.M. stub no. 236 (11). Hopetoun (1) (S.A.M.). South Pt., S. of Two Peoples Bay. near Albany, on large brown algae, on exposed shore (10). King George Sound (sev) (S.A.M.). Ellensbrook, near Margaret River mouth (1). Kilcarnup, N. side of Margaret River mouth, on algae (sev); in shell sand (sev). Yallingup, on algae, S.E.M. stub no. 235 (211). Wyadup, 6km S. of Yallingup, on large brown algae (1). N. side of Cape Naturaliste lighthouse, low tide (25). Cape Naturaliste (1).

DISTRIBUTION AND HABITAT. Southern N.S.W., Tasm., Vic., S.A. and S.W.A. On algae and beneath stones in the littoral and shallow sublittoral; often very abundant (fig. 12).

REMARKS. This species is similar to *E. (E.) olivacea* (Hutton, 1882) from New Zealand but that species is larger and more conical in shape, shows a different series of colour variations and the animal has no opercular tentacles (Ponder, 1965). The only similar Australian species are *E. (E.) atrella* and *E. (E.) galbinia,* both of which are smaller.

Two colour forms of this species are found throughout its range along the south coast and Tasmania. The common form is black or grey (figs 3c, d; 9a, b) but some specimens are pale (usually white and brown), often thin-shelled, translucent and have a tendency towards a more pronounced bisinuation of the outer lip (figs 3a, b; 9i, j). The

frequency of this pale form seems to increase from east to west and samples from the west coast show only the pale form present. West coast specimens are also slightly smaller and more ovate than most of the southern material. The shell characters of the two forms clearly merge in south coast populations and they appear to be identical in opercular, radular and head-foot characters.

Eatoniella (Eatoniella) puniceolinea sp. nov. Figs 1n, o; 6d-j.

SHELL: minute, ovate-conical to conical, usually short-spired, translucent, pale yellowish with 1-2 pink bands, with relatively large body whorl and aperture. Protoconch colourless, of about 1½ whorls· teleoconch of up to 2¼ convex whorls; spire short, with convex outlines. Aperture with inner lip projecting from base, rather narrow in its middle portion; outer lip retracted, bisinuate. Umbilical chink distinct, sometimes a very narrow umbilicus present. Colour pale yellowish, usually with pink bands, one abapical to suture and one peripheral, the latter adapical to suture on spire whorl; either or both bands may be sharp and bright, diffuse or absent; outer lip often pink (figs 1n, o; 6d, h).

Dimensions	Length	Diameter
Holotype	1.05 mm	0.84 mm
Paratypes	1.04	0.78
	1.03	0.77
	1.00	0.77
Figured specimens (S.E.M.)		
(Deal Is., N. Tasm.)	1.08	0.80
(Carnac Is., W.A.)	1.02	

OPERCULUM: pale yellowish with the darkly pigmented opercular lobes showing through; structure typical, with a ridge along inside of columellar side; muscle insertion area occupying about ¾ of surface, from columellar edge (figs 6e, i).

RADULA: central 2 + 1 + 2, median tooth nearly 3 times longer than others, lateral 2 + 1 + 2 (1), inner marginal 2 + 1 + 1 (1), outer marginal (about 5) (6f, g), inner marginal variety (see below) 3 + 1 + 1 (1).

Opercula and radulae observed from Deal Is., N. Tasm. (S.E.M. stub no. 108) and Carnac Is., W.A. (S.E.M. stub no. 105).

ANIMAL: head-foot and mantle with black pigment usually present but variable in extent (preserved material).

TYPES. Holotype A.M. (C. 102255). Paratypes (22) A.M. (C. 102256).

TYPE LOCALITY. South Pt., S. of Two Peoples Bay, near Albany, S.W.A., on large brown algae on exposed shore, 3 Feb. 1972, coll. W. F. Ponder.

ADDITIONAL MATERIAL EXAMINED. *N.S.W.*: North Harbour, Sydney, 1950-1960, J. Voorwinde Coll. (1). Little Coogee Bay, Sydney, 21 Apr. 1895, coll. J. Brazier, 2 lots (6). Outside breakwater, S. side of Ulladulla, on medium size brown algae, 5 Jan. 1970, coll. W. F. Ponder and P. H. Colman (1). S. end of Green Cape, on algae on exposed coast, 2-4m, 13 Feb. 1973, coll. W. F. Ponder (24). *N. Tasm.*: Bass Strait; Deal Is., on algae, 6m, 6 May 1974, coll. S. A. Shepherd (9); East Cove, Deal Is., 6-15m, 3-10 May 1974, coll. S.A. Shepherd (5); Murray Pass., Deal Is., on red algae, 30-50m, 9 May 1974, coll. S. A. Shepherd (3); Little Squally Cove, Deal Is., on algae, 10-30m, 4 May 1974, coll. S. A. Shepherd, S.E.M. stub no. 108 (2/2w). Boat Harbour, on *Galeolaria,* 19 Mar. 1975, coll. W. F. Ponder and R. Kershaw (1). Boat Harbour, E. side of headland, on short brown algae, 2m, 19 Mar. 1975, coll. W. F. Ponder (18). *Vic.*: Western Port, dredged, Gatliff Coll. (sev)

(N.M.V.). Ocean side of Queenscliff, Port Phillip, on algae, on rocky platform, 13 Feb. 1969, coll. W. F. Ponder (1). Pt. Lonsdale, on short algae, exposed edge of platform, 22 Mar. 1975, coll. W. F. Ponder and R. Burn (1). Anglesea, Gabriel Coll. (4) (N.M.V.). *S.A.:* MacDonnell Bay, J.C. Verco Coll. (1) (S.A.M.). Guichen Bay, J.C. Verco Coll. (sev) (S.A.M.). Near Salmon Pt., Elliston Bay, on *Cystophora,* 1m, Oct. 1973, coll. S. A. Shepherd (4/2w). Pearson Is., on algae, 18m, Jan. 1973, coll. V. Taylor (5). Tumby Bay, in shell sand, coll, J. Thompson (1). Waldegrave Is., W. side Eyre Peninsula, on algae, 25 Oct. 1973, coll. S. A. Shepherd (1). St. Francis Is., Nuyts Archipelage, 15-37m, 7 Jan. 1971, coll. N. Coleman (2). *S.W.A.:* S. of Cowaramup Bay, near Margaret River mouth, in shell sand, 1972, coll. H. Baker, pres. J. Hewitt (10). Kilcarnup, N. side of Margaret River, on algae, low tide neap, 1 Jan. 1972, coll. W. F. Ponder (1). Off Dunsborough, on *Cymodocea,* 1-2m, 24 Dec. 1971, coll. W. F. Ponder (1). Bunker Bay, 11km W. of Dunsborough, on short algae, semi-sheltered open coast, 0-3m, 24 Dec. 1971, coll. W. F. Ponder and B. R. Wilson (9). *W.A.:* W. side Carnac Is., off Fremantle, on algae, low tide (1), on algae , 4-8m (20/6w), 18 Dec. 1971, coll. W. F. and J. M. Ponder, B. R. Wilson and N. Coleman. Pt. Peron, S. of Fremantle, in shell sand, 2-3m, 27 Jan. 1972, coll. W. F. and J. M. Ponder (4). S. W. end of Garden Is., off Fremantle, on algae, 0-3m, 21 Jan. 1972, coll. W. F. and J. M. Ponder and N. Coleman (28/25w). West end reef, Rottnest Is., on *Lithothamnion* on intertidal reef edge, Aug. 1969, coll. S. Slack-Smith (1). Cottesloe Reef, on algae, 20 May 1970, coll. S. Slack-Smith (1/1w). Horrocks Beach, N. of Geraldton, on algae, on limestone platform, 9 Jan. 1972, coll. W. F. Ponder (1).

E. cf. *puniceolinea.*

W.A.: W. side Carnac Is., off Fremantle, on algae, 4-8m, 18 Dec. 1971, coll. W. F. and J. M. Ponder, B. R. Wilson and N. Coleman, S.E.M. stub no. 105 (87/15w). S.W. end of Garden Is, off Fremantle, on algae, 0-3m (5); on beach (7), 21 Jan. 1972, coll. W. F. and J. M. Ponder and N. Coleman.

DISTRIBUTION AND HABITAT. Mid N.S.W., S. to Bass Strait and N. Tasm., and W. from Vic. to mid W.A. On algae in the lower littoral and shallow sublittoral (fig. 13).

REMARKS. Although very similar to *E. (E.) hewittae* in colour pattern, *E. (E.) puniceolinea* has a much shorter spire and a distinctly bisinuate outer lip. *E. (E.) puniceolinea* differs from all other species in its small size, rather globose shape, bisinuate outer lip, and (usually) pink bands. Occasional specimens completely lack these bands but are distinguishable by their shell shape and size, indentations in the outer lip and often pale yellow shell. Three lots from mid Western Australia (listed as cf. *puniceolinea* above) are consistently translucent white and the outer lip is straighter (fig. 6h), but otherwise are similar in shell, opercular (6i) and radular features, although the inner marginal teeth show 3, not 2 cusps on the inner side of the primary cusp (fig. 6j).

Eatoniella (Eatoniella) shepherdi sp. nov. Figs 1j, k; 5l-p.

SHELL: minute, semi-transparent, almost colourless to yellowish-white, spire rather short, body whorl and aperture large. Protoconch colourless of about 1¾ whorls; teleoconch of 2 convex whorls; spire rather short, outlines very slightly convex (almost straight), body whorl large. Aperture with rather broad inner lip strongly concave on its outer edge; outer lip retracted, usually very broadly bisinuate. Umbilical chink moderate to small. Colourless to white with a yellowish tinge (figs 1j, k; 5l, m).

Dimensions	Length	Diameter
Holotype	1.12 mm	0.88 mm

Paratypes	1.08	0.88
	1.02	0.84
	1.10	0.85
Figured specimens (S.E.M.) (Paratypes)	1.25	0.97
	1.20	-

OPERCULUM: yellow, opaque, muscle insertion area occupying all but that area above peg, usually edges narrowly lined with dark grey; typical structure, with a weak ridge immediately inside columellar edge (figs 5n, o).

RADULA: central (1) 2 + 1 + 2 (1), lateral 2 + 1 +2 (1), inner marginal 3 + 1 + 1 (or (1)), outer marginal (about 7); central tooth with long median cusp (about 2 x length of adjacent marginal cusp), parallel-sided, with rather blunt end (fig. 5p).

Opercula and radulae examined from the type locality.

ANIMAL: head-foot lightly pigmented with grey or unpigmented; visceral mass predominantly black or dark grey and clearly visible through shell (preserved material).

TYPES. Holotype A.M. (C. 102257). Paratypes (37/40w) A.M. (C. 102258), 3 T.M. (E9242), 2 shells, 4 opercula and 4 radulae on S.E.M. stub no. 101.

TYPE LOCALITY. East Cove, Deal Is., Bass Strait, N.Tasm., 6-15m, 3-10 May 1974, coll. S. A. Shepherd.

ADDITIONAL MATERIAL EXAMINED. *N. Tasm.:* Bass Strait; Deal Is., on algae, 6m, 6 May 1974, coll. S. A Shepherd (10); Little Squally Cove, Deal Is., on algae, 10-13m, 4 May 1974, coll. S. A. Shepherd (7); Murray Pass., Deal Is., on algae, 30-50m, 8 May 1974, coll. S. A. Shepherd (4). *E. Tasm.:* Ansons Bay, 28 Dec. 1966, coll. A. Dartnall (3) (T.M.). *S. Tasm.:** N. of Cape Pillar, 95m, in medium sand and bryozoa, 13 Mar. 1973, coll. P. H. Colman, B.M.R.stn 1986, M.T. "Sprightly" (1) *W. Tasm.:* Near Granville Harbour, 23 Nov. 1967, coll. A. Dartnall (11) (T.M.). *S.A.:** Tumby Bay, in shell sand, coll. J. Thompson (2). *Identification doubtful.

DISTRIBUTION AND HABITAT. Bass Strait and E. and W. Tasm. (and possibly S.A.), on sublittoral algae (fig. 13).

REMARKS. This species is superficially similar to *E. (E.) atropurpurea* and lives sympatrically with it in Bass Strait. When *E. (E.) shepherdi* is contrasted with specimens of *E. (E.) atropurpurea* collected with it, it is slightly larger, shorter-spired with a relatively more inflated body whorl and with a more prominent umbilical chink. The colour of the shell differs considerably in the two species, *E. (E.) atropurpurea* being purplish-red to pink but there is no trace of this coloration in *E. (E.) shepherdi*. The radulae of the two species are very similar although the shape of the primary cusp of the central teeth differs, that of *E. (E.) atropurpurea* being sharper and more triangular in form. *E. (E.) puniceolinea* is similar in size and in general shape but can be distinguished by its more ovate outline (due to the relatively smaller body whorl and more convex spire outline), and different coloration.

This species is named for Mr. Scoresby Shepherd of the Department of Agriculture and Fisheries, S.A. who has collected many valuable samples for the writers.

Eatoniella (Eatoniella) talboti sp. nov. Figs 2e, f; 6o, p.

SHELL: minute, ovate-conical, translucent white, umbilicate. Protoconch of 1½ whorls, transparent, shining, teleoconch of 2¼ convex whorls, with dull surface; spire short, broad, body whorl large. Aperture ovate; inner lip moderately thickened, with

concave inner edge; outer lip moderately and evenly retracted, slightly thickened within. Umbilical chink distinct, umbilicus small. Colour translucent white to very pale yellowish-white (figs 2e, f).

Dimensions	Length	Diameter
Holotype	0.90 mm	0.68 mm

OPERCULUM: white, opaque, with distinct ridge inside columellar edge (fig. 6o).

RADULA: central (1) 2 + 1 + 2 (1), median cusp long, narrow, about twice length of adjacent cusps; lateral 2 + 1 + 2, inner marginal 3 + 1 + 1, outer marginal several small sharp cusps (fig. 6p).

Operculum and radula examined from the type locality.

ANIMAL: not observed.

TYPES. Holotype A.M. (C. 102324). Paratype (1) A.M. (C. 102325), 1 operculum and 1 radula on S.E.M. stub no. 262.

TYPE LOCALITY. South outer face of One Tree Is., Capricorn Group, Qld, 2-5m, 7 Dec. 1966, coll. F. H. Talbot.

DISTRIBUTION AND HABITAT. Known only from the type locality (fig. 11).

REMARKS. This tropical species is superficially similar to the southern Australian *E. (E.) depressa* nov. but differs notably in its relatively taller spire and evenly retracted outer lip. *E. (E.) howensis* nov. is similar in size and shape but differs markedly in colour and in minor radular details, although the latter may not be consistent if a larger series were examined.

This species has been named for Professor F. H. Talbot of Macquarie University and previously Director of the Australian Museum.

Eatoniella (Eatoniella) taylorae sp. nov. Figs 3k, l; 10a-c.

SHELL: minute, conical, semi-opaque to translucent, white, umbilical chink small or absent. Protoconch colourless of about 1½ whorls; teleoconch of 3 weakly convex whorls; spire of moderate length, outlines slightly convex to almost straight. Aperture simple; inner lip moderately thickened, raised above parietal area and separated from base abapically; outer lip slightly and evenly retracted (figs 3k, l; 10a, b).

Dimensions	Length	Diameter
Holotype	1.62 mm	1.00 mm
Paratypes	1.60	1.10
	1.62	1.02
Figured specimens (S.E.M.) (Paratypes)	1.77	1.04
	1.50	-

OPERCULUM: yellowish-white, opaque; structure typical, a weak ridge just inside rim of columellar edge.

RADULA: central (1) 2 + 1 + 2 (1), lateral 2 + 1 + 2 (1), inner marginal 3 + 1 (1), outer marginal (about 6); median cusp on central teeth narrow, sharp and long (about 2 x length of adjacent lateral cusp) (fig. 10c).

Operculum and radula observed from the type locality.

ANIMAL: head-foot unpigmented (preserved material).

TYPES. Holotype A.M. (C. 102259). Paratypes (32) A.M. (C. 102260), 3 S.A.M. (D. 15254), 3 W.A.M. (WAM 406-76), 4 shells, 1 operculum and 3 radulae on S.E.M. stub nos. 237, 266.

TYPE LOCALITY. Elliston, S.A., on algae, 0-5m, Feb. 1974, coll. V. Taylor.

ADDITIONAL MATERIAL EXAMINED. *S.A.:* Near Salmon Pt., Elliston Bay, on *Cystophora,* 1m, Oct. 1973, coll. S.A. Shepherd (1). Venus Bay, J. C. Verco Coll. (2) (S.A.M.). Pt. Sinclair, on algae, 0-1m, semi-sheltered, 9 Feb. 1972, coll. W. F. and J. M. Ponder (sev). Fowler Bay, Tate Coll. (sev) (S.A.M.). *S.W.A.:* Hopetoun Jetty, 0-2m, on semi-sheltered reef, 5 Feb. 1972, coll. W. F. Ponder (1). Yallingup, on algae on limestone platform, 2 Jan. 1972, coll. W. F. Ponder and B. R. Wilson (3). South Cowaramup, on beach, 1972, coll. H. Baker, pres. J. Hewitt (2). *W.A.:* Cockburn Sound, 1.5km S.W. of Woodmans Pt., J. Voorwinde Coll. (1). S.W. end of Garden Is., off Fremantle, 21 Jan. 1972, coll. W. F. and J. M. Ponder and N. Coleman (3). Pt. Peron, S. of Fremantle, on exposed S. W. side, in shell sand, 2-3m, 27 Jan. 1972, coll. W. F. and J. M. Ponder (3).

DISTRIBUTION AND HABITAT. S.A. and S.W.A., in the lower littoral and sublittoral on algae; not common (fig. 13).

REMARKS. This species is very similar to *E. (E.) victoriae* and is compared with that species below (see "Remarks" under *E. (E.) victoriae).*

This species is named for Mrs. Valerie Taylor who collected the type series and who has generously donated other valuable material to the Australian Museum.

Eatoniella (Eatoniella) victoriae sp. nov. Figs 3i, j; 10d-g.

SHELL: minute, conical to ovate-conical, semi-opaque, white, with large umbilical chink. Protoconch of about 1⅔ colourless whorls; teleoconch of 3 weakly convex whorls; spire moderate, outlines slightly convex. Aperture with well-developed inner lip raised slightly from parietal area and separated from base abapically, outer lip evenly retracted. Umbilical chink pronounced, umbilicus very narrow or absent. Colour very pale yellowish-white to white (figs 3i, j; 10d, e).

Dimensions	Length	Diameter
Holotype	1.40 mm	0.97 mm
Paratypes	1.54	0.98
	1.48	1.06
Figured specimens (S.E.M.) (Paratypes)	1.50	1.00
	1.44	-

OPERCULUM: outer half and nuclear area usually dark grey to pale brown, middle area yellow, opaque but sometimes entire operculum yellow; muscle insertion area over most of surface (fig. 10f).

RADULA: central (1) 2 + 1 + 2 (1), lateral 2 + 1 + 2 (1), inner marginal 2 + 1 + 1, outer marginal (?6); median cusp of central tooth long (about 2 x length of adjacent teeth), broad, with parallel sides and with a rounded end (fig. 10g).

Opercula and radulae observed from the type locality.

ANIMAL: head-foot pigmented (preserved material).

TYPES. Holotype A.M. (C.102261). Paratypes A.M. 10/2w (C. 102262), 33/5w (C. 102506), 3 N.M.V. (F30006), 2 shells, 2 opercula and 2 radulae on S.E.M. stub no. 110.

TYPE LOCALITY. Between Eagle and Crawfish Rock, N.W. Arm, Western Port, Vic., 4-6m, 15 Feb. 1969, coll. W. F. Ponder, B. J. Smith and J. Watson.

ADDITIONAL MATERIAL EXAMINED. *Vic.:* Western Port, dredged (sev) (N.M.V.). Shoreham, Western Port, Gatliff coll. (sev) (N.M.V.). Off Portsea, dredged, Gabriel Coll. (7) (N.M.V.). Portarlington, Port Phillip Bay, outer side of reef on algae, low tide, 22 Mar. 1975, coll. W. F. Ponder and R. Burn (sev).

DISTRIBUTION AND HABITAT. Western Port and Port Phillip Bay, Vic., on low tidal and sublittoral algae (fig. 13).

REMARKS. This species is very similar to *E. (E.) taylorae* and almost indistinguishable from it on shell features, although *E. (E.) victoriae* usually has a more pronounced umbilical chink. The radula shows differences in the cusp formula of the inner marginal teeth and in the shape of the primary cusp of the central teeth. The operculum is usually darkly coloured in *E. (E.) victoriae* but not in *E. (E.) shepherdi* and this character is probably the most easily used distinguishing feature. The head-foot is pigmented in *E. (E.) victoriae* and not in *E. (E.) shepherdi* and this region of the animal is visible through the shell in both species. *E. (E.) victoriae* also somewhat resembles *E. (E.) galbinia* but is larger, more conical and more nearly white in colour rather than yellow or grey and usually has a distinct umbilical chink. The operculum in *E. (E.) galbinia* is similar in colour but the radula differs in detail, noticeably in the number of cusps on the inner marginal teeth and in the shape of the median cusp on the central teeth.

Subgenus **Albosabula** Ponder, 1965:61.

Type species (original designation): *Rissoa lampra* Suter, 1908.

DIAGNOSIS. Shell conical, solid, opaque, white, apertural lips thickened within; outer lip only slightly retracted. Operculum as in *Eatoniella* s.s. Radula with central teeth similar to those of *Eatoniella* s.s. but the basal margin of each protrudes ventrally in a tongue-like extension and the latero-basal projections are not as heavy; inner marginal teeth with many small cusps.

REMARKS. The differences exhibited by the central teeth, coupled with the rather distinctive shell features, suggest that subgeneric status can be maintained for this group. Three species, all from southern New Zealand, are included in this subgenus by Ponder (1965) and a possible additional species is *Rissoa georgiana* Martens and Pfeffer, 1886 from South Georgia.

Eatoniella (Albosabula) pellucida (Tate & May, 1900). Figs 2l; 7g-i.

Rissoia (Nodulus) pellucida Tate and May, 1900:100.
Rissoia pellucida. — Tate and May, 1901:394, pl. 23, fig. 8.

Amphithalamus pellucidus. — Hedley, 1911:107.

Notosetia pellucida. — May, 1921:53; May 1923, pl. 25, fig. 3; Cotton, 1944:304.

SHELL: minute, solid, opaque, white, non-umbilicate, spire rather tall, aperture relatively small. Protoconch of 1½ whorls; teleoconch of up to 3 very lightly convex whorls, spire outlines slightly convex. Aperture with lips rather thickened within; inner

lip narrow, not much separated from base; outer lip simple, hardly reflected. No umbilicus or umbilical chink present (figs 2l; 7g, h).

Dimensions	Length	Diameter	
Holotype	1.20 mm	0.75 mm	(from original description)
Figured specimens (S.E.M.)			
(Eaglehawk Neck, S. Tasm.)	1.25	0.80	
	1.20		

OPERCULUM: pale yellowish-brown, opaque, typical in structure; muscle insertion area over whole surface except below peg.

RADULA: central 2 + 1 + 2, lateral (1) 2 + 1 + 2 (1), inner marginal 5 + 1 + (1), outer marginal (about 7); central teeth with rather weak lateral projections and a tongue-like extension ventrally (fig. 7i).

Operculum and radula examined from Pirates Bay, Eaglehawk Neck, S. Tasm. (S.E.M. stub no. 125).

ANIMAL: not observed.

TYPES. Holotype, T.M. (7778/E437, TM 10888).

TYPE LOCALITY. Frederick Henry Bay, S. Tasm.

ADDITIONAL MATERIAL EXAMINED. *N. Tasm.:* West Head, Green Beach, on coralline algae and under stones, low tide (5). *E. Tasm.:* Ansons Bay (1) (T.M.). Rheban (1) (T.M.). *S. Tasm.:* Pirates Bay, Eaglehawk Neck, 3 lots (5); under stones, S.E.M. stub no. 125 (2/1w), under stones (9). Primrose Pt., E. side of Frederick Henry Bay, on algae, low tide (3), on green algae (1). Tinderbox (2) (T.M.). *W. Tasm.:* W. of West Pt., 80m (1).

DISTRIBUTION AND HABITAT. Tasm., lower littoral on algae and under stones. The record from the continental shelf is a "dead" shell probably derived from shallow water (fig. 14).

REMARKS. This Australian species is larger than any of the three New Zealand species and has a thicker, denser shell. It can be easily distinguished from *E. (E.) juliae* nov., which is the most similar Australian species, by its opaque-white shell and more conical spire.

Pritchard and Gatliff's (1906) record of this species from Anglesea, Vic. is based on specimens of *E. (E.) puniceolinea* nov., *E. galbinia* and *E. depressa* nov.

Rissoina pellucida Preston (1905:5, pl. 1, fig. 17) is an *Eatoniella* and becomes a secondary homonym of *Rissoia pellucida* Tate and May, 1900. A replacement name is given below.

Genus **Crassitoniella** Ponder, 1965:93.

Type species (original designation): *C. carinata* Ponder, 1965.

DIAGNOSIS. Shell minute, ovate-conical to conical, similar to that of *Eatoniella;* sculpture absent or a weak peripheral cord. Operculum broad, with strong internal ridge, muscle-insertion area not opaque, columellar margin strongly convex, peg straight, in approximately same plane as rest of operculum. Radula as described for family, central teeth with a tongue-like ventral extension bearing a small pair of basal

processes in addition to the larger latero-basal processes. Animal without opercular lobe tentacles.

REMARKS. The opercular and radular features readily separate this genus from *Eatoniella*. Ponder's (1965) illustration of the central tooth of the radula of *C. carinata* is probably inaccurate as far as the basal features are concerned.

Crassitoniella erratica erratica (May, 1912). Figs 4a-e; 10h-k.

Amphithalamus erratica May, 1912:48, pl. 2, fig. 7.

Amphithalamus aurantiocinctus May, 1915:96, pl. 6, fig. 33.

Rissoa aurantiocincta. — Gatliff and Gabriel, 1916:110.

Dardanula erratica. — May, 1921:50; May, 1923, pl. 23, fig. 28; Cotton, 1944:305; Laseron, 1950:273, fig. 48.

Dardanula aurantiocincta. — May, 1921:50; May, 1923: pl. 23, fig. 26; Cotton, 1944:306.

SHELL: minute, conical, translucent, white to yellowish sometimes with two orange bands on body whorl. Protoconch of 1½ whorls; teleoconch of about 4 very slightly convex whorls. Aperture almost circular, with weak to moderate varix placed somewhat behind reflected edge of outer lip; inner lip narrow, rather thin. A very minute umbilical chink sometimes present but this usually absent. Colour white to yellowish-orange, sometimes with a narrow orange band just adapical to periphery (also visible on spire whorls adapical to suture) and another on middle of base (figs 4a-e; 10h).

Dimensions	Length	Diameter	
Holotype	2 mm	1.3 mm	(from original description)
Holotype of *Amphithalamus aurantiocinctus*	2.5	1.4	(from original description
Figured specimen (S.E.M.) (Western Port, Vic.)	2.04	1.20	

OPERCULUM: similar to that of *Crassitoniella flammea,* transparent, yellowish with strong internal ridge and straight peg (fig. 10j).

RADULA: central 1 + 1 + 1, median cusp large, blunt, lateral 1 + 1 + 3, cusps small, inner marginal 2 + 1 + 3, median cusp rather large, sharp; outer marginal (about 6), long and curved (figs 10i, k).

Opercula and radulae examined from off Moreton Bay, Qld (S.E.M. stub no. 127) and Western Port, Vic. (S.E.M. stub no. 124).

ANIMAL: head-foot unpigmented (preserved material).

TYPES. *A. erratica*. Holotype and 20 paratypes T.M. (TM 11757, E. 399/7740). Paratypes 3 N.M.V. (no number), 2 S.A.M. (no number), 1 A.M. (C. 34119). *A. aurantiocinctus*. Holotype (badly broken) T.M. (E. 395/7736). Paratypes 2 N.M.V. (no number), 2 A.M. (C. 39489).

TYPE LOCALITIES. *A. erratica*. 11 km E. of Cape Pillar, S. Tasm., 183m. *A. aurantiocinctus*. Off Thouin Bay, Tasm., 73m.

ADDITIONAL MATERIAL EXAMINED. *Qld:* Albany Passage, 20-25m (4). 3km N.E. of W. side Gillett Cay, Swain Reefs, 64-73m (83). N.E. of Rockhampton, 64m (12). Off Fraser

Is., 59m (4). Off Moreton Bay, 77m, S.E.M. stub no. 127 (7). *N.S.W.:* E. of Cape Byron, 200m (1). Off Broughton Is., Port Stephens, 45m (2). Fingal Bay, Port Stephens (4). *Sydney;* Private water bore at 4m depth, Wetherill St., Narrabeen (2); Collaroy Beach (7); Manly Beach, 2 lots (6); Middle Harbour (2); Off Sow and Pigs Reef, 11-14m (1); Off Chinamans Beach, Middle Harbour, 5m (11); Little Coogee Bay (6); Ocean Beach, Kurnell, Botany Bay (6), Ulladulla (2), 32km S.E. of Twofold Bay, 149m (1). *N. Tasm.:* Bass Strait; Just N. of Waterhouse Is., 36m (1) (T.M.); E. of Flinders Is., 50m (1) (T.M.); E. of King Is., 46m (9), 33m (4), 58-77m, S.E.M. stub no. 124 (9); Elephant Shoal Reef, S.E. of King Is., (sev) (N.M.V.). *E. Tasm.:* Off Piccaninny Pt., N. of Bicheno, 27m (1). Oyster Bay (3) (N.M.V.). Great Oyster Bay, 14m (1). Off Schouten Is. (1) (T.M.). *S. Tasm.:* N.E. of Cape Pillar, 113m (1). Off Port Arthur, 128m (2) (N.M.V.). Derwent Estuary (2) (1 in T.M.). Cape Pillar, 183m, 2 lots (14). 15km N.E. Tasman Is., 570m (1). Tasmania, 2 lots (7). *W. Tasm.:* N.W. of Sandy Cape, 132m (2). W. of West Pt., 80m (5). *Vic.:* Off Wilsons Promontory, 2 lots (8) (N.M.V.). Between Eagle and Crawfish Rocks, N.W. Arm, Western Port, 3-6m, S.E.M. stub no. 124 (5). Western Port (sev) (S.A.M. & N.M.V.). *S.A.:* Off Beachport, 73m, 2 lots (sev); 274m (3) (S.A.M.). Off Cape Jaffa, 90m (2) (S.A.M.). N.W. of Cape Borda, Kangaroo Is., 100m, 2 lots (sev) (S.A.M.). 64km S. of Cape Wiles, 183m (2). 52km S.S.W. of St. Francis Is., 64m (3). Off St. Francis Is., 64m, 2 lots (15) (S.A.M.). Great Australian Bight (S.W. of Eucla), 75m (11). *S.W.A.:* Between Eucla and Esperance, 79-147m (1). E. of Cheyne Bay, 75m (2). *W.A.:* 4-8km off Peppermint Grove Beach, between Bunbury and Busselton, 5-8m (2). Pt. Peron, S. of Fremantle, on exposed S.W. side, 4m (1). S.W. end of Garden Is., off Fremantle (1).

DISTRIBUTION AND HABITAT. N.Qld, S. to Tasm. and W. to mid W.A., on the continental shelf and in the sublittoral (fig. 14).

REMARKS. The types of *E. erratica* and *A. aurantiocinctus* are virtually identical except for colour pattern, and consequently are here considered to represent one species as the colour bands of *A. aurantiocinctus* appear to be developed to varying degrees, or not at all, within specimens from one population. There is, however, a considerable range of shape and size amongst the material examined and it is possible that more than one species is represented, although this cannot be adequately demonstrated with the material at hand which mostly consists of small samples of dead shells. For example shallow-water specimens from N.S.W. are known only from shells and may possibly represent a separate species as they are consistently slightly smaller and never seem to develop the orange rings seen in the deeper-water populations. Specimens from Queensland tend to be small and have a more strongly retracted outer lip and more sharply angled base than most southern material.

This species is placed in *Crassitoniella* on the basis of the operculum and the central tooth of the radula of the Recent sub-species, which closely resemble those of *C. flammea*. The lateral and inner marginal teeth have relatively smaller cusps and the teleoconch features are rather atypical. *Eatoniella (Albitoniella) thola* Ponder, 1965, from northern New Zealand has similar shell features to those of *C. erratica erratica* and probably also belongs in *Crassitoniella*.

This species differs from *C. flammea* and other Australian members of the family in its moderately large shell, evenly conical spire and the slightly reflected edge of the outer lip which has a weak to moderate varix behind.

Gatliff and Gabriel's (1914) record of *Rissoa erratica* from off Wilsons Promontory, Vic. is a misidentification of *"Cithna" angulata* Hedley.

Crassitoniella erratica subbicolor (Ludbrook, 1956). Fig. 4f.

Amphithalamus (Pisinna) subbicolor Ludbrook, 1956:27, pl. 2, fig. 10.

SHELL: very similar to *C. erratica* except that the periphery is more acutely angled and sometimes sharp (fig. 4f).

Dimensions	Length	Diameter
Holotype	2.30 mm	1.30 mm
Balcombe Bay, Mornington, Vic.	1.66	1.10

TYPES. Holotype Tate Mus. coll., Univ. of Adelaide (F15151). 10 paratypes are cited in the original description from the type locality and 29 from 2 other localities.

TYPE LOCALITY. Abattoirs Bore, Adelaide (holotype and 10 paratypes), Hindmarsh Bore, Adelaide (23 paratypes), Weymouth's Bore, Adelaide (6 paratypes). All Dry Creek Sands, Upper Pliocene, S.A.

ADDITIONAL MATERIAL EXAMINED. *Upper Pliocene:* Dry Creek Sands; Hindmarsh Bore, 450-487 feet, Adelaide (3) (S.A.M.D.). Dry Creek Sands, Cowandilla Bore, 525 feet, Adelaide (1) (S.A.M.D.). *Miocene:* Muddy Creek Marl; Clifton Bank, Muddy Creek, Hamilton, Vic., Chapman Coll. (N.M.V.). Balcombe Clay; Fossil Beach, Balcombe Bay, Mornington, Vic., Parr Coll. (2) (N.M.V., 2 lots). *Lower Miocene:* Freestone Cove Sandstone (=lower bed); Table Cape (=Fossil Bluff), N. Tasm., Parr Coll. (3) (N.M.V.). Table Cape (=Fossil Bluff), N. Tasm., 1915, coll. E.D. Atkinson (2).

RANGE AND DISTRIBUTION. Lower Miocene to Upper Pliocene, N. Tasm., Vic. and S.A. (fig. 14).

REMARKS. This sub-species is here considered to be the ancestor of *C. erratica erratica*. The degree of angulation of the periphery is variable in the material examined but the fossil material is consistent in having a more sharply angled periphery than most Recent specimens. The holotype is less sharply angled than most of the other fossil material examined (and is also younger in age), and the most acutely angled material (although not the oldest) is from Balcombe Bay (Miocene). Most of Ludbrook's non paratype material identified by her as this species consists of *Notoscrobs (Microfossa)* sp., but the paratype series has not been examined.

Crassitoniella flammea (Frauenfeld, 1867). Figs 4g, h; 10l-q.

Sabanaea flammea Frauenfeld, 1867:12, pl. 2, fig. 18.

Sabinaea flaminea (sic) "Dunker". — Angas, 1877:187.

Rissoa (Setia) flamia Beddome, 1882:169, No. 16.

Rissoa flammea. —Weinkauff, 1885:184, pl. 24, fig. 9; Pritchard and Gatliff, 1906:63.

Rissoia (Sabanaea) flammea. — Tryon, 1887:339, pl. 63, fig. 64.

Rissoia (Setia) flamia. — Tryon, 1887:359; Brazier, 1895:697.

Rissoia (Setia) sophiae Henn and Brazier, 1894:174.

Rissoia (Sabanaea) flammea. — Tate, 1899:232.

Rissoia (Setia) beddomei Tate, 1899:234 (nom. nov. pro *flamia* Beddome, non *flammea* Frauenfeld or Pease. Unnecessary name change).

Rissoia beddomei. — Tate and May, 1901:393, pl. 26, fig. 64.

Rissoa sophiae. — Pritchard and Gatliff, 1902:106.

Amphithalamus flammeus. — Hedley, 1911:106.

Estea flammea. — Hedley, 1918:M. 53; Laseron, 1950:273.

Dardanula flammea. — May, 1921:50; May, 1923, pl. 23, fig. 29; Cotton, 1944:306.

Crassitoniella flammea. — Ponder, 1965:93, pl. 10, fig. 1.

SHELL: minute, solid, conical, orange-red, often with white streaks. Protoconch of 1½ whorls, orange; teleoconch of 3¼-3⅓ almost flat whorls; periphery rounded to subangled, base rather flattened. Aperture with slightly thickened lips; inner lip considerably separated from base abapically; outer lip evenly retracted, sometimes with a trace of a weak varix behind. Colour orange-red to white, often with orange or white irregular axial streaks; columella and edge of aperture usually yellowish-white (figs 4g, h; 10l-m, o-p).

Dimensions	Length	Diameter	
Syntype	2 mm	1.25 mm	(from original description)
Figured specimens (S.E.M.)			
(N. Stradbroke Is., Qld)	2.06	1.20	
	1.90	-	
(Balmoral, N.S.W.)	2.00	1.30	
	1.92	-	

OPERCULUM: transparent, yellow (fig. 10n).

RADULA: central teeth with 2 short basal projections on either side of two very short knob-like projections on a mid-basal tongue-like extension; cusps 1 + 1 + 1, median cusp very large, spade-like, lateral cusps small; lateral teeth 1 + 1 + 1, inner marginal teeth 1 + 1 (1-2), two inner cusps large and broad; outer marginal teeth relatively small with about 4 small cusps (fig. 10q).

Opercula and radulae examined from N. Stradbroke Is., Qld (S.E.M. stub no. 213) and Balmoral, Sydney. N.S.W. (S.E.M. stub no. 97).

ANIMAL: head-foot with orange head and opercular lobes, remainder whitish; no opercular tentacles (Sydney).

TYPES. *Sabanaea flammea.* Syntypes (10 and 4 ex. Mohrenstern Coll.) Naturhistorisches Museum, Vienna. *Rissoa flamia.* Lost? *Rissoia sophiae.* Lost?

TYPE LOCALITIES. *S. flammea.* Botany Bay, N.S.W. *R. flamia.* 13m, Blackmans Bay, Tasm. *R. sophiae.* Watsons Bay, Sydney, N.S.W.

ADDITIONAL MATERIAL EXAMINED. *S. Qld:* Caloundra (4). Moreton Bay (28). *N. Stradbroke Is.;* Off Flat Rock, on algae, 24-30m, S.E.M. stub no. 213 (31), on algae, 21-27m (26); Shag Rock, on algae, 4-9m (3). *N.S.W.:* Woody Head, near Iluka (4). Woolgoolga (1). North Beach, Bellingen River (2). S. side of Fish Rock, 3km E. of Smoky Cape, on algae, 18m (1). Hallidays Pt., on algae, 2 lots (71). *Port Stephens:* Off Broughton Is., 64m (1); Fingal Bay (60); Little Beach (16); Off Port Stephens, 73m (1); Fishermans Bay, S. of Port Stephens (10). Off Patonga Beach, Broken Bay (3). Pittwater (1). *Sydney;* Narrabeen (sev); Private water bore at 4m depth, Wetherill St., Narrabeen (1); Long Reef, Collaroy, 3 lots (36); Manly Beach (2); North Harbour (11); S.E. side of Reef Beach, North Harbour (16); Forty Baskets Beach (8); Fairlight, (2), on coralline algae, low tide, 2 lots (16), on short algae (55); Balmoral, on brown algae (6), 18m (4), Sow and Pigs Reef, 5 lots (sev); Off

Chinamans Beach, Middle Harbour (3); Shark Is. (100); Bottle and Glass Rocks, 3 lots (60); Little Coogee Bay, 5 lots (155); Kurnell, Botany Bay, 2 lots (110); Cronulla Beach, 2 lots (4); Gunnamatta Bay, Port Hacking (7). Shellharbour, on algae (1). Bass Pt., on brown algae, 20m (25). Werri Beach (25). Currarong (14). Honeymoon Beach, Jervis Bay, under stones, low tide (33). Ulladulla (35). S. side Ulladulla, on small brown algae, low tide, 2 lots (45), on coralline algae (20). Wimbie Beach, Batemans Bay, on large brown algae (24), on coralline algae (22). Batehaven, Batemans Bay, on medium brown algae, mid-tide (10). Bittangabee, N. side of Green Cape, on coralline algae, in sheltered pool (24). Eden Harbour (12). S. side of Green Cape, 10m (1). *N. Tasm:* Bass Strait; Deal Is., on algae, 6m (4); Murray Pass., Deal Is., on red algae, 30-50m (sev); East Cove, Deal Is., 6-15m (sev); Little Squally Cove, Deal Is., on algae, 10-30m (15); Just N. of Waterhouse Is., 36-40m, 3 lots (sev) (T.M.); Elephant Shoal Reef, S.E. of King Is. (sev) (N.M.V.). *E. Tasm.:* Green Cape, Maria Is., on algae, 6m (57). *S. Tasm.:* Pirates Bay, Eaglehawk Neck, on intertidal rocks, low tide (1). *Vic.:* S.E. of Gabo Is., on algae, 28m (14). E.S.E. of Gabo Is., on algae, 15-18m (18). Between Eagle and Crawfish Rocks, N. W. Arm, Western Port, 3-6m (1). Port Fairy (3).

DISTRIBUTION AND HABITAT. Southern Qld. to Vic. and Tasm., on algae in the lower littoral and sublittoral (fig 14), often abundant.

REMARKS. The type species of *Crassitoniella, C. carinata,* from northern New Zealand, closely resembles *C. flammea* but has a weak peripheral cord and is always uniform orange in colour. No Australian species can be confused with *C. flammea,* its distinctive heavy, blunt-spired shell and characteristic coloration make it easily recognisable.

Although the types of *R. sophiae* Henn and Brazier and *R. flamia* Beddome have not been located, there are specimens in the Australian Museum (that may be parts of the type series) which were obtained from the authors and bear their species names. Pritchard and Gatliff (1902) discuss the confusion surrounding these names in detail.

Cotton's (1953) record of *Dardanula flammea* from Arno Bay, S.A. is based on 2 rather worn specimens of what is possibly a new species of *Eatoniella* belonging to the subgenus *Pellax* Finlay, 1927, of which there is insufficient material to describe herein.

A LIST OF THE KNOWN SPECIES OF THE EATONIELLIDAE WITH THE EXCEPTION OF THE SPECIES FROM THE NEW ZEALAND REGION

This list, probably very incomplete, is largely the result of the personal examination of original material of as many suspected members of the family as possible. A few additional species have been included on the basis of published information on their radulae and opercula. The New Zealand species of this family have been monographed by Ponder (1965).

The type localities are given along with the original reference and the location of the type or other material from which the species' familial position was determined. A generic determination is also given for each species.

Several species described by Turton (1932) from Port Alfred, South Africa, are probably additional species of the Eatoniellidae but his type material has not been examined and his descriptions and figures are inadequate for accurate familial determination.

algoensis Thiele, 1925:78. *Rissoa.* "Valdivia" stations 81, 95 and 101, South Africa (types: H.U.M.). *Eatoniella (Eatoniella).*

argentinense Castellanos and Fernández, 1972:6. *Eatoniella*. Punta Loma, Golfo Nuevo, Argentina. *Eatoniella (Eatoniella)*.

australis Watson, 1886:608. *Rissoa (Setia)*. Kerguelen Island (type: B.M.N.H.). *Eatoniella (Eatoniella)*.

caliginosa Smith, 1875:71. *Eatonia*. Swains Bay, Kerguelen Island (type: B.M.N.H. 2 lots of syntypes). *Eatoniella (Eatoniella)*.

capensis Thiele, 1912:278. *Eatoniella*. Simons Bay, South Africa (type: H.U.M.). *Eatoniella (Eatoniella)*.

duperrei Vélain, 1877:115. *Paludestrina*. Isle St. Paul (type: P.M.). *Eatoniella (Eatoniella)*.

georgiana Martens and Pfeffer, 1886:97. *Skenella*. South Georgia (types not examined). *Skenella*, type of genus.

georgiana Martens and Pfeffer, 1886:92. *Rissoa*. South Georgia (type: H.U.M, 2 specimens, not marked types). *Eatoniella (Albosabula)?*

glacialis Smith, 1907:9, *Rissoia*. Discovery Winter Quarters, Antarctica, 25-127 fathoms (45-232m). *Eatoniella (Eatoniella)*, fide Arnaud, 1972:118.

helga Bartsch, 1915:133. *Microsetia*. Port Alfred, South Africa (type: U.S.N.M.). *Eatoniella?*

hyalina Thiele, 1912:236. *Eatoniella*. Observatory Bay, Kerguelen Island (type: H.U.M., destroyed but one other lot labelled as this species also in H.U.M.). *Eatoniella (Eatoniella)*.

ignota Thiele, 1925:78. *Rissoa*. "Valdivia" station 101, South Africa (Algoa Bay) (types: H.U.M.). *Eatoniella (Eatoniella)*.

inflata Dall, 1876:43. *Eatoniella*. Kerguelen Island (type not examined, U.S.N.M.). Probably a synonym of *E. kerguelenensis* (fide Arnaud, 1972:118).

japonica Thiele, 1925:88. *Eatoniella*. Kobe, Japan (type: H.U.M., in poor condition, holotype only). *Eatoniella?*

kerguelenensis Smith, 1875:70. *Eatonia*. Kerguelen Island (types: B.M.N.H.,many syntypes). *Eatoniella (Eatoniella)*, type of genus. (The "subspecies" *confusa* Strebel, 1908:58 and *major* Strebel, 1908:57 are probably typical *Eatoniella* but authentic material has not been examined. Both forms are from South Georgia).

latina Marincovich, 1973:26. *Eatoniella (Eatoniella)*. Iquique, Chile, lower littoral (paratypes, A.M.). *Eatoniella (Eatoniella)*.

nigra Krauss, 1948:86. *Rissoa*. South Africa (specimens examined ex Krauss in H.U.M.). Radula and operculum Barnard, 1963:190, fig. 36. *Eatoniella (Eatoniella)*.

pellucida Preston, 1905:5. *Rissoina*. Ceylon (=Sri Lanka) (types: B.M.N.H. Holotype and 2 paratypes; 2 paratypes A.M.). *Eatoniella*. Not *Eatoniella (Albosabula) pellucida* (Tate and May, 1900). A replacement name is here given: *Eatoniella (Eatoniella) prestoni* nom. nov.

regularis Smith, 1915:65. *Rissoia*. Off Cape Adare, Antarctica, 45-50 fathoms (82-91m) (types: B.M.N.H., 3 syntypes). *Eatoniella (Eatoniella)*. Very similar, if not identical to *E. kerguelenensis*.

subgonostoma Strebel, 1908:59. *Eatoniella*. Port Louis, South Georgia, on algae. Not examined but illustration appears to represent a typical *Eatoniella (Eatoniella)*.

subrufescens Smith, 1875:71. *Eatonia*. Kerguelen Island (4 specimens ex. Smith, Royal Scottish Museum, radula and operculum examined). *Eatoniella (Eatoniella)*.

thalia Bartsch, 1915:126. *Sabanaea*. Port Alfred, South Africa (type: U.S.N.M.). *Eatoniella (Eatoniella)*.

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REFERENCES

Angas, G. F., 1877. A further list of additional species of marine Mollusca to be included in the fauna of Port Jackson and the adjacent coasts of New South Wales. *Proc. zool. Soc. Lond.*, 1877:178-191.

Arnaud, P. M., 1972. Invértébres marins des XIIème et XVème Expéditions Antarctiques Françaises en Terre Adélie. 8. — Gastéropodes Prosobranches. *Tethys Suppl.*, 4:105-134.

Barnard, K. H., 1963. Contributions to the knowledge of South African marine Mollusca. Part 3. Gastropoda: Prosobranchiata: Taenioglossa. *Ann. S. Afr. Mus.*, 47 (1): 1-199.

Bartsch, P., 1915. Report on the Turton collection of South African marine mollusks, with additional notes on other South African shells contained in the United States National Museum. *Bull. U.S. natn, Mus.* 91: I-XII, 1-305.

Beddome, C. E., 1882. Description of some new marine shells of Tasmania. *Pap. Proc. R. Soc. Tasm.* (1882): 167-170.

Brazier, J. W., 1895. On some Australian and Tasmanian Mollusca, with their synonyms. *Proc. Linn. Soc. N.S.W.*, Ser. *2*, 9: 691-700.

Castellanos, Z. J. A. de and D. Fernández, 1972. Una nueva especie de *Eatoniella* (Mollusca, Rissoacea). *Neotropica*, 18 (55): 6-8.

Cotton, B. C., 1944. Recent Australian species of the family Rissoidae (Mollusca). *Trans. R. Soc. S. Aust.*, 68 (2): 286-314.

Dall, W. H., 1876. Mollusks. Contributions to the natural history of Kerguelen Island, made in connection with the United States Transit-of-Venus Expedition, 1874-75. *Bull. U.S. natn. Mus.*, 3: 42-8.

Finlay, H. J., 1927. A further commentary on New Zealand molluscan systematics. *Trans. N.Z. Inst.*, 57:320-485.

Frauenfeld, G. R. von, 1867. Mollusken. *Reise Novara,* 2 (3): 1-16.

Gatliff, J. H. and C. J. Gabriel. 1914. Additions to the catalogue of the marine shells of Victoria. *Proc. R. Soc. Vict.* (n.s.), 28 (1): 115-123.

———1916. Additions to and alterations in the catalogue of the marine shells of Victoria. *Proc. R. Soc. Vict.* (n.s.), 29 (1): 106-113.

Golikov, A. N. and Y. I. Starobogatov, 1975. Systematics of prosobranch gastropods. *Malacologia,* 15 (1): 185-227.

Hedley, C., 1911. Report on the Mollusca obtained by the F.I.S. "Endeavour", chiefly off Cape Wiles, South Australia. Part 1. *Zool. results of the fishing experiments carried out by the F.I.S. Endeavour, 1909-14,* pt. 2: 89-114.

Hedley, C., 1918. A checklist of the marine fauna of New South Wales. Part 1. Mollusca. *J. Proc. R. Soc. N.S.W.,* 51: M1-M120.

Henn, A. U. and J. W. Brazier, 1894. List of Mollusca found at Green Point, Watson's Bay, Sydney. With a few remarks upon some of the most interesting species and descriptions of the new species. *Proc. Linn. Soc. N.S.W.,* Ser. 2, 9: 165-182.

Hutton, F. W., 1882. On a new genus of the Rissoinae. *Trans. N.Z. Inst.,* 14: 147.

Iredale, T., 1915. A commentary on Suter's "Manual of the New Zealand Mollusca". *Trans. N.Z. Inst.,* 47: 417-497.

Kesteven, H. L., 1902. *In* "Notes and Exhibits". *Proc. Linn. Soc. N.S.W.,* 27 (2): 206.

Krauss, F., 1948. *Die südafrikanischen Mollusken. Ein Beitrag zur Kenntniss des Kap-und Natallandes und zur geographischen Verbreitung derselben, mit Beschreibung und Abbilding der neuen Arten.* Stuttgart, Ebner and Seubert. 140 pp, 6 plates.

Laseron, C. F., 1950. Review of the Rissoidae of New South Wales. *Rec. Aust. Mus.,* 22 (3): 257-287.

———1956. The families Rissoinidae and Rissoidae (Mollusca) from the Solanderian and Dampierian zoogeographical provinces. *Aust. J. Mar. Freshwat. Res.,* 7 (3): 384-484.

Ludbrook, N. H., 1956. The molluscan fauna of the Pliocene strata underlying the Adelaide Plains. Part 3. Scaphopoda, Polyplacophora, Gastropoda (Haliotidae to Tornidae). *Trans. R. Soc. S. Aust.,* 79: 1-36.

Macpherson, J. H. and C. J. Gabriel. 1962. *Marine molluscs of Victoria.* Melbourne Univ. Press, Melbourne, I-XV, 1-475 pp.

Marincovich, L., 1973. Intertidal mollusks of Iquique, Chile. *Bull. Los Angeles Co. Mus. Nat. Hist., Sci.* 16: 1-49.

Martens, E. von and G. Pfeffer, 1886. Die Mollusken von Süd-Georgien. *J. hamburg Wiss. Anst.,* 3: 65-135.

May, W. L., 1912. Further additions to the Tasmanian Mollusca. *Pap. Proc. R. Soc. Tasm.* (1912): 41-48.

———1915. Additions to the Tasmanian marine Mollusca, with descriptions of new species. *Pap. Proc. R. Soc. Tasm.* (1915): 75-99.

———1919. New species of Tasmanian Mollusca, with critical remarks on several described species, and additions to the list. *Pap. Proc. R. Soc. Tasm.* (1919): 55-69.

———1921. *A checklist of the Mollusca of Tasmania.* Govt. Printer, Hobart. 1-114 pp.

———1923. *An illustrated index of Tasmanian shells.* Govt. Printer, Hobart. 1-100 pp, 47 plts.

Oliver, W. R. B., 1915. The Mollusca of the Kermadec Islands *Trans. N.Z. Inst.,* 47: 509-568.

Ponder, W. F., 1965. The family Eatoniellidae in New Zealand. *Rec. Auckland Inst. Mus.,* 6 (2): 47-99.

———1968. The morphology of some small New Zealand prosobranchs. *Rec. Dom. Mus., Wellington,* 6 (6): 61-95.

———and E. K. Yoo, 1976. A revision of the Australian and tropical Indo-Pacific Tertiary and Recent species of *Pisinna* (= *Estea)* (Mollusca: Gastropoda: Rissoidae). *Rec. Aust. Mus.,* 30: 150-247.

Preston, H. B., 1905. Descriptions of new species of marine shells from Ceylon. *J. Malac.,* 12 (1): 1-10.

Pritchard, G. B. and J. H. Gatliff, 1902. Catalogue of the marine shells of Victoria. Part 5. *Proc. R. Soc. Vict.* (n.s.), 14 (2): 85-138.

———1906. Catalogue of the marine shells of Victoria. Part 9. With complete index to the whole catalogue. *Proc. R. Soc. Vict.* (n.s.), 18 (2): 39-92.

Smith, E. A., 1875. Descriptions of some new shells from Kerguelen's Island. *Ann. Mag. nat. Hist., (4),* 16: 67-73.

———1907a. Mollusca and Brachiopoda. *Nat. Antarct. Exped. ('Discovery') Nat. Hist.,* 2: 1-12.

———1915. Mollusca Part 1. Gastropoda Prosobranchia, Scaphopoda and Pelecypoda. *Br. Antarct. Terra Nova Exped. 1910, Nat. Hist. Rep. zool.,* 2 (4): 61-112.

Strebel, H., 1908. Die gastropoden. *Wiss. Ergebn. schwed. Südpolarexped.,* 6 (1): 1-112.

Suter, H., 1913. *Manual of the New Zealand Mollusca.* Govt. Printer, Wellington. I-XXIII, 1-1120. With atlas of 72 plates (1915).

Tate, R., 1899. Contributions to a revision of the Recent Rissoidae of Australia. *Trans. R. Soc. S. Aust.,* 23 (2): 230-244.

———and W. L. May, 1900. Descriptions of new genera and species of Australian Mollusca (chiefly Tasmanian). *Trans. R. Soc. S. Aust.,* 24: 90-103.

———1901. A revised census of the marine Mollusca of Tasmania. *Proc. Linn. Soc. N.S.W.,* 26 (3): 344-471.

Thiele, J., 1912. Die antarktischen schnecken und muscheln. *Dt. Südpol.– Exped. (1901-1903),* 13 (zool. 5): 183-285.

———1925. Gastropoda der deutschen Tiefsee-Expedition, 2. *Wiss. Ergbn. dt. Tiefsee-Exped. 'Valdivia',* 17 (2): 36-382.

———1930. Gastropoda und Bivalvia. In *Die Fauna Südwest-Australiens Ergebnisse der Hamburger südwest-australischen Forschungsreise 1905 herausgegeben von Prof. Dr. W. Michaelsen und Prof. Dr. R. Hartmeyer,* 5 (8): 561-596. Gustav Fischer, Jena.

Tryon, G. W., 1887. Solariidae, Ianthinidae, Trichotropidae, Scalariidae, Cerithiidae, Rissoiidae, Littorinidae. *Man. Conch.,* 9: 1-488.

Turton, W. H., 1932. *The marine shells of Port Alfred, S. Africa.* Oxford Univ. Press, London, I-XVI, 1-331 pp, 70 plts.

Vēlain, C., 1877. Passage de Vēnus sur de Soleil. Expēdition Française aux Iles Saint-Paul et Amsterdam. Zoologie. *Archs Zool. exp. gen.,* 6: 98-144.

Watson, R. B., 1886. Report on the Scaphopoda and Gastropoda. *Rep. scient. Res. Voy. H.M.S. Challenger 1873-76, Zool.,* 15 (42), 756 pp, 53 plts.

Weinkauff, H. C., 1885. Die Gattungen *Rissoina* und *Rissoa. Systematisches Conchylien-Cabinet von Martini und Chemnitz.* Bd. 1, Abth. 21. Nürnberg.

Woods, J. E. Tenison, 1877. On some new Tasmanian marine shells. *Pap. Proc. R. Soc. Tasm.* (1876): 131-159.

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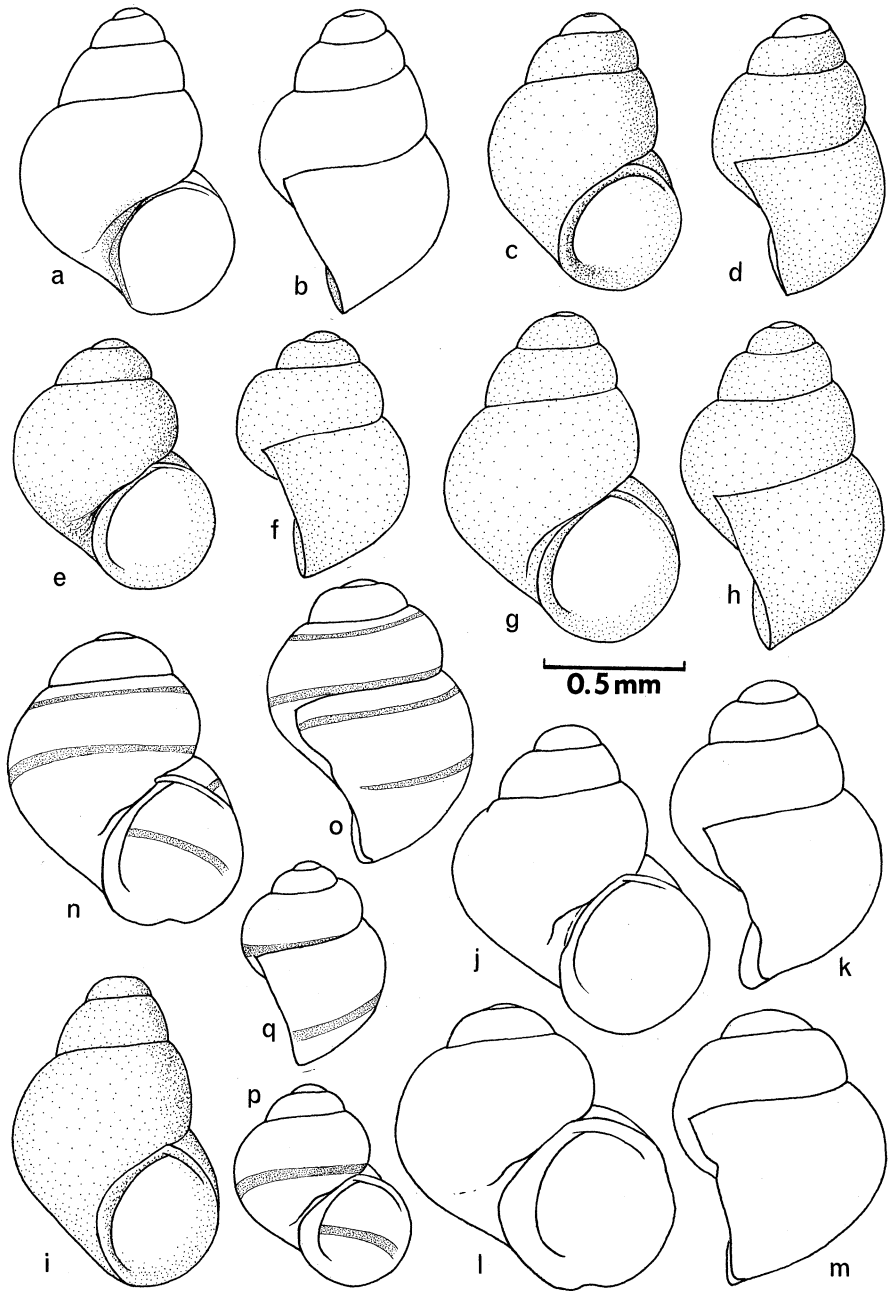

Fig 1. a-b; *Eatoniella (E.) ansonae* sp. nov., holotype, off Dunsborough, S.W.A. c-i; *E. (E.) atropurpurea* (Frauenfeld), c-d; paratype of *Notosetia purpureostoma* May, Penguin, Tas., e-f; lectotype of *Notosetia fusca* Laseron, North Harbour, Sydney, N.S.W., g-h; lectotype of *Notosetia aethiopia* Laseron, North Harbour, Sydney, N.S.W. i; syntype, Sydney, N.S.W. (traced from Polaroid photograph). j-k; *E. (E.) shepherdi* sp. nov., holotype, East Cove, Deal Is., N. Tasm. l-m; *E. (E.) depressa* sp. nov., holotype, Moonlight Beach, W. of Cape Otway, Vic. n-o; *E. (E.) puniceolinea* sp. nov., holotype, South Pt., S. of Two Peoples Bay, Albany, S.W.A. p-q; *E. (E.) howensis* sp. nov., holotype, Lord Howe Is. (See text for dimensions).

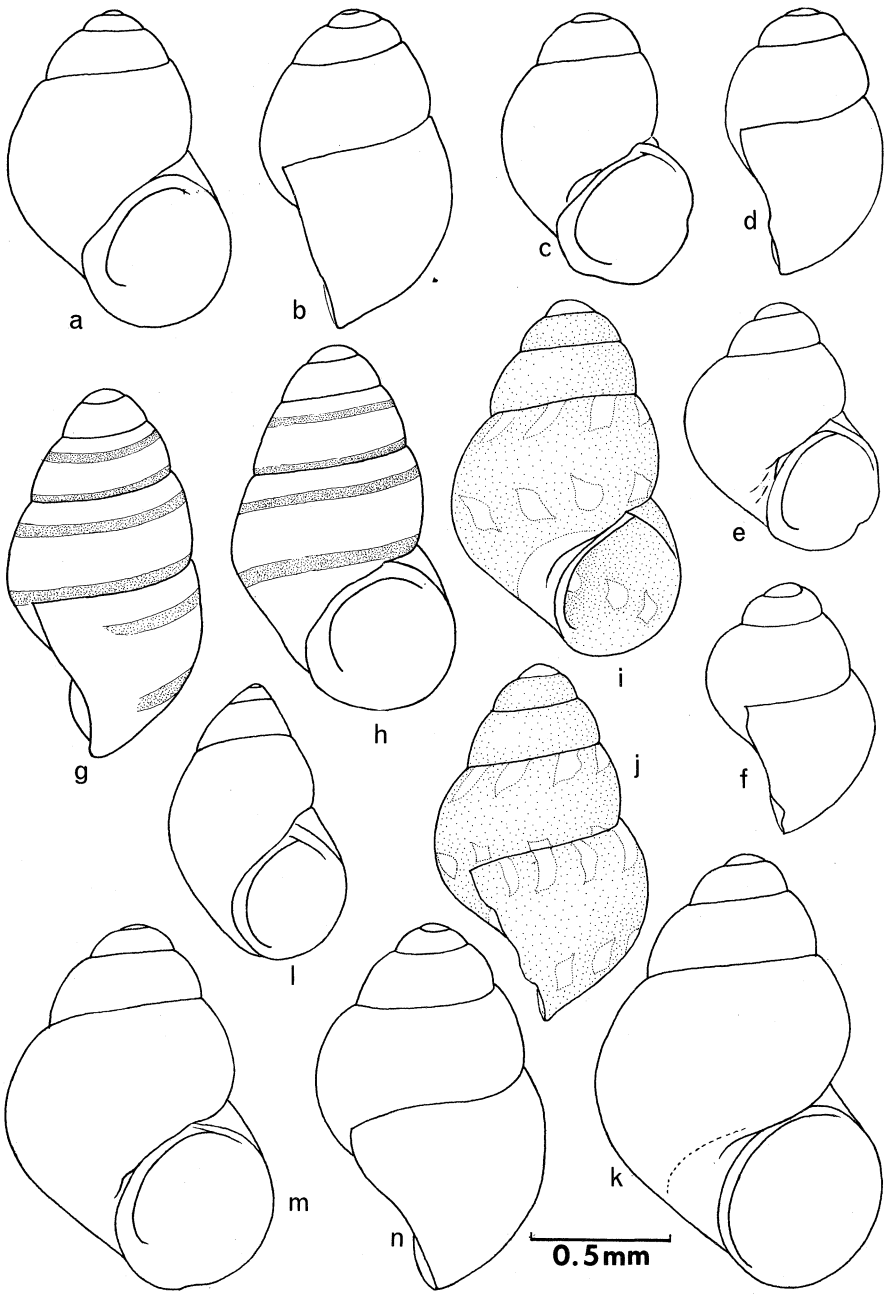

Fig. 2. a-b; *Eatoniella (E.) juliae* sp. nov., holotype, near Hopetoun Jetty, S.W.A. c-d; *E. (E.) exigua* sp. nov., holotype, S. end of Green Cape, N.S.W. e-f; *E. (E.) talboti* sp. nov., holotype, One Tree Is., Capricorn Group, Qld. g-h; *E. (E.) hewittae* sp. nov., holotype, Cape Naturaliste, S.W.A. i-k; *E. (E.) australiensis* (Thiele); i-j; holotype of *Lucidestea maculosa* Laseron, Lindeman Is., Qld. k; holotype, Cockburn Sound, W.A. (traced from Polaroid photograph). l; *E. (Albosabula) pellucida* (Tate & May), holotype, Frederick Henry Bay, S. Tasm. (traced from Polaroid photograph). m-n; *E. (E.) galbinia* (Laseron), lectotype, North Harbour, Sydney, N.S.W. (See text for dimensions).

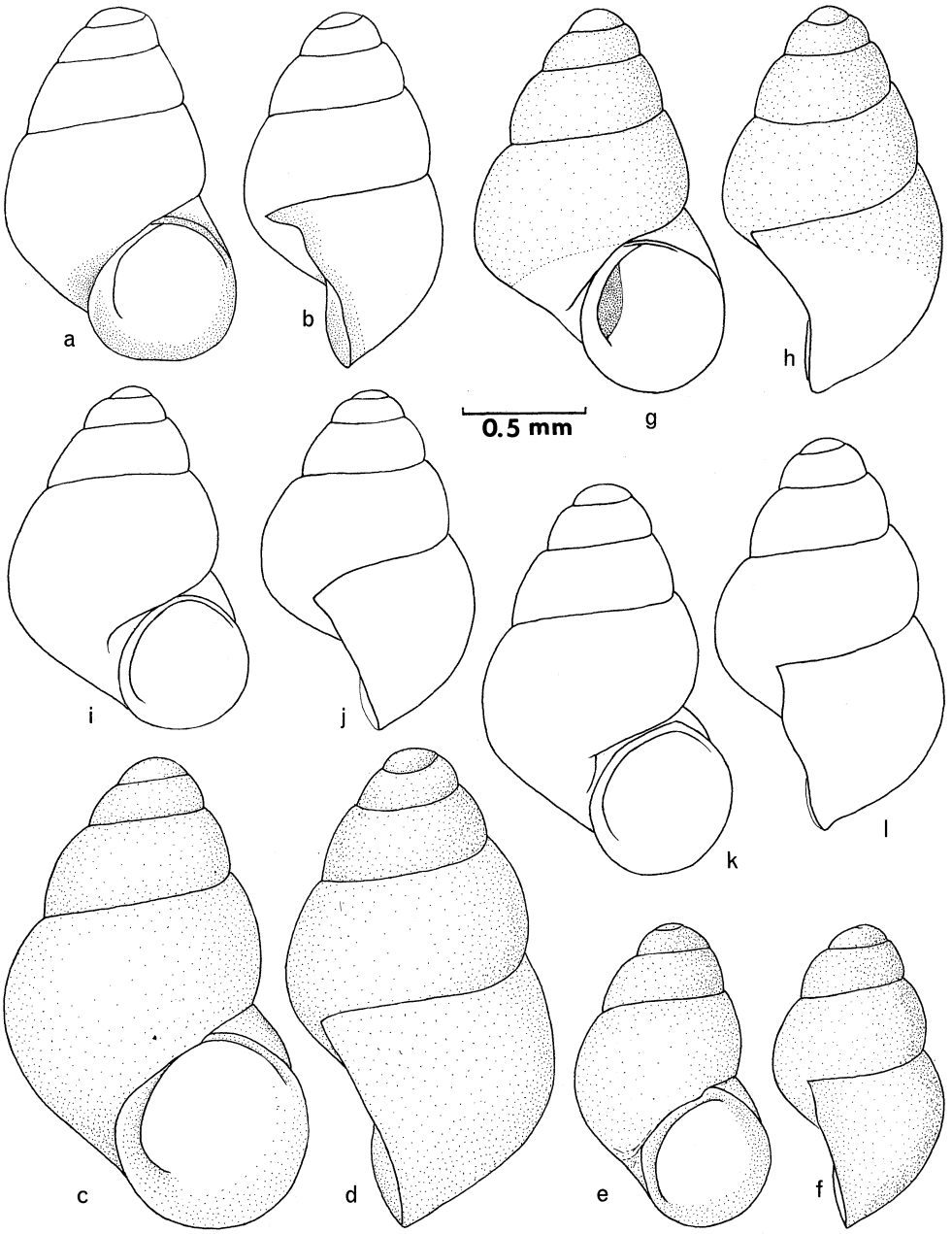

Fig. 3 a-d; *Eatoniella (E.) melanochroma* (Tate), a-b; Yallingup, S.W.A., c-d; Pirates Bay, Eaglehawk Neck, S. Tasm. e-f; *E. (E.) atrella* sp. nov., holotype, N. side of Black Head, Nadgee, N.S.W. g-h; *E. (E.) fulva* sp. nov., holotype, South Pt., S. of Two Peoples Bay, Albany, S.W.A. i-j; *E. (E.) victoriae* sp. nov., holotype, N.W. Arm, Western Port, Vic. k-l; *E. (E.) taylorae* sp. nov., holotype, Elliston, S.A. (See text for dimensions).

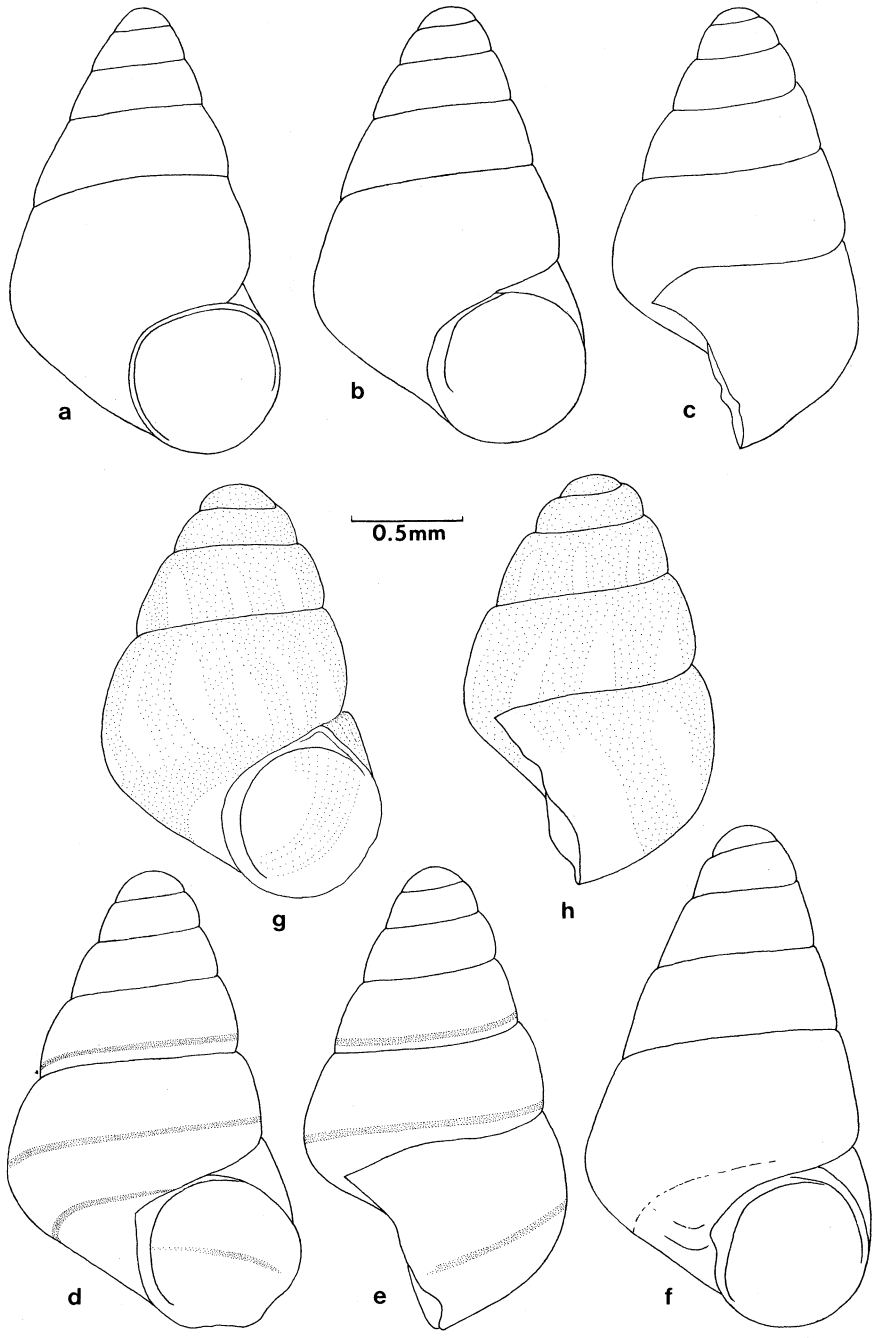

Fig. 4. a-e; *Crassitoniella erratica erratica* (May), a; holotype, off Cape Pillar, S. Tasm., b-c; topotype. d-e; paratype of *Amphithalamus aurantiocinctus* May, Thouin Bay, Tasm. f; *C. erratica subbicolor* (Ludbrook), holotype, Abbattoirs Bore, Adelaide, S.A. g-h; *C. flammea* (Frauenfeld), topotype, Botany Bay, Sydney, N.S.W. (See text for dimensions).

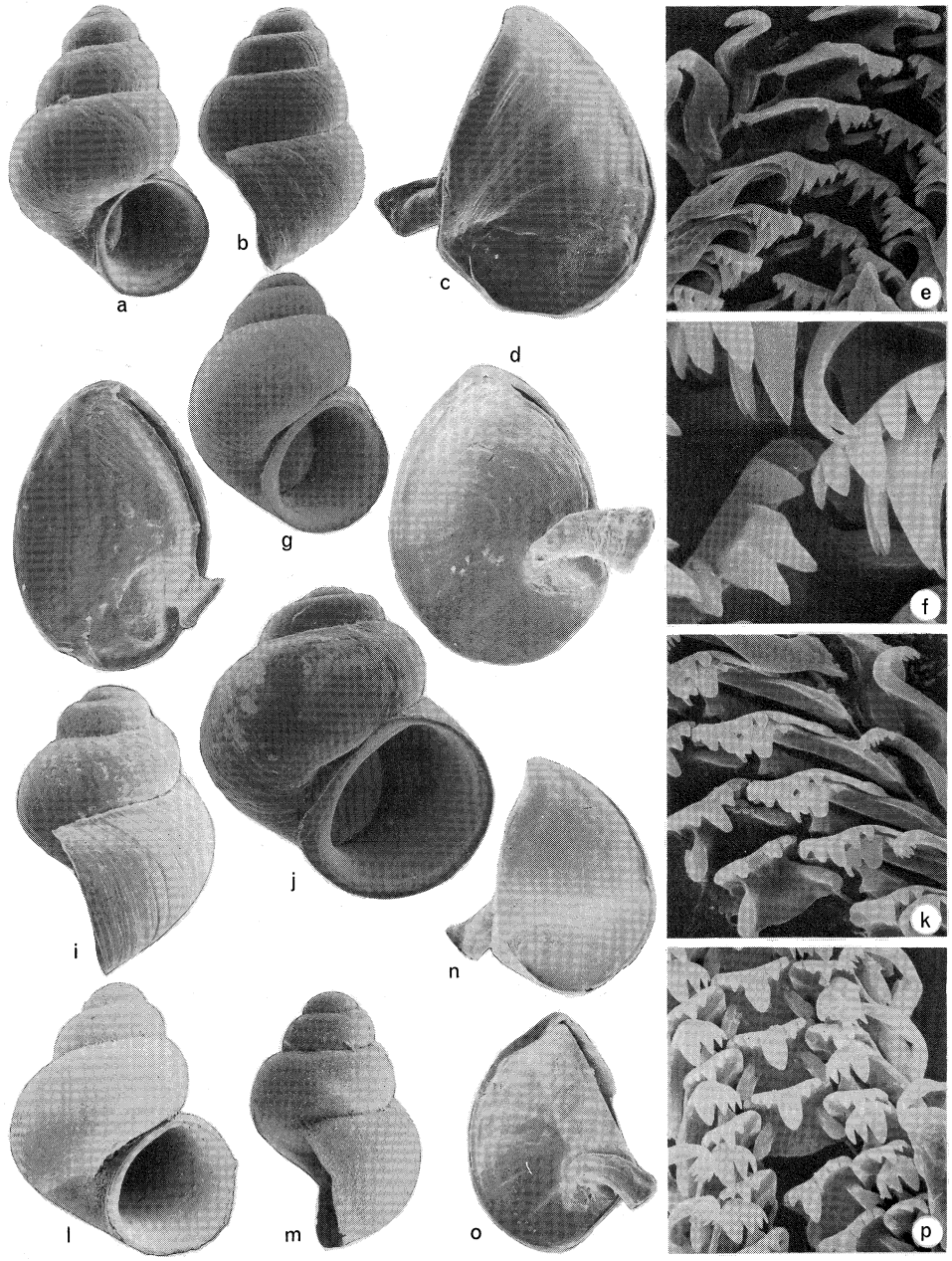

Fig. 5. a-f; *Eatoniella (E.) ansonae* sp. nov., a-b; shell (front and side view) X50, c-d; operculum (outer and inner side) X180, e-f; radula (e. X1400, f. X4800), off Dunsborough, S.W.A., paratypes, S.E.M. stub no. 129. g-k; *E. (E.) atropurpurea* (Frauenfeld), g; shell (front view) X50, h; operculum (inner side) X 140, Forster, N.S.W., S.E.M. stub no. 104, i; shell (side view) X 60, Nambucca Heads, N.S.W., S.E.M. stub no. 96, j; shell (front view) X 80, k; radula, X 1800, Pt. Lookout, N. Stradbroke Is., Qld., S.E.M. stub no. 190. l-p; *E. (E.) shepherdi* sp. nov., l-m; shell (front and side view) X 70, n-o; operculum (outer and inner side) X 100, p; radula, X 1400, Deal Is., Bass Strait, N. Tasm. S.E.M. stub no. 101.

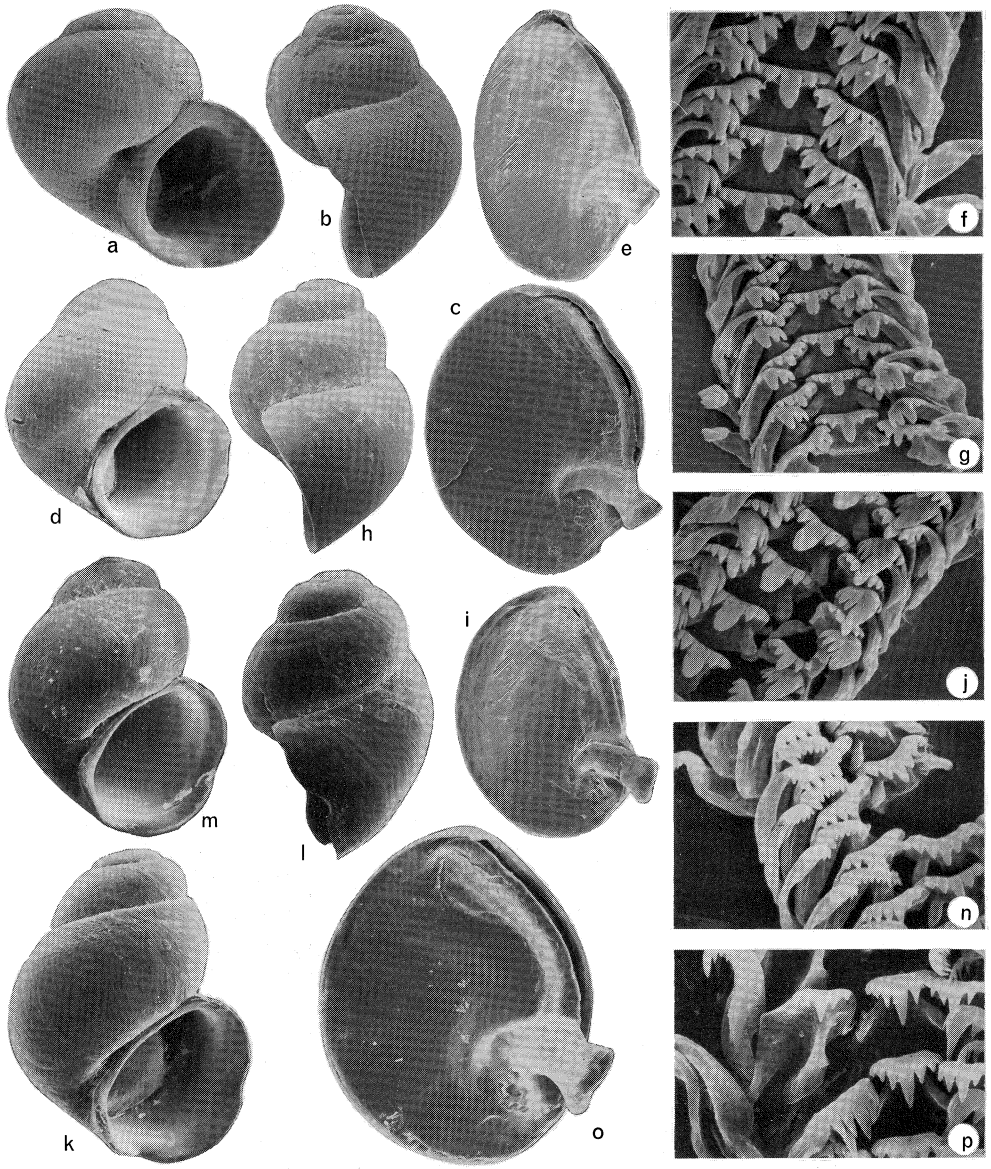

Fig. 6. a-c; *Eatoniella (E.) depressa* sp. nov., a-b; shell (front and side view) X 45, c; operculum (inner side) X 110; Moonlight Beach, W. of Cape Otway, Vic., S.E.M. stub no. 99. d-j; *E. (E.) puniceolinea* sp. nov., d; shell (front view) X 45, e; operculum (inner side) X 100, f-g; radula (f. X 1400, g. X 900), Deal Is., Bass Strait, N. Tasm. S.E.M. stub no. 108, h; shell (side view) X 45, i; operculum (inner side) X 110, j; radula, X 900, Carnac Is., off Fremantle, W.A., S.E.M. stub no. 105 (figs h-j; *E. (E.)* cf. *puniceolinea).* k-n; *E. (E.) exigua* sp. nov., k-l; shell (front and side view) X 60, Green Cape, N.S.W., S.E.M. stub no. 265, m; shell (front view) X 60, n; radula, X 1700, Deal Is., Bass Strait, N. Tasm., S.E.M. stub no. 128. o-p; *E. (E.) talboti,* sp. nov., o; operculum (inner side) X 170, p; radula, X 1500, One Tree Is., Capricorn Group, Qld, S.E.M. stub no. 262.

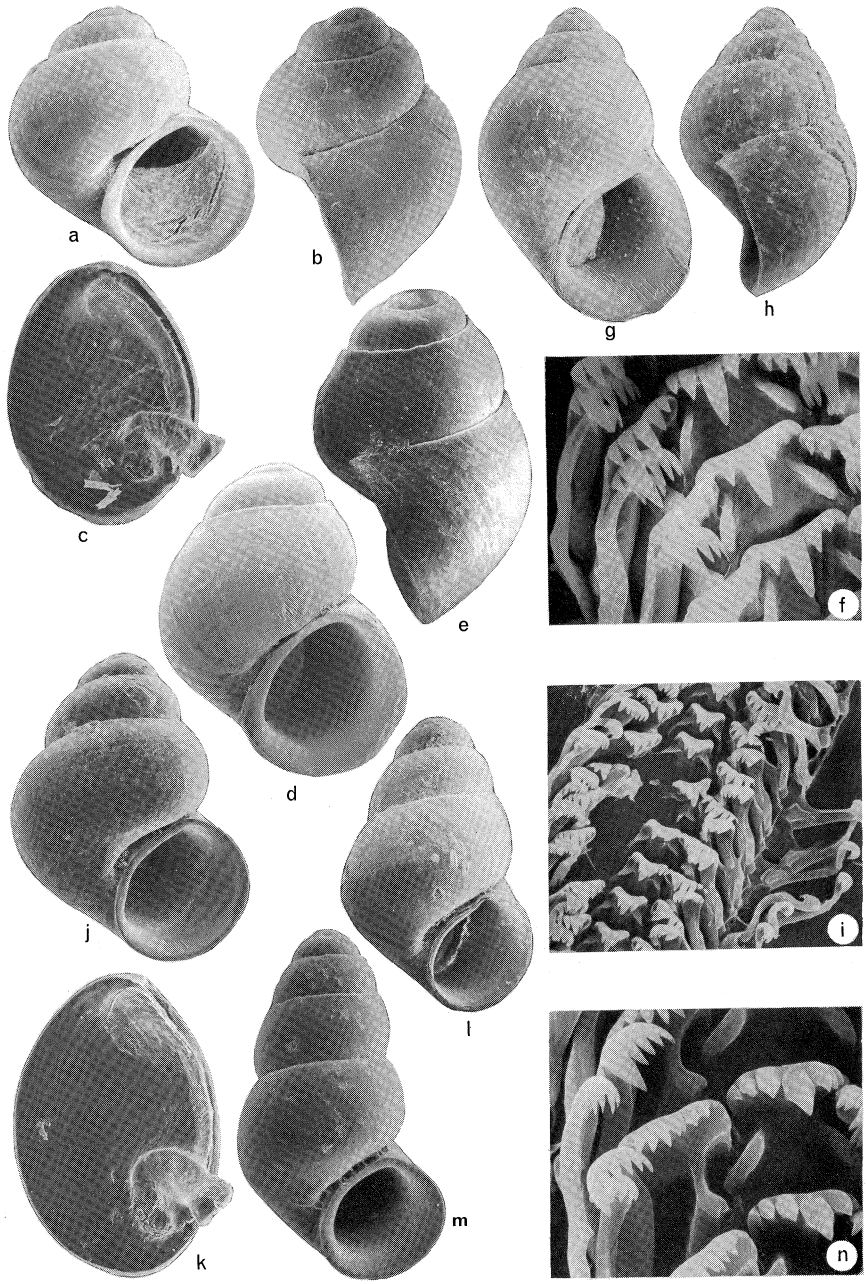

Fig. 7. a-c; *Eatoniella (E.) howensis* sp. nov., a-b; shell (front and side view) X 80, c; operculum (inner side) X 190, off Phillip Pt., Lord Howe Is., S.E.M. stub no. 106. d-f; *E. (E.) juliae* sp. nov., d-e; shell (front and side view) X 55, f; radula, X 2160, Hopetoun Jetty, S.W.A., S.E.M. stub nos. 234, 507. g-i; *(Albosabula) pellucida* (Tate & May), g-h; shell (front and side view) X 55, i; radula, X 1650, Eaglehawk Neck, S. Tasm., S.E.M. stub no. 125. j-l; *E. (E.) australiensis* (Thiele), j; shell (front view) X 45, k; operculum (inner side) X130, Garden Is., W.A., S.E.M. stub no. 136, l; shell (front view) X 55. Exmouth, W.A., S.E.M. stub no. 98. m-n; *E. (E.) hewittae* sp. nov., m; shell (front view) X 55, n; radula, X 2160; Carnac Is., off Fremantle, W.A., S.E.M. stub no. 246.

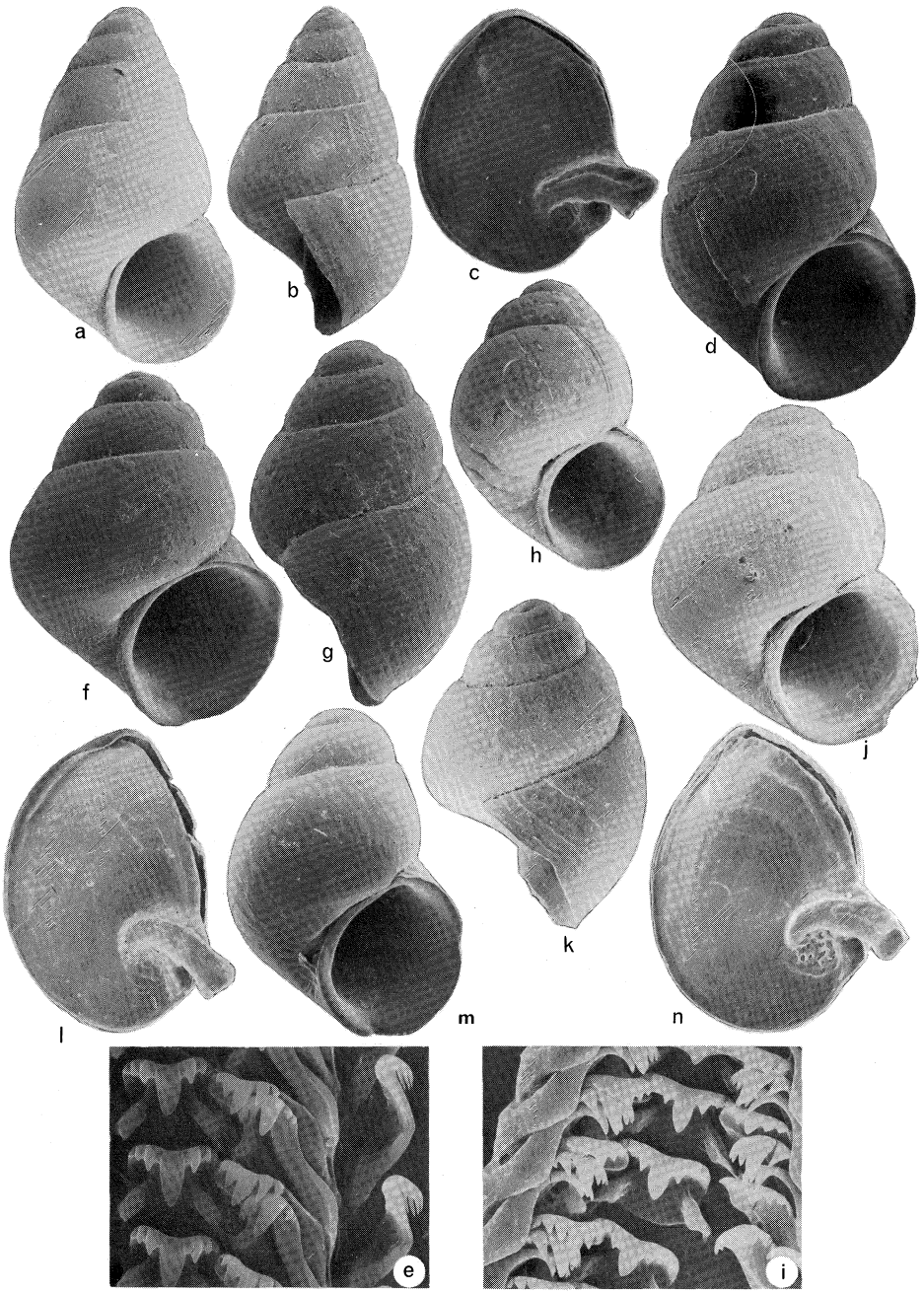

Fig. 8. a-e; *Eatoniella (E.) fulva* sp. nov., a-b; shell (front and side view) X 45, c; operculum (inner side) X 120, Deal Is., Bass Strait, N. Tasm., S.E.M. stub no. 109, d; shell (front view) X 50, e; radula, X 1600, Hopetoun Jetty, ws.w.a., s.e.m. stub no. 182. f-n; *E. (E.) galbinia* (Laseron), f-g; shell (front and side view) X 50, North Harbour, N.S.W., S.E.M. stub no. 153, h; shell (front view), X 45, i; radula, X 1500, Pt. Hicks, Vic., S.E.M. stub no. 126, j-k; shell (front and side view) X 50, l; operculum (inner side) X 120, Fairlight, Sydney, N.S.W., S.E.M. stub no. 102, m; shell (front view) X 50, n; operculum (inner side) X 140, Moonlight Beach, W. of Cape Otway, Vic., S.E.M. stub no. 100.

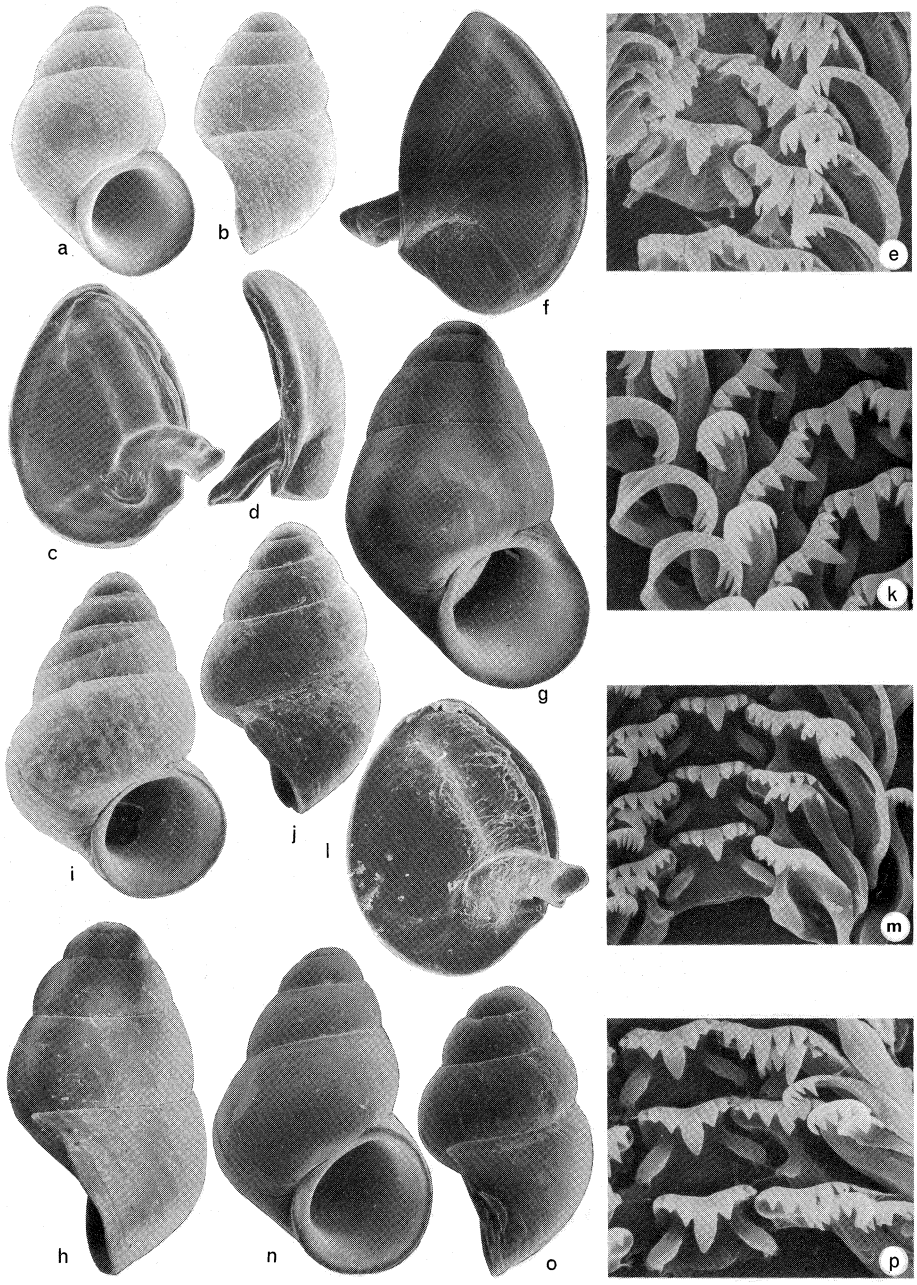

Fig. 9. a-m; *Eatoniella (E.) melanochroma* (Tate), a-b; shell (front and side view) X 30, c-d; operculum (inner and side view) X 100, e; radula, X 1400, Honeysuckle Pt., Shoreham, Vic., S.E.M. stub nos. 82, 95. f; operculum (outer side) X 100, Frederick Henry Bay, S. Tasm., S.E.M. stub no. 33, g-h; shell (front and side view) X 50, Yallingup, S.W.A., S.E.M. stub no. 235, i-j; shell (front and side view) X 35, k; radula, X 1750, Hopetoun Jetty, S.W.A., S.E.M. stub no. 236, l; operculum (inner side) X 120, m; radula, X 1400, Elliston Bay, S.A., S.E.M. stub no. 123. n-p; *E. (E.) atrella* sp. nov., n-o; shell (front and side view) X 50, p; radula, X 2000, Nadgee, N.S.W., S.E.M. stub nos. 238, 265.

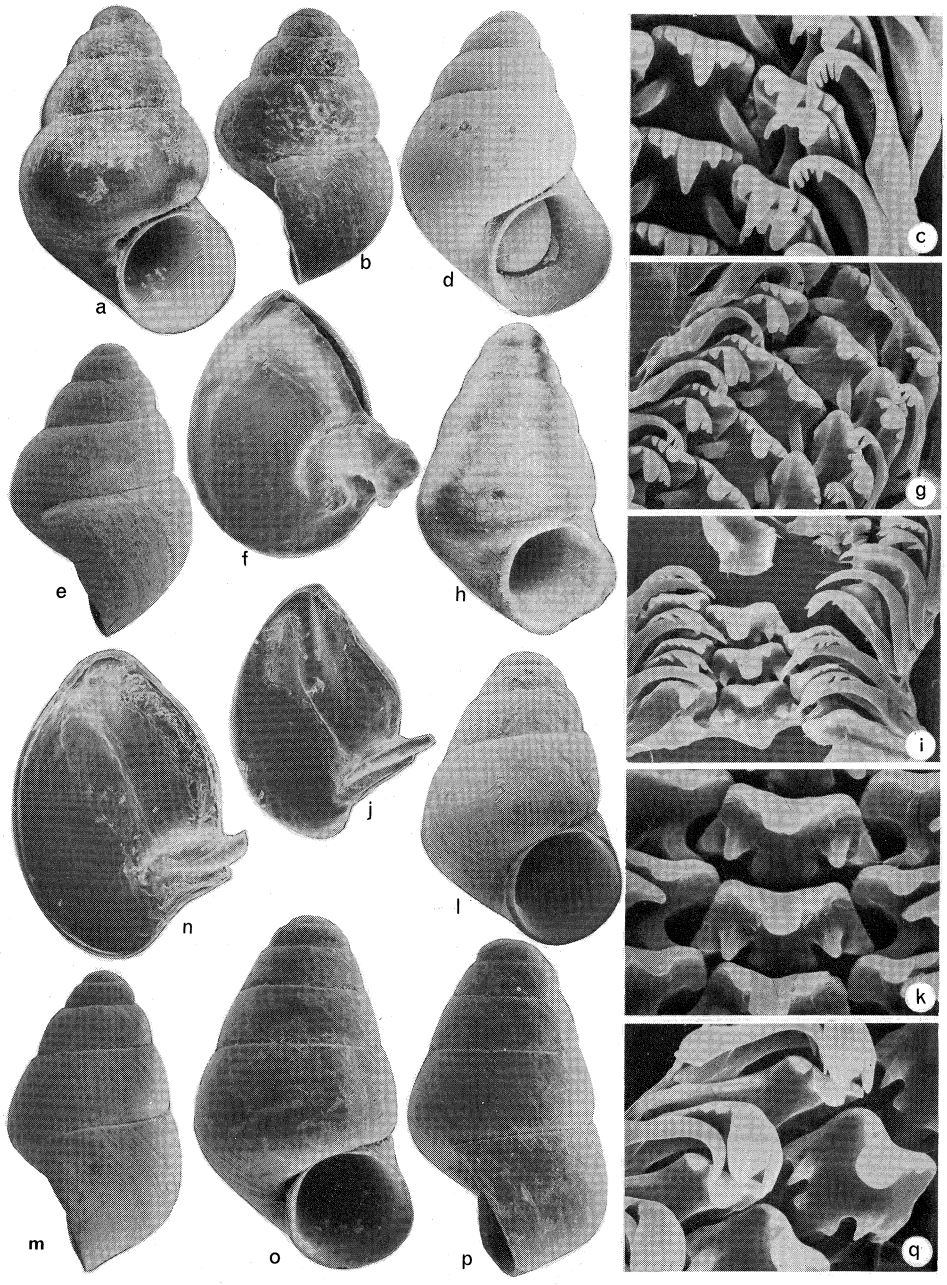

Fig. 10 a-c; *Eatoniella (E.) taylorae* sp. nov., a-b; shell (front and side view) X 35, c; radula, X 2400, Elliston, S.A., S.E.M. stub nos. 237, 266. d-g; *E. (E.) victoriae* sp. nov., d-e; shell (front and side view) X 50, f; operculum (inner side) X 120, g; radula, X 1200, N.W. Arm, Western Port, Vic., S.E.M. stub no. 110. h-k; *Crassitoniella erratica erratica* (May), h; shell (front view) X 30, i; radula, X 950, N.W. Arm, Western Port, Vic., S.E.M. stub no. 124, j; operculum (inner side) X 70, k; radula, X 1750, off Moreton Bay, Qld, S.E.M. stub no. 127. l-q; *C. flammea* (Frauenfeld), l-m; shell (front and side view) X 30, n; operculum (inner side) X 100, Balmoral, Sydney, N.S.W., S.E.M. stub no. 97, o-p; shell (front and side view) X 35, q; radula, X 1750, N. Stradbroke Is., Qld, S.E.M. stub no. 213.

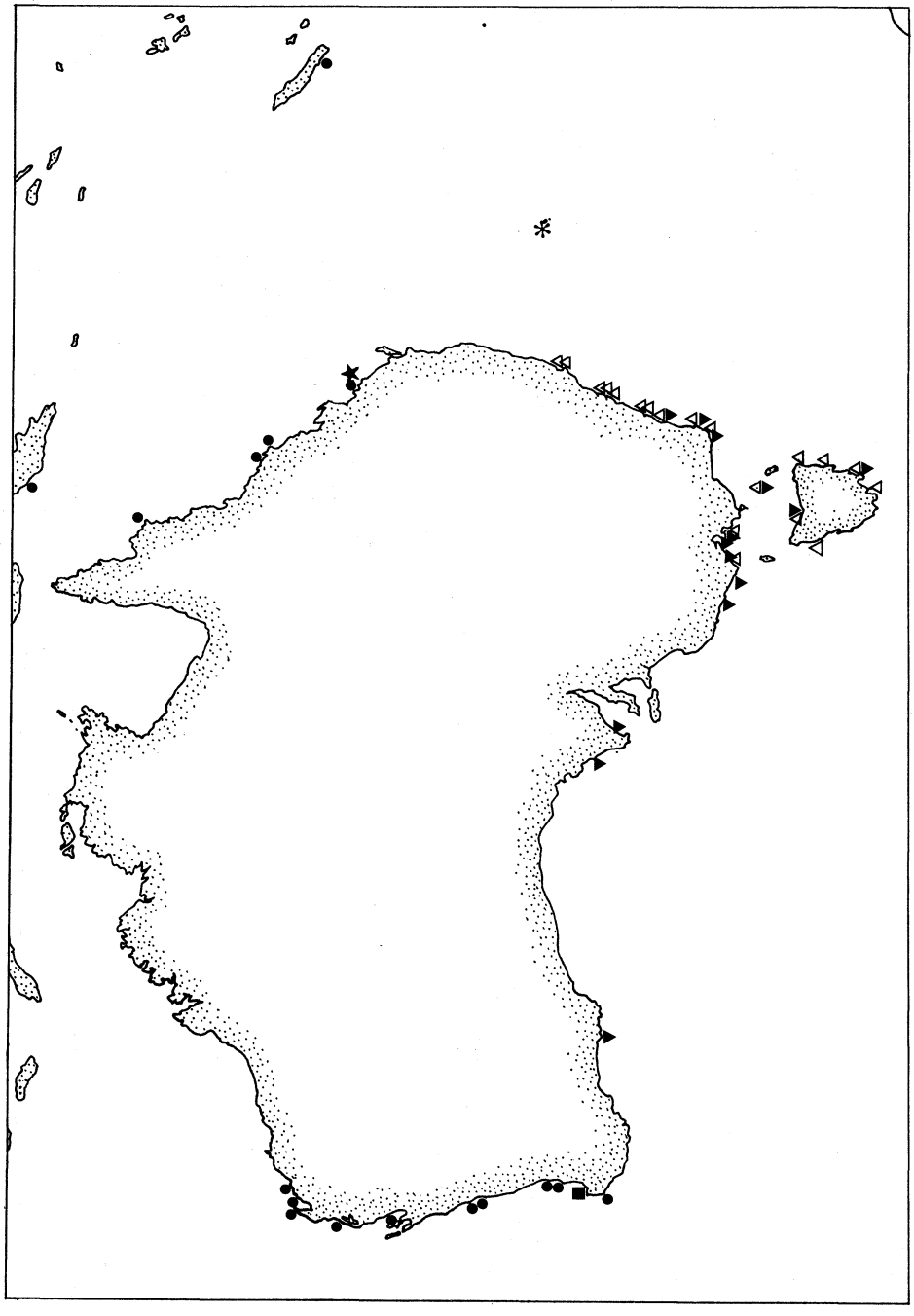

Fig. 11. Distribution of *Eatoniella* species. ■ *Eatoniella (Eatoniella) ansonae* sp. nov., ● *Eatoniella (Eatoniella) australiensis* (Thiele), ★ *Eatoniella (Eatoniella) talboti sp. nov.*, ▼ *Eatoniella (Eatoniella) depressa* sp. nov., △ *Eatoniella (Eatoniella) galbinia* (Laseron), **Eatoniella (Eatoniella) howensis* sp. nov.

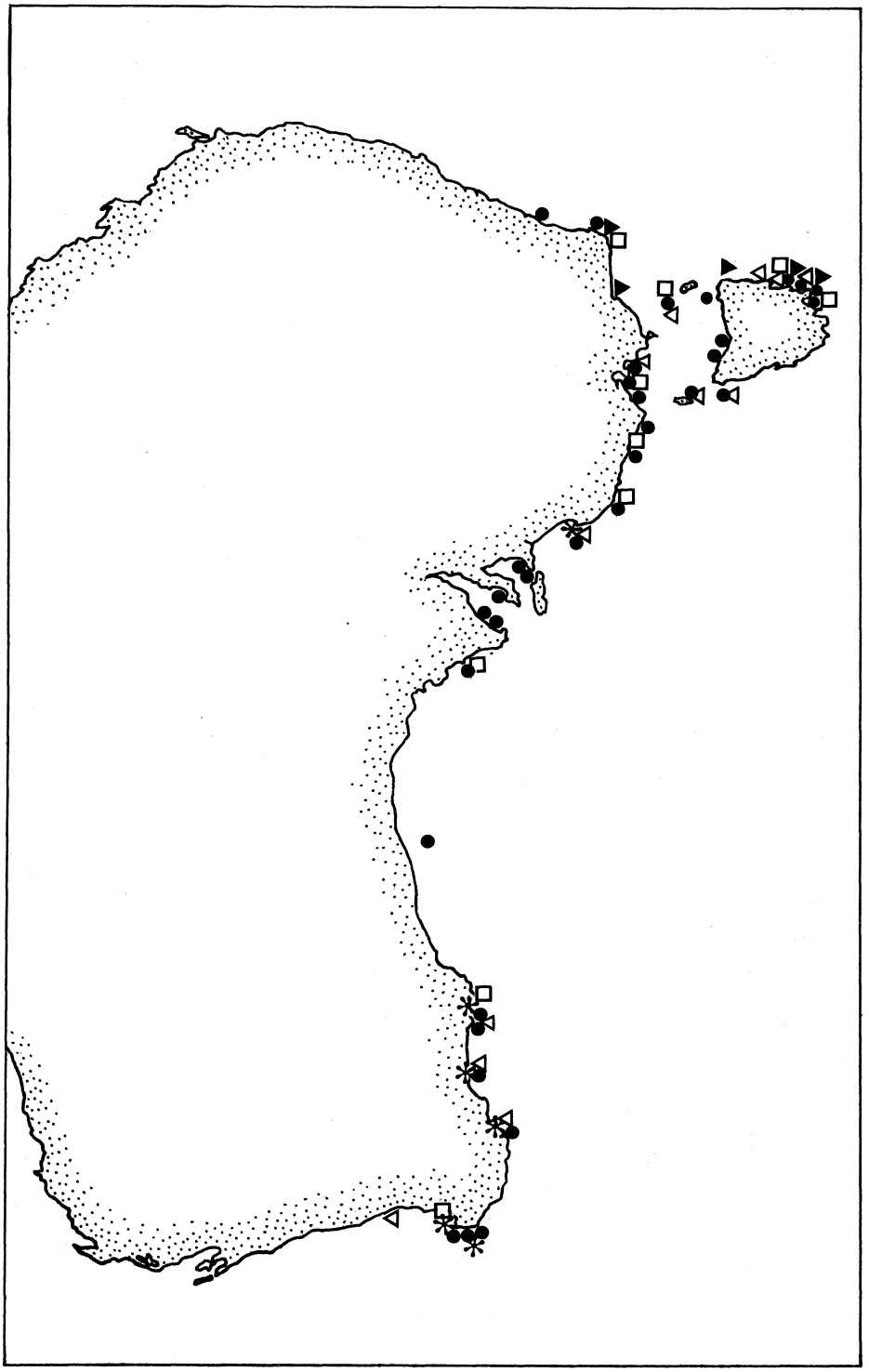

Fig. 12. Distribution of *Eatoniella* species. ▼ *Eatoniella (Eatoniella) atrella* sp. nov., □ *Eatoniella (Eatoniella) exigua* sp. nov., △ *Eatoniella (Eatoniella) fulva* sp. nov., * *Eatoniella (Eatoniella) juliae* sp. nov., ● *Eatoniella (Eatoniella) melanochroma* (Tate).

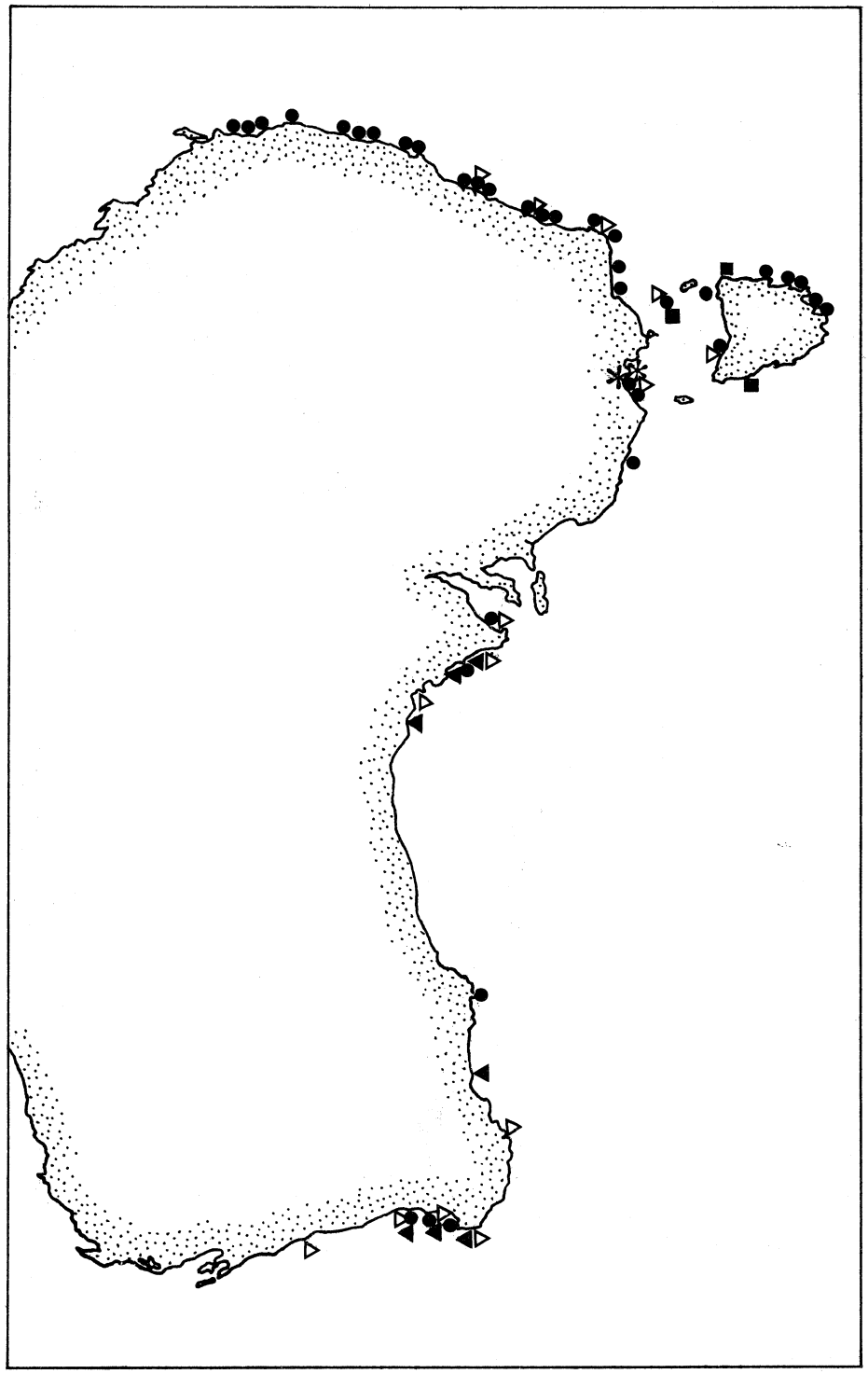

Fig. 13. Distribution of *Eatoniella* species. ● *Eatoniella (Eatoniella) atropurpurea* (Frauenfeld), ▽ *Eatoniella (Eatoniella) puniceolinea* sp. nov., ■ *Eatoniella (Eatoniella) shepherdi* sp. nov., ▲ *Eatoniella (Eatoniella) taylorae* sp. nov., * *Eatoniella (Eatoniella) victoriae* sp. nov.

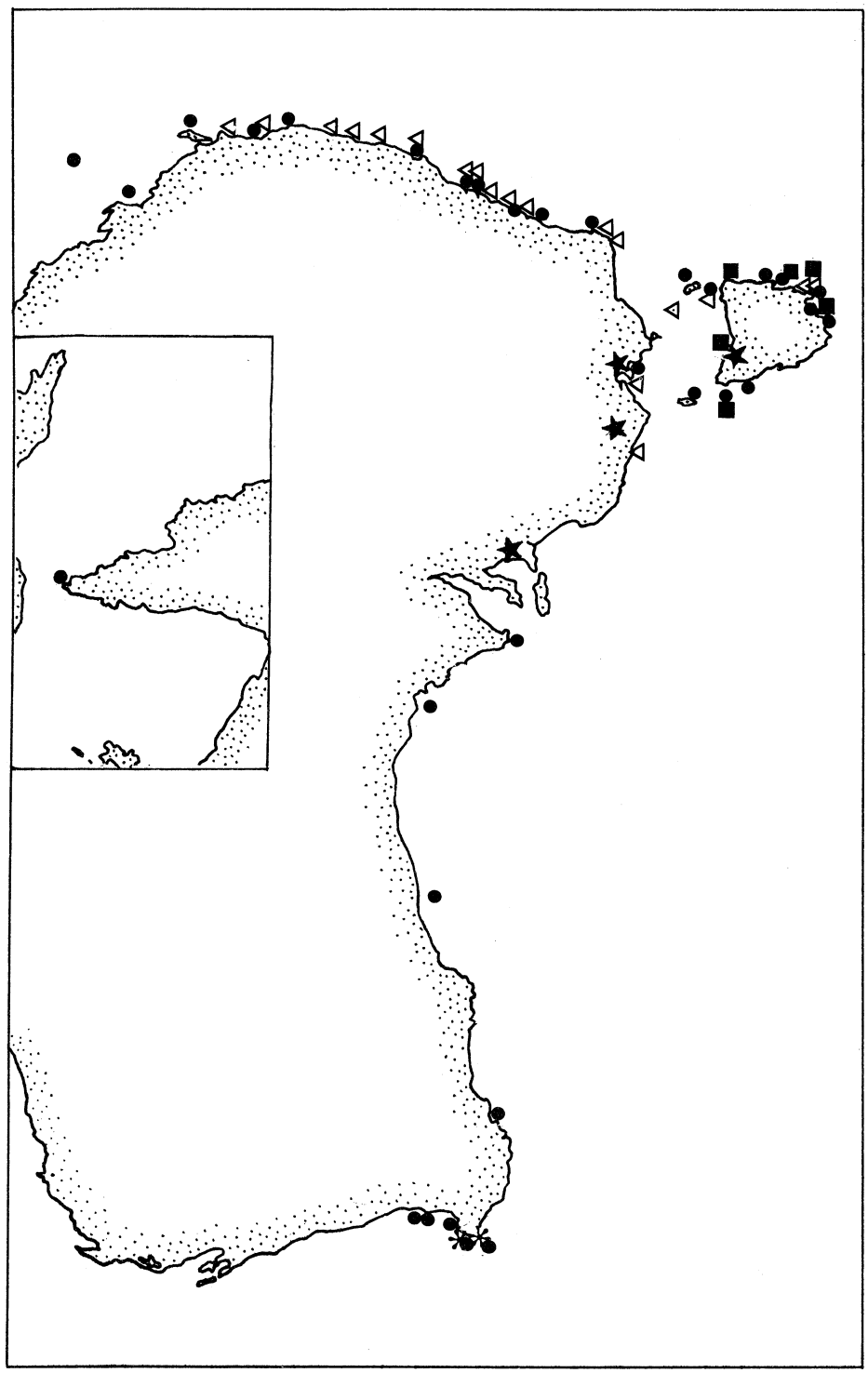

Fig. 14. Distribution of *Eatoniella* and *Crassitoniella* species. ● *Crassitoniella erratica erratica* (May), ★ *Crassitoniella erratica subbicolor* (Ludbrook), △ *Crassitoniella flammea* (Frauenfeld), * *Eatoniella (Eatoniella) hewittae* sp. nov., ■ *Eatoniella (Albosabula) pellucida* (Tate & May).