ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN

(MINISTERIE VAN CULTUUR, RECREATIE EN MAATSCHAPPELIJK WERK)

Deel 45 no. 5 15 Februari 1971

ON SIX SPECIES OF MARINE MOLLUSCA FROM SURINAME, FOUR OF WHICH ARE NEW

by

C. O. VAN REGTEREN ALTENA

Rijksmuseum van Natuurlijke Historie, Leiden

With 6 text-figures and 2 plates

Four new species are here described in order to have their descriptions published before "Seashells of Wia Wia" by D. J. Green & R. H. Hill and the second part of my paper on the Holocene and Recent marine Mollusca of Suriname will appear. Notes are added on two species for which names are used different from those in previous publications. The description of *Solen rosewateri* n. sp. is nearly completely based on specimens obtained during the Research of the Continental Shelf of Suriname (Onderzoek Continentaal Plat Suriname: O.C.P.S.), which dredged off the Suriname coast in 1966 and 1969. As large parts of the O.C.P.S. material have not yet been sorted out, there is a possibility that specimens of the other new species described in the present paper will prove to occur in this material.

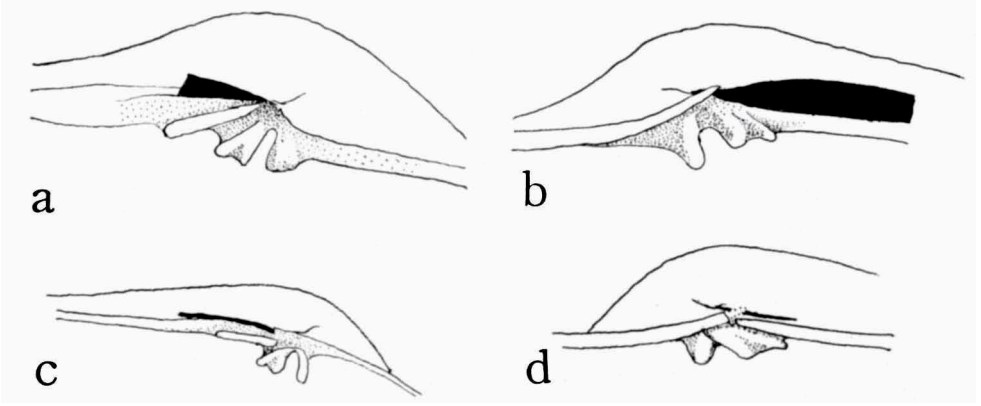
Unless otherwise stated the specimens are in the Rijksmuseum van Natuurlijke Historie at Leiden.

Petricola (Petricolaria) pholadiformis gracilis Deshayes nov. comb.
(pl. 1 figs. 4-6, textfig. 1c, d)

I found that the syntypes of *Petricola gracilis* Deshayes in the British Museum (Natural History) agree with specimens from St. Petersburg, Florida; Galveston, Texas; the beach near the mouth of Matapica Canal, Suriname, and Holocene shell ridges near Cupido on the Maratakka, Suriname. The subspecies was mentioned as *Petricola* (*Petricolaria*) aff. *parallela* Pilsbry & Lowe in my publication of 1968 (p. 158).

Lamarck (1818: 505) described *Petricola pholadiformis* after one specimen from unknown locality, which belonged to the cabinet of Mrs. Bandeville. This cabinet was bought by the Prince of Masséna after having passed through other hands (Lamy 1931?: 22) and finally came to the Muséum d'Histoire Naturelle at Genève. These data I owe to the kindness of Dr. E. Fischer-Piette.

To Dr. E. Binder I am indebted for sending me photographs of the holotype of *P. pholadiformis* from the Genève Museum. It measures 46 × 17 mm (pl. 1 figs. 1-3) and it agrees almost completely with a specimen in the Rijksmuseum van Natuurlijke Historie from Texel, the Netherlands. Our largest specimens are 68 × 27 mm and 67.5 × 31 mm, but specimens longer than 60 mm occur all along our coast. In America the species seems restricted to the east coast. The hinge teeth are figured on textfig. 1a, b.



Textfig. 1a, b. *Petricola pholadiformis* Lamarck, Netherlands, Noordwijkerhout-Zandvoort, J. Knock leg. a, hinge left valve; b, hinge right valve
Textfig. 1c, d. *Petricola pholadiformis gracilis* Deshayes. c, hinge left valve, Suriname, beach near Matapica Canal, Dr. C. O. van Regteren Altena leg.; d, hinge, right valve, Florida, St. Petersburg, Tampa Bay, peat bog off north end of Mullet Key, Mrs. Edna Marcot coll., Prof. J. Chester Bradley don.

Petricola gracilis Deshayes was figured (1853a: pl. 18 figs. 9, 9a) and described (1853b: 214) by Deshayes on specimens from unknown locality. From the syntypes the largest (pl. 1 figs. 4-6) was figured by Deshayes probably earlier than the description; this specimen is, therefore, here designated as lectotype. According to Dr. J. D. Taylor, who was so kind as to send me photographs of the syntypes, the largest specimen is 38 mm long. Its hinge teeth agree with the hinge teeth of the Caribbean specimens I mentioned (textfig. 1c, d). The posterior hinge tooth (Lamy, 1923: 315, fig. 4b) is parallel to the posterior hinge margin (pl. 1 fig. 4, textfig. 1c), while in *P. pholadiformis* it makes an angle with it (pl. 1 fig. 3, textfig. 1a). In accordance with this in the right valve the posterior tooth, which is bifid (Lamy, 1923: 315, fig. 3b), is directed more pronouncedly to the posterior end and is longer in the subspecies than in the species (compare textfig. 1b with 1d). Moreover, the subspecies is longer as to its breadth and has the radial ribs less pronounced at the anterior side than the species.

Solen rosewateri nov. spec. (pl. 2 figs. 1-3, textfig. 2a, b)

Holotype: whole animal in alcohol, valves: length 27 mm, breadth 6 mm; O.C.P.S. Expedition II, Station M 82, 06° 09.4′ N 54° 02.8′ W, Agassiz trawl, ± 22 m depth, 10 IV 1969.

Paratypes (all from Suriname): One left valve, 27.5 × 6.5 mm, O.C.P.S. Expedition I, Experimental Station, 06° 13′ N 55° 17′ W, Agassiz trawl, 25 m depth, 25 III 1966. — Two, nearly whole, right valves, O.C.P.S. Expedition I, Station A 14, 06° 14.2′ N 55° 19.2′ W, Van Veen grab, 18 m depth, 23 IV 1966. — One right valve, 31.5 × 6 mm, O.C.P.S. Expedition I, Station E 62, 06° 30.6′ N 56° 15.3′ W, rectangular dredge, 38 m depth, 12 IV 1966. — One right valve, 20 × 5 mm, O.C.P.S. Expedition II, Station M 72, 06° 15.32′ N 54° 03.65′ W, Agassiz trawl, ± 25 m depth, 29 III 1969. — Two right valves, 28 × 7 mm (figured) and 21.5 × 5.5 mm, O.C.P.S. Expedition II, Station N 78, 06° 04.6′ N 53° 50.7′ W, Agassiz trawl, ± 24 m depth, 9 IV 1969. — Two left valves, one 41.5 long, O.C.P.S. Expedition II, Station N 79, 06° 13.3′ N 53° 49.5′ W, Agassiz trawl, 27 m depth, 9 IV 1969. — Two left valves, one 25 × 6 mm and one posterior side broken off, O.C.P.S. Expedition II, Station I 93a, 06° 21.8′ N 55° 00.3′ W, Agassiz trawl, ± 31 depth, 26 IV 1969. — Two left valves, washed ashore, Krofajapassie to 9½ km to the east (Wiawia beach), 1969, D. J. Green & R. H. Hill leg. (one valve in the Rijksmuseum van Natuurlijke Historie, Leiden (figured), 30.5 × 7 mm, fresh, with part of periostracum).

Description. — Shell brittle, equivalve, up to more than 40 mm long, straight, gaping on both sides.

Beak slightly turned upwards and protruding. Anterior margin rounded before the beak, approximately straight at an angle of 110° to 115° with the dorsal margin and passing slightly rounded into the ventral margin, which at the posterior end is slightly turned upwards. Posterior margin straight, at angles of 90° to the ventral and dorsal margins. There is no vertical groove parallel to and behind the anterior margin, only what might be called an adumbration, about 1 mm long, just before the beak.

Exterior very smooth, with a yellowish-white periostracum; at the posterior end the shell is mostly reddish along the growth lines (not in the holotype). Interior whitish. The anterior adductor scar stretches from below the cardinal tooth to as far back as the ligament, or slightly farther. The posterior adductor scar begins at the pallial sinus.

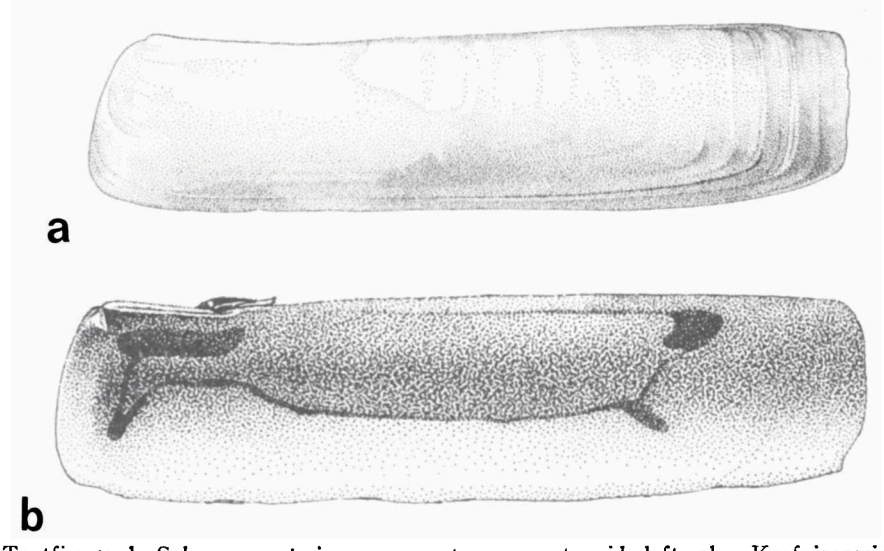
The specimens from O.C.P.S. Expedition II, Station N 79, are slightly curved.

Fragments were dredged by the Coquette, Station 197, 06° 22.5′ N 55° 10′ W, 11 fms. depth, on tubes of *Diopatra cuprea* (Bosc), and by the Agassiz trawl or Van Veen grab of the O.C.P.S. Expeditions I and II at: M 84, 06° 19.6′ N 54° 04.5′ W, 22.2 m depth; I 93, 06° 22.0′ N 55° 01.1′ W, 30.7 m depth; F 45, 06° 26.5′ N 56° 32.8′ W, 34 m depth; F 43, 06° 37.2′ N 56° 31.3′ W, 37 m depth; G 56, 07° 15.6′ N 56° 40.0′ W, 68-67 m depth; J 112, 07° 18.3′ N 54° 36.3′ W, ± 89 m depth.

Derivatio nominis. — *rosewateri*: after Dr. Joseph Rosewater, who helped

me in 1963, when I stayed for a month in Washington, and since that time on many occasions has sent material on loan and answered questions.

Discussion. — The most closely related species in the Caribbean Sea is *Solen lappeanus* Dunker (Dunker, 1871: 129, pl. 44 fig. 1). I am indebted to Dr. A. Zilch and Dr. R. Kilias who searched, though in vain, for the holotype of *Solen lappeanus*. Dunker's figure represents, however, a larger species which has a vertical groove just behind the anterior margin ("margo anticus peroblique truncatus, canaliculatus") and of which the posterior margin is not as straight as in our species. *Solen viridis* Say (Say, 1822: 316; Abbott, 1954: 444, pl. 30 fig. n) is still further removed from the present species by having a curved ventral and a still more rounded posterior margin.



Textfig. 2a, b. *Solen rosewateri* nov. sp., syntypes. a, outer side left valve, Krofajapassie to 9½ km E.; b, inner side right valve, O.C.P.S. Expedition II, Station N 78. W. C. G. Gertenaar del.

Cardiomya surinamensis nov. spec. (textfig. 3a, b)

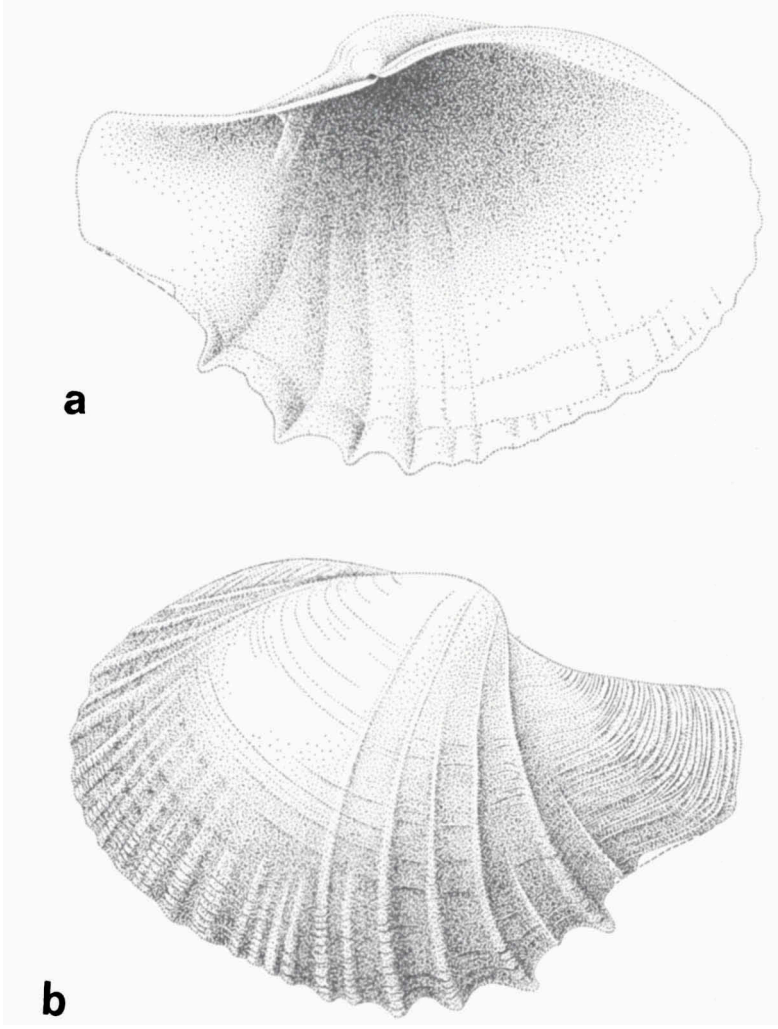
Holotype: left valve, Suriname, Coquette Station 197, 06° 22.5′ N 55° 10′ W, 11 fms. depth, 10 VI 1957, on tubes of *Diopatra cuprea* (Bosc).

Paratypes: two right and two left valves, same locality and date.

Description. — Shell small, thin, oval in form, the dorsal, anterior and ventral margins are rounded, the posterior side forms a rostrum. Shell inflated, with an antero-dorsal shallow groove; rostrum much flatter. On the rostrum only growth lines are seen, on the farther posterior surface of the shell there are five (holotype) to three ribs, running from the top to the ventral margin; at the margin the other half of the shell shows many

secondary ribs, not extending to the top, but fading away at most at one third of the height of the shell. Also there are a few of these secondary ribs between the primary ribs in the holotype, which is the largest shell.

The hinge accords practically with that of *Cuspidaria perrostrata* Dall (Verrill & Bush, 1898: pl. 73 fig. 2); it has a fairly long posterior tooth on the left valve. At the inner side four (holotype) to three of the primary ribs stretch from the top to the ventral margin; at the anterior side the secondary ribs are just visible.



Textfig. 3a, b. *Cardiomya surinamensis* nov. sp., holotype, a, inner side, b, outer side. W. Bergmans del.

		Length	Breadth	Semidiameter
Holotype	left	6.3 mm	4.2 mm	1.8 mm
Paratypes	left	6.0 mm	3.8 mm	
	left	5.5 mm	3.5 mm	
	right	5.6 mm	3.5 mm	
	right	4.5 mm	2.7 mm	

Derivatio nominis. — ***surinamensis***: from Suriname.

Discussion. — The species is related to *Cardiomya perrostrata* (Dall), but it has, except at the ventral margin, no sculpture on the anterior side.

Epitonium (Gyroscala) turnerae nov. spec. (textfig. 4a, b)

Holotype: Suriname, Krofajapassie to 9½km to the east (Wiawia beach), D. J. Green & R. H. Hill leg.

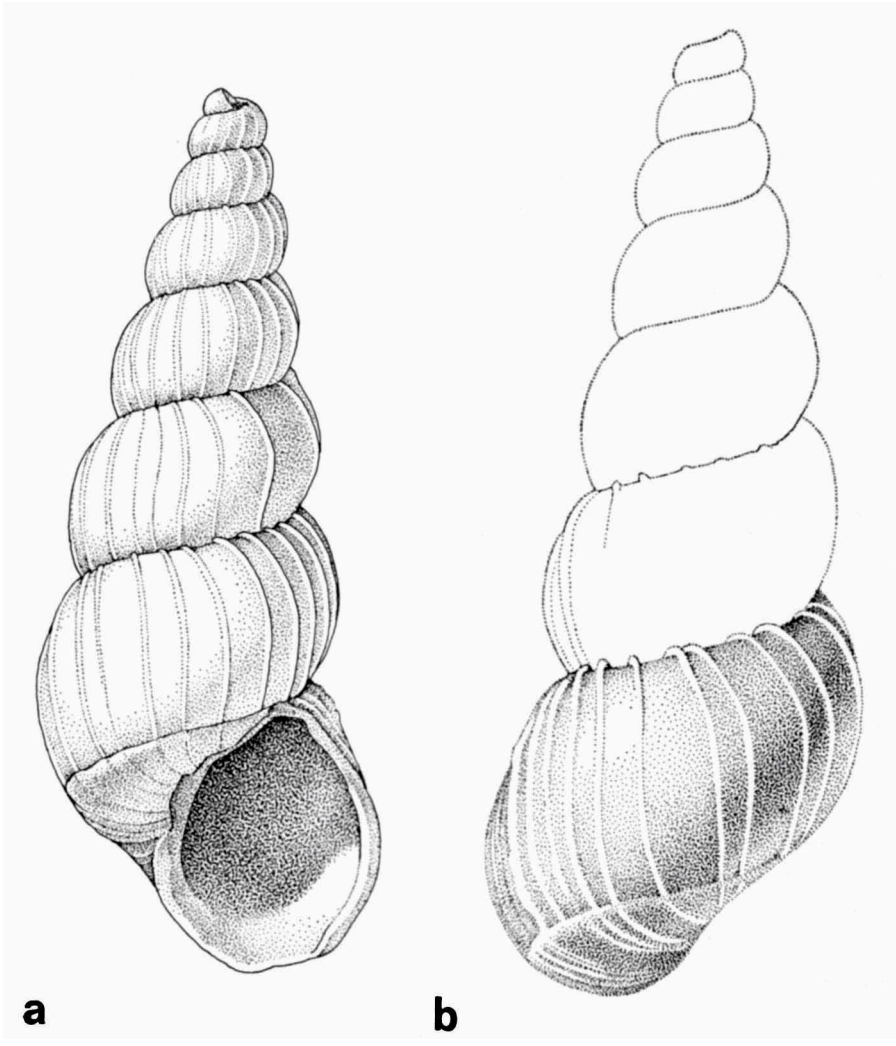
Paratypes (all from Suriname): One specimen, shell ridge Coronieweg, picket 216, XII 1948, Dr. D. C. Geijskes leg. — Five specimens, near Popogaimama Creek, 11 VI 1959, Dr. D. C. Geijskes leg. — Five specimens, near Toeholi Creek, 11 VI 1959, Dr. D. C. Geijskes leg. — Two specimen, near Kat Creek, 12 VIII 1957, Dr. D. C. Geijskes leg. — Five specimens, Krofajapassie to 9½ km to the east (Wiawia beach), 1969, D. J. Green & R. H. Hill leg. — 1 specimen, Wiawia coast, west end of beach, 17 XI 1948, Dr. D. C. Geijskes leg.

Description. — Shell reaching about 12 mm in length, imperforate and possessing several costae (the holotype on the last whorl ± 20, on the penultimate ± 14), which are at first blade-like (at the suture of the previous whorl), but soon become thread-like; more or less bending, at first inward, on the second half outward. They differ in distance, some are more distinct than others and they are not in line with those of the previous whorl. With a magnifying glass of 10 × or more, numerous small spiral lines are to be seen on the last whorl. Number of whorls about 11 or 12, convex and attached; about 3 larval whorls without sculpture. Spire forming an angle of about 25° to 30°.

Colour whitish, with brownish bands along the upper and lower sutures, mostly only on the body whorl.

Aperture subcircular, the outer lip following the last costae: the first half somewhat bending inward, the second half outward. In the holotype, the only specimen in which the mouth is practically intact, the outer lip becomes thicker by some costae which are closely joining. No varices. The parietal wall and the columella form the continuation of the outer lip by having a thin callus.

Basal ridge well developed, about as thick as the costae and sometimes visible on one or more previous whorls. Then the costae have just at the basal ridge a sharp angle forward. Operculum unknown.



Textfig. 4a, b. *Epitonium turnerae* nov. sp., holotype. W. C. G. Gertenaar del.

	Height	Breadth
Holotype (topwhorls lacking)	9.8 mm	3.9 mm
Paratype (largest of the type locality, top and mouth damaged)	10.7 mm	
Paratype, Toeholi Creek (largest specimen, top and mouth damaged)	11.0 mm	

Derivatio nominis. — ***turnerae*** after Dr. Ruth D. Turner, who with Dr. W. J. Clench described the Epitoniidae of the Western Atlantic in "Johnsonia" and who helped me during my stay at Cambridge (Massachusetts) in 1963 and by correspondence ever since.

Discussion. — I was in doubt whether or not I would place this species in the subgenus *Gyroscala* de Boury (Clench & Turner, 1951: 280), because with a magnifying glass of 10 × spiral lines are seen. But in my opinion they are here far less distinctly visible than in *Epitonium* (*Asperiscala*) ***multistriatum*** (Say) (Clench & Turner, 1952: 292) and, moreover, *E. **turnerae*** has a well developed basal ridge, which the species of the subgenus *Asperiscala* de Boury have not. The new species is easily recognizable from its nearest relative of the western Atlantic, *Epitonium rupicolum* (Kurtz) (Clench & Turner, 1951: 284), by its dimensions, the costae and the angle of the spire.

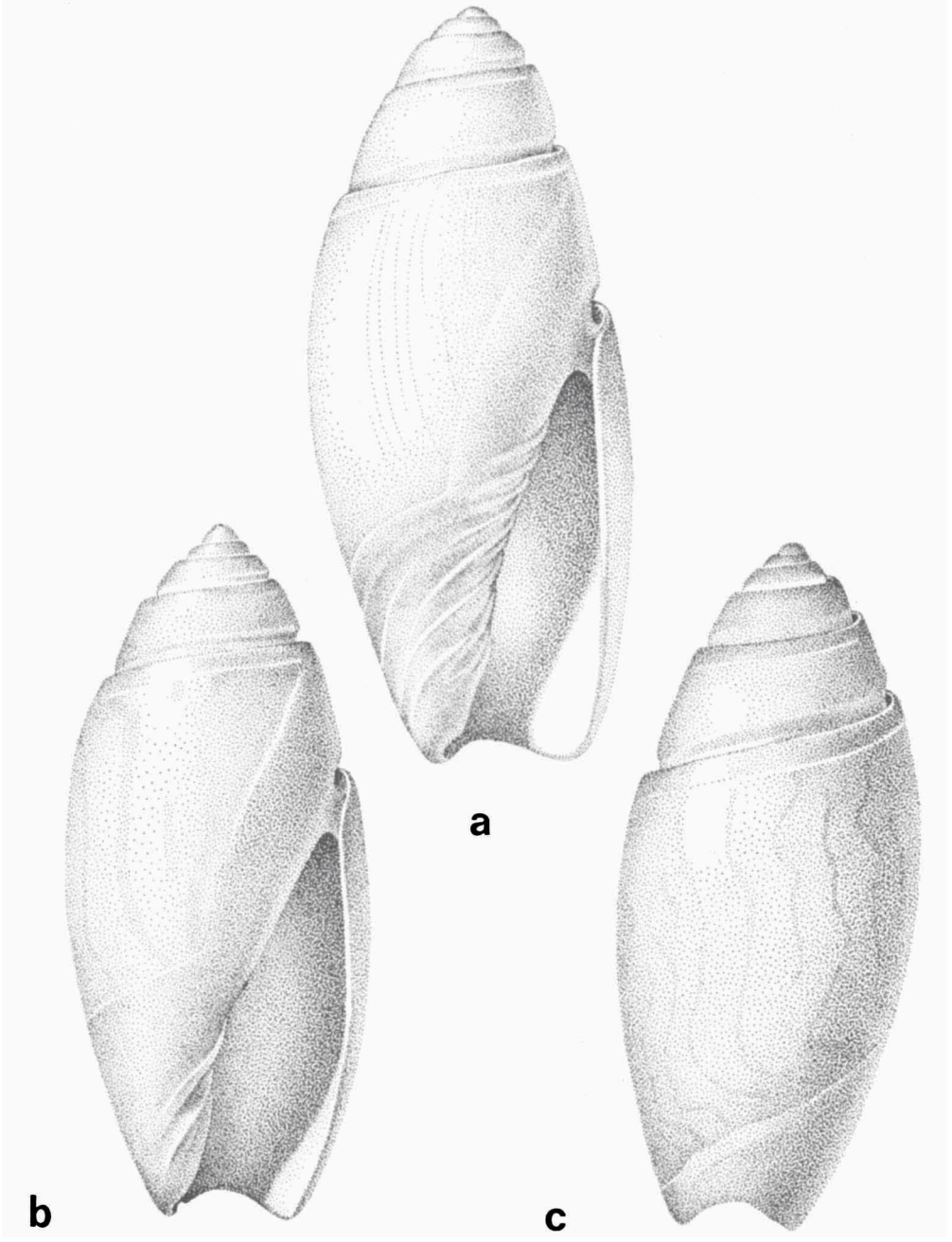
Olivella (Olivella) olssoni nov. spec. (textfig. 5a-c)

Holotype: Suriname, Bigisanti, 12 VII 1955, Dr. D. C. Geijskes leg.

Paratypes (all from Suriname): Eight specimens, beach of the mouth of the Corantijn River, 14 III 1963, Dr. C. O. van Regteren Altena leg. — Two specimens, sea-dike beach near mouth of Corantijn and Nickerie River, I 1957, Dr. W. A. Collier leg. — Eight specimens, district Saramacca, ± 2/3 from Suriname River to Coppename Point, 11 VI 1959, Dr. D. C. Geijskes leg. — Ten specimens, Matapica sand, no date, Dr. W. A. Collier leg. — Four specimens, Krofajapassie to 9 1/2 km to the east, 1969, D. J. Green & R. H. Hill leg. — Fourteen specimens, Bigisanti, 12 VII 1955, Dr. D. C. Geijskes leg. — Two juvenile specimens, Coquette Station 197, 06°22.5′ N 55°10′W, 11 fms. depth, from tubes of *Diopatra cuprea* (Bosc). — Two specimens, Holocene, Paramaribo, Munderweg, 1956, Dr. W. A. Collier leg.

Description. — Shell small, length up to somewhat more than 8 mm; whorls up to 6; spire moderately turreted, with convex sides, the proportion length to breadth becomes larger with growth; spire about 3/8 of the whole shell. Sutures fairly large and deep, the edge of the preceding whorl forming a small, slightly overhanging collar. Parietal callus extending to the upper suture of the penultimate whorl, heaviest at the posterior end of the aperture. Pillar structure formed by 3 to 8 strong lirations, the young specimens having less spiral lirations than the old, but in this respect there is some variation. Sometimes there are one or two intermedial lirations. Colour cream with zig-zag brownish lines from the collar to the suprasiphonal segment of the fasciolar band (Olsson, 1956: 159). The collar and the fasciole are white.

	Length	Breadth	Lirations	
Holotype:	6.7 mm	2.9 mm	± 9	
Paratypes, Bigisanti:	7.2+? mm	3.0 mm	± 8	
	6.0 mm	2.6 mm	3	Textfig. 5b, c
Paratypes, district Saramacca:	7.1 mm	2.9 mm	± 8	
	6.3 mm	2.6 mm	4	
Paratype, Munderweg:	8.2 mm	3.2 mm	7	



Textfig. 5a-c. *Olivella olssoni* nov. sp., a, holotype without colour pattern, b, c, specimen from Bigisanti to show colour pattern and variation in lirations. W. C. G. Gertenaar del.

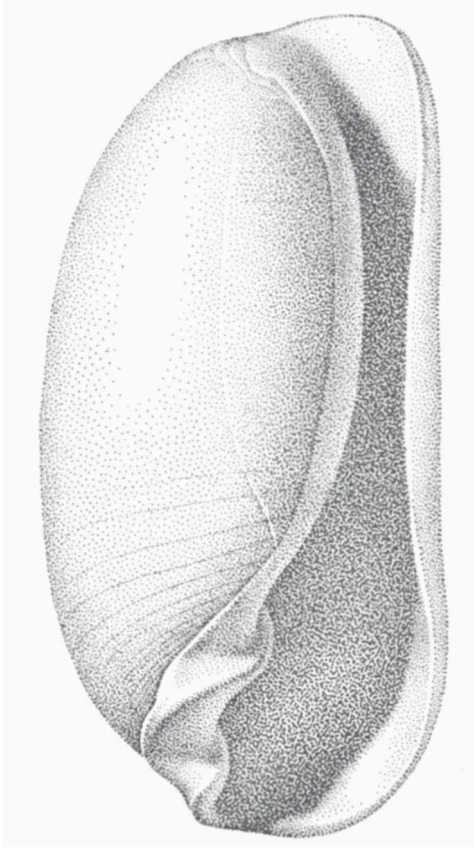
Derivatio nominis. — *olssoni*, after Mr. A. A. Olsson, who wrote an excellent study on American *Olivella*'s.

Discussion. — This species is closely related to *Olivella (Olivella) rehderi* Olsson (Olsson, 1956: 181, pl. 10 fig. 7). It has nearly always a shorter and more convex spire; it has mostly, when fullgrown, at least 7 lirations, and it has a slightly different colour pattern. From other *Olivella*'s it differs more strongly.

Cylichna biplicata (Lea) (textfig. 6)

Bulla biplicata Lea, 1844: 204; Lea, 1845: 286, pl. 24 (first time of occurrence, not 26 as stated in the text) fig. 2.

Original description: "Testâ cylindricâ, subquadratâ, crassâ, albidâ, politâ eburneâ; spirâ occultâ, anfractu ultimo supernè calloso, infernè striis trans-



Textfig. 6. *Cylichna biplicata* (Lea), Suriname, Coronie beach, Dr. D. C. Geijskes leg., height 4 mm. W. C. G. Gertenaar del.

versis parvis; aperturâ supernè arctatâ, ovatâ; columellâ plicâ magnâ et parvâ. Long. ,15; lat. ,07 poll. Hab. Cape May."

Discussion. — The holotype is not in the Academy of Natural Sciences of Philadelphia, neither in the U.S. National Museum; it is probably lost. My specimens from Suriname agree with the description and figure of Lea, except that the shell is not so cylindrical, but the last whorl is more rounded at the left side, especially at the top, when compared with Lea's figure.

Dr. R. Robertson from the Academy of Natural Sciences of Philadelphia writes me that specimens identified as *Cylichna bidentata* (d'Orb.) closely match a drawing of a Suriname specimen, except that most have a slightly less prominent anterior plica. Indeed the figure is of a specimen with a very prominent plica (textfig. 6).

I obtained on loan from the British Museum (Natural History) by the courtesy of Mr. J. F. Peake five syntypes of *Bulla bidentata* d'Orbigny (d'Orbigny, 1841-1842: pl. 4 figs. 13-16). They are different from my specimens; the whorls are to be seen at the top, the last whorl has on the whole surface a concentric sculpture and the plica is smaller and placed somewhat higher.

As long as the holotype of *Cylichna biplicata* (Lea) is not found and appears to be another species I will use this name for my Suriname specimens, for those of the beach near Recife, Olinda, Brazil and, for instance, also for the specimens from New Jersey, Florida and Panama in the collections of the Academy of Natural Sciences of Philadelphia (Letter 10 XII 1969 from Dr. R. Robertson).

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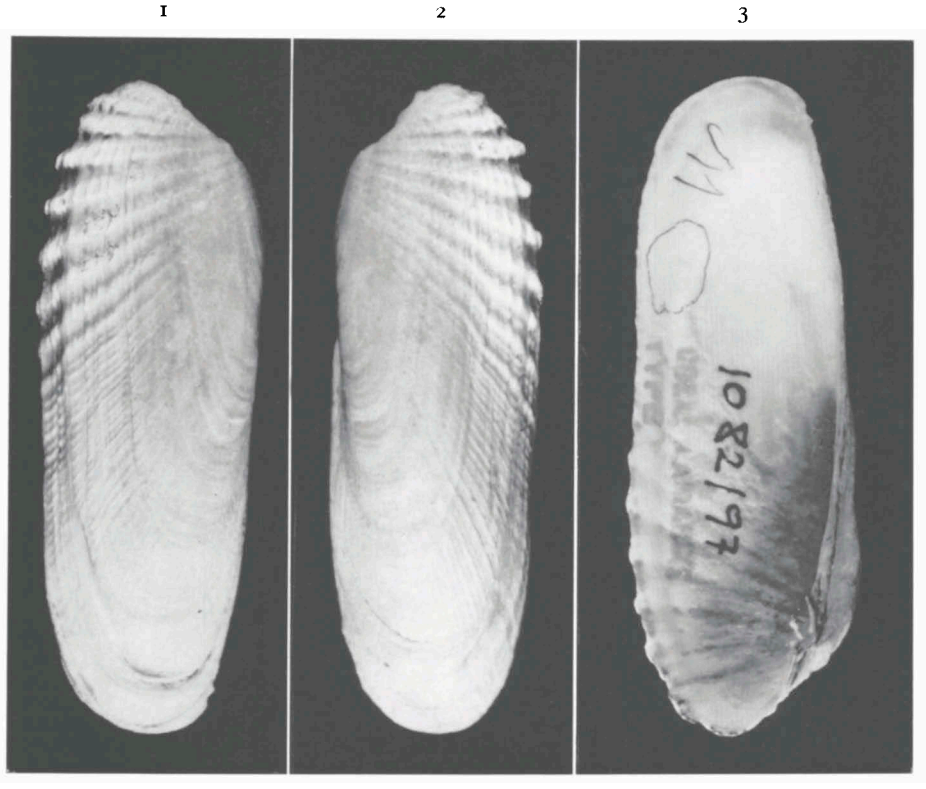

Fig. 1-3. *Petricola pholadiformis* Lamarck, holotype. 1, outer side of left valve; 2, outer side of right valve; 3, inner side of left valve. Courtesy of the Muséum d'Histoire Naturelle, Genève.

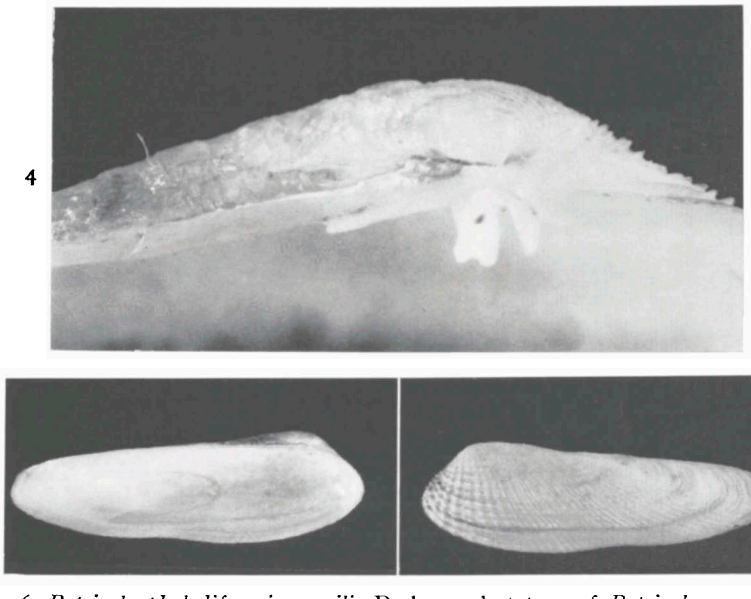

Fig. 4-6. *Petricola pholadiformis gracilis* Deshayes, lectotype of *Petricola gracilis* Deshayes. 4, hinge teeth of left valve; 5, inner side of left valve; outer side of left valve.

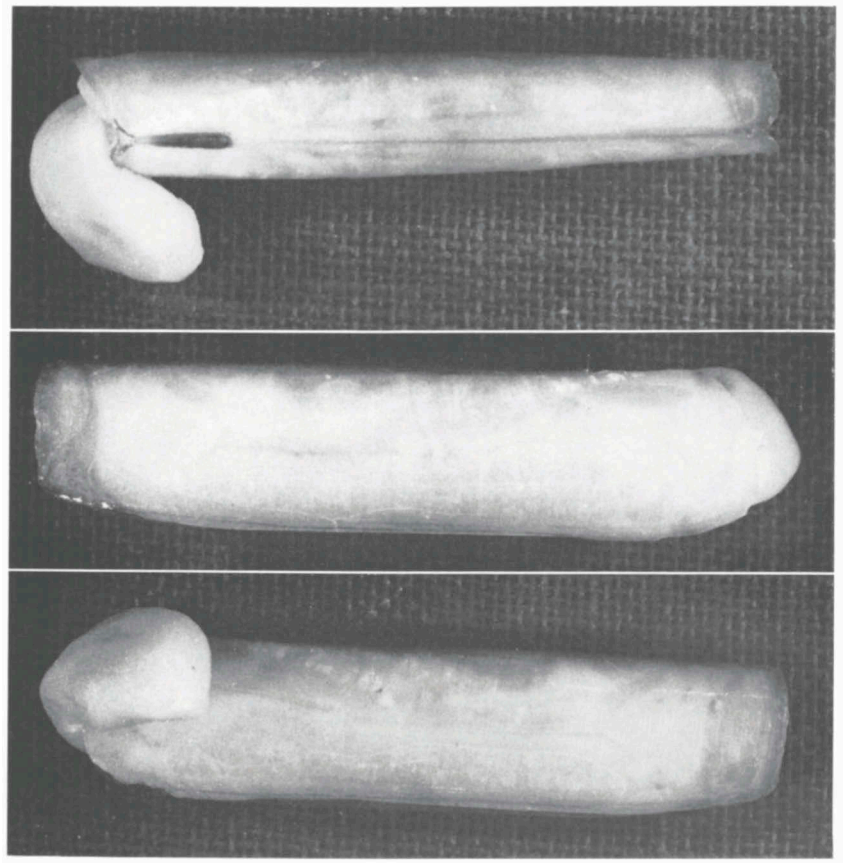

Fig 1-3. *Solen rosewateri* nov. spec., holotype. 1, from above; 2, right side; 3, left side. Chr. Hoorn Jr. phot.