

BEAUFORTIA

BULLETIN ZOOLOGICAL MUSEUM

UNIVERSITY OF AMSTERDAM

Vol. 54, no. 3

November 22, 2004

FIVE NEW MICRO MOLLUSCS FROM THE TROPICAL WESTERN ATLANTIC (GASTROPODA, RISSOOIDEA, BARLEEIDAE, RISSOIDAE)*

M. J. FABER & R. G. MOOLENBEEK

*University of Amsterdam, Zoologisch Museum Amsterdam
P.O. Box 94766, 1090 GT Amsterdam, the Netherlands*

ABSTRACT

Five new species of Rissooidea from the West Indies are described. The barleeid *Lirobarleeia brami* n. sp. from Dominica; *Simulamereлина novemstriata* n. sp., and *Alvania debrynei* n. sp., both from Cayman Brac; *Alvania turkensis* n. sp. from Grand Turk, and *Alvania dejongi* n. sp. from Mustique. All except *Lirobarleeia brami* n. sp. and *Alvania dejongi* n. sp. are known from their type localities only, the latter is known to occur more widespread in the tropical western Atlantic.

Key words: Gastropoda, Barleeidae, *Lirobarleeia*, Rissoidae, *Alvania*, *Simulamereлина*, West Indies, taxonomy

INTRODUCTION

The marine micro molluscs of the West Indies are still poorly known (Moolenbeek & Faber, 1989). This appears to be particularly true for the Rissooidea. They form an extremely diversified and widespread group of chiefly shallow water diatomaceous and micro-algal feeders (Ponder, 1985).

Undescribed species are far from rare, especially in remote and little studied areas, such as the Cayman Islands (only treated by Abbott, 1958), the Turks & Caicos Islands (still without a report on its malacofauna), and the Leeward Islands (without recent papers on the smaller mollusc species).

In this paper, one barleeid and four rissoids are described from these regions.

The barleeid, presumably a member of the genus *Lirobarleeia*, has been collected at Dominica and Grenada. Its generic position is uncertain, since it lacks the minute pitted microsculpture on the teleoconch, which may be diagnostic for the genus (fide Ponder, 1983).

Four different species related to or provisionally assigned to *Alvania* s.l. and *Simulamereлина*, have been discovered, one in Grand Turk, two in Cayman Brac, and one from scattered localities throughout the West Indies, including the Grenadines, Grand Turk, and Cayman Brac.

Abbreviations: ZMA = Zoologisch Museum, University of Amsterdam; IBUFRJ = Instituto de

*Studies on West Indian marine molluscs no. 32

Biologia da Universidade Federal do Rio de Janeiro, Brazil.

SYSTEMATICS

Family Barleeidae

Genus *Lirobarleeia* Ponder, 1983

TYPE SPECIES. - *Alvania galapagensis* Bartsch, 1911

***Lirobarleeia brami* n. sp.**

Figs. 1, 9

MATERIAL. - Holotype (ZMA Moll. 3.99.032); 14 paratypes ZMA (Moll. 3.99.033), and 1 paratype IBUFRJ, all from the type locality.

Other material studied: Grenada, 'Car Pilot', 36 m, January 1999 (4 specimens), leg. R. Gomez.

TYPE LOCALITY. - Dominica, Pt. Guignard (15°14'N 61°23'W), 35 m, in coralline sand, 7 March 1987, leg. R.G. Moolenbeek.

DESCRIPTION HOLOTYPE. - Shell small, slender, elongate-conic, with nearly two protoconch whorls and three and a half teleoconch whorls. Protoconch whorls carinated, sculptured with four smooth spiral ribs, the interspaces concave. The two median ribs are the most prominent. Microsculpture of fine irregular axial threads. Teleoconch whorls angular, the first and second post nuclear whorl with one spiral rib, the body whorl with two spirals. In between these spirals there are about 12 broad, weak axial ribs, most pronounced at the periphery, creating weak nodules at the intersections. Microsculpture of numerous microscopic spiral grooves. No umbilicus. Aperture ovate, pointed above. Outer lip simple, slightly incrassated.

Colour a dull light yellowish brown.

Length 2.1 mm; width 1.1 mm.

VARIABILITY. - In some specimens the weak nodules at the intersections are more or less connected to each other. Size ranges from 1.7 to 2.3 mm and some specimens are more whitish.

ETYMOLOGY. - The species is named after

Abraham van der Bijl for his generous support for many years to the department of Malacology.

REMARKS. - All paratypes are very similar to the holotype except in being different in size and some are white which may be caused by being dead for some time. *Lirobarleeia brami* n. sp. differs from the species mentioned and figured by Leal (1991: pl 11 figs. c-n), and Absalão & Rios (1995), mainly in being more elongate. Most related seems *Caelatura barcellosi* Absalão & Rios, 1995 (= *C. spec. 2* in Leal, 1991), but the new species is more slender, lacks the weak spiral just below the suture and has an entirely different protoconch sculpture. Instead of microscopic pits on the teleoconch, which is considered diagnostic for the genus *Caelatura* (sensu Ponder, 1983), it shows microscopic spiral striae. Superficially, it resembles a true barleeid (genus *Barleeia*), but the protoconch lacks the typical pittings, and true barleeids are usually devoid of macrosculpture. It is concluded that no other barleeid genus, as described in Ponder (1983) does resemble *Lirobarleeia brami* n. sp. but due to the absence of soft parts and operculum, we tentatively describe this new taxon in the genus *Lirobarleeia*.

Family Rissoidae

Genus *Simulamerelina* Ponder, 1985

TYPE SPECIES. - *Merelina corruga* Laseron, 1956.

REMARKS. - Previously (Faber & Moolenbeek, 1987), we discussed the possible nominal (sub)genera to which several western Atlantic rissoids may belong. Hardly no progress has been made during recent years concerning the (sub)specific level in rissoids. Often no clear distinction can be made between the several (sub)genera, such as *Alvania*, *Simulamerelina*, *Flemellia*, *Alvinia*, *Onoba* and *Gofasia*. One has to consult Ponder (1985) and Bouchet & Waren (1993) to appreciate fully the scale of the difficulties in telling one genus from another. Provisionally, we consider slender shells with clathrate sculpture and a duplicated peristome to belong to the genus *Simulamerelina*. We know such shells from various parts of the world and assume a worldwide distribution for this genus with an Australian type species.

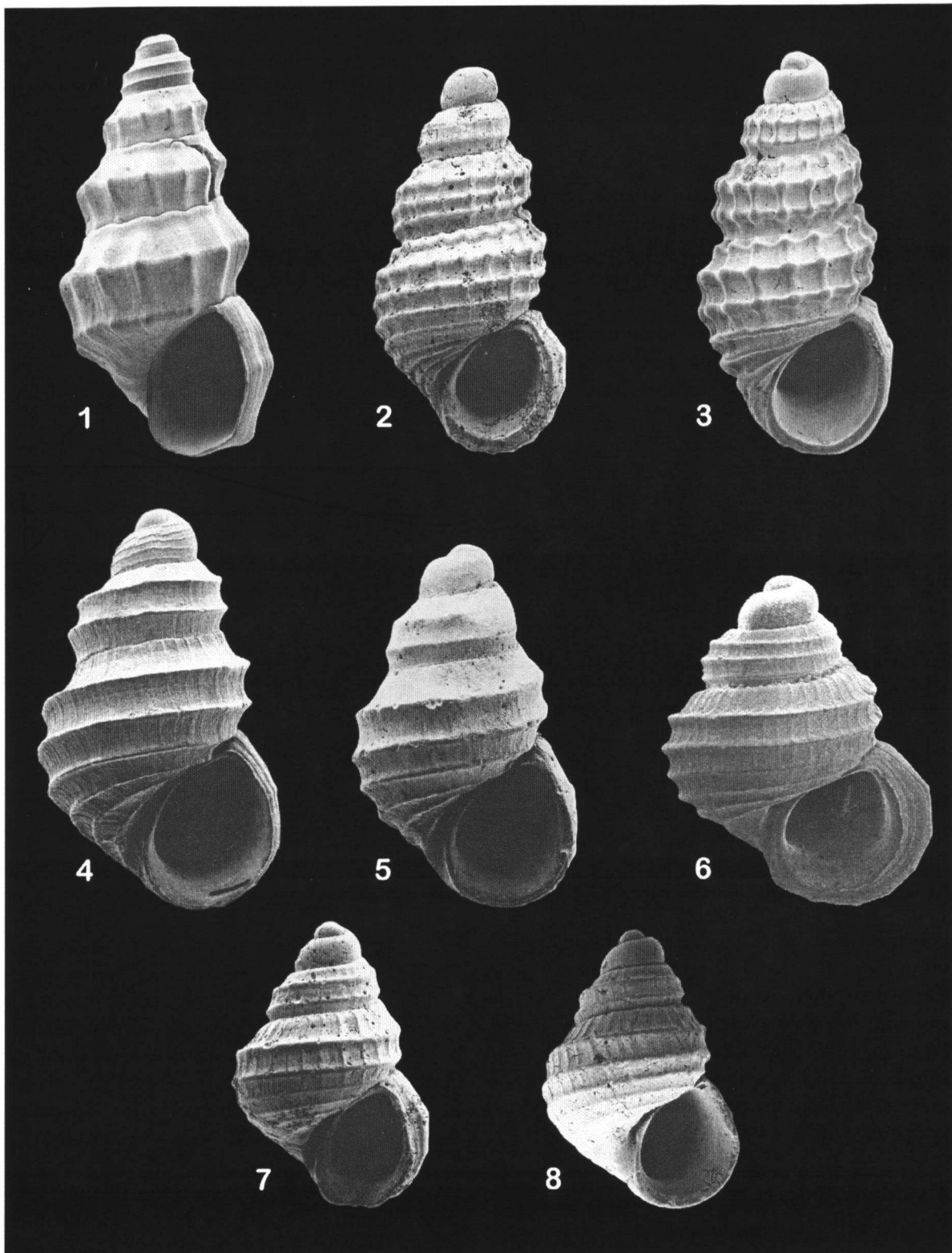


Fig. 1. *Lirobarleeia brami* n.sp., holotype, length 2.1 mm, Dominica. Fig. 2. *Simulameralina novemstriata* n.sp., holotype, length 1.5 mm, Cayman Brac. Fig. 3. *S. didyma* (Watson, 1885), length 1.9 mm, Dominican Republic. Figs. 4-5. *Alvania dejongi* n.sp., 4, holotype, length 1.1 mm, Mustique. 5, length 1.1 mm, Cayman Brac. Fig. 6. *A. turkensis* n.sp., holotype, length 1.2 mm, Grand Turk. Figs. 7-8. *A. debrynei* n.sp., 7, holotype, length 1.2 mm. 8, paratype, length 1.1 mm, Cayman Brac.

Simulamereлина novemstriata n. sp.

Fig. 2

MATERIAL. - Holotype (ZMA Moll. 3.99.034); 6 rather poorly preserved specimens from the same locality, considered paratypes (ZMA Moll. 3.99.035).

TYPE LOCALITY. - Cayman Islands, SW-coast Cayman Brac, beach in front of Tiara Beach Hotel, 10 April 1991, leg. M.J. Faber.

DESCRIPTION HOLOTYPE. - Shell small, slender, elongate ovate, with one smooth, protruding nuclear whorl and three postnuclear (teleoconch) whorls, the first with two, the second with four and the last with nine spiral ribs, the uppermost rather feeble, the second, adapically, the strongest. All are crossed by slightly weaker axial ribs, about 17 on the last whorl. Sutures undulating. Outer lip thickened, with a duplicated peristome, aperture oval, posteriorly a little compressed. No umbilicus.

Length 1.5 mm; width 0.8 mm.

ETYMOLOGY. - *Novem* = nine, *striata* = striated; with nine spirals.

REMARKS. - This species superficially resembles *Simulamereлина caribaea* (d'Orbigny, 1842) but can be separated by the presence of more spiral ribs, that is four (including three strong ones) on the penultimate, and nine on the last whorl, versus three (two strong) and eight in *A. caribaea* (see De Jong & Coomans, pl. 10 fig. 96). Also, the protoconch is more protruding, more globose, and the outer lip is stronger. The aperture is smaller, and the whole shell is more compressed. In this respect, it more closely resembles *S. didyma* (Watson, 1885) (Fig. 3) but that species has seven spirals on the last whorl. *S. novemstriata* n. sp. is only known from the type locality, where it occurs sympatric with *S. caribaea*.

Alvania dejongi n. sp.

Figs. 4-5, 10

Alvania moolenbeeki; Redfern, 2001: 31, pl. 15 fig. 128

MATERIAL. - Holotype (ZMA 3.99.036); 2 paratypes (ZMA

3.99.037) from the type locality.

Other material examined: Honduras, Utila, Bay Islands, 29-X-1995, 2 specs; Cabañas, 29-X-1995, 1 spec.; Cayman Brac, Dennis Point, 11-IV-1991, 1 spec.; Tiara beach Hotel, 10-IV-1991, 10 specs, (Fig. 5); Montserrat, Rendez-Vous Bay, 30-X-1992, 2 specs; Bahamas, Abaco, Great Guana Cay, 18-XII-1998, 1 spec.; Boat harbour, 17-XII-1998, 1 spec., all leg. M.J. Faber; Dominican Republic, Las Terrenas, VII-1992, 25 specs, leg. L. Duiveman; Aruba, Druifbaai, 10-II-1989, 1 spec., leg. J. Bras; Curaçao, St. Jorisbaai, XII-1986, 3 specs, leg. H.E. Coomans & M. Eustatia.

TYPE LOCALITY. - Grenadines, Mustique, 2-6 m, March 1987, leg. R.G. Moolenbeek.

DESCRIPTION HOLOTYPE. - Shell small, elongated ovate, rather thin, with one and a half protoconch and two teleoconch whorls. Protoconch with five irregular spiral striae. First whorl of teleoconch with two prominent spiral ribs, last whorl (including the base) six sharp spiral cords, the spaces in between concave, with about 25 very weak, evenly spaced axial riblets, microscopic spiral striae and insignificant growth-lines. Sutures clear, thin. Aperture oval, a little pointed above. Outer lip thin, simple. No umbilicus.

Colour yellowish white, variegated with a few small rectangular patches of light brown on the spiral cords, more prominent on the last whorl. Length 1.1 mm; width 0.7 mm.

VARIABILITY. - All specimens are around 1 mm in length, a few are more bulbous than the types.

ETYMOLOGY. - We have the pleasure to name this species to honor Kornelis Minne de Jong (1904-2001), friend and fellow malacologist, who contributed much to the malacological knowledge of the ABC islands. With great pleasure we remember the days he visited the museum to finish his book on the marine gastropods of these islands. In 1995 he donated the greater part of his collection to the Zoölogisch Museum Amsterdam.

REMARKS. - Throughout its range this species is very constant in characters. It reminds members of the genera *Cingula*, *Onoba*, and *Crisilla* from Europe and the Cabo Verde Archipelago, this mainly because of the weak development of the axial sculpture. However, the microsculpture suggest affinity to *Alvania auberiana* (d'Orbigny, 1842)

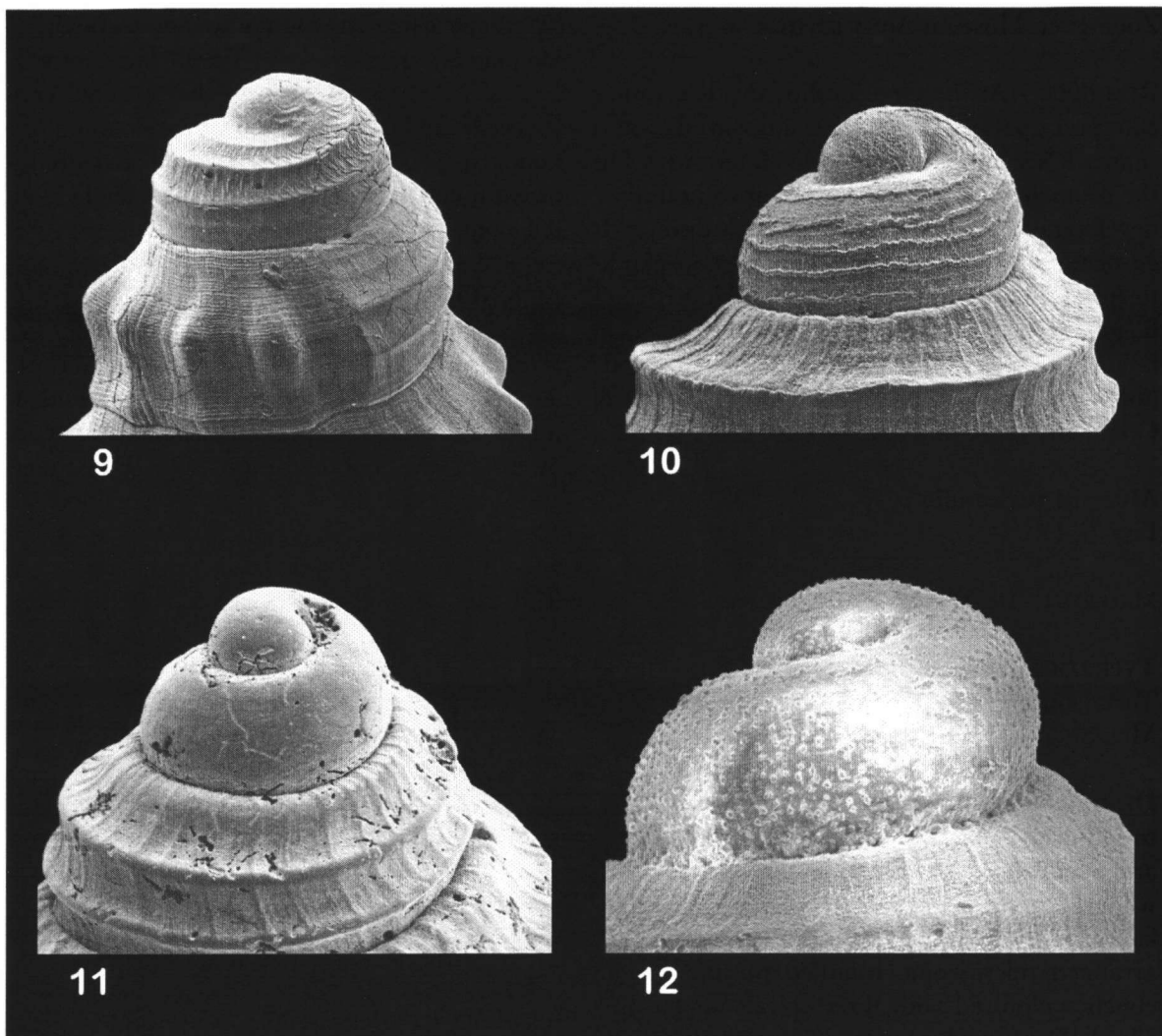


Fig. 9. *Lirobarleeia brami* n.sp., holotype, protoconch. Fig. 10. *Alvania dejongi* n.sp., holotype, protoconch. Fig. 11. *A. debruynei* n.sp., holotype, protoconch (worn). Fig. 12. *A. turkensis* n.sp., holotype, protoconch.

and *A. faberi* De Jong & Coomans, 1988. *A. moolenbeeki* De Jong & Coomans, 1988 differs by its large umbilicus and less carinated spiral cords.

***Alvania debruynei* n. sp.**

Figs. 7-8, 11

MATERIAL. - Holotype (ZMA 3.99.038); 21 paratypes ZMA (Moll. 3.99.039), and 2 paratypes IBUFRJ, all from the type locality.

TYPE LOCALITY. - Cayman Brac, Southwest-end, beach in front of Tiara Beach Hotel, 10 April 1991, leg. Marien J. Faber.

DESCRIPTION HOLOTYPE. - Shell small, short,

ovate-conic, broad, with one and a half worn, probably smooth, nuclear whorls and two and a half rapidly increasing teleoconch whorls, with on the first turn two, and on the last whorl (including the base) six spiral ribs, crossed by (on the last whorl) about 23 weaker axial riblets. Microsculpture of irregular spiral striae. Sutures deep and narrow. Umbilicus narrow, slit-like. Aperture roundish, pointed above. Outer lip thickened, peristome ending in a thin rim. Colour yellowish-grey, with patches of a lighter yellow. Length 1.2 mm; width 0.8 mm.

ETYMOLOGY. - Named after Rykel de Bruyne, for his support to the department of Malacology,

Zoologisch Museum Amsterdam.

REMARKS. - At the type locality, this is a rather common species, that varies little in size and shape. It seems to be related to *A. auberiana*, but the protoconch (indicating direct or lecithotrophic development of the larvae) renders it distinct. It co-occurs with *A. faberi*, another non-planktotrophic (but much more widely distributed) sibling of *A. auberiana*, from which it clearly differs in being shorter and wider, with much flatter whorls (for comparison of protoconchs see De Jong & Coomans, 1988: pl. 10 figs. 92-93).

***Alvania turkensis* n. sp.**

Figs. 6, 12

MATERIAL. - Holotype (ZMA Moll. 3.99.053).

TYPE LOCALITY. - Turks & Caicos Islands, Grand Turk, south coast, 20 m, 9 October 1990, leg. Mrs. Sherry Dawson, ex. coll. M.J. Faber.

DESCRIPTION HOLOTYPE. - Shell very small, round-oval, with one protoconch whorl, and two and a half rapidly increasing rounded teleoconch whorls. Protoconch rounded, very weakly angulated on top, covered by more or less spirally arranged microscopic rounded pustules; teleoconch sculptured with three spirals on the first whorl. The last whorl with six (three on the base) spirals, and circa 35 weaker, axial ribs, at right angles with the spiral ribs, forming a pattern of axially elongated rectangles. Axial ribs becoming weak to absent abapically, around the columella.

The intersections of the ribs being hardly nodulous. Sutures deep, channelled. Aperture wide, rounded, ending in a 'double peristome', formed by a thickened, expanded, flat varix. Outer lip weakly crenulated outside by the ends of the spirals. Columella almost straight; no umbilicus. Colour white throughout.

Length 1.2 mm; width 0.9 mm.

ETYMOLOGY. - Named after the type locality, Grand Turk.

REMARKS. - The only two species to confuse with *A. turkensis* n. sp. are *A. faberi*, which however is larger, has a much stronger axial sculpture, and a

differently shaped and sculptured protoconch (see De Jong & Coomans, 1988, fig. 93) and *A. moolenbeeki* which is narrower, lacks the terminal varix (or duplicated peristome), has broader, more pronounced spirals, and a much weaker axial sculpture (for comparison of protoconchs see De Jong & Coomans, 1988, pl. 9 fig. 90).

ACKNOWLEDGMENTS

We thank Mike Filmer, Dr R. Absalão and one anonymous referee for several suggestions to improve the manuscript. Photographs were made by us at the Laboratorium voor Elektronenmicroscopie at the University of Amsterdam. Mrs Sherry Dawson kindly gathered the coral sand during SCUBA-diving activities on Grand Turk and Mrs Raquel Gomez collected coral sand on the island Grenada. Dr L. Duiveman was so kind to collect and donate samples from the Dominican Republic. Samples on Dominica and Mustique were taken by R.G. Moolenbeek during SCUBA activities on a cruise on the MV 'Plancius'.

REFERENCES

- ABBOTT, R. T., 1958. The marine mollusks of Grand Cayman Island, British West Indies. Monogr. Ac. Nat. Sciences Philad. **11**: 1- 138.
- ABSALÃO, R. S. & E. RIOS, 1995. Descriptions of two new species of *Caelatura* (Gastropoda, Rissoidea, Barleeidae) from Brazil. *Apex* **10**: 87-93.
- BOUCHET, P. & A. WARÉN, 1993. Revision of the north-east Atlantic bathyal and abyssal Mesogastropoda. *Boll. Malac. Suppl.* **3**: 579-840.
- DE JONG, K. M. & H. E. COOMANS, 1988. Marine gastropods from Curaçao, Aruba and Bonaire. *Stud. fauna Curaçao Caribb. Isl.* **69**: 1-261 [Published separately in hard cover by E. J. Brill, Leiden]
- FABER, M. J. & R. G. MOOLENBEEK, 1987. On the doubtful records of *Alvania platycephala*, *Alvania pagodula* and *Alvania didyma*, with the description of two new rissoid species (Mollusca, Gastropoda, Rissoidea). *Beaufortia* **37**: 67-71.
- LEAL, J. H., 1991. Marine prosobranch Gastropods from oceanic islands off Brazil. Universal Book Services, Dr W. Backhuys, Oegstgeest: 1-419.
- MOOLENBEEK, R. G. & M. J. FABER, 1989. The genus *Euchelus* (Prosobranchia: Trochidae) in the West Indies. In: L.J. van der Steen (ed.). *Studies in honour of Dr Pieter Wagenaar Hummelinck*. Found. Sci. Res. Surin Neth. Antilles: 217-226.
- PONDER, W. F., 1983. A review of the genera of

Barleeidae (Mollusca: Gastropoda: Rissoacea). Rec. Australian Mus. **35**: 231-281.

PONDER, W. F., 1985. A review of the genera of the Rissoidae (Mollusca: Mesogastropoda: Rissoacea). Rec. Australian Mus. Suppl. **4**: 1-221.

REDFERN, C., 2001. Bahamian Seashells, a thousand species from Abaco, Bahamas. Bahamian seashell.com, Inc., Boca Raton, Florida: 1-280.

Received: August 16, 2002