PROPELEDA PLATESSA (DALL, 1890), A NUT CLAM NEW FOR THE COASTAL WATERS OF SURINAM (PELECYPODA, NUCULANIDAE)

by

J. NIJSSEN-MEYER

Rijksmuseum van Natuurlijke Historie, Leiden

With two text-figures

ABSTRACT

A species of the family Nuculanidae, *Propeleda platessa* (Dall, 1890), from the coastal waters of Surinam is described and figured. It is compared with related species. The status of the genus *Propeleda* is discussed briefly.

INTRODUCTION

In 1966 and 1969 extensive collecting trips were made along the continental shelf of Surinam by the hydrographic vessels H.NL.M.S. "Snellius" and H.NL.M.S. "Luymes" of the Netherlands Navy. Among the material collected several species of the family Nuculanidae were found among which one species that could not be identified. No near relatives of this species could be found in the western Atlantic. After comparison with literature on related species from Australia (*P. ensicula* (Angas, 1877)), the Antarctic (*P. longicaudata* (Thiele, 1912)), the western Indian Ocean, off Natal (*Leda lanceta* Boshoff, 1968), New Zealand (*P. trulliformis* Marwick, 1931), and Australia (*Leda huttoni* Tenison Woods, 1879), the material from Surinam proved to belong to *Propeleda platessa* (Dall, 1890) [1]). It occurs in water of 27-89 m depth off the coast of Surinam in a bottom with mud and sand (see distribution map, fig. 2).

Thanks are due to the Netherlands Organization for the Advancement of Pure Research (Z.W.O.) for funds for a visit to the British Museum (Natural History) in 1971. I am much obliged to Mrs. K. M. Way, British Museum (Natural History), who helped me with literature not available in the Netherlands, and to Mr. A. Bos, who made the drawings.

All the examined specimens are deposited in the Rijksmuseum van Natuurlijke Historie, Leiden (RMNH).

---

[1]) After this paper was submitted for publication Dall's syntypes were received for study, confirming the above identification.

Propeleda platessa (Dall, 1890) (fig. 1 a-c)

Leda platessa Dall, 1890: 256 (description).

Material from Surinam coastal waters.

RMNH 54854: left valve (figured), length 5.6 mm, height 2.2 mm, 06°48.0'N, 54°11.4'W, depth 45 m, Agassiz trawl, bottom sandy mud with some heavy clay, Sta. L 90, 12.iv.1969.

RMNH 54855: 2 valves, 06°48.0'N, 54°11.4'W, depth 45 m, Agassiz trawl, bottom sandy mud with some heavy clay, Sta. L 90, 12.iv.1969.

RMNH 54856: 2 valves, 06°59.5'N, 55°11.2'W, depth 56 m, Van Veen grab, bottom coarse sand with mud, Sta. A 10, 21.iv.1966.

RMNH 54857: 10 valves, 07°08.2'N, 55°08.8'W, depth 75 m, Van Veen grab, bottom hard sand with some mud, Sta. A 11, 22.iv.1966.

RMNH 54858: 3 valves, 07°08.2'N, 55°08.8'W, depth 75 m, Van Veen grab, bottom hard sand with some mud, Sta. A 11, 22.iv.1966.

RMNH 54859: 5 valves, 06°21.2'N, 55°17.7'W, depth 33 m, Van Veen grab, bottom sandy clay, Sta. A 15, 23.iv.1966.

RMNH 54860: 3 valves, 06°40.5'N, 55°14.4'W, depth 45 m, Van Veen grab, bottom sand with some mud, Sta. A 26, 28.iv.1966.

RMNH 54861: 1 valve, 06°35.1'N, 55°15.4'W, depth 41 m, Van Veen grab, bottom sandy mud with clay, Sta. A 27, 28.iv.1966.

RMNH 54862: 2 valves, 06°55.44'N, 53°54.68'W, depth 55 m, Agassiz trawl, bottom fine sand with some mud, Sta. M 73, 31.iii.1969.

RMNH 54863: 3 valves, 06°59.30'N, 54°09.10'W, depth 66 m, Van Veen grab, bottom soft mud with fine blackish sand, Sta. L 74, 1.iv.1969.

RMNH 54864: 1 valve, 06°22.0'N, 54°47.7'W, depth 27 m, Van Veen grab, bottom blue clay, Sta. J 92, 14.iv.1969.

RMNH 54865: 1 valve, 07°02.6'N, 53°52.4'W, depth 76 m, Van Veen grab, bottom fine greenish sand with mud, Sta. M 99, 16.iv.1969.

RMNH 54866: 1 valve, 07°02.6'N, 53°52.4'W, depth 76 m, Van Veen grab, bottom fine greenish sand with mud, Sta. M 99, 16.iv.1969.

RMNH 54867: 1 valve, 06°54.8'N, 54°26.0'W, depth 55 m, Agassiz trawl, bottom soft greenish mud and sand, Sta. K 104, 21.iv.1969.

RMNH 54868: 3 valves, 07°18.3'N, 54°36.3'W, depth 89 m, Agassiz trawl, bottom sandy greyish green mud, Sta. J 112, 22.iv.1969.

RMNH 54869: 38 valves, 06°59.8'N, 54°53.7'W, depth 60 m, Agassiz trawl, bottom greyish green sandy mud, Sta. I 116, 24.iv.1969.

RMNH 54870: 37 valves & 2 pairs of valves, 06°54.7'N, 54°54.3'W, depth 54 m, Agassiz trawl, bottom greyish green sandy mud, Sta. I 117, 24.iv.1969.

RMNH 54871: 1 valve, 06°47.6'N, 54°52.2'W, depth 49 m, Agassiz trawl, bottom sandy greenish grey mud, Sta. I 118, 25.iv.1969.

No material with preserved soft parts is available.

Description. — Shell like a *Nuculana* but differing in having an oblique cartilage pit (resilifer) and a nearly straight hinge line. Shell neither carinated nor beaked posteriorly. Not all teeth are V-shaped.

Shell length 3.5-9.0 mm (5.6 mm in figured specimen), height 1.6-3.6 mm (2.2 mm). Shell thin, compressed, smooth, equivalve, very inequilateral, anterior portion short (fig. 1a), valves gaping slightly posteriorly. Small beak situated at anterior fourth of the shell. Anterior end short, rounded;

posterior part elongated, very gradually tapering, roundly truncated at the end, dorsal margin straight, ventral margin slightly convex. Dorsal areas not differentiated. Surface smooth with fine concentric growth lines. Colour creamy white. Interior white, highly polished, with a distinct ridge running from umbo to centre part of rostrum (fig. 1b). In some specimens the anterior part of this ridge is sometimes indistinct. Hinge plate narrow and long, straight posteriorly, curved anteriorly, with two series of teeth. At the anterior side, starting from the umbo, there are 2 to 4 elongate imbricating teeth (3 in

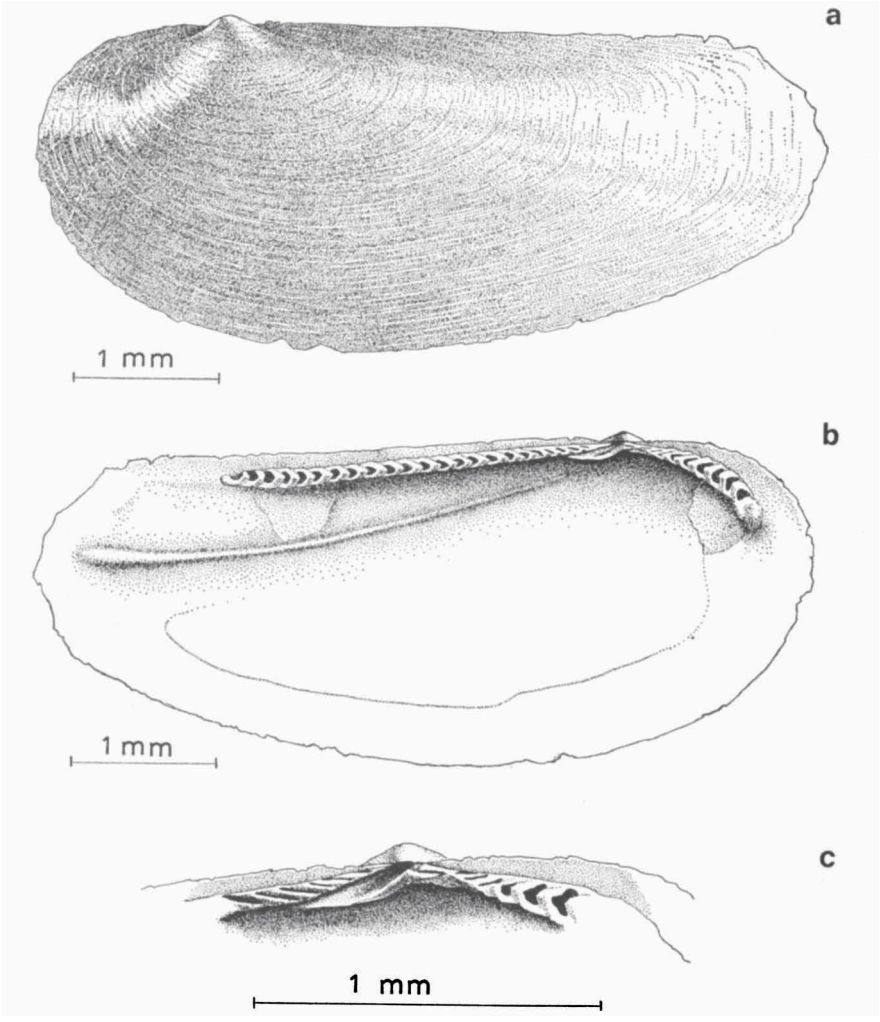

Fig. 1. *Propeleda platessa* (Dall, 1890), left valve (length 5.6 mm, height 2.2 mm). a, exterior of shell; b, interior; c, detail of resilifer and first few anterior and posterior teeth.

figured specimen) and 4 to 10 V-shaped teeth (7). At the posterior side there are 4 to 7 elongate imbricating teeth (5 in figured specimen) and 12 to 25 V-shaped teeth (18). The two series of teeth are separated by a narrow and very oblique resilifer, directed posteriorly. In general the number of anterior and posterior teeth increases with the size of the shell. Posterior adductor scar mostly less conspicuous than the anterior scar. Pallial line simple, with an indistinct tongue-shaped posterior sinus reaching the posterior muscle scar.

Discussion. — The classification of the Nuculanidae is rather complicated. As Knudsen (1970: 21) already stated "the classification of the Nuculoidea is subject to great uncertainty, not only at the generic level but also at the family level." Pending a new classification of the Nuculanidae by Sanders & Allen (in litt. 25.viii.1971 & 22.xi.1971) *Propeleda platessa* is tentatively included in the family Nuculanidae. The species is not placed in the generally used genus *Nuculana* Link, 1807, but in the more sharply defined genus *Propeleda* Iredale, 1924.

Propeleda platessa was compared with *Propeleda ensicula* (Angas, 1877) type species of the genus *Propeleda* Iredale, 1924, *Propeleda longicaudata* (Thiele, 1912), *Propeleda lanceta* (Boshoff, 1968), and *Propeleda trulliformis* Marwick, 1931 and *Poroleda huttoni* (Tenison Woods, 1879). The former three species concern recent shells, and the latter two species concern Tertiary shells.

In the original description of *Leda ensicula* by Angas (1877: 177, pl. 26 fig. 27) no details concerning the dentition are given Hedley (1915: 697) states: "By the study of an authentic example of *L. ensicula* with which Mr. Fulton favoured me, ..." and "For contrast, the authentic specimen of *L. ensicula* referred to is here illustrated (Pl. LXXVIII, figs. 15, 16), it is 11 mm long and 4.5 mm high, and is labelled as from Port Jackson". These measurements do not agree with the measurements given by Angas: "long. 7, alt. 3, lat. 1 1/8 line", being long. 14.8 mm, alt. 6.3 mm, lat. 2.4 mm (1 line = 2.11 mm). It is quite possible that Angas based his description of *L. ensicula* on one specimen of a series of syntypes and that Hedley's statement "... an authentic example ..." refers to another syntype or to a topotype. Smith (1885: 239) reports *L. ensicula* from St. 161, off Port Philip, South Australia, and states: "The type of this remarkable species, presented to the British Museum by Mr. Angas, was dredged off Port Jackson heads, in 45 fathoms, by Mr. John Brazier of Sydney." and "I may mention that the teeth, which are not referred to by Angas, are elongate, very acute, and numerous, especially on the rostrate side." This statement by Smith, concerning the elongate teeth, is incorrect, for during a visit to the British Museum (Natural

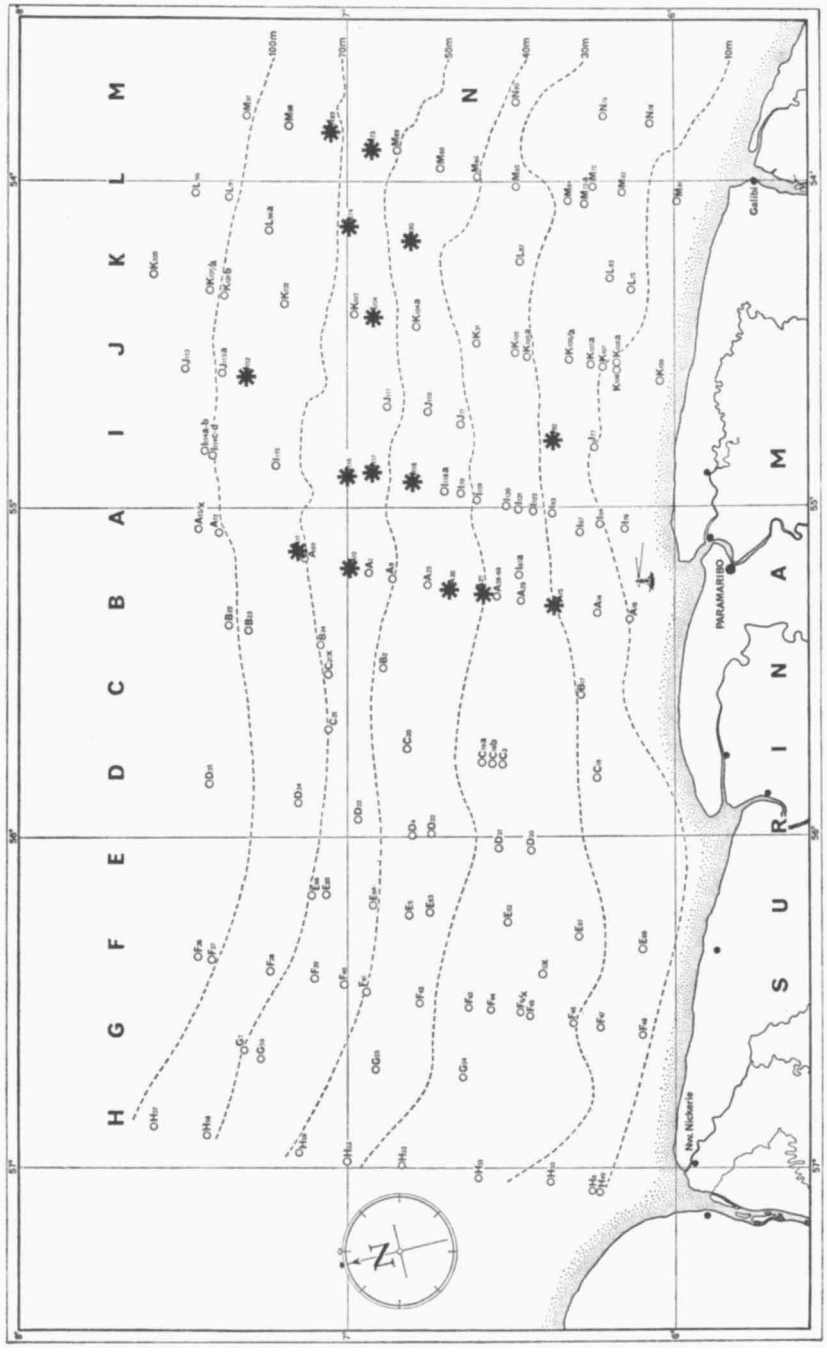

Fig. 2. Map of coastal waters of Surinam with localities of the collecting stations sampled by the hydrographic survey vessels H.NL.M.S. "Snellius" and H.NL.M.S. "Luymes" during 1966 and 1969. The localities where *Propeleda platessa* was found, are indicated with an asterisk.

History) in October 1971, I examined the same pair of valves labelled: "*Leda ensicula* Angas, 1877 Type? Port Jackson, G. F. Angas Esq." (BMNH 1877.5.12.102, one specimen with one valve broken). This specimen shows V-shaped teeth in the anterior and posterior row of teeth, while the teeth closest to the umbo appear straight and oblique; length 15.4 mm, height 5.8 mm. Furthermore the picture of *L. ensicula* published by Hedley (1915: pl. 78 fig. 16) shows V-shaped teeth in the anterior as well as in the posterior series of teeth. Of the posterior teeth at least the first, nearest the umbo, appears to be lamella-shaped.

It cannot be ascertained whether the pair of valves in the British Museum is the holotype. The measurements of this specimens are length 15.4 mm, height 5.8 mm (Taylor, in litt. 14.iii.1971) against 14.8 mm, 6.3 mm given by Angas. Due to the differences in measurements, the question mark after the word "Type" on the accompanying label of the specimen in the British Museum and the remark by Hedley about authentic material present in Australia, it is possible that the specimen in the British Museum is a syntype. It is even possible that this specimen is only a topotype.

Comparison of *P. platessa* with the British Museum material (BMNH 1877.5.12.102) of *P. ensicula* shows important differences in posterior hinge line: straight in *P. platessa,* distinctly curved in *P. ensicula*; in sculpture of rostrum: smooth in *P. platessa,* sculptured in *P. ensicula*; in resilifer: in *P. ensicula* neither as narrow nor as oblique as in *P. platessa.* Both species agree in having the first few teeth at anterior and posterior side lamella-shaped and following teeth V-shaped.

Comparison of *P. platessa* with the description of *Leda longicaudata* Thiele, 1912, and with material in the British Museum (BMNH 1964.5.6.0, St. 123, 15.xii.1926, South Georgia, 230-250 m, Discovery expedn., identified by R. K. Dell as *Propeleda longicaudata*) shows clearly that *P. longicaudata* differs from *P. platessa* in having a different shape, viz., concave posterior dorsal margin of rostrum against a straight dorsal margin in *P. platessa*; two clear ridges showing on exterior, running from umbo to rostrum, not present in *P. platessa*; close concentric sculpture on exterior of the shell (save for the area between ridges and dorsal margin of rostrum) against a quite smooth shell in *P. platessa.* Iredale (1924: 186) already stated that *Leda longicaudata* was congeneric with his new genus *Propeleda.*

Boshoff (1968: 96, 97, pl. 8 figs. b, c) described a new species *Leda lanceta,* type locality 29°21'S, 31°58'E (Anton Bruun station 358-C), depth 370 m, substratum green sand and mud, one complete specimen. In my opinion it belongs in the genus *Propeleda* because of its V-shaped teeth in the anterior and posterior row of teeth (except for the first few teeth on both sides of

umbo, which are lamella-shaped). The species also has a quite smooth shell surface (except for concentric growth lines and some raised concentric lirae on the juvenile part near the umbo). The area between the two ridges on the rostrum is covered with distinct perpendicular markings.

Propeleda lanceta differs from *P. platessa* in having two ridges across the rostrum, between which a sculptured area occurs, against a smooth rostrum without ridges in *P. platessa*; a curved posterior dorsal margin, against a straight posterior dorsal margin in *P. platessa*; and some raised concentric lirae near the umbo, against a smooth umbonal area in *P. platessa.*

Propeleda trulliformis Marwick, 1931, a Tertiary shell, is mentioned here for comparison, although Marwick (1931: 54) states that "The strong ridges on the dorsal side of the beak, also the peculiar concentric folds near the umbo, probably indicate a new genus." The hinge of this species was not seen, so it is doubtful whether the species belongs to the genus *Propeleda.* But the above-mentioned brief description already makes it clear that it certainly differs from *P. platessa.*

Another Tertiary shell, *Leda huttoni* Tenison Woods, 1879, is compared here with *Propeleda platessa.* In the original description it is stated that: "The peculiar feature of this fossil is the length to which the posterior side is produced and its very slightly oblique obtuse end. The concentric striae are irregular and appear to be derived from the lines of growth only. The shape of the shell is depressed and flat, and the teeth are numerous and very minutely angular." The picture of the "type" (Tenison Woods, 1879: pl. 21 fig. 2) shows the exterior of the shell and is not very good. From the description it is not clear whether it concerns the holotype or one of the syntypes. Ludbrook (1961: pl. 21 figs. 9, 10) figured two specimens one of which should be a topotype (not indicated which of her two figures is the topotype). She stated: "Both are very close to the holotype." Assuming this is correct, her figures 9 and 10 show shells with V-shaped teeth in the anterior and posterior series, but for the two teeth in the posterior series nearest the umbo, which are lamellar. In her discussion of *Poroleda huttoni* (1961: 63) she also remarked: "The Aldinga and Kent Town Bore specimens exhibit recognizable differences from *huttoni* which were noted by Tate (p. 130)."

Propeleda huttoni differs from *P. platessa* in having a slightly incurved posterior dorsal margin, against a straight posterior dorsal margin in *P. platessa*; no internal ridge from umbo to tip of rostrum, against such a ridge present in *P. platessa*; slightly irregular growth lines on the shell, against regular growth lines in *P. platessa*; and perhaps a slightly oblique, obtuse end of rostrum, against an evenly rounded end of rostrum (when not damaged) in *P. platessa.*

Although not belonging to the genus *Propeleda*, it should be noted that in outward appearance *Propeleda platessa* resembles *Poroleda tatei* Hedley, 1904 (new name for *Poroleda lanceolata* Tate, 1894; non *Poroleda lanceolata* Hutton, 1893, described in the binomen *Scaphula? lanceolata* Hutton, 1885) — Ludbrook (1961: pl. 3 figs. 7, 8) published pictures of the holotype of *Poroleda tatei* — for its quite smooth exterior surface and straight posterior dorsal hinge-line, but differs fundamentally in having lamellar imbricating teeth in the anterior and posterior series of teeth, against V-shaped teeth in the anterior and posterior row in *Propeleda platessa*.

Literature

Angas, C. F., 1877. Descriptions of one genus and twenty-five species of marine shells from New South Wales. — Proc. Zool. Soc. London, (12): 171-177, pl. 16.

Boshoff, P. H., 1968. Descriptions of three new species of pelecypoda dredged off the coast of Natal, South Africa. — Trans. roy. Soc. S. Afr., 38 (1): 95-98, pl. 8.

Dall, W. H., 1890. Preliminary report on the collection of mollusca and Brachiopoda obtained in 1887-'88. — Proc. U.S. Nat. Mus., 12: 219-362, pls. 5-14.

Dell, R. K., 1964. Antarctic and subantarctic mollusca: Amphineura, Scaphopoda and Bivalvia. — Discovery Report, 33: 93-250, figs. 1-4, pls. 2-7.

Hedley, Ch., 1904. On the change of name of Poroleda lanceolata Tate. — Victorian Naturalist, 21: 112.

——, 1915. Studies on Australian mollusca, part 12. — Proc. Linn. Soc. N.S.W., 39 (4): 695-755, pls. 77-85.

Hutton, F. W., 1885. Descriptions of new tertiary shells, part 1. — Trans. Proc. N.Z. Inst., 17: 313-332, pl. 18.

——, 1893. The pliocene mollusca of New Zealand. In: Macleay Memorial Volume: 35-92, pls. 6-9 (Linn. Soc. N.S.W.).

Iredale, T., 1924. Results from Roy Bell's Molluscan collections. — Proc. Linn. Soc. N.S.W., 49 (3): 179-278, pls. 33-36.

Knudsen, J., 1970. The systematics and biology of abyssal and hadal bivalvia. — Galathea report, 11: 1-241, pls. 1-20.

Ludbrook, N. H., 1961. Revision of the Tate molluscan types: pelecypoda-Nuculidae and Nuculanidae. — Trans. Proc. roy. Soc. S. Austr., 85: 55-65, pls. 1-3.

Marwick, J., 1931. The tertiary mollusca of the Gisborne district. — Palaeont. Bull. N.Z., 13: 1-177, pls. 1-18.

Smith, E. A., 1885. Report on the lamellibranchiata. — Sci. Rep. H. M. S. Challenger, 13: 1-341, pls. 1-25.

Tate, R., 1894. Unrecorded genera of the older tertiary fauna of Australia, including diagnoses of some new genera and species. — Journ. Proc. roy. Soc. N.S.W., 27: 169-191, pls. 1-3.

Tenison Woods, J. E., 1879. On some tertiary fossils from Muddy Creek, Western Victoria. — Proc. Linn. Soc. N.S.W., 3 (3): 222-240, pls. 20-21.

Thiele, J., 1912. Die antarktischen Schnecken und Muscheln. — Deutsche Südpolar-Expedition, 13 (2): 183-286, pls. 11-19.