

# THE MARINE MOLLUSCA OF SURINAME (DUTCH GUIANA) HOLOCENE AND RECENT

## Part II. BIVALVIA AND SCAPHOPODA

by

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"The student must know something of systematic work. This is popularly supposed to be a dry-as-dust branch of zoology. In fact, the systematist may be called the dustman of biology, for he performs a laborious and frequently thankless task for his fellows, and yet it is one which is essential for their well-being and progress".

Maud D. Haviland in: Forest, steppe and tundra, 1926.

### CONTENTS

1. Introduction, systematic survey and page references . . . . .	3
2. Bivalvia and Scaphopoda . . . . .	7
3. References . . . . .	86
4. List of corrections of Part I . . . . .	93
5. Plates . . . . .	94
6. Addendum . . . . .	100

#### I. INTRODUCTION, SYSTEMATIC SURVEY AND PAGE REFERENCES

In the first part of this work, published in 1969, I gave a general introduction to the Suriname marine Mollusca; in this second part the Bivalvia and Scaphopoda are treated. The system (and frequently also the nomenclature) of the Bivalvia are those employed in the "Treatise on Invertebrate Paleontology, (N) Mollusca 6, Part I, Bivalvia, Volume 1 and 2". These volumes were issued in 1969 and contain the most modern system of the Bivalvia. For the Scaphopoda the system of Thiele (1935) is used.

Since I published in 1968 a preliminary list of the marine Bivalvia of Suriname, several additions and changes have been made. I am indebted to Messrs. D. J. Green, R. H. Hill and P. G. E. F. Augustinus for having provided many new coastal records for several species. These, and some

found on closer examination in my own material, are indicated in capitals in the end columns of the list on pp. 4-7, which gives a summary of the species. This list is similar to the one given in my 1968 paper, except that the modified system for the Bivalvia and other names for some of the species are used (the names mentioned in my previous publication are then added in square brackets). Further the Scaphopoda are added to the list, their occurrence in the four habitat types is indicated in capitals. The letters b and B stand for borings; r and R for ridges; c and C for coast; d and D for dredgings. Like in the previous (1968) list the letters c and d are provided with an exclamation mark (!) if the record is based on living or very fresh shells.

Name of Classis, Subclassis, Ordo, Familia and Species	drill holes	shell ridges	washed ashore	dredged by the Coquette	page
Classis Bivalvia					
Subclassis Palaeotaxodonta					
Ordo Nuculoida					
Nuculidae					
<i>Nucula surinamensis</i> Altena	—	—	—	d	8
<i>Nucula venezuelana</i> Weisbord	b	—	cl	d	9
<i>Nuculoma dalmasi</i> (Dautzenberg)	—	R	c	d	11
Nuculanidae					
<i>Nuculana (Sacella) acuta</i> (Conrad)	—	—	C	d	13
<i>Nuculana (Sacella) concentrica</i> (Say)	b	r	c	d	13
<i>Yoldia (Orthoyoldia) crosbyana</i> (Guppy)	b	—	C	d	15
<i>Adrana patagonica</i> (d'Orbigny) [ <i>Yoldia (A.) egregia</i> (Guppy)]	—	r	C	d	16
<i>Adrana gloriosa</i> (A. Adams) [ <i>Yoldia (A.) g.</i> ]	—	r	C	d	17
<i>Adrana scaphoides</i> Rehder [ <i>Yoldia (A.) s.</i> ]	b	—	cl	d	18
Subclassis Pteriomorpha					
Ordo Arcoida					
Arcidae					
<i>Arca imbricata</i> Bruguière	—	—	c	—	19
<i>Arca zebra</i> (Swainson)	—	r	—	—	19
<i>Barbatia (Acar) domingensis</i> (Lamarck)	—	—	—	d	19
<i>Anadara (Anadara) notabilis</i> (Roeding) [ <i>A. (Diluwarca) n.</i> ]	—	—	—	d	20
<i>Anadara (Lunarca) ovalis</i> (Bruguière) [ <i>Lunarca o.</i> ]	b	r	cl	—	20
<i>Scapharca (Cunearca) brasiliiana</i> (Lamarck) [ <i>Anadara (C.) b.</i> ]	B	r	c	—	21
<i>Scapharca (Cunearca) chemnitzii</i> (Philippi) [ <i>Anadara (C.) chemnitzii</i> ]	b	r	cl	dl	22
Noetiidae					
<i>Noetia (Eontia) bisulcata</i> (Lamarck) [ <i>N. (E.) centrotta</i> (Guppy)]	b	r	cl	dl	23
Limopsidae					
<i>Limopsis (Pectunculina) antillensis</i> Dall [ <i>L. a.</i> ]	—	—	—	d	24
Glycymerididae					
<i>Glycymeris undata</i> (L.) [ <i>G. americana</i> (Defrance)]	—	—	—	dl	24
<i>Glycymeris pectinata</i> (Gmelin)	—	—	—	dl	25
Ordo Mytiloida					
Mytilidae					
<i>Mytella charruana</i> (d'Orbigny)	B	r	cl	—	25

<i>Modiolus americanus</i> (Leach)	—	—	C	d	26
<i>Gregariella chenui</i> (Recluz)	—	—	—	d!	27
<i>Crenella abbotti</i> Altena	—	—	—	d!	27
<i>Lithophaga</i> ( <i>Diberus</i> ) <i>bisulcata</i> (d'Orbigny)	—	—	—	d!	28
Pinnidae					
<i>Atrina</i> ( <i>Servatrina</i> ) <i>seminuda</i> (Lamarck)	—	—	c!	d!	28
<i>Atrina</i> ( <i>Servatrina</i> ) <i>serrata</i> (Sowerby)	—	—	—	d!	28
Ordo Pteroida					
Pectinidae					
<i>Amusium papyraceum</i> (Gabb)	—	—	—	d!	29
<i>Cyclopecten nanus</i> Verrill & Bush	—	—	—	d	30
<i>Chlamys</i> ( <i>Chlamys</i> ) <i>benedicti</i> Verrill & Bush [ <i>C. (Mimachlamys) b.</i> ]	—	—	—	d!	30
<i>Chlamys</i> ( <i>Leptopecten</i> ) <i>linki</i> (Dall)	b	r	c	d	30
<i>Chlamys</i> ( <i>Aequipecten</i> ) <i>lineolaris</i> (Lamarck) [ <i>Aequipecten</i> ( <i>A.</i> ) <i>l.</i> ]	—	—	—	d!	31
<i>Chlamys</i> ( <i>Argopecten</i> ) <i>gibba nucleus</i> (Born) [ <i>Aequipecten</i> ( <i>A.</i> ) <i>g.</i> (Linnaeus)]	—	r	c	d!	32
<i>Chlamys</i> ( <i>Nodipecten</i> ) <i>nodosa</i> (L.) [ <i>Lyropecten</i> ( <i>Argopecten</i> ) <i>nodosus</i> ]	—	—	—	d!	32
<i>Pecten</i> ( <i>Euvola</i> ) <i>chazaliei</i> Dautzenberg	—	—	—	d!	32
<i>Pecten</i> ( <i>Euvola</i> ) <i>ziczac</i> (L.)	—	—	—	d	33
Plicatulidae					
<i>Plicatula gibbosa</i> Lamarck	b	r	c	d	33
Anomiidae					
<i>Anomia simplex</i> d'Orbigny	b	r	c	d!	34
Ostreidae					
<i>Crassostrea guyanensis</i> Ranson (nomen nudum) [ <i>C. rhizophorae</i> (Guilding)]	—	—	c!	—	36
<i>Crassostrea lacerata</i> (Hanley) (nomen praecoccupatum) [ <i>C. rhizophorae</i> (Guilding)]	—	r	c!	d!	37
<i>Crassostrea</i> spec. [ <i>C. rhizophorae</i> (Guilding)]	b	r	c	d	37
<i>Ostrea</i> spec.	b	r	—	—	38
Subclassis Heterodonta					
Ordo Veneroida					
Lucinidae					
<i>Lucina</i> ( <i>Lucina</i> ) <i>pectinata</i> (Gmelin) [ <i>L. (Phacoides) p.</i> ]	—	r	—	—	39
<i>Lucina</i> ( <i>Luciniscia</i> ) <i>muricata</i> (Spengler)	b	r	c	d	40
<i>Parvilucina</i> ( <i>Microroripes</i> ) <i>clenchi</i> (Altena) [ <i>Lucina</i> ( <i>P.</i> ) <i>c.</i> ]	—	—	—	d!	40
Ungulinidae					
<i>Timothyus rebderi</i> (Altena) [ <i>Diplodonta r.</i> ]	—	—	—	d!	40
Cyrenoididae					
<i>Cyrenoida floridana</i> (Dall)	—	—	c!	—	41
Chamidae					
<i>Arcinella arcinella</i> (L.)	—	—	—	d!	41
<i>Chama</i> spec.	—	—	c	d	44
<i>Pseudochama radians</i> (Lamarck)	—	r	—	—	44
Kelliidae					
<i>Kellia suborbicularis</i> (Montagu)	—	—	—	d!	44
Montacutidae					
<i>Pythinella cuneata</i> (Verrill & Bush) [ <i>Rochefortia</i> ( <i>P.</i> ) <i>c.</i> ]	—	—	—	d!	45
Crassatellidae					
<i>Eucrassatella</i> ( <i>Hybolophus</i> ) <i>antillarum</i> (Reeve) [ <i>Crassatella</i> ( <i>H.</i> ) <i>a.</i> ]	—	—	—	d	45
<i>Crassinella guadelupensis</i> (d'Orbigny) [ <i>Crassatella</i> ( <i>C.</i> ) <i>g.</i> ]	b	r	c	d	45
<i>Crassinella</i> spec. [ <i>Crassatella</i> ( <i>C.</i> ) sp.]	—	r	c	d	46
Cardiidae					
<i>Trachycardium</i> ( <i>Trachycardium</i> ) <i>isocardia</i> (L.)	—	—	—	d	48
<i>Trachycardium</i> ( <i>Dallocardia</i> ) <i>muricatum</i> (L.)	b	r	c	d!	49

<i>Trigoniocardia</i> ( <i>Americardia</i> ) <i>media</i> (L.) [ <i>T. m.</i> ]	—	—	—	d!	49
<i>Trigoniocardia</i> ( <i>Trigoniocardia</i> ) <i>antillarum</i> (d'Orbigny) [ <i>T. a.</i> ]	—	r	c	d	50
<i>Nemocardium</i> ( <i>Microcardium</i> ) <i>tinctum</i> (Dall) [ <i>Microcardium t.</i> ]	—	—	—	d!	50
<i>Laevicardium laevigatum</i> (L.)	—	—	—	d!	50
Mactridae					
<i>Mulinia cleryana</i> (d'Orbigny)	b	r	c!	d	51
<i>Mactra</i> ( <i>Mactra</i> ) <i>petitii</i> d'Orbigny [ <i>M. (M.) petitii</i> ]	—	r	c	—	52
<i>Mactra</i> ( <i>Micromactra</i> ) <i>surinamensis</i> Altena	b	r	c	d	52
<i>Mactra</i> ( <i>Mactrotoma</i> ) <i>fragilis</i> Gmelin	—	—	—	d	52
<i>Mactrellona iberingi</i> (Dall) [ <i>Mactra (M.) i.</i> ]	—	r	c	d	54
<i>Raeta</i> ( <i>Raeta</i> ) <i>plicatella</i> (Lamarck) [ <i>Labiosa (R.) p.</i> ]	—	r	c	d	54
Solenidae					
<i>Solen rosewateri</i> Altena [ <i>Solen</i> sp.]	—	—	C	d	54
Tellinidae					
<i>Tellina</i> ( <i>Phyllodina</i> ) <i>persica</i> Dall & Simpson [ <i>T. (P.) p.</i> (Dall & Simpson)]	—	—	—	d	55
<i>Tellina</i> ( <i>Lyratellina</i> ) <i>juttingae</i> (Altena) [ <i>T. (Merisca) j.</i> ]	—	—	—	d	55
<i>Tellina</i> ( <i>Eurytellina</i> ) <i>punicea</i> Born	—	r	c	—	56
<i>Tellina</i> ( <i>Eurytellina</i> ) <i>trinitatis</i> (Tomlin)	—	r	c!	d	56
<i>Tellina</i> ( <i>Angulus</i> ) <i>diantha</i> Boss	b	r	c!	d	56
<i>Strigilla gabbi</i> Olsson & McGinty	—	—	c	—	57
<i>Strigilla pisiformis</i> (L.)	—	r	—	—	57
<i>Macoma</i> ( <i>Macoma</i> ) <i>constricta</i> (Bruguère)	—	r	c!	—	57
<i>Macoma</i> ( <i>Psammacoma</i> ) <i>cleryana</i> (d'Orbigny)	—	r	C	d	58
<i>Macoma</i> ( <i>Psammacoma</i> ) <i>tageliformis</i> Dall	b	r	c	d	58
<i>Macoma</i> ( <i>Temnoconcha</i> ) <i>brasiliiana</i> (Dall)	b	r	c	d	59
Donacidae					
<i>Donax</i> ( <i>Donax</i> ) <i>striatus</i> L. [ <i>D. (Cbion) striata</i> ]	—	r	c!	—	59
<i>Donax</i> ( <i>Cbion</i> ) <i>denticulatus</i> L. [ <i>D. (Cb.) denticulata</i> ]	—	r	c!	—	60
<i>Iphigenia brasiliensis</i> (Lamarck)	—	r	c!	—	61
Psammobiidae					
<i>Sanguinolaria</i> ( <i>Psammotella</i> ) <i>cruenta</i> ([Lightfoot]) [ <i>S. (P.) operculata</i> (Gmelin)]	—	r	—	—	61
Semelidae					
<i>Semele cancellata</i> (Sowerby)	—	—	—	d	61
<i>Semele purpurascens</i> (Gmelin)	—	—	—	d	62
<i>Semelina nuculoides</i> (Conrad) [ <i>Semele (S.) n.</i> ]	—	—	—	d	62
<i>Abra aequalis</i> (Say)	b	r	c	d	62
<i>Cumingia antillarum</i> (d'Orbigny)	—	—	—	d!	62
Solecurtidae					
<i>Tagelus plebeius</i> ([Lightfoot])	—	r	c!	—	63
Corbiculidae					
<i>Polymesoda aequilatera</i> (Deshayes)	—	r	c!	—	63
<i>Corbicula</i> ( <i>Cyanocyclus</i> ) <i>rotunda</i> Prime [ <i>Cyanocyclus r.</i> ]	—	—	c!	—	64
Veneridae					
<i>Ventricola rigida</i> (Dillwyn)	—	—	—	d	65
<i>Gouldia cerina</i> (C. B. Adams)	—	—	—	d	66
<i>Tivela geijskesi</i> Altena	—	r	c	—	66
<i>Tivela mactroides</i> (Born)	b	r	c	—	67
<i>Pitar</i> ( <i>Pitar</i> ) <i>fulminata</i> (Menke)	—	—	—	d	67
<i>Pitar</i> ( <i>Lamelliconcha</i> ) <i>circinata</i> (Born)	—	r	—	—	68
<i>Callista</i> ( <i>Costocallista</i> ) <i>eucymata</i> (Dall)	—	—	—	d	68
<i>Callocardia</i> ( <i>Agriopoma</i> ) <i>aresta</i> (Dall & Simpson)	—	—	—	d!	68
<i>Dosinia concentrica</i> (Born)	—	r	C	d!	68

<i>Cyclinella tenuis</i> (Recluz)	— — — d!	70
<i>Chione</i> ( <i>Chione</i> ) <i>subrostrata</i> (Lamarck)	b r c! d!	70
<i>Chione</i> ( <i>Chionopsis</i> ) <i>pubera</i> (Bory)	— — — d	71
<i>Chione</i> ( <i>Lirophora</i> ) <i>paphia</i> (L.) [ <i>C. (L.) latilirata</i> (Conrad)]	— — — d	71
<i>Anomalocardia brasiliiana</i> (Gmelin)	— r c —	72
<i>Protothaca</i> ( <i>Leukoma</i> ) <i>pectorina</i> (Lamarck) [ <i>P. (Nioche) p.</i> ]	— r c! —	72
Petricolidae		
<i>Petricola</i> ( <i>Petricolaria</i> ) <i>pholadiformis gracilis</i> Deshayes [ <i>P. (P.) aff. parallela</i> Pilsbry & Lowe]	— r c —	73
Ordo Myoida		
Myidae		
<i>Sphenia antillensis</i> Dall & Simpson	— — c! d!	73
Corbulidae		
<i>Corbula</i> ( <i>Corbula</i> ) <i>caribaea</i> d'Orbigny	b r c d	73
<i>Corbula</i> ( <i>Hexacorbula</i> ) <i>dietziana</i> C. B. Adams	— — — d!	77
<i>Corbula</i> ( <i>Tenuicorbula</i> ) <i>aequivalvis</i> Philippi	b — C —	77
Gastrochaenidae		
<i>Gastrochaena bians</i> (Gmelin)	— — — d!	78
Pholadidae		
<i>Barnea</i> ( <i>Anchomasa</i> ) <i>truncata</i> (Say)	— — c! —	78
<i>Cyrtopleura</i> ( <i>Scobinopholas</i> ) <i>costata</i> (L.)	— r c! —	78
<i>Pholas</i> ( <i>Thovanna</i> ) <i>campechiensis</i> Gmelin	b r c! —	79
<i>Pholadidea</i> ( <i>Hatasia</i> ) <i>melanura</i> (Sowerby)	— — — d!	79
<i>Lignopholas clappi</i> Turner	— — c! —	79
<i>Martesia fragilis</i> (Verrill & Bush)	— — c! —	80
<i>Martesia striata</i> (L.)	— — c! —	80
<i>Diplothyra smithii</i> Tryon	— — c! d!	80
Teredinidae		
<i>Neoteredo reynei</i> (Bartsch)	—? r c! —	81
<i>Psiloteredo healdi</i> (Bartsch)	— — c! —	81
<i>Bankia campanellata</i> Moll & Roch	— — c! —	81
<i>Bankia carinata</i> (Gray)	— — c! —	82
Subclassis Anomalodesmata		
Ordo Pholadomyida		
Lyonsiidae		
<i>Anticorbula sinuosa</i> (Morrison)	— — c! —	82
Periplomatidae		
<i>Periploma coquettae</i> Altena	— — — d	83
Cuspidariidae		
<i>Cardiomya surinamensis</i> Altena [ <i>Cuspidaria (C.) sp.</i> ]	— — — d	83
Verticordiidae		
<i>Verticordia ornata</i> (d'Orbigny)	— — — d	83
Classis Scaphopoda		
Siphonodentaliidae		
<i>Cadulus</i> ( <i>Gadila</i> ) <i>acus</i> Dall	— — — D	85
Dentaliidae		
<i>Dentalium gouldii colonense</i> Henderson	— R C D	86

## 2. BIVALVIA AND SCAPHOPODA

In this chapter the literature cited for every species contains: (1) the original description and type locality, when mentioned; (2) frequently

sources facilitating identifications; (3) reports of occurrences in Suriname and other Guianas, except the popular accounts treated in the first part of this study.

In the paragraph "Occurrence in Suriname" the known localities of the species in Suriname are given. The numbers placed in parentheses after the localities in "Drill holes", "Shell ridges" and "Washed ashore" refer to the numbers placed on the map published in the first part of this work (Altena, 1969a, pl. 4) and republished here on pl. 11. The numbers and capitals mentioned in "Living near the coast", "Dredged off the coast" and the VRA stations, as far as their depth is mentioned, are also placed on this map; of the VRA stations the number is placed in a circle. The localities placed between quotation marks, of which only is known that they are situated off the Suriname coast, and the VRA stations from which the depth is unknown are not placed on this map. Some particulars of these stations may be found in my publication of 1969 on the pages 42 and 43.

The depths in fathoms given here indicate the depth range from which the species is known with certainty. If the depth range of a station (or the stations), at which a species is taken, extends either higher than the greatest or lower than the smallest certain depth for the species, these higher or lower values are given in parentheses. So the depth of *Amusium papyraceum* (Gabb), dredged at 2-24, 8-17½, 15, 17, 20, 22, 23, 24, 25, 25-30 and 28 fathoms, has been given as (2-) 15-28 (-30) fathoms.

The following abbreviations have been used:

ANSP: Academy of Natural Sciences of Philadelphia.

BM: British Museum (Natural History), London.

MCZ: Museum of Comparative Zoology, Cambridge, Massachusetts.

RNHL: Rijksmuseum van Natuurlijke Historie, Leiden.

USNM: United States National Museum, Washington.

ZMA: Zoölogisch Museum, Amsterdam.

The species found in shell ridges and/or washed ashore are almost all figured here.

Classis Bivalvia  
Subclassis Palaeotaxodonta  
Ordo Nuculoida  
NUCULIDAE

***Nucula surinamensis*** Altena (fig. 1)

Altena, 1968: 161, 153, 155, 162, figs. 145a, b (dredged off the coast of Suriname, exact locality unknown).

After publication of my paper, Mrs. Nijssen-Meyer obtained a large collection of this species from Suriname coastal waters, which enables me to supply the following corrections or additions to my description.

The measurements of adult specimens are large, viz. length 4.5, height 3, diameter about 2 mm. The largest shell measured >5, height 3½, semi-diameter about 1½ mm. The greatest number of teeth I found were 12 on the anterior and 4 on the posterior side. The resilifer of the type specimen was partly broken off, therefore I publish now a new figure of the hinge (textfig. 1c).

#### Occurrence in Suriname

Dredged off the coast. — Station VRA 5, (off the Suriname coast) from a shell of *Murex brevifrons* Lamarck; depth unknown.

The many additional localities will be published later by Mrs. Nijssen-Meyer.

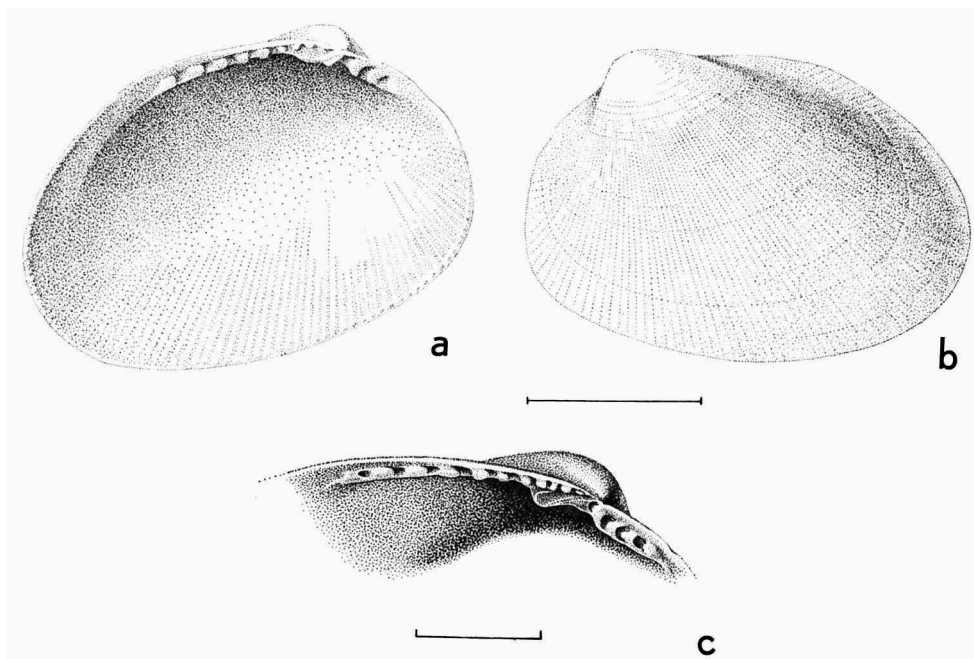


Fig. 1. *Nucula surinamensis* Altena. a, b: holotype; a: inner side, b: outer side of right valve; c: Snellius, O.C.P.S. Station F6, 06°26.6'N, 56°33.0'W, IV 1966, 33 m depth, hinge of right valve. Scale: 1 mm. W. C. G. Gertenaar del.

#### *Nucula venezuelana* Weisbord (fig. 2)

Weisbord, 1964: 36, pl. 1 figs. 1-6 (different localities, Pliocene, Venezuela).

Altena, 1968: 155, 178; 1969b: 178 (*Nucula* spec.).

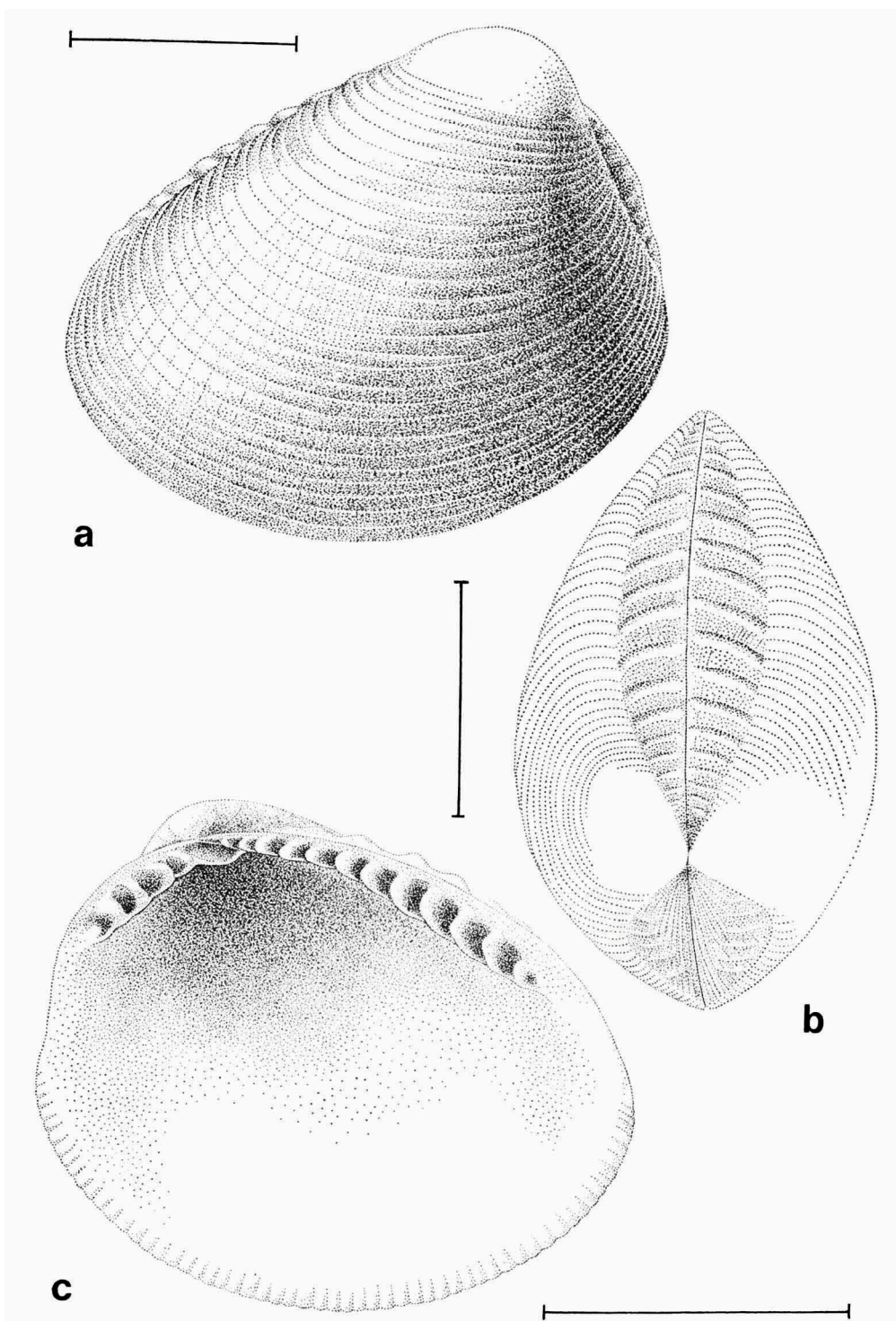


Fig 2. *Nucula venezuelana* Weisbord. a, b: washed ashore near Popogaimama Creek, VII 1959, Dr. D. C. Geijskes coll. a: outer side of left valve; b: dorsal side; c: Coquette, Station "2", inner side of left valve. Scale: 1 mm. W. Bergmans del.



My specimens agree with the description and figures given by Weisbord (1964). Some of them reach larger dimensions, like the shell from the drill hole Coronie 35: length 3.5, height 3, diameter 2 mm. There is a second entire shell in the lot from near Popogaimama Creek; my other specimens are odd valves possessing up to 16 anterior and 6 posterior hinge teeth. One valve from drill hole Alliance 28 and one specimen from the "Coquette" are both very young, but they belong most probably to *N. venezuelana*. In my paper from 1968 they are cited as *Nucula* spec.

In the British Museum (Natural History) I could compare my specimens with the types of *N. exigua* Sowerby, 1833, and *N. crenulata* A. Adams, 1856, which seem to be the nearest related species.

In *N. exigua* the sculpture is coarser, while there is not so great a difference between the sculpture of the disc and that of the lunular area as in *N. venezuelana* (cf. Olsson, 1961, pl. 1 fig. 2b with my fig. 2c). No attention is paid to this difference in Weisbord's description, but it is clearly visible in his figures 1, 3, 5.

*N. crenulata* is a slightly larger species (length 6.5 mm) with a relatively larger resilifer, a somewhat coarser concentric sculpture and with a less pronounced radial sculpture.

#### Occurrence in Suriname

Drill holes. — Coronie 35 (41): 15.75-18.70 m below surface; Alliance 28 (44): 16.25 m below surface (?).

Washed ashore. — Near Popogaimama Creek (65).

Dredged off the coast. — Stations 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc), "2" (off the Suriname coast), VRA 11 (off 3 miles E to 6 miles W of lightship), VRA 17 (N of lightship); 11-23 fms. —? E 3 (NNW of Marowijne River, ca. 30 miles off the coast); 20 fms and less.

#### ***Nuculoma dalmasi* (Dautzenberg) (fig. 3)**

Dautzenberg, 1900: 240, pl. X figs. 3, 3, 3 (*Nucula D.*, Venezuela: Iles Testigos, Golfe de Maracaibo; Colombia: Santa Marta).

Altana, 1968: 155.

The identification is based on a comparison of my material with Dautzenberg's syntypes in the Institut Royal des Sciences Naturelles de Belgique at Brussels. *N. dalmasi* resembles *Nuculoma aegeensis* (Forbes), but differs from East Atlantic and Mediterranean specimens assigned to the latter in the Dautzenberg collection by a more oblique and longer ligament pit, a less angled anterior margin and broader and more obtuse umbones. The specimens from the Gulf of Maracaibo which Dautzenberg (1900: 239)

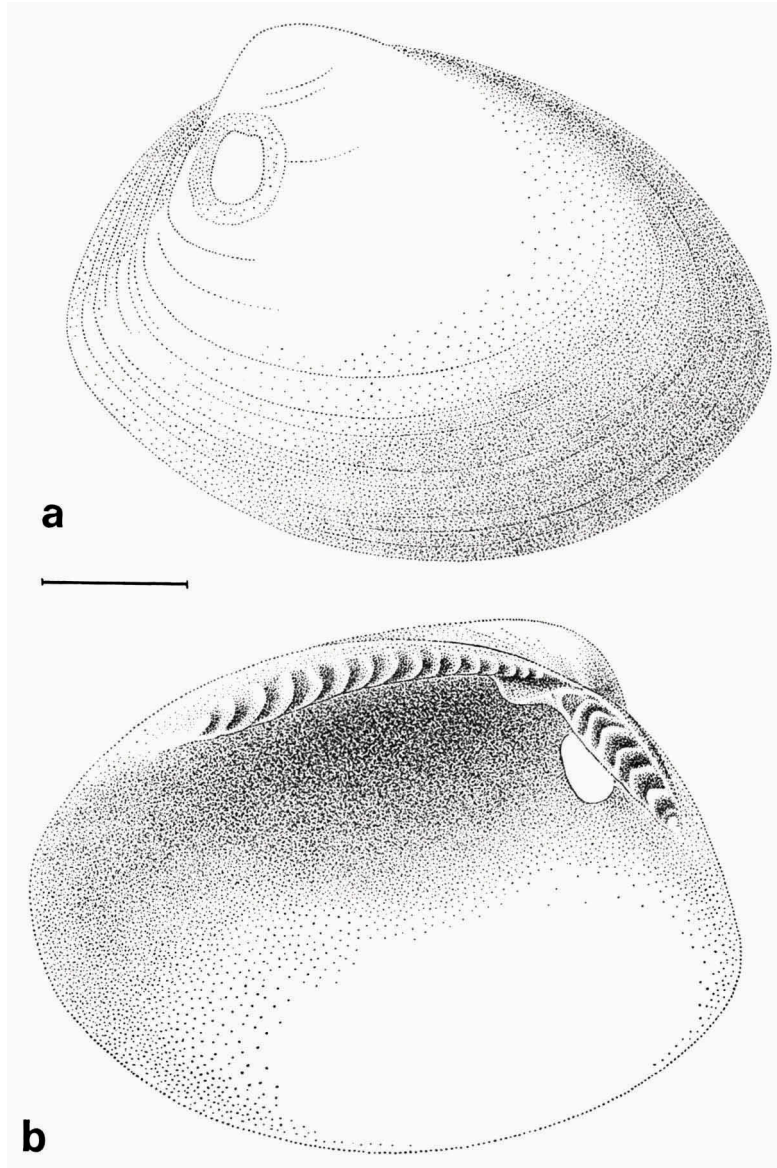


Fig. 3. *Nuculoma dalmasi* (Dautzenberg), "Coquette", Station 197. a: outer side; b: inner side of right valve. Scale: 1 mm. W. Bergmans del.

identified as *Nucula aegeensis* are much larger and perhaps slightly less convex than the syntypes of *N. dalmasi*, but to me they are nearer to the species last mentioned.

*Nucula (Ennucula) mareana* Weisbord (1964: 39, pl. 1 figs. 7-10), from the Pliocene of Venezuela is slightly smaller (4 instead of 6 mm long) and appears to be relatively a trifle higher. Comparison of specimens would be necessary to decide whether or not *N. mareana* is a synonym of *N. dalmasi*.

The Suriname records of this species are based on odd valves, some of which look quite fresh.

I followed Van de Poel (1955) in placing this species in *Nuculoma*.

Occurrence in Suriname

Shell ridges. — Munderweg (24).

Washed ashore. — Near Popogaimama Creek (65).

Dredged off the coast. — Station 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); 11 fms.

#### NUCULANIDAE

##### ***Nuculana (Sacella) acuta*** (Conrad)

Conrad, 1832: 32, pl. 6 fig. 3 (*Nucula a.*, Maryland "in a fossil deposit of so recent a character, that the species, with one or two exceptions, are such as occur very commonly upon the coast of the Middle and Southern States" and "tertiary beds of Virginia").

d'Orbigny, 1841-1853, atlas: pl. 36 figs. 30-32 (*Leda Jamaicensis*, 1842), vol. 2: 263 (*Leda jamaicensis*, "dans le sable de la Jamaïque et de Saint-Domingue", 1853).

Altana, 1968: 155.

This identification is based on comparison with Recent specimens assigned to *N. acuta* by Dall (USNM) and with the syntypes of *Leda jamaicensis* d'Orbigny (BM).

The Suriname material consists of a few entire shells and several odd valves, all looking fresh. They present some variation in the density of the concentric sculpture. One young valve was found washed ashore.

Occurrence in Suriname

Washed ashore. — Near mouth of Corantijn River (51).

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc), "2", "14" (both off the Suriname coast); 11-23 fms. — VRA 5 (off the Suriname coast); depth unknown.

##### ***Nuculana (Sacella) concentrica*** (Say) (fig. 4)

Say, 1824: 141, pl. 10 fig. 6 (*Nucula c.*, fossil, Maryland).

?Schomburgk, 1847: 107 (*Nucula rostrata*); 1848: 545 (*Nucula rostrata*).

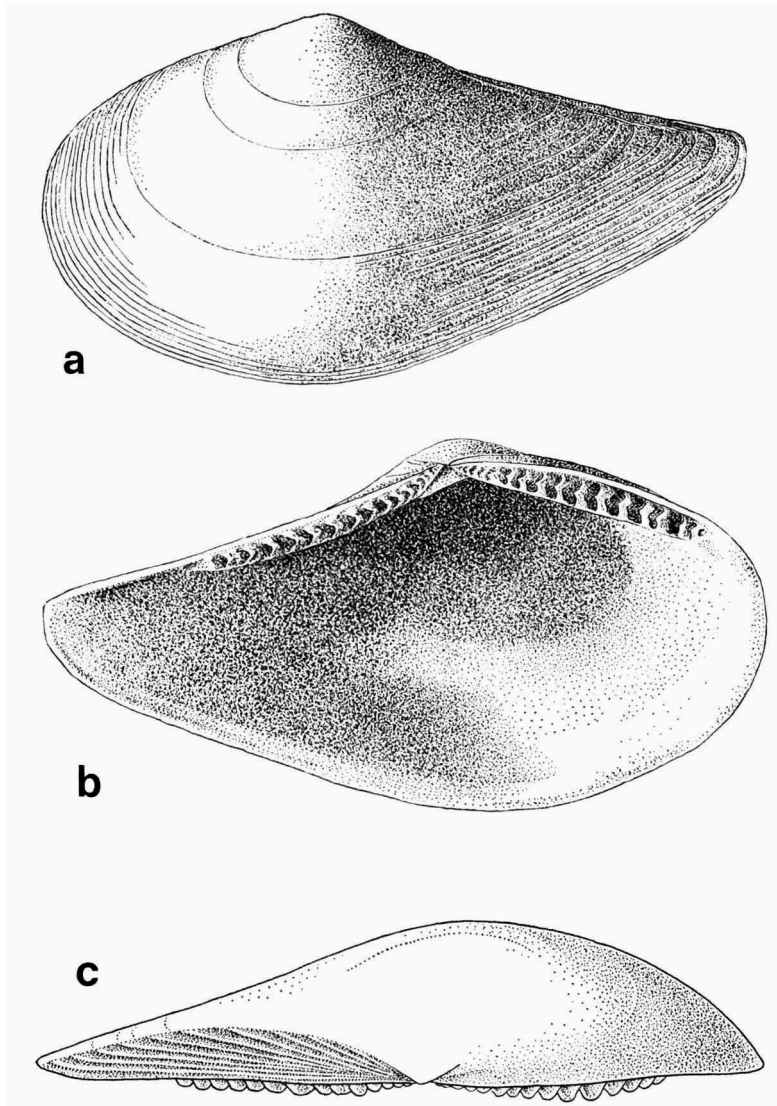


Fig. 4. *Nuculana concentrica* (Say); washed ashore near mouth of Corantijn River, VI 1956, Dr. D. C. Geijskes coll. a: outer side, b: inner side, c: dorsal side of left valve. Scale: 5 mm. W. Bergmans del.

Brown & Pilsbry, 1913: 500 (*Leda vulgaris* var. *obliterata*, Indian Pass, Appalachicola Bay, Calhoun Co., Florida).

IJzerman, 1931: 36 (*Leda* sp.).

d'Audretsch, 1953: 239 (*Leda eburnea*).

Altena, 1968: 155; 1969a: 19, 21, ?43; 1969b: 178.

My identification is based on comparison with the Recent material assigned to this species by Dall (USNM), and with the syntypes of the variety described by Brown & Pilsbry (ANSP no. 109049). I have, however, not seen Say's type, nor any other fossil specimen of this species.

The Suriname records are based on some entire shells found between loc. 86 and 87½ and on odd valves, more or less worn. Locally the shell is neither rare in the shell ridges nor on the beach.

#### Occurrence in Suriname

Drill holes. — Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface (d'Audretsch); Coronie 35 (41): 12.70-18.70 m below surface; Alliance 28 (44): 12.25, 15.00 and 16.25 m below surface.

Shell ridges. — Clay dug from a canal near Herttenrits (3); near Cupido (4); Coronieweg, ridge 43ob, washing water pit (8); Saramacca district, km 59.5 (between 11 and 12); Groningen, near football ground (15); Munderweg, Charlesburgerweg, and Charlesburg, ridge near pole VIII, at a depth of 2½ m (24); Blauwgrond (26).

Washed ashore. — Mouth of Corantijn River (51); ± 15 km E of Nieuw Nickerie; Totness (59); Hermina flat (63); Toniholo (67); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations 1 (6°22'N 55°06'W, USNM), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); 11-14 fms.

#### Occurrence in the other Guianas

Washed ashore. — ? Near the mouth of the Waini, Guyana (Schomburgk).

### ***Yoldia (Orthoyoldia) crosbyana* (Guppy) (fig. 5)**

Guppy, 1882: 170, pl. 7 figs. 3, 3a (*Nucula cr.*, dredged in the Gulf of Paria).

Altena, 1968: 155, 178; 1969a: 31.

The record from the drill hole at Coronie is based on an entire shell. The dredged specimens are odd valves, most of them looking fresh.

#### Occurrence in Suriname

Drill holes. — Coronie 35 (41): 12.70-15.75 m below surface.

Washed ashore. — Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations E6 (N of Suriname River, 20 miles off the coast), 1 ( $6^{\circ}22'N$   $55^{\circ}06'W$ , USNM), 2 ( $6^{\circ}23'N$   $55^{\circ}05.5'W$ , USNM), 15 ( $6^{\circ}24.5'N$   $54^{\circ}59.5'W$ , USNM), 184 ( $6^{\circ}21'N$   $54^{\circ}59'W$ ), 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) on tubes of *Diopatra cuprea* (Bosc); 11-16 fms.

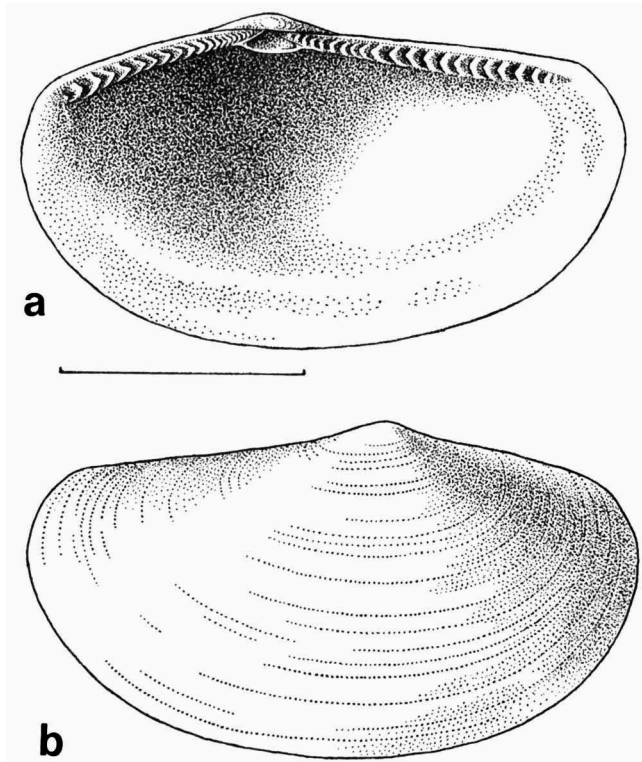


Fig. 5. *Yoldia* (*Orthoyoldia*) *crosbyana* (Guppy); "Coquette", Station 1 (USNM). a: inner side, b: outer side of right valve. Scale: 5 mm. W. Bergmans del.

***Adrana patagonica* (d'Orbigny) (fig. 6)**

d'Orbigny, 1835-1846: 544, pl. 82 figs. 1-3 (*Leda P.*, ... Bahia de San-Blas, en Patagonie, ... fossile dans les terrains soulevés très voisins).

Guppy, 1882: 95 (*Leda p.*).

Altena, 1968: 155 (*Yoldia egregia*).

Mrs. Nijssen-Meyer has come to the conclusion that all my specimens mentioned as *Yoldia* (*Adrana*) *egregia* (Guppy) are in fact *Adrana patagonica* (d'Orbigny). Though *Adrana egregia* is also found off the Suriname

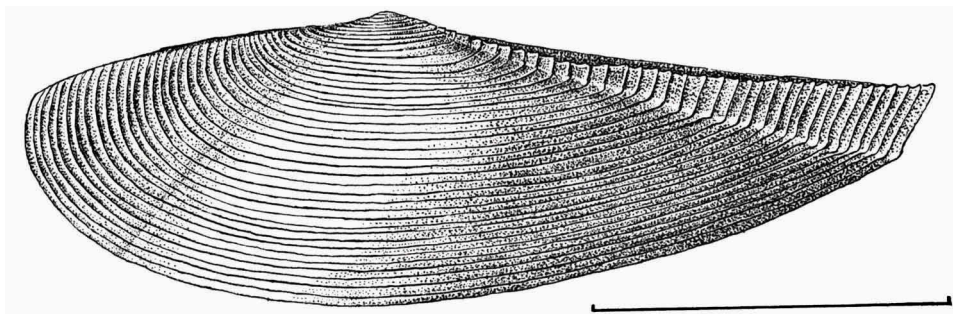


Fig. 6. *Adrana patagonica* (d'Orbigny), "Coquette", Station E6; outer side of left valve. Scale: 10 mm. W. Bergmans del.

coast, all my specimens are the other species. Mrs. Nijssen-Meyer will report on the differences between these two species.

The records from the shell ridges are based on two odd valves; the two odd valves washed ashore at Bigisanti were collected in 1970 by Mr. R. A. Teunissen. The specimens dredged by the "Coquette" are also odd valves; most of them are looking fairly fresh.

#### Occurrence in Suriname

Shell ridges. — Coronieweg, ridge 454 (8); Saramaccaweg, km 52 (2 km W of 14).

Washed ashore. — Krofajapassie to 9½ km E (86-87½); Bigisanti (88).

Dredged off the coast. — Stations E6 (N of Suriname River, 20 miles off the coast), 159 (6°22'N 55°03.5'W, USNM), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); 11-15 fms.

#### ***Adrana gloriosa*** (A. Adams) (fig. 7)

A. Adams, 1855: 226 (*Yoldia gl.*, Singapore).

Hanley, 1860: 108, pl. 227 figs. 42, 43 (*Leda gl.*).

Rehder, 1939: 16, pl. 6 figs. 4, 12 (*A. notabilis*, Paraguana Peninsula, Venezuela).

Altana, 1968: 155 (*Yoldia gl.*), 162 (*A. notabilis*).

My specimens were identified by comparison with the type of Adam's species (BM) and that of *Adrana notabilis* Rehder (USNM). The type locality of the former must be wrong.

From the ridges I saw an odd valve and two fragments. The shells and odd valves dredged by the "Coquette" look quite fresh.

#### Occurrence in Suriname

Shell ridges. — Coronieweg, picket 216, picket 300 (8).

Washed ashore. — Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations E2 (NNW of Marowijne River, 30 miles off the coast), E6 (N of Suriname River, 20 miles off the coast), 2 ( $6^{\circ}23'N$   $55^{\circ}05.5'W$ , USNM), 184 ( $6^{\circ}21'N$   $54^{\circ}59.5'W$ ); 12-20 fms.

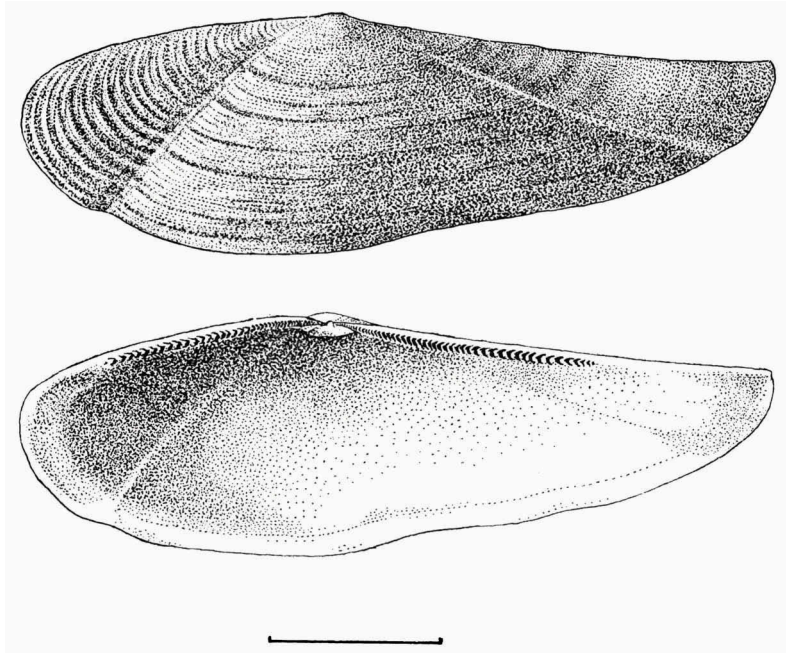


Fig. 7. *Adrana gloriosa* (A. Adams), "Coquette", Station E6. a: outer side of left valve; b: inner side of right valve. Scale: 10 mm. W. Bergmans del.

***Adrana scaphoides* Rehder (fig. 8)**

Rehder, 1939: 17, pl. 6 fig. 5 (near Cartagena, Colombia).

Altena, 1968: 155 (*Yoldia* sc.); 1969b: 178 (*Yoldia* sc.).

I could compare one of my specimens with Rehder's type (USNM) and found it slightly smaller, but without any difference of taxonomic importance.

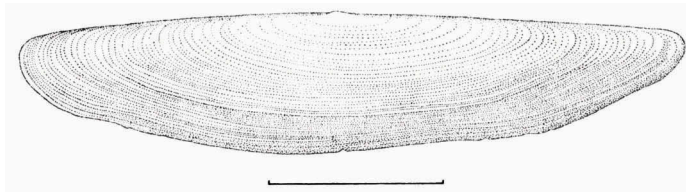


Fig. 8. *Adrana scaphoides* Rehder, washed ashore near Matapica Canal, no date, Dr. D. C. Geijskes coll.; outer side of left valve. Scale: 10 mm. W. C. G. Gertenaar del.



The Suriname "washed ashore" records are based on five shells, three more or less damaged, but all looking fresh.

Occurrence in Suriname.

Drill holes. — Alliance 28 (44): 15.00 m below surface.

Washed ashore. — Totness (59); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

#### Subclassis Pteriomorpha

#### Ordo Arcoida

#### ARCIDAE

#### **Arca imbricata** Bruguière

Bruguière, 1789-1792: 98 (with references and "dans la mer des Indes, sur la côte du cap de Bonne-Espérance," 1789).

Weisbord, 1964: 54, pl. 3 figs. 1-8 (with list of references).

Altena, 1968: 155.

The present Suriname record is based on a worn valve collected by W. C. van Heurn in 1911. The Leiden Museum possesses also a second worn valve collected by the same gentleman in Suriname, but without exact locality.

Occurrence in Suriname

Washed ashore. — Beach at the mouth of the Suriname River (80).

#### **Arca zebra** (Swainson)

Swainson, 1832-1833: no. 26, pl. 118 (*Byssosarca z.*, ... "not uncommon in the West Indies, and has been sent to us from Jamaica", 1833).

Weisbord, 1964: 50, pl. 2 figs 16, 17 (with list of references).

Altena, 1968: 155, 175.

The present Suriname record of this species is based on one valve belonging to the collection of the Suriname Museum.

Occurrence in Suriname

Shell ridges. — Coronieweg, picket 216 (8).

#### **Barbatia (Acar) domingensis** (Lamarck)

Lamarck, 1819: 40 (*Arca D.*, "l'Océan des Antilles, à S.-Domingue").

Weisbord, 1964: 61, pl. 4 figs. 1-9 (with list of references).

Altena, 1968: 155.

The present Suriname record is based on one damaged valve, which unmistakably belongs to this well-known species.

Occurrence in Suriname.

Dredged off the coast. — Station "2" (off the Suriname coast); 23 fms.

**Anadara (Anadara) notabilis** (Roeding)

Röding, 1798: 173 no. 210 (*Arca n.*, with reference to "Chem. 7. t. 55. f. 549", type locality (Chemnitz, 1784: 206): "an den westindischen Meeresufer").  
 Weisbord, 1964: 69, pl. 5 figs. 7-10 (with list of references).  
 Altena, 1968: 155.

The present Suriname records of this species are based on a few odd valves.

## Occurrence in Suriname

Dredged off the coast. — Stations A1 (off Coronie District), E2 (NNW of Marowijne River, 30 miles off the coast), 286 (6°51'N 55°49'W), "6" (off the Suriname coast); (8-)17½-26 fms.

**Anadara (Lunarca) ovalis** (Bruguière) (pl. 1 figs. 1-3)

Bruguière, 1789-1792: 110 (*Arca o.*, "Lister dit qu'on la trouve sur la côte de Campêche", 1789).  
 Lamarck, 1819: 45 (*Arca Cayenensis*, les mers de la Guyane).  
 Schepman, 1887: 160, 166 (*Arca Americana*).  
 Lamy, 1907: 292 (*Arca campechiensis*).  
 IJzerman, 1931: 36, 45 (*Arca campechiensis*).  
 d'Audretsch, 1953: 239, 241 (*Arca campechiensis*).  
 Graham, 1955: pl. 3 fig. 16 (*Arca* [sic] *transversa*).  
 Weisbord, 1964: 72, pl. 5 figs. 13-16, pl. 6 figs. 1-4 (with list of references).  
 Altena, 1968: 155, 176 (*Lunarca o.*); 1969a: 17, 18, 19, 20, 21, 30, 34, 44 (*Lunarca o.*).

I am grateful to Dr. E. Binder, "Muséum d'Histoire Naturelle" of Geneva, for sending me photographs of the best syntypes of *Arca cayenensis* Lamarck; these photographs show that Lamarck's species is a synonym of *Anadara ovalis* (Bruguière). The specimen figured on pl. 1 fig. 3 is here designated as lectotype.

This is a common species in the ridges and on the beach. The Suriname records are based on odd valves; those washed ashore sometimes bear part of the periost.

## Occurrence in Suriname

Drill holes. — Vaillant plein, Paramaribo: 12.00-13.50 m below surface (IJzerman); Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface, Zorg en Hoop: 36.00 m below surface (d'Audretsch); Coronie 35 (41): 15.75-18.70 m below surface.

Shell ridges. — Nickerie (Schepman); Stalweide (1); clay dug from a canal near Herttenrits (3); near Cupido (4); Coronie (Schepman); Idjikondre, km 134 (6); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Saramacca district km 59.5 (between 11 and 12); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); new road to Garnizoenspad at the end of the ridge along the river

(16); clay dug from a canal near Jarikaba (19); Jodenkerkhof (23, Schepman); Munderweg, Cultuurtuin and Charlesburgerweg (24); Blauwgrond (26); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51);  $\pm$  15 km E of Nieuw Nickerie; Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie to 9½ km E (86-87½); Bigisanti-Gadoholo (88-90).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); beach Seawall, Georgetown, Guyana (RNHL).

Washed ashore or dredged off the coast. — The seas of Guyana (Lamarck); Cayenne, French Guiana (Lamy).

### **Scapharca (Cunearca) brasiliiana** (Lamarck) (pl. 1 figs. 4, 5)

Lamarck, 1819: 44 (*Arca Br.*, les côtes du Brésil, à Rio-Janeiro).

Schepman, 1887: 160 (*Arca Br.*).

IJzerman, 1931: 36, 45 (*Arca br.*, possibly including the following species).

d'Audretsch, 1953: 239 (*Arca br.*).

Graham, 1955: pl. 3 fig. 21 (*Arca sp.*).

Durand, 1960: 34 (*Anadara br.*, possibly including the following species).

Weisbord, 1964: 79, pl. 6 figs. 13-16 (*Anadara br.*, with a list of references).

Altana, 1968: 155 (*Anadara br.*); 1969a: 17, 18, 19, 20, 21, 34, 42, 44 (*Anadara br.*).

The Suriname records are based on odd valves. As a recent species it is decidedly rare; in some of the ridges it is found more frequently, notably near Cupido, where the valves reach large dimensions, viz. up to 45 mm long. Especially young valves are not always easily separated from those of the next species.

Occurrence in Suriname

Drill holes. — Combé, Paramaribo: 2.70-4.50 m below surface (IJzerman); Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw Amsterdam: 16.50 m below surface (d'Audretsch).

Shell ridges. — Near Cupido (4); Indjikondre, km 134 (6); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); clay dug from a canal near Jarikaba (19); Vierde Rijweg (20); Jodenkerkhof (23, Schepman); Munderweg (24).

Washed ashore. — Hermina flat (63); Tijgerbank (92).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); Georgetown, Guyana (RNHL).

Dredged off the coast. — French Guiana (Durand).

**Scapharca (Cunearca) chemnitzii** (Philippi) (pl. 1 figs. 6-8)

Lamarck, 1819: 45 (*Arca Cayenensis*, variété [2]).

Philippi, 1851: 50 (*Arca Ch.*, Indiae occidentales, with reference to "Chemn. VII f. 553. 6. [recte b.] p. 212", locality (Chemnitz, 1784: 213): "beym Strande der Dänischen Zuckerinsel St. Croix").

Schepman, 1887: 160 (*Arca Ch.*).

d'Audretsch, 1953: 241 (*Arca ch.*).

Weisbord, 1964: 82, pl. 23 figs. 2-5 (*Anadara chemnitzii*, with list of references).

Altena, 1968: 155 (*Anadara chemnitzii*); 1969a: 17, 18, 19, 21, 31 (*Anadara chemnitzii*); 1969b: 178 (*Anadara chemnitzii*).

To the kindness of Dr. E. Binder I owe the photographs of a syntype of "*Arca cayenensis* Lamarck, variété [2]". I consider it a worn specimen of this species (see pl. 1 fig. 8).

A common species in the ridges and on the beach. One entire and very fresh shell was found near Totness and the "Coquette" dredged living specimens at the Stations E<sub>3</sub> and F<sub>1</sub> and probably at most of the other stations mentioned below.

## Occurrence in Suriname

Drill holes. — Zorg en Hoop: 36.00 m below surface (d'Audretsch); Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Nickerie (Schepman); Stalweide (1); clay dug from a canal near Herttenrits (3); near Cupido (4); Indjikondre, km 134 (6); Coronieweg, picket 216 (8); Karel François, km 76 (10); Saramacca district, km 59.5 (between 11 and 12); Tambaredjo (13); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); Vierde Rijweg (20); Jodenkerkhof (23, Schepman); Munderweg, Cultuurtuin and Charlesburgerweg (24); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Post Leiden (79); Braampunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie (86); Bigisanti-Tijgerbank (88-92); Tijgerbank (92).

Dredged off the coast. — Stations A<sub>1</sub> (off Coronie District), E<sub>3</sub> (NNW of Marowijne River, ca. 30 miles off the coast), E<sub>6</sub> (N of Suriname River, 20 miles off the coast), F<sub>1</sub> (N of Suriname River, 20 miles off the coast), 2 (6°23'N 55°05.5'W, USNM), 32 (6°51'N 54°53.5'W, USNM), 157 (6°22'N 55°03.5'W), 159 (6°22'N 55°02.5'W, USNM), 167 (6°18.5'N 55°28'W, USNM), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); (8-)10-28 fms.

## Occurrence in the other Guianas

Washed ashore. — Beach Seawall, Georgetown, Guyana (RNHL).

Washed ashore or dredged off the coast. — The seas of Guyana (Lamarck).

## NOETIIDAE

**Noetia (Eontia) bisulcata** (Lamarck) (pl. I figs. 9-11)

Lamarck, 1819: 45 (*Arca bisulcata*, les mers de la Guyane et du Brésil).

Recluz, 1852b: 409, pl. 12 figs. 3-5 (*Arca martinii*, la Baie de Santos, près Rio Janeiro; not *Arca martini* Röding, 1798).

Guppy, 1867: 164, 175 (*Arca centrota*, Pliocene, Matura); 1875: 51, pl. 7 figs. 4a, 4b (*Arca centrota*, Recent, shores of the Gulf of Paria and south coast of Trinidad).

Schepman, 1887: 161 (*Arca Martinii*).

Lamy, 1907: 301 (*Arca Martinii*).

IJzerman, 1931: 36, 45 (*Arca Martinii*).

d'Audretsch, 1953: 239, 241 (*Arca martini*).

Altana, 1968: 155 (*Noetia centrota*); 1969a: 18, 19, 20, 21, 31 (*Noetia centrota*); 1969b: 178 (*Noetia centrota*).

Dr. E. Binder has kindly sent me two photographs of syntypes of *Arca bisulcata* Lamarck, of which 1086/24-2 is here designated as the lectotype (pl. I fig. 11).

This is a common species in the ridges and on the beach. The specimens from these localities are odd valves, those from the beach sometimes bearing part of the periostracum. The shells found on concretions and shells dredged by the "Coquette" were fixed by their byssus and had been collected alive.

## Occurrence in Suriname

Drill holes. — Vaillant plein, Paramaribo: 12.00-13.50 m below surface (IJzerman); Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface, Zorg en Hoop: ca. 75 m below surface (d'Audretsch); Coronie 35 (41): 12.75-18.70 m below surface; Alliance 28 (44): 15.00 and 16.25 m below surface.

Shell ridges. — Stalweide (1); clay dug from a canal near Hertenrits (3); near Cupido (4); Indjikondre, km 134 (6); Coronieweg, picket 216 (8); Saramacca district, km 59.5 (between 11 and 12); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); Jodenkerkhof (23, Schepman); Munderweg, Cultuurtuin and Charlesburgerweg (24); Blauwgrond (26); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); ± 15 km E of Nieuw Nickerie; Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie (86); Bigisanti (88); Gadoholo (90); bank Lubin (91).

Dredged off the coast. — Stations A1 (off Coronie District), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc), VRA 4 (N of

lightship) on shell of *Turbinella laevigata* Anton, VRA 11 (off 3 miles E to 6 miles W of lightship) on concretion; (8-)11-30 fms. — VRA 5 (off the Suriname coast) from *Murex* spec., VRA 18a (N of mouth of Coppename River); depth unknown.

Occurrence in the other Guianas

Washed ashore or dredged off the coast. — The seas of Guyana (Lamarck); French Guiana (Lamy).

#### LIMOPSIDAE

### *Limopsis* (*Pectunculina*) *antillensis* Dall

Dall, 1881: 119 (Sigsbee, off Havana); 1886: 237, pl. 8 figs. 7, 7a.  
Altena, 1968: 155.

My specimens have a more pronounced radial sculpture and are relatively slightly longer than the type specimen (USNM). But the series of this species preserved in the U.S. National Museum shows some variation in these characters from which it appears that these slight differences are not of taxonomic importance. The Suriname records are all based on odd valves.

Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), "2" (off the Suriname coast), VRA 17 (N of lightship); 17-23 fms. — VRA 5 (off the Suriname coast); depth unknown.

#### GLYCYMERIDIDAE

### *Glycymeris undata* (L.) (pl. 1 figs. 16, 17)

Linnaeus, 1758: 695 (*Arca u.*, ad Jamaicam).  
Dodge, 1952: 155 (*Arca u.*).  
Weisbord, 1964: 86, pl. 7 figs. 9-12 (with list of references).  
Altena, 1968: 155 (*Gl. americana*).

Dr. D. Nicol, after having studied more and better preserved Suriname material from Mrs. Nijssen-Meyer, came to the conclusion that the specimens which I had recorded in 1968 as *G. americana* and those from Mrs. Nijssen-Meyer as well, all belong to *G. undata*. The difference is slight, but, according to Dr. Nicol constant; hence *G. americana* (Defrance) must be removed from the list of Suriname mollusks.

The measurements in millimetres of some of the valves from Suriname are:

height	length	semidiameter	
52	52	17	(largest valve, somewhat worn at the edges and therefore probably relatively short)
41½	44½	13	
26	27½	8	

## Occurrence in Suriname

Dredged off the coast. — Station A1 (off Coronie District); (8-17½) fms.

**Glycymeris pectinata** (Gmelin)

Gmelin, 1791: 3313 (*Arca p.*, with reference to "Chemn. Conch. 7 t. 58. f. 570. n. 1.2 & f. 571", locality (Chemnitz, 1784: 239) "bey den Stranden der westindischen Zucker-inseln").

Durand, 1960: 34 (*Glycymeris tessellata* Sow.).

Weisbord, 1964: 89, pl. 7 figs. 13, 14, pl. 8 figs. 1-4 (with list of references).

Altena, 1968: 155; 1969a: 31, 42.

The Suriname records are based on some entire shells, probably of specimens collected alive, and a large series of fresh odd valves. The dimensions of the largest valve, from Sta. E3, are: height 34, length 32, semidiameter 9 mm. The specimen from VRA 17 is weathered and the determination is doubtful.

## Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), 281 (6°46'N 55°36.5'W, USNM), 285 (6°50'N 55°45'W, USNM), 286 (6°51'N 55°49'W), 287 (6°52'N 55°50'W, USNM), 302 (6°49'N 55°25'W, USNM), "2", "8", "14" (all three off the Suriname coast),? VRA 17 (N of lightship); 17-26 fms. — VRA 5 (off the Suriname coast); depth unknown.

## Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

## Ordo Mytiloida

## MYTILIDAE

**Mytella charruana** (d'Orbigny) (pl. 2 figs. 3, 4)

d'Orbigny, 1835-1846: 645 (*Mytilus falcatus*, Rio de Janeiro, Maldonado), pl. 84 figs. 38, 39 (*Mytilus Charruanus*).

IJzerman, 1931: 37 (*Modiola* sp.).

Lamy, 1936: 128 (*Mytilus falcatus*).

Spoor & Loosjes, 1946: 4, 5 (*Modiolus* sp.).

d'Audretsch, 1953: 239 (*Mytilus falcatus*).

Graham, 1955: pl. 3 fig. 12 (*Modiolus arborescens*).

Soot-Ryen, 1955: 50, fig. 35, 38-40, 45, pl. 5 fig. 24 (*M. falcata*); 1963: 127.

Geijskes, 1968: 146.

Altena, 1968: 156, 176; 1969a: 8, 19, 21, 23, 26, 44; 1969b: 177.

This species occurs all along the coast of Suriname, especially in the estuaries, where live specimens can easily be obtained from the jetties. It

appears to be confined to near the surface of the sea, as it is lacking in the material dredged by the "Coquette".

Occurrence in Suriname

Drill holes. — Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface (d'Audretsch).

Shell ridges. — Stalweide (1); near Cupido (4).

Living (!) and washed ashore on the coast. — Mouth of Corantijn River (51); sea-dike near Nieuw Nickerie (52, !);  $\pm$  15 km east of Nieuw Nickerie; Coronie district, beach (no exact locality); Totness (59); on the jetty of the ferry on the Coppename River, near Boskamp (61, !); Hermina flat (63); Toniholo (67); coast at the Fernandez road (69); near Purmerend (70, !); jetty at Leonsberg (71, !); jetty of the plantation Geyersvlijt (72, !); jetty of Forestry Service, Paramaribo (!); on the wreck of the "Goslar", near Paramaribo (!); at the railway bridge of Beekhuizen (Z.M.A., !) (these last six: Altena, 1969: fig. 1, numbers 1, 3-7); jetty at Meerzorg (near 27, !); buoy in the Suriname River near Jagtlust (near 28, !); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Gadoholo (90); Tijger Bank (92, USNM); Galibi (93); beach of Marowijne River between Christiaankondre and Langamankondre (94-95).

Living near the coast. — On buoy 7 km off the coast at the mouth of Corantijn River (R); on the hull of the lightship "Suriname Rivier" (L).

Occurrence in the other Guianas

Living on the coast. — Guyana (Graham); Georgetown, Guyana (RNHL); Cayenne, French Guiana (Lamy); environment of Cayenne, French Guiana (RNHL).

**Modiolus americanus** (Leach) (pl. 2 figs. 1, 2)

Leach in: Leach & Nodder, 1815: 32, pl. 72 fig. 1 (*Modiola americana*, habitat in Oceano Americano).

Soot-Ryen, 1955: 67, fig. 56, pl. 6 figs. 27, 28.

Weisbord, 1964: 98, pl. 9 figs. 3-6 (with list of references).

Altena, 1968: 156.

In the BM two shells and an odd valve are probably syntypes of this species. They are labelled "tulipa Lam./Bermuda W. Lyons Esq<sup>r</sup>". The odd valve is probably the counterpart of the valve figured with the original description. I could compare a valve from "Coquette" Sta. E6 with this little series and, though it is somewhat larger, found it to agree with Leach's species. The "Coquette" took odd valves only of this species.



## Occurrence in Suriname

Washed ashore. — Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations A1 (off Coronie District), E6 (N of Suriname River, 20 miles off the coast); (8-)15(-17½) fms.

**Gregariella chenui** (Recluz)

Recluz, 1842: 306 (*Mytilus Chenui*, les côtes du Brésil, province de Bahia).

Soot-Ryen, 1955: 78, fig. 65, pl. 8 fig. 40.

Altena 1968: 156.

This is the species commonly known as *G. opifex* (Say). Soot-Ryen pointed out that Say's species is from Menorca and that it is better to use Recluz's name for the species from the Atlantic waters of the Americas as long as there is no proof of its identity with the Mediterranean species. I was informed that Say's types are no more in existence in the ANSP collection.

The Suriname specimens were found fixed on concretions.

## Occurrence in Suriname

Dredged off the coast. — Stations VRA 11 (off 3 miles E to 6 miles W of lightship); (17-18) fms. — VRA 18a (N of mouth of Coppename River); depth unknown.

**Crenella abbotti** Altena (fig. 9)

Altena, 1968: 162, 153, 156, fig. 146 (off the coast of Suriname).

The species is represented by one complete shell and 12 valves from three localities.

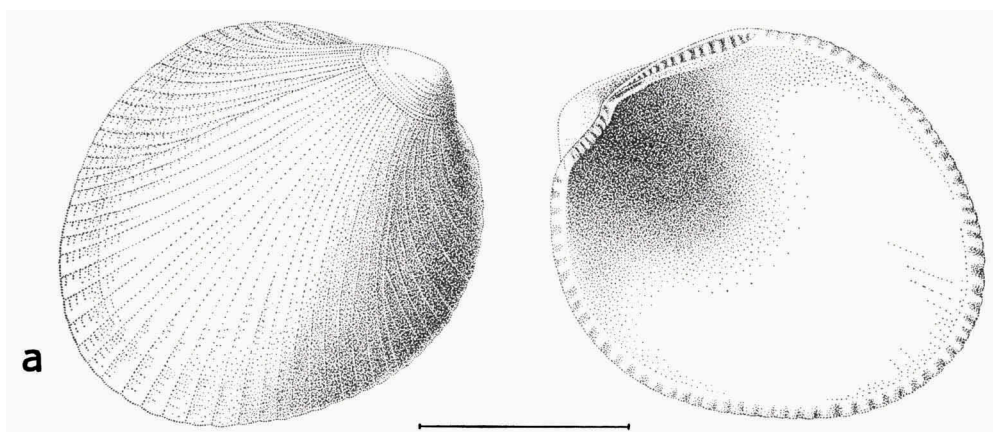


Fig. 9. *Crenella abbotti* Altena; holotype. a: outer side, b: inner side of right valve. Scale: 1 mm. W. Bergmans del.

## Occurrence in Suriname

Dredged off the coast. — Stations E<sub>3</sub> (NNW of Marowijne River, ca. 30 miles off the coast), "2" (off the Suriname coast); 20-23 fms. or less — VRA 5 (off the Suriname coast) from a shell of *Murex brevifrons* Lamarck; depth unknown.

**Lithophaga (Diberus) bisulcata** (d'Orbigny)

d'Orbigny, 1841-1853. Atlas: pl. 28 figs. 14-16 (*Lithodomus bisulcatus*, 1842); 2: 333 (*Lithodomus bisulcatus*, à Cuba, à la Jamaïque, à la Martinique, à la Guadeloupe et à Saint Domingue, 1853).

Turner & Boss, 1962: 110, pl. 73 figs. 1-4, pl. 74 figs. 1-3, pl. 75 figs. 4, 5.  
Altena, 1968: 156.

The identification of this species was checked by comparison of Suriname specimens with the syntypes from Martinique (the word "Cuba" was apparently later added to the label) in the BM.

The Suriname specimens were found boring in shells and concretions.

## Occurrence in Suriname

Dredged off the coast. — Stations VRA 11 (off 3 miles E to 6 miles W of lightship); (17-18) fms. — VRA 5 (off the Suriname coast), VRA 18a (N of mouth Coppename River); depth unknown.

## PINNIDAE

**Atrina (Servatrina) seminuda** (Lamarck) (pl. 4 figs. 1, 2)

Lamarck, 1819: 131 (*Pinna semi-nuda*, les mers d'Amérique).

Turner & Rosewater, 1958: 315, pl. 150 figs. 5, 6, pl. 159 figs. 5-8, pls. 160-169 (type locality restricted to Rio de Janeiro).

Weisbord, 1964: 109, pl. 10 fig. 4 (with list of references).

Altena, 1968: 155.

Most of the Suriname shells I examined, shore as well as dredged material, are in very good condition. The specimens must have been collected alive or shortly after the animal died.

## Occurrence in Suriname

Washed ashore. — Near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station E<sub>2</sub> (NNW of Marowijne River, 30 miles off the coast); 20 fms.

**Atrina (Servatrina) serrata** (Sowerby)

Sowerby, 1825: 23, app.: V (*Pinna s.*, no locality).

Turner & Rosewater, 1958: 320, pls. 170, 171 (Charleston, South Carolina designated as type locality).

Durand, 1960: 34, 37 (*Pinna* s.).

Weisbord, 1964: 111, ? pl. 10 figs. 6-9 (with list of references).

Altena, 1968: 155; 1969a: 42.

The single specimen examined, belonging to the Suriname Museum, agrees perfectly with the holotype in the BM. It was probably taken alive.

#### Occurrence in Suriname

Dredged off the coast. — Station E6 (N of Suriname River, 20 miles off the coast); 15 fms.

#### Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

### Ordo Pterioida

#### PECTINIDAE

#### **Amusium papyraceum** (Gabb)

Gabb, 1873: 257 (*Pleuromectia papyracea*, Fossil, S. Domingo).

Pilsbry, 1922: 413, pl. 43 figs. 8 (holotype), 9.

Durand, 1960: 34, 36, 38, 40, fig. 18 (*Amusium* p.).

Weisbord, 1964: 131, pl. 13 figs. 7-9, pl. 14 fig. 1 (*Pecten papyraceus*, with list of references).

Altena, 1968: 156, 178; 1969a: 31, 42.

My material agrees with the series of Recent specimens allotted to this species in the USNM and also with the Fossil types as figured by Pilsbry. Part of the Suriname specimens are kept in alcohol and the dry shells I could examine are so well preserved that most, if not all, of them must have been collected alive.

#### Occurrence in Suriname

Dredged off the coast. — Stations A<sub>1</sub> (Off Coronie District), A<sub>2</sub> (NNW of Coppename, 20 miles off the coast), B<sub>1</sub> (NW of mouth of Marowijne River), D<sub>1</sub> (NE of lightship), E<sub>2</sub> (NNW of Marowijne River, 30 miles off the coast), 27 (6°45'N 54°58'W, USNM), 34 (6°53'N 54°53'W, USNM), 209 (6°41'N 54°33'W, USNM), 210 (6°43'N 54°32'W, USNM), 212 (6°45'N 54°30'W, USNM), 214 (6°47'N 54°29'W, USNM), 220 (6°42.5'N 54°11'W), 260 (6°40'-6°41.5'N 55°26'-55°41'W, USNM), 267 (6°42'-6°41'N 55°43'-55°45'W, USNM), 275 (6°41'N 55°29'W, USNM), 277 (6°42.5'N 55°31.5'W), 281-282 (6°46'-6°46.5'N 55°36.5'-55°38'W, USNM), 302 (6°49'N 55°25'W, USNM), "1", "6", "14" (all three off the Suriname coast), VRA 17 (N of lightship), VRA 18 (N of lightship to N of Coppename); (2-)15-28(-30) fms.

#### Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

**Cyclopecten nanus** Verrill & Bush

Verrill & Bush in: Verrill, 1897: 85, pl. 16 figs. 12, 12a-c (off the eastern coast of the U. States, opposite Chesapeake Bay and Cape Hatteras).

Altena, 1968: 156.

I could compare the Suriname specimens with the type in the USNM and found them differing only in colour, which is white in the valves from Suriname. Similar white shells have, however, been dredged off the North American east coast (USNM). Specimens from Barbados and Antigua in the USNM are considered as a possible subspecies, but differ very little from the typical form. The specimens from Suriname are fresh-looking odd valves.

## Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), "2" (off the Suriname coast), VRA 11 (off 3 miles E to 6 miles W of lightship); (17-)18-23 fms.

**Chlamys (Chlamys) benedicti** Verrill & Bush

Verrill & Bush in: Verrill, 1897: 74 (off Martha's Vineyard, dead; West Indies, living).

Weisbord, 1964: 139, pl. 14 figs. 8-11 (with list of references).

Altena, 1968: 156.

The specimens agree with those so identified in the USNM. The shells from Sta. 287 contain remains of the animals.

## Occurrence in Suriname

Dredged off coast. — Stations 281-282 ( $6^{\circ}46'-6^{\circ}46.5'N$   $55^{\circ}36.5'-55^{\circ}38'W$ , USNM), 287 ( $6^{\circ}52'N$   $55^{\circ}50'W$ , USNM), 320 ( $6^{\circ}47'N$   $55^{\circ}36'W$ , USNM); 25-26 fms.

**Chlamys (Leptopecten) linki** (Dall) (pl. 1 figs. 12-15)

Schepman, 1887: 161, 167 (*Pecten Sowerbyi* Reeve aff.).

Dall, 1926: 61 (*Pecten l.*, wave formed terraces on the northern shore of the U.S. of Colombia).

?Ijzerman, 1931: 36 (*Pecten spec.*).

Graham, 1955: pl. 3 fig. 20 (*Pecten sp.*).

Altena, 1968: 156; 1969a: 18, 19, 21, 44.

I owe the identification to the kindness of Mr. Gilbert Grau and could confirm it by comparison with paratypes in the USNM. All the Suriname records are based on odd valves; some of those dredged by the "Coquette" look quite fresh. The length of the Suriname shells is always well under 30 mm, but the Leiden Museum possesses a well preserved valve from La Lecheria (Barcelona, Venezuela) which measures: length 36, height 33, semidiameter  $5\frac{1}{2}$  mm.

Miss A.-M. Testud has identified a great number of shells dredged off the Suriname coast as *Chlamys tehuelca* (d'Orbigny). They are much smaller than *C. linki* and have more concentric sculpture. It may be that among the young and worn valves, especially from the shell ridges, there are specimens of this species also.

Occurrence in Suriname

Drill holes. — Coronie 35 (41): 15.75-18.70 m below surface.

Shell ridges. — Stalweide (1); near Cupido (4); Indjikondre, km 134 (6); Coronieweg, km 117-118 (7); Coronieweg, picket 216 and 217 (8); Saramacca district, km 59.5 (between 11 and 12); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); clay dug from canal near Jarikaba (19); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Constantia (32); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); Totness (59); near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie (86); WiaWia beach (89).

Dredged off the coast. — Stations D1 (NE of lightship), E3 (NNW of Marowijne River, ca. 30 miles off the coast), 2 (6°23'N 55°05.5'W, USNM), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc), "11" (off the Suriname coast), VRA 18 (N of lightship to N of Coppename); 11-28(-30) fms.

Distribution in the other Guianas

Washed ashore. — Guyana (Graham).

***Chlamys (Aequipecten) lineolaris* (Lamarck)**

Lamarck, 1819: 166 (*Pecten l.*, no locality).

Delessert, 1841: pl. 15 fig. 3a, b (*Pecten l.*).

Altana, 1968: 156, 178 (*Aequipecten l.*); 1969a: 31 (*Aequipecten l.*).

The Suriname specimens agree with those assigned to this species in the USNM. Those from 50 m depth NE of the lightship (VRA 18) were certainly taken alive, the specimen from Sta. 34 probably also.

Occurrence in Suriname

Dredged off the coast. — Stations D1 (NE of lightship), 32 (6°51'N 54°53.5'W, USNM), 34 (6°53'N 54°53'W, USNM), 281-282 (6°46'-6°46.5'N 55°36.5'-55°38'W, USNM), 287 (6°52'N 55°50'W, USNM), "1" (off the Suriname coast); (2-)24-28(-30) fms.

**Chlamys (Argopecten) gibba nucleus** (Born) (pl. 1 figs. 21-23)

[Linnaeus, 1758: 698 (*Ostrea gibba*, in *M. Americano*).]

Born, 1778: 92 (*Ostrea n.*); 1780: 107, pl. 7 fig. 2 (*Ostrea n.*, *Patria ignota*).

Durand, 1960: 34, 35 (*Pecten n.*).

Altena, 1968: 156 (*Aequipecten gibba*); 1969a: 42 (*Aequipecten gibba*).

The specimens from Suriname agree with the subspecies *nucleus*. The description of Born and his figure as well, indicate only 20 ribs. I found this number in my specimens also, though they may have more ribs.

Of this subspecies a few odd valves have been found in the ridges and washed ashore. The "Coquette" material contains more or less fresh-looking valves and alcohol specimens taken alive, the latter from the Stations B1, F1 and VRA 17.

## Occurrence in Suriname

Shell ridges. — Saramacca district, no exact locality; Munderweg (24).

Washed ashore. — Braamspunt (80); near Kat Creek (82); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations A1 (off Coronie District), B1 (NW of mouth Marowijne River), E2 (NNW of Marowijne River, 30 miles off the coast), E6 (N of Suriname River, 20 miles off the coast), F1 (N of Suriname River, 20 miles off the coast), 209 (6°41'N 54°33'W, USNM), VRA 17 (N of lightship); (8-) 15-25 (-30) fms.

## Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

**Chlamys (Nodipecten) nodosa** (L.)

Linnaeus, 1758: 697 (*Ostrea n.*, in *O. Africano & Indico*).

Durand, 1960: 34, 35 (*Pecten nodosus*).

Weisbord, 1964: 156, ? pl 17 fig. 1 (*Lyropecten nodosus*, with list of references).

Altena, 1968: 156 (*Lyropecten nodosus*); 1969a: 42 (*Lyropecten nodosus*).

Another well known species, of which I examined some odd valves and fragments and one very fresh entire shell, evidently taken alive at VRA 6.

## Occurrence in Suriname

Dredged off the coast. — Stations A1 (off Coronie District), C1 (NNW of Coppename), E3 (NNW of Marowijne River, ca. 30 miles off the coast), VRA 6 (N of Coppename); (5-) 17½-20 (-23) fms.

## Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

**Pecten (Euvola) chazaliei** Dautzenberg

Dautzenberg, 1900: 228, pl. 10 figs. 1, 1, 1, 1 (Venezuela: Iles Testigos, ile Tortuga; Colombia: Santa Marta).

Altena, 1968: 156.

In the USNM I found our specimens to agree with the type of *Pecten tereinus* Dall (1925: 115), which Warmke & Abbott (1961: 168) synonymized with Dautzenberg's species. Afterwards I had an opportunity of examining Dautzenberg's type in the Brussels Museum, which confirmed the view of Warmke & Abbott.

The specimens from Sta. 306 contain remains of the animals.

Occurrence in Suriname

Dredged off the coast. — Stations 304 (6°57'N 56°18'W, USNM), 306 (6°54'N 56°14'W, USNM); 27-29 fms.

### **Pecten (Euvola) ziczac** (L.)

Linnaeus, 1758: 696 (*Ostrea* Z., in *O. australiore*).

Altena, 1968: 156.

Of this species an odd valve and a fragment only are present in the material dredged by the "Coquette".

Occurrence in Suriname

Dredged off the coast. — Stations A1 (off Coronie District), VRA 17 (N of lightship); (8-) 17 (-17½) fms.

## PLICATULIDAE

### **Plicatula gibbosa** Lamarck (pl. 4 figs. 3, 4)

Lamarck, 1801: 132 (description and references, no type locality).

Lamy, 1939: 19 (*Pl. spondyloidea*).

d'Audretsch, 1953: 241 (*Pl. cristata*).

Durand, 1960: 34, 37.

Weisbord, 1964: 113, pl. 10 figs. 10-13 (with list of references).

Altena, 1968: 155; 1969a: 21, 42.

The Suriname specimens are odd valves, sometimes fixed at other shells and always well under 20 mm high and long.

Occurrence in Suriname

Drill holes. — Zorg en Hoop: 36 m below surface (d'Audretsch); Coronie 35 (41): 15.75-18.70 m below surface.

Shell ridges. — Near Cupido (4); Coronieweg, picket 216 (8); Saracca district, no exact locality; Fernandez Road (22); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Jagtlust (28); Lust en Rust (29); Alliance (near 32: 44); Constantia (32).

Washed ashore. — Braampunt (80); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Lubin Bank (91).

Dredged off the coast. — Stations A1 (off Coronie District), VRA 11 (off 3 miles E to 6 miles W of lightship; (8-) 17-18 fms.

## ANOMIIDAE

**Anomia simplex** d'Orbigny (pl. 1 figs. 18-20)

d'Orbigny, 1841-1853: Atlas, pl. 28 figs. 31-33 (1842); 2: 367 (à la Martinique et à Cuba; 1853).

Schepman, 1887: 161 (*A. Humphreysiana*).

IJzerman, 1931: 37, 45 (*A. Humphreysiana*).

d'Audretsch, 1953: 239, 241 (*A. humphreysiana*).

Graham, 1955: pl. 3 fig. 15 (*Ostrea* sp.).

Altena, 1968: 156, 175, 177; 1969a: 18, 19, 20, 21, 34, 44; 1969b: 177, 178.

In the BM I could examine five specimens, apparently syntypes. As the left valves are missing or badly damaged, it is impossible to be sure that the specimen figured by d'Orbigny is among this series. There is no reason to believe that the Suriname specimens belong to another species. The ample material from the ridges and shore consists of worn left valves. They are somewhat thicker than the syntypes and show a larger range of variation, but no characters which point to specific differences. The specimens from the drill hole at Coronie are well preserved left valves agreeing fairly well with the syntypes. The "Coquette" took odd left valves at Sta. A1 and 320, and entire shells on a concretion at Sta. VRA 18a. The latter are white, larger and of more irregular shape than the syntypes. Their right valves are extremely thin and fragile, and some of them are fixed to the substratum by the greater part of their outer surface.

## Occurrence in Suriname

Drill holes. — Combé, Paramaribo: 14.00-15.50 m below surface, Vaillant plein, Paramaribo: 12.00-13.50 m below surface (IJzerman); Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface, Zorg en Hoop: 36.00 m and ca. 75 m below surface (d'Audretsch); Coronie 35 (41): 15.75-21.70 m below surface; Alliance 28 (44): 15.00 and 16.25 m below surface.

Shell ridges. — Clay dug out of canal near Hertenrits (3); near Cupido (4); Indjikondre, km 134 (6); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); clay dug from a canal near Jarikaba (19); Jodenkerkhof (23, Schepman); Munderweg, Cultuurtuin and Charlesburgerweg (24); Zorg en Hoop (25); Blauwgrond (26).

Washed ashore. — Mouth of Corantijn River (51); sea-dike near Nieuw Nickerie (52); Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Warappa Creek (81); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); between Bigisanti and Tijgerbank (88-92).



Dredged off the coast. — Stations A1 (off Coronie District), 320 (6°47'N 55°36'W, USNM); (8-) 17½-26 fms. — VRA 18a (N of mouth Copename River); depth unknown.

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham).

#### OSTREIDAE

#### **Crassostrea** spec.

Schepman, 1887: 161, 167 (*Ostrea parasitica*).

Kappler, 1887: 205 (*Ostrea parasitica*).

Vernhout, 1914: 39 (*Ostrea parasitica*).

IJzerman, 1931: 37 (*Ostrea* cf. *frons*).

Graham, 1955: pl. 3 fig. 2, 3, 4 (*Ostrea* sp.).

Durand, 1960: 35 (*Ostrea brasiliensis*).

Ranson, 1967: 45, fig. 15 (*Cr. guyanensis*); 51, fig. 19 (*Cr. lacerata*).

Geijskes, 1968: 146 (*Cr. rhizophorae*).

Altena, 1968: 156, 175, 176 (*Cr. rhizophorae*); 1969a: 7, 10, 14, 18, 19, 23, 26, 31, 33, 42, 44 (*Cr. rhizophorae*); 1969b: 177 (*Cr. rhizophorae*).

In 1968 I recorded all *Crassostrea*'s under the name of *Cr. rhizophorae* (Guilding, 1828), although I found it a very variable species. When I did so again in 1969, I added, having just read the publication of Ranson (1967), that I would re-study the Suriname *Crassostrea*'s. I wrote to Mr. Ranson asking him when he would publish the descriptions of new and preoccupied species. He answered me (in lit. 29.VII.1969) that he had retired now and no longer occupied himself with the study, indeed, a greatly disappointing reply.

I had considered *Cr. rhizophorae* to consist of four forms which, however, pass one into the other; form 1 was *Cr. guyanensis* Ranson (nomen nudum), form 4 *Cr. lacerata* (Hanley) (preoccupied by *Ostrea lacerata* Goldfuss, 1833). I could not unravel this question, being no specialist in the very difficult Ostreidae. So I will use the name *Crassostrea* to cover three taxa, i.e. *Cr. guyanensis* Ranson, *Cr. lacerata* (Hanley) and *Crassostrea* spec.

Concerning the first "species" we know of but one exact locality where it was found alive and an indication that it may live near the mouth of the Corantijn River. The second species is found washed ashore everywhere, living in the estuaries and presumably at a little distance from the coast to at least 16 fms, at one locality at 28 fms. From *Crassostrea* spec. we have large but somewhat worn specimens from the ridge near Cupido and washed ashore at some localities, especially near the Corantijn River. Further we have specimens which could be *Cr. lacerata*, but which are worn.

***Crassostrea guyanensis* Ranson (pl. 3 figs. 1-4)**

Ranson, 1967: 45, fig. 15 (nomen nudum).

?Graham, 1955: pl. 3 fig. 2 (*Ostrea* spec.).

Occurrence in Suriname

Found alive. — Suriname (Dieperink); Paramaribo (van Heurn); near Paramaribo, leiding 5 (W. A. Collier).

Washed ashore. — Nickerie (without further locality); mouth of Corantijn River (51).

Occurrence in the other Guianas

Dredged off the coast. — ? Guyana (Graham).

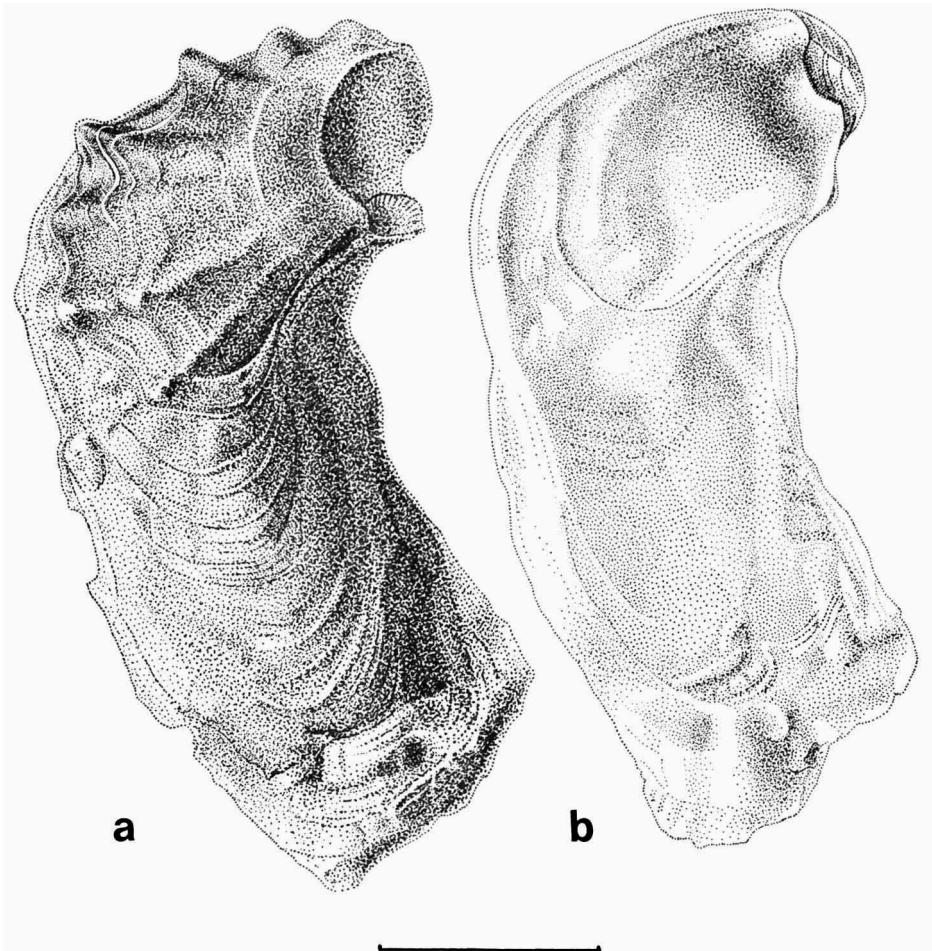


Fig. 10. *Crassostrea lacerata* (Hanley) (nomen praecoccupatum); washed ashore near Galibi, III 1963, Dr. C. O. van Regteren Altena coll. a: outer side right valve; b: inner side left valve. Scale: 10 mm. J. J. M. Vreeburg del.

**Crassostrea lacerata** (Hanley) (textfig. 10, pl. 2 fig. 5)

Hanley, 1846: 106 (*O. lacerata*, Senegal?, nomen praeoccupatum).

Graham, 1955: pl. 3 fig. 3, 4.

Ranson, 1967: 51, fig. 19.

## Occurrence in Suriname

Shell ridges. — Post Groningen (15, Schepman); Jodenkerkhof (23, Schepman); Anna Catharina (34, Schepman).

Living on the coast (!) and washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); eastern bank of Nickerie River (54); ± 15 km E of Nieuw Nickerie; Totness (59); jetty of ferry on Coppename River (60,!); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); jetty at Leonsberg (71,!); Toevlucht (74); on net poles in the mouth of the Suriname River off Braampunt (!) and Braampunt (80); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Galibi (93).

Living near the coast. — On buoy 7 km off the coast at the mouth of the Corantijn River (R); on the hull of the lightship (L).

Dredged off the coast. — Stations A2 (NNW Coppename, 20 miles off the coast), D1 (NE of lightship), E6 (N of Suriname River, 20 miles off the coast), F1 (N of Suriname River, 20 miles off the coast), 1 (6°22'N 55°06'W, USNM), 2 (6°23'N 55°05.5'W, USNM), 15 (6°24.5'N 54°59.5'W, USNM), 49 (6°04'N 54°51'W, USNM), 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc), 360 (6°19'-6°20'N 55°15'-55°14'W, USNM), VRA 11a (off 30-45 miles E of the lightship) from *Turritella variegata* (L.) and *Bursa spadicea* (Montfort); (6-) 8-28 fms. — VRA 18a (N of mouth Coppename River) from concretion; depth unknown.

## Occurrence in the other Guianas

Living on the coast. — Guyana (Graham); beach at Seawall, Georgetown, Guyana (RNHL); French Guiana? (Durand); environment of Cayenne, French Guiana (RNHL).

**Crassostrea** spec.

Drill holes. — Hole V6-312 (42): 4.80-6.00 m below surface.

Shell ridges. — Near Cupido (4); Bethania 228 (north of 14); Groningen near football ground, on concretion (15); clay dug from canal near Jarikaba (19); Vierde Rijweg (20); Blauwgrond (26).

Washed ashore. — Mouth of Corantijn River (51); eastern bank of Nickerie River (54); near Matapica Canal (84, one valve more than 17 cm high).

Dredged off the coast. — VRA 5 (off the Suriname coast) two valves about 10 cm high, *Crassostrea virginica* (Gmelin) ?; depth unknown.

**Ostrea** spec. (fig. 11)

Altena, 1968: 156.

Drill holes. — Coronie 35 (41): 15.75-18.70 below surface; Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Suriname (shell ridges?); Munderweg (24).

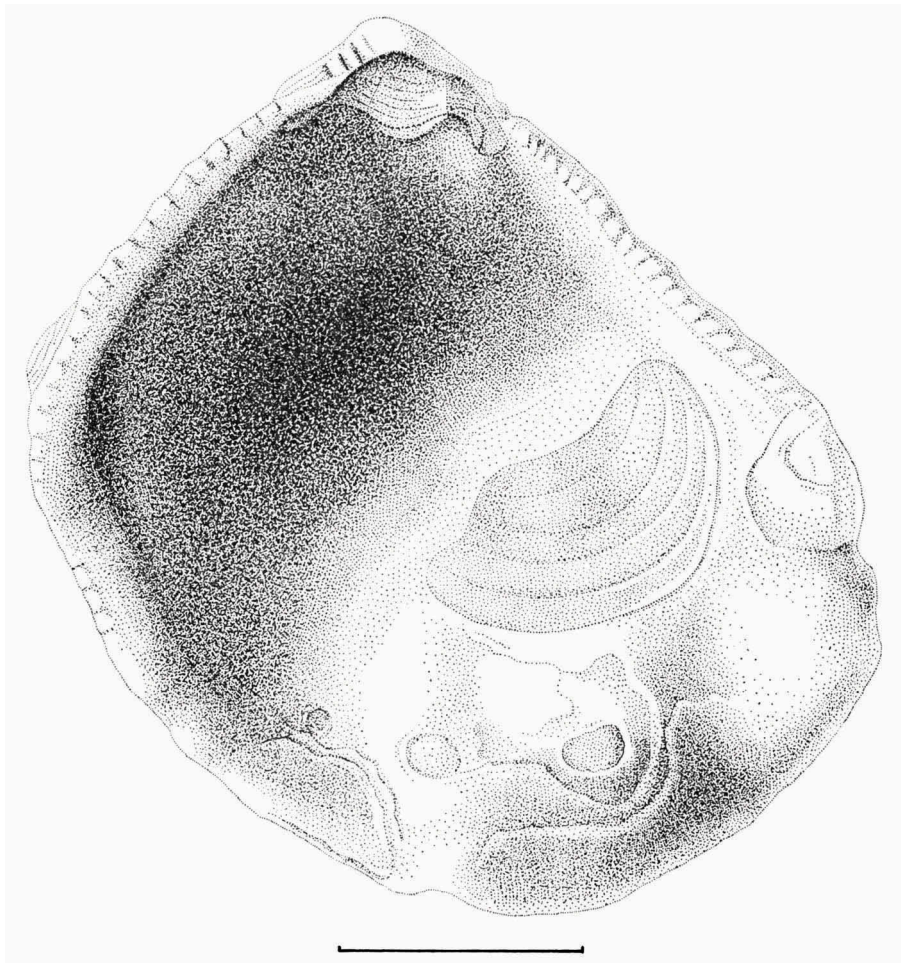


Fig. 11. *Ostrea* spec.; Suriname, exact locality unknown, probably from a shell ridge, no date; inner side right valve. Scale: 5 mm. J. J. M. Vreeburg del.

## Subclassis Heterodonta

## Ordo Veneroida

## LUCINIDAE

**Lucina (Lucina) pectinata** (Gmelin) (pl. 4 figs. 9, 10)

Gmelin, 1791: 3236 (*Tellina p.*, no locality).

Lamy, 1920: 173 (*Phacoides jamaicensis*).

Altana, 1968: 158, 175; 1969a: 33.

This species is known only from two localities in the shell ridges, but not from the beach or off the coast.

Occurrence in Suriname

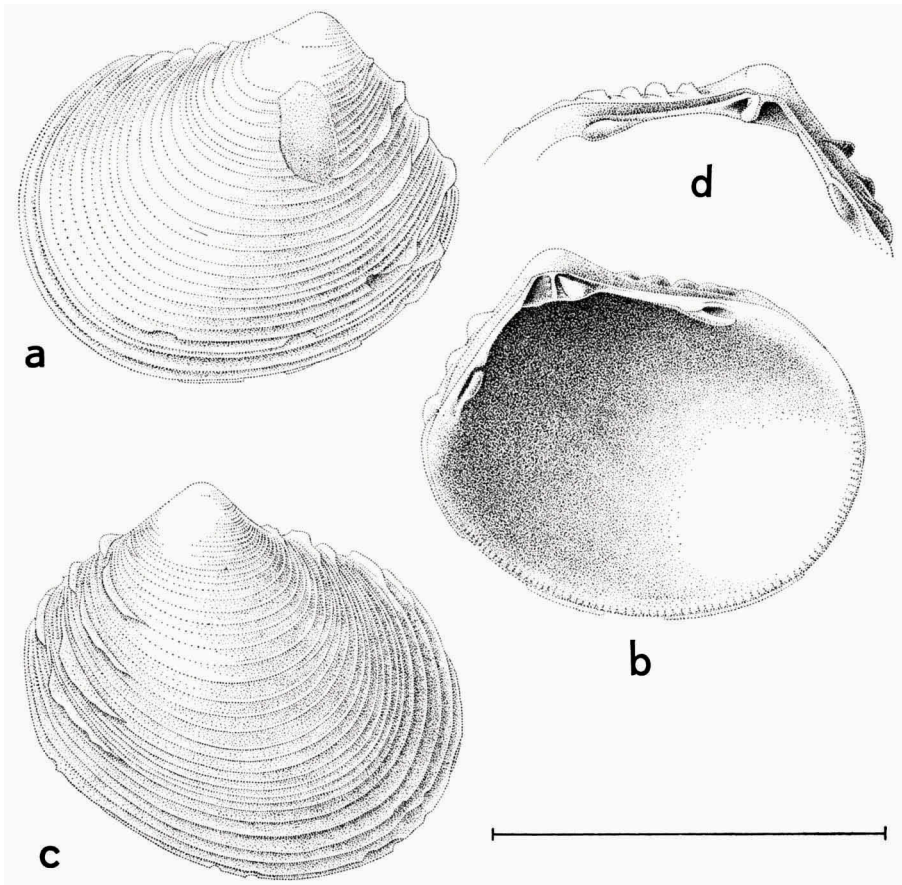


Fig. 12. *Parvilucina (Microloripes) clenchi* (Altana), holotype. a: outer side, b: inner side of right valve; c: outer side, d: hinge of left valve. Scale: 1 mm. W. Bergmans del.

Shell ridges. — Near Cupido (4); Bethania 228 (north of 14).

Occurrence in the other Guianas

Washed ashore or dredged off the coast. — Cayenne, French Guiana (Lamy).

**Lucina (Lucinisca) muricata** (Spengler) (pl. 9 figs. 1, 2)

Spengler, 1798: 120 (*Tellina m.*, Lagveira i Vestindien).

Weisbord, 1964; 223, pl. 29 figs. 9-14 (with list of references).

Altena, 1968: 158; 1969b: 178.

This is an uncommon species in the ridges as well as on the coast.

Occurrence in Suriname

Drill holes. — Alliance 28 (44): 15.00 m below surface.

Shell ridges. — Munderweg and Charlesburgerweg (24); Blauwgrond (26); Constantia (32).

Washed ashore. — Camping site 11/12 VI 1959 (64); near Popogaimama Creek (65); near Matapica Canal (84); Bigisanti (88).

Dredged off the coast. — Stations 1 ( $6^{\circ}22'N$   $55^{\circ}06'W$ , USNM), 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) on tubes of *Diopatra cuprea* (Bosc); 11-14 fms.

**Parvilucina (Microloripes) clenchi** (Altena) (fig. 12)

Altena, 1968: 169, 153, 158, fig. 150 (*Lucina clenchi*, off the Suriname coast).

From this species we have one empty shell and some valves from a few localities dredged by the Coquette.

Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) on tubes of *Diopatra cuprea* (Bosc); 11-20 fms. — VRA 5 (off the Suriname coast) on a shell of *Murex brevifrons* Lamarck; depth unknown.

UNGULINIDAE

**Timothyus rehderi** (Altena) (fig. 13)

Altena, 1968: 167, 153, 158, 168, fig. 149 (*Diplodonta r.*,  $6^{\circ}49'-6^{\circ}47'N$ ,  $55^{\circ}21'-55^{\circ}18'W$ ).

One shell was dredged by the Coquette.

Occurrence in Suriname

Dredged off the coast. — Station 337 ( $6^{\circ}49'-6^{\circ}47'N$   $55^{\circ}21'-55^{\circ}18'W$ , USNM); (27-29) fms.

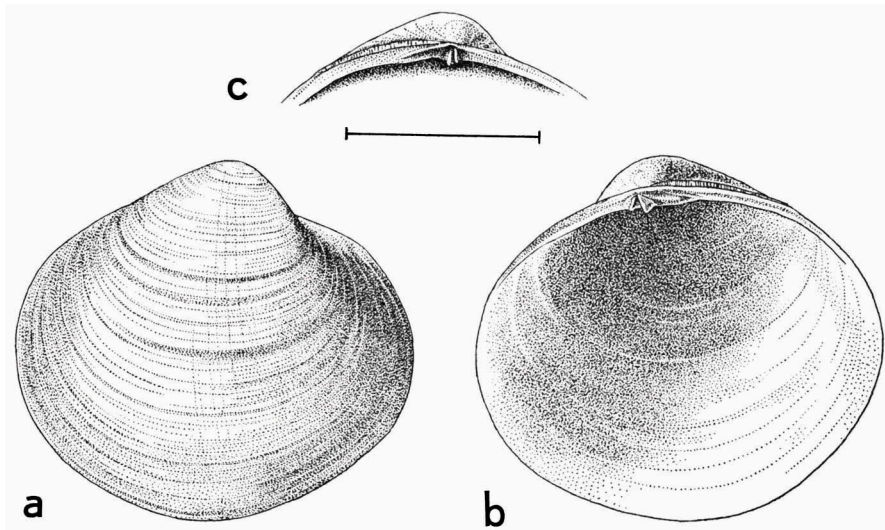


Fig. 13. *Timothynus rehderi* (Altena); holotype (USNM). a: outer side, b: inner side of right valve; c: hinge of left valve. Scale: 5 mm. W. Bergmans del.

#### CYRENOIDIDAE

##### **Cyrenoida floridana** (Dall) (fig. 14)

Dall, 1896: 52 (*Cyrenoidca fl.*, from Brunswick, Georgia, south to the Everglades on the east and on the west, north to Charlotte Harbor and vicinity); 1901: 817, pl. 42 fig. 7.

Pilsbry, 1919: 221, pl. 11 fig. 9 (*Cyrenoidca guatemalensis*, Livingstone, Guatemala).

Altena, 1968: 157, 176.

The type of *C. floridana* corresponds with the specimens from Suriname in every taxonomic character. *C. guatemalensis* was described by Pilsbry from one specimen. The only point of difference from the holotype, which I could examine in the ANSP, is: "the interior has numerous small solid lumps". The present Suriname specimens also possess blisters interiorly and I think that their presence is caused by some outward influence in all. So I presume that *C. guatemalensis* is only a synonym of *C. floridana*.

Occurrence in Suriname.

Washed ashore. — Totness (59); Combé (73); Tijgerbank (92).

#### CHAMIDAE

##### **Arcinella arcinella** (L.) (fig. 15)

Linnaeus, 1767: 1139 (*Chama A.*, in *O. Americano*).

Nicol, 1952: 805, fig. 2, pl. 119 fig. 6 (*Echinochama a. a.*).

Durand, 1960: 34, 35 (*Chama a.*).

Altena, 1968: 157; 1969a: 42.

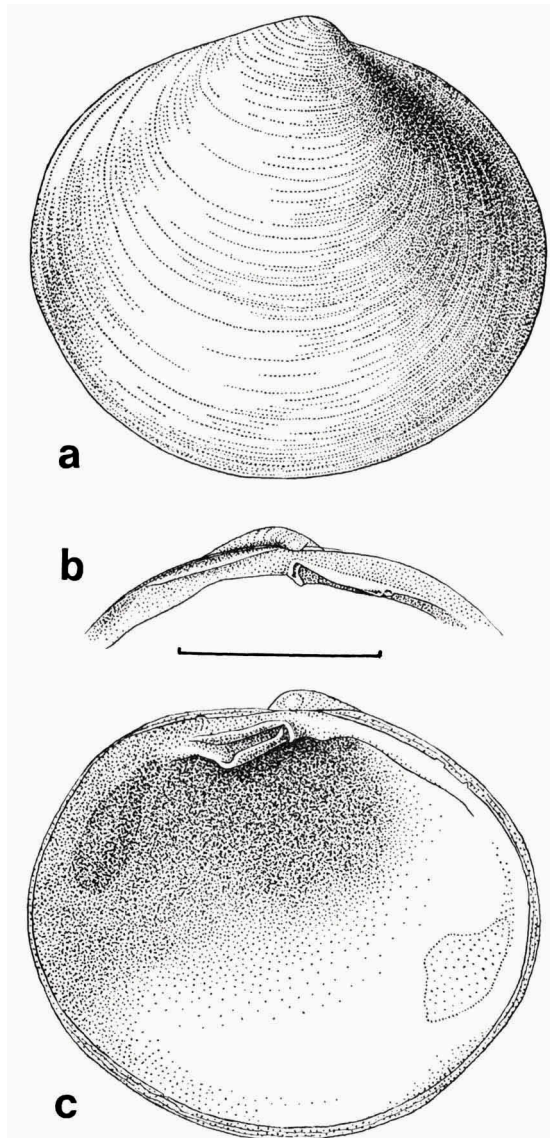


Fig. 14. *Cyrenoida floridana* (Dall); Combé near Paramaribo, XI 1955, Dr. W. A. Collier coll. a: outer side of right valve; b: hinge of left valve; c: inner side of right valve. Scale: 2 mm. W. Bergmans del.

The nepionic left valve from Sta. "2" corresponds with the nepionic shell from the rather juvenile specimen from Sta. E6, which is fixed on a *Polystira*. Probably the Suriname specimens belong to the subspecies *A. arcinella arcinella* (L.).



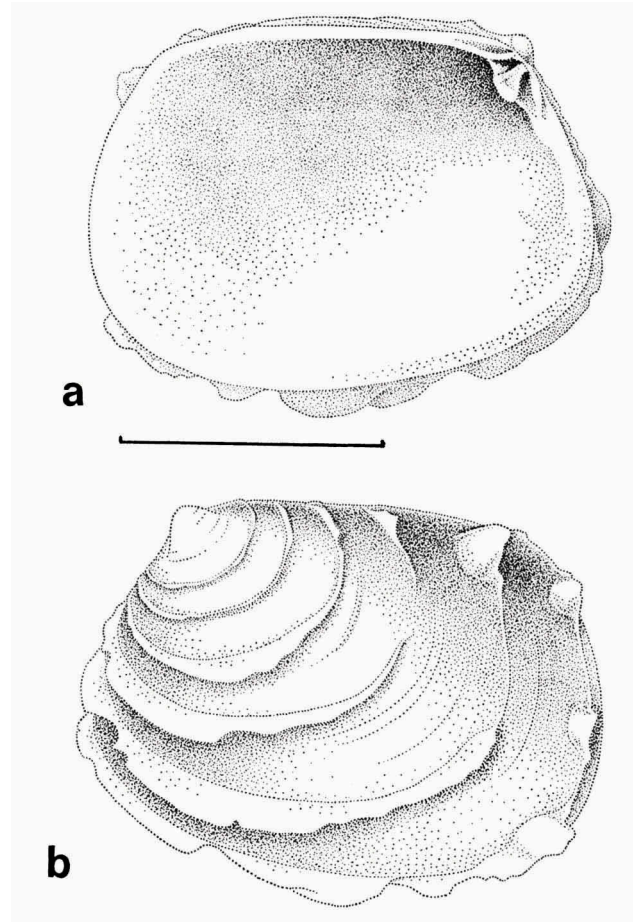


Fig. 15. *Arcinella arcinella* (L.); "Coquette", Station "2". a: inner side, b: outer side left valve of nepionic shell. Scale: 1 mm. W. Bergmans del.

#### Occurrence in Suriname

Dredged off the coast. — Stations E6 (N of Suriname River, 20 miles off the coast), "2" (off the Suriname coast, nepionic shell), "14" (off the Suriname coast); 15-23 fms. — VRA 5 (off the Suriname coast); depth unknown.

#### Occurrence in the other Guianas

Dredged off the coast. — West off the coast of Demerara, Guyana, 40 fms. (RNHL); French Guiana (Durand).

**Chama** spec. (pl. 4 figs. 5, 6)

Altena, 1968: 157.

The shore specimens are worn, those from off the coast were partly alive. They are fixed at shells and a concretion but are too young to determine, although some resemble *Ch. macerophylla* Gmelin juv. All of them have crenulated internal margins.

## Occurrence in Suriname

Washed ashore. — Sea shore mouth of Suriname River (80).

Dredged off the coast. — Stations 287 (6°52'N 55°50'W, *Ch. macerophylla* Gm.?, USNM), VRA 11 (off 3 miles E to 6 miles W of lightship), VRA 17 (N of lightship, *Ch. macerophylla* Gm.?): 17-26 fms. — VRA 18a (N of mouth of Coppename River); depth unknown.

**Pseudochama radians** (Lamarck) (pl. 4 figs. 7, 8)

Lamarck, 1819: 96 (*Chama r.*, l'Océan des grandes Indes?).

Weisbord, 1964: 243, pl. 33 figs. 5, 6, pl. 34 figs. 1-6 (with list of references).

Altena, 1968: 157, 175.

One valve has the label "Jhr. W. C. van Heurn, Suriname 1911" and the other valve was found on the grounds surrounding the Suriname Museum, which were paved with sand of a shell ridge.

## Occurrence in Suriname

Shell ridges. — Zorg en Hoop (25, supplied from a shell ridge).

Shell ridges or washed ashore. — Suriname.

## KELLIIDAE

**Kellia suborbicularis** (Montagu)

Montagu, 1803: 39 (*Mya S.*, Plymouth, in hard lime-stone thrown upon the beach; dredged up in Salcomb-bay).

Altena, 1968: 158.

The specimens from Suriname are very thin, transparent and have a little protruding top. They are scarcely different from specimens in the Jeffreys collection (USNM).

## Occurrence in Suriname

Dredged off the coast. — Stations VRA 11 (off 3 miles E to 6 miles W of lightship), VRA 17 (N of lightship); 17(-18) fms. — VRA 5 (off the Suriname coast), VRA 18a (N of mouth of Coppename River); depth unknown.

## MONTACUTIDAE

**Pythinella cuneata** (Verrill & Bush)

Verrill & Bush, 1898: 782, pl. 91 fig. 4, pl. 93 fig. 5 (*Montacuta c.*, off Cape Hatteras, North Carolina).

Altana, 1968: 158 (*Rochefortia c.*).

This identification is confirmed by G. Hampson (Woods Hole Oceanographic Institution). The two specimens from Suriname are young and shorter in proportion to the height than the type specimen (USNM). They were found in the shell of a species of Turridae.

Occurrence in Suriname

Dredged off the coast. — Station "2" (off the Suriname coast); 23 fms.

## CRASSATELLIDAE

**Eucrassatella (Hybolophus) antillarum** (Reeve)

Reeve, 1842: 44 (*Crassatella A.*, ad insulam Margaritta, Antillarum); 1843: sp. 8, pl. 2 fig. 8 (*Crassatella A.*).

Weisbord, 1964: 194, pl. 25 figs. 9, 10 (with list of references).

Altana, 1968: 160 (*Crassatella a.*).

The specimens agree with the holotype in the BM.

Occurrence in Suriname

Dredged off the coast. — Stations A1 (off Coronie District), C1 (NNW Coppename); (5-23) fms.

**Crassinella guadelupensis** (d'Orbigny) (fig. 16)

d'Orbigny, 1841-1853: pl. 27 figs. 24-26 (*Crassatella G.*, 1842); 2: 289 (*Crassatella g.*; de Cuba, de la Guadeloupe, de Saint Domingue et de Saint Thomas, 1853).

C. B. Adams, 1845: 9 (*Thetis parva*, Jamaica).

Clench & Turner, 1950: 322, pl. 44 figs. 5, 6 (*Thetis parva*).

Lamy, 1917: 245 (*Crassatella parva*).

Altana, 1968: 160 (*Crassatella g.*).

The specimens agree with the syntypes in the BM.

Occurrence in Suriname

Drill holes. — Coronie 35 (41): 15.75-18.70 m below surface.

Shell ridges. — Munderweg (24).

Washed ashore. — Near Popogaimama Creek (65); near Matapica Canal (84); Bigisanti (88).

Dredged off the coast. — Stations E2 (NNW of Marowijne River, 30 miles off the coast), E3 (NNW of Marowijne River, ca. 30 miles off the coast), 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc), "2" (off the Suriname coast), VRA 17 (N of lightship); 11-23 fms.

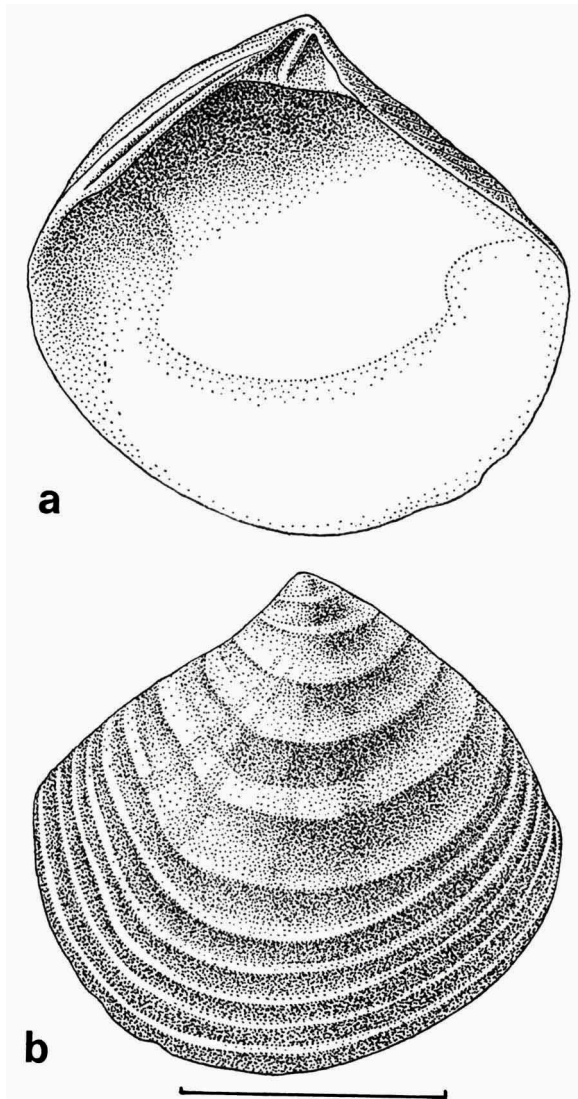


Fig. 16. *Crassinella guadelupensis* (d'Orbigny); "sand of Matapica Canal", 1956, Dr. W. A. Collier coll. a: inner side, b: outer side of left valve. Scale: 2 mm. W. Bergmans del.

**Crassinella** spec. (fig. 17)

McLean, 1951: 52, pl. 10 fig. 8 (*Cr. martinicensis*).

Altena, 1968: 160 (*Crassatella* sp.).

The two syntypes of *Crassatella martinicensis* d'Orbigny which I saw in the BM were not well preserved, but they did not agree with my speci-

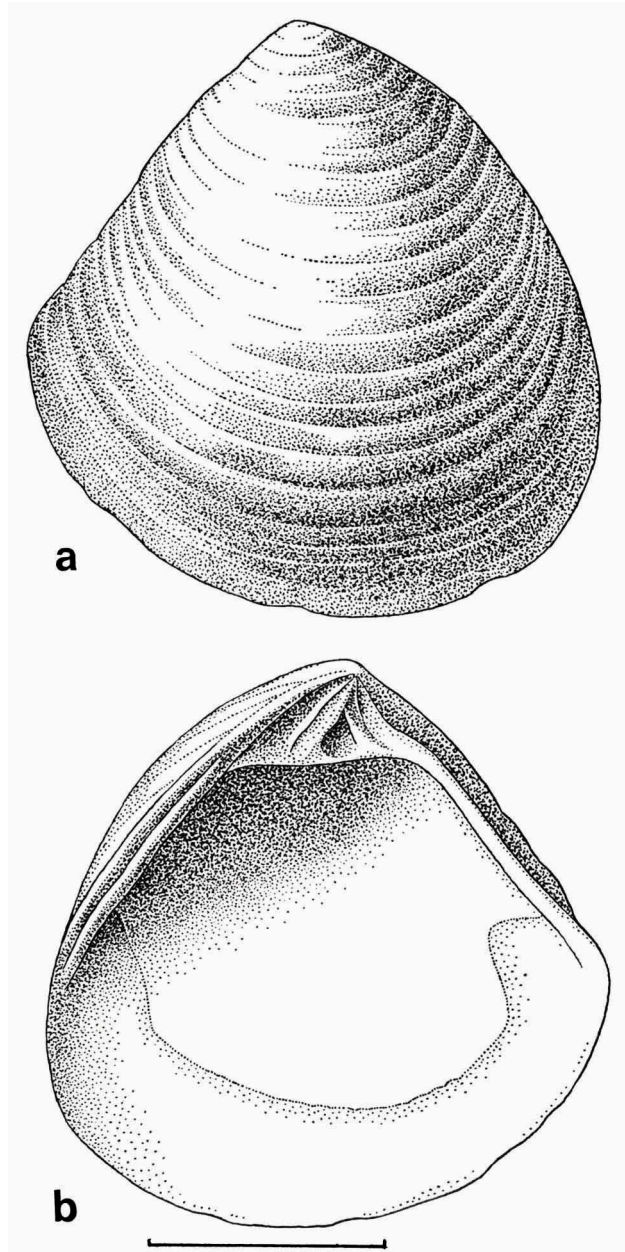


Fig. 17 a, b. *Crassinella* spec.; from shell ridge, Munderweg, Paramaribo, 1956, Dr. W. A. Collier coll.; a: outer side, b: inner side of left valve. Scale: 2 mm. W. Bergmans del.

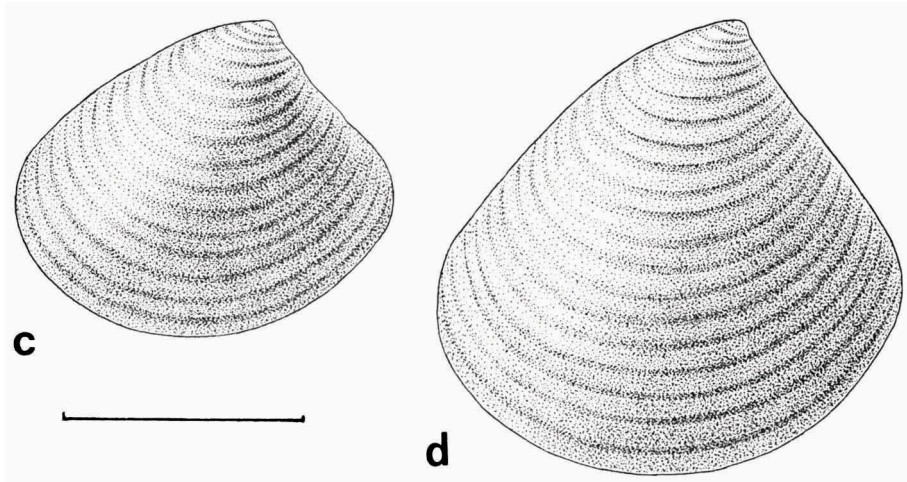


Fig. 17 c, d. *Crassinella* spec.; washed ashore near Matapica Canal, no date, Dr. D. C. Geijskes coll., outer side of right valves to show variation. Scale: 2 mm. W. Bergmans del.

mens. In the figures (d'Orbigny, 1841-1853: Atlas, pl. 27 figs. 21-23, 1842) the concentric lamellae are shown to have interspaces at least as broad as the lamellae. The figure of McLean, on the other hand, fully agrees with some of my specimens. Here the lamellae are broader, the lower margin being not as clear as the upper.

My specimens probably belong to one variable species, as some figures may illustrate. I have found no record of this form in the literature on Recent Mollusca but refrain from describing it as new, because there are many fossil species in America, some of which more or less resembling the present specimens. A study of the holotypes will be necessary before a thorough review of the *Crassinella*'s can be given.

Occurrence in Suriname

Shell ridges. — Munderweg (24); Blauwgrond (26).

Washed ashore. — Near Kat Creek (82); near Matapica Canal (84).

Dredged off the coast. — VRA 11 (off 3 miles E to 6 miles W of lightship); (17-18) fms.

#### CARDIIDAE

### **Trachycardium (Trachycardium) isocardia (L.)**

Linnaeus, 1758: 679 (*Cardium I.*, no locality).

Clench & Smith, 1944: 3, pl. 2.

Durand, 1960: 35 (*Laevicardium i.*).

Weisbord, 1964: 253, pl. 35 fig. 9?, pl. 36 fig. 1? (with list of references).

Altena, 1968: 160; 1969a: 43.

## Occurrence in Suriname

Dredged off the coast. — Stations B<sub>1</sub> (NW of mouth Marowijne River), C<sub>1</sub> (NNW off Coppename), E<sub>2</sub> (NNW of Marowijne River, 30 miles off the coast), E<sub>6</sub> (N of Suriname River, 20 miles off the coast), VRA 11a (off 30-45 miles E of lightship); (5-) 8-20 (-23) fms.

**Trachycardium (Dallocardia) muricatum** (L.) (pl. 4 figs. 11, 12)

Linnaeus, 1758: 680 (*Cardium m.*, ad sinum Campechiensem).

Schepman, 1887: 160 (*Cardium m.*).

IJzerman, 1931: 36, 45 (*Cardium m.*).

Clench & Smith, 1944: 7, pls. 1, 5.

Weisbord, 1964: 250, pl. 35 figs. 1-8 (with list of references).

Altana, 1968: 160; 1969a: 17, 19, 20; 1969b: 178.

Rather common in the shell ridges and ashore.

Drill holes. — Combé, Paramaribo: 12.00-13.50 m below surface (IJzerman); Coronie 35 (41): 15.75-18.70 m below surface; Alliance 28 (44): 15.00 m and 16.00 m below surface.

Shell ridges. — Indjikondre, km 134 (6); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen behind football ground (15); Vierde Rijweg (20); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); near Box Creek (57); Totness (59); Coppename Point (62); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); beach near mouth of Suriname River (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Tijger Bank (92).

Dredged off the coast. — Stations A<sub>1</sub> (off Coronie District), B<sub>1</sub> (NNW of mouth Marowijne River), E<sub>6</sub> (N of Suriname River, 20 miles off the coast), F<sub>1</sub> (N of Suriname River, 20 miles off the coast), 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc), VRA 20 (off ca. 5 miles NW of lightship); (8-) 11-20 fms.

**Trigoniocardia (Americardia) media** (L.)

Linnaeus, 1758: 678 (*Cardium medium*, in *O. indico*).

Clench & Smith, 1944: 21, pl. 11 figs. 1, 2.

Weisbord, 1964: 262, pl. 36 figs. 7-12 (with list of references).

Altana, 1968: 160.

The specimens are a little narrower in relation to their height than nearly all the specimens I saw from other countries.

Occurrence in Suriname

Dredged off the coast. — Stations 277 ( $6^{\circ}42.5'N$   $55^{\circ}31.5'W$ ), "7" (off the Suriname coast); 24 fms.

Occurrence in the other Guianas

Dredged off the coast. — West off the coast of Demerara, Guyana (RNHL).

**Trigoniocardia (Trigoniocardia) antillarum** (d'Orbigny) (pl. 9 figs. 3, 4)

d'Orbigny, 1841-1853: Atlas, pl. 27 figs. 53-55 (*Cardium A.*, 1842); 2: 309 (*Cardium a.*, sable de Cuba, de la Guadeloupe, de la Martinique et de la Jamaïque, 1853).

Dall, 1886: 269, pl. 4 fig. 6 (*Cardium ceramidum*).

Clench & Smith, 1944: 20, pl. 11 figs. 5, 6 (*Tr. ceramidum*).

Abbott, 1958: 123.

Altena, 1968: 160.

In the BM I found several valves of *Cardium antillarum* d'Orbigny from Martinique with which my specimens agree; the latter are, however, much larger. They also agree with the syntypes of *Cardium ceramidum* Dall, USNM no. 54319.

Occurrence in Suriname

Shell ridges. — Munderweg and Charlesburgerweg (24); Jagtlust (28).

Washed ashore. — Near Kat Creek (82); near Matapica Canal (84); Bigisanti (88).

Dredged off the coast. — Stations 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) from tubes of *Diopatra cuprea* (Bosc), VRA 11 (off 3 miles E to 6 miles W of light-ship); 11-17 (-18) fms.

**Nemocardium (Microcardium) tinctum** (Dall)

Dall, 1881: 133 (*Cardium peramabilis* var. *t.*); 1886: 270 (*Cardium peramabilis* var. *t.*, near Barbados and off Frederikstadt, Santa Cruz).

Clench & Smith 1944: 30, pl. 13 figs. 3, 4, (*Microcardium t.*).

Altena 1968: 160 (*Microcardium t.*).

My specimens agree with the specimens of *Cardium tinctum* Dall in the collection of the USNM, but I have not found its holotype.

Occurrence in Suriname

Dredged off the coast. — Station E6 (N of Suriname River, 20 miles off the coast); 15 fms.

**Laevicardium laevigatum** (L.)

Linnaeus, 1758: 680 (*Cardium l.*, locality unknown).

Clench & Smith, 1944: 22, pl. 12 figs. 1-5.

Altena, 1968: 160.



This species is dredged a few times by the Coquette.

Occurrence in Suriname

Dredged off the coast. — Stations AI (off Coronie District), 209 (6°41'N 54°33' W), "14" (off the Suriname coast); (8-)17½-23 fms.

#### MACTRIDAE

##### **Mulinia cleryana** (d'Orbigny) (pl. 4 figs. 13-15)

d'Orbigny, 1835-1846: 510 (*Macra C.*, environs de Rio de Janeiro, Brésil).

Schepman, 1887: 157, 164 (*Macra Portoricensis*).

IJzerman, 1931: 36 (*Macra guadelupensis*).

d'Audretsch, 1953: 239 (*Macra portoricensis*).

Graham, 1955: pl. 3 fig. 5 (*Spisula truncata*).

Weisbord, 1964: 382, pl. 55 figs. 3-6 (with list of references).

Altana, 1968: 159, 175, 177; 1969a: 17, 18, 20, 21, 24, 30, 33, 34, 44; 1969b: 178.

The specimens from Suriname are much more solid, especially at the hinge, and also larger (up to 3.5 cm), but for the rest they agree with the type in the BM. They also agree with the type of *Mulinia branneri* Dall in the USNM, no. 107829. It is a very common species in the shell ridges and also washed ashore. Some entire shells were dug up near Jarikaba; we found also some entire shells washed ashore.

Occurrence in Suriname

Drill holes. — Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw-Amsterdam: 16.50 m below surface (d'Audretsch); Coronie 35 (41): 6.30-9.60 below surface; Alliance 28 (44): 15.00 m and 16.00 m below surface.

Shell ridges. — Nickerie (Schepman); Stalweide (1); clay dug from canal near Hertenrits (3); near Cupido (4); Coronie (Schepman); Indjikondre, km 134 (6); Saramacca district, km 59.5 (between 11 and 12); Bethanie 228 (north of 14); Post Groningen (Schepman) and Groningen behind football ground (15); Kwattaweg, km 20 (between 17 and 18); clay dug from a canal near Jarikaba (19); Jodenkerkhof (23, Schepman); Munderweg (24); Blauwgrond (26); Constantia (32).

Washed ashore. — Papegaai Island, Corantijn River; near mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); eastern bank of Nickerie River (54); near Kweriman Creek (56); ± 15 km E of Nieuw Nickerie; Coronie district (no exact locality); Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Kro-fajapassie (86).

Dredged off the coast. — Station 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc); 11 fms.

## Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); Seawall beach, Georgetown, Guyana (RNHL); environment of Cayenne, French Guiana (RNHL).

**Mactra (Mactra) petitii** d'Orbigny (pl. 4 figs. 16, 17)

d'Orbigny, 1835-1846: 509, pl. 77 figs. 23, 24 (Rio de Janeiro, Brésil).

Dall, 1894: 26, 28 (*M. richmondi*, Greytown, Nicaragua); 1902: 510, pl. 31 fig. 6 (*M. richmondi*).

Altena, 1968: 159 (*M. petitii*), 170 (*M. richmondi*).

My specimens agree with the holotype of *Mactra petitii* in the BM and with the holotype of *M. richmondi* in USNM, no. 124774. This is a fairly rare shell, both in the shell ridges and washed ashore.

## Occurrence in Suriname

Shell ridges. — Coronieweg, picket 216 (8); Coronieweg, ridge near Coppename River (east of 8); Saramacca ridge (no exact locality); Charlesburgerweg (24).

Washed ashore. — Near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

See for "*Mactra (Spisula) tellinoides*", Schepman, 1887: Altena, 1969a: 18.

**Mactra (Micromactra) surinamensis** Altena (fig. 18)

Altena, 1968: 172, 159, fig. 151, 152 (Suriname); 1969b: 178 (*M. spec.*).

This is an uncommon species as well in the ridges as washed ashore.

## Occurrence in Suriname

Drill holes. — Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Munderweg and Charlesburg (24).

Washed ashore. — Suriname (holotype, Bolten leg., RNHL); Totness (59); Saramacca district (no exact locality); Coppename point (62); near Popogaimama Creek (65); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station 2 (6°23'N 55°05.5'W, USNM); 15 fms.

**Mactra (Mactrotoma) fragilis** Gmelin

Gmelin, 1791: 3261 (ad insulas Nicobaricas).

Altena, 1968: 159.

From Jhr. W. C. van Heurn we have received one valve from "Suriname", which can be from the shell ridges as well as washed ashore. The "Coquette" provided us with two valves.

## Occurrence in Suriname

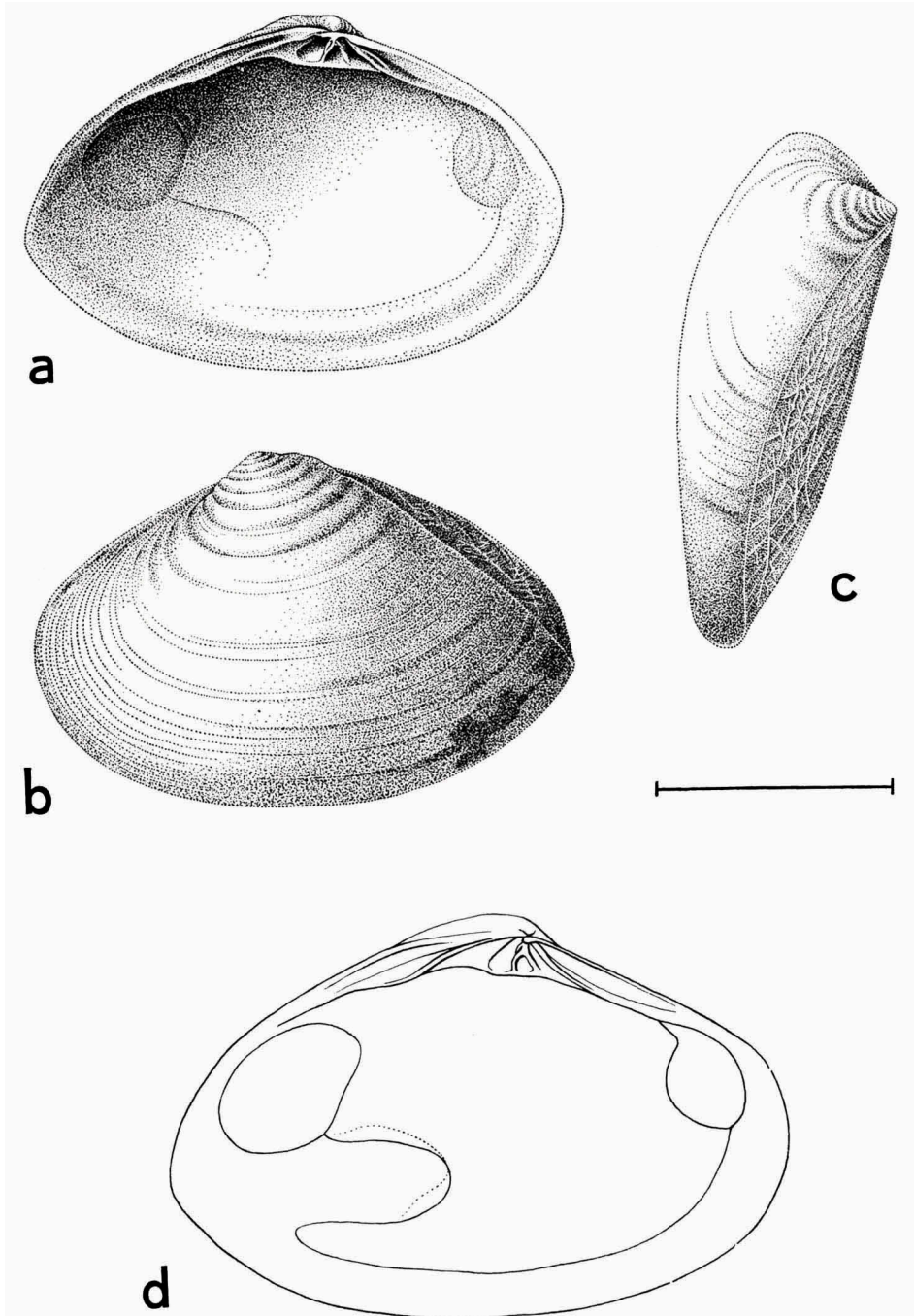


Fig. 18. *Mactra (Micromactra) surinamensis* Altena. a-c: holotype. a: inner side, b: outer side, c: dorso-posterior side left valve. d: from ridge near Coronieweg, km 117-118, III 1963, Dr. C. O. van Regteren Altena coll., sketch of inner side left valve. Scale: 10 mm. W. Bergmans del.

Shell ridges or washed ashore. — Suriname.

Dredged off the coast. — Station A1 (off Coronie District); (8-17½) fms.

**Mactrellona iheringi** (Dall) (pl. 5 figs. 1-3)

Dall, 1897: 123 (*Mactrella i.*, Bahia); 1902: 510, pl. 32 fig. 8 (*Mactrella i.*).

Weisbord, 1964: 381, pl. 55 figs. 1, 2 (*Mactra i.*, with list of references).

Altena, 1968: 159, 178 (*Mactra i.*); 1969a: 31 (*Mactra i.*).

The specimens from Suriname agree with the holotype of *Mactrella iheringi* Dall in the USNM, no. 107632. Locally this is fairly commonly washed ashore, but we have it only from one locality in the shell ridges.

Occurrence in Suriname

Shell ridges. — Vierde Rijweg (20).

Washed ashore. — Toniholo (67); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Lubin Bank (91); Tijger Bank (92).

Dredged off the coast. — Stations A2 (NNW Coppename, 20 miles off the coast), E6 (N of Suriname River, 20 miles off the coast), 2 (6°23'N 55°05.5'W, USNM), 44 (6°18.5'N 54°51'W, USNM), 159 (6°22'N 55°02.5' W, USNM), 184 (6°21'N 54°59'W), 360 (6°19'-6°20'N 55°15'-55°14'W, USNM); 10-15 fms.

**Raeta (Raeta) plicatella** (Lamarck) (pl. 5 figs. 4-6)

Lamarck, 1818: 470 (*Lutraria pl.*, probablement l'Océan Indien).

Weisbord, 1964: 385, ? pl. 55 figs. 7, 8 (*Labiosa pl.*, with list of references).

Altena, 1968: 159 (*Labiosa pl.*).

Harry, 1969: 12, figs. 1-3, 11-13 (upper fig.).

This is a rare species as well in the ridges as washed ashore.

Occurrence in Suriname

Shell ridges. — Vierde Rijweg (20); Charlesburg (24).

Washed ashore. — Near Popogaimama Creek (65); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations A1 (off Coronie District), E6 (N of Suriname River, 20 miles off the coast); (8-)15 (-17½) fms.

SOLENIIDAE

**Solen rosewateri** Altena (fig. 19)

Altena, 1971: 77, pl. 2 figs. 1-3 (06°09.4'N 54°02.8'W), textfig. 2a, b.

There are two specimens washed ashore collected by D. J. Green & R. H. Hill and fragments from Station 197.

Occurrence in Suriname

Washed ashore. — Krofajapassie to  $9\frac{1}{2}$  km E ( $86-87\frac{1}{2}$ ).

Dredged off the coast. — Station 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) fragments, from tubes of *Diopatra cuprea* (Bosc); 11 fms.

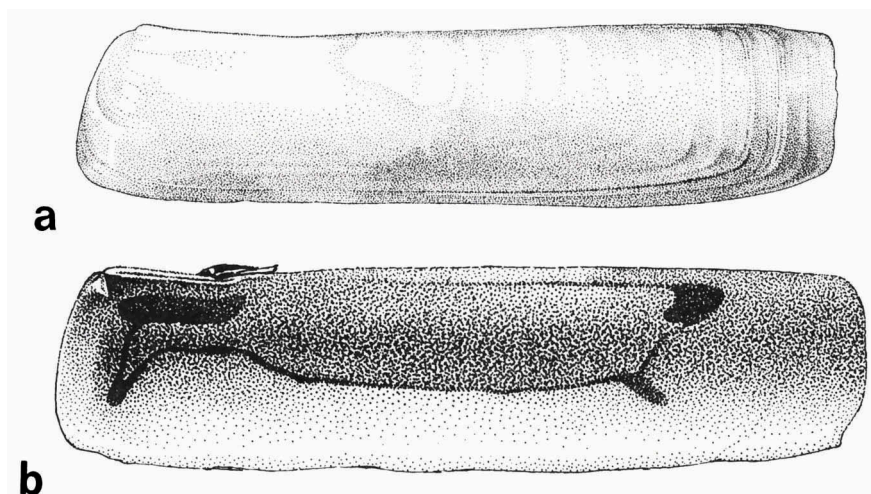


Fig. 19. *Solen rosewateri* Altena. a: Krofajapassie to  $9\frac{1}{2}$  km E, 1969, D. J. Green & R. H. Hill leg., outer side left valve; b: O.C.P.S. Expedition II, Station N 78, IV 1969, inner side right valve. W. C. G. Gertenaar del.

#### TELLINIDAE

##### **Tellina (Phyllodina) persica** Dall & Simpson

Dall & Simpson, 1901: 479, pl. 55 fig. 1 (Mayaguez Harbor, Porto Rico).

Boss, 1966: 256, pl. 136 fig. 2, pl. 137 fig. 2.

Altena, 1968: 159.

One valve, which agrees with the type, no. 159991, in the USNM.

Occurrence in Suriname

Dredged off the coast. — Station E3 (NNW of Marowijne River, ca. 30 miles off the coast); 20 fms. and less.

##### **Tellina (Lyratellina) juttingae** (Altena)

Altena, 1965: 52, fig. 1 (*Lyratellina j.*, N. of the mouth of the Suriname River, 20 miles off the coast); 1968: 159.

Boss, 1966: 265, pl. 139 fig. 2, pl. 140 figs. 1, 2.

Besides the types there is a juvenile valve from Sta. 197.

Occurrence in Suriname

Dredged off the coast. — Stations E6 (N of Suriname River, 20 miles off the coast), 197 ( $6^{\circ}22.5'N$   $55^{\circ}10'W$ ) from tubes of *Diopatra cuprea* (Bosc); 11-15 fms.

**Tellina (Eurytellina) punicea** Born (pl. 9 figs. 7, 8)

Born, 1778: 22; 1780: 33, pl. 2 fig. 8 (Patria Ignota).

Weisbord, 1964: 335, pl. 48 figs. 14?, 15?; pl. 49 figs. 1, 2 (with list of references).

Boss, 1968: 274, pl. 143 fig. 2, pl. 144 fig. 2, pl. 150 fig. 3.

Altena, 1968: 159; 1969a: 18.

This is a rare species in Suriname, which has been sometimes confused with the following species.

## Occurrence in Suriname

Shell ridges. — Coronieweg (no exact locality); Coronieweg, picket 216 (8); Bethania 228 (north of 14).

Washed ashore. — Near Matapica Canal (84).

**Tellina (Eurytellina) trinitatis** (Tomlin) (pl. 9 figs. 5, 6)

Schepman, 1887: 158 (*T. punicea*).

Tomlin, 1929: 310 (*Eurytellina tr.*, Colon Harbour).

Altena, 1968: 159; 1969a: 30 (*trinitatis*), 18.

Boss, 1968: 279, pl. 145 figs. 1, 2, pl. 149 fig. 5.

Differs from *T. punicea* in being almost smooth, by having a more backward top and in being smaller. It agrees with the holotype of *T. trinitatis* in the BM.

## Occurrence in Suriname

Shell ridges. — Near Cupido (4); Coronieweg (no exact locality); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Charlesburgerweg (24); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); Coronie beach (no exact locality, fresh looking, halfgrown, whole shells); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc); 11 fms.

**Tellina (Angulus) diantha** Boss (pl. 9 figs. 13, 14)

Graham, 1955: pl. 3 fig. 9 (*Tellina*).

Boss, 1964: 323, pl. 55 fig. 6 (Barbados, West Indies); 1968: 320, pl. 154 fig. 3, pl. 159 fig. 4.

Altena, 1968: 159; 1969a: 30, 34, 44.

A few entire shells were found near Jarikaba; more on some places on the beach. From the "Coquette" we have one valve.

## Occurrence in Suriname

Drill holes. — Coronie 35 (41): 6.30-9.60 m below surface.

Shell ridges. — Near Cupido (4); clay dug from a canal near Jarikaba (19); Lust en Rust (29).

Washed ashore. — Mouth of Corantijn River (51); eastern bank of Nickerie River (54);  $\pm$  15 km E of Nieuw Nickerie; Totness (59, paratypes); Braamspunt (80); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Wiawia coast (89); Galibi (93); between Christiaan-kondre and Langamankondre (94-95).

Dredged off the coast. — Station E6 (N of Suriname River, 20 miles off the coast); 15 fms.

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); Seawall beach, Georgetown, Guyana (RNHL).

**Strigilla gabbi** Olsson & McGinty (pl. 9 figs. 9,10)

Olsson & McGinty, 1958: 50, pl. 5 figs. 3, 3a (Colon, Panama).

Altana, 1968: 159.

Boss, 1969: 357, pl. 168 fig. 2.

Very rare in Suriname; only odd valves were found.

Occurrence in Suriname

Washed ashore. — Nickerie (Voltz, RNHL); Coronie (USNM); Krofajapassie to 9½ km E (86-87½).

**Strigilla pisiformis** (L.) (pl. 9 figs. 11, 12)

Linnaeus, 1758: 677 (*Tellina p.*, ad O. Europaei ostia fluviorum).

Weisbord, 1964: 346, pl. 50 figs. 3-8 (with list of references).

Altana, 1968: 159, 175; 1969a: 33.

Boss, 1969: 359, pl. 165 fig. 2, pl. 169 fig. 2, pl. 170 figs. 1, 2.

This species is only found in the shell ridges.

Occurrence in Suriname

Shell ridges. — Near Cupido (4); Coronieweg, picket 216 (8); Saracca district, km 59.5 (between 11 and 12); Groningen (15); Munderweg (24); Jagtlust (28).

**Macoma (Macoma) constricta** (Bruguère) (pl. 8 figs. 1-3)

Bruguère, 1792: 126 (*Solen constrictus*, coquille envoyée de Cayenne).

Lamarck, 1818: 514 (*Psammobia Cayenensis*, Cayenne).

Bertin, 1878: 340.

Schepman, 1887: 157 (*Tellina c.*).

Graham, 1955: pl. 3 fig. 10 (Large Tellen).

Durand, 1960: 35.

Altana, 1968: 159, 177; 1969a: 18, 24, 30, 34, 43, 44.

*M. constricta* is not common in the shell ridges. One complete specimen from Coronie (Schepman) is probably a Recent one. From Totness we have one specimen extracted from clay south of the Coronieweg and from Jarikaba we have several entire shells and odd valves.

Washed ashore it is a common species; we have entire shells from several places. One living specimen was dug out by Dr. L. J. Pons from soft mud on a mud bank near the end of Fernandez Road.

Occurrence in Suriname

Shell ridges. — Nickerie (Schepman); near Cupido (4); Coronie (Recent?, Schepman); dike of clay south of Totness (5); Coronieweg, km 117-118 (7); Post Groningen (15, Schepman); clay dug from a canal near Jarikaba (19).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); eastern bank of Nickerie River (54); near Kweriman Creek (56); near Box Creek (57); Totness (59); near Popogaimama Creek (65); Toniholo (67); near end of Fernandez Road (69); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Wiawia coast (89); Tijger Bank (92); Galibi (93).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); Seawall beach, Georgetown, Guyana (RNHL); environment of Cayenne, French Guiana (RNHL).

Washed ashore or dredged off the coast. — Cayenne (Lamarck, Bertin).

Dredged off the coast (?). — French Guiana (Durand).

**Macoma (Psammacoma) cleryana** (d'Orbigny) (pl. 7 figs. 6-8)

d'Orbigny, 1835-1846: 537, pl. 81 figs. 24, 25 (*Tellina Cl.*, dans la baie de Rio de Janeiro, Brésil).

?Durand, 1960: 35 (*M. (Psammocoma)* sp.).

Altena, 1968: 159; 1969a: ?43.

The specimens from Suriname agree with the type of "*Tellina Cleryana* d'Orb. — Rio de Janeiro" in the BM. It is a rare species in Suriname.

Occurrence in Suriname

Shell ridges. — Blauwgrond (26); Lust en Rust (29).

Washed ashore. — Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station A1 (off Coronie District); (8-17½) fms.

Occurrence in the other Guianas

Dredged off the coast. — ? French Guiana (Durand, or the following species?).

**Macoma (Psammacoma) tageliformis** Dall (pl. 7 figs. 9-11)

Dall, 1900: 300, 315, (Corpus Christi Bay, Texas).

?Durand, 1960: 35 (*M. (Psammocoma)* sp.).

Altena, 1968: 159; 1969a: ?43; 1969b: 178.



The specimens from Suriname agree with the type in the USNM, no. 6086. Also a rare species in Suriname.

Occurrence in Suriname

Drill holes. — Alliance 28 (44): 16.25 m below surface.

Washed ashore. — Near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station A1 (off Coronie District); (8-17½) fms.

Occurrence in the other Guianas

Dredged off the coast. — ? French Guiana (Durand, or the preceding species?).

**Macoma (Temnoconcha) brasiliana** (Dall) (pl. 7 figs. 12, 13)

Dall, 1921: 132 (*Psammacoma br.*, San Sebastian Island, off the southern coast of Brazil).

Boss & Kenk, 1964: 325-343, pls. 56-60.

Altana, 1968: 159; 1969b: 178.

The specimens from Suriname agree with the type in USNM, no. 33023. Not common.

Occurrence in Suriname

Drill holes. — Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Coronieweg (no exact locality); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Coronieweg, ridge Flu (east of 8); Bethania 228 (north of 14); Garnizoenspad (no exact locality); Cultuurtuin (24); Blauwgrond (26); Tapoeripa (33).

Washed ashore. — Toniholo (67); Braampunt (80); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Station 184 (6°21'N 54°59'W); 12 fms.

DONACIDAE

**Donax (Donax) striatus** L. (pl. 10 figs. 1-3)

Linnaeus 1767: 1127 (*D. striata*, in Europae australis Oceano).

Schepman, 1887: 158.

IJzerman, 1931: 36.

Graham, 1955: pl. 3 fig. 8 (*D. Lamarckii*).

Weisbord, 1964: 363, pl. 53 figs. 9-17 (with list of references).

Altana, 1968: 158, 177; 1969a: 18, 19, 30.

A fairly common species on the ridges and washed ashore.

Occurrence in Suriname

Shell ridges. — Nickerie (Schepman); Stalweide (1); near Cupido (4); Indjikondre, km 134 (6); Coronieweg, ridge 430 b, washing water pit (8);

Coronieweg, ridge Flu (east of 8); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); new road to Garnizoenspad, end ridge along river (16); Kwattaweg, km 20 (between 17 and 18); Derde Rijweg (21); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Anna Catharina (34, Schepman).

Washed ashore. — Papegaai-eiland in Corantijn River; mouth Corantijn River (51); Nickerie beach (52?); Totness (59); beach at the mouth of Suriname River (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Wiawia beach (89).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); Cayenne, French Guiana (RNHL).

### **Donax (Chion) denticulatus** L. (pl. 5 fig. 7, pl. 10 figs. 4, 5)

Linnaeus, 1758: 683 (*D. denticulata*, in *M. mediterraneo*).

Lamarck, 1818: 550 (*D. Caienensis*, l'Océan de la Guyane).

Bertin, 1881: 81.

Schepman, 1887: 158, 165.

IJzerman, 1931: 36.

Weisbord, 1964: 361, pl. 52 figs. 3-8 (with list of references).

Altena, 1968: 158, 177; 1969a: 16, 17, 18, 19, 30.

Fairly common in the ridges and washed ashore. The specimens from Nickerie (Schepman) are not found in the collection of the Rijksmuseum van Geologie en Mineralogie, Leiden, unless no. 31308, which lacks determination and locality labels, will prove to be *D. denticulatus* from Nickerie.

Occurrence in Suriname

Shell ridges. — Nickerie (Schepman); Stalweide (1); near Cupido (4); Indjikondre, km 134 (6); Saramaccaweg, km 59.5 (between 11 and 12); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); new road to Garnizoenspad, end ridge along the river (16); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); beach at the mouth of Suriname River (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Wiawia coast (89).

Occurrence in the other Guianas

Washed ashore. — Surroundings of Cayenne, French Guiana (RNHL).

Washed ashore or dredged off the coast. — l'Océan de la Guyane (Lamarck), Cayenne (Bertin).

**Iphigenia brasiliensis** (Lamarck) (pl. 5 figs. 8, 9)

Lamarck, 1818: 553 (first time) (*Capsa Br.*, l'Océan du Brésil).

Kappler, 1887: 294 (*Mya* sp.).

Schepman, 1887: 158.

Vernhout, 1914: 38.

Alteña, 1968: 158, 177; 1969a: 10, 18, 24, 30.

Especially in the estuaries this is a species commonly washed ashore. In the shell ridges, however, only occasionally a valve was found.

Occurrence in Suriname

Shell ridges. — Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Blauwgrond (26).

Washed ashore. — Mouth of Corantijn River (51); eastern bank of Nickerie River (54); Plantation Resolutie (78); beach east of the mouth of Suriname River (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Wiawia coast (89); Bank Lubin (91); Tijger Bank (92); Galibi (93, Vernhout); sand banks in mouth Marowijne River (living, Kappler); Christiaankondre-Langamankondre (94-95).

## PSAMMOBIIDAE

**Sanguinolaria (Psammotella) cruenta** ([Lightfoot]) (pl. 5 figs. 10-13)

[Lightfoot], 1786: 10 (*Tellina cruentae*), 58 (*Tellina cruenta*; both with reference to Knorr VI.12.1).

Gmelin, 1791: 3235 (*Tellina operculatas* [sic], India?).

Weisbord, 1964: 370, pl. 53 figs. 14-17 (*S. operculata*, with list of references).

Alteña, 1968: 159, 175 (*S. operculata*); 1969a: 33 (*S. operculata*).

I have not seen Knorr's original work issued from 1757 to 1772, but the Dutch translation from part 6 (1775) shows the species on pl. 12 fig. 1. Only four valves were found in the shell ridges.

Occurrence in Suriname

Shell ridges. — Coronieweg km 117-118 (7); Coronieweg, picket 216 (8); Paramaribo, Krepi (24).

## SEMELIDAE

**Semele cancellata** (Sowerby)

Sowerby, 1832-1841: *Amphidesma* fig. 8 (*Amphidesma cancellatum*, Antigua and St. Vincents, 1833).

Alteña, 1968: 159.

Of this species we have only one valve and one fragment.

Occurrence in Suriname

Dredged off the coast. — Stations C3 (N of Coppename-Nickerie, 20 miles off the coast), "2" (off Suriname coast); 15-23 fms.

**Semele purpurascens** (Gmelin)

Gmelin, 1791: 3288 (*Venus p.*, locality unknown).

Weisbord, 1964: 353, pl. 51 figs. 7, 8 (with list of references).

Altena, 1968: 159.

We possess two specimens from the "Coquette".

Occurrence in Suriname

Dredged off the coast. — Stations A1 (off Coronie District), "2" (off Suriname coast); (8-)17½-23 fms.

**Semelina nuculoides** (Conrad)

Conrad, 1841: 347 (*Amphidesma n.*, medial Tertiary, Wilmington, North Carolina).

Weisbord, 1964: 359, pl. 52 figs. 1, 2 (with list of references).

Altena, 1968: 159 (*Semele n.*).

Of this species we have one valve from the "Coquette" and, perhaps, one worn valve from the shell ridges.

Occurrence in Suriname

Shell ridges. — ? Blauwgrond (26).

Dredged off the coast. — Station VRA 11 (off 3 miles E to 6 miles W of lightship) on shell; (17-18) fms.

**Abra aequalis** (Say) (pl. 10 figs. 13, 14)

Say, 1822: 307 (*Amphidesma aeq.*, southern coast [of eastern U.S.A.]).

Altena, 1968: 159; 1969b: 178.

This is a rare shell in the shell ridges or washed ashore.

Occurrence in Suriname

Drill holes. — Nieuw Amsterdam, T 8/10: 8.50 below surface; Alliance 28 (44): 12.25 m below surface.

Shell ridges. — Coronieweg, picket 216 (8); Meerzorg (27).

Washed ashore. — Near Popogaimama Creek (65); Braamspunt (80); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88).

Dredged off the coast. — Station 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); 11 fms.

**Cumingia antillarum** (d'Orbigny)

d'Orbigny, 1841-1853: Atlas, pl. 25 figs. 36-38 (*Lavignon A.*, 1842); 2: 236 (*Lavignon a.*, Saint Domingue, 1853).

A. Adams, 1850: 24 (West Indies).

Altena, 1968: 159.

In the BM I could compare these two specimens with the syntypes of *Lavignon antillarum* and they agree.

Occurrence in Suriname

Dredged off the coast. — Station VRA 18a (N of mouth of Coppename River) on concretion; depth unknown.

## SOLECURTIDAE

**Tagelus plebeius** ([Lightfoot]) (pl. 6 figs. 1-3)

- [Lightfoot], 1786: 42, 101, 156 (*Solen pl.*, with on p. 42 reference to: "Lister, 421. f. 265" = Lister, 1687, f. 265).  
 Schomburgk, 1848: 545 (*Solen caribaeus*).  
 Schepman, 1887: 157 (*T. caribaeus*).  
 [J]erman, 1931: 36 (*T. gibbus*).  
 Graham, 1955: pl. 3 fig. 14 (*Tagelus* shell).  
 ?Durand, 1960: 35 (*Tagelus* sp.?).  
 Weisbord, 1964: 373, pl. 54 figs. 1-4 (with list of references).  
 Altena, 1968: 159, 177; 1969a: 18, 19, 30, 34, ?43, 44; 43 (*plebeibus*).

From the shell ridges we have not many valves, only from Jarikaba, where we found also several complete shells. Many valves and some whole shells were washed ashore.

## Occurrence in Suriname

Shell ridges. — Near Cupido (4); Coronieweg, km 117-118 (7); clay dug from a canal near Jarikaba (19); Charlesburgerweg (24); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); near Kweriman Creek (56); ± 15 km east of Nieuw Nickerie; Totness (59); Toniholo (67); Braampunt (80); near Kat Creek (82); near Warappa Creek (83); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Wiawia coast (89); Gadoholo-Lubin Bank (90-91); Tijger Bank (92).

## Occurrence in the other Guianas

Washed ashore. — Guyana (Schomburgk, Graham); beach Seawall, Georgetown, Guyana (RNHL); Cayenne, French Guiana (RNHL).

Washed ashore or dredged off the coast. — ? French Guiana (Durand).

## CORBICULIDAE

**Polymesoda aequilatera** (Deshayes) (pl. 6 figs. 4-6)

- Deshayes, 1855: 20 (*Cyrena aeq.*, Cayenne).  
 Schepman, 1887: 159, 166 (? *Cyrena ordinaria*), 160 (*Cyrena* sp.).  
 Vernhout, 1914: 38 (*Cyrena ordinaria*, *Cyrena* sp.).  
 Baker, 1930: 62.  
 Graham, 1955: pl. 3 fig. 11 (*Lucina* sp.).  
 Johnson, 1959: 442, pl. 7 fig. 6 (*Cyrena aequilateralis* [sic], lectotype in BM).  
 Altena, 1968: 157, 176; 1969a: 10, 18, 44; 24 (*P. aequivalvis*).

I found the specimens entirely corresponding with the lectotype in the BM.

Valves and whole shells, sometimes with rests of the animal, are found

along the whole coast, especially on the shore of the estuaries. In 1963 Prof. L. J. Pons dug out two live specimens from soft mud on a mud bank; this was at the end of the Fernandez road.

Occurrence in Suriname

Shell ridges. — Near Cupido (4, juv.); Post Groningen (15, Schepman).

Washed ashore. — Mouth of Corantijn River (51); Totness (59); near Popogaimama Creek (65); Toniholo (67); at the end of Fernandez road (69); bank of Suriname River near Combé (73); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½); Bigisanti (88); Wiawia coast (89); Gadoholo (90); Tijger Bank (92); Galibi (93); Langamankondre (95).

Occurrence in the other Guianas

Living ? and washed ashore. — Demerara (Baker); Guyana (Graham); beach Seawall, Georgetown, Guyana (RNHL); Cayenne (Deshayes; RNHL); French Guiana (Baker).

**Corbicula (Cyanocyclus) rotunda** Prime (fig. 20)

Prime, 1860: 80 (Surinam River, Guyana).

Clessin, 1879: 178, pl. 31 fig. 7-9 (*C. surinamica*, Südamerika, aus dem Magen eines Fisches (*Doras costatus*) genommen).

Vernhout, 1914: 38 (*C. surinamica* and *C. r.*).

Johnson, 1959: 469, pl. 8 fig. 3 (holotype).

Altena, 1968: 157, 176 (*Cyanocyclus r.*); 1969a: 10, 26, 28 (*Cyanocyclus r.*).

The valve from near the mouth of Wane Creek corresponds very well with the holotype in the MCZ, only it is somewhat larger. The type of *Corbicula surinamica* was probably destroyed during World War II; anyhow Dr. H. Janus informed me that it is no more to be found in the Stuttgart Museum.

A common species somewhat higher up the Suriname and Marowijne Rivers, valves or whole shells having been found washed ashore, sometimes alive or with rests of the animal.

Occurrence in Suriname

Washed ashore. — Toevlucht (74, many, one in wood); Thorarica (75); between Palmaneribo Creek and Makaanai Creek (76); Jodensavanne (Altena, 1969: fig. 1 nos. 8-11); Galibi (93); Christiaankondre-Langamankondre (94-95); at the mouth of Wane Creek (96); Albina (97).

Occurrence in the other Guianas

Washed ashore. — Island between island Portal and eastern bank Marowijne River, French Guiana (RNHL).

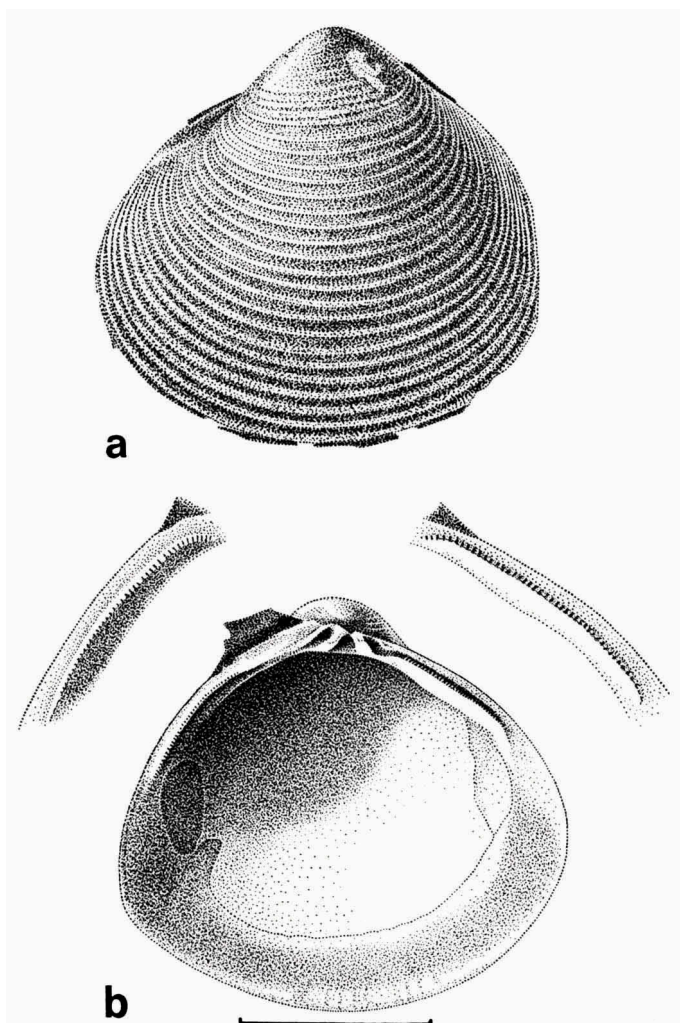


Fig. 20. *Corbula (Cyanocyclus) rotunda* Prime; washed ashore at Toevlucht, III 1963, Dr. C. O. van Regteren Altena coll. a: outer side, b: inner side of left valve (with lateral teeth enlarged). Scale: 5 mm. W. Bergmans del.

#### VENERIDAE

#### **Ventricola rigida** (Dillwyn)

Dillwyn, 1817: 164 (*Venus r.*, "Inhabits the coast of Jamaica. *Lister. Brazils. Solander. West Indies. Humphreys.*").

Weisbord, 1964: 303, pl. 43 figs. 9-11 (*Antigona r.*, with list of references).

Altena, 1968: 157.

The two valves from Station E2 are very worn and partly overgrown with barnacles, bryozoans and serpulids. In places where the concentric ribs can

be observed, there are mostly three threads between them, but at some points some more. For the rest they agree very well with good preserved specimens from Barbados. The valve from Station "2" is only 4 mm and has about ten threads between two concentric ribs. Its identification remains, therefore, very doubtful.

Occurrence in Suriname

Dredged off the coast. — Stations E2 (NNW of Marowijne River, 30 miles off the coast), "2" (? , juv., off the Suriname coast); 20-23 fms.

### **Gouldia cerina** (C. B. Adams)

C. B. Adams, 1845: 9 (*Thetis c.*, Jamaica).

Clench & Turner, 1950: 265, pl. 4 figs. 7, 8 (*Thetis c.*).

Altena, 1968: 157.

The specimens are all young (length up to 7.5 mm) and have mostly a less triangular shape than the type. I saw, however, the hundreds of valves which Miss A.-M. Testud identified for Mrs. Nijssen-Meyer and I am sure that *G. cerina* is a variable species. My specimens fall within the range of this variation.

*G. insularis* (Dall & Simpson, 1901: 487, pl. 55 fig. 2), which is smaller, has the top more to the anterior margin and has more radial sculpture.

Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), 32 (6°51'N 54°53.5'W, USNM), 320 (6°47'N 55°36'W, USNM), "2" (off the Suriname coast), VRA 11a (off 30-45 miles E of lightship); (6-) 8-28 fms. — VRA 5 (off the Suriname coast); depth unknown.

### **Tivela geijskesi** Altena (fig. 21)

Altena, 1968: 165, 153, 158, 166, 167, 175, fig. 148 (shell ridge at Munderweg, Paramaribo); 1969a: 33.

This species occurs in many ridges and is very common in some of them. At the shore and in the mouth of the Suriname River two, not very fresh, valves were found.

Occurrence in Suriname

Shell ridges. — Nickerie (1 or 2); Coronieweg, ridge 430b, washing water pit (8); Coronieweg, ridge Flu (east of 8); Groningen (15); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Meerzorg (27); Jagtlust (28); Lust en Rust (29); Belwaarde (30).

Washed ashore. — Braamspunt (80).

Dredged in the mouth of the Suriname River.



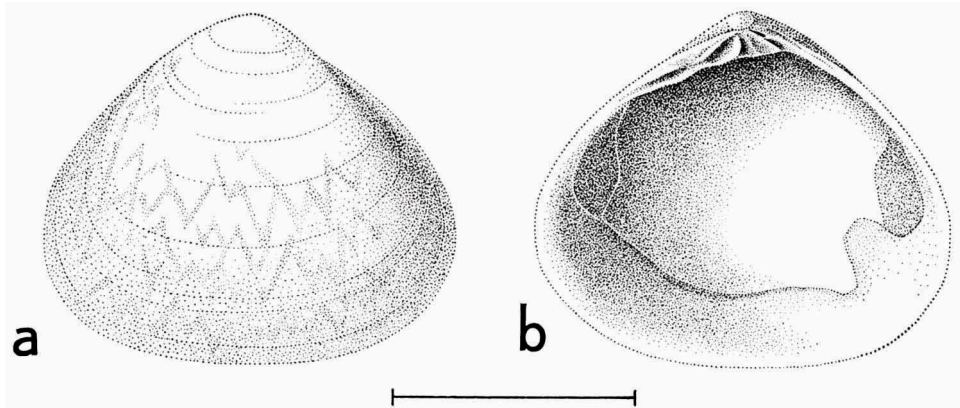


Fig. 21. *Tivela geijskesi* Altena, holotype. a: outer side, b: inner side of right valve. Scale: 5 mm. W. Bergmans del.

***Tivela mactroides* (Born) (pl. 6 figs. 7-9)**

Born, 1778: 53 (*Venus m.*); 1780: 65 (*Venus m.*, Patria ignota).

Schepman, 1887: 159, 166 (*Cytherea m.*).

IJzerman, 1931: 36 (*Meretrix m.*).

Weisbord, 1964: 276, pl. 39 figs. 7-13 (with list of references).

Altena, 1968: 157, 167, 176; 1969a: 18, 19, 30.

This is a fairly common shell in the shell ridges and at the estuaries of the Corantijn, Suriname and Marowijne River. The largest shells are from the ridges and measure about  $39 \times 41 \times 13.5$  mm.

Occurrence in Suriname

Drill holes. — Coronie 35 (41): 6.30-9.60 m below surface.

Shell ridges. — Nickerie (Schepman); Stalweide (1); Cupido (4); Indjikondre, km 134 (6); Coronieweg, km 117-118 (7); Coronieweg, picket 216 (8); Coronieweg near Coppename River (east of 8); Saramacca district, km 79 (9); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); Derde Rijkweg (21); Munderweg and Charlesburgerweg (24); Jagtlust (28); Lust en Rust (29).

Washed ashore. — Mouth of Corantijn River (51); Braamspunt (80); Krofajapassie to  $9\frac{1}{2}$  km E (86-87 $\frac{1}{2}$ ); Tijger Bank (92).

Occurrence in the other Guianas

Washed ashore. — Georgetown, Guyana (RNHL).

***Pitar (Pitar) fulminata* (Menke)**

Menke, 1828: 91 (*Cytherea f.*, non vidi); 1830: 150 (*Cytherea f.*, ad Brasiliam; ad Cabo Santo).

Altena, 1968: 158.

Two odd valves from Stations E3 and 332 are certainly this species; one from Station 332 is dubious.

Occurrence in Suriname

Dredged off the coast. — Stations E3 (NNW of Marowijne River, ca. 30 miles off the coast), 332 ( $6^{\circ}50'N$   $55^{\circ}24'W$ , USNM); 20 and less — 29 fms.

**Pitar (Lamelliconcha) circinata** (Born) (pl. 6 figs. 14, 15)

Born, 1778: 47 (*Venus c.*); 1780: 61, pl. 4 fig. 8 (*Venus c.*, Patria ignota).  
Altena, 1968: 158, 175.

We think that the only shell found on a pile at Uitkijk, was from a ridge in the Saramacca district.

Occurrence in Suriname

Shell ridges. — Saramacca district.

**Callista (Costocallista) eucymata** (Dall) (fig. 22)

Dall, 1889a: 271, pl. 13 fig. 11 (*Cytherea eu.*, from Cape Hatteras and several stations off Florida to between Mississippi delta and Cedar Key, and Cape San Roque, Brazil).  
Altena, 1968: 158.

I have compared the valve from off the Suriname coast with the type, to which it conforms.

Occurrence in Suriname

Dredged off the coast. — Station 287 ( $6^{\circ}52'N$   $55^{\circ}50'W$ , USNM); 26 fms.

**Callocardia (Agriopoma) aresta** (Dall & Simpson)

Dall & Simpson, 1901: 485, pl. 56 figs. 1, 7 (*Meretrix a.*, Mayagues Harbor, Puerto Real).  
Altena, 1968: 158.

There are living specimens dredged by the "Coquette" which are identical with the type.

Occurrence in Suriname

Dredged off the coast. — Stations E2 (NNW of Marowijne River, 30 miles off the coast), 220 ( $6^{\circ}42.5'N$   $54^{\circ}11'W$ ); 20-23 fms.

**Dosinia concentrica** (Born) (pl. 6 figs. 16, 17)

Born, 1778: 58 (*Venus c.*); 1780: 71, pl. 5 fig. 5 (*Venus c.*, "ad insulam Mauritii & Jamaicae, Lister").  
Durand, 1960: 35.  
Altena, 1968: 158; 1969a: 42.

This is a very rare shell in the shell ridges as well as washed ashore.

Occurrence in Suriname

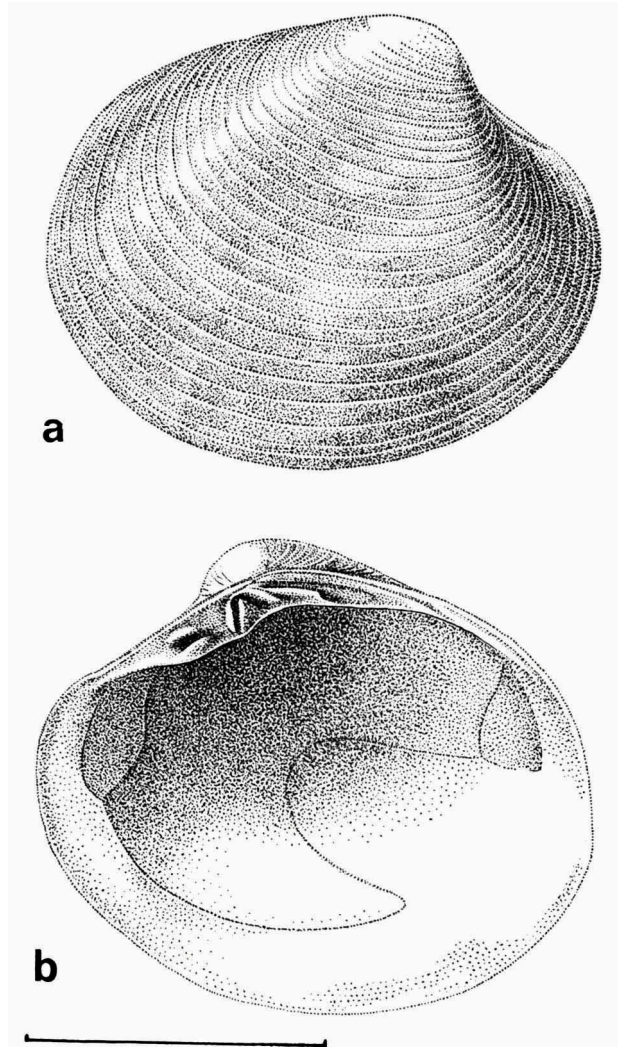


Fig. 22. *Callista (Costocallista) eucymata* (Dall); "Coquette", Station 287 (USNM).  
a: outer side, b: inner side of right valve. Scale: 10 mm. W. Bergmans del.

Shell ridges. — Coronieweg, picket 216 (8).

Washed ashore. — Krofajapassie to  $9\frac{1}{2}$  km E (86-87 $\frac{1}{2}$ ).

Dredged off the coast. — Stations A1 (off Coronie District), E2 (NNW of Marowijne River, 30 miles off the coast), E6 (N of Suriname River, 20 miles off the coast), 20 ( $6^{\circ}28'N$   $54^{\circ}57.5' W$ , USNM); (8-)15-20 fms.

Occurrence in the other Guianas

Dredged off the coast. — French Guiana (Durand).

**Cyclinella tenuis** (Recluz)

Recluz, 1852a: 250, pl. 10 figs. 1, 1' (*Dosina (Artemis) t.*, la Baie de la Pointe-à-Pitre, Guadeloupe).

Altena, 1968: 158.

Only a whole specimen (from Station 209) and a valve were dredged by the "Coquette".

## Occurrence in Suriname

Dredged off the coast. — Stations E6 (N of Suriname River, 20 miles off the coast), 209 (6°41'N 54°33'W); 15-22 fms.

**Chione (Chione) subrostrata** (Lamarck) (pl. 10 figs. 6-8)

Lamarck, 1818: 588 (? 12. *Venus cancellata* var. (2), Cayenne; 13. *Venus s.*, les mers des Antilles à l'île de St. Jean).

Schepman, 1887: 158, 165 (*Venus Portesiana*).

IJzerman, 1931: 36, 45, 48, 51 (*Venus Portesiana*).

d'Audretsch, 1953: 239, 241 (*Venus portesiana*).

Graham, 1955: pl. 3 fig. 18 (*Venus* sp.).

Durand, 1960: 35 (*Venus s.*).

Weisbord, 1964: 320, pl. 45 figs. 9-14 (with list of references).

Altena, 1968: 158, 175; 177 (*Ch. subcancellata*); 1969a: 18, 19, 20, 21, 24, 30, 33, 43, 44; 1969b: 177, 178.

This is one of the dominating species in the shell ridges and on the Suriname coast, whence came very many valves and also whole shells washed ashore. From Station E6 a whole specimen in alcohol is available.

## Occurrence in Suriname

Drill holes. — Vaillant plein, Paramaribo: 12.00-13.50 m below surface; near Nickerie: 84.80-89.60 m, 90.00-100.50 m below surface (IJzerman); Livorno: 10.00 m below surface and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw Amsterdam: 16.50 m below surface, Zorg en Hoop: ca. 75 m below surface (d'Audretsch); Coronie 35 (41): 12.75-18.70 m below surface; Alliance 28 (44): 12.25, 15.00 and 16.25 m below surface.

Shell ridges. — Nickerie (Schepman); Stalweide (1); clay dug from canal near Hertenrits (3); near Cupido (4); Coronie (Schepman); Indjikondre, km 134 (6); Coronieweg, picket 216 (8); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Blauwgrond (26); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); eastern bank of Nickerie River (54); near Kweriman Creek (56); near Tweeling Creek (58); Totness (59); Hermina flat (63); camping site 11/12 VI 1959 (64);

near Popogaimama Creek (65); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie (86); Bigisanti (88); Wiawia coast (89).

Dredged off the coast. — Stations F<sub>1</sub> (N of Suriname River, 20 miles off the coast), "I<sub>1</sub>" (off the Suriname coast); (?-) 15-24 fms.

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); beach of Seawall, Georgetown, Guyana (RNHL); environment of Cayenne, French Guiana (RNHL).

Washed ashore or dredged off the coast. — ? Cayenne (Lamarck).

Dredged off the coast. — French Guiana (Durand).

### **Chione (Chionopsis) pubera** (Bory)

Bory de St. Vincent, 1827: 152, pl. 267 figs. 4a, b (*Venus* p. Val.).

Altana, 1968: 158.

Of this species some valves were dredged by the "Coquette". There is, moreover, one valve labelled "Paramaribo, 1911, van Heurn", without further particulars.

Occurrence in Suriname

Shell ridges or washed ashore. — "Paramaribo".

Dredged off the coast. — Stations A<sub>1</sub> (off Coronie District), E<sub>2</sub> (NNW of Marowijne River, 30 miles off the coast), VRA 11a (off 30-45 miles E of lightship), VRA 17 (N of lightship); (6-)8-20 fms.

### **Chione (Lirophora) paphia** (L.)

Linnaeus, 1767: 1129 (*Venus* p., in *O. Lusitanico*).

?Durand, 1960: 35 (*Venus* (*Lirophora*) sp.).

Altana, 1968: 158 (*Ch. latilirata*); 1969a: 43 (? *Ch. latilirata*).

Once again I compared my specimens with those of *Ch. paphia* and an example of *Ch. latilirata* (Conrad) and came to the conclusion that they are all *Ch. paphia*. The smaller part before the posterior end of the broad concentric ribs may be very short, especially in young specimens. *Ch. latilirata* has, however, always much broader concentric ribs.

Occurrence in Suriname

Dredged off the coast. — Stations C<sub>1</sub> (NNW of Coppename), 287 (6°52'N 55°50'W, USNM), 309-360 (6°19'-6°55'N 55°13'-55°40'W), "2", "14" (both off the Suriname coast); (5-)23-26 (-29) fms.

Occurrence in the other Guianas

Dredged off the coast. — ? French Guiana (Durand).

**Anomalocardia brasiliana** (Gmelin) (pl. 7 figs. 4, 5)

- Gmelin, 1791: 3289 (*Venus br.*, in Brasiliae litore).  
 Schepman, 1887: 159 (*Cryptogramma flexuosa*).  
 Weisbord, 1964: 272, pl. 38 figs. 5-8 (with list of references).  
 Altena, 1968: 158; 1969a: 18.

This is a rare shell in ridges as well as washed ashore.

Occurrence in Suriname

Shell ridges. — Groningen (15); Jodenkerkhof (23, Schepman); ridge Kerkplein, 1 m depth (25).

Washed ashore. — Near Matapica Canal (84).

**Protothaca (Leukoma) pectorina** (Lamarck) (pl. 7 figs. 1-3)

- Lamarck, 1818: 589 (*Venus p.*, les mers d'Amérique?), 590 (*Venus cardioides*, à Cayenne et à la Jamaïque, sur les côtes).  
 Schepman, 1887: 159 (*Venus cardioides*).  
 IJzerman, 1931: 36 (*Venus cardioides*).  
 Graham, 1955: pl. 3 fig. 1 (*Chione staminea*).  
 Altena, 1968: 158, 176; 1969a: 18, 19, 24, 30, 34, 44.

A common shell in the shell ridges and ashore. I found a few in situ but without animals at low tide near the mouth of the Matapica Canal.

Occurrence in Suriname

Shell ridges. — Nickerie (Schepman); Stalweide (1); near Cupido (4); Indjikondre, km 134 (6); Coronie (Schepman); Coronieweg, picket 216 (8); Tambaredjo (13); Bethania 228 (north of 14); Post Groningen (Schepman) and Groningen near football ground (15); new road to Garnizoenspad, end ridge along river (16); clay dug from canal near Jarikaba (19, several entire shells); Vierde Rijkweg (20); Jodenkerkhof (23, Schepman); Munderweg and Charlesburgerweg (24); Constantia (32); Tapoeripa (33); Anna Catharina (34, Schepman).

Washed ashore. — Mouth of Corantijn River (51); sea-dike of Nieuw Nickerie (52); near Tweeling Creek (58); Totness (59); Hermina flat (63); near Popogaimama Creek (65); Toniholo (67); Braampunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie (86); Bigisanti (88); Wiawia coast (89); Tijger Bank (92); at the Marowijne coast (Schepman, two shells, probably Recent).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham); beach Seawall, Georgetown, Guyana (RNHL); Cayenne (Lamarck); environment of Cayenne (RNHL).

## PETRICOLIDAE

**Petricola (Petricolaria) pholadiformis gracilis** Deshayes

(pl. 10 figs. 11, 12)

[Lamarck, 1818: 505 (*P. ph.*, no locality)]

Deshayes, 1853a: pl. 18 figs. 9, 9a; 1853b: 214 (no locality).

Altena, 1968: 158 (*P. aff. parallela* Pilsbry & Lowe); 1971: 75, pl. 1 figs. 4-6, textfigs. 1c, d.

This new combination was described by me in 1971. This subspecies has so far been found in Suriname in two places on the coast and one in the shell ridges.

Occurrence in Suriname

Shell ridges. — Near Cupido (4).

Washed ashore. — Near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

## Ordo Myoida

## MYIDAE

**Sphenia antillensis** Dall & Simpson (pl. 10 figs. 9, 10)

Dall &amp; Simpson, 1901: 474, pl. 55 fig. 14 (Playa de Ponce, Porto Rico).

Altena, 1968: 157; 1969a: 23.

All Suriname specimens are evenly rounded off at the anterior angle and relatively less high than the type specimen. But in the series of the USNM I found specimens quite alike those of Suriname.

All were found alive on shells (VRA 11), on a concretion (VRA 18a) and between barnacles (lightship and Station 209).

Occurrence in Suriname

Living near the coast. — Lightship Suriname River (L.).

Dredged off the coast. — Stations 209 (6°41'N 54°33'W), VRA 11 (off 3 miles E to 6 miles W of lightship), VRA 17 (N of lightship); 17-22 fms. — VRA 18a (N of mouth Coppename River); depth unknown.

## CORBULIDAE

**Corbula (Corbula) caribaea** d'Orbigny (fig. 23)

d'Orbigny, 1841-1853: Atlas, pl. 27 figs. 5-8 (*C. caribaea*; 1842), figs. 9-12 (*C. lavalleana*; 1842); 2: 284 (*C. caribaea*, aux environs de la Havane, île de Cuba; *C. lavalleana*, à la Martinique, à la Guadeloupe, à la Jamaïque et à Cuba; 1853).

C. B. Adams, 1852: 236 (*C. swiftiana*, St. Thoms (T. Bland); Kingston harbor, Jamaica); 237 (*C. barrattiana*, Kingston harbor, Jamaica).

IJzerman, 1931: 36, (*C. cf. biradiata*), 45, 48, 50, 51 (*C. biradiata*).

Clench & Turner, 1950: 259, pl. 47 figs. 7, 8 (*C. barrattiana*); 347, pl. 48 figs. 1, 2 (*C. swiftiana*).

d'Audretsch, 1953: 239 (*C. obesa*).

Weisbord, 1964: 396, pl. 57 figs. 7-14 (*C. lavalleana*, with list of references).

Altena, 1968: 157; 1969a: 19, 20, 21, 44; 1969b: 178 (*C. cf. c.*).

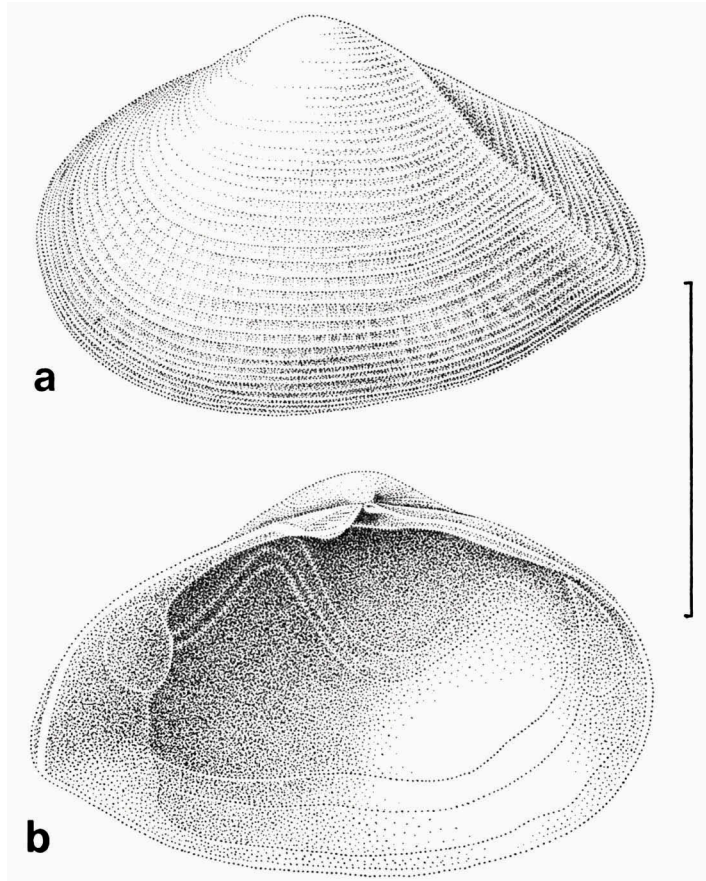


Fig. 23 a, b. *Corbula caribaea* d'Orbigny; from shell ridge, Munderweg, Paramaribo, 1956, Dr. W. A. Collier coll. a: outer side, b: inner side of left valve. Scale: 5 mm. W. Bergmans del.

Considering the multitude of specimens collected, I can not make more than one species of them, although the extremes are very different. So I consider *C. lavaleana* d'Orb., *C. barrattiana* C.B. Ads. and *C. swiftiana* C.B. Ads. as synonyms of *C. caribaea*. The specimens from some depth, brought up by the "Coquette", have a thinner shell than most of those washed ashore; they sometimes also have a delicate, more or less visible, radial sculpture.

There is one complete specimen washed ashore, from loc. 64, the others are odd valves.



Contrary to my opinion in 1969 I think that *Corbula contracta* of Graham is more like *C. aequivalvis* than *C. caribaea*.

Occurrence in Suriname

Drill holes. — Lelydorp (Colonial Railway km 17): 9.60-11.00 m below surface; near Nickerie: 12.00-27.00 m, 54.00-54.50 m, 89.60-90.00 m and 90.00-100.50 m below surface (IJzerman); Livorno: 10.00 m below surface

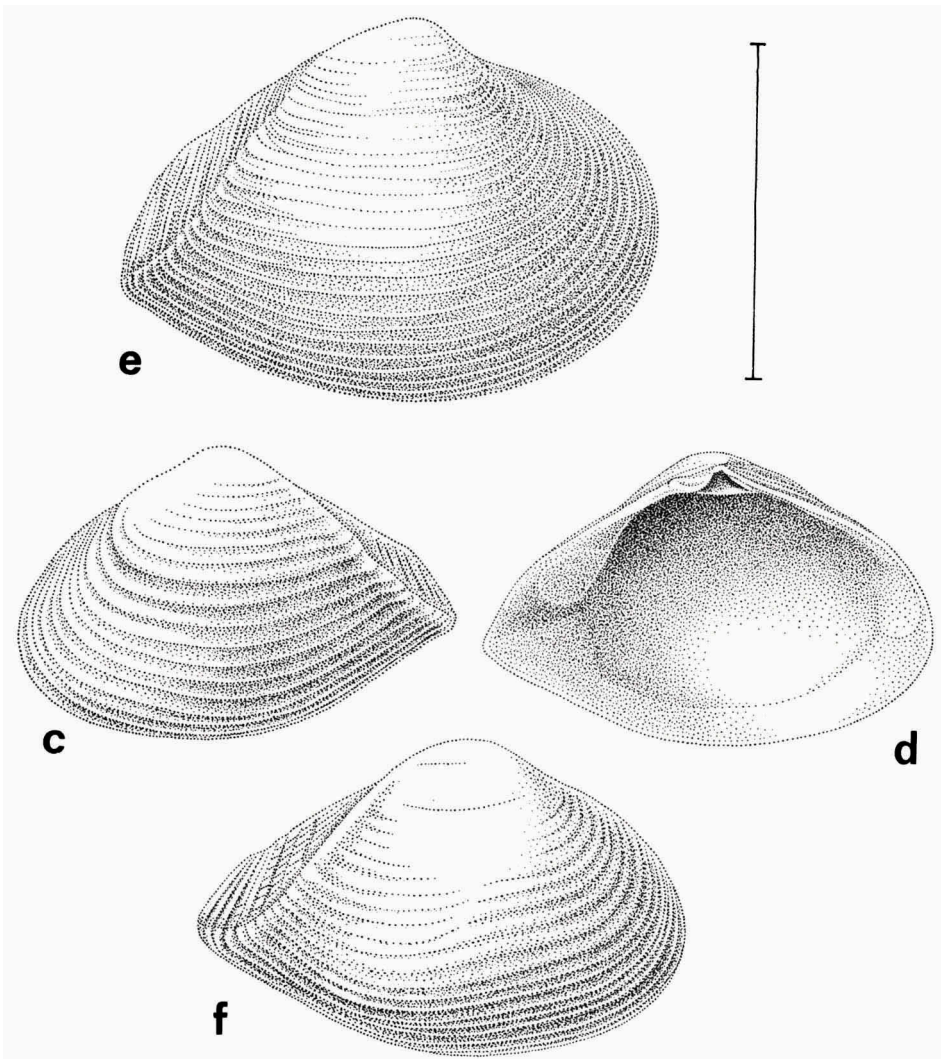


Fig. 23 c-f. *Corbula caribaea* d'Orbigny; from shell ridge, Munderweg, Paramaribo, 1956, Dr. W. A. Collier coll. c: outer side, d: inner side of left valve; e, f: outer side of right valve. Scale: 5 mm. W. Bergmans del.

and/or Zorg en Hoop: 24.00-28.50 m below surface and/or Nieuw Amsterdam: 16.50 m below surface (d'Audretsch); Coronie 35 (41): 12.70-21.70 m below surface; Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Clay dug from canal near Hertenrits (3); near Cupido (4); Coronieweg, picket 216, 217 (8); Saramacca district, km 59.5 (be-

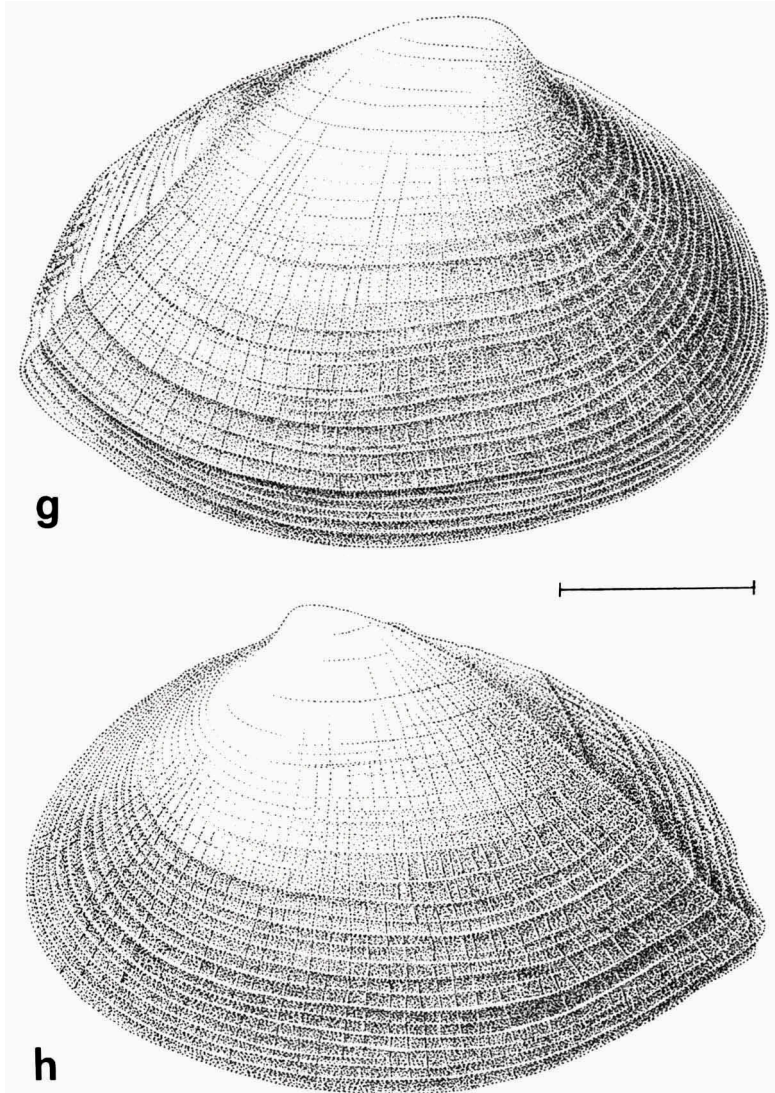


Fig. 23 g, h. *Corbula caribaea* d'Orbigny; from "Coquette" station VRA 18a, from concretion. g: outer side of right valve; h, outer side of left valve. Scale: 1 mm. W. Bergmans del.

tween 11 and 12); Saramacca district, km 50 (14); localities just N of Paramaribo (24); Blauwgrond (26); Tapoeripa (33).

Washed ashore. — Sea-dike of Nieuw Nickerie (52);  $\pm$  15 km E of Nieuw Nickerie; Totness (59); Hermina flat (63); camping site 11/12 VI 1959 (64); Toniholo (67); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie to  $9\frac{1}{2}$  km E (86-87 $\frac{1}{2}$ ); Bigisanti (88).

Dredged off the coast. — Stations E<sub>3</sub> (NNW of Marowijne River, ca. 30 miles off the coast), 197 (6°22.5'N 55°10'W) on tubes of *Diopatra cuprea* (Bosc), VRA 17 (N of lightship); 11-17 (-20) fms. — VRA 18a (N of mouth of Coppename River); depth unknown.

**Corbula (Hexacorbula) dietziana** C. B. Adams

C. B. Adams, 1852: 235 (Kingston harbor, Jamaica).

Clench & Turner, 1950: 274, pl. 47 figs. 5, 6.

Altana, 1968: 157.

One apparently living specimen was dredged; the measurements are: 13.5 × 9 × 7 mm.

Occurrence in Suriname

Dredged off the coast. — Station "1" (off the coast of Suriname); (2-24) fms.

**Corbula (Tenuicorbula) aequivalvis** Philippi (pl. 8 figs. 4, 5)

Philippi, 1836: 227, pl. 7 fig. 4a, b, c (in Mari Antillarum ad Havanam).

d'Orbigny, 1841-1853: Atlas, pl. 26 figs. 51-54 (*C. Cubaniana*; 1842); 2: 283 (*C. cubaniana*, environs de la Havane, île de Cuba; 1853).

C. B. Adams, 1852: 238-239 (*C. Knoxiana*, Kingston harbor, Jamaica).

Clench & Turner, 1950: 299, pl. 47 figs. 11, 12 (*C. Knoxiana*).

?Graham, 1955: pl. 3 fig. 17 (*C. contracta*).

Weisbord, 1964: 393, pl. 57 figs. 3-6 (with list of references).

Altana, 1968: 157.

Four of the odd valves measured, left valves: 15 × 10 × 4 mm and 12.5 × 9 × 4 mm; right valves: 13.5 × 9 × 4 mm and 12 × 9 × 3.5 mm. They are larger than the type shell (Philippi, 1836: pl. 7 figs. 4a, b, c, not 4d) and have more than 40 concentric ribs. This number far exceeds those I can discern in the type figure, but for the rest they agree. I consider *C. cubaniana* d'Orb. and *C. knoxiana* C.B. Ads. as synonyms; they have, however, also less numerous concentric ribs.

For *C. contracta* of Graham see the remark on the foregoing species.

Occurrence in Suriname

Drill holes. — Paranam (42): 10 m below surface; La Vigilantie (42): ca. 15 m below surface.

Occurrence in the other Guianas

Washed ashore. — ?Guyana (Graham); beach Seawall, Georgetown, Guyana (RNHL).

## GASTROCHAENIDAE

**Gastrochaena hians** (Gmelin)

Gmelin, 1791: 3217 (*Pholas h.*, ad insulas Americae mediae oppositas).  
 Altena, 1968: 157.

Most specimens were found alive in shells, *Murex* (VRA 5) and *Glycymeris* (VRA 11), or in a concretion (VRA 11).

## Occurrence in Suriname

Dredged off the coast. — Stations VRA 11 (off 3 miles E to 6 miles W of lightship), VRA 17 (N of lightship); 17(-18) fms. — VRA 5 (off the Suriname coast); depth unknown.

## PHOLADIDAE

**Barnea (Anchomasa) truncata** (Say) (pl. 8 figs. 6, 7)

Say, 1822: 321 (*Pholas tr.*, southern coast [off eastern U.S.A.]).  
 Turner, 1954: 27, pls. 8, 11-13.  
 Altena, 1968: 156.

On the beach, near the mouth of the Matapica Canal, Dr. D. C. Geijskes found this species several times. The specimens look quite fresh but are odd valves without dorsal plates. Found also in two other localities on the beach.

## Occurrence in Suriname

Washed ashore. — Totness (59); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

**Cyrtopleura (Scobinopholas) costata** (L.) (pl. 6 figs. 10, 11)

Linnaeus, 1758: 669 (*Pholas c.*, intra scopulos Europae australis).  
 Schepman, 1887: 156, 164 (*Pholas c.*).  
 Turner, 1954: 35, pls. 17, 18.  
 Graham, 1955: pl. 3 fig. 6 (*Pholas* sp).  
 Altena, 1968: 156, 176; 1969a: 18, 24, 44.

The largest valves reach about 8.5 cm, so they are always small, smaller than, for instance, specimens from Curaçao (over 18 cm) and Venezuela (14.2 cm). The species is rather common in Suriname and probably lives just off the coast, as we found a number of dead specimens in situ at low tide near the mouth of the Matapica Canal.

## Occurrence in Suriname

Shell ridges. — Near Cupido (4); Anna Catharina (34, Schepman).

Washed ashore. — Beach of eastern bank Nickerie River (54); Totness (59); Hermina flat (63); Toniholo (67); Braampunt (80); near Kat Creek (82); near Matapica Canal (84); Halet (85); Krofajapassie (86); Bigisanti (88); Wiawia Bank (89, USNM).

## Occurrence in the other Guianas

Washed ashore. — Guyana (Graham).

**Pholas (Thovanna) campechiensis** Gmelin (pl. 6 figs. 12, 13)

Gmelin, 1791: 3216 (in sinu Campechiensi).  
 Schepman, 1887: 156.  
 Turner, 1954: 48, pls. 24, 25.  
 Graham, 1955: pl. 3 fig. 7 (*Pholas* sp.).  
 Altena, 1968: 156, 176; 1969a: 18, 44; 1969b: 178.

Valves of this species are found along the coast looking quite fresh.

Occurrence in Suriname

Drill holes. — Alliance 28 (44): 16.25 m below surface.

Shell ridges. — Near Cupido (4); Coronieweg, km 117-118 (7); Anna Catharina (34, Schepman).

Washed ashore. — Nickerie (Voltz, RNHL); sea-dike of Nieuw Nickerie (52); eastern bank of Nickerie River (54); Totness (59); Hermina flat (63); Toniholo (67); Braamspunt (80); near Kat Creek (82); near Matapica Canal (84); Bigisanti (88, alive in driftwood on the beach).

Occurrence in the other Guianas

Washed ashore. — Guyana (Graham).

**Pholadidea (Hatasia) melanura** (Sowerby)

Sowerby, 1834: 70 (ad Montem Christi, Columbiae occidentalis).  
 Turner, 1955: 93, pl. 57 (type locality in proper sense: Montecristi, Ecuador).  
 Altena, 1968: 156.

The specimens were in a concretion dredged by the "Coquette" and are the first found in the Caribbean Sea.

Occurrence in Suriname

Dredged off the coast. — Station VRA 17 (N of lightship); 17 fms.

**Lignopholas clappi** Turner (pl. 8 figs. 10-12)

?Gonggrijp, 1923: 13, 14 (*Martesia cuneiformis* Say); 1924b: 24 (*Martesia cuneiformis* Say).  
 Spoon & Loosjes, 1946: 5, 6, 8 (*Martesia* sp.).  
 Turner, 1955: 99, pl. 60 (Bluefields, Nicaragua); 1961: 288, pl. 1 figs. 1-8.  
 Altena, 1968: 157; 1969a: 26, 28, 35.

At the USNM some specimens num. 407380 were labelled "*Martesia cuneiformis* Say/Suriname", which Dr. R. D. Turner identified as *Lignopholas clappi*. It is almost certain that these were the specimens mentioned in 1923 by Gonggrijp, although the label bears no more particulars and the number is from after Dall's time. The specimens mentioned by Spoon & Loosjes in 1946 were exposed almost at the same place.

Occurrence in Suriname

Washed ashore? and living. — Saramacca Canal, railway bridge near Beekhuizen, near Paramaribo (? Gonggrijp; ZMA, Spoon & Loosjes; Altena, 1969: fig. 1 num. 7); Plantation "Peperpot" at the Suriname River,

in "brownheart" (*Vouacapoua americana* Aubl.) beam, washed ashore? (D. C. Geijskes, II 1950; Turner, 1955, 1961).

**Martesia (Martesia) fragilis** Verrill & Bush

Verrill & Bush, 1898: 777, pl. 79 fig. 10 (in a piece of wood floating near Station 2566, 37°23' N, 68°08' W).

Turner, 1955: 111, pls. 65, 66.

Altena, 1968: 157.

These specimens are from the same log of wood as the following species and both are determined by Dr. R. D. Turner.

Occurrence in Suriname

Washed ashore. — Mouth of Corantijn River (51).

**Martesia (Martesia) striata** (L.) (pl. 8 figs. 8, 9)

Linnaeus, 1758: 669 (*Pholas striatus*, intra scopulos maritimos Europae australis).

Lamy, 1926: 194.

Turner, 1955: 103, pls. 35, 61-64.

Weisbord, 1964: 403, pl. 58 figs. 1-3 (with list of references).

Altena, 1968: 157.

Probably spread over the coast of Suriname, but as we have incomplete specimens from the shell ridges near Cupido (4) and from the coast near Nickerie (probably 53), Totness (59), Hermina flat (63), Braampunt (80), near Kat Creek (82), near the mouth of Matapica Canal (84) and Krofajapassie to 9½ km E (86-87½), we are not sure whether they belong to this or the preceding, more rare, species. The only complete specimens are those labelled "Suriname" and some originating from the log mentioned under the previous species.

Occurrence in Suriname

Washed ashore. — Suriname (1911, van Heurn); mouth of Corantijn River (51).

Occurrence in the other Guianas

Washed ashore or dredged off the coast. — French Guiana (Lamy).

**Diplothyra smithii** Tryon

Tryon, 1862: 450, text-fig. (Totenville, Staten Island).

Turner, 1954: pl. 2; 1955: 118, pls. 69-71.

Altena, 1968: 157.

The specimens here mentioned are identified by Dr. R. D. Turner.

Occurrence in Suriname

Washed ashore. — Coast at Coppename point (62, from *Melongena melongena* (L.)).

Dredged off the coast. — Stations 179 (6°18.5'N 55°51.5'W, USNM), VRA 11 (off 3 miles E to 6 miles W of lightship) in concretion; 14-17(-18) fms. — VRA 5 (off the coast of Suriname) in oyster; depth unknown.

## TEREDINIDAE

**Neoterodo reynei** (Bartsch)

- ?Schomburgk, 1848: 545 (*Teredo navalis*).  
 ?Kappeler, 1887: 204 (*Teredo fatalis*, in salt and brackish water).  
 Bartsch, 1920: 69 (*Teredo r.*, Paramaribo, Dutch Guiana).  
 Reyne, 1921?: 30, 31 (new species, sluices at Beekhuizen).  
 Gonggrijp, 1921a: 7 (*Teredo r.*); 1921b: 2 (*Teredo r.*), 2, 3, 4, 5, fig.; 1923: 14, 15  
 (*Teredo r.*), 7, 16, 18, 21, 30, 31, figs. 1, 4, 18, 18c, 19; 1924a: 9 (*Teredo r.*), 5, 15;  
 1924b: 23 (*Teredo r.*), 25; 1932: 24, 26.  
 Kempees & Gonggrijp, 1922: 623, 624.  
 ?Graham, 1955: pl. 3 fig. 19 (*Teredo* sp.).  
 Turner, 1966: 119, 23, 40, 43, 46, 59, 75, 261, figs. 6A, 8A, 13A-C, pl. 32C.  
 Altena, 1968: 157, 176; 1969a: 9, 23, 26, 28, 35.

Probably a common species along the estuaries of Suriname.

Occurrence in Suriname

Shell ridges. — ? Near Cupido (4, fragments of tubes unto 10 cm long and 1.7 cm broad).

Living. — Beach of eastern bank Nickerie River (54); on wreck of the "Goslar" (riddled with tubes; Altena, 1969, fig. 1 num. 6); sluice at Beekhuizen (Reyne and others; Altena, 1969, fig. 1 num. 7); Paramaribo, in wood-ponds Bruynzeel Concern, 1965; Braamspunt (80, from wood).

Occurrence in the other Guianas

Living on the coast or washed ashore. — ? Guyana (Schomburgk, Graham).

**Psiloteredo healdi** (Bartsch)

- Gonggrijp, 1924a: 9 (footnote, *Neoterodo reynici*).  
 Bartsch, 1931: 2, pl. 1 figs. 1-5 (*Teredo h.*, from piling at Cabinas, about 20 miles SE of Maracaibo, Venezuela).  
 Turner, 1966: 104, 28, 29, 40, 52, 76, 261, fig. 9A, pl. 33A.  
 Altena, 1968: 157, 176; 1969a: 26, 28.

The specimens were identified by Dr. R. D. Turner.

Occurrence in Suriname

Living. — Near Toevlucht (74, in wood; Altena, 1969, fig. 1 num. 8); Jodensavanne (in wood; Altena, 1969, fig. 1 num. 11).

**Bankia campanellata** Moll & Roch

- Moll & Roch, 1931: 215, pl. 25 fig. 43 (new name for *Teredo campanulata* "Desh" Sow., non Jeffreys, locality unknown).  
 Turner, 1966: 92, 32, 41, 54, 80, 259, 261, fig. 24E e, pls. 47, 48 A, B.

Identified by Dr. R. D. Turner.

Occurrence in Suriname

Washed ashore. — Mouth of Corantijn River (51, in wood).

**Bankia carinata** (Gray)

Gray, 1827: 411 (*Teredo c.*, Sumatra).

Turner, 1966: 93, 34, 54, 56, 59, 68, 80, 258, 259, 260, figs. 22, 24C c, pls. 34B, 42D?, 44B, 44D?, 45, 46, 48C, 52B.

Altena, 1968: 157.

We have some shells and two pallets.

Occurrence in Suriname

Washed ashore. — Near Matapica Canal (84, in wood).

## Subclassis Anomalodesmata

## Ordo Pholadomyida

## LYONSIIDAE

**Anticorbula sinuosa** (Morrison) (pl. 10 figs. 15, 16)

Morrison, 1943: 49, pl. 8 (*Guianadesma sinuosum*, from rocks in the midstream of the Cuyuni River, opposite Kartabo Point, near its junction with the Mazaroni River, Essequibo District, British Guiana).

Spoon & Loosjes, 1946: 5 (*Saxicava* sp.).

Altena, 1968: 156, 176; 1969a: 26, 28, 29, 43.

Pilsbry (1944: 147) synonymized both *Anticorbula* Dall and *Guianadesma* Morrison with *Ostomya* Conrad, a genus belonging to the Corbulidae. During my stay in Washington in 1963, Morrison told me that he agrees with Pilsbry that *Anticorbula* is an earlier name for *Guianadesma*, but considers *Ostomya* to be different. Moreover, Morrison maintains that *Anticorbula* belongs to the Lyonsiidae. After having studied the available evidence I fully agree with Morrison. Pilsbry (1944: fig. 1) figured the hinge of "*Ostomya fluviatilis* (H. Ad.)", which is the type of *Himella* H. Adams, 1860, non Dallas, 1854, for which Dall created the name *Anticorbula*. The hinge of Morrison's species matches that figured by Pilsbry and is clearly lyonsiid. On the other hand the hinge of *Ostomya papyria* Conrad (1874: 30, pl. 1 fig. 6), the type of the genus by monotypy, appears from the figure to be different and corbulid of nature.

Mr. J. F. Peake looked for me for the type of this species in the BM, but without success. I received on loan some specimens from the Charles M. Wheatly collection in the Museum of Natural Sciences of Philadelphia, with the locality Rio or River Maroñon three times very clearly written on the three labels. But still I doubt this locality. The specimens from Suriname are longer on the anterior side and become larger, but there are specimens which are so much like *A. fluviatilis* that it could be the same species. I am, however, retaining for the moment *A. sinuosa*.

Fresh shells, and even some living specimens, were found washed ashore



at some localities along the Suriname River and the Marowijne River. Live specimens were found attached by their byssus in empty boring holes in wood made by teredinids.

Occurrence in Suriname

Living (!) and washed ashore. — Saramacca Canal at the railway bridge at Beekhuizen (ZMA, Spoon & Loosjes); "Paramaribo, 1952" (Collier leg., RNHL); Suriname River near Toevlucht (74, !, in empty tubes of teredinids in wood); Thorarica (75); Jodensavanne (Altena, 1969: fig. 1 numbers 7, 8, 9, 11); Wiawia Bank (89, USNM); Galibi (93); between Christiaan-kondre and Langamankondre (95-96, !).

Occurrence in the other Guianas

Washed ashore. — On a small island in the Marowijne River between the island of Portal and the bank of the river, French Guiana (RNHL).

Living. — Cuyuni River, opposite Kartabo Point, Guyana (Morrison).

PERIPLOMATIDAE

**Periploma coquettae** Altena (fig. 24)

Altena, 1968: 163, 153, 156, 165, fig. 147 (N of Suriname River, 20 miles off the coast).

The species is based on three fresh odd valves dredged by the "Coquette".

Occurrence in Suriname

Dredged off the coast. — Station E6 (N of Suriname River, 20 miles off the coast); 15 fms.

CUSPIDARIIDAE

**Cardiomya surinamensis** Altena (fig. 25)

Altena, 1968: 160 (*Cuspidaria* sp.); 1971: 78, textfigs. 3a, b.

Based on three right and two left valves dredged by the "Coquette".

Occurrence in Suriname

Dredged off the coast. — Station 197 (6°22.5' N 55°10'W) on tubes of *Diopatra cuprea* (Bosc); 11 fms.

VERTICORDIIDAE

**Verticordia ornata** (d'Orbigny)

d'Orbigny, 1841-1853: Atlas, pl. 27 figs. 30-33 (*Trigonulina* o., 1842); 2: 292 (*Trigonulina* o., la Jamaïque, 1853).

Altena, 1968: 160.

The valve from Suriname is somewhat larger than the holotype in the BM and perhaps somewhat more convex, but for the rest they agree.

Occurrence in Suriname

Dredged off the coast. — Station "2" (off the Suriname coast); 23 fms.

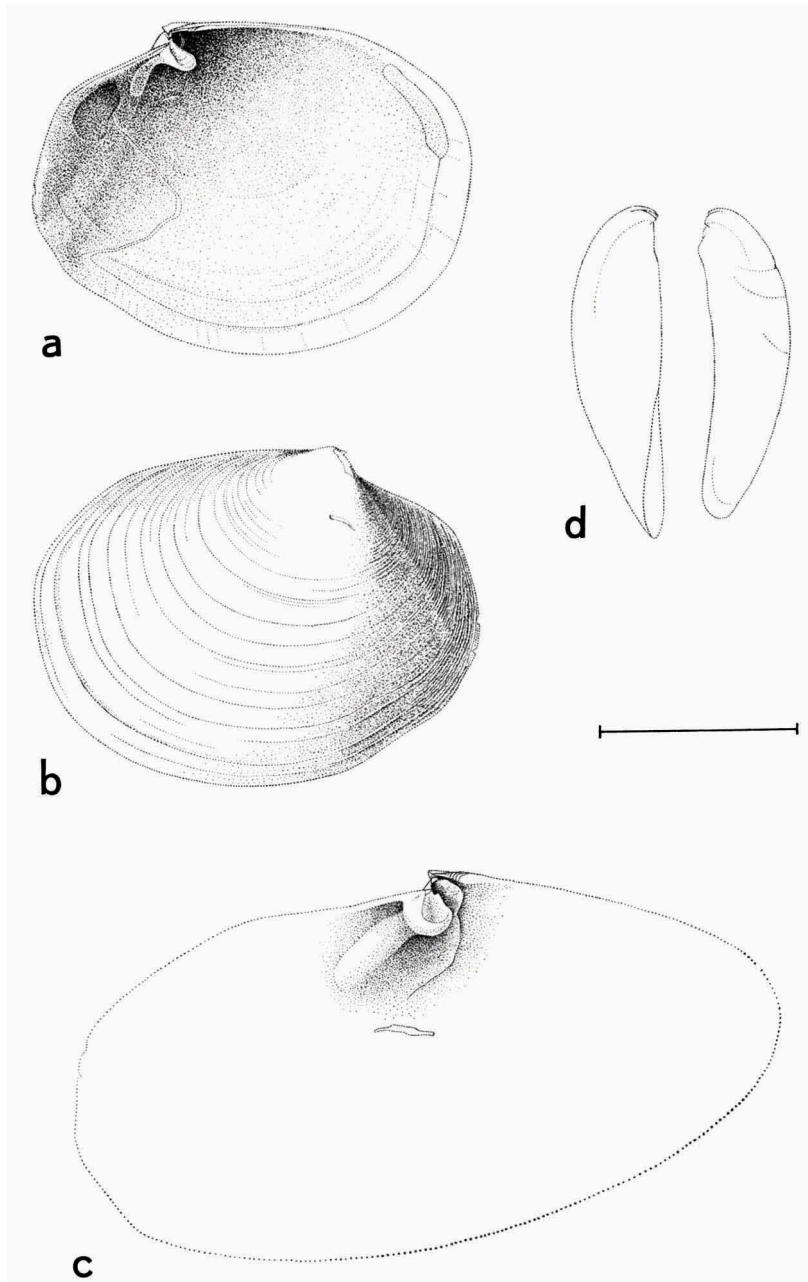


Fig. 24. *Periploma coquettae* Altona. a-c: holotype. a: inner side, b: outer side, c: sketch of hinge turned up of left valve. d: holotype and paratype, sketch of posterior side of both valves. Scale for a, b, d: 10 mm. W. Bergmans del.

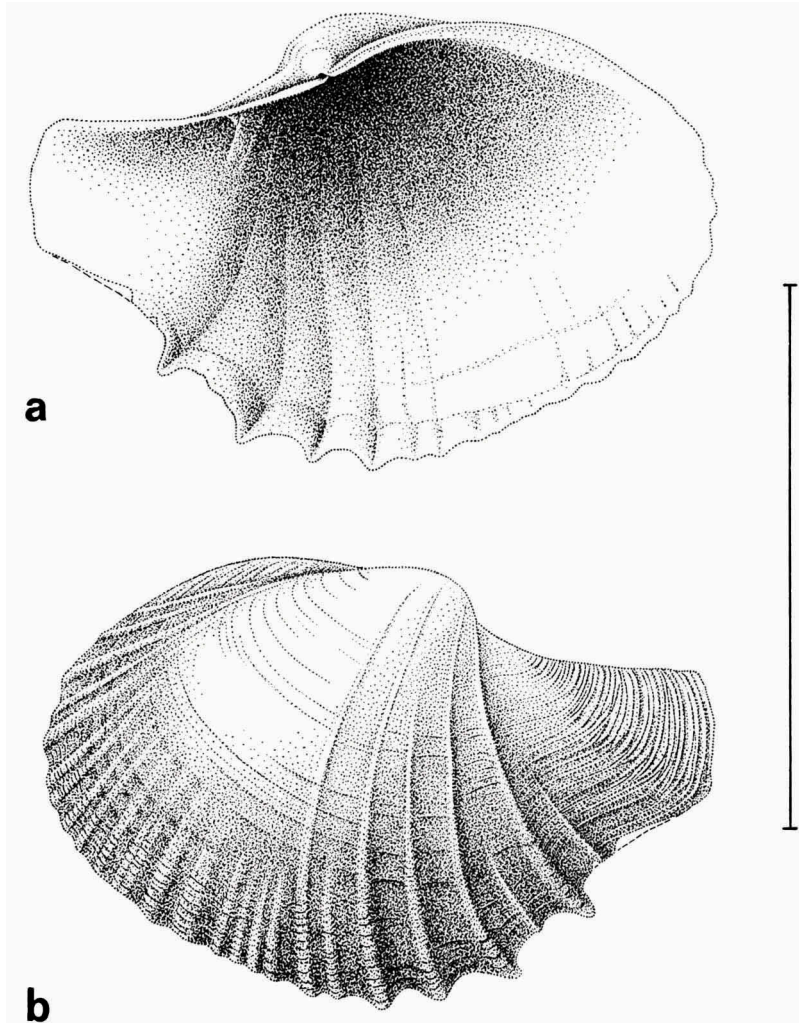


Fig. 25. *Cardiomya surinamensis* Altena; holotype. a: inner side, b: outer side of right valve, Scale: 5 mm. W. Bergmans del.

Classis Scaphopoda

SIPHONODENTALIIDAE

**Cadulus (Gadila) acus** Dall

Dall, 1889b: 432, pl. 27 fig. 11 (Samana Bay, Santo Domingo).  
Henderson, 1920: 140.

The only specimen from Station "2" agrees with this species. From Station 197 there are four specimens, more or less damaged, which may be this species.

## Occurrence in Suriname

Dredged off the coast. — ? Stations 197 (6°22.5' N 55°10'W) from tubes of *Diopatra cuprea* (Bosc), "2" (off the Suriname coast); 11-23 fms.

## DENTALIIDAE

**Dentalium gouldii colonense** Henderson

[Dall, 1889b: 424 (*D.g.*, off Havana; Station 2145, near Aspinwall; 12 miles E from Fryingpan Shoals, S. Carolina)].

Henderson, 1920: 30, pl. 3 figs. 6 (U.S.B.F. Station 2145, near Colon).

All specimens are more or less worn or fragmentary, but they seem to belong to one species agreeing with *D. gouldii colonense*. Most specimens have the hexagonal ribs of the apical side and some also the intercalation of secondary ribs. The anterior end of the shell, in which the ribs have decreased to an almost smooth surface, is seen in one somewhat worn specimen, which is 37 mm long, from the ridge near Bethania 228.

## Occurrence in Suriname

Shell ridges. — Coronieweg, ridge 430b, washing water pit (8); Bethania 228 (north of 14); Munderweg and Charlesburg (24).

Washed ashore. — Mouth of Corantijn River (51); near Matapica Canal (84); Krofajapassie to 9½ km E (86-87½).

Dredged off the coast. — Stations C<sub>3</sub> (N of Coppename-Nickerie, 20 miles off the coast), E<sub>3</sub> (NNW of Marowijne River, ca. 30 miles off the coast), F<sub>1</sub> (N of Suriname River, 20 miles off the coast), 157 (6°22'N 55°03.5'W), 197 (6°22.5'N 55°10'W) from tubes of *Diopatra cuprea* (Bosc), "2" (off the Suriname coast); 11-23 fms.

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## 4. List of corrections of Part I.

In part I of this paper, Zoologische Verhandelingen, 101, 1969, the following mistakes should be corrected:

p. 3, line 13: 23	must be: 22
p. 3, line 14: 23	must be: 22
p. 3, line 15: 24	must be: 23
p. 3, line 16: 26	must be: 24
p. 9, line 38: consists, of	must be: consists of
p. 12, line 16: <i>Cypraea spurca</i>	must be: <i>Cypraea spurca</i>
p. 23, line 20: <i>angulata</i>	must be: <i>angulifera</i>
p. 24, line 13: <i>aequivalvis</i>	must be: <i>aequilatera</i>
p. 24, line 16: 1847	must be: 1887
p. 26, line 21: <i>cuneata</i>	must be: <i>cunciformis</i>
p. 26, line 32: <i>angulata</i>	must be: <i>angulifera</i>
p. 26, line 33: <i>pellucidum</i>	must be: <i>pellucens</i>
Table 2, column 1, line after "off French Guiana": do.	must be: off Commewijne District
p. 40, line 18: Alliance-38	must be: Alliance-28
p. 40, line 27: Totness. 60	must be: Totness.—60
p. 41, line 6: Godoholo	must be: Gadoholo
p. 42, line 18: Massachusetts	must be: Massachusetts
p. 43, line 34: <i>plebeibus</i>	must be: <i>plebeius</i>
p. 44, line 2: troled	must be: trolled
p. 48, line 31: 1964	must be: 1914

In the map of pl. 4 station VRA 11a is incorrectly situated. It should be the same distance to the east of the lightship as it is now to the west. In pl. 11 of the present paper this error is corrected.

## 5. PLATES

Except figs. 3, 8 and 11 of plate 1 which are published through the courtesy of the "Muséum d'Histoire Naturelle" of Geneva, the photographs are all made by Chr. Hoorn Jr., Rijksmuseum van Natuurlijke Historie, Leiden.

## Plate 1

Figs. 1-3. *Anadara ovalis* (Bruguière). 1: outer side, 2: inner side of right valve; washed ashore near Popogaimama Creek, VI 1959, Dr. D. C. Geijskes coll.; 3: inner side of left valve of *Arca Cayenensis* Lamarck, forma typica, no. 1086/22-4, designated as lectotype, 26.4 × 20.5 × 7.5 mm; "les mers de la Guyane"; courtesy of the "Muséum d'Histoire Naturelle" of Geneva.

Figs. 4, 5. *Scapharca brasiliiana* (Lamarck). 4: inner side, 5: outer side of left valve; from shell ridge at Indjikondre, km 134, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 6-8. *Scapharca chemnitzii* (Philippi). 6: inner side, 7: outer side of left valve; off Coronie District, 8-17½ fathoms, IV 1957, "Coquette" leg.; 8: inner side of left valve of *Arca Cayenensis* Lamarck "var. 2", no. 1086/23 -2, 19.2 × 18.3 × 7.2 mm; "les mers de la Guyane"; courtesy of the "Muséum d'Histoire Naturelle" of Geneva.

Figs. 9-11. *Noetia bisulcata* (Lamarck). 9: inner side, 10: outer side of left valve; washed ashore at Braamspunt, X 1913, Schimmelpenninck van der Oye coll.; 11: inner side of left valve, no. 1086/24-2, designated as lectotype, 28.1 × 16.3 × 7.7 mm; "les mers de la Guyane et du Brésil"; courtesy of the "Muséum d'Histoire Naturelle" of Geneva.

Figs. 12-15. *Chlamys linki* (Dall). 12: outer side, 13: inner side of left valve; washed ashore near Totness, III 1963, Dr. C. O. van Regteren Altena coll.; 14: inner side, 15: outer side of right valve; NE of lightship, 28 fathoms, IV 1957, H. W. Lijding coll.

Figs. 16, 17. *Glycymeris undata* (L.). 16: outer side, 17: hinge of left valve; off Coronie District, 8-17½ fathoms, IV 1957, "Coquette" leg.

Figs. 18-20. *Anomia simplex* d'Orbigny. 18, 19: inner side, 20: outer side of left valve; washed ashore at Braamspunt, II 1963, Dr. C. O. van Regteren Altena coll.

Figs. 21-23. *Chlamys gibba nucleus* (Born). 21: outer side of left valve; washed ashore at Braamspunt, 1911, Jhr. W. C. van Heurn coll.; 22: inner

side, 23: outer side of right valve; off Coronie District, 8-17½ fathoms, IV 1957, "Coquette" leg.

Except the figs. 3, 8 and 11, of which the measurements are given, all figures natural size.

### Plate 2

Figs. 1, 2. *Modiolus americanus* (Leach). 1: outer side, 2: inner side of left valve; N of Suriname River, 20 miles off the coast, 15 fathoms, V 1957, "Coquette" leg.

Figs. 3, 4. *Mytella charruana* (d'Orbigny). 3: outer side of right valve; 4: inner side of whole specimen; washed ashore at E side of mouth of Nickerie River, III 1963, Dr. C. O. van Regteren Altena coll.

Fig. 5. *Turritella variegata* (L.) with valves and one whole specimen of *Crassostrea lacerata* (Hanley), nomen praeoccupatum. 30-45 miles E of lightship, 6-8 fathoms, I 1963, "Coquette" leg.

All figures natural size.

### Plate 3

Figs. 1-4. *Crassostrea guyanensis* Ranson, nomen nudum. 1: outer side of left valve, 2: of right valve; 3: inner side of right valve, 4: of left valve; Paramaribo, 1911, Jhr. W. C. van Heurn leg., G. Ranson det.

All figures 7/8 natural size.

### Plate 4

Figs. 1, 2. *Atrina seminuda* (Lamarck). 1: inner side of right valve; 2: outer side of left valve; washed ashore near Matapica Canal, III 1946, Dr. D. C. Geijskes coll.

Figs. 3, 4. *Plicatula gibbosa* Lamarck. 3: inner side, 4: outer side of right valve on fragment of *Chione subrostrata* (Lamarck); washed ashore at Braamspunt, II 1963, Dr. C. O. van Regteren Altena coll.

Figs. 5, 6. *Chama* spec. 5: inner side, 6: outer side of left valve; washed ashore at Braamspunt, 1911, Jhr. W. C. van Heurn coll.

Figs. 7, 8. *Pseudochama radians* (Lamarck). 7: outer side, 8: inner side of right valve; Paramaribo, Zorg en Hoop, WOSUNA ground, from shell ridge, XI 1955, Dr. D. C. Geijskes coll.

Figs. 9, 10. *Lucina pectinata* (Gmelin). 9: hinge, 10: outer side of right valve; shell ridge near Cupido on the Maratakka, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 11, 12. *Trachycardium muricatum* (L.). 11: inner side, 12: outer side of left valve; off Coronie District, 8-17½ fathoms, IV 1957, "Coquette" leg.

Figs. 13-15. *Mulinia cleryana* (d'Orbigny). 13: hinge of right valve; 14: inner side of left valve; 15: outer side of right valve; washed ashore at Coronie beach, no date, Dr. W. A. Collier coll.

Figs. 16, 17. *Mactra petitii* d'Orbigny. 16: inner side of right valve; 17: outer side of left valve; washed ashore at Krofajapassie to 9½ km E, 1969, D. J. Green & R. H. Hill coll.

Figs. 3, 4: 2 ×, all other figures natural size.

#### Plate 5

Figs. 1-3. *Mactrellona iheringi* (Dall). 1: hinge of right valve; 2: inner side of left valve; 3: outer side of right valve; washed ashore near Totness, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 4-6. *Raeta plicatella* (Lamarck). 4: outer side, 5: inner side of left valve; 3: hinge of right valve; N of Suriname River, 20 miles off the coast, 15 fathoms, V 1957, "Coquette" leg.

Fig. 7. *Donax denticulatus* L.; detail of posterior side of left valve; washed ashore near Bigisanti, V 1945, Dr. D. C. Geijskes coll.

Figs. 8, 9. *Iphigenia brasiliensis* (Lamarck). 8: outer side, 9: inner side of left valve; washed ashore near Matapica Canal, I 1963, Dr. C. O. van Regteren Altena coll.

Figs. 10-13. *Sanguinolaria cruenta* ([Lightfoot]). 10: outer side, 11: inner side of right valve; 12: outer side, 13: inner side of left valve; shell ridge at Coronieweg, picket 216, Suriname Expedition 1948-1949 leg.

Fig. 7: 5 ×, all other figures natural size.

#### Plate 6

Figs. 1-3. *Tagelus plebeius* ([Lightfoot]). 1: outer side, 2: inner side of left valve; 3: inner side of right valve; washed ashore on Wiawia beach, XI 1948, Dr. D. C. Geijskes coll.

Figs. 4-6. *Polymesoda aequilatera* (Deshayes). 4: outer side, 5: inner side of left valve, 6: hinge of right valve; washed ashore near Totness, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 7-9. *Tivela mactroides* (Born). 7: hinge of left valve; 8: inner side, 9: outer side of right valve; shell ridge at Groningen, behind football ground, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 10, 11. *Cyrtopleura costata* (L.). 10: outer side, 11: inner side of left valve; washed ashore near Matapica Canal, III 1946, Dr. D. C. Geijskes coll.

Figs. 12, 13. *Pholas campechiensis* Gmelin. 12: outer side, 13: inner side of left valve; washed ashore near Matapica Canal, III 1946, Dr. D. C. Geijskes coll.

Figs. 14, 15. *Pitar circinata* (Born). 14: hinge, 15: outer side of right valve; Uitkijk, from shell ridge in Saramacca District, II 1954, Dr. D. C. Geijskes coll.

Figs. 16, 17. *Dosinia concentrica* (Born). 16: hinge, 17: outer side of right valve; shell ridge at Coronieweg, km 117-118, III 1963, Dr. C. O. van Regteren Altena coll.

All figures natural size.

#### Plate 7

Figs. 1-3. *Protothaca pectorina* (Lamarck). 1: inner side, 2: outer side of left valve; 3: hinge of right valve; in situ, but shell only, near Matapica Canal, I 1963, Dr. C. O. van Regteren Altena coll.

Figs. 4, 5. *Anomalocardia brasiliiana* (Gmelin). 1: hinge, 2: outer side of right valve; "Matapica sand", 1956, Dr. W. A. Collier coll.

Figs. 6-8. *Macoma cleryana* (d'Orbigny). 6: outer side, 7: inner side of left valve; off Coronie District, 8-17½ fathoms, IV 1957, Coquette leg.; 8: inner side of right valve; washed ashore at Krofajapassie to 9½ km E, 1969, D. J. Green & R. H. Hill coll.

Figs. 9-11. *Macoma tageliformis* Dall. 9: inner side of left valve; washed ashore at Krofajapassie to 9½ km E, 1969, D. J. Green & R. H. Hill coll.; 10: outer side, 11: inner side of right valve; off Coronie District, 8-17½ fathoms, IV 1957, Coquette leg.

Figs. 12, 13. *Macoma brasiliiana* (Dall). 12: outer side, 13: inner side of right valve; washed ashore at Braampunt, no date, Dr. D. C. Geijskes coll.

All figures 1½ × natural size.

#### Plate 8

Figs. 1-3. *Macoma constricta* (Bruguière). 1: inner side of right valve; 2: inner side of left valve; 3: outer side of left side of specimen; washed ashore near Toniholo, VI 1959, Dr. D. C. Geijskes coll.

Figs. 4, 5. *Corbula aequivalvis* (Philippi). 4: outer side, 5: inner side of right valve; Paranam, 15 m, or Vigilantie, 10 m below surface, no date, Dr. D. C. Geijskes leg.

Figs. 6, 7. *Barnea truncata* (Say). 6: outer side, 7: inner side of right valve; washed ashore near Matapica Canal, no date, Dr. D. C. Geijskes coll.

Figs. 8, 9. *Martesia striata* (L.). 8: outer side of right valve; 9: mesoplax from above; Suriname, 1911, Jhr. W. C. van Heurn coll.

Figs. 10-12. *Lignopholas clappi* Turner. 10: inner side of right valve; 11: outer side of left valve; 12: mesoplax from above; Plantation Peperpot, in wood perhaps washed ashore, II 1950, Dr. D. C. Geijskes coll.

Figs. 1-3, 6, 7:  $1\frac{1}{2} \times$ , all other figures  $3 \times$  natural size.

#### Plate 9

Figs. 1, 2. *Lucina muricata* (Spengler). 1: outer side, 2: inner side of left valve; washed ashore near Popogaimama Creek, VI 1959, Dr. D. C. Geijskes coll.

Figs. 3, 4. *Trigoniocardia antillarum* (d'Orbigny). 3: outer side, 4: inner side of right valve; washed ashore near Kat Creek, VIII 1959, Dr. D. C. Geijskes coll.

Figs. 5, 6. *Tellina trinitatis* (Tomlin). 5: inner side, 6: outer side of right valve; washed ashore at Coronie beach, no date, Dr. D. C. Geijskes coll.

Figs. 7, 8. *Tellina punicea* Born. 7: inner side, 8: outer side of right valve; shell ridge, Coronieweg, picket 216, Suriname Expedition 1948-1949 leg.

Figs. 9, 10. *Strigilla gabbi* Olsson & McGinty. 9: outer side, 10: inner side of right valve; washed ashore at Nickerie, between 1850 and 1853, F. Voltz coll.

Figs. 11, 12. *Strigilla pisiformis* (L.). 11: outer side, 12: inner side of left valve; shell ridge near Cupido on the Maratakka, VII 1962, Dr. D. C. Geijskes coll.

Figs. 13, 14. *Tellina diantha* Boss, paratypes. 13: inner side of left valve; 14: outer side of right valve; washed ashore near Totness, no date, Dr. D. C. Geijskes coll.

Figs. 1-4, 11, 12:  $4 \times$ , all other  $2 \times$  natural size.

#### Plate 10

Figs. 1-3. *Donax striatus* L. 1: upper side, 2: hinge of right valve; 3: inner side of left valve; washed ashore near Matapica Canal, no date, Dr. D. C. Geijskes coll.

Figs. 4, 5. *Donax denticulatus* L. 4: outer side, 5: inner side of left valve; washed ashore near Bigisanti, V 1945, Dr. D. C. Geijskes coll.

Figs. 6-8. *Chione subrostrata* (Lamarck). 6: hinge of right valve; 7: outer side of left valve; 8: inner side of other left valve; washed ashore near Tweeling Creek, III 1945, Dr. D. C. Geijskes coll.

Figs. 9, 10. *Sphenia antillensis* Dall & Simpson. 9: left side of whole



specimen; 10: left side of valve; N of mouth Coppename River, from concretion, depth unknown, II 1963, "Coquette" leg.

Figs. 11, 12. *Petricola pholadiformis gracilis* Deshayes. 11: inner side of right valve; 12: outer side of left valve; washed ashore near Matapica Canal, I 1963, Dr. C. O. van Regteren Altena coll.

Figs. 13, 14. *Abra aequalis* (Say). 13: inner side, 14: outer side of right valve; shell ridge at Coronieweg, picket 216, Suriname Expedition 1948-1949 leg.

Figs. 15, 16. *Anticorbula sinuosa* (Morrison). 15: outer right side, 16: outer left side; washed ashore between Langamankondre and Christiaan-kondre, III 1963, Dr. C. O. van Regteren Altena coll.

Figs. 9, 10, 14, 15: 4 ×, all other figures 2 × natural size.

#### Plate 11

Map of the localities on the shell ridges, on the coast and off the coast to 30 fathoms in Suriname.

## 6. ADDENDUM

The following article came to my attention, when the manuscript on the *Bivalvia* was already finished.

DESLONGCHAMPS, EUDES, 1859. Catalogue des cirrhipèdes, des mollusques et des rayonnés recueillis par M. E. Déplanche, chirurgien auxiliaire de la Marine impériale, pendant la campagne de l'avis à vapeur le Rapide, années 1854-55-56. — Bull. Soc. Linn. Normandie, 4: 20-67 (reprint: 1-50).

Part of the molluscs dealt with by Deslongchamps in this paper originated from shell ridges in Suriname, and from Cayenne and île St.-Joseph in French Guiana, they were collected when the "Rapide" visited the Guianas. Very little information is given of these collections, and Deslongchamps' paper has only historical value.

From Suriname species are reported by Deslongchamps from the Crag of the Saramacca, most probably locality 15. The following species could be identified (in parentheses after the modern name the name given by Deslongchamps and the page number, respectively of the article in the Bulletin and of the reprint, are mentioned):

*Noetia* (*Eontia*) *bisulcata* (Lamarck) (*Arca bisulcata*, 35, 18)  
*Chlamys* (*Leptopecten*) *linki* (Dall) (*Pecten* . . . . ., 37, 20)  
*Anomia simplex* d'Orbigny (*Anomia* . . . . ., 38, 21)  
*Trachycardium* (*Dallocardia*) *muricatum* (L.) (*Cardium* . . . . ., 34, 17)  
*Mulinia cleryana* (d'Orbigny) (*Mactra* . . . . ., 28, 11)  
*Strigilla pisiformis* (L.) (*Lucina* . . . . ., 31, 14)  
*Donax* (*Chion*) *denticulatus* L. (*Donax cayanensis*, 28, 11)  
*Chione* (*Chione*) *subrostrata* (Lamarck) (*Venus cancellata*, 33, 16)  
*Chione* (*Lirophora*) *paphia* (L.) (*Venus paphia*, 33, 16)

From Cayenne were identified:

*Lucina* (*Lucina*) *pectinata* (Gmelin) (*Lucina jamaicensis*, 30, 13), also:  
île St.-Joseph  
*Macoma* (*Macoma*) *constricta* (Bruguère) (*Psammobia cayanensis*?,  
29, 12)  
*Tagelus plebeius* ([Lightfoot]) (*Solecurtus caraibaeus*, 26, 9)  
*Cyrtopleura* (*Scobinopholas*) *costata* (L.) (*Pholas costata*, 24, 7)  
*Pholas* (*Thovanna*) *campechiensis* Gmelin (*Pholas* . . . . ., 25, 8)

