THE TAXONOMY OF SOME INDO-PACIFIC MOLLUSCA

PART 9

W.O. CERNOHORSKY

AUCKLAND INSTITUTE AND MUSEUM

Abstract. New geographical records are recorded for *Conus barthelemyi* Bernardi, *C. lentiginosus* Reeve, and *Sherbornia mirabilis* Iredale. The identity of *Cronia ochrostoma* (Blainville) is elucidated on the basis of its type specimen and *Nassarius barsdelli* Ladd from the Pleistocene of the New Hebrides is re-described. *Scabricola vicdani* from the Philippines and *Vexillum (Costellaria) malleopunctum* are described as new species of Mitracea.

Family MITRIDAE

Genus **Scabricola** Swainson, 1840

Scabricola Swainson, 1840, Treat. Malac. pp.130,319. Type species by SD (Gray, 1847) *Mitra serpentina* Lamarck, 1811 = *Voluta variegata* Gmelin, 1791. Recent, Indo-Pacific.

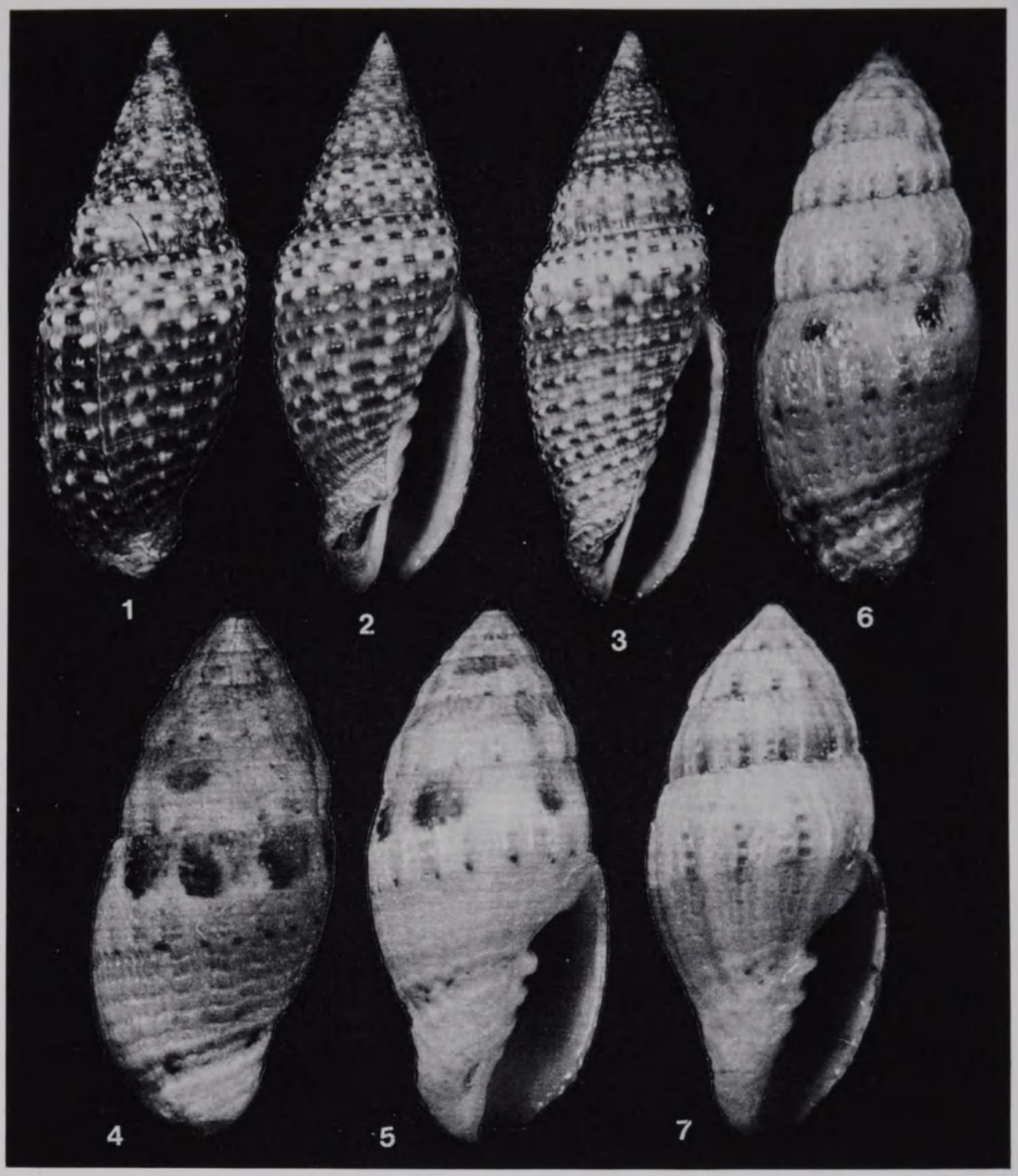
Scabricola vicdani sp. n. (Figs. 1-3)

Shell up to 43.0 mm in length, elongate-ovate, solid, width 35-39% of shell-length, teleoconch of 7½-8½ slightly convex whorls, protoconch partly missing on specimens examined. Sculptured with moderately elevated spiral cords which number 4-5 on penultimate and 13-15 on body whorl apart from 3-5 oblique cords on siphonal fasciole; interspaces concave and broader than cords, longitudinal sculpture consisting of crowded lirae which override spiral cords and render these bluntly granulose. Aperture narrow, longer than spire, 53-59% of shell-length, smooth within, outer lip thickened and bluntly crenulate, columella narrowly calloused and with 5-6 oblique folds, siphonal fasciole folded and always narrowly umbilicate in mature specimens, siphonal notch distinct. Base colour white, cream or pale orange, ornamented with a broad, orange-brown band on body whorl, cords ornamented with irregularly alternating white and orange-brown to reddish-brown spots, aperture pale orange-fawn.

TYPE LOCALITY. Punta Engaño, Mactan I, Cebu, Philippines, trawled in deep water by fishermen (depth indication not available).

Holotype. In AIM No. TM-1367, length 37.6 mm, width 14.0 mm, height of aperture 20.2 mm (Figs. 1,2).

Paratypes. No. 1 from type locality in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (30.3 x 10.2 x 17.8 mm). No. 2 from the type locality in the British Museum (Natural History), London (37.1 x 13.1 x 20.7 mm). No.'s 3-6 from the type locality in AIM; No.'s 7 and 8 from the type locality in coll. A. Deynzer and No.'s 9-12 from Panlao, Bohol, Philippines, *c.* 220 m depth, in coll. V. Dan.



Figs. 1-7. 1-3. *Scabricola vicdani* sp. n. 1,2. Holotype AIM No.TM-1367; 37.6 mm. 3. Paratype from Panlao, Bohol, Philippines; 36.5 mm. 4-7. *Vexillum (Costellaria)malleopunctum* sp.n. 4,5. Holotype WAM No. 430-80a; 20.3 mm. 6. Paratype; 21.8 mm. 7. Immature paratype; 18.5 mm.

None of the 13 specimens had a preserved animal and the assignment to *Scabricola* must remain tentative until a radula becomes available for examination. *S.vicdani* is similar to *S.angsanana* (K.Martin,1921) from middle Miocene deposits of Java, Indonesia, but the fossil species has groove-like, deeply pitted interspaces and lacks the folded siphonal fasciole and umbilical chink. It is also somewhat similar to the Recent

species *Neocancilla papilio* (Link,1807) in general shape and colouring but the latter species has a more slender body whorl, lacks the wider, concave interspaces and has a prominently different sculpture consisting of adjoining, alternating large and small spiral fillets and numerous intermediate spiral threads.

The new species is named for Mr Victor Dan, Manila, Philippines, who first brought this new species to my attention and who has been responsible for the discovery of several new molluscan species from the Punta Engaño area.

Family COSTELLARIIDAE

Genus **Vexillum** Roeding, 1798

Subgenus **Costellaria** Swainson, 1840

Costellaria Swainson, 1840, Treat.Malac. pp.130,320. Type species by M *Mitra rigida* Swainson, 1821 = *M. semifasciata* Lamarck, 1811. Recent, Indo-Pacific.

Vexillum (Costellaria) malleopunctum sp. n. (Figs. 4-7)

Shell up to 23.0 mm in length, elongate-ovate and somewhat pupiform, sutures adpressed, width 40-48% of shell-length, teleoconch of 6½-7½ convex whorls which occasionally become concavo-convex on the upper spire whorls, protoconch partly missing on specimens examined. Sculptured with moderately broad and low axial ribs which number 12-15 on the penultimate and 9-16 on the body whorl, ribs occasionally becoming obsolete towards the last third of the body whorl; spiral sculpture distinctly malleate, irregularly granulose adjacent to sutures followed by 5 spiral rows of small pittings on the penultimate and 10-12 rows on the body whorl, base of body whorl with 6-8 wavy and somewhat granulose cords. Aperture about equal in height or longer than the spire, 52-58% of shell-length, narrow and lirate within, outer lip thickened in adult specimens and obsoletely bluntly crenulate on anterior half, columella calloused and with 4-5 strong folds, siphonal notch moderately shallow. White in colour, body whorl with a broad, rose-coloured band, band occasionally bordered by small brown spots, sutures frequently with moderately large, squarish brown blotches, sutural spots occasionally absent, protoconch dark brown, aperture sometimes dark brown deep within.

TYPE LOCALITY. Capel, Geographe Bay, southwestern Australia, in 6.5 m, sand-pockets on limestone reef.

Holotype. In Western Australian Museum No. 430-80a, length 20.3 mm, width 8.9 mm, height of aperture 11.1 mm (Figs. 4, 5).

Paratypes. No. 1 from the type locality in AIM (21.7 x 8.8 x 11.4 mm) [Fig.6]. Immature paratypes No.'s 2 and 3 from the type locality in the Western Australian Museum No. 430-80b. Paratypes No.'s 4-6 from the type locality in coll. R. Walker. Paratypes No.'s 7 and 8 from the type locality in coll. G.M. Hansen. Paratype No. 9 from 3.2 km northwest of Busselton jetty, Geographe Bay, 22 m - 24 m, in the Western Australian Museum No. 3592, and paratype No. 10 from Bunbury, S.W. Australia, in coll. M. Marrow.

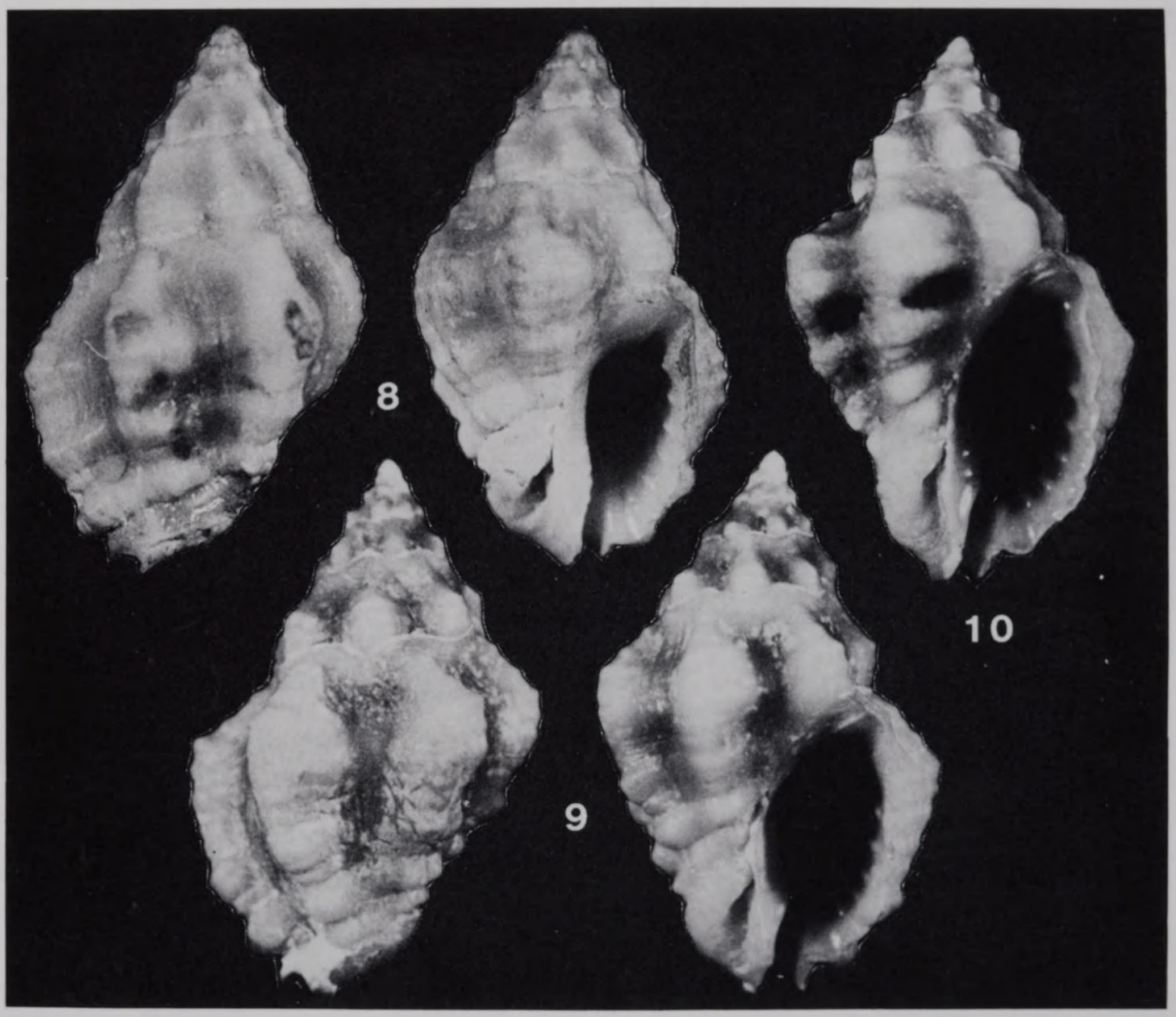
This new species has been known from a single specimen from the Bunbury area of Geographe Bay, S.W. Australia for several years. Specimens received recently by courtesy of Dr F. Wells, Western Australian Museum and Mrs G. M. Hansen and collected by Mr R. Walker and Mr J. Pas in the Geographe Bay area, confirm this to be a new species of Costellariidae.

The species is easily recognized by its pyriform shape, adpressed sutures, concavo-convex spire whorls and malleate surface. It can be compared with *Vexillum (Costellaria) modestum* (Reeve,1845), but this species has more angulate axial ribs and distinct spiral cords and lacks the pupiform shape, convex whorls and malleate surface of *V.(C.)malleopunctum*.

Family MURICIDAE

Genus **Cronia** H. & A. Adams, 1853

Cronia H. & A. Adams, 1853, Gen.Rec.Moll. 1:128. Type species by M. *Purpura amygdala* Kiener, 1835. Recent, Indo-Pacific.



Figs. 8-10. *Cronia ochrostoma* (Blainville). 8. Holotype Mus.Nat.d'Hist. Nat. Paris; 17.7 mm. 9. Specimen from Rabaul, New Britain, Papua New Guinea; 15.9 mm. 10. Specimen from off Kampong, N.W. Tajundu, Kai Is, Indonesia, USNM No. 748324; 16.4 mm.

Cronia ochrostoma (Blainville,1832) (Figs. 8-10)

1832. *Purpura ochrostoma* Blainville, Nouv.Ann.Mus.Hist.Nat. 1:205.
1976. *Cronia ochrostoma* (Blainville), Cernohorsky, Rec.Auckland Inst.Mus. 13:122, figs.31-34 (shell), figs.35,36 (radula) [detailed synonymy].

Kay (1979) when dealing with the species *Cronia ochrostoma* (Blainville), misinterpreted the identity of Blainville's species and illustrated the shell and radula of a Hawaiian *Drupella* species rather similar to *D.cornus* (Roeding, 1978). Kay (op.cit.) further remarked that she compared the Hawaiian shell with the type of *ochrostoma* in the Paris Museum and found them to be identical.

The interpretation of the taxon "*Purpura ochrostoma* Blainville" by Kay (op.cit.) and Cernohorsky (1976) are clearly conflicting and in the interest of taxonomic stability the identity of the species must be elucidated. The type specimen of *ochrostoma* has been received on loan from the Muséum National d'Histoire Naturelle, Paris, and the dimensions are length 17.7 mm, width 10.3 mm, height of aperture 9.4 mm. The type has 5 whorls and a worn protoconch, 6 broad axial ribs per whorl, 4 obsolete, heavy cords on the penultimate and *c.* 10 cords on the body whorl, the outer lip has 7 denticles and the columella 4 small basal denticles. The colour is off-white and slightly darkening between the axial ribs and the aperture is orange (Fig.8).

Compared with specimens from New Britian, Papua New Guinea (Fig.9) and the Kai Is, Indonesia (Fig.10), the type species of *C.ochrostoma* proves to be conspecific but differs appreciably from the "*ochrostoma*" of Kay (1979,fig.87B). The radula of the New Britian specimen illustrated here, has a typically *Cronia-Morula* type of radula (Cernohorsky, 1976, figs.35,36) and not a *Drupella* type of radula as illustrated by Kay (1979,fig.84,C,D).

Family NASSARIIDAE

Genus **Nassarius** Duméril, 1806

Nassarius Duméril, 1806, Zool.Analyt. p.166. Type species by SM (Froriep, 1806) *Buccinum arcularia* Linnaeus, 1758. Recent, Indo-Pacific.

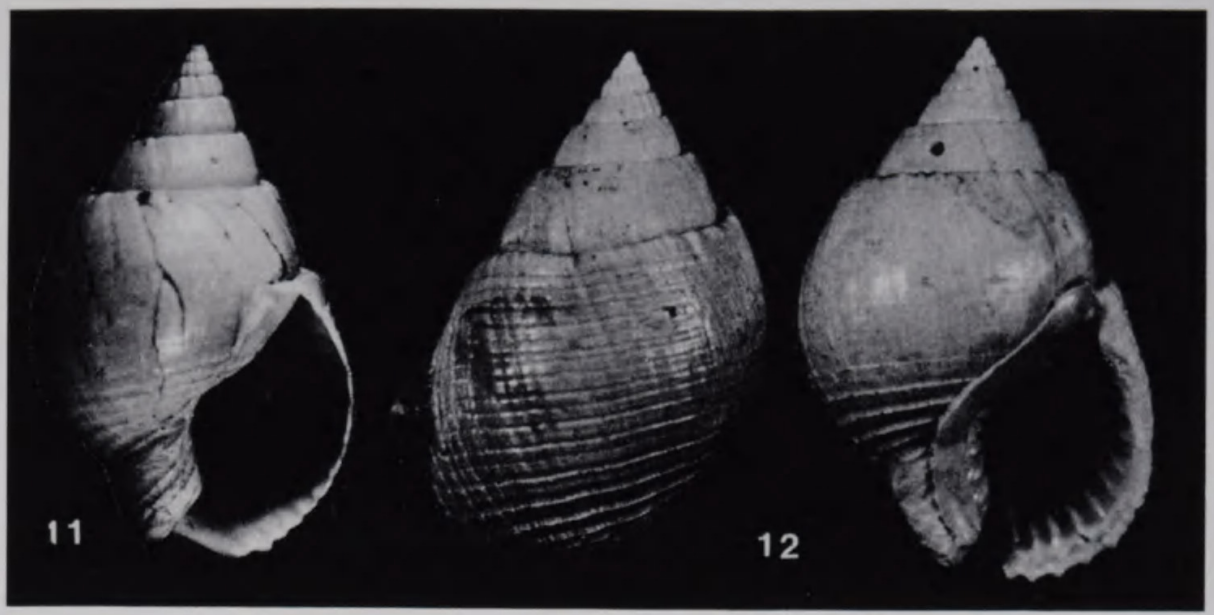
Nassarius barsdelli Ladd, 1976 (Figs. 11,12)

1976. *Nassarius (Alectrion) barsdelli* Ladd, Nautilus 90(4):131, figs.12-15.

Re-description: Shell up to 30.0 mm in length, broad and solid, teleoconch of 6¼ slightly convex whorls, protoconch of 3 finely keeled embryonic whorls, first 3-4 post-embryonic whorls with axial ribs and 3-4 over-riding spiral cords, sutures narrowly channeled and irregularly finely crenulate. Axial sculpture obsolete on last 3 whorls, body whorl with 11-17 spiral grooves on dorsal side, base with 4-5 strong cords and an additional 5-6 cords on the siphonal fasciole. Interior of aperture with 11 strongly lirate denticles, base of outer lip with 5-8 small denticles, columellar callus well defined but moderately narrow, columella with 9-11 prominent and slightly irregular denticles, siphonal notch deep. Some individuals with a preserved colour pattern show 2 broad, faded orange-brown bands on the body whorl.

TYPE LOCALITY. St.USGS-25715, Kere River, Santo I, Pleistocene of New Hebrides.

Type specimens. The juvenile holotype of *N.barsdelli* is in the National Museum of Natural History, Smithsonian Institution, Washington, No.USNM-214274, length 23.8 mm, width 14.7 mm (Fig.11).



Figs. 11,12. *Nassarius barsdelli* Ladd. 11. Juvenile holotype USNM No. 214274; 23.8 mm. 12. Mature topotype from Kere River, Santo I, Pleistocene of New Hebrides; 27.6 mm.

Ladd (1976) based his original description of *N.barsdelli* on a series of about 40 juvenile specimens but not a single adult individual. These specimens display features of a thin outer lip, uncalloused columella, edentulous aperture and thin texture of juvenile individuals. Additional specimens collected by Mr M. Barsdell at Kere River, Santo I, contained several mature individuals of the species, thus requiring a re-description based on fully adult specimens (Fig.12).

Family CONIDAE

Genus **Conus** Linnaeus, 1758

Conus Linnaeus, 1758, Syst.Nat. ed.10:712. Type species by SD (Children, 1823) *C.marmoreus* Linnaeus,1758. Recent, Indo-Pacific.

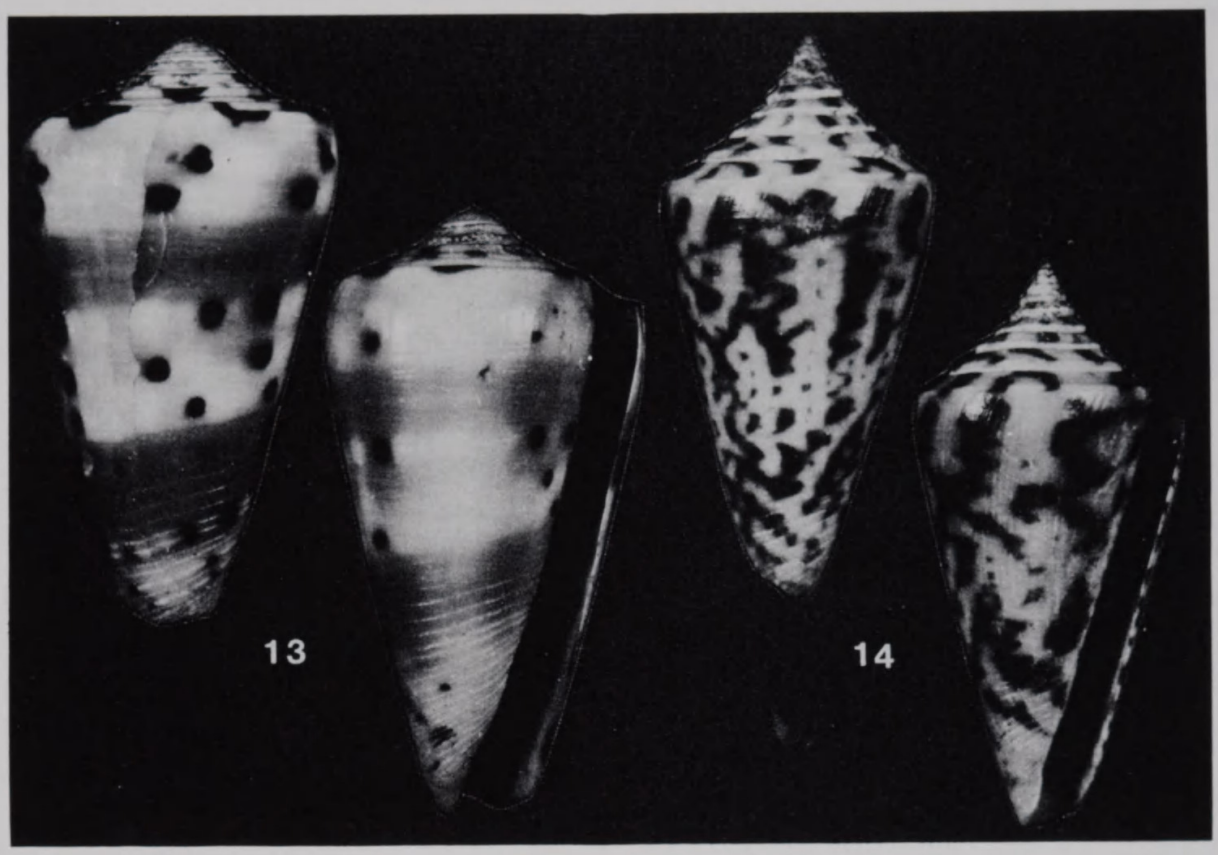
Conus barthelemyi Bernardi, 1861 (Fig.13)

1861. *Conus barthelemyi* Bernardi, J. Conchyl. 9:285; 1862 Bernardi, J.Conchyl. 10:46, pl.1,fig.12; 1979 Walls, Cones shells p.199, figs.on p.145.
1977. *Conus (Rhizoconus) paradiseus* Shikama, Sci.Repts.Yokohama Nat.Univ. sec.2, No.24:20,pl.4, figs.2a,b; pl.5,fig.6.

TYPE LOCALITY. Diego Garcia, Chagos Archipelago, Indian Ocean *(barthelemyi)*; Indian Ocean *(paradiseus)*.

This rare species has only become more widely known during the last 10 years and most specimens collected originated from Mauritius, Reunion and the Comores Is, south-western Indian Ocean. The record of a specimen of *C.barthelemyi* from Guadalcanal, Solomon Is (ex-N.Potter) is a considerable eastward range extension and the first record from the western Pacific (Fig.13).

Walls (1979) placed *C.gauguini* Richard & Salvat,1973, from the Marquesas Islands in the synonymy of *C.barthelemyi* and at the same time expressed some doubt as to the correctness of the type locality. *C.gauguini* has in the meantime been confirmed as living in French Polynesia, and although closely similar to *C.barthelemyi*, it always lacks the round, blackish-brown spots on the body whorl. It appears to resemble more closely some individuals of *C.circumcisus* Born, in colour pattern.



Figs. 13,14. 13. *Conus barthelemyi* Bernardi. Guadalcanal, Solomon Is; 55.0 mm.
14. *C.lentiginosus* Reeve. Guadalcanal, Solomon Is; 40.3 mm.

Conus lentiginosus Reeve, 1844 (Fig. 14)

1844. *Conus lentiginosus* Reeve, Conch.Iconica 1:pl.44,sp.245; 1979 Walls, Cone shells, p.634, figs. on p.408.
1854. *Conus optabilis* A.Adams, Proc.Zool.Soc.Lond. Pt.21:116.
1855. *Conus selectus* A.Adams, Proc.Zool.Soc.Lond. Pt.23:121.

TYPE LOCALITY. None *(lentiginosus* and *optabilis);* Malacca, Indonesia *(selectus).*

C. lentiginosus is best known from India where most of the specimens have been collected. *C.optabilis* is a form of *C.lentiginosus* lacking a definite colour pattern while the holotype of *C.selectus* is a slightly squatter and broader form which lacks the flammulate colour pattern and retains only 7-8 spiral rows of small spots. The species is recorded here from Guadalcanal, Solomon Islands (ex-N.Potter) which is a considerable eastward range extension from Indonesia (Fig.14).

Superfamily CERITHIOPSACEA H. & A. Adams, 1853

Family SHERBORNIIDAE Iredale, 1917

Genus **Sherbornia** Iredale, 1917

Sherbornia Iredale, 1917, Proc.Malac.Soc.Lond. 12:331. Type species by M *S.mirabilis* Iredale, 1917. Recent, Indian Ocean.

Sherbornia mirabilis Iredale, 1917 (Figs.15-19)

1917. *Sherbornia mirabilis* Iredale, Proc.Malac.Soc.Lond. 12:331,pl.13,figs. 1-4; 1940 Wenz, Handb.Palaeozool. 6:787,figs.2286; 1980 Marshall, New Zealand J. Zool. 7:87.

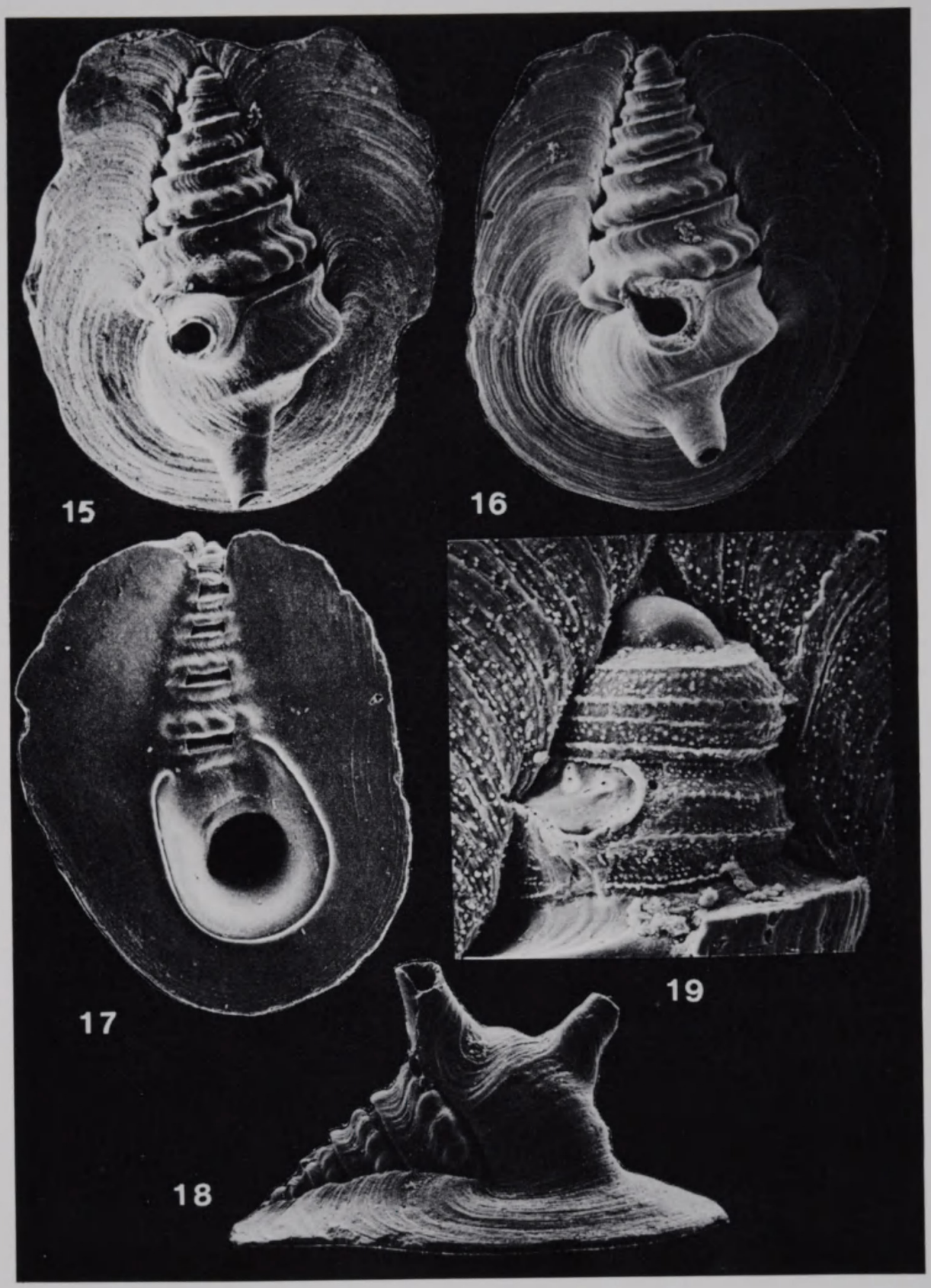
TYPE LOCALITY. North-East Point, Christmas Island, Indian Ocean, 100 fathoms (183 m), rich foraminiferal sand with shells and corallines.

Iredale (1917) described a minute (3.0 mm) bizarre-looking gastropod mollusc from Christmas I, Indian Ocean as *Sherbornia mirabilis* and erected the new family Sherborniidae which he placed next to the Triphoridae (type *Triphora* Blainville) containing sinistrally coiled shells. Marshall (1980) placed the Sherborniinae as a subfamily of Triforidae (type *Triforis* Deshayes) a family containing dextrally coiled gastropods. Until recently no specimens of *S.mirabilis* have been collected since the date of description and several authors even omitted the genus and species from their systematic arrangements.

Specimens of *S.mirabilis* have now been collected in the Pacific at Moruroa Atoll (*leg.* C.Beslu) and also in shell-sand at Anaa I, Tuamotu Archipelago (*leg.* J.Trondle). These specimens measure 1.8-2.1 mm in length, whorls are angulate and channeled at sutures and concavely indented centrally and sculptured with crowded, arcuate axial striae and rounded nodes at the anterior of sutures. Aperture is dextral and the whole ventral side of the shell is merged into a broad, oval and thin calcareous plate with primary and secondary concentric growth-striae; the dorsal side of the body whorl has 2 posterior and 1 anterior tubular canal. Shells are uniformly white, but they have all been collected devoid of animal (Figs. 15-19).

This new Polynesian record establishes the species Pacific distribution. It is either rare or usually overlooked because of its minute size. Mr B. Marshall, National Museum of N.Z., a specialist in this group of gastropods, will treat the species in greater detail in a forthcoming paper.

Acknowledgements. For the loan of molluscan specimens I would like to thank Mr M. Barsdell, formerly of the New Hebrides Geological Survey; Mr C. Beslu and Mr J. Trondle, Papeete, Tahiti; Dr J.S. Buckeridge, Carrington Technical Institute, Auckland; Mr V. Dan, Manila, Philippines; Major A. Deynzer, Sanibel I, Florida; Mrs G. Hansen, Victoria Park, Western Australia; Mr N. Potter, Auckland; Mr R. Walker, Western Australia, and Dr F. Wells, Western Australian Museum, Perth. I am grateful to Dr P. Bouchet, Muséum National d'Histoire Naturelle, Paris, for the loan of the type specimen of *Purpura ochrostoma* Blainville, and Mr B. Marshall, National Museum of New Zealand, Wellington, for Scanning Electron Microscope photographs of *Sherbornia mirabilis* and pertinent discussion concerning this species.



Figs. 15-19. *Sherbornia mirabilis* Iredale. Moruroa Atoll, Tuamotu Archipelago. 15,16. Dorsal view; 1.8 mm and 2.1 mm respectively. 17. Ventral view; 1.8 mm. 18. Lateral view; 1.8 mm. 19. Protoconch.

REFERENCES

CERNOHORSKY, W.O.

1976 The taxonomy of some Indo-Pacific Mollusca. Part 4. With descriptions of new taxa and remarks on *Nassarius coppingeri* (Smith). *Rec.Auckland Inst.Mus.* 13: 111-129., textfigs.

IREDALE, T.

1917 On some new species of marine Mollusca from Christmas Island, Indian Ocean. *Proc.Malac.Soc.London* 12: 331-334, pl.13.

KAY, E.A.

1979 Hawaiian Marine shells. Reef and shore fauna of Hawaii. Section 4: Mollusca. *Bernice P.Bishop Mus.Spec.Publ.* 64(4): i-xviii, 1-653, 195 textfigs.

LADD, H.S.

1976 New Pleistocene Neogastropoda from the New Hebrides. *Nautilus* 90(4): 127-138, textfigs.

MARSHALL, B.A.

1980 The sytematic position of *Triforis* Deshayes (Mollusca: Gastropoda). *N.Z. J. Zool.* 7:85-88.

WALLS, J.G.

1979 *Cone shells, a synopsis of the living Conidae*. T.F.H. Publ.Inc., Neptune City, N.J., U.S.A. 1011p., textfigs.