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# VITRINELLIDAE (MARINE MOLLUSCA GASTROPODA) FROM HOLOCENE DEPOSITS IN SURINAM (DUTCH GUIANA)

### by

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#### Abstract

Five species of Vitrinellidae have been found in the Holocene shell ridges of Surinam. Of these, Vitrinella (Striovitrinella) cupidinensis, Cochliolepis surinamensis, and Solariorbis guianensis are new species, while Cyclostremiscus caraboboensis Weisbord is known from Pliocene beds in Venezuela and Teinostoma (Pseudorotella) schumoi Vanatta belongs to the Recent fauna of Guatemala. A paratype of Vitrinella cupidinensis spec. nov. was found on Olinda beach near Recife, Brazil, and clearly is a Recent shell. It seems possible, and even likely, that eventually all five species will appear to be still living in the same general region.

The molluscan fauna of the so-called shell ridges in the coastal region of Surinam was studied by Schepman (1887). His study was based on material collected by Voltz in 1853-1855 and preserved in the Rijksmuseum van Geologie en Mineralogie, Leiden. Although some of Schepman's identifications were tentative, he was very positive about one point, viz., that almost without exception the shells collected by Voltz belong to species which are still living in the same general region. Hence Schepman concluded that the shell ridges must be very young deposits.

Seemingly the result of the present paper does not agree with this conclusion. Of the five species dealt with here one has already a long time been known to belong to the Recent fauna of Guatemala, another has recently been described from beds assigned to the Pliocene in Venezuela, while three are new to science. One of these certainly belongs to the Recent fauna, as one of the paratypes is a Recent shell from Olinda beach near Recife, Brazil. Thus three of the five species are unknown in a living state and may be extinct. The Recent marine molluscan fauna of the Guianas is, however, very imperfectly known, while from this region shells of the small

size of vitrinellids have hardly been studied. It seems, therefore, very well possible that eventually these three species will also appear to belong to the Recent fauna. This seems the more probable as further, still unpublished, studies on the molluscs of the shell ridges, which contain many more species than are represented in the Voltz collection, tend to corroborate Schepman's main conclusion.

All the Surinam specimens dealt with here belong to samples collected by Dr. D. C. Geijskes, formerly Director of the Surinaams Museum, Parama-

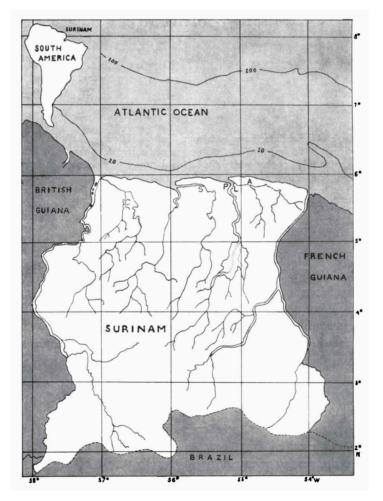


Fig. I. Sketch map of Surinam showing the situation of the localities mentioned in this paper. A: plantation "Alliance"; C: village of Cupido; L: plantation "Rust en Lust"; P: Paramaribo; S: km 50 on the road in Saramacca District.

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ribo. Part of the material, among which the holotypes, is deposited in the Rijksmuseum van Natuurlijke Historie, Leiden (RNHL); duplicates belong to the Surinaams Museum, Paramaribo. The situation of the localities appears from figure 1.

Acknowledgements. — I am indebted to Dr. D. C. Geijskes for entrusting the material to me, and to the former Netherlands Foundation for the Advancement of Research in Surinam and the Netherlands Antilles (WOSUNA) for enabling me to visit Surinam and some museums in the United States of America. The curators of the departments of Mollusca in the United States National Museum, Washington, D. C. (USNM), the Academy of Natural Sciences, Philadelphia (ANSP), and the Museum of Comparative Zoology, Cambridge, Mass. (MCZ), kindly gave me access to the collections under their care. The drawings after which the illustrations for this paper were made are from the hand of Mr. W. Bergmans, except fig. I, which I owe to Mr. Ph. van Hooven, and fig. 4b, drawn by Mr. W. C. G. Gertenaar.

## I. Vitrinella (Striovitrinella) cupidinensis spec. nov. (fig. 2a-d)

Material examined. — Holotype and nine paratypes from the shell ridge near Cupido, a village on the river Maratakka, Nickerie District, Surinam, D. C. Geijskes leg., July 1962; one paratype from Olinda beach near Recife, Brazil, F. Kalff leg., July 10, 1951 (RNHL).

Description. — Shell small, lenticular, slightly convex above, with a moderately wide, conical umbilicus, rather solid, white. Whorls up to  $3\frac{1}{2}$  ( $3\frac{1}{4}$  in the holotype), those of the spire convex, separated by a deep suture, last whorl almost evenly rounded, hardly flattened above and below. Protoconch consisting of  $1\frac{1}{2}$  smooth whorls; teleoconch with a regular pattern of fine spiral lirae crossed by extremely fine radiating striae. There are 9-12 spiral lirae on the penultimate whorl between the inner suture and the point where the outer lip is fixed. Aperture somewhat oblique, subcircular but for the practically right angle which the outer lip forms with the parietal wall; parietal part of the penultimate whorl covered by a thin layer of enamel; peristome with a very neat threadlike rim on the outer side. Outer lip slightly and very elegantly curved: somewhat protruding above and below and slightly bent backward at the periphery.

Measurements	(in	mm). —	Diameter	1.8,	height	0.9,	whorls	3¼
				2.2		1.3		3½
				1.9		0.9		3½
				1.6		0.8		3

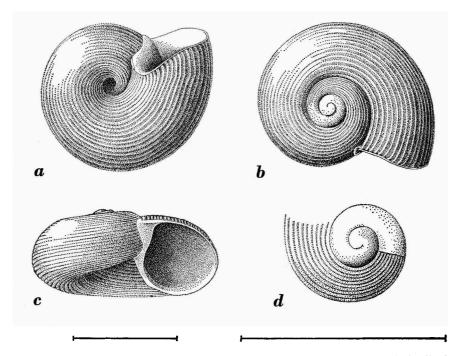


Fig. 2. Vitrinella (Striovitrinella) cupidinensis spec. nov. a, b, c, holotype; d, detail of a paratype showing protoconch and oldest part of teleoconch. Scales 1 mm; left for a-c, right for d.

The first set of measurements are of the holotype, the second of the largest paratype, and the fourth of the Recent specimen.

Name. — The species is named after the village of Cupido, near which the holotype was collected.

Discussion. — V. cupidinensis is closely related to V. (Striovitrinella) elegans Olsson & McGinty (1958: 31, pl. 3 fig. 1, 1a-d) from Bocas Island, Caribbean coast of NW Panama, of which I could examine type material (ANSP). Shells of the Panama species are slightly larger than those from Surinam with the same number of worls, their spiral sculpture is less and their radial sculpture more pronounced and on the underside the whorls are subcarinate around the umbilicus, the rounded keel becoming obsolete in the last whorl of the largest specimen (holotype).

# 2. Cochliolepis surinamensis spec. nov. (fig. 3a-d)

Material examined. — Holotype and one paratype from the shell ridge at the "Kerkplein" (Church square) in Paramaribo, Surinam, at I m depth, D. C. Geijskes leg., October 26, 1950.

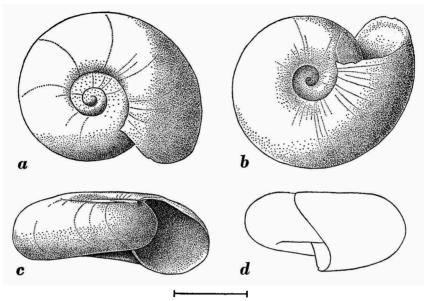


Fig. 3a-d. Cochliolepis surinamensis spec. nov., holotype. Scale: 1 mm.

Description. — Shell small, discoidal, with a nearly flat spire which is slightly sunken under the upper level of the last whorl, and a very wide umbilicus, thin, white. Whorls 3, involute, those of the spire nearly flat, separated by a distinct suture of which the last revolution is bordered at the outer side by the strong inner convexity of the last whorl. Whorls smooth and glossy, with very fine lines of growth. Umbilicus very broadly conical, clearly exposing the convex older whorls. Aperture slightly oblique, broadly crescent-shaped, outer lip sharp, elegantly sigmoid: protruding above, bent backward below.

Measurements (in mm). — Diameter 2.7, height 1.1 (holotype) 1.9 0.9 (paratype)

Name. — The species is named after Surinam, where the type material was collected.

Discussion. — This new species appears to be related to *C. parasitica* Stimpson and *C. nautiliformis* (Holmes) (cf. Pilsbry, 1953: 432-433) both belonging to the Recent Atlantic fauna of the United States, although the latter species was originally described from Post-Pliocene beds in South Carolina. I could compare my material with the neotype of the former species (USNM) and with Recent shells of the latter (ANSP) and found *C. surinamensis* unmistakably different by its relatively higher shell, which by its slightly sunken spire very much reminds of certain Planorbidae.

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# 3. Solariorbis guianensis spec. nov. (fig. 4a-c)

Material examined. — Holotype from the shell ridge near Cupido, a village on the river Maratakka, Nickerie District, Surinam, D. C. Geijskes leg., July 25, 1962.

Description. — Shell very small, lenticular, with the spire hardly protruding, flattened above, with a narrow umbilicus, rather solid, light horn coloured, glossy and semitransparent, but somewhat more opaque round the umbilicus. Whorls 3, rapidly increasing, those of the spire convex and separated by a distinct deep suture, last whorl flattened above and below, rounded at the periphery, with the greatest width slightly under the middle, very convex and obsoletely keeled round the umbilicus. Spire practically smooth, sculpture of the last whorl consisting of little pronounced and irregular fine radiating striae starting from the suture and the umbilicus, but not reaching the periphery, and a few indistinct spirals, near the suture on the upper side and near the periphery on the under side. Aperture very oblique, subcircular, parietal part of the penultimate whorl covered by enamel, outer lip simple.

Measurements (in mm). — Diameter 0.9, height 0.4.

Name. — The name is derived from Guiana, the general region in which the type locality is situated.

Discussion. — This species is closely related to S. shimeri (Clapp) (Vitrinella shimeri Clapp, 1914: 39, pl. 2 fig. 6-8; Shimer, 1915: 438; Shimer, 1918: 449) from Postglacial beds in Boston, Mass., of which I

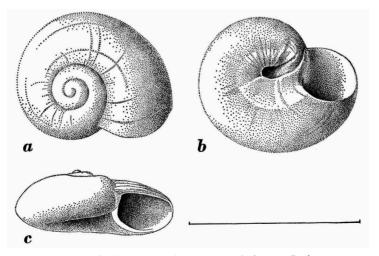


Fig. 4a-c. Solariorbis guianensis spec. nov., holotype. Scale: 1 mm.

could examine the holotype and several paratypes (MCZ). S. shimeri is somewhat larger with the same number of whorls and has a relatively higher shell. S. blakei (Rehder) (Vitrinella blakei Rehder, 1944: 97, pl. 9 fig. I, 2) from the Pleistocene of Maryland is another related species which I could examine (USNM). It is also somewhat larger than C. guianensis, has a more pronounced sculpture, and the last whorl has a flat wall around the umbilicus instead of being convex in that part. As far as I know Moore (1965: 78) was the first to class Rehder's species with Solariorbis, and there can be no doubt that Clapp's species belongs to the same genus. These two species are nearer to each other than to the Surinam species; it seems even possible that S. blakei is a synonym of S. shimeri.

## 4. Cyclostremiscus caraboboensis Weisbord (fig. 5a-c)

Weisbord, 1962: 23, 140, pl. 13 fig. 7-9 (Pliocene, La Salina de Guaigaza, Carabobo, Venezuela).

Material examined. — More than thirty specimens from the shell ridge near Cupido, a village on the river Maratakka, Nickerie District, Surinam, D. C. Geijskes leg., July 1962; seven specimens from the shell ridge near km 50

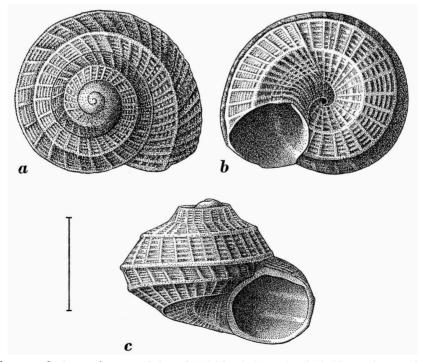


Fig. 5a-c. Cyclostremiscus caraboboensis Weisbord, from the shell ridge at km 50 along the road in Saramacca District. Scale: I mm.

along the road in Saramacca District, Surinam, D. C. Geijskes leg. during the Surinam Expedition 1948-1949, December 1948; seven specimens from the shell ridge in the plantation "Rust en Lust" on the Surinam River, Commewijne District, Surinam, D. C. Geijskes leg., August 22, 1955; several specimens from the shell ridge in the plantation "Alliance" on the Commewijne River, Commewijne District, D. C. Geijskes leg., s. d.

Discussion. — The identification of my material was confirmed by Mr. Weisbord himself, who was kind enough to compare some of my specimens with the holotype. It appears that in the largest shells available, which presumably are adult, the radial sculpture becomes finer and more crowded in the last whorl towards the aperture. I could compare my material with the holotype (ANSP) of *C. balboa* Pilsbry & Olsson (1945: 267, pl. 30 fig. 5), a Recent species from the Pacific coast of Panama, which closely resembles *C. caraboboensis*, but has a smaller and much more depressed shell.

# 5. Teinostoma (Pseudorotella) schumoi Vanatta (fig. 6a-c)

Vanatta, 1913: 25, pl. 2 fig. 5, 10 (Recent, Porto Barrios and Livingston, Guatemala). Material examined. — Twenty-six specimens from the shell ridge near

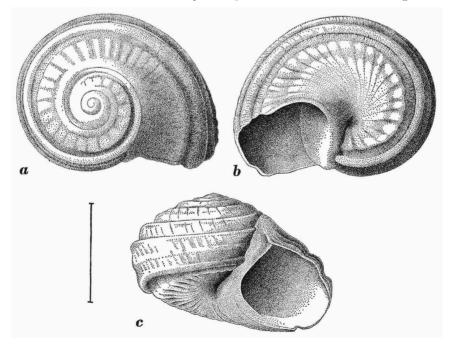


Fig. 6a-c. Teinostoma (Pseudorotella) schumoi Vanatta, from the shell ridge near the village of Cupido, Nickerie District. Scale: 1 mm.

Cupido, a village on the river Maratakka, Nickerie District, Surinam, D. C. Geijskes leg., July 1962.

Discussion. — Comparison of my material with the five syntypes of this species (ANSP) revealed their specific identity. "Cyclostremiscus" salinensis Weisbord (1962: 139, pl. 13 fig. 4-6) from the Pliocene of Venezuela appears to belong to the same group and to be closely related to the present species. It differs from T. schumoi by the presence of more spiral ridges on the last whorl.

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