

The Ergalataxinae (Gastropoda, Muricidae) from the New Caledonia region with some comments on the subfamily and the description of thirteen new species from the Indo-West Pacific

by Roland HOUART

Abstract. — The Ergalataxinae dredged during the MNHN-ORSTOM cruises in the New Caledonia region are listed and discussed (19 species of which 4 are new). Thirteen new species are described: *Ergalatax zebra* from the Gulf of Aden, *Cytharomorula danigoi* and *Cytharomorula pinguis* from the New Caledonia region, *Cytharomorula springsteeni* from the Philippine Islands, *Daphnellopsis hypselos* from East Sumatra, *Lataxiena habropenos* from Mozambique, *Orania adiaestolos* from the New Caledonia region and South Africa, *Orania archaea* from the Philippine Islands, Taiwan, New Caledonia and Christmas Island (Indian Ocean), *Orania dharmai* from Indonesia, *Orania mixta* from the Philippine Islands and Sumatra, *Orania ornamentata* from southern Africa, *Orania simonetae* from the Marquesas Islands, and *Orania taeniata* from Christmas Island (Indian Ocean). *Fusus imbricatus* E. A. Smith, 1876 (not *F. imbricatus* Lesson, 1842 nec *F. imbricatus* De Kay, 1843) is renamed *Lataxiena desserti*. Two new combinations are adopted, *Orania fischeriana* (Tapparone Canefri, 1882) and *Orania pacifica* (Nakayama, 1988). Two nominal species are newly synonymised: *Columbella clathra* Lesson, 1842 is synonymised with *Muricodrupa fenestrata* (De Blainville, 1832) and *Murex muriformis* Lesson, 1844 is synonymised with *Muricodrupa fiscella* (Gmelin, 1791).

Keywords. — Gastropoda, Muricidae, Ergalataxinae, New Caledonia, Indo-West Pacific, systematics, new species.

Résumé. — Les Ergalataxinae (Gastropoda, Muricidae) de la région de Nouvelle-Calédonie avec quelques commentaires sur la sous-famille et la description de treize nouvelles espèces de l'Indo-Pacifique Ouest. Cette étude reprend les Ergalataxinae récoltés dans la région néo-calédonienne au cours des missions conjointes MNHN-ORSTOM. Au total 19 espèces, dont 4 nouvelles sont étudiées. D'autres nouvelles espèces appartenant à la faune de l'Indo-Pacifique sont décrites. Au total 13 nouvelles espèces sont nommées : *Ergalatax zebra* du golfe d'Aden, *Cytharomorula danigoi* de la région néo-calédonienne, *Cytharomorula pinguis* de la région néo-calédonienne, *Cytharomorula springsteeni* des Philippines, *Daphnellopsis hypselos* de Sumatra, *Lataxiena habropenos* du Mozambique, *Orania adiaestolos* de la région néo-calédonienne et d'Afrique du Sud, *Orania archaea* des Philippines, de Taïwan, de Nouvelle-Calédonie et de l'île Christmas (océan Indien), *Orania dharmai* d'Indonésie, *Orania mixta* des Philippines et de Sumatra, *Orania ornamentata* d'Afrique du Sud, *Orania simonetae* des îles Marquises et *Orania taeniata* de l'île Christmas (océan Indien). *Fusus imbricatus* Smith, 1876 (non *F. imbricatus* Lesson, 1842 nec *F. imbricatus* De Kay, 1843) est renommé *Lataxiena desserti*. Deux nouvelles combinaisons sont adoptées, *Orania fischeriana* (Tapparone Canefri, 1882) et *Orania pacifica* (Nakayama, 1988). Deux nouvelles synonymies sont reconnues : *Columbella clathra* Lesson, 1842 synonyme de *Muricodrupa fenestrata* (De Blainville, 1832) et *Murex muriformis* Lesson, synonyme de *Muricodrupa fiscella* (Gmelin, 1791).

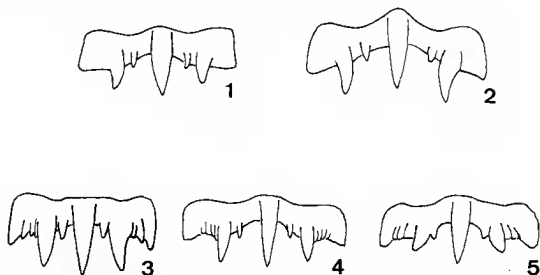
Mots-clés. — Gastropoda, Muricidae, Ergalataxinae, Nouvelle-Calédonie, Indo-Pacifique Ouest, systématique, nouvelles espèces.

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INTRODUCTION

The subfamily Ergalataxinae includes a number of poorly known small species. The radula is muricine, and the operculum has a subterminal nucleus (figs 1-5; 6-14; 15-24; 51, 52). Most species live at 5-100 m depth, although some may live deeper. Many of the species have numerous synonyms, and have been referred to several genera or even families, as can be seen in the synonymies.

The classification of these species is not easy, particularly due to the variable shell morphology and radular characters, and a number of problems remain partly unresolved. Accordingly, the generic classification for some species included in this study is tentative and likely to be modified in the future.



FIGS 1-5. — Radular types in the Ergalataxinae. 1-2, Group 1: smooth outer edge: 1. *Ergalatax* type; 2. *Pascula* type. 3-5, Group 2: outer edge with denticles or folds. 3. *Orania* type; 4. *Cytharomorula* type; 5. *Lataxiæna* type.

Having worked on this subfamily for several years now, I have had the opportunity to examine hundreds of specimens from throughout the geographical range of most of the species. Material examined is in the Muséum national d'Histoire naturelle, Paris, the Natural History Museum, London, the Natal Museum, Pietermaritzburg, the Australian Museum, Sydney, the Institut Royal des Sciences Naturelles de Belgique, Brussels, the author's collection, and in numerous private collections throughout the world. Where possible, type material of most of the species was examined.

The present contribution is primarily based on material collected on various cruises in the New Caledonia region organized by ORSTOM and Muséum national d'Histoire naturelle. All material from the New Caledonia region is recorded, though for species with numerous samples, I list only the name of the cruise, the station number and the number of specimens present. For full data, see RICHER de FORGES (1990 and 1991). Additional material will inevitably be recorded from the New Caledonia region, because there were further expeditions there while this article was being prepared. Additional records will be reported as they come to hand.

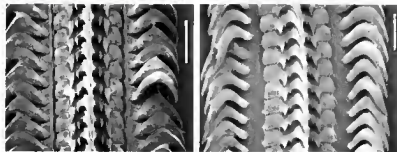
RADULA

There is much intergradation between the various radular types examined, so that a preliminary classification based mainly on the radular characters was abandoned. Two major groups are recognizable on the basis of radular characters. One group has a rachidian tooth with a long central cusp, small lateral denticles, medium-sized lateral cusps, and smooth outer edges, without accessory denticles or folds. This group includes the genera *Cronia*, *Ergalatax*, *Pascuda*, *Muricodrupa* and some other genera (figs 1-2). The second group has a rachidian tooth with accessory marginal denticles or strong folds on the outer edge. This group includes *Orania*, *Lataxiensia*, *Cytharomorula*, *Daphnellopsis*, and perhaps one or two more genera (figs 3-5).

Nevertheless, relationship of the various ergalataxine genera are still poorly understood and no attempt is made here to reconcile this observation.

Abbreviations used:

- AMS: The Australian Museum, Sydney
- ANSP: Academy of Natural Sciences of Philadelphia
- BMNH: The Natural History Museum, London
- CAS: California Academy of Sciences, San Francisco
- IRSNB: Institut Royal des Sciences Naturelles de Belgique, Bruxelles
- MCZ: Museum of Comparative Zoology, Harvard
- MNHN: Muséum national d'Histoire naturelle, Paris
- MNZ: Museum of New Zealand, Wellington
- NM: Natal Museum, Pietermaritzburg
- NMDP: Natal Museum Dredging Program
- NSMT: National Science Museum, Tokyo
- RH: Roland Houart collection
- SMF: Forschungsinstitut Senckenberg, Frankfurt
- USNM: National Museum of Natural History, Washington, D.C.
- WPU: Wilhelm-Pieck-Universität, Rostock
- ZMA: Instituut voor Taxonomische Zoölogie, Zoölogisch Museum, Amsterdam
- ZMB: Museum für Naturkunde der Humboldt Universität zu Berlin, zoologisches Museum

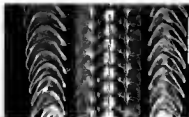


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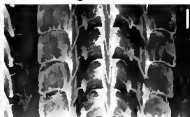
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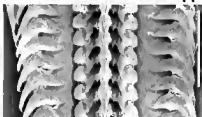
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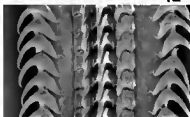
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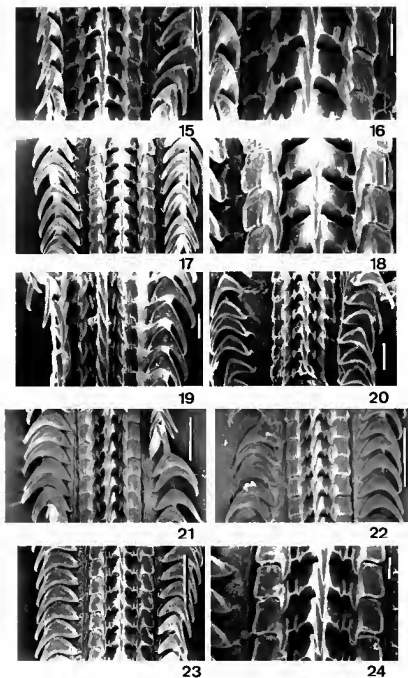


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FIGS 6-14. — Radulae of Erganataxinae. 6: *Erganatax margariticola* (Broderip), Tuléar, Madagascar (scale bar = 100 μ m). 7: *Erganatax zebra* n.sp., Gulf of Aden (scale bar = 100 μ m). 8: *Erganatax contracta* (Reeve), Gulf of Aden (scale bar = 100 μ m). 9-10: *Cytharomorula grayi* (Dall), New Caledonia (9: scale bar = 100 μ m; 10: scale bar = 20 μ m). 11-12: *Lataxiena deserti* nom. nov., New Caledonia (11: scale bar = 100 μ m; 12: scale bar = 100 μ m). 13: *Muricodrupa fuscilla* (Gmelin), New Caledonia (scale bar = 100 μ m). 14: *Orania adastolos* n. sp., New Caledonia (scale bar = 50 μ m).



FIGS 15-24. — Radulae of Ergalataxinae. 15-16: *Orania fischeriana* (Tapparoni Canefri), New Caledonia (15: scale bar = 50 μ m; 16: scale bar = 20 μ m). 17-18: *O. mixta* n. sp., Philippine Islands (17: scale bar = 100 μ m; 18: scale bar = 20 μ m). 19: *O. pacifica* (Nakayama), Philippine Islands (scale bar = 20 μ m). 20: *Cytharomorula danigoi* n. sp., New Caledonia (scale bar = 20 μ m). 21: *Orania ornamentata* n. sp., South Africa (scale bar = 50 μ m). 22: *Orania archaeva* n. sp., Christmas Island (scale bar = 50 μ m). 23-24: Radulae of Ergalataxinae. *Pascuala muricata* (Reeve), New Caledonia (23: scale bar = 100 μ m; 24: scale bar = 20 μ m).

Before station number:

CH: Chalut à panneaux (poissons)/Otter Trawl (fishes)

CP: Chalut à perche/Beam Trawl

DW: Drague Warén/Warén Dredge

P: Plongée en scaphandre autonome/dive

After the number of specimens:

lv: live-taken specimen(s)

dd: empty shells

NEW CALEDONIAN RECORDS

- Ergalatax contracta* (Reeve, 1846)
Ergalatax margariticola (Broderip, 1833)
Cytharomorula danigoi n. sp.
Cytharomorula grayi (Dall, 1889)
Cytharomorula pinguis n. sp.
Cytharomorula vexillum Kuroda, 1953
Daphnellopsis fimbriata (Hinds, 1843)
Lataxiena desserti nom. nov.
Lindapterys murex (Hedley, 1922)
Maculotriton ingens Houart, 1987
Maculotriton serriale (Deshayes, 1834)
Muricodrupa fenestrata (Blainville, 1832)
Muricodrupa fiscella (Gmelin, 1791)
Orania adiaastolos n. sp.
Orania archaea n. sp.
Orania fischeriana (Tapparone Canefri, 1882)
Orania pacifica (Nakayama, 1988)
Pascula lefevreiana (Tapparone Canefri, 1880)
Pascula muricata (Reeve, 1846)

SYSTEMATICS

The genera are listed alphabetically except for the type genus *Ergalatax*. The species are also listed alphabetically within each genus.

Family MURICIDAE Rafinesque, 1815

Subfamily ERGALATAXINAE Kuroda & Habe, 1971

Genus ERGALATAX Iredale, 1931

Ergalatax Iredale, 1931: 231

TYPE SPECIES by original designation. — *Ergalatax recurrens* Iredale, 1931.

Ergalatax contracta (Reeve, 1846)

(Figs 8, 56, 59-61)

Buccinum contractum Reeve, 1846a: pl. 8, fig. 53 [3 syntypes BMNH 1984103; type locality: Samar, Philippines].

Murex calcaris Dunker, 1860: 230 [holotype SMF 314481, figured in JANSSEN (1993); type locality: Japan].

Purpura (*Ricimda*) *siderea* — MARTENS, 1874: 95, pl. 5, fig. 49 (not of REEVE).

Urosalpinx innotabilis Smith, 1879: 201, pl. 20, fig. 32 [2 syntypes BMNH 78.11.18.50; type locality: Japan].

Ocenebrina pilsbryana Baker, 1891: 57 [lectotype ANSP 60307, 2 paralectotypes CAS 20699A and 20699B, selected and figured in VOKES (1994); type locality: Ceylon (Sri Lanka)].

Pentadactylus ceylonicum Preston, 1909: 137, pl. 22, fig. 17 [holotype BMNH 1915.1.6.64; type locality: Ceylon (Sri Lanka)].

Urosalpinx smithi Schepman, 1911: 351, pl. 21, fig. 5 [type material not examined; type locality: Sapoh-Strait, Java, Indonesia].

Urosalpinx bandana Schepman, 1911: 351, pl. 21, fig. 6 [type material not examined; type locality: Banda, Moluccas].

Morula martensi Dall, 1923: 304, replacement name for *Purpura siderea* Martens, 1874 (not of REEVE).

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn 19, 20, 24, 27, 30, 33, 45, 48, 55, 56, 67, 68, 71, 72, 74, 85, 87, 89, 90, 92, 102, 108, 109, 110bis, 112, 115, 116, 119, 131, 133, 143, 147, 150, 152, 156, 166, 167, 170, 178, 179, 187, 193, 198, 244, 247, 249, 250, 251, 252, 258, 259, 260, 264, 269, 270, 271, 272, 274, 275, 276, 279, 280, 285, 286, 287, 289, 301, 314, 315, 513, 527, 534, 567, 738, 743, 749, 758, 813, 834, 836, 852, 900, 905, 910, 911, 915, 923, 928, 937, 938, 939, 940, 944, 948, 949, 951, 955, 958, 964, 966, 967, 969, 970, 973, 975, 976, 978, 980, 986, 999, 1002, 1012, 1013, 1015, 1018, 1020, 1021, 1022, 1028, 1030, 1031, 1033, 1034, 1035, 1037, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1047, 1050, 1051, 1061, 1067, 1068, 1069, 1070, 1071, 1072, 1075, 1076, 1077, 1103, 1111, 1122, 1029, 1129, 1132, 1160, 1185, 1189, 1190, 1204, 1215 (391 lv & dd). MUSORSTOM 4: stn CP 148, 19°23' S, 163°32' E, 59 m (4 dd). — Chesterfield Plateau. CHALCAL I: stn DC 44, 20°46' S, 158°34' E, 79 m (1 dd).

DISTRIBUTION. — From East Africa, throughout the tropical and subtropical Indo-West Pacific, to Mururoa (Tuamotu), French Polynesia, as eastern limit in the Pacific Ocean, living at 5-40 m.

REMARKS

A variable and common species as can be seen by the extensive synonymy and the number of specimens recorded from New Caledonia. Hundreds of specimens have been examined from throughout the geographical range.

***Ergalatax nargariticola* (Broderip, 1833)**

(Figs 6, 62)

Murex undatus Dillwyn, 1817: 732 (not Gmelin, 1791), ref. to Chemnitz, v. 11, figs 1851, 1852.

Purpura lineolata De Blainville, 1832: 206 (not RISSO, 1826) [2 syntypes MNHN; type locality: Payta, Peru (eocene)].

Purpura squamosa Deshayes, 1832: 427, pl. 2, figs 6-8 (not LAMARCK, 1816) [no type material; type locality: west coast of India].

Murex margariticola Broderip, in BRODERIP & SOWERBY, 1833: 177 [lectotype and 2 paralectotypes BMNH 1981146-7, selected by EMERSON and D'ATTILIO (1981); type locality: Lord Hood's Island].

Purpura violacea Lesson, 1842: 186 [2 syntypes MNHN; type locality: Gambier Islands].

Purpura squamulosa Deshayes, 1844: 104, new name for *Purpura squamosa* Deshayes, 1832 (not LAMARCK, 1816).

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn 210, 21°54' S, 165°53' E, 14 m (1 dd, MNHN); in the vicinity of Nouméa (1 lv, RH).

DISTRIBUTION. — From eastern Africa, throughout the tropical and subtropical Indo-West Pacific, to French Polynesia as eastern limit in the Pacific Ocean.

REMARKS

A common species, though only one specimen was recorded during MNHN-ORSTOM campaigns, probably due to the particular dredging methods.

***Ergalatax zebra* n. sp.**

(Figs 7, 63-64)

TYPE MATERIAL. — Gulf of Aden, Habido, Yemen (2 lv) (holotype at present in WPU, later in ZMB, 1 paratype RH).

DISTRIBUTION. — Only known from the type locality, Habido, Yemen, Gulf of Aden, depth unknown.

ETYMOLOGY. — Alluding to the peculiar spiral ornamentation.

DESCRIPTION

Shell (holotype) medium sized for the genus, up to 33.8 mm in length at maturity, heavy, stout. Spire high, consisting of approximately 6 strongly shouldered teleoconch whorls (first whorls eroded), with appressed suture. Protoconch unknown.

Axial sculpture consisting of high, rounded axial nodes or ridges, 8 from third to fifth whorl, 6 or 7 on last teleoconch whorl. Sculpture of earlier whorls unknown. Spiral sculpture consisting of 4 strong, broad, flat cords summits covered with narrower spiral cords and striae on last whorl. Other whorls with low spiral cords.

Aperture relatively small, elongate, ovate. Columellar lip smooth, adherent. Anal notch narrow, deep. Outer lip crenulate, with 5 small, weakly elongate nodes within.

Siphonal canal very short, narrow, open, smooth.

White with numerous dark brown to blackish spiral cords. Aperture bluish-white with light brown apertural nodes. Columellar lip light brown.

Radula (fig. 7).

REMARKS

Ergalatax zebra n. sp. differs from *E. contracta* (Reeve, 1846) in its more strongly shouldered shell with broader axial ribs, relatively narrower aperture, and in sculptural details. Other species of *Ergalatax* are not strongly dissimilar.

Genus CYTHAROMORULA Kuroda, 1953

Cytharomorula Kuroda, 1953: 231. Type species by monotypy: *Cytharomorula vexillum* Kuroda, 1953.

Cytharomorula danigoi n. sp.

(Figs 20, 27, 65-66)

TYPE MATERIAL. — New Caledonia. CHALCAL 2: stn DW71, 24°42' S, 168°10' E, 230 m (4 lv & dd: holotype and 1 paratype MNHN, 1 paratype AMS C 302329, 1 paratype MNZ 266156).

OTHER PARATYPES. — CHALCAL 2: stn DW 70, 24°46' S, 168°09' E, 232 m (1 lv, MNHN). BIOCAL: stn DW 64, 24°48' S, 168°09' E, 250 m (3 lv, MNHN); stn DW 65, 24°48' S, 168°09' E, 245-275 m (1 dd, MNHN). SMIB 3: stn DW9, 24°42' S, 168°08' E, 265 m (1 dd, MNHN). — Loyalty Ridge. MUSORSTOM 6: stn DW 399, 20°42' S, 167°00' E, 282 m (1 dd, MNHN); stn DW 442, 20°54' S, 167°17' E, 200 m (2 dd, MNHN). — Norfolk Ridge. SMIB 5: stn DW88, 22°19' S, 168°40' E, 350 m (2 lv & dd, 1 MNHN, 1 NM L1330/T1224). — Hunter and Matthew volcanos. VOLSMAR: stn DW7, 22°26' S, 171° 44' E, 325-400 m (5 lv & dd, 3 MNHN, 2 RH); stn DW 16, 22°25' S, 171°41' E, 420-500 m (1 lv, MNHN).

DISTRIBUTION. — New Caledonia area; Loyalty Ridge, southern New Caledonia, Hunter & Matthew volcanos, 200-500 m. Taken alive at 230-500 m.

ETYMOLOGY. — Named for Adolphe DANIGO, engineer on board R.V. "Alis", who spends many hours at the sorting table during the deep-sea cruises.

DESCRIPTION

Shell small for the genus, up to 11.9 mm in length at maturity (paratype MNHN), narrow. Spire very high with 3+ protoconch whorls (probably 5 whorls, but incomplete in all specimens) and 5 weakly convex teleoconch whorls, with impressed teleoconch suture. Protoconch conical, smooth, glossy, terminal varix heavy, raised, of sinusigera type, abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of moderately high, rounded axial ribs, 10 on first teleoconch whorl, 9 or 10 on second, 10-12 on third and fourth whorl, 8-10 on last whorl. Axial ribs crossed by spiral sculpture consisting of 4 cords on first whorl, 5 cords on second, 10 or 11 cords and threads on third, more than 20 low threads on fourth whorl, numerous threads on last whorl and one spiral cord on abapical portion of whorl; spirals more prominent on axial ribs, where forming small, blunt spines.

Aperture ovate, narrow. Columellar lip smooth or with 1 or 2 small denticles abapically, rim partially erect abapically or completely adherent. Anal notch narrow, deep, occasionally delineated by small node. Outer lip erect, smooth, with 5 moderately high nodes within.

Siphonal canal short, narrow, straight, open, ornamented with spiral cords.

Whitish to light brown, with darker blotches, tip of siphonal canal dark brown, blunt spines lighter coloured. Aperture white.

Radula (fig. 20).

REMARKS

Compared with *Pascula lefevreiana* (Tapparone Canefri, 1880) (fig. 142) *Cytharomorula danigoi* n. sp. has fewer and shorter denticles within the aperture. The shell is also broader, with less angulate teleoconch whorls, a broader, more globose protoconch, while the tip of the siphonal canal is always dark brown instead of uniformly coloured. Other species of *Cytharomorula* and *Pascula* are strongly dissimilar.

Cytharomorula grayi (Dall, 1889)

(Figs 9-10, 67-68)

Nassarina grayi Dall, 1889: 183, pl. 32, fig. 12a [syntypes in MCZ and USNM; type locality: Barbados].
Cantharus laevis Smith, 1891: 261, pl. 21, fig. 11 [5 syntypes BMNH 1889.10.1.2362.7; type locality: St. Helena].

Trophon lowei Watson, 1897: 244, pl. 19, fig. 12 [holotype BMNH 1911.7.17.2; type locality: Madeira].

MATERIAL EXAMINED. — New Caledonia. BIOCAL: stn DW 65, 24°48' S, 168°10' E, 275 m (1 dd); stn DW66, 24°48' S, 168°09' E, 245 m (2 lv). CHALCAL 2: stn CH 8, 23°13' S, 168°03' E, 300 m (3 lv); stn DW 69, 24°44' E, 168°08' E, 260 m (1 dd); stn DW 70, 24°46' S, 168°09' E, 232 m (1 lv); stn DW 71, 24°42' S, 168°10' E, 230 m (4 dd). SMIB 3: stn DW 8, 24°45' S, 168°08' E, 233 m (2 dd); stn DW 9, 24°42' S, 168°08' E, 265 m (1 lv); DW 14, 23°40' S, 167°60' E, 246 m (3 lv, 1 dd). SMIB 4: stn DW 44, 24°46' S, 168°08' E, 300 m (1 dd); stn DW 46, 24°47' S, 168°09' E, 260 m (1 lv); stn DW 49, 24°46' S, 168°09' E, 300 m (1 dd). — Norfolk Ridge. SMIB 5: stn DW 95, 22°60' S, 168°20' E, 200 m (1 dd); stn DW 96, 23°00' S, 168°19' E, 245 m (1 dd).

DISTRIBUTION. — Western and eastern Atlantic (Santa Helena, Madeira, Canary Islands), South Africa, western Indian Ocean, New Caledonia and French Polynesia, 200-300 m, taken alive at 232-300 m.

REMARKS

The wide distribution of this species is probably due to a planktotrophic larval life of exceptional duration. No constant differences could be detected between the present material and specimens from the western and eastern Atlantic (RH), South Africa (off Mtamvuna River, Transkei, 31°08'04" S, 30°16'06" E, 160 m, R.V. *Meiring Naudé*, 1 dd, NM C9646; off Umlaas Canal, Durban, 128 m, 1 lv, NM B6282), the Indian Ocean (S.W. of Grande Glorieuse: BENTHEDI, stn DS 93, 11°32' S, 47°16' E, 480-550 m, 1 dd, MNHN; off Réunion: MD32, stn CP 129, 20°05' S, 55°36' E, 290-300 m, 1 dd, MNHN), French Polynesia (TRONDLE & HOUART, 1992: Marquesas, Fatu Hiva, 10°31' S, 138°39' W, 210 m, lv & dd, MNHN).

Cytharomorula pinguis n. sp.

(Figs 25, 72-73)

TYPE MATERIAL. — **Loyalty Ridge**. MUSORSTOM 6: stn DW 407, 20°41' S, 167°07' E, 360 m, lv, holotype MNHN; stn DW 478, 21°09' S, 167°54' E, 400 m, dd, paratype MNHN.

PARATYPES. — **Norfolk Ridge**. SMIB 5: stn DW 87, 22°19' S, 168°41' E, 370 m, 2 dd (1 MNHN, 1 RH). — **Hunter and Matthew volcanos**. VOLSMAR: stn DW7, 22°26' S, 171°44' E, 325-400 m, 1 dd (MNHN).

DISTRIBUTION. — New Caledonia area: Loyalty Ridge and Hunter and Matthew volcanos, 325-400 m. Taken alive at 360 m.

ETYMOLOGY. — *pinguis* (latin): fat.

DESCRIPTION

Shell medium-sized for the genus, up to 17.8 mm in length (holotype), broad, heavy, nodose. Spire high with 3+ protoconch whorls (probably 5 whorls, but incomplete in all specimens), and 6 broad, convex teleoconch whorls with impressed suture. Protoconch conical, high, glossy, terminal varix raised, rounded, of sinusigera type, abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of high, rounded, strong axial ribs, 7-9 on first teleoconch whorl, 7 or 8 from second to fourth, 7 on fifth whorl, 6 or 7 on last whorl. Axial ribs crossed by crowded, weakly squamous, low spiral cords, 2 or 3 on first whorl, 4 on second and third, 4-6 on fourth, 6 or 7 on penultimate whorl, 16 or 17 on last whorl.

Aperture ovate, narrow. Columellar lip with 2 strong, elongate denticles, rim adherent. Anal notch moderately narrow, deep. Outer lip weakly erect, with 4 elongate nodes within, adapical node strongest.

Siphonal canal short, broad, open, ornamented with low spiral cords.

Protoconch whorls brown. First 2 or 3 teleoconch whorls white, subsequent whorls light brown with white axial ribs.

Radula unknown.

REMARKS

C. pinguis differs from *Cytharomorula grayi* in its more elongate and narrow protoconch whorls, strongly denticulate aperture, heavier axial ribs, and more crowded, broader spiral cords. It differs from *C. vexillum* in being more inflated and in having broader and lower spiral cords.

Cytharomorula springsteeni n. sp.

(Figs 26, 69-71)

TYPE MATERIAL. — **Philippine Islands.** Mactan Island, Cebu, Punta Engaño, "deep water", probably in coral tangle nets, October 1985, 3 dd (holotype NM K2484/T1232 and 2 paratypes NM L1335/T1233); Philippine Islands (no other data), coral tangle nets, 146 m, dd (1 paratype RH).

DISTRIBUTION. — Mactan Island, Philippine Islands, 146 m.

ETYMOLOGY. — Named for Jim SPRINGSTEEN, Victoria, Australia, who donated some of the type material and in appreciation for the gift of other muricids.

DESCRIPTION

Shell medium-sized for the genus, up to 12.5 mm in length at maturity (paratype coll. R. HOUART), heavy, weakly nodose. Spire high with 3+ protoconch whorls (probably 5 whorls, but partially broken in all examined specimens) and 5 broad, weakly angulate teleoconch whorls, with weakly impressed suture. Protoconch conical, smooth, glossy, terminal varix thin, raised, probably of sinusigera type but abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of high ribs: 9 on first and second teleoconch whorls, 8 or 9 on third whorl, 9-11 on penultimate, 8 on last whorl. Axial sculpture crossed by smooth, narrow spiral cords with occasionally a single, smaller thread between each pair of cords: 4 spiral cords on first whorl, 5 or 6 on second whorl, 8 on third, 12 or 13 on penultimate whorl, 24-26 cords and threads on last whorl.

Aperture ovate, narrow. Columellar lip smooth, rim adherent. Anal notch shallow, broad. Outer lip erect, with 4 nodes within, adapical node strongest.

Siphonal canal short, moderately broad, straight, open, ornamented with spiral threads.

Protoconch whorls light brown, teleoconch whorls light brown with darker coloured spiral cords. Aperture whitish.

Radula unknown.

REMARKS

Cytharomorula springsteeni n. sp. can be confused with *C. vexillum* Kuroda, 1953, but differs in its stouter shell, with generally higher axial ribs, and more equal-sized spiral cords; *C. vexillum* has only 8 or 9 spiral cords on the last teleoconch whorl with 4-6 spiral threads

between each pair of cords, each cord being brown and most strongly pigmented on axial ribs. From *C. grayi* (Dall, 1889), *C. springsteeni* differs in being generally smaller relative to the number of teleoconch whorls, in details of spiral ornamentation, and in having fewer and lower denticles within the aperture. From *C. pinguis* n. sp., *C. springsteeni* differs in having a narrower shell, with narrower and higher spiral cords, and a more weakly denticulate aperture.

***Cytharomorula vexillum* Kuroda, 1953**

(Figs 28, 74-75)

Cytharomorula vexillum Kuroda, 1953: 183, fig. 8, 11 [type material not examined; type locality: Tosa Bay, Japan].

MATERIAL EXAMINED. — New Caledonia. BIOCAL: stn DW 65, 24°48' S, 168°10' E, 275 m (2 lv, 1 dd). CHALCAL 2: stn CH 8, 23°13' S, 168°03' E, 300 m (2 dd), stn DW 69, 24°44' S, 168°08' E, 260 m (1 dd), stn DW 71, 24°42' S, 168°10' E, 230 m (4 lv, 3 dd). SMIB 3: stn DW 14, 23°40' S, 167°60' E, 246 m (3 lv, 1 dd). — Chesterfield Plateau. MUSORSTOM 5: stn DW 300, 22°48' S, 159°24' E, 450 m (9 dd), stn DW 301, 22°07' S, 159°25' E, 487-610 m (21 dd), stn DW 304, 22°10' S, 159°26' E, 385-420 m (6 dd), stn DW 306, 22°08' S, 159°21' E, 375-415 m (2 dd).

DISTRIBUTION. — Off Kii, Japan, southern New Caledonia and Chesterfield Plateau, 230-610 m. Taken alive at 230-275 m.

REMARKS

Although described from Japan, the presence of *Cytharomorula vexillum* in the New Caledonia region is not surprising since a number of other species described from there have been collected during the MNHN-ORSTOM campaigns (HOUART, 1986, 1991, 1992).

Genus DAPHNELLOPSIS Schepman, 1913

Daphnellopsis Schepman, 1913: 449.

TYPE SPECIES by original designation: *Daphnellopsis lamellosa* Schepman, 1913.

The genus *Daphnellopsis* was originally included in the Pleurotomidae (*i.e.* Turridae), but the radula of *Daphnellopsis fimbriata* (Hinds, 1843) (HOUART, 1986: pl. 5, fig. 21 C as *Daphnellopsis lamellosa* Schepman, 1913) indicates that it is a muricid. HOUART (1986: 433) included that species in the Thaidinae (= Rapaninae) but further study of the shells and radulae of various species of Ergalataxinae and Rapaninae, as well as comparisons with the new species described herein, suggest closer affinities with *Maculotriron* Dall, 1904, here classified in Ergalataxinae. The similarity to species of *Maculotriron* was pointed out by IREDALE (1918: 33). VOKES (1974: 98) considered that *Daphnellopsis* probably belonged in Turridae. The classification adopted here is the one I believe to be the most suitable, pending confirmation based on comparative anatomy.

***Daphnellopsis fimbriata* (Hinds, 1843)**

(Figs 29, 52, 79-80)

Clavatula fimbriata Hinds, 1843: 43; 1844: 22, pl. 7, fig. 9 [lectotype BMNH 1844.6.7.57, 1 paralectotype BMNH 1879.2.26.76, selected in KILBURN (1992); type locality: north coast of New Guinea].

MATERIAL EXAMINED. — **Norfolk Ridge**. SMIB 5: stn DW 89, 22°19' S, 168°41' E, 295 m (1 lv) (MNHN). — **Loyalty Basin**. BIOGEOCAL: stn DW 253, 21°32' S, 166°29' E, 310-315 m (2 lv) (MNHN).

DISTRIBUTION. — North coast of New Guinea, 40 m (type locality); Philippine Islands, 191-214 m (HOUART, 1986 and MNHN); and Loyalty Basin and Loyalty Ridge, living at 191-315 m.

REMARKS

A specimen of this species from the Philippine Islands was recorded by HOUART (1986: pl. 5, fig. 21C) as *Daphnellopsis lamellosa* Schepman, 1913. KILBURN (1992: 217, fig. 4) selected and illustrated the lectotype of *Clavatula fimbriata* Hinds, 1843 and considered it to be a senior synonym of *D. lamellosa* Schepman, 1913. From examination of 4 syntypes of *D. lamellosa* (ZMA), I conclude that *D. fimbriata* and *D. lamellosa* are not conspecific. The shell of *D. fimbriata* is broader with shorter, more globose teleoconch whorls, lower and more numerous spiral cords, and a broader siphonal canal.

***Daphnellopsis hypselos* n. sp.**

(Figs 30, 77-78)

TYPE MATERIAL. — Tarempa, Tanjung Pinang, East Sumatra, 03°12' N, 106°19' E, trawled, approximately 37 m, holotype MNHN.

OTHER MATERIAL. — Philippine Islands. MUSORSTOM 3, stn DR 140, 11°43' N, 122°34' E, 93-99 m (1 dd).

ETYMOLOGY. — *hypselos* (Greek) means high, named for its high spire.

DISTRIBUTION. — East Sumatra and southern Philippines, 37-99 m.

DESCRIPTION

Shell small, fusiform, up to 10.5 mm in length at maturity. Spire very high with 1.75 protoconch whorls and up to 5 weakly convex teleoconch whorls with weakly impressed suture. Protoconch whorls rounded, smooth, terminal varix eroded.

Axial sculpture consisting of narrow ribs and erratically placed varices. First teleoconch whorl with 11 ribs and 2 varices, second whorl with 13 ribs and 2 varices, third whorl with 2 or 3 varices and 15 or 16 ribs, fourth with 1 varix and 21 ribs, last whorl with 3 varices placed

near each others and 12-14 ribs. Axial ribs on last whorl becoming progressively lower until almost obsolete. Apertural varix winglike, thick, erect. Other axial sculpture consisting of numerous growth striae. Spiral sculpture consisting of 14 or 15 narrow cords on last whorl, 5 on the other whorls. Spiral cords more strongly developed on axial ribs, forming small knobs at their intersection, giving a cancellate surface ornamentation.

Aperture ovate. Columellar lip completely adherent, smooth. Outer lip weakly crenulate. Anal notch narrow, moderately deep.

Siphonal canal short, broadly open, straight. Whitish.

Radula unknown.

REMARKS

Daphnellopsis fimbriata (Hinds, 1843) has sharper and more strongly curved axial ribs, weaker spiral cords, more globose teleoconch whorls, no axial varices and the outer lip does not become winglike. *D. lamellosa* has a narrower shell, lacks varices, has sharper and fimbriate axial lamellae, and the outer lip does not become winglike.

***Daphnellopsis lamellosa* Schepman, 1913**

(Figs 31, 81-83)

Daphnellopsis lamellosa Schepman, 1913: 449, pl. 30, fig. 10a, b, c [type material: see remarks; type locality: Savu Sea, Indonesia].

MATERIAL EXAMINED. — 1 lectotype (here selected) ZMA Moll. 3.13.095 and 3 paralectotypes ZMA Moll. 3.13.096: lengths 7.5 mm; 7.7 mm; 8.5 mm; 8.9 mm (all with 4 teleoconch whorls). The specimen 8.9 mm in height, and the larger of the two specimens originally illustrated, is here selected as the lectotype. One paralectotype (not examined) is in the Rijksmuseum van Natuurlijke Historie (now Nationaal Natuurhistorische Museum), Leiden.

DISTRIBUTION. — Savu Sea, Indonesia, 247 m.

REMARKS

See under *Daphnellopsis fimbriata* (Hinds, 1843) for comparison with that species.

Genus LATAXIENA Jousseaume, 1883

Lataxiena Jousseaume, 1883: 187.

TYPE SPECIES by tautonomy *Lataxiena lataxiena* Jousseaume, 1883 (= *Trophon fimbriatus* Hinds, 1844).

Lataxiena desserti nom. nov.

(Figs 11-12, 33-34, 51, 89-92)

Fusus imbricatus E.A. Smith, 1876: 540, pl. 30, fig. 3 (not *Fusus imbricatus* Lesson, 1842b; nec *F. imbricatus* De Kay, 1843) [holotype BMNH 1876.1.10.42; type locality: New Caledonia].

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn CH2, 22°17' S, 166°19' E, 25 m (1 lv); stn 58, 22°09' S, 166°13' E, 22 m (1 lv); stn 92, 22°27' S, 166°37' E, 24 m (4 lv); stn 168, 22°06' S, 166°09' E, 10 m (1 lv); stn 175, 22°06' S, 166°06' E, 17 m (1 lv); stn 180, 21°60' S, 166°05' E, 10 m (1 lv); stn 181, 22°01' S, 166°05' E, 10 m (1 lv, 2 dd); stn 182, 22°00' S, 166°06' E, 8 m (2 lv, 1 dd); stn 203, 21°58' S, 165°57' E, 13 m (1 dd); stn 209, 21°54' S, 165°54' E, 14 m (1 dd); stn 210, 21°54' S, 165°53' E, 14 m, (1 lv, 1 dd); stn 285, 22°24' S, 166°26' E, 19 m (1 lv); stn 286, 22°23' S, 166°27' E, 28 m (1 dd); stn 1001, 20°10' S, 164°03' E, 8-9 m (1 dd); stn 1034, 19°58' S, 163°58' E, 23 m (1 lv); stn 1065, 19°58' S, 163°51' E, 28 m (1 dd); stn 1097, 19°52' S, 163°43' E, 34 m (2 dd) (all MNHN); Conception Bay, Nourmèa (13 lv, RH).

DISTRIBUTION. — New Caledonia, 8-34 m. Taken alive at 8-25 m.

ETYMOLOGY. — Named after Patrice DESSERT, Noumèa, New Caledonia, shell collector and friend. Among many other muricids collected by him, he sent several specimens of this species some years ago.

DESCRIPTION

Shell medium sized for the genus, up to 36 mm in length, squamous. Spire high with 1 1/2 protoconch whorls, and up to 6 broad, strongly shouldered teleoconch whorls with impressed suture. Protoconch whorls rounded, smooth, terminal varix heavy, strongly curved.

Axial sculpture consisting of low to moderately high axial ribs: 9 ribs on first to fourth teleoconch whorls, 9 or 10 on fifth whorl, 7-9 on last whorl. Axial growth lamellae numerous. Spiral sculpture consisting of squamous cords and threads: 2 cords from first to third whorl, 2 cord and one thread between cords on fourth and fifth whorl, usually 6 rounded squamous cords, with one primary thread between them, and occasionally with secondary threads between primary threads and cords. Shoulder usually smooth on earlier whorls, and with spiral cords and squamous threads on penultimate and last whorls.

Aperture roundly-ovate. Columellar lip smooth, adherent. Anal notch broad, moderately deep. Outer lip crenulate, with 8 or 9 moderately strong lirae within.

Siphonal canal medium sized, narrow, weakly abaperturally bent, open, usually ornamented with 3 squamous spiral cords.

Predominantly light brown, darker on second and fourth abapical spiral cords on last teleoconch whorl, or with some dark spiral bands.

Radula (figs 11-12).

REMARKS

Although very similar to *Lataxiena fimbriata* (figs 93-94), *L. desserti* differs primarily in the morphology of protoconch whorls. Multispiral and conical, consisting of 3 1/2 whorls in *L. fimbriata* (fig. 32), it is globose, with 1 1/2 rounded whorls in *L. desserti* (figs 33-34),

denoting different larval development for the two species. Other differences are inconsistent and slight, the shell of *L. desserti* being a little broader, more inflated, and less squamous, while the operculum is darker coloured. *L. fimbriata* has not been recorded from the New Caledonia region. The species was originally described from New Caledonia as *Fusus imbricatus* E.A. Smith, 1876, which, however, is a junior homonym of *Fusus imbricatus* Lesson, 1842 and of *F. imbricatus* De Kay, 1843.

***Lataxiena habropenos* n. sp.**

(Fig. 95)

TYPE MATERIAL. — Mozambique. South Momba Bay: Opopua; on *Lithophaga*-riddled rock; muddy *Thalassodendron*, 90 cm above low tide, August 1968, holotype NM H4919/T1229. Paratypes: South East Conducia Bay: SW Inhaca Island; sandbank above small coral, low tide, December 1967, (NM H4917/T1230); Island of Inhaca, W. Side, on submerged log on grass flats, (NM B894/T1231); NW Mozambique Bay, South of Mossuril; under dead coral in depression of sandflat, 30 cm above low tide, September 1968, (MNHN) (ex NM H4920); N.W. Mozambique Bay, South of Mossuril, muddy sand, rocks, 90 cm above low tide, March 1968, (RH) (ex NM H4918).

DISTRIBUTION. — Only known from the above material, Mozambique.

ETYMOLOGY. — *habropenos* (Greek): of delicate texture.

DESCRIPTION

Shell large for the genus, up to 40.5 mm in length at maturity (holotype), heavy. Spire high. Teleoconch up to 6 broad, shouldered whorls with weakly appressed suture. Protoconch unknown.

Axial sculpture consisting of low ribs: first whorl eroded, second whorl with 10 or 11 ribs, third and fourth with 9 ribs, fifth and last whorls with 8-10 ribs. Sculpture of first whorl unknown (eroded), second and third whorl with 2 low cords, fourth whorl with 2 low spiral cords and 1-3 threads between them, shoulder with 4 or 5 threads, fifth whorl with 2 cords and 3 (occasionally 2) threads between them, 7-9 primary and secondary threads on shoulder, last whorl with 5 or 6 low cords with 3 primary and secondary low threads between them (occasionally 2 or 4), shoulder with 8 or 9 primary and secondary threads.

Aperture ovate. Columellar lip smooth, rim adherent. Anal notch broad, deep. Outer lip crenulate, weakly or strongly lirate for a short distance within with 8 lirae.

Siphonal canal relatively short, broad, straight, open, ornamented with spiral cords.

Uniform whitish to beige.

Radula unknown.

REMARKS

Lataxiena habropenos differs from *L. fimbriata* (Hinds, 1843) and *L. desserti* nom. nov. in its more elongate and smoother shell, with lower and smoother spiral sculpture, and with more

numerous spiral threads on shoulder and between the spiral cords. *L. habropenos* n. sp. differs further in having much shorter and finer apertural lirae than in *L. fimbriata* and *L. deserti*. Specimens of *L. fimbriata* from Mozambique, Taiwan and Indonesia are undistinguishable from each other.

Lataxiena kochiana (Sowerby, 1900) has a smaller shell with a shorter siphonal canal, and more numerous and stronger apertural lirae, while the last teleoconch whorl has 4 spiral cords, between each are 3 or 4 threads.

Genus LINDAPTERYS Petuch, 1987

Lindapterys Petuch, 1987: 97.

TYPE SPECIES by original designation: *Lindapterys vokesae* Petuch, 1987.

***Lindapterys murex* (Hedley, 1922)**

(Figs 47-50, 84-86)

Daphnellopsis murex Hedley, 1922: 356, pl. 56, figs 196-198 [holotype AMS C42334, figured in LOZOUET, LEDON & LESPORT, 1993; type locality: Murray Island, Torres Strait, Queensland].

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn 830, 20°49' S, 165°19' E, 105-110 m (1 dd).

DISTRIBUTION. — Murray Island, Queensland, 9-15 m, and off New Caledonia (105-110 m).

REMARKS

The species was described from a juvenile specimen. The original illustrations (figs 48-50) are of a shell of 5.5 mm in length with only 3 teleoconch whorls, while the New Caledonian specimen has 5 teleoconch whorls. The radula of *L. rosaliae* Barros, 1990 (? = *L. sanderi* Petuch, 1987), a species from Brazil, was illustrated by BARROS (1990: pl. 2). It differs from all other ergalataxine radulae and more closely resembles that of a typical muricine. Accordingly, despite the similarity of the shell of *L. sanderi*, *L. rosaliae* and *L. murex* to *Daphnellopsis* species, it is possible that one or all of them are in fact muricines.

In a revision of recent and fossil species of *Lindapterys*, LOZOUET, LEDON & LESPORT (1993) suggest that changes in dispersal capacity of the larva (placotrophic in fossil species and non placotrophic in recent species), together with tectonic and climatic events, have played a part in reduction of the distribution of *Lindapterys*. The genus is currently known from only 4 localities, one each in the Caribbean for *L. sanderi* Petuch, 1987 and *L. rosaliae* Barros, 1990, and 2 for *L. murex* in the Indo-West Pacific. The species thus seems to be truly rare.

Additional specimens of *L. murex* were collected off New Caledonia, but the material has not yet been sorted (MNHN).

Genus **MACULOTRITON** Dall, 1904

Maculotriton Dall, 1904: 136.

TYPE SPECIES by original designation: *Triton bracteata* Hinds, 1844 (= *Buccinum serriale* Deshayes in LABORDE & LINANT, 1834).

Maculotriton ingens Houart, 1987

(Fig. 88)

Maculotriton ingens Houart, 1987: 204, figs 5, 7, 14-15 [holotype and 2 paratypes MNHN, 1 paratype MNZ MF47729, 1 paratype RH; type locality: "Programme LAGON", New Caledonia, stn 133, 22°24' S, 166°52' E, 59-62 m].

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn 328, 22°27' S, 167°03' E, 72 m (2 dd); stn 390, 22°43' S, 167°02' E, 155 m (1 lv). MUSORSTOM 4: stn DW 231, 22°34' S, 167°11' E, 75 m (1 lv).

DISTRIBUTION. — New Caledonia, 59-155 m, living at 75-155 m.

REMARKS

The three new records are from within the geographical range of the type material. The species is apparently rare and differs markedly from other species of *Maculotriton*.

Maculotriton serriale (Deshayes, 1834)

(Fig. 87)

Buccinum serriale Deshayes in LABORDE & LINANT, 1834: 66, figs 32-34 [type material not localized (not in MNHN); type locality: Red Sea].

Buccinum pulicaris Lesson, 1842a: 238 [lectotype and paralectotype MNHN, selected in TRÖNDLE & HOUART, 1992; type locality: Tahiti].

Columbella pulicaris Lesson, 1842b: 200 [2 syntypes MNHN; type locality: Marquesas].

Triton bracteatus Hinds, 1844: 11, pl. 4, figs 5, 6 [type material not localized (not in BMNH); type locality: Straits of Malacca, Indonesia (CERNOHORSKY, 1982b)].

Columbella epidelia Duclos in CHENU, 1848: pl. 25, figs 17, 18 [type material not localized; type locality: none].

Tritonidea petterdi Brazier, 1872: 22 [holotype Nat. Mus. Victoria F649, figured in PONDER (1972); type locality: N.E. coast of Tasmania (erroneous)].

Clathurella waterhousae Brazier, 1896: 345 [holotype AMS C8668, figured in PONDER (1972); type locality: N. Head of Botany Bay, N.S.W., Australia].

MATERIAL EXAMINED. — New Caledonia. "Programme LAGON": stn 160, 22°36' S, 166°37' E, 10 m (1 lv).

DISTRIBUTION. — From East Africa, throughout the tropical and subtropical Indo-West Pacific, to Japan, French Polynesia and the Hawaiian Archipelago.

REMARKS

The synonymy presented here is somewhat different from those adopted by CERNOHORSKY (1982b), PONDER (1972) and TRÜNDLE & HOUART (1992), because I now consider it likely that *Maculotriron digitale* (Reeve, 1844) is a distinct species, with *Triton bacillum* Reeve, 1844, *Eutriron digitalis seurati* Couturier, 1907 and *Triton lativaricosus* Reeve, 1844 as synonyms. These authors have illustrated type material of the various taxa involved. To date only one specimen has been obtained from the New Caledonia area though the species is not rare elsewhere.

Genus MURICODRUPA Iredale, 1918

Muricodrupa Iredale, 1918: 38.

TYPE SPECIES by original designation: *Purpura fenestrata* De Blainville, 1832.

Muricodrupa fenestrata (De Blainville, 1832)

(Fig. 96)

Purpura fenestrata De Blainville, 1832: 221, pl. 10, fig. 11 [type material not localized (not in MNHN); type locality: Tonga].

Murex cariosus Wood, 1828: 15, pl. 5, fig. 22a (non *Murex cariosus* Linné, 1767) [type locality not localized (not in BMNH); type locality: none].

Purpura cancellata Quoy & Gaimard, 1833: 563, pl. 37, figs 15-16 (non *Purpura cancellata* Röding, 1798) [type material not localized (not in MNHN); type locality: Tonga].

Columbella clathra Lesson, 1842b: 199 (new synonym) [holotype MNHN; type locality: Hawaii].

MATERIAL EXAMINED. — New Caledonia. In the vicinity of Nouméa, (1 IV, RH).

DISTRIBUTION. — From South Africa, throughout the tropical and subtropical Indo-West Pacific, to Japan, French Polynesia and the Hawaiian Archipelago, 0-5 m.

REMARKS

Only one specimen has been recorded from New Caledonia and none have been collected during MNHN-ORSTOM cruises.

Muricodrupa fiscella (Gmelin, 1791)

(Figs 13, 97)

Murex fiscellum Gmelin, 1791: 3552, ref. to CHEMNITZ, figs 1524, 1525.

Murex funiculus Wood, 1828: 15, fig. 17 [type material lost (CERNOHORSKY, 1982a); type locality: none].

Murex ricinuloides Quoy & Gaimard, 1833: 534, pl. 36, figs 13-16 [type material lost (CERNOHORSKY, 1982a); type locality: Tonga].

Murex iostoma Sowerby, 1834: pl. 64, fig. 42 [type material lost (CERNOHORSKY, 1982a); type locality: none].

Murex moriformis Lesson, 1844: 538 (new synonym) [holotype MNHN; type locality: Hawaii].

Murex decussatus Reeve, 1845: pl. 31, fig. 153 (not *Murex decussatus* Gmelin, 1791) [type material lost (CERNOHORSKY, 1982a); type locality: Bohol, Philippine Islands].

Purpura pothuani Eydoux & Souleyet, 1852: 605, pl. 39, figs 30-31 [lectotype and paralectotype MNHN, selected by CERNOHORSKY (1982a); type locality: Manila, Philippine Islands].

Purpura muricoides Hombron & Jacquinot in ROUSSEAU, 1854: 87 [holotype MNHN; type locality: Caroline Islands].

Purpura stellaris Hombron & Jacquinot in ROUSSEAU, 1854: 88 [holotype MNHN; type locality: Solomon Islands].

Coralliophila confragosa H. & A. Adams, 1865: 432 [holotype BMNH 1982002; type locality: none].

Sistrum triangulatum Pease, 1868: 278, pl. 23, fig. 15 [type material not examined; type locality: Hawaii].

MATERIAL EXAMINED. — **New Caledonia.** Platform, Unia reefs (2 lv). "Programme LAGON": stn 921, 20°51' S, 164°27' E, 11 m (1 dd); stn 940, 20°38' S, 164°16' E, 10 m (1 lv).

DISTRIBUTION. — From South Africa to the Red Sea, throughout the tropical and subtropical Indo-West Pacific, to Japan, French Polynesia and the Hawaiian Archipelago, 0-5 m.

REMARKS

The extensive synonymy for *Muricodrupa fiscella* is a reflection of the extreme variability of the shell. As with *Maculotriton serriale*, study of more material may prove that more than one species is involved. Until now, only three specimens had been recorded from New Caledonia, but the LAGON dredgings have not targeted reef dwellers such as these. Sublittoral reef collecting will probably prove this species (and others here recorded by only one or two specimens) to be more common in the New Caledonia area.

Genus *ORANIA* Pallary, 1900

Orania Pallary, 1900: 285.

TYPE SPECIES by original designation: *Pseudomurex spadae* Libassi, 1859 (= *Murex fusulus* Brocchi, 1814).

Orania adiaestolos n. sp.

(Figs 14, 35-37, 54, 102-111)

TYPE MATERIAL. — **New Caledonia.** "Programme LAGON": stn 970, 20°25' S, 164°01' E, 26 m (holotype and 1 paratype MNHN), 881 (4), 883 (1), 890 (1), 898 (3), 901 (2), 911 (1), 913 (2), 915 (3), 923 (1), 926 (2), 932 (4), 937 (1), 959 (4), 963 (3), 973 (1), 984 (2), 985 (2), 989 (4), 990 (5), 995 (2), 997 (2), 1008 (2), 1009 (2), 1015 (1), 1016 (1), 1025 (5), 1036 (2), 1040 (1), 1041 (8), 1042 (1), 1048 (2), 1056 (1), 1057 (2), 1063 (1) (all paratypes MNHN) (lv & dd). Other paratypes: stn 925 (2 AMS C302330, 2 MNZ 266155, 2 NM L1331/T1225, 2 USNM); stn 922 (2 RH), stn 989 (2 RH).

OTHER MATERIAL EXAMINED. — **New Caledonia.** "Programme LAGON": stn 80 (1), 410 (2), 479 (1), 484 (1), 503 (1), 517 (5), 534 (2), 542 (4), 575 (1), 595 (1), 603 (3), 626 (1), 716 (1), 747 (1), 1129 (1), 1205 (4), 1217 (1) (lv & dd). "VAUBAN": stn 10, 22°17' S, 167°05' E, 80 m (1 dd). — **Chesterfield Plateau.**

CORAIL 2: stn DW 70, 19°15' S, 158°27' E, 54 m (1 lv). — **Norfolk Ridge**. SMIB 5: stn DW 81, 22°38' S, 167°35' E, 110 m (2 dd). — **South Africa**. Zululand: off Matigulu River mouth, 29°17.7 S, 31°54.4 E, 70 m, NMDP, (1 dd) (NM S746).

DISTRIBUTION. — New Caledonia, Chesterfield Plateau, Loyalty Ridge, South Africa, living at 33-60 m.

ETYMOLOGY. — *adiastolos* (Greek): not separated, confused.

DESCRIPTION

Shell medium sized for the genus, up to 16 mm in length at maturity. Spire high with 1 1/2 protoconch whorls, and up to 6 angulate, weakly shouldered teleoconch whorls with impressed suture. Protoconch whorls rounded, smooth. Terminal varix low, thin, almost straight.

Axial sculpture consisting of high, rounded ribs: 9 on first teleoconch whorl, 8 or 9 on second and third whorl, 8 on fourth and fifth whorl, 6 or 7 on last whorl, with numerous growth lamellae. Spiral sculpture consisting of 2 cords from first to third whorl, 2 cords with 1 squamous thread between them on fourth whorl, 3 cords with intermediate threads on fifth whorl, 5 or 6 cords with 1 thread between each pair of cords on last whorl. Shoulder with 2 or 3 squamous threads from fourth whorl.

Aperture ovate. Columellar lip smooth, occasionally with 2 or 3 shallow, elongate denticles, rim adherent. Anal notch broad, deep. Outer lip weakly erect, crenulate, with 5 or 6 lirae within.

Siphonal canal short, broad, straight, open, ornamented with 2 or 3 spiral cords.

Uniformly whitish to dark brown, occasionally with darker spiral cords. Aperture white to dark brown.

Radula (fig. 14).

REMARKS

Orania adiaastolos n. sp. is similar to *O. fischeriana* (Tapparone Canefri) (figs 112-120), but that distinct species are involved is proven by the very different protoconchs, *O. adiaastolos* n. sp. having a paucispiral protoconch of 1 1/2 rounded whorls (lecithotrophic), *O. fischeriana* having a multispiral protoconch of 3 1/2 whorls (planctotrophic). *O. adiaastolos* n. sp. differs further in having a more weakly shouldered shell, while most of the spiral cords are lower.

The two species differ further in details of columellar lip morphology. *O. adiaastolos* has a smoother columellar lip, with fewer, or occasionally, no denticles (fig. 54). The 4 columellar folds in *O. fischeriana* are stronger, more spirally oriented, more regular, evenly spaced, and longer (fig. 53). Juveniles without intact protoconchs are more difficult to separate, but even then, *O. fischeriana* exhibits traces of the characteristic regular folds.

From *Orania corallina* (Melville & Standen, 1903) (see remarks under *O. fischeriana* for that species), *O. adiaastolos* differs in its smoother columellar lip, with lower folds, in its more slender shell, and in its paucispiral protoconch.

Off New Caledonia, *O. adiastolos* and *O. fischeriana* very rarely occur together, only 5 samples containing both. *O. corallina* has not yet been recorded from New Caledonia.

Orania ficula (Reeve, 1848), an Indo-West Pacific species, that has not been recorded from New Caledonia, is similar but has a more convex shell and a typical anal notch, with broad callus.

***Orania archaea* n. sp.**

(Figs 22, 44, 127-132)

TYPE MATERIAL. — **Philippines.** Samar (1 dd) (holotype MNHN) (ex J. SPRINGSTEEN). Paratypes: Mactan Island, Cebu, Punta Engaño (4 dd) (1 AMS C302331, 1 MNZ 266157; 1 NM L1332/T1226, 1 RH).

OTHER MATERIAL. — **Philippine Islands.** Punta Engaño (2 dd), Samar (1 dd), Panglao (1 lv) (coll. E. H. VOKES). Punta Engaño (1 dd) (coll. L. BOZZETTI), (4 lv, 3 dd) (coll. F. J. SPRINGSTEEN). — **New Caledonia.** "Programme LAGON": Lagon Nord, stn 504, 19°15' S, 163°30' E, 45 m, (1 lv). — **Taiwan.** South Taiwan Strait. (1 dd) (RH); North-East Taiwan (1 dd) (RH). — **Christmas Island (Indian Ocean).** 10°30' S, 105°40' E, no depth, AMS C152426 (5 lv & dd).

DISTRIBUTION. — Christmas Island (Indian Ocean), New Caledonia, Philippine Islands, Taiwan, living at 45 m.

ETYMOLOGY. — *archaea* (Latin): ancient, old. A long known, but unidentified species.

DESCRIPTION

Shell medium sized for the genus, up to 20.4 mm in length at maturity (coll. R. HOUART), heavy, weakly spinose, squamous. Spire high with 3+ protoconch whorls (incomplete), and up to 6 narrow teleoconch whorls with weakly impressed suture. Protoconch conical, smooth, glossy, terminal varix raised, curved, of sinusigera type but adapical part masked by succeeding teleoconch whorl.

Axial sculpture consisting of 9 rounded, weakly spinose axial ribs on 2 first teleoconch whorls, 9 or 10 on third and fourth whorl, 8 or 9 on fifth, 6 or 7 on last whorl. Last whorl occasionally with 1 or 2 erratically placed varices.

Axial sculpture crossed by heavy primary and secondary, squamous spiral cords and threads: first to third whorls with a strong carinal cord and abapically with 1 or 2 weak threads, fourth with one carinal cord and 2 or 3 secondary cords abapically, fifth whorl with one carinal cord and 3 or 4 secondary cords abapically, last whorl with 4 primary cords and 2 or 3 secondary cords between each pair of cords. Presence of short spines at the intersection of primary spiral cords and axial ridges.

Aperture ovate. Columellar lip smooth, occasionally with small nodes abapically, rim adherent. Anal notch broad, moderately deep. Outer lip weakly erect, crenulate, with 7 elongate nodes within.

Siphonal canal short, narrow, straight, open, ornamented with spiral cords.

Light brown with darker spinelets on last teleoconch whorl. Specimens from Christmas Island (Indian Ocean) (AMS 152426) are completely white. Aperture white or pinkish.

Radula (fig. 22).

REMARKS

The short-spined form of *Spinidrupa euracantha* (A. Adams, 1853) may be sometimes confused with *Orania archaea* n. sp., but *O. archaea* has higher early teleoconch whorls with more numerous or/and weaker secondary spiral cords, fewer spirally striate spiral cords, weaker developed spines, and stronger anal notch.

Orania dharmai n. sp.

(Figs 57-58)

TYPE MATERIAL. — Borneo, Brunei (1 dd) (holotype IRSNB 28.075/465). Paratypes: West Sumatra, near Sibolga, approximately 18-55 m, in fishing nets (5 dd) (1 MNHN, 1 NM L1333/T1227, 3 paratypes RH); West Sumatra, near Sibolga, approximately 73 m, in fishermen's nets (5 dd) (1 AMS C302332, 1 MNZ 266158, 3 paratypes RH).

OTHER MATERIAL EXAMINED. — West Sumatra, near Sibolga (2 dd) (coll. E.H. VOKES).

DISTRIBUTION. — Brunei, Borneo and off Sibolga, West Sumatra, living at 18-73 m.

ETYMOLOGY. — Named after Bunjamin DHARMA, Indonesia, who provided the type material and other Indonesian muricids.

DESCRIPTION

Shell small for the genus, up to 15.1 mm in length at maturity (holotype), heavy, nodose. Spire high with 2+ protoconch whorls (partially broken) and up to 6 angulate teleoconch whorls with weakly impressed suture. Protoconch conical, smooth, terminal varix heavy, rounded.

Axial sculpture consisting of low axial ribs, 11-12 on three first teleoconch whorls, 8 or 9 on fourth and fifth whorls, 7-9 on last whorl. Axial ribs crossed by spiral sculpture consisting of 5 high cords and 3 or 4 low, squamous threads between each pair of cords on last whorl. Other whorls with 2 spiral cords and 2 or 3 spiral threads. Low to high nodes at the intersection of spiral cords with axial ribs.

Aperture small, ovate. Columellar lip smooth, or with weak knobs adapically. Anal notch well defined, moderately deep. Outer lip smooth, with 4 low to moderately high knobs within. Siphonal canal short, narrow, open, ornamented with numerous spiral threads.

Dark brown, knobs and area between second and third abapical spiral cord on last teleoconch whorl lighter coloured. Aperture whitish, edge of columellar lip brown.

Radula unknown.

REMARKS

This species is included in *Orania* because of its similarity to other members of the genus. However, *Orania dharmai* n. sp. is not closely related to any other known Indo-West Pacific species.

***Orania fischeriana* (Tapparone Canefri, 1882) n. comb.**

(Figs 15-16, 38-39, 53, 112-120)

Latirus fischerianus Tapparone Canefri, 1882: 33, pl. 2, figs 8-9 [type material not localized; type locality: New Caledonia].

Nassaria mordica Hedley, 1909: 462, pl. 44, fig. 100 [holotype AMS C27378; type locality: Hope Island, Queensland].

MATERIAL EXAMINED. — **New Caledonia.** "Programme LAGON": 71, 80, 198, 260, 262, 439, 440bis, 443, 450, 505, 506, 514, 516, 528, 529, 530, 531, 532, 533, 534, 558, 559, 595, 756, 820, 911, 933, 936, 964, 970, 973, 998, 1009, 1011, 1013, 1014, 1019, 1023, 1024, 1037, 1048, 1052, 1064, 1065, 1070, 1071, 1081, 1098, 1111, 1128, 1174, 1166, 1211, 1214 (144 lv & dd). — **Chesterfield Plateau.** CHALCAL: stn DC44, 20°46' S, 158°34' E, 79 m (2 dd). CORAIL 2: stn CP 06, DW 34, DW 45, DW 47, DW 50, DW 67, DW 73, DW 75, DW 76, DW 82, DW 100, DW 145 (26 lv & dd).

DISTRIBUTION. — Mozambique, Borneo, West Sumatra, Queensland, and New Caledonia, living at 10-60 m depth.

REMARKS

The type material of *Latirus fischerianus* has not been located, but from the description alone it would seem that the present specimens are conspecific. The species was originally described from New Caledonia. The present specimens have 4 columellar folds (fig. 53) as described by TAPPARONE CANEFRI (1882) "... columella quadriplicata", or even better explained in the French translation: "...on observe 4 plis transverses à la columelle". Although the holotype of *Nassaria mordica* Hedley, 1909 has an eroded protoconch, I consider it to be a synonym because it exhibits the characteristic columellar folds.

Peristernia corallina Melvill & Standen, 1903 (figs 55, 121-122), a species considered as another synonym by CERNOHORSKY (1980: 137), is a distinct though closely related species. Many specimens from South Africa (NM), and from The Seychelles (R. H. and E. H. VOKES) have been examined. *Orania corallina*, originally described from the Persian Gulf, has a multispiral protoconch and a strongly shouldered teleoconch, as in *O. fischeriana*, and columellar denticles similar to those of *O. adiaxstolos* n. sp. (figs 54-55).

***Orania mixta* n. sp.**

(Figs 17-18, 41, 123-124)

TYPE MATERIAL. — **Philippine Islands.** Mactan Island, Cebu, Punta Engaño, 110 m (2 lv) (holotype MNHN, 1 paratype RH). Other paratypes: Philippine Islands, Mactan Island, Cebu, off Oslob (2 lv) (1 MNZ 266159, 1 RH); Philippine Islands, Balut Island (2 lv) (1 NM L1334/T1228, 1 AMS C302333; between Bohol and Cebu, 50-150 m (4 dd, MNHN).

OTHER MATERIAL EXAMINED. — **Philippine Islands.** Mactan Island, Cebu, Punta Engaño, approximately 100 m (4 lv) (coll. F. J. SPRINGSTEEN). — **West Sumatra.** Near Sibolga, approximately 73 m, in shell nets (4 lv) (RH). — **West Borneo.** Near Subi Island, Sarawak, 37-55 m (3 lv) (RH).

DISTRIBUTION. — West Sumatra, West Borneo and Philippine Islands, living at 73-110 m.

ETYMOLOGY. — *mixta* (Latin): mixed, alluding to the blend of character states.

DESCRIPTION

Shell medium sized for the genus, up to 17 mm in length (holotype), lightly built, squamous. Spire high, acute, with 3 1/2 protoconch whorls and up to 6 shouldered teleoconch whorls, with weakly impressed suture. Protoconch conical, smooth, glossy, terminal varix heavy, rounded, curved, apparently of *sinusigera* type but abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of 9 high, strong ribs on first and second teleoconch whorls, 9 or 10 on third, 7-10 on fourth and fifth whorls, 6 or 7 on last whorls. Axial sculpture lower on last whorl with occasional presence of erratically placed varix. Other axial sculpture consisting of numerous growth lamellae.

Axial ribs crossing rounded, squamous spiral cords, 2 or 3 on first to third whorls, 3 on fourth, 3-5 on penultimate whorl; last whorl with 10 primary and secondary cords, and 3 or 4 low, weaker cords on shoulder.

Aperture ovate. Columellar lip weakly flaring, smooth, partially erect, adherent at adapical extremity. Anal notch broad, moderately deep. Outer lip erect, crenulate, with 7 lirae within.

Siphonal canal medium sized, narrow, weakly abaperturally bent, open, ornamented with spiral cords.

Uniformly light brown, with occasional darker blotches on shoulder. Aperture withish to light brown.

Radula: see figs 17-18.

REMARKS

The shell morphology of *Orania mixta* is similar to that of *Orania pacifica* (Nakayama, 1988) and *O. pleurotomoides* (Reeve, 1845), yet its radula is more like those of species of *Cytharomorula*. The classification in *Orania*, therefore is only tentative. *O. pleurotomoides* (figs 125-126) is stouter, with fewer and stronger spiral cords, more strongly denticulate aperture, and a deeper and stronger anal notch. *O. pacifica* (figs 98-101) is broader, more globose, with more numerous and more squamous spiral cords, a more strongly denticulate aperture and a shorter siphonal canal.

Orania ornamentata n. sp.

(Figs 21, 42, 134-139)

TYPE MATERIAL. — South Africa. Natal, off Park Rynie, 136 m (2 lv), holotype NM B3890/T1234 and 1 paratype NM V304/T1235. Other paratypes: Transkei, off Mzamba River, stn XX2, 31°06'00" S, 30°18'03" E, 100 m (2 lv), NM C5271/T1236; Transkei, off Nithlonyane River, stn P3, 32°17'05" S,

29°03'09" E, 130 m (1 dd), NM C2666/T1237; N. Zululand, off Island Rock, 27°17'3" S, 32°48'3" E, 100 m (1 lv), NM E5317/T1238; Zululand, N.E. of Leven Point, stn ZL3, 27°54'03" S, 32°38'00" E, 105 m (2 lv), RH (ex NM E4845); Natal, off Park Rynie, stn X4, 30°22'08" S, 30°50'05" E, 104 m (2 lv), 1 NM C1695/T1239, 1 MNHN; North Zululand, off Dog Point, stn ZC5, 27°07'02" S, 32°53'03" E, 150 m (1 dd), NM D7662/T1240; Transkei, between Mtamvuna and Mzamba Rivers, stn XX6, 31°05'06" S, 30°18'06" E, 100 m (3 lv, 1 dd), NM C5409/T1241; Transkei, off Whale Rock, stn M12, 31°58'08" S, 29°16'08" E, 90 m (1 dd), NM C9479/T1242; Natal, off Park Rynie, stn XX18, 30°20'07" S, 30°51'06" E, 105 m (1 dd), NM B8517/T1243; Natal, off Port Edward, stn XX59, 31°06'08" S, 30°17'08" E, 120-125 m (1 lv), NM D1365/T1244; Natal, off Umlaas Canal, stn XX76, 30°00'04" S, 31°03'00" E, 100 m (1 dd), NM D1088/T1245; Natal, off Durban, stn XX115, 29°50'00" S, 31°14'02" E, 130 m (2 lv), NM D422/T1246. All dredged R.V. « Meiring Naudé ».

DISTRIBUTION. — South Africa, 90-150 m. Taken alive at 100-136 m.

ETYMOLOGY. — *ornamentata* (Latin): decorated.

DESCRIPTION

Shell medium sized for the genus, up to 18.8 mm in length at maturity (paratype NM), heavy, tuberculate. Spire high with 3+ protoconch whorls (probably 5, but incomplete in all specimens examined) and up to 5 weakly convex teleoconch whorls, with impressed suture. Protoconch conical, smooth, glossy, terminal varix heavy, raised, of sinusigera type abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of high, rounded, strong ribs, 9 or 10 from first to third teleoconch whorl, 10-13 on fourth, 8-10 on last whorl.

Axial sculpture crossed by more or less equal sized primary and secondary, weakly squamous cords, 2 on first whorl, 3 or 4 on second, 6-8 on third, 8-15 on fourth, 18-20 on last whorl.

Aperture ovate, columellar lip smooth, rarely with small node abapically, rim adherent. Anal notch narrow, fairly deep. Outer lip erect, nearly smooth, with 6-8 elongate nodes within.

Siphonal canal short, narrow, straight, open, ornamented with spiral cords.

Light brown, some spiral cords darker. Aperture white.

Radula (fig. 19).

REMARKS

Orania ornamentata n. sp. is similar to *O. fusulus* (Brocchi, 1814), a Mediterranean and West African species, but the shell of *O. ornamentata* is generally more globose, stouter, smaller relative to the number of teleoconch whorls, and the outer apertural lip is more erect while the axial ribs and the spiral cords are higher, stronger, more rounded and more similar in size.

***Orania pacifica* (Nakayama, 1988) n. comb.**

(Figs 19, 43, 98-101)

Morula pacifica Nakayama, 1988: 251, figs 1-3 [holotype NSMT Mo 64685, not examined; type locality: Southwest of Kirime-zaki, Kii, Japan].

MATERIAL EXAMINED. — **New Caledonia.** "Programme LAGON": stn 830, 20°49' S, 165°19' E, 105-110 m (12 dd); stn 836, 20°46' S, 165°16' E, 57 m (1 lv, 1 dd). MUSORSTOM 4: stn DW 149, 19°08' S, 163°23' E, 155 m (1 lv). — **Norfolk Ridge.** SMIB 5: stn DW 81, 22°38' S, 167°35' E, 110 m (1 lv, 1 dd). — **Loyalty Ridge.** MUSORSTOM 6: stn DW 440, 20°49' S, 167°17' E, 288 m (1 dd).

DISTRIBUTION. — South Africa, New Caledonia, Philippine Islands, Japan, Marquesas, living at 30-160 m.

REMARKS

This species was originally referred to *Morula* (Rapaninae), though the radular and shell morphology are typical of the genus *Orania*. It is already known from numerous localities in the Indo-West Pacific, and is here recorded for the first time from New Caledonia. Two specimens (NM E8415 and NM E3596) were also obtained alive off Zululand, South Africa (new record).

***Orania simonetae* n. sp.**

(Figs 140-141)

TYPE MATERIAL. — **Marquesas Islands.** Nuku Hiva, 30 m (1 lv, 2 dd) (holotype MNHN, 1 paratype coll. O. SIMONET, 1 paratype RH).

DISTRIBUTION. — Nuku-Hiva, Marquesas Islands, living at 30 m.

ETYMOLOGY. — Named for Odile SIMONET, from the Marquesas, who kindly donated the type material and other muricids.

DESCRIPTION

Shell small, up to 12.7 mm in length at maturity, weakly spinose, squamous. Spire high, acute, with 3+ protoconch whorls (incomplete) and up to 6 weakly convex, narrow teleoconch whorls with weakly appressed suture. Protoconch conical, smooth. Terminal varix unknown (eroded).

Axial sculpture consisting of moderately high axial ribs: 8 on first and second teleoconch whorls, 9 from third to fifth whorl, 7 or 8 on last whorl.

Spiral sculpture consisting of primary and secondary, squamous cords, and narrow threads between the cords. First whorl partly eroded, second to fifth whorl each with 3 cords;

last whorl bearing 4 cords with one thread between first three adapical cords and two threads between third and fourth cords. Shoulder of early whorls smooth; last whorls occasionally with 2 or 3 low threads on shoulder.

Aperture ovate, moderately small. Columellar lip smooth, except two low nodes abapically, rim adherent. Anal notch broad, deep. Outer lip erect, crenulate, with 6 short, elongate nodes within.

Siphonal canal short, narrow, open, abaperturally bent, ornamented with squamous spiral cords.

Withish or light pinkish. Adapical part of shoulder and fourth abapical spiral cord of last whorl brown. Aperture glossy white or light pink.

Radula unknown.

REMARKS

The shell of *O. simonetae* is superficially similar to that of *O. serotina* (A. Adams, 1851) but is narrower, with flatter sides, and fewer, more spaced spiral cords on each whorl, while there are usually 2 instead of 3 nodes set lower on the columellar lip. From *O. xuthedra* (Melvill, 1893), *O. simonetae* differs in having a narrower shell that is smaller relative to the number of teleoconch whorls, the shoulder bears fewer spiral cords, and the columellar lip is smoother. *O. archaea* n. sp. is also similar, but *O. simonetae* has a smaller, narrower shell, fewer and smaller spines, and different spiral ornamentation. Compared with *O. mixta* n. sp., *O. simonetae* has a more weakly shouldered shell with fewer primary and secondary spiral cords, fewer and different spiral cords on the shoulder, and the columellar lip has two nodes.

Orania taeniata n. sp.

(Fig. 133)

TYPE MATERIAL. — Christmas Island (Indian Ocean). 10°30' S, 105°40' E, depth unknown (1 dd) (holotype AMS C152435).

DISTRIBUTION. — Christmas Island (Indian Ocean), depth unknown.

ETYMOLOGY. — *taeniata* (Latin): adorned with ribbons.

DESCRIPTION

Shell (subadult holotype) small for the genus, 8.2 mm in length, stout. Spire high with 3 + protoconch whorls (probably 5, but incomplete in the examined specimen) and 4 angulate teleoconch whorls, with impressed suture. Protoconch conical, smooth, glossy, terminal varix heavy, raised, curved, of sinusigera type, abapical part covered by succeeding teleoconch whorl.

Axial sculpture consisting of 8 high axial ribs on first teleoconch whorl, 7 ribs from second to last whorl. Other axial sculpture consisting of numerous growth striae. Axial sculpture

crossed by heavy, high spiral cords, 2 on first and second whorls, 3 on third, 5 on last whorl, presence of high nodes at the intersection of axial ribs and spiral cords.

Aperture ovate. Columellar lip smooth, adherent. Anal notch broad, deep. Outer lip erect, crenulate, with 4 strong nodes within, adapical node strongest.

Siphonal canal short, narrow, straight, open, ornamented with one strong spiral cord.

Whitish with brown spiral cords.

Radula unknown.

REMARKS

Although known by only one specimen, *O. taeniata* is very distinctive in its shell shape and sculpture.

Genus PASCULA Dall, 1908

Pascula Dall, 1908: 311.

TYPE SPECIES by original designation: *Trophon citricus* Dall, 1908.

Pascula lefevreiana (Tapparone Canefri, 1880)

(Fig. 142)

Tritonidea lefevreiana Tapparone Canefri, 1880: 65, pl. 3, figs 7, 8 [type material not examined; type locality: Mauritius].

Murex benedictus Melville & Standen, 1895: 108, pl. 2, fig. 13 [holotype Univ. of Manchester Mus., figured in CERNOHORSKY (1982b); type locality: Lifu, Loyalty Islands].

Pentadactylus paucimaculatus Sowerby, 1903: 496 [holotype BMNH 1903.12.7.8; type locality: Hachijojima, Izu, Japan].

Murex dollfusi Lamy, 1938: 54, fig. 1 [holotype MNHN; type locality: Jubal (Gubal Islands, Egypt)].

DISTRIBUTION. — Mauritius to the Red Sea, New Caledonia, Japan, Guam, French Polynesia, depth unknown.

MATERIAL EXAMINED. — New Caledonia. Lifou (many dd) (IRSNB, MNHN, RH).

REMARKS

A rather common species with a wide Indo-West Pacific distribution. *Tritonidea lefevreiana*, based on material from Mauritius, is a senior synonym of *Murex benedictus*. It was listed by DRIVAS & JAY (1988) as *Pascula lefevreiana*. There are several lots of this species from New Caledonia in old collections, but no specimen has been collected during the recent MNHN-ORSTOM campaigns to date.

Pascula muricata (Reeve, 1846)

(Figs 23-24, 46, 143-153)

Ricinula muricata Reeve, 1846b: sp. 39 [3 syntypes BMNH 1968457; type locality: none].

Murex nitens A. Adams, 1854: 72 [holotype BMNH 197465; type locality: Philippine Islands].

MATERIAL EXAMINED. — **New Caledonia.** "Programme LAGON": stn 4, 22, 29, 49, 51, 52, 66, 82, 99, 100, 156, 159, 186, 200, 227, 229, 232, 255, 257, 265, 283, 294, 296, 308, 341, 342, 385, 433, 436, 445, 449, 452, 455, 458, 464, 472, 473, 480, 483, 484, 489, 553, 692, 714, 729, 735, 749, 771, 772, 799, 800, 817, 855, 864, 871, 886, 888, 897, 912, 921, 940, 945, 946, 954, 1006, 1017, 1105, 1139, 1063, 1118, 1138, 1145, 1158, 1159, 1189, 1192 (213 lv & dd). — **Chesterfield Plateau.** CORAIL 2: stn DW 02, 20°50' S, 161°37' E, 62 m; stn DW 04, 20°52' S, 161°37' E, 64 m; stn DW 08, 20°52' S, 161°38' E, 63 m; stn DW 09, 20°53' S, 161°35' E, 62 m; stn DW 10, 20°52' S, 161°41' E, 60 m; stn DW 69, 19°15' S, 158°30' E, 30-52 m; stn DW 163, 19°41' S, 158°16' E, 23 m (22 lv & dd). — **Loyalty Ridge.** MUSORSTOM 6: stn DW 430, 20°21' S, 166°07' E, 30 m; stn DW 431, 20°22' S, 166°10' E, 21 m; stn DW 432, 20°21' S, 166°11' E, 21 m; stn DW 433, 20°20' S, 166°09' E, 24 m; stn DW 434, 20°21' S, 166°09' E, 23 m; stn DW 437, 20°20' S, 166°08' E, 31 m (33 lv & dd). — **Hunter & Matthew volcanos.** VOLSMAR: stn P 27, 22°22' S, 171°21' E, 50 m (6 sh).

DISTRIBUTION. — From South Africa to the Red Sea, throughout the tropical and subtropical Indo-West Pacific with French Polynesia as eastern limit, living in 0-44 m.

REMARKS

Pascula muricata has a variable shell morphology (figs 147-156) and has at times been misidentified as *Cronia ochrostoma* (De Blainville, 1832), or as *Drupella elata* (De Blainville, 1832). It was tentatively identified as *Pascula muricata* (Reeve, 1846) by TRÖNDLE & HOUART (1992: 114). It is a common species in the Indo-West Pacific.

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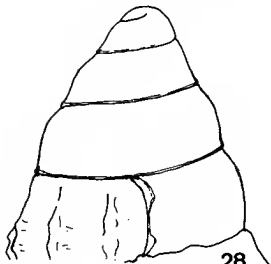
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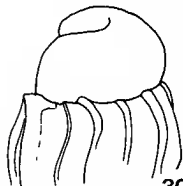
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Figs 25-30. — Protoconchs (scale bar = 0.5 mm). 25: *Cytharomorula pinguis* n. sp., New Caledonia (holotype MNHN). 26: *C. springsteeni* n. sp., Philippine Islands (paratype RH). 27: *C. dangoi* n. sp., New Caledonia (paratype MNHN). 28: *C. vexillum* Kuroda, New Caledonia (MNHN). 29: *Daphnellopsis fimbriata* (Hinds), New Caledonia (MNHN). 30: *D. hypselos* n. sp., East Sumatra (holotype MNHN).



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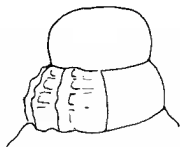
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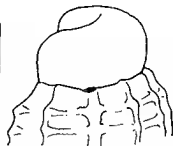
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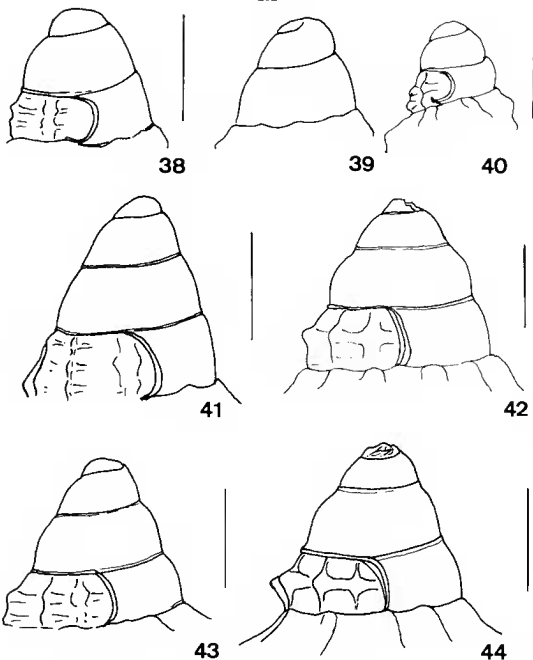


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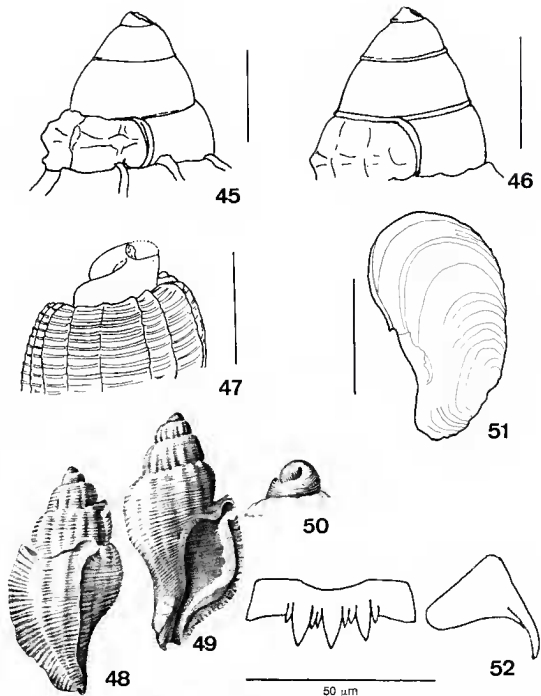


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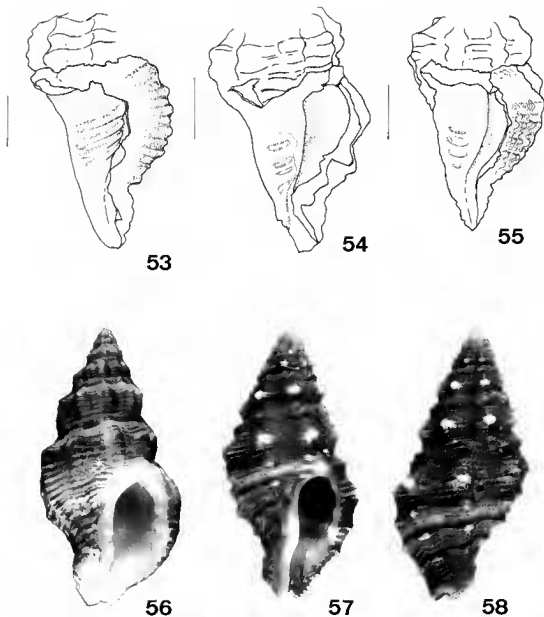
FIGS 31-37. — Protoconchs (scale bar = 0.5 mm). 31: *Daphnellopsis lamellosa* Schepman, Savu Sea, Indonesia (ZMA).
32: *Lataxiena fimbriata* (Hinds), Borneo (RH). 33-34: *L. dessertii* nom.nov., New Caledonia (MNHN). 35-37: *Orania adiaastolos* n. sp., New Caledonia (paratypes MNHN).



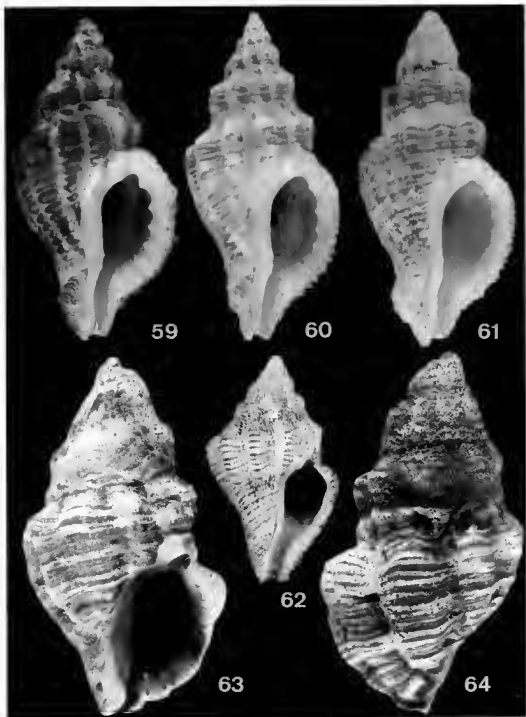
FIGS 38-44 — Protoconchs (scale bar = 0.5 mm). 38-39: *Orania fisheriana* (Tapparone Canefri), New Caledonia (MNHN). 40: *O. corallina* (Melvill & Standen), South Africa (NM). 41: *O. mixta* n. sp., Philippine Islands (paratype RH). 42: *O. ornamentata* n. sp., South Africa (holotype NM B3890/T1234). 43: *O. pacifica* (Nakayama), New Caledonia (MNHN). 44: *O. archaea* n. sp., Christmas Island. (AMS C152426).



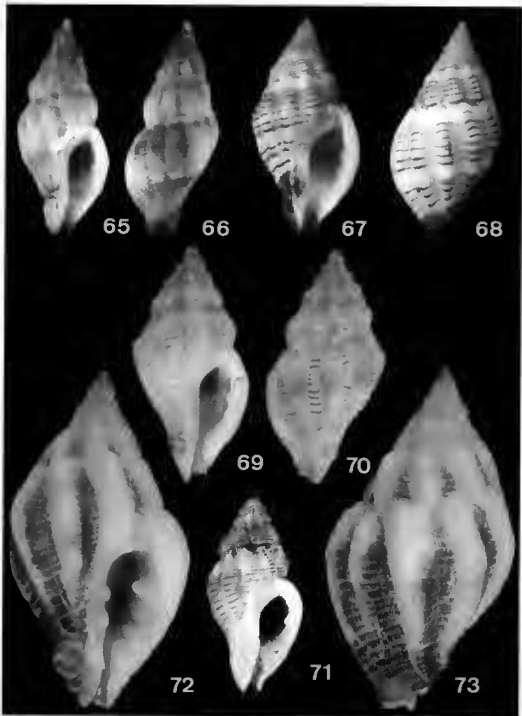
FIGS 45-52. — Protoconchs (scale bar = 0.5 mm). 45: *Orania taeniata* n. sp., Christmas Island. (holotype AMS C152435). 46: *Pascula muricata* (Reeve), New Caledonia (MNHN). 47: *Lindapterys murex* (Hedley), New Caledonia (MNHN). 48-50: *L. murex* (Hedley) (reproduced from Hedley, 1922). 51: Operculum of *Lataxienua desserti* nom. nov., New Caledonia (RH) (scale bar = 4 mm). 52: Radula of *Daphnellopsis fimbriata* (Hinds) (reproduced from HOUART, 1986, as *D. lamellosa* Schepman).



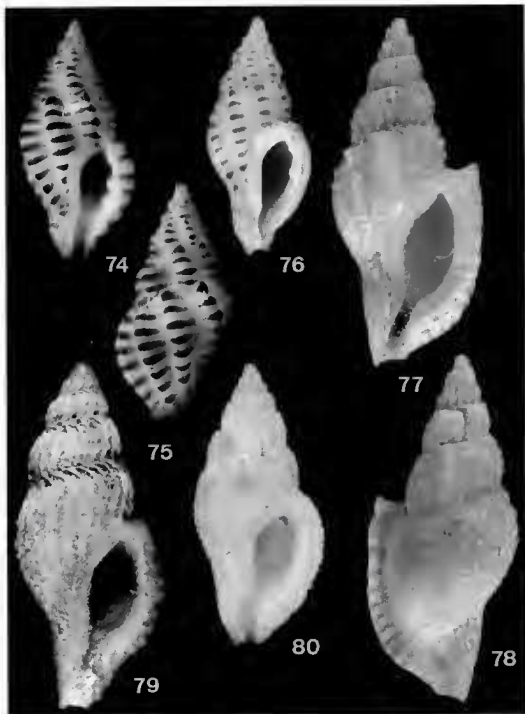
FIGS 53-58. — 53: Detail of the columellar lip of *Orania fischeriana* (Tapparone Canefri), New Caledonia (MNHN) (scale bar = 2 mm). 54: Detail of the columellar lip of *O. adiatolos* n. sp., New Caledonia (MNHN) (scale bar = 2 mm). 55: Detail of the columellar lip of *O. corallina* (Melvill & Standen), South Africa (NM D6797) (scale bar = 2 mm). 56: *Ergalatax contracta* (Reeve), Samar Island, 29.6 mm (syntype BMNH 1984103). 57-58: *Orania dharmai* n. sp., North Borneo, 15.1 mm (holotype MNHN).



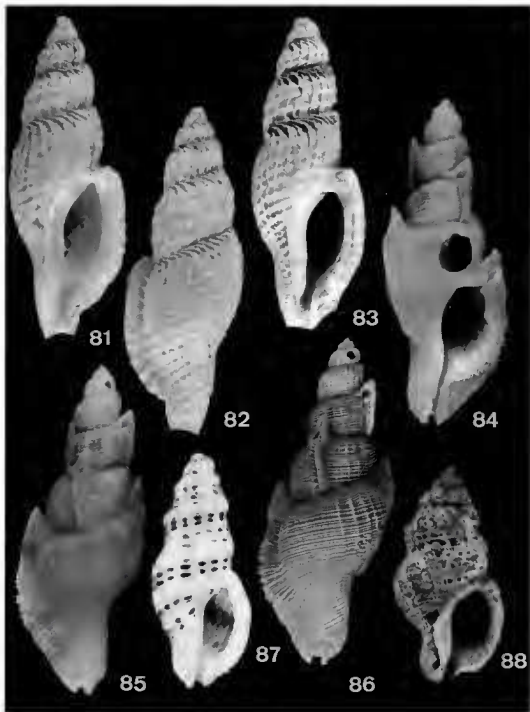
FIGS 59-64. — 59-61: *Ergalatax contracta* (Reeve), New Caledonia. 59: 33.3 mm; 60: 31.1 mm; 61: 36.8 mm. 62: *Ergalatax margariticola* (Brodertp), New Caledonia, 18.5 mm (MNHN). 63-64: *E. zebra* n. sp., Gulf of Aden, 33.8 mm (holotype WPU).



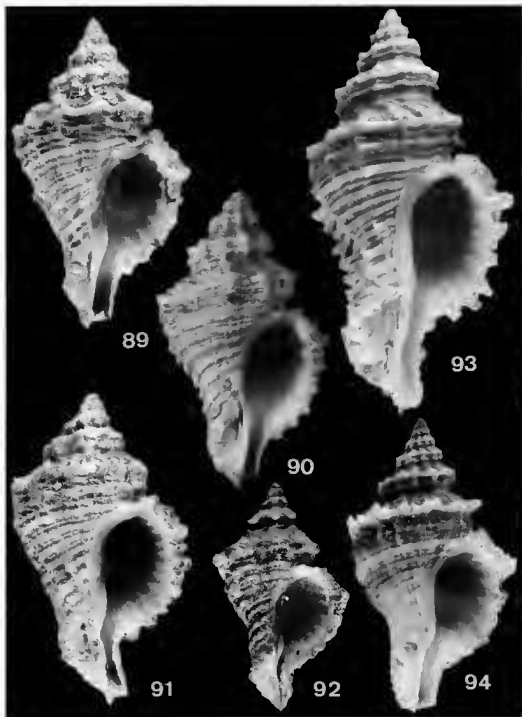
FIGS 65-73. — 65-66: *Cytharomorula danigoi* n. sp., New Caledonia, 11.6 mm (holotype MNHN). 67-68: *C. grayi* (Dall), New Caledonia, 17 mm (MNHN). 69-71: *C. springsteeni* n. sp., Philippine Islands. 69-70: 11 mm (holotype NM K2484/T1232); 71. 12.5 mm (paratype RH). 72-73: *C. pinguis* n. sp., Loyalty Ridge, 17.8 mm (holotype MNHN).



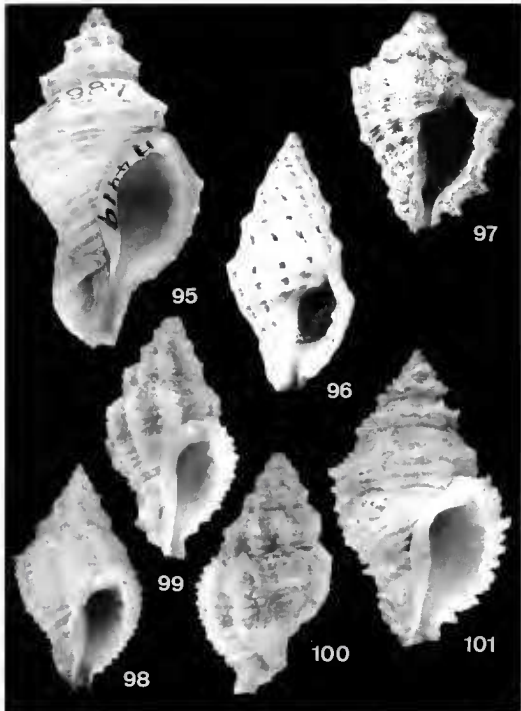
FIGS 74-80. — 74-76: *Cytharomorula vexillum* Kuroda. 74-75: Coral Sea, 14.5 mm (MNHN); 76: New Caledonia, 15 mm (RH). 77-78: *Daphnelopsis hypseios* n. sp. East Sumatra, 10.5 mm (holotype MNHN). 79-80: *D. fimbriata* (Hinds). 79: New Guinea, 7.4 mm (lectotype BMNH 1844.6.7.57, photo courtesy R. N. KILBURN); 80: New Caledonia, 10 mm (MNHN).



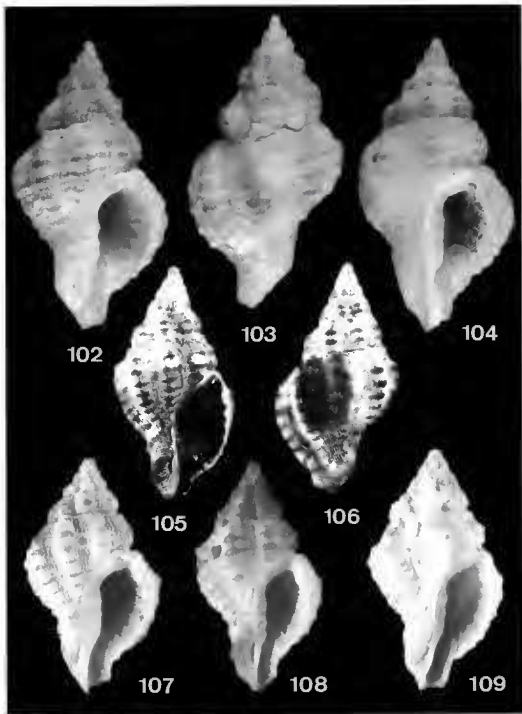
FIGS 81-88. — 81-83: *Daphnellopsis lamellosa* Schepman. 81-82: Savu Sea, Indonesia, 8.9 mm (lectotype ZMA Moll.3.13.095); 83: 8.5 mm (paralectotype ZMA Moll.3.13.096). 84-86: *Lindapterys murex* Hedley, New Caledonia, 17 mm (MNHN, photo courtesy P. LOZOUET) (fig. 86 whitened to show details of sculpture). 87: *Maculotriton serriale* (Deshayes), New Caledonia, 12 mm (MNHN). 88: *M. ingens* Houart, New Caledonia, 13.2 mm (holotype MNHN).



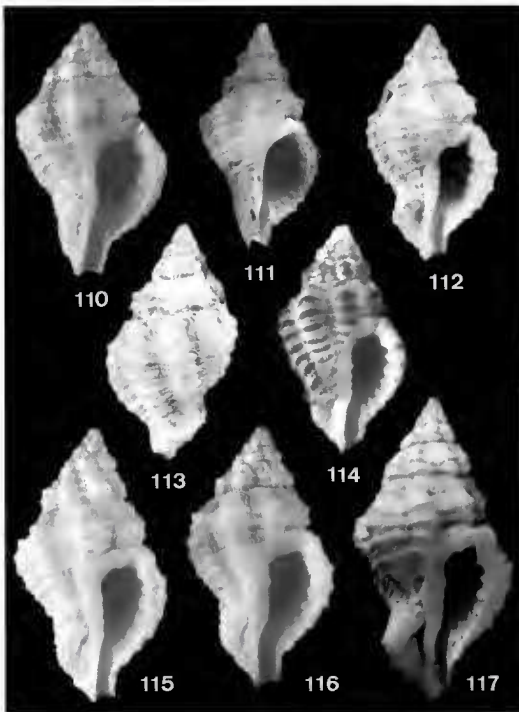
FIGS 89-94. — 89-91: *Lataxiena deserti* nom. nov., New Caledonia. 89: 26.6 mm (MNHN); 90: 30.5 mm (RH); 91: 26.7 mm (MNHN). 92: *Fusus imbricatus* Smith, 26.5 mm (holotype BMNH 1876.1.10.42). 93-94: *L. fimbriata* (Hinds). 93: Taiwan, 45.5 mm (RH); 94: Borneo, 23.7 mm (RH).



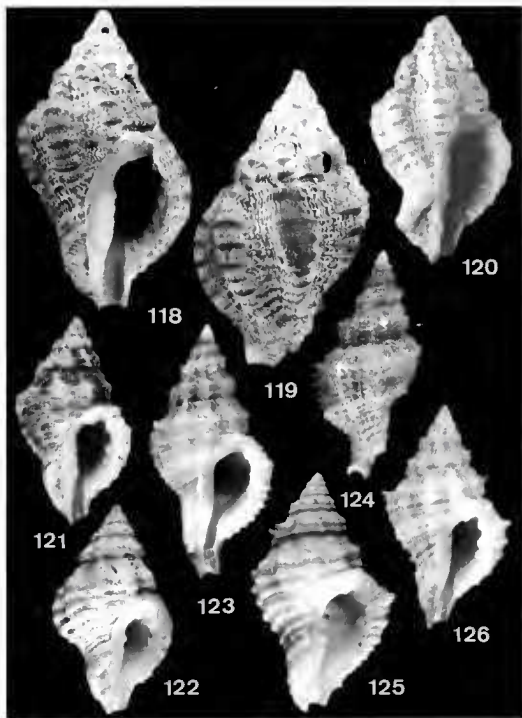
FIGS 95-101. — 95: *Lataxiena habropenos* n. sp., Mozambique, 40.5 mm (holotype NM H4919/T1229). 96: *Muricodrupa fenestrata* (De Blainville), New Caledonia, 30 mm (RH). 97: *M. fiscella* (Gmelin), New Caledonia, 20.8 mm (MNHN). 98-101: *Orania pacifica* (Nakayama). 98: Philippine Islands, 15 mm (RH); 99-100: New Caledonia, 14.5 mm (MNHN); 101: New Caledonia, 12.1 mm (MNHN).



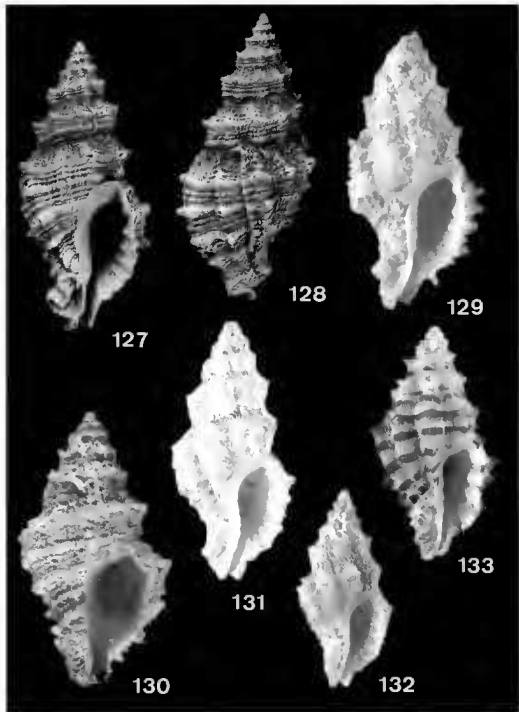
FIGS 102-109. — *Orania adiaestolos* n. sp. 102-103: New Caledonia, 11.8 mm (holotype MNHN); 104: New Caledonia, 13.7 mm (paratype MNHN); 105-106: New Caledonia, 12 mm (paratype MNHN); 107: New Caledonia, 10.5 mm (paratype MNHN); 108: New Caledonia, 9.1 mm (paratype MNHN); 109: New Caledonia, 9.9 mm (paratype MNHN).



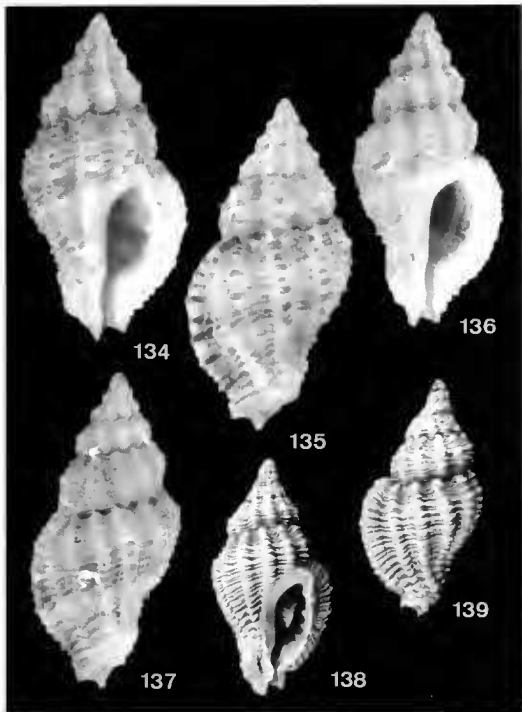
FIGS 110-117. — 110-111: *Orania adastolos* n. sp. 110: New Caledonia, 12.6 mm (paratype MNHN); 111: Zululand, South Africa, 12.3 mm (NM 746). 112-117: *Orania fischeriana* (Tapparone Canefri). 112-113: New Caledonia, 12.1 mm (MNHN); 114: New Caledonia, 11.5 mm (MNHN); 115: New Caledonia, 14 mm (MNHN); 116: New Caledonia, 13 mm (MNHN); 117: *Nassaria mordica* Hedley, 1909, Hope Island, Queensland, Australia, 16 mm (holotype AMS C27378, photo courtesy E. H. Vokes).



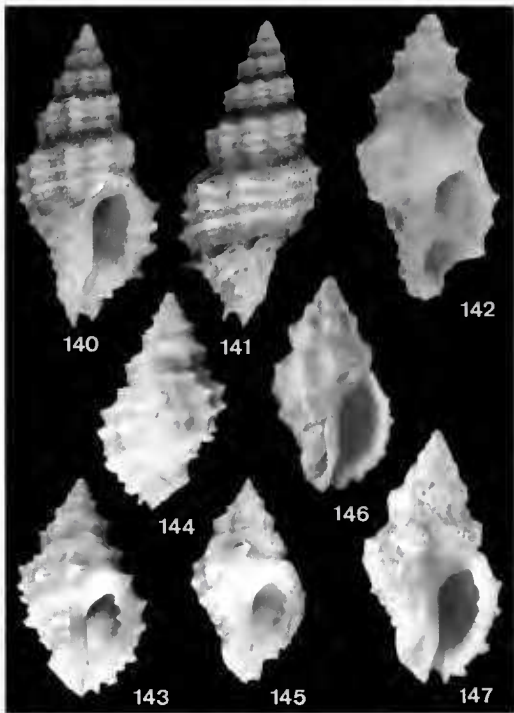
FIGS 118-126. — 118-120: *Orania fischeriana* (Tapparone Canefri). 118-119: New Caledonia, 12.5 mm (MNHN); 120: Carimata Straits, Borneo, 12.5 mm (RH). 121-122: *O. corallina* (Melvill & Standen). 121: Seychelles, 13 mm (RH); 122: Gulf of Oman, 12.5 mm (holotype BMNH 1903.12.15.105). 123-124: *Orania mixta* n. sp., Punta Engaño, Philippine Islands. 123: 17.1 mm (holotype MNHN); 124: 15 mm (paratype RH). 125-126: *O. pleurotomoides* (Reeve). 125: Locality unknown, 12.9 mm (syntype BMNH 1972022); 126: Papua New Guinea, 13.8 mm (RH).



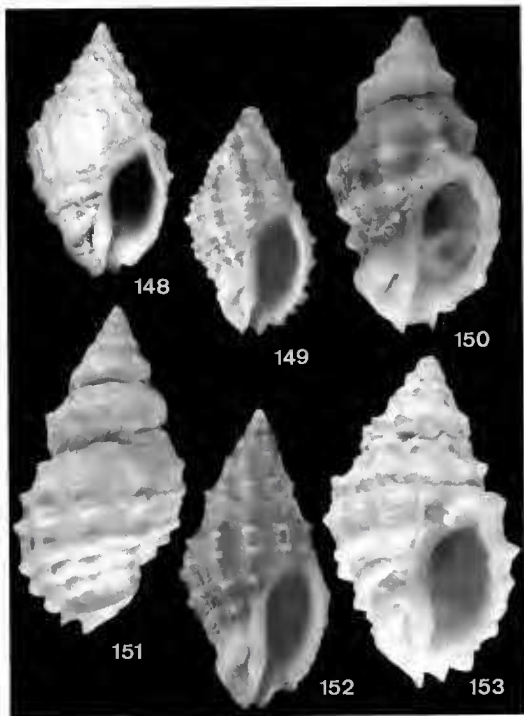
FIGS 127-133. — 127-132: *Orania archaea* n. sp. 127-128: Samar, Philippine Islands (holotype MNHN, photo whitened, courtesy E. H. Vokes); 129: Punta Engaño, Philippine Islands, 17.1 mm (paratype NM L1332/T1226); 130: New Caledonia, 15 mm (MNHN); 131: Christmas Island, 15 mm (AMS C152426); 132: Christmas Island, 11.5 mm (AMS C152426). 133: *O. taeniata* n. sp., Christmas Island, 8.2 mm (holotype AMS C152435).



FIGS 134-139. — *Orania ornamentata* n. sp., Natal, South Africa. 134-135: 16 mm (holotype NM B3890/T1234); 136-137. 15.5 mm (paratype MNHN); 138-139: 15.7 mm (paratype NM C5409/T1241, whitened to show details of the sculpture, courtesy E.H. Vokes).



FIGS 140-147. — 140-141: *Orania simonetae* n. sp., Nuku Hiva, Marquesas, 12.5 mm (holotype MNHN). 142: *Pascula lefevriciana* (Tapparone-Canefr), New Caledonia, 7.4 mm (MNHN). 143-147: *Pascula muricata* (Reeve). 143-144: Locality unknown, 16.5 mm (syntype BMNH 1968457). 145-147: *Murex nitens* Adams, Philippine Islands, 15.9 mm (holotype BMNH 197465); 146: New Caledonia, 13 mm (MNHN); 147: New Caledonia, 15.5 mm (MNHN).



FIGS 148-153. — *Pascula muricata* (Reeve). 148: New Caledonia, 19.2 mm (MNHN); 149: New Caledonia, 13.5 mm (MNHN); 150: New Caledonia, 14 mm (MNHN); 151: New Caledonia, 18 mm (MNHN); 152: New Caledonia, 18 mm (MNHN); 153: New Caledonia, 18 mm (MNHN).