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RECENT BRACHIOPODA FROM THE *SNELLIUS* AND *LUYMES* EXPEDITIONS TO THE SURINAM-GUYANA SHELF, BONAIRE-CURAÇAO, AND SABA BANK, CARIBBEAN SEA, 1966 AND 1969-1972

by

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Recent brachiopods collected by the *Snellius* and *Luymes* expeditions to the Surinam-Guyana shelf, Bonaire-Curaçao region and Saba Bank area in 1966 and between 1969-72 are identified from 32 lots. Species belonging to the genera *Glottidia, Cryptopora, Tichosina, Terebratulina, Eucalathis, Notozyga, Argyrotheca* and *Thecidellina* are represented, mainly from shallow depths of less than 200m. No new species are recorded, but new occurrence records, particularly in the region of Saba Bank, add to knowledge of the geographic range of species.

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INTRODUCTION

Recent Brachiopoda obtained by Dutch expeditions to the Caribbean Sea in 1966 and between 1969-72 were sent to the author for identification in 1987 and form the subject of this report.

During 1966 an expedition to sample the benthic biota of the continental shelf off Surinam was made by H.NL.M.S. *Snellius,* where only one station out of 66 yielded brachiopods (Vervoort, 1967). In 1969 this region was visited by H.NL.M.S. *Luymes,* resulting in 5 lots of brachiopods from 66 stations (Vervoort, 1971). This vessel returned to the region in 1970, 1971 and 1972 where 18 lots of brachiopods were obtained from an undisclosed number of stations off the Surinam-Guyana shelf and around the islands of Bonaire and Curaçao. In May and June of 1972 the *Luymes* went on to the Saba Bank area (van der

Land, 1977) where 8 stations out of 129 yielded brachiopods. The location of all stations (32) from which brachiopods were obtained by these expeditions between 1966-1972 is shown is figure 1 and listed in the Appendix.

The few stations yielding brachiopods testify to the relative scarcity of this group in the benthos of low and mid-latitude regions (Logan, 1983). Cooper (1977) was able to amass a much larger brachiopod collection only by assembling specimens obtained over many years from 27 separate expeditions to the Caribbean Sea and adjacent waters, from which 32 new species and 5 new genera were described. This exhaustive study, supplementing and expanding upon the work of Davidson (1886-88) and Dall (1920), remains the systematic standard for tropical western Atlantic brachiopods and it is significant that no additional taxa have been recorded in the present report.

The specimens which form the basis for the present report comprise some preserved examples which were obtained alive, but most are of dead, usually disarticulated and sometimes fragmentary shells which may have undergone some post-mortem transportation. Depth ranges for individual species are therefore imprecise. Furthermore, delicate internal structures, such as the brachial skeleton, may be incomplete or missing, causing problems in identification, particularly at the generic level (Cooper, 1977). Nevetheless, such collections are important in documenting additional geographic occurrences of particular species, especially in the Saba Bank region, where little previous collecting of brachiopods has taken place.

Specimens of species belonging to the genera *Tichosina, Argyrotheca* and

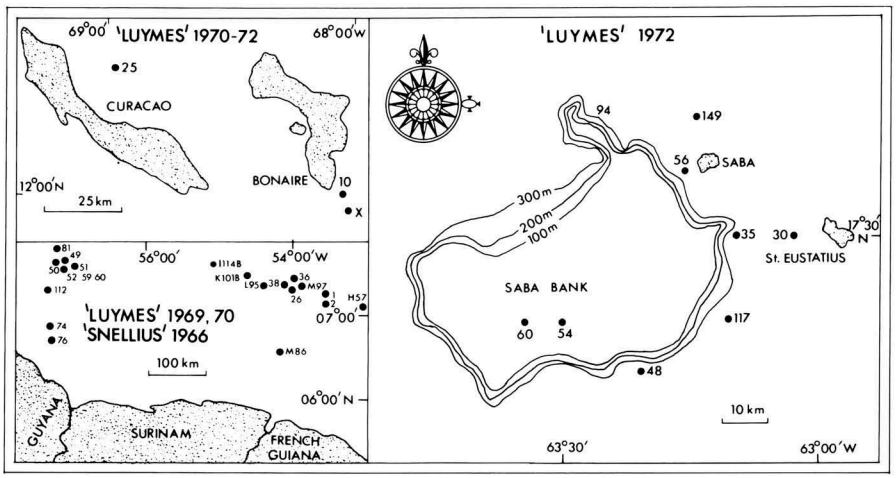

Fig. 1. Maps of Caribbean region, showing location of sampling stations yielding brachiopods.

Terebratulina predominate in the collections described here. Other genera represented include the inarticulate *Glottidia* and the articulates *Cryptopora, Eucalathis, Notozyga* and *Thecidellina.* Most lots (75%) were obtained from shallow shelf waters, at depths of less than 200m.

Cooper (1977) has discussed the origin of the Caribbean brachiopod fauna and its affinities to Recent brachiopod faunas elsewhere, while fossil brachiopods from the Cretaceous and Tertiary of the region were described by Cooper in 1979.

SYSTEMATIC SECTION

The terminology and supra-generic classification used in this report are those of Williams and Rowell (1965). Since no new species have been described and all species identified have previously been described and illustrated by Cooper (1977) only brief notes on the systematics, ecology and geographic distribution of each species have been given here, together with a recent citation to a reliable description.

Class **INARTICULATA** Huxley, 1869
Order **LINGULIDA** Waagen, 1885
Superfamily **LINGULACEA** Menke, 1828
Family **LINGULIDAE** Menke, 1828

Genus **Glottidia** Dall, 1870
Glottidia spec. indet.

Remarks.—This inarticulate brachiopod was found at four localities on the Guyana shelf at shallow depths in sand-mud substrates. All specimens are juveniles less than 2mm long, with a white semi-transparent shell and pedicle. The shell is linguiform in shape but belongs to *Glottidia,* differing from *Lingula* mainly in the possession of two divergent internal septa in the pedicle valve and a single centrally placed septum in the brachial valve. Since all specimens are clearly immature it is difficult to assign them to any particular species with certainty.

Cooper (1977) records *G. pyramidata* (Stimpson) and *G. audebarti* (Broderip) from collections at his disposal. The validity of *G? antillarum* (Reeve) and *G? semen* (Broderip), both recorded from the Caribbean area by Davidson (1888), has not yet been established, but the specimens from the Guyana shelf

are more reminiscent of the latter species in general outline than any other.

Localities. — *Luymes* Surinam Shelf Expedition, 1969, Station M 86; *Luymes* Guyana Shelf Expedition 1970, Stations 74, 76, 112 (RMNH Nos. 835, 876, 877, 880).

Depth Range. — 23-42m.

Class **ARTICULATA** Huxley, 1869
Order **RHYNCHONELLIDA** Kuhn, 1949
Superfamily **RHYNCHONELLACEA** Gray, 1848
Family **CRYPTOPORIDAE** Muir-Wood, 1955

Genus **Cryptopora** Jeffreys, 1869
Cryptopora rectimarginata Cooper, 1959

Cryptopora rectimarginata Cooper, 1959: 20, pl. 1, figs. 15-19; pl. 2, figs. 1-11.

Remarks. — This rhynchonellid was found only at two stations in the vicinity of Saba Bank in relatively deep water. It is characterised by its small size and semi-transparent shell with scaly pattern resulting from the arrangement of calcite fibres into a mosaic. The predicle valve has winged deltidial plates while internally the brachial valve has a characteristic crural process known as a maniculifer. Cooper (1977) notes that the genus *Cryptopora* has world-wide distribution at all depths in modern-day seas. It is known also from the Tertiary of the Caribbean area (Cooper, 1979).

Localities. — *Luymes* Saba Bank Expedition, 1972, Stations 35, 149 (RMNH Nos. 884, 893).

Depth Range. — 340-850m.

Order **TEREBRATULIDA** Waagen, 1883
Superfamily **TEREBRATULACEA** Gray, 1840
Family **TEREBRATULIDAE** Gray, 1840
Subfamily **TEREBRATULINAE** Gray, 1840

Genus **Tichosina** Cooper, 1977

Remarks. — The genus *Tichosina,* with type species *T. floridensis* Cooper, was first described by Cooper in 1977 for "Terebratulinae with a flat bladed crural base and crural process forming a wall along the inside edge of the outer hinge plate." He described a total of 18 named new species and 9 numbered

species and assigned 4 previously-described species to the genus.

It is essential that the preservation of crura and loop in the brachial valve be complete for specimens to be assigned with certainty to the genus. Specific differences are based mainly on size, shape, nature of anterior commissure and development of the loop. Many of the specimens in the Dutch collection are fragmentary, but can be assigned to *Tichosina* where preservation of the brachial valve internal details allows. However, even complete specimens are sometimes difficult to identify to species level where the range of variation is not known. Specimens of *Tichosina* are the commonest elements in the collection but most have not been assigned to a particular species for the reasons cited above.

Tichosina elongata Cooper, 1977

Tichosina elongata Cooper 1977: 70, pl. 12, figs. 13-17; pl. 33, figs. 12-14

Remarks. — A single complete example from the Guyana shelf approaches the length/width ratio of 1.5 typical of this species and is duly assigned to *T. elongata,* notwithstanding the small sample size. The anterior commissure is rectimarginate to slightly uniplicate.

Locality. — *Luymes* Guyana Shelf Expedition, 1970, Station 81 (RMNH No. 878).

Depth. — 120m.

Tichosina plicata Cooper, 1977

Tichosina plicata Cooper, 1977: 82, pl. 5, figs. 9-15; pl. 21, figs. 6-11.

Remarks. — A number of detached but well-preserved valves of a strongly uniplicate *Tichosina* were found at two localities on the Surinam-Guyana Shelf and are here assigned to *T. plicata* Cooper. A wide range of sizes show the progressive increase in the development of the fold-sulcus region.

Locality. — *Snellius* Surinam Shelf Expedition, 1966, Station H 57; *Luymes* Guyana Shelf Expedition, 1970, Station 38 (RMNH Nos. 834, 856).

Depth Range. — 94-100m.

Tichosina rotundovata Cooper, 1977

Tichosina rotundovata Cooper, 1977: 83, pl. 7, figs. 18-32.

Remarks. — Most of the well-preserved *Tichosina* found by the Dutch expeditions appear to belong to *T. rotundovata,* which is characterised by its medium size (for the genus), elongate oval outline, perfectly rectimarginate anterior commissure and short loop.

Localities. — *Luymes* Bonaire-Curaçao Expedition, 1970-72, Station X; *Luymes* Guyana Shelf Expedition, 1970, Stations 1, 49, 50, 51, 52, and 60 (RMNH Nos. 844, 850, 858, 860, 863, 866, 873).

Depth Range. — 95-800m.

Superfamily **CANCELLOTHYRIDACEA** Cooper, 1973
Family **CANCELLOTHYRIDIDAE** Thomson, 1926
Subfamily **CANCELLOTHYRIDINAE** Thomson, 1926

Genus **Terebratulina** D'Orbigny, 1847
Terebratulina cailleti Crosse, 1865

Terebratulina cailleti Cooper, 1977: 99, pl. 25, figs. 1-16; pl. 28, figs. 4-27; Logan, 1987: 49, pl. 12, figs 14-22.

Remarks. — *T. cailleti* is common in the waters around the West Indies, where it was re-illustrated by Cooper in 1977. Fossil specimens from the Neogene of the Dominican Republic were identified with this species by Logan (1987), who also figured Recent examples from Barbados for comparison. The species is small, elongate-oval and multicostellate, with the costellae often beaded. The loop of the brachial skeleton must be intact to avoid confusion with similarly ornamented species of *Eucalathis* Fischer and Oehlert or *Notozyga* Cooper (see later discussion.).

This species was commonly found with specimens of *Tichosina* in the Dutch collections but appears to be more resistant to transportational effects, since most examples were complete, with both valves still articulated.

Localities. — *Snellius* Surinam Shelf Expedition, 1966, Station H 57; *Luymes* Surinam Shelf Expedition, 1969, Stations L 95, M 97, I 114b; *Luymes* Bonaire-Curaçao Expedition, 1970-72, Station 10; *Luymes* Guyana Shelf Expedition, 1970, Stations 1, 50, 51, 52, 59 and 60; *Luymes* Saba Bank Expedition, 1972, Stations 35, 117 and 149 (RMNH Nos. 832, 836, 838, 842, 845, 849, 859, 862, 865, 869, 872, 882, 891, 892).

Depth Range. — 90.5-850m.

Terebratulina latifrons Dall, 1920

Terebratulina cailleti var. latifrons Dall, 1920:309.
Terebratulina latifrons; Cooper, 1977: 100, pl. 17, figs. 1-13.

Remarks.—This form was originally described as a variety of *T. cailleti* by Dall (1920) but raised to specific status by Cooper (1977), mainly on the basis of its greater width and strongly uniplicate anterior commissure, reflecting a well-developed fold and sulcus. Some of the specimens from the *Snellius* Surinam Shelf Expedition (Station H 57) are more globose than Cooper's material but very similar in all other respects.

Localities.—*Snellius* Surinam Shelf Expedition, 1966, Station H 57, *Luymes* Surinam Shelf Expedition, 1969, Station M 97; *Luymes* Guyana Shelf Expedition, 1970, Station 49 (RMNH Nos. 833, 839, 857).

Depth Range. — 94-200m.

Subfamily **EUCALATHINAE** Muir-Wood, 1965

Genus **Eucalathis** Fischer and Oehlert, 1890
Eucalathis cubensis Cooper, 1977

Eucalathis cubensis Cooper, 1977: 102, pl. 16, figs. 1-8.

Remarks.—Species of *Eucalathis* may be externally similar to *Notozyga,* but are distinguished mainly by the shape and development of the loop, which has the median angulation in the transverse ribbon directed anteriorly in *Eucalathis* but not in *Notozyga. Chlidonophora* Dall has a similar loop to *Eucalathis* but the shell is differently shaped, while the ring-shaped loop of *Terebratulina* is unmistakable.

Specimens from two localities in the Dutch collection are referred to *E. cubensis.* The shells are small and triangular, with beaded costellae and the pointed loop typical of the genus. *E. floridensis* Cooper has more subdued ornamentation but is otherwise quite similar.

Localities.—*Luymes* Bonaire-Curaçao Expedition, 1970-72, Station 10; *Luymes* Saba Bank Expedition, 1972, Station 30 (RMNH Nos. 846, 881).

Depth Range. — 320-680m.

Family **CHLIDONOPHORIDAE** Muir-Wood, 1959
Subfamily **CHLIDONOPHORINAE** Muir-Wood, 1959

Genus **Notozyga** Cooper, 1977
Notozyga lowenstami Cooper, 1977

Notozyga lowenstami Cooper, 1977: 105, pl. 16, figs. 17-31.

Remarks. — A single complete specimen from south of Bonaire is referred to this species. The type locality is off Bermuda at 732m depth. The Bonaire example is slightly larger than those measured from Bermuda, but otherwise shows the ornament and loop typical of the genus.

Locality. — *Luymes* Bonaire-Curaçao Expedition, 1970-72, Station 10 (RMNH No. 847).

Depth. — 320m.

Superfamily **TEREBRATELLACEA** King, 1850
Family **MEGATHYRIDIDAE** Dall, 1870

Genus **Argyrotheca** Dall, 1900
Argyrotheca hewatti Cooper, 1977

Argyrotheca hewatti Cooper, 1977: 110, pl. 32, figs. 1-15.

Remarks. — Small argyrothecids are a common constituent of shallow-water Caribbean brachiopod faunas, inhabiting cryptic living sites. After death they are particularly concentrated in the sediments, although often in a worn or disarticulated condition. Species are generally distinguished on size, shape, nature of costae and colour patterns.

Argyrotheca hewatti is reddish in colour, medium sized for the genus, and has abnormally-developed callosities around the base of the median septum and in the raised adductor muscle field of the brachial valve. This last feature is unique to the species, separating it from other similarly sized and coloured argyrothecids.

Localities. — *Luymes* Guyana Shelf Expedition, 1970, Stations 52, 59, 60 and 81 (RMNH Nos. 868, 871, 875, 879).

Depth Range. — 95-120m.

Argyrotheca johnsoni Cooper, 1934

Argyrotheca johnsoni Cooper, 1977: 111, pl. 1, figs. 2-7; Logan, 1987: 50, pl. 12, figs. 23-41.

Remarks. — This species is known in the living form from the Dominican Republic and Jamaica (Cooper, 1934, 1977) and a single bivalved example from Saba Bank further extends its geographic range. This form was also recently identified from the Neogene of the Dominican Republic by Logan (1987). It is salmon-pink in colour, wider than long and quite large for the genus.

Locality. — *Luymes* Saba Bank Expedition, 1972, Station 35 (RMNH No. 885).

Depth. — 340m (much deeper than previous records, suggesting transportation).

Argyrotheca rubrotincta (Dall, 1871)

Argyrotheca rubrotincta Cooper, 1977: 115, pl. 24, figs. 2-11.

Remarks. — This small species is well represented in the collections and distinguished by its small size, plano-convex shell and distinctive colouring, the ribs being pale yellow and the intercostal spaces red. The brachial valve median septum is well-developed, with a red crest, while the associated muscle field is raised by shell thickening, though not to the same extent as in *A. hewatti*.

Localities. — *Luymes* Bonaire-Curacao Expedition, 1970-72, Station 25; *Luymes* Guyana Shelf Expedition, 1970, Stations 2, 50, 51, 52, 59, 60 (RMNH Nos. 848, 851, 861, 864, 867, 870, 874).

Depth Range. — 68-98m

Order **SPIRIFERIDA** Waagen, 1883
Superfamily **THECIDEACEA** Gray, 1840
Family **THECIDELLINIDAE** Elliot, 1958

Genus **Thecidellina** Thomson, 1915
Thecidellina barretti (Davidson, 1887)

Thecidellina barretti Cooper, 1977: 132, pl. 3, figs 19-21, 22-26; Logan, 1988:69

Remarks. — This species occurs sparingly in the collection, being recorded with certainty from only two stations in the Saba Bank region. All examples are worn, but articulated specimens were opened to reveal the distinctive thecidellinid internal features of the hemispondylium of the predicle valve and the

strong median ridge of the brachial valve. Although typically Caribbean in distribution, this species was recently recorded from the Cape Verde Islands by Logan (1988).

Localities — *Luymes* Saba Bank Expedition, 1972, Stations 35, 149 (RMNH Nos. 886, 894).

Depth Range — 340-850m (much deeper than previous records, suggesting transportation).

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REFERENCES

Cooper, G.A., 1934. New Brachiopods. Reports on the collections obtained by the first Johnson-Smithsonian deep-sea expedition to the Puerto Rico Deep. — Smithson. Misc. Coll., 91 (10): 1-5, 1 pl.

Cooper, G.A., 1959. Genera of Tertiary and Recent rhynchonellid brachiopods. — Smithson. Misc. Coll., 139 (5): 1-90, 22pls.

Cooper, G.A., 1977. Brachiopods from the Caribbean Sea and adjacent waters. — Stud. Trop. Oceanogr. Inst. Mar. Sci. Univ. Miami, 14, i-xi, 1-211, 8 figs, 35 pls.

Cooper, G.A., 1979. Tertiary and Cretaceous brachiopods from Cuba and the Caribbean. — Smithson. Contrib. Palaebiol., 37:i-iv, 1-30, 2 figs, 7 pls.

Dall, W.H., 1920. Annotated list of the Recent Brachiopoda in the collection of the United States National Museum, with descriptions of thirty-three new forms. — U.S. Nat. Mus. Proc., 57 (2314): 261-377.

Davidson, T., 1886-1888. A monograph of Recent Brachiopoda. — Trans. Linn. Soc. Lond., (2) 4, Zoology, 3 parts: Pt. I (1886): 1-74, pls. 1-13; Pt. II (1887): 75-182, pls. 14-25; Pt. III (1888): 183-248, pls. 26-30.

Land, J. van der, 1977. The Saba Bank — a large atoll in the northeastern Caribbean. In Harris, S.B. (ed.): Symposium on progress in marine research in the Caribbean and adjacent regions: Cooperative investigations of the Caribbean and adjacent regions, II, F.A.O. Fisheries Rept. 200: 469-481.

Logan, A., 1983. Brachiopoda collected by CANCAP I-III expeditions to the south-east North Atlantic. 1976-1978. — Zool. Meded., 57 (18): 165-189, 3 figs. 1 pl.

Logan, A., 1987. Neogene paleontology in the northern Dominican Republic. 6. The phylum Brachiopoda. — Bull. Amer. Paleontol., 93 (328): 44-55, 1 fig, 1 pl.

Logan, A., 1988. Brachiopoda collected by CANCAP IV and VI expeditions to the south-east North Atlantic. 1980-1982. — Zool. Meded., 62 (5): 59-74, 2 figs.

Vervoort, W., 1967. IX. Zoological exploration of the continental shelf of Surinam. In: Scientific investigations on the shelf of Surinam, H. Nl. M.S. Snellius. — Hydrographic Newsletter, Spec. Publ. 5: 61-81.

Vervoort, W., 1971. IX. Zoological exploration of the continental shelf of Surinam. II. In: Scientific investigations on the shelf of Surinam, H.Nl. M.S. Luymes. — Hydrographic Newsletter, Spec. Publ. 6: 37-50, 6 figs.

Williams, A. & A.J. Rowell, 1965. Classification. pp. 214-237, In: Treatise on Invertebrate Paleontology, ed. R.C. Moore, part H, Brachiopoda, Geol. Soc. Amer. and Univ. Kansas Press, 2 vols, 927p.

APPENDIX OF STATIONS YIELDING BRACHIOPODS

SNELLIUS SURINAM SHELF EXPEDITION, 1966

Sta. H57: Shelf off Surinam, 07°35.7′N 52.56°6′W, rectangular dredge, depth 94-97m, fragment of calcareous coral rock with some solitary corals, 11/5/1966.
Terebratulina cailleti (RMNH 832)
Terebratulina latifrons (RMNH 833)
Tichosina plicata (RMNH 834)

LUYMES SURINAM SHELF EXPEDITION, 1969

Sta. M86: off Surinam 06°36′N 54°00.1′W, van Veen grab, depth 42m, sandy mud with worm tubes, 11/4/1969.
Glottidia spec. indet. (RMNH 835)

Sta. L95: off Surinam, south of the reef, 07°17.8′N 54°04.0′W, van Veen grab, depth 90.5m, sand with much mud and many dead shells, 15/4/1969.
Terebratulina cailleti (RMNH 836)
Tichosina spec. indet. (RMNH 837)

Sta. M97: off Surinam, 07°18.5′N 53°48.7′W, van Veen grab and Agassiz trawl, depth 130m, coarse sand with some mud and many shell fragments, 16/4/1969.
Terebratulina cailleti (RMNH 838)
Terebratulina latifrons (RMNH 839)
Tichosina spec. indet. (RMNH 840)

Sta. K101B: off Surinam, slope of coral reef, 07°22′7′N 54°21.5′W, heavy rectangular dredge, depth 93m, 17/4/1969.
Tichosina spec. indet. (RMNH 841)

Sta. I114B: off Surinam, 07°27.1′N 54°49.5′W, van Veen grab, depth 138m, 23/4/1969.
Terebratulina cailleti (RMNH 842)
Tichosina spec. indet. (RMNH 843)

LUYMES BONAIRE-CURAÇAO EXPEDITION, 1970-1972

Sta. X: S. of Bonaire, 11°52′N 68°3′W, van Veen grab, depth 800m, 4/8/1972.
Tichosina rotundovata (RMNH 844)

Sta. 10: S of Bonaire, 12°8′N 68°19′W, van Veen grab, depth 320m, sand, shells and coral fragments, 17/6/1971.
Terebratulina cailleti (RMNH 845)
Eucalathis cubensis (RMNH 846)
Notozyga lowenstami (RMNH 847)

Sta. 25: N of Curaçao, 12°11'N 68°52'W, van Veen grab, depth 68m, sand and calcareous algae, 15/6/1970.
Argyrotheca rubrotincta (RMNH 848)

LUYMES GUYANA SHELF EXPEDITION, 1970

Sta. 1: off Surinam 07°10'N 53°35'W, trawl, grab, depth 130-104m, sandy calcarenite, 24/8/1970.
Terebratulina cailleti (RMNH 849)
Tichosina rotundovata (RMNH 850)

Sta. 2: off Surinam, 07°7'N 53°36'W, triangular dredge, grab, depth 93m, sandy calcarenite, 24/8/1970.
Argyrotheca rubrotincta (RMNH 851)
?*Eucalathis* spec. indet. (RMNH 852)

Sta. 26: off Surinam, 07°12'N 53°56'W, van Veen grab, depth 86m, coarse sand, 27/8/1970.
Terebratulina sp. indet. (RMNH 853)
Tichosina spec. indet. (RMNH 854)

Sta. 36: off Surinam, 07°20'N 53°56'W, Agassiz trawl, depth 160m, sticky mud, 28/8/1970.
Tichosina spec. indet. (RMNH 855)

Sta. 38: off Surinam, 07°17'N 53°57'W, Agassiz trawl, depth 100m, shell gravel, 28/8/1970.
Tichosina plicata (RMNH 856)

Sta. 49: off Guyana, 07°44'N 57°03'W, grab, Agassiz trawl, depth 200-120m, sandy mud, 30/8/1970.
Terebratulina latifrons (RMNH 857)
Tichosina rotundovata(RMNH 858)

Sta. 50: off Guyana, 07°43'N 57°5'W, grab, triangular dredge, depth 96m, sandy mud, 30/8/1970.
Terebratulina cailleti (RMNH 859)
Tichosina rotundovata (RMNH 860)
Argyrotheca rubrotincta (RMNH 861)

Sta. 51: off Guyana, 07°41'N 57°1'W, grab, triangular dredge, depth 98m, muddy sand, 30/8/1970.
Terebratulina cailleti (RMNH 862)
Tichosina rotundovata (RMNH 863)
Argyrotheca rubrotincta (RMNH 864)

Sta. 52: off Guyana, 07°41'N 56°59'W, van Veen grab, depth 96m, muddy sand, 30/8/1970.
Terebratulina cailleti (RMNH 865)
Tichosina rotundovata (RMNH 866)
Argyrotheca rubrotincta (RMNH 867)
Argyrotheca hewatti (RMNH 868)

Sta. 59: off Guyana, 07°38'N 56°57'W, van Veen grab, depth 96m, sandy mud, shells, 30/8/1970.
Terebratulina cailleti (RMNH 869)

Argyrotheca rubrotincta (RMNH 870)
Argyrotheca hewatti (RMNH 871)

Sta. 60: off Guyana, 07°39′N 56°57′W, van Veen Grab, depth 95m, sandy mud, shells, 30/8/1970.
Terebratulina cailleti (RMNH 872)
Tichosina rotundovata (RMNH 873)
Argyrotheca rubrotincta (RMNH 874)
Argyrotheca hewatti (RMNH 875)

Sta. 74: off Guyana, 06°46′N 57°16′W, detritus sledge, depth 27.5m, muddy sand, 31/8/1970.
Glottidia spec. indet. (RMNH 876)

Sta. 76: off Guyana, 06°41′N 57°18′W, detritus sledge, depth 23m, sandy mud, 1/9/1970.
Glottidia sp. indet. (RMNH 877)

Sta. 81: off Guyana, 07°51′N 57°15′W, van Veen grab, depth 120m, sandy mud, shells, 1/9/1970.
Tichosina elongata (RMNH 878)
Argyrotheca hewatti (RMNH 879)

Sta. 112: off Guyana, 07°24′N 57°36′W, grab, detritus sledge, triangular dredge, depth 39m, muddy sand, 5/9/1970.
Glottidia spec. indet (RMNH 880)

LUYMES SABA BANK EXPEDITION, 1972.

Sta. 30: Caribbean Sea, W of St Eustatius, 17°30′N 63°04′W, triangular dredge, depth 680m, andesite pebbles, 12/5/1972.
Eucalathis cubensis (RMNH 881)

Sta. 35: Caribbean Sea, E slope, Saba Bank, 17°31′N 63°11′W, van Veen grab, depth 340m, clayey sand, 12/5/1972.
Terebratulina cailleti (RMNH 882)
Tichosina sp. indet. (RMNH 883)
Cryptopora rectimarginata (RMNH 884)
Argyrotheca johnsoni (RMNH 885)
Thecidellina barretti (RMNH 886)

Sta. 54: Caribbean Sea, central Saba Bank, 17°20′N 63°32′W, divers/grab, depth 29m, sand, shell, gravel and algae, 15/5/1972.
Thecidellina spec. indet. (RMNH 887)

Sta. 56: Caribbean Sea, west of island of Saba, 17°37′N 63°17′W, van Veen grab, depth 580m, fine muddy sand, pteropods and foraminifera, 15/5/1972.
Tichosina spec. indet. (RMNH 888)

Sta. 60: Caribbean Sea, central Saba bank, 17°20′N 63°36′W, van Veen grab, depth 39m, coarse sand, algae, 16/5/1972.
Thecidellina spec. indet. (RMNH 889)

Sta. 94: Caribbean Sea, north slope Saba Bank, 17°43′N 63°32′W, rectangular dredge, depth 330-150m, soft bottom, 23/5/1972.
Tichosina spec. indet. (RMNH 890)

Sta. 117: Caribbean Sea, SE of Saba Bank, 17°20′N 63°12′W, Agassiz trawl, depth 400-360m, soft bottom, 9/6/1972.
Terebratulina cailleti (RMNH 891)

Sta. 149: Caribbean Sea, NE of Saba Bank, 17°43′N 63°25′W, Agassiz trawl/grab, depth 850m, muddy sand with pteropods, 15/6/1972.
Terebratulina cailleti (RMNH 892)
Cryptopora rectimarginata (RMNH 893)
Thecidellina barretti (RMNH 894)