

GLORIA MARIS

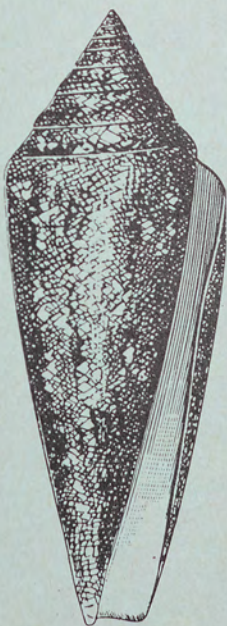
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VOLUME 25 (1986)

- | | |
|----------------|---|
| J. CHRISTIAENS | The Recent and Fossil Shells of the Genus <i>Scutus</i> . |
| A. VERHECKEN | The Recent Cancellariidae of Indonesia. |
| A. DELSAERDT | Revision of the Chamidae of the Red Sea. |
| E. WILS | De Conidae van de Rode Zee. |
| A. VERHECKEN | Revision of the Cancellariidae of the Red Sea. |
| J. CHRISTIAENS | Revision of the Limpets of the Red Sea. |

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Gloria Maris	25 (4)	133 - 153	Antwerpen, juli 1986
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RED SEA MALACOLOGY

II

A REVISION OF THE CANCELLARIIDAE (NEOGASTROPODA: CANCELLARIACEA) OF THE RED SEA AND THE GULF OF ADEN

Dedicated to the memory of Dr Isaac Yaron (Beer-Sheva, Israel),
who specialised in the study of the Red Sea malacofauna.
He was reported missing while diving in the Gulf of Eilat in April 1985.

A. VERHECKEN

Ed. Arsenstraat, 47
B-2510 Mortsel

ABSTRACT

A list of the cancellariid species living in the Red Sea and the Gulf of Aden is presented, based on material in collections and on critical examination of literature data. Six species have been identified; however *Solatia scalariformis* should be confirmed by more, reliable, material, *Nipponaphera paucicostata* is reported for the first time from this area. Lectotypes are selected for this species, and for *Scalptia crispa*, *S. hystrix* and *S. scalarina*. *S. macconkeyi* Jousseaume is considered a probable synonym of *S. hystrix*.

SAMENVATTING

Over de Cancellariidae van de Rode Zee en de Golf van Aden is weinig bekend. De hier gepubliceerde lijst is gebaseerd op een kritische evaluatie van - dikwijls verkeerd gedetermineerde - literatuurgegevens, en op de studie van alle gekende exemplaren in museumcollecties, voor zover ze voor studie konden ontleend worden.

Zes soorten werden op naam gebracht: *Nipponaphera paucicostata* was nog niet voor dit gebied gemeld; terwijl meldingen van verscheidene andere soorten niet konden bevestigd worden. *Scalptia scalariformis* dient door meer, en betrouwbaar, materiaal bevestigd te worden vooraleer het voorkomen ervan in de Rode Zee aanvaard kan worden. *Scalptia macconkeyi* Jousseaume, een in de literatuur verwaarloosde naam, wordt hier aanzien als een waarschijnlijk synoniem van *S. hystrix*. Lectotypes worden geselecteerd voor *S. crispa*, *S. hystrix*, *S. scalarina*, en *N. paucicostata*.

INTRODUCTION

The Cancellariidae living in the whole Indian Ocean area are relatively poorly known. Studies have been published only for the Persian Gulf (Melvill & Standen, 1901), Mozambique (Petit, 1980), Indonesia (Verhecken, 1986), and Australia (Garrard, 1975).

A revision of the Cancellariidae living in the Red Sea and the Gulf of Aden is presented, based on material available in collections and on literature data.

For the purpose of the present study, the limits of the Red Sea are those taken by Yaron (1983: 263): Port Said in the North, and Bab-el-Mandeb in the South. The Gulf of Aden (including the Gulf of Tadjourah) is here limited in the East by an arbitrary imaginary line connecting Ras Asir (Cape Gardafui) with Socotra, and then North to Qamr Bay, at the Hadramaut coast (cfr. map).

Cancellariidae from the Red Sea, and especially from its northern parts, are seldom reported. Several collecting trips to the Gulf of Aquaba (1971, 1972, 1986) and the Hurgada region (1979, 1980) by members of the Belgian Society for Conchology, did not produce a single specimen from this family (Celen, Raats & Wils, 1973; De Brauwier et al., 1981; W. Wellens, pers. comm.). Israeli malacologists are intensely studying the Red Sea, but hitherto no cancellariids have been published;

one specimen is here reported (p. 140). The biological station at Port Sudan produced one specimen (Taylor & Reid, 1984) (cfr. p. 139). For the present study, 20 shells of five species from the Red Sea were available.

Most probably, the data available mainly reflect the distribution of collecting sites, rather than the real distribution of Cancellariidae in the area studied. It is obvious that the relative abundance of specimens from Aden (61 specimens of four species) is due to a more intense collecting activity near this important shipping center. Davoli (1982: 10) explains the relative scarcity of cancellariids in the Red Sea by the high temperature (minimum 25°C) and high salinity (38-40 ‰) of its waters, and the (assumed) inability of Cancellariids in adapting to these extreme conditions.

The geological history of the Red Sea basin has been one of upheavals and subsidences, resulting in connection with the Mediterranean Sea or the Indian Ocean, and even in complete separation from both. Indications show that during the last glacial period, the Red Sea was reduced to a few hypersaline lakes, almost without life. The connection with the Indian Ocean dates only from the post-glacial period (Barash, Danin & Yaron, 1984: 111), and influx of Indian Ocean species is further reduced by the narrow and shallow strait of Bab-el-Mandeb.

A short review of the history of collecting in the Red Sea was given by Barash, Danin & Yaron (1984: 95) and by Christiaens (1981).

MATERIAL

All material reported from the area studied, or known to exist in museum collections, has been used for the present study, as far as it could be made available.

Abbreviations used in this paper:

AV	writer's collection
BMNH	British Museum (Nat. Hist.), London.
HLMD	Hessisches Landesmuseum, Darmstadt, Federal Republic of Germany.
HUJ	Hebrew University, Zoological Museum, Jerusalem, Israel.
KBIN	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Dautzenberg colln., Brussels, Belgium.
MGL	Musée Géologique, Lausanne, Switzerland.
MHNB	Muséum d'Histoire Naturelle, Bordeaux, France.
MHNG	Muséum d'Histoire Naturelle, Genève, Switzerland.
MNHN	Muséum National d'Histoire Naturelle, Laboratoire de Biologie des Invertébrés marins et Malacologie, Paris, France.
MSNG	Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy.
NMB	Naturhistorisches Museum, Basel, Switzerland.
NMW	Naturhistorisches Museum, Wien, Austria.
RMNH	Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.
SMF	Senckenberg Institut und Museum, Frankfurt, Federal Republic of Germany.
TAU	Tel-Aviv University, Zoology Dept, Israel.
ZSIC	Zoological Survey of India, Calcutta, India.

In the material studied, the following species were identified:

	Red Sea	Aden Gulf
<i>Merica melanostoma</i> (Sowerby, 1848)	-	22
<i>Nipponaphera paucicostata</i> (Sowerby, 1894)	1	1
<i>Scalptia contabulata</i> (Sowerby, 1833)	3	-
<i>Scalptia hystrix</i> (Reeve, 1856)	2	32
<i>Scalptia scalariformis</i> (Lamarck, 1822)	6	-
<i>Scalptia scalarina</i> (Lamarck, 1822)	8	10

The occurrence of *S. scalariformis* (q.v.) is, however, subject to some doubt.

Only ten specimens out of the 84 studied here were collected later than 1960; all other material dates from 50-100 years ago.

In the following descriptions, the number of protoconch whorls is counted according to Kerney & Cameron (1979: 13). All genus-group names are used here as genus-names. For details on the supraspecific taxa, apart from the genus *Nipponaphera*, the reader is referred to Verhecken (1986).

DESCRIPTION OF SPECIES

***Merica melanostoma* (Sowerby, 1848)** (figs. 1-3)

Original description. -- "Canc. testa ovali, longitudinaliter striis noduliferis et transverse striis alternatis minute decussata; spira acuminata, anfractibus paucis, rotundatis; apertura ovali, magna, interne costata; labio externo denticulato; columella expansa, antice granulata, triplicata; colore pallide fulvo, fusco late fasciato; labio externo bimaculato, columella fusca nigricante." Sowerby, 1848: 137.

References. -- *Cancellaria melanostoma* -- Reeve, 1856: species 26, pl. 6 figs. 26a-b. Bosch & Bosch, 1982: 118. *Cancellaria (Merica) asperella* Lm var. *melanostoma* Sow. - Sturany, 1903: 45. *Cancellaria (Merica) melanostoma* - Garrard, 1975: 6, figs. 4 (15) - (16). *Cancellaria elegans* Sowerby - Shopland, 1902: 175 (non *C. elegans* Sowerby).

Type-material. -- Holotype: BMNH 1968271, dimensions: height 29,6 mm, width 18.7 mm. This specimen is figured by Garrard, 1975: fig. 4 (15).

Type-locality. -- Unknown to Sowerby.

Distribution. -- Aden Gulf (RMNH, BMNH), Oman (Bosch & Bosch, 1982), Persian Gulf (Garrard, 1975), Arabian Gulf (Smythe, 1982). Subspecies *westralis* Garrard: NW Australia.

Specimens from area studied. -- "Red Sea": 1 shell (juvenile) NMW 37734, Perim Isld. (Bab-el-Mandeb, the very limit of the Red Sea), "Pola"-exped.

Aden: 2 sh. (juveniles) HJ 12086, ex coll Coen 1920; 1 spec. SMF, Jaekel 218609; 1 sh. KBIN; 2 sh. BMNH 1902.12.30.582-3, Dinshaw colln, under the name *elegans* (cfr. Shopland, 1902: 175 and Smith, 1891: 390); 2 sh. BMNH 1885.8.9.122-3, Baynham colln (? cfr. Smith, 1891: 410); 3 sh. BMNH 1888.4.9.138, Major Yerbury (? cfr. Smith, 1891: 410); 2 sh. Bay N. of Ras Mujallab Heidi, leg. P. Cambridge 26-vi-1966, H.E.J. Biggs colln, BMNH 2258; 5 sh. Aden-Harbour, RMNH, Strengers & Nobel, 1930; 1 sh. Aden, East side of Isthmus, RMNH, *ibid.*; 2 sh. Aden Hedjuff, RMNH, Strengers, 1929.

Description. -- Shell inflated fusiform. Dimensions: up to 41.5 x 25.9 mm. Colour shestnut brown, with two narrow white bands on body whorl, together with a broad whitish zone on its lower part. On the older whorls, only one of the narrow white bands is visible. There are also narrow white axial bands, irregularly distributed over the whorls.

Protoconch brown, with 2-2 3/4 naticoid whorls; maximum diameter 1-1.3 mm, slightly deviated from teleoconch axis; suture impressed.

Teleoconch with up to 5 1/4 rather bulbous whorls. Suture somewhat impressed, but without sutural canal of any importance. Sculpture is finely reticulated, consisting of a great number of rather confuse axial ribs (23-44 on first, 28-55 on second, 29-46 on third teleoconch whorl; becoming very confuse on younger whorls), crossed by clear-cut spiral ridges (5-9 on first, 6-9 on younger teleoconch whorls). From the third teleoconch whorl on, a single secondary spiral can occur; and a tertiary spiral may show on the fourth or fifth whorl. The spiral bands cross over the axial ribs, forming a spiral sculpture clearly more pronounced than the axial sculpture.

Aperure widely oval; outer lip with 12-17 inner lirae. Columella almost straight, parallel to shell axis; with three folds: the uppermost is the strangest, and the lowest forms the edge of the small siphonal canal. Inner lip covered with dark brown callus. Siphonal fasciole very poorly developed. Umbilicus closed by the brown callus, which shows some granulations on its lower part.

Discussion. -- No specimens of *Merica melanostoma* from the Red Sea proper are known; the single citation from the Red Sea (Sturany, 1903) pertains to Perim Island, a locality in the Bag-el-Mandeb that can as well be included in the Aden Gulf. This species seems to be confined to the northwestern part of the Arabian Sea, including the Persian Gulf. Two more *Merica* species have been recorded in that area (Melvill & Standen, 1901: 450): *M. asperella* and *M. oblonga*, but it is not evident that the relevant specimens were identified correctly. *M. melanostoma* differs from *M. asperella* in its much finer sculpture, lack of sutural canal, and in having only one secondary spiral line; and from *M. oblonga* in its much more obese form.

For the differences between *M. melanostoma* and the Australian "subspecies" *M. melanostoma westralis*: see Garrard (1975: 6.)

A few Aden shells of this species have the columellar folds worn away, probably by a hermit-crab (fig. 3; cfr. Verhecken, 1986: 40, 54).

Genus *Nipponaphera* Habe, 1961

Habe, 1961a: App, 27 (text in Japanese).

Type-species: Designation under plenary powers (Opinion 1052, Bull. zool. Nom. 32 (4) 1976: 242): *Nipponaphera habei* Petit, 1972 (nom. nov. for *C. lyrata* Adams & Reeve, 1850, *sensu* Habe, 1961). For more details: see Petit, 1972.

Nipponaphera paucicostata (Sowerby, 1894) (figs. 4-6)

Original description. - "Testa angulata, utrinque conica, vix umbilicata, pallide fulva, obscure fusco fasciata; spira conica, gradata, mediocriter elevata; anfractus 6, convexi, embryonales laeves, sequentes obtuse angulati, longitudinaliter costati, liris numerosis confertis angustis alterne crassioribus eximie lamellatis spiraliter sculpti; anfractus ultimus costis paucis irregularibus instructus; apertura latiuscula, subtrigonalis, labrum leviter arcuatum, fusco tinctum; columella rectiuscula, triplicata. Long. 17, lat. 11.50 mm." Sowerby, 1894: 160, pl. 12 fig. 26.

References. - Melvill & Standen, 1901: 451, Mc Neil, 1960: 99. Petit, 1972: 104.

Type-material. - Lectotype, here selected: BMNH 1895-4-29-183, 17.0 x 11.9 mm (labeled "holotype", but the original description does not allow this conclusion).

Type-locality. - "Persian Gulf" (Sowerby, 1894).

Distribution. - Persian Gulf (type-locality); Shaikh Shuaib Isld, Gulf of Oman (Melvill & Standen, 1901); Mekran Coast (KBIN); Karachi (MHNG; RMNH); Punta Engano, Philippines (AV).

Specimens from area studied. - Red Sea: 1 sh. Dahlak Archipel., x-1965, leg. L. Fishelson ISRSE 1965, TAU 3781, 13.3 x 10.1 mm.

Aden: 1 spec. BMNH 1902.12.30.684, C. Dinshaw colln., 11.9 x 8.4 mm.

Description. - Shell beige-coloured, with a pale band on the lower part of the last whorl. Dimensions: up to a height of 13.3 mm, width 10.1 mm. The Aden shell still contains the dried soft parts.

Protoconch: 1 1/2 whorls, beige, slightly oblique to teleoconch shell axis; suture impressed. Surface a little corroded, no evidence of sculpture. Maximum diameter 0.9-1.1 mm.

Teleoconch with up to 3 1/4 rounded whorls; suture impressed. Axial sculpture very confuse on first teleoconch whorl; 16-21 narrow, rounded axial ribs on second; and 14-15 broad, rounded ribs on third whorl. Spiral sculpture starts with seven spiral bands; from the second teleoconch whorl on, a secondary spiral exists; on the third whorl a tertiary spiral occurs. The spiral bands lay superposed on the shell surface and also on the axial ribs. The third teleoconch whorl shows a supplementary squamose sculpture, formed by thin microscopic axial ribs, about 8-12 between each set of main axial ribs. This whorl is slightly keeled at the periphery, its apical part is flat and sloping outward.

Aperture trapezoidal, outer lip thin; inner lirae: 12 in Dahlak-spec., none in Aden spec. Columella parallel to shell axis, with two folds (uppermost the strongest) and a third, faint, fold at the rim of the small siphonal canal. Umbilicus small, almost completely closed by columellar callus, which leaves only a narrow slit.

Discussion. - Both shells are not fully grown. These are the first records of this species from localities west of the Persian Gulf - Gulf of Oman area.

Mc Neil (1960: 99) states that protoconch and early whorls of his Japanese

Miocene species *Cancellaria yonabaruensis* are nearly the same as those of *C. paucicostata*. This was prior to the description of *Nipponaphera iwaotakii* Habe, 1961 and *N. habei* Petit, 1972; both these recent species are very near to *N. paucicostata*, but they are larger, more solid and short-spined, and not as slender. Specimens from the Philippines (AV) closely agree with the lectotype, but have stronger axial ribs and the suture somewhat more impressed; the species had not yet been reported from a locality east of Karachi.

Melvill & Standen (1901: 451) report this species as taken in the Gulf of Oman, "adhering to the upper part of *Rapana bulbosa*, 30-50 fathoms". Together with analogous citations by Cernohorsky (1972: 181) for *S. contabulata*, and by Garrard (1975: 29) for *S. scalariformis*, this might indicate a commensalic or epibiontic way of life for some species of Cancellariidae, at least in a juvenile stage.

***Scalptia contabulata* (Sowerby, 1833)**

(figs. 7-9)

Original description. — "Shell oval, pale brown, nodulose-ribbed; spire rather short; volutions five, ventricose, their upper part next to the suture flat, with a bluntly angular edge; nodulose longitudinal ribs continued obliquely over the flat space to the suture; aperture large, white, oval, truncated at its upper part; outer lip grooved within; columella with four small plaits, of which the upper one is very small; umbilicus small: length 1.2, breadth 0.8. Ceylon". Sowerby, 1833: 3, fig. 28.

References. — *Cancellaria contabulata* Sowerby, 1833: 4, fig. 28. Sowerby, 1849: 455, pl. 93 figs. 19, 23. Loebbecke, 1881: 8, pl. 1 figs 9-10. Tapparone-Canefri, 1875: 613. *Cancellaria pusilla* Sowerby, 1833: 6, fig. 34. *Scalptia contabulata* — Petit, 1980: 213 fig. 3. Verhecken, 1986: 48, fig. 12. *Triginostoma scalata* — Taylor & Reid, 1984: 204. (non *S. scalata* Sowerby). *Scalptia scalata* — Sharabati, 1984: pl. 24 fig. 2. (Ibid.)

Type-material. — Lectotype: BMNH 1968402/1, 29.2 x 21.2 mm; three paralectotypes, BMNH 1968402/2-4.

Type-locality. — Ceylon (Sowerby, 1833).

Distribution. — Japan, Philippines, Madagascar, Mozambique (Petit, 1980); Bar-es-Salaam (Spry, 1968); Zanzibar (BMNH); Andaman Islands (ZSIC; AV); Fiji (Cernohorsky, 1972); New Caledonia (Petit, 1980); Indonesia: Madura (RMNH).

Records from area studied. — Port Sudan: 1 spec. 19.8 x 14.1 mm, coll. D. G. Reid (BMNH); Massawa: 1 sh. (Tapparone-Canefri, 1875); "Red Sea": 1 sh. 21.3 x 14.6 mm, Rueppell (SMF); 1 sh. (Sharabati, 1984).

Description. — Shell thin walled; relatively short-spined, spire scalate. Dimensions: up to 21.3 mm high and 14.6 mm wide. Colour whitish, with diffuse pale brown areas distributed at about 1/3 whorls.

Protoconch: 1 1/2 smooth naticoid whorls, slightly oblique to teleoconch axis; merging gradually into teleoconch. Maximum diameter 0.9-1.1 mm. Colour white, with four narrow, pale-brown spiral bands on last 3/4 whorl.

Teleoconch with up to 4 1/4 strongly shouldered whorls, with a broad flat sutural ramp, slightly sloping outward. Axial sculpture: broad rounded ribs, not very prominent, numbering 10-14 on first teleoconch whorl, 18 on penultimate whorl

and 17 on body-whorl. Spiral sculpture on first to third teleoconch whorl respectively: 4, plus some secondary spirals; 4-5 primaries, with 1 secondary and 1-3 tertiary spirals; and a more diffuse sculpture of 4 primaries and about 8 of lower order. On body-whorl, the primary spirals have almost vanished: only small nodules on the crossing with the axial ribs remain; between each set of these primaries there are about 12 finer spiral ribs. These sets of axial and spiral sculpture form a very fine network, especially on the last two whorls. The sculpture of the flat sutural ramp is a very fine pattern formed by diffuse radial ribs corresponding to the axial ribs, and up to 13 very fine spirals.

Aperture semicircular, truncated adapically; without a parietal tooth. Outer lip is thin, there are no internal lirations. Aperture height about 54 % of total shell height; the body-whorl height amounts to 77-88 % of it. Columella with two medium folds and one very faintly indicated at rim of the siphonal canal. Umbilicus narrow to very narrow, half covered by thin columellar callus.

Discussion. — As mentioned by Petit (1980: 214), this species is very close to *Scalptia scalata* (Sowerby, 1833); it has been synonymized with it by some authors, e.g. Tryon (1885: 81) and Cernohorsky (1972: 181). Petit (1980) gives, as distribution area of *S. contabulata*, essentially the same as given above, but restricts *S. scalata* to Mauritius. *S. contabulata* has the shoulder ramp flat and sloping outward, while in *S. scalata* this is a U-formed channel, especially on the last whorls.

Dr. Taylor (BMNH) gives the following details on the Port Sudan specimen: "Lagoon within fringing reef near Lighthouse, just S. of Port Sudan Harbour, Sudan. 31/8/1978. Buried in 3 cm layer of sand, in lagoon 900 m wide, 1 m deep. 600 m from shore, in bed of *Thalassia* and *Padina*. Bottom of planated coral rock with thin coverage of sand. Live collected. Animal cream coloured. Only specimen seen".

Scalptia hystrix (Reeve, 1856)

(figs. 10-14)

Original description. — "Shell globosely ovate, imperforated, spire rather short, sharply acuminate, whorls narrowly angled at the suture, obliquely longitudinally closely ribbed, ribs erect, narrow, beautifully prickly serrated throughout; whitish, faintly tinged with lived brown; aperture ovate, interior marked with red lines, columella arched, plaits three, irregular. *Hab.* Mauritius." Reeve, 1856: species 67 (textpages innumbored), pl. 14, figs. 67a-b.

Figs. 1-3. *Merica melanostoma* (Sowerby, 1848). 1 Aden, 31.5 x 19.4 mm, BMNH 1885.8.9.122-3 (Baynham colln.). 2, Aden Harbour, depth 30 m, 41.5 x 25.8 mm, RMNH (H. Strengers & L. E. de Nobel, iv. 1930). 3, Aden Hedjuff, crabbed specimen, 30.5 x 20.1 mm, RMNH (H. Strengers, v-1929).

Figs. 4-6. *Nipponaphera paucicostata* (Sowerby, 1894). 4, Dahlak Archipelago, 13.3 x 10.1 mm, TAU 3781 (leg. L. Fishelson, ISRE 1965). 5-6, Aden, 11.9 x 8.4 mm, BMNH 1902.12.30.684 (Dinshaw colln.).

Figs. 7-9. *Scalptia contabulata* (Sowerby, 1833). 7-8, Port Sudan Harbour, 19.8 x 14.1 mm, BMNH (D. Reid, coll.). 9, "Red Sea", 21.3 x 14.6 mm, SMF (E. Rueppell).



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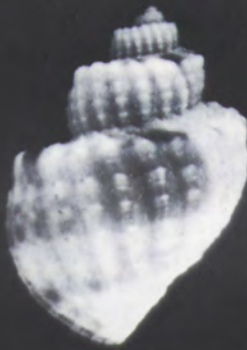
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References. — *Cancellaria hystrix* - Tryon, 1885, pl. 6 fig. 100. Loebbecke, 1886: 44, pl. 13 figs. 10-11. Smith, 1891: 410. *Cancellaria (Trigonostoma) hystrix* - Melvill & Standen, 1901: 451. *Scalptia macconkeyi* Jousseume, 1894: 201.

Type-material. — Lectotype, here selected: BMNH 1968409, 21.5 x 15.3 mm, H. Cuming colln. (labeled "holotype", but the original description does not allow this conclusion).

Type-locality. — Reeve indicates Mauritius, but the occurrence at that locality needs to be confirmed (see Discussion).

Distribution. — ? Mauritius; Persian Gulf (ZMA); Gulf of Oman (Melvill & Standen); Karachi (KBIN, MHNG).

Specimens from area studied. — "Red Sea": 2 sh. KBIN, (colln. Cousin ex Jousseume).

Aden: 1 sh. BMNH 1902.12.30.584, Dinshaw colln. (cfr. Shopland 1902: 175); 4 sh. BMNH 1885.8.9.105.7, Baynham colln (cfr. Smith, 1891: 410); 6 sh. BMNH, no Acc. No., Major Bill Griffiths leg. 1964-65; 9 sh. BMNH, H.E.J. Biggs colln, including 1 sh. leg. Cambridge, 1 sh. leg. P. Lander, 1963, 1 sh. leg. P. Oliver, 1 sh. W. side of Ras al Araja 6-ii-1966 P.C., 1 sh. Khormaksar Beach 7-ix-1965, 1 sh. Khormaksar sands P.C. 1965; 1 sh. NMW, Gerstenbrandt colln. 6168; 1 sh. MNHN, colln. Denis 1945; 1 sh. MHNG; 1 sh. RMNH, J. Mulder colln.; 2 sh. RMNH, Fulton; 1 sh. RMNH, Aden Harbour, Strengers & Nobel, iii-1930; 1 sh. Aden, Crater Beach, RMNH, Strengers & Nobel, iv-1930; 1 sh. Aden, W. of Isthmus, RMNH, *ibid.*; 1 sh. Aden. Gold Mohur Beach (W. of Aden), RMNH, Strengers, 1931. Socotra: 2 sh. MNHN, Jousseume colln., 1917.

Description. — Shell whitish, with two wide brown to purplish-brown bands on body-whorl; only the uppermost band is visible on older whorls. Dimensions: up to 31.8 mm high and 20.8 mm wide (specimen from Socotra).

Protoconch with two smooth, naticoid whorls; slightly deviated from teleoconch shell axis; maximum diameter 0.8-0.9 mm.

Teleoconch with up to 5 1/2 whorls. Sculpture on first teleoconch whorl is rather faint, consisting of 10-14 smooth axial ribs. Axial sculpture on second to fifth teleoconch whorl respectively: 10-13, 10-19, 13-21 and 15-20. These ribs are oblique (prosocline) to the shell axis; they consist of an elevated ridge about 1 mm wide and 1 mm high; the posterior end is slightly curved apically, and the top part of the ridge has a rounded cross-section. The spiral sculpture is very faint on first teleoconch whorl; it consists of 2-4 spirals. Number of spirals on second to fifth teleoconch whorl respectively: 3-4, 3-5, 4-8, 10-16. From the third whorl on, a secondary spiral may occur between the primaries. This spiral sculpture is very weak in the flat spaces between the axial ribs, but becomes prominent on these ribs, on top of which it forms the rather sharp protrusions, typical for this species.

Whorls rounded; suture canaliculate; sutural area flat but rather narrow, bordered on the shoulder by the highly raised pointed upper parts of the axial ribs. The sculpture of the sutural area varies from almost none to lamellous costae obliquely crossing it.

Aperture rounded trigonal to oval. Columella almost vertical, arcuated towards outer lip in larger specimens; with three folds, the lower one forming the rim of a small siphonal canal. The uppermost fold is the strongest; it is somewhat separated from the others. Parietal tooth present. There are 9-16 lirae inside the outer lip; the two brown bands are clearly visible inside the aperture. Siphonal fasciole often well developed, bordering a narrow umbilicus which is partly covered by the columellar callus.

Discussion. — This species is easily recognisable by its close-set axial ribs and, especially, by the great number of rounded points on these ribs. Already Reeve (1856) stated: "this is one of the most beautifully sculptured species of the genus". Its axial sculpture, with up to 19 ribs, is much finer than in *S. crispa* Sowerby, 1833, with about 11 ribs. Moreover, the latter species (type-locality: probably Philippines, cfr. Supplemental Notes) does not show the multitude of points; but for the rest the general form and colour of both species are identical. Study of more material, if possible from other localities, might indicate whether or not *S. hystrix* is to be considered a subspecies of *S. crispa*.

The type-locality Mauritius, given by Reeve and repeated by some late nineteenth-century authors (e.g. Tryon, 1885; Loebbecke, 1886; Smith, 1891) has been found only on labels of specimens in KBIN and HLMD. It is not impossible that this locality was copied from the cited texts, a usual practice in those days. The occurrence of this species off Mauritius still has to be verified; it was not reported by De Brauwier (1980). Based on the data available, the real distribution area of *S. hystrix* seems to be the NW-part of the Arabian Sea, including the Persian Gulf.

Scalptia macconckeyi Jousseaume, 1894 (emendation for *S. Mac Conckeyi*, ICZN 11 h v; erroneously spelled *macconckeyi* by Fulton (1922: 27)), with type-locality "Aden", is a name almost completely neglected in the literature. MNHN has an unnumbered specimen (fig. 28), labeled "type", which is clearly a worn specimen of *S. hystrix*. However, the identity of this "type" must be seriously questioned, since it does not conform with Jousseaume's description (number of whorls, of axials, of inner lirae on outer lip) of his single specimen. Obviously, Jousseaume's holotype is still missing, and as a consequence the real identity of *S. macconckeyi* is still vague, as the species has not been figured.

The two specimens from Socotra (figs. 13-14) are not only larger than those studied from Aden: their sculpture is also more pronounced, and they have more axial ribs.

***Scalptia scalariformis* (Lamarck, 1822) (figs. 15-17)**

Original description. — "C. testa ovato-acuta, scalariformi, perforata, longitudinaliter plicata, transversim tenuissime striata, cinereo-coerulescente; anfractibus superne angulatis, supra planis; columella uniplicata." Lamarck, 1822: 113.

References. — *Cancellaria scalariformis* - Kiener, 1841: 12, pl. 5 figl. 4. Chénu, 1859: 274 fig. 1811. *Cancellaria costifera* Sowerby, 1832: 5, fig. 31. 1849: 456, pl. 95 figs. 65, 66, 71. Reeve, 1856: pl. 12 figs. 57a-b. *Cancellaria mangelioides* Reeve, 1856: pl. 15 figs. 69a-b. *Canellaria bocageana* Crosse & Debeaux, 1863: 77. *Trigonostoma scalariformis* - Cernohorsky, 1972: 180, pl. 50 fig. 2 (excl. fig. 2a). Garrard, 1975: 27, figs. 4(3)-(4). Way & Purchon, 1981: 320.

Type-specimens. — Lectotype: MHNG 1097/86/1, 22.7 x 14.7 mm; paralectotype: MHNG 1097/86/2, 21.7 x 13 mm.

Type-locality. — Unknown to Lamarck; Kiener gives "la mer des Indes" for *C. costifera*. The types are labeled "Amérique", this has obviously been added afterwards and must be disregarded.

Distribution. — China Sea (Loebbecke, 1887); Philippines (MNHN); Indonesia (Verhecken, 1986); NE Australia (Garrard, 1975); W. Malaysia (Way & Purchon, 1981); India: Madras. Cochin, Bombay (BMNH).

Specimens from area studies. — "Red Sea": 3 sh. HUI 12047, ex coll. Gyngell, ex Blok 2732; 2 sh. SMF, coll. Bosch ex H. Rolle ex Gyngell; 1 sh. RMNH, ex coll. Mulder.

Description. — Shell slender, dimensions up to 24.4 mm high and 13.6 mm wide. Two specimens are brownish, with white axial ribs; the others are completely white. Shell surface is smooth.

Protoconch of all available specimens severely corroded, maximum diameter about 0.8-1.0 mm. Its number of whorls could not be counted.

Teloconch with up to 5 1/4 strongly shouldered whorls. Suture deeply impressed, forming a sutural area almost perpendicular to the shell axis. Axial sculpture on first to fifth teloconch whorl respectively: 9-11, 10-11, 9-11, 9-10, 9-10. On crossing the sutural area, the axial ribs form narrow costae, narrower than the ribs themselves, obliquely crossing the sutural area. Spiral sculpture is very delicate, and hardly visible on the worn specimens. On the first to third teloconch whorl, there are about 7, 7-8, 10-15 broad flat spiral lines, separated by narrower interspaces. On the younger whorls, spiral sculpture is practically absent. Sutural area sometimes with slightly indicated spiral lines and bordered by a well-marked carina at the shoulder of the whorl. The part of the whorl between this carina and the suture with the younger whorl is only slightly convex.

Aperture white, oblongly rounded trigonal; with 8-12 lirae inside the outer lip. Parietal tooth well developed. Columella almost parallel to shell axis, with three folds: the uppermost is the strongest, the lowest is formed by the rim of a small siphonal canal. Umbilicus narrow but open, half covered by reflected columellar callus, and bordered by a moderately developed siphonal fasciole.

Discussion. — Problems concerning the identity of *C. scalariformis*, because of Lamarck's statement that there is only one columellar fold, have been discussed elsewhere (Verhecken, 1986). The Red Sea specimens have the slender form of *C. mangelioides* Reeve (locality unknown) and of *C. bocageana* Crosse & Debeaux (N. China coast), two species often considered synonyms of *S. scalariformis*; but the type-specimens of these species have the umbilicus completely closed.

Of the six specimens studied, all labeled with the vague locality "Red Sea", five originate from the Gyngell collection. This makes the present conclusion, that *S. scalariformis* occurs in the Red Sea, heavily dependent on the reliability of Gyngell.

Figs. 10-14. *Scalptia hystrix* (Reeve, 1856). 10, Aden, Gold Mohur beach, 17.6 x 16.8 mm, RMNH (H. Strengers, i-1931). 11, Aden, 23.6 x 16.7 mm, NMW 6168 (Gerstenbrandt colln.). 12, Aden, beach west of Isthmus, 26.1 x 17.7 mm, RMNH (Strengers & de Nobel, iv-1930). 13, Socotra, 31.7 x 20.6 mm, MNHN (Jousseume colln., 1917). 14, Ibid., 26.3 x 18.9 mm.

Figs. 15-17. *Scalptia scalariformis* (Lamarck, 1822), all from locality "Red Sea", 15, 18.6 x 11.7 mm, HUI 12047 (ex colln. Blok, ex colln. Gyngell). 16, Ibid., 20.6 x 12.3 mm. 17, 19.1 x 10.9 mm, SMF (colln. Bosch, ex. H. Rolle, ex Gyngell).

Fig. 18. *Scalptia scalarina* (Lamarck, 1822). Aden, 17.3 x 10.6, RMNH (Fulton).



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No details on this collector could be found, so that there is no evidence that he collected the shells personally. There is also the RMNH specimen from the J. Mulder collection which, although severely corroded, is definitely the same species; but locality-data in this collection are not very trustworthy (Gittenberger, in litt.). Hence, we must conclude that the occurrence of *S. scalariformis* in the Red Sea is still subject to serious doubt.

Scalptia scalarina (Lamarck, 1822) (figs. 18-27)

Original description. — "C. testa ovato-conica, ventricosiuscula, umbilicata, longitudinaliter plicata, transversim tenuissime striata, alba aut fuscescente; plicis obliquis distantibus; spira contabulata; columella triplicata". Lamarck, 1822: 113.

References. — *Cancellaria scalarina* Lamarck, 1822: 113. Kiener, 1841: 8, pl. 5 fig. 3. Deshayes, 1843: 403. *Cancellaria (Trigonostoma) scalarina* — Chénu, 1859: 276 fig. 1832 (? non fig. 1826). Tryon, 1885: 80 pl. 6 fig. 91. *Cancellaria costifera* — Smythe, 1982: 67, pl. 4 fig. e (non *C. costifera* Sowerby, 1833). *Trigonostoma costifera* — Bosch & Bosch, 1982: 118 (non *costifera* Sowerby). *C. crispata* Sow. — Tapparone-Canefri, 1875: 613-614.

Type-material. — Lectotype, here selected: MHNG 1097/85, dimensions 27.5 mm high, 18.2 mm wide.

Type-locality. — "Les mers de l'Ile-de-France" (= Mauritius).

Distribution. — Owing to the great confusion about this name, unfigured literature-data cannot be used for establishing the range of this species. It occurs off Japan and Taiwan (AV), the Persian Gulf (RMNH; Smythe, 1982), the Gulf of Oman (Bosch & Bosch, 1982).

Specimens from area studied. — Red Sea: 1 sh. MGL TO85, colln. De Loriol; 1 sh. NMW, Senafir Island, "Pola" expd., leg. Steindachner et Siebenrock; 1 sh. NMW, Dahlak Isl., Colln. Vest 1675, leg. Jickeli, Colln. Edlauer 23223; 3 sh. MSNG, Massawa area, 30 m depth, leg. A. Issel, 1870; 2 sh. ZSIC, Massawa, 20 m depth, 1890.

Aden: 1 sh. BMNH 1888.4.9.139-40 (only 1 sh.!), Major Yerbury; 1 sh. BMNH 1902.12.30.585, H. C. Dinshaw (see Shopland, 1902); 2 sh. RMNH, H. C. Fulton; 2 sh. MNHN, colln. Denis; 1 sh. HUJ 12087, ex Coen colln.; 1 sh. Conquest Bay, Aden, BMNH, leg. P. Cambridge, H. E. J. Biggs colln., Acc. No 2258; 2 sh. Djibouti, MNHN, Mission Ch. Gravier, 1904 (cfr. Lamy, 1905).

Distribution. — Shell rather slender. Dimensions: up to 25.6 mm high and 16.9 mm wide, but average is about 16 x 10 mm. Colour pale beige to brownish, with a white band at the periphery of the body-whorl. At the lower side of this white band, the colour is markedly darker than elsewhere. The sutural rang shows blotches of purplish-brown in the depressions between the axial lamellae.

Protoconch: 1 3/4 tot 2 1/4 rounded glossy naticoid whorl, suture impressed; slightly oblique to teleoconch shell axis; limit well marked. Maximum diameter: 0.9-1.1 mm.

Teleoconch with up to 5 very slightly bulbous whorls. Suture deeply impressed, forming a slightly concave, broad sutural ramp, with a well-marked carina at the shoulder of the whorls. Axial sculpture on first to fifth teleoconch whorl respec-

tively: 7-13, 7-12, 8-12, 9-11, 12-18. The axials are narrow, with wide flat interspaces; they obliquely cross over the sutural ramp as thin lamellae. The sutural ramp has no further sculpture than minute growth-lines. Axial ribs almost straight, slightly inflected backwards near the shoulder of the whorls, where a thin, somewhat crenulated lamellous point is formed.

Spiral sculpture consists of 4-5, 4-5, 4-9, 5-10 and 12-18 very softly indicated spiral bands on first to fifth whorl respectively; from the second whorl on, a secondary spiral can occur. The spiral sculpture is only clearly visible when crossing the axial ribs, where small rounded nodules are formed, which give the shell a prickly touch.

Aperture white, elongately rounded triangular, with 8-11 lirae inside the outer lip. Parietal tooth well developed. Columella parallel to shell axis, with three folds: the uppermost is the strongest, the lower fold forms the rim of a small siphonal canal. Columellar callus white, reflected over about half the umbilicus, which is deep but rather narrow.

Discussion. — The identity of *Cancellaria scalarina* has been, and still is, rather problematic. The references given by Lamarck caused confusion, as discussed by Deshayes (1843-403) and by Petit (1984: 59). Lamarck had three specimens, as shown by the notes in the handwriting of his daughter Rosalie in his personal copy (now in MHNG) of the "Animaux sans Vertèbres"; only one of them is now in the Lamarck collection, MHNG: it is here selected lectotype.

Identification of the smaller specimens (< 20 mm, the majority of the material available for study) is tentative, and is only possible when comparing them with gradually larger specimens; the largest shell (25.6 x 16.9 mm, fig. 19) agrees reasonably well with the lectotype of *S. scalarina*. However, this type is a much more solid shell, thought to be a gerontic form by Petit (1984: 60). But specimens from Japan and Taiwan (AV) clearly resemble the lectotype in general form, smoothness of the surface, and thickness of the shell. Therefore, it might be possible that the typical form of *S. scalarina* occurs in Japanese-Taiwanese waters (although the type is stated to originate from Mauritius); while the prickly form of this species ranges in the northern Arabian Sea: Persian Gulf, Gulf of Oman, and Gulf of Aden.

The surface of the lectotype is smooth in spite of the presence of the ribs: Lamarck already stated that the shell has "rien de rude au toucher". The largest Aden shell is relatively light, with the earlier whorls still prickly, but its last whorl is almost "smooth to the touch"; its umbilicus is slightly narrower than the lectotype's. But these differences may well be due to the different localities of the specimens; or they are a case of two phenotypic forms, as referred to by Verhecken (1986: 32).

The HUJ shell from Aden (fig. 27), the Aden Conquest Bay specimen (as far as this can still be judged, as this one is eroded and crabbed), and one shell from Djibouti (fig. 26) are much more high-spined, with a small aperture and strong, more horizontal columellar folds. The "Pola"-specimens (fig. 20) from Senafir Island (entrance to the Gulf of Eilat), one of the new figured specimens, is much shorter than most other shells, but it is mutilated, although this is not shown on the idealised figure (Sturany, 1903: pl. 6 figs. 3a-b). These may be aberrant forms due to extreme environmental conditions. The thin-shelled dwarf (or short-lived?) form of *S. scalarina* here found for the Red Sea, also occurs in the Persian Gulf (RMNH; HUJ 12048).

Supplemental Notes

Scalptia scalata (Sowerby, 1833)

Material: one shell MHNH, "Mer Rouge".

This specimen is part of a lot of three, glued onto a board and labeled "*Cancellaria scalata* Sow. Mer Rouge, Maurice, Nouvelle Calédonie". However, no further indication can be found concerning which locality pertains to which shell. Moreover, it must be remarked that the localities given by Tryon (1885: 81) for this species are: "**Red Sea, Ceylon, Mauritius, Moluccas, New Caledonia**". Therefore, it seems probable that the localities on the MHNH label have been copied from Tryon; this was common practice last century, when the actual locality of specimens was unknown. Hence, there is no solid evidence that one of these specimens really originates from the Red Sea, and consequently the occurrence of *S. scalata* in this sea cannot be demonstrated. According to Petit (1980: 214), this species occurs only off Mauritius.

Other specimens reported under the name *S. scalata* are here identified as the closely related *S. contabulata* (see discussion under that name).

Scalptia crispa (Sowerby, 1833)

There are two citations of *S. crispa* for the Red Sea, but under the incorrect subsequent spelling *crispata* introduced by Sowerby II (1849: 452): Tapparone-Canefri (1875: 613-614) and Kobelt (1876-77: 54). The specimens referred to are in MSNG (3 sh., Issel; cfr. figs. 24-25) and in NMW (1 sh., Jickeli; fig. 23); they are here identified as *S. scalarina* (q.v.).

Tapparone-Canefri stated that he submitted his material to E. Smith in London, who "mi assicura che è indeteca colla specie di Sowerby di cui si conservano i tipi nel Museo Britannico". Since the specimens referred to are very different from typical *crispa*, this needs more attention: *Cancellaria crispa* was described (Sowerby, 1833: 5 No 32, fig. 30) on an unspecified number of specimens from unknown locality; BMNH has five "possible syntypes", ex Cuming collection, with locality "I. of Negros (Loc. unknown)". The Philippines locality was given by Sowerby II (1849: 453); it might be the locality of specimens added to the type-lot in the Cuming collection after the original description. It is not easy to identify one of these possible syntypes with the rather bad figure accompanying the original description; the figures given by Sowerby II (1849: fig. 89) and by Reeve (1856: pl. 9 fig. 43) are much better, but do not necessarily represent a type-specimen. In spite of the fact that one syntype has the number "32" pencilled in the aperture, specimen BMNH 1968425/1 (24.9 x 16.6 mm; fig. 29) is here selected lectotype of *Cancellaria crispa*, since it bears the best resemblance to the original figure. Specimen BMNH 1969425/5 (fig. 30) is probably another species; it resembles the MSNG shell in size, color and general form. This might explain E. Smith's identification of Tapparone's material. Conclusion: *S. crispa* has not been found in the material for this study.

Figs. 19-27. *Scalptia scalarina* (Lamarck, 1822). 19, Aden, 25.6 x 16.9 mm, BMNH 1888.4.9.139-40 (Yerbury colln.). 20, Senafir Island, 14.2 x 10.6 mm, NMW 37733 ("Pola"-expedition, leg. Steindachner et Siebenrock; specimen figured by Sturany, 1903: pl. 6 figs. 3a-b). 21, "Red Sea", 19.1 x 13.1 mm, MGL TO85 (colln. De Lorial). 22, Aden, 22.9 x 14.0 mm, BMNH 1902.12.30.585 (Dinshaw colln.). 23, Dahlak Archipelago, 16.4 x 9.9 mm, NMW (leg. Jickeli, Edlauer colln. 23223). 24, Massawa area, depth 30 m, 15.7 x 9.5 mm, MSNG (leg. A. Issel, 1870). 25, Ibid., 17.2 x 9.7 mm. 26, Djibouti, 15.9 x 9.7 mm, MNHN (Mission Gravier, 1904). 27, Aden, 17.1 x 10.3 mm, HUJ 12087 (ex Coen colln.).



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***Bivetiella cancellata* (Linne, 1767)**

Apart from one specimen, locality "Red Sea, Prof. Schoenbein 1871" in NMB, there are two literature-references to specimens from the Red Sea: Caramagna (1888: 117), and Chuckchin (1976: 213).

The NMB specimen, the only one seen by the present writer, is definitely a *B. cancellata*; before it was acquired by Prof. Schoenbein, it was in the Benz collection, as evidenced by a handwritten catalogue dated 1842 (now in NMB). So, if the locality is correct, this specimen would prove the occurrence of *B. cancellata* in the Red Sea before the opening of the Suez Canal in 1869.

The identity of the Caramagna specimen cannot be checked, as its present whereabouts remain unknown: an inquiry in the "Notiziario" of the Società Italiana di Malacologia produced no response. Caramagna was a captain of an Italian vessel; he personally collected in the southern Red Sea, but in at least some cases, his identification have been found to be erroneous or doubtful (Barash et al, 1984: 103). Moreover, material from other origin may have been mixed up with his Red Sea shells, as he also cites (1888: 117) a specimen of *Cancellaria acuminata* (a W.-Panamic species). although this may have been a misidentification for *M. melanostoma*.

The specimen reported by Chuckchin (1976: 212), or a photograph of it, could not be obtained on loan for study, in spite of repeated (unanswered) requests to the Institute for the Biology of the Southern Seas in Kiev, USSR.

Hence, the occurrence of *B. cancellata* in the Red Sea cannot be demonstrated unequivocally. It seems very improbable, especially as there seem to be no records of living specimens of this species from the eastern Mediterranean Sea: beach specimens reported for the Egypt coast (Pallary, 1912: 86) and for the Israeli coast (Van Aartsen et al, 1984: 39) may pertain to subfossil specimens. Van Aartsen's fragments contained the same soil as that of a nearby railway dike (Van Aartsen, in litt.).

Scalptia littoriniformis

One specimen was reported by Chuckchin (1976: 213) but, since also this specimen could not be studied, the identification cannot be confirmed here.

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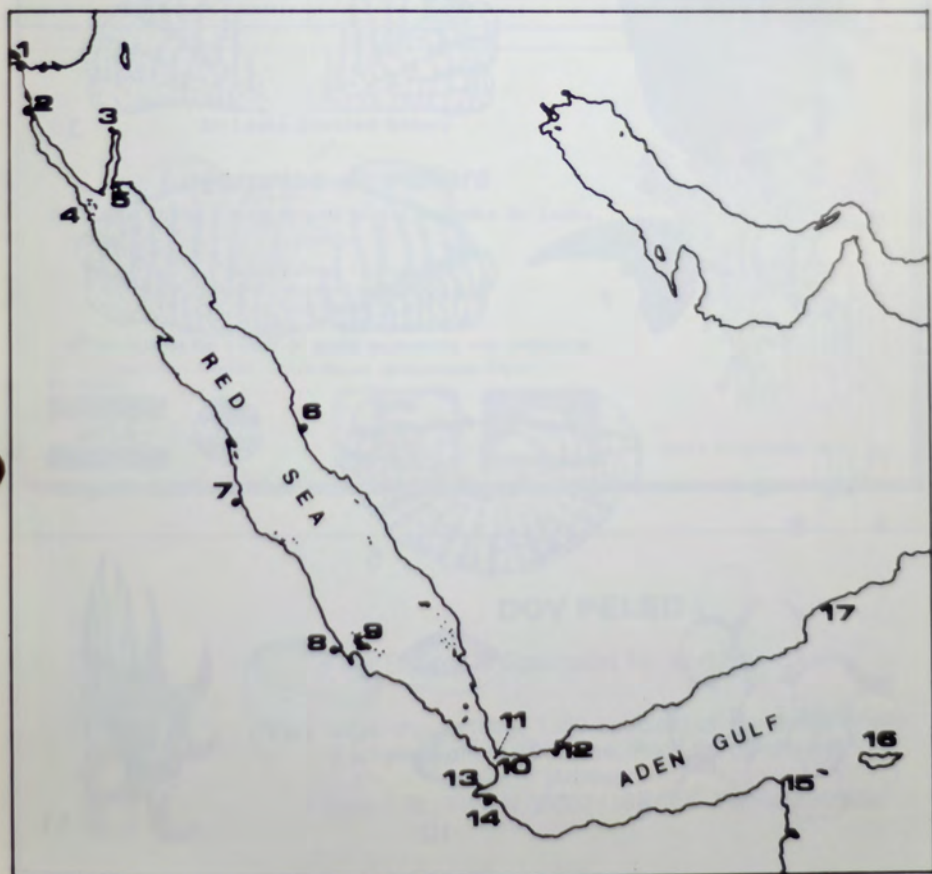
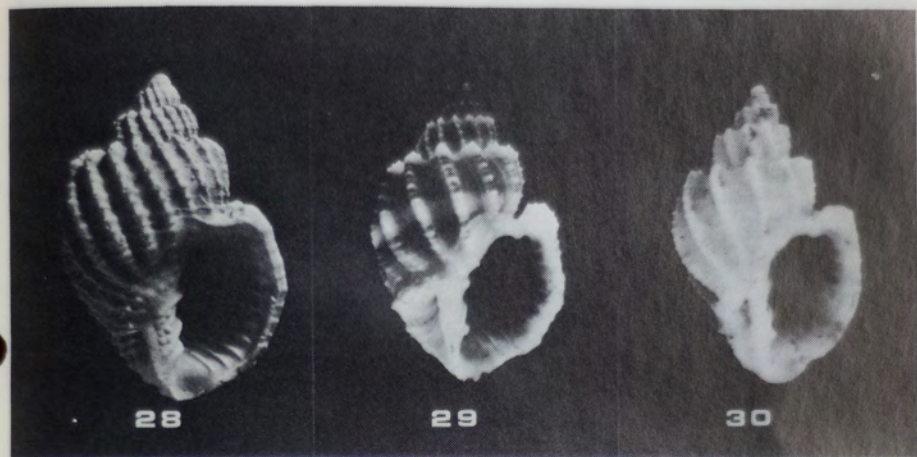
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Fig. 28. *Scalptia macconkeyi* Jousseaume, 1894. "Type", Aden, 16.3 x 11.6 mm, MNHN, Photograph: Dr. P. Jung, NMB (shell whitened with ammoniumchloride).

Figs. 29-30. *Scalptia crispa* (Sowerby, 1833). 29, lectotype, 24.9 x 16.6 mm, BMNH 1968425/1. 30, paralectotype BMNH 1968425/5, 16.7 x 10.8 mm, (probably another species, cfr. text).

Geography of studied area. 1, Port Said, 2, Suez, 3, Eilat, 4, Hurghada, 5, Senafir Island, 6, Jeddah, 7, Port Sudan, 8, Massawa, 9, Dahlak Archipelago, 10, Bal el Mandeb, 11, Perim Island, 12, Aden, 13, Tadjourah, 14, Djibouti, 15, Ras Asir, 16, Socotra, 17, Omar Bay.



PLAAT 38

I. VANBELLEI



1



2



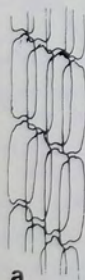
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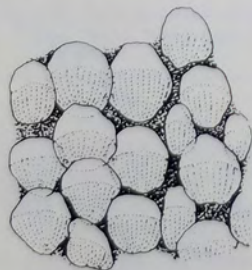
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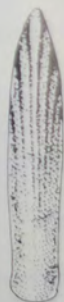
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9



10



11

Gloria Maris	25 (4)	154 - 155	Antwerpen, juli 1986
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UITLEG BIJ DE FIGUREN VAN PLAAT 38.

1. Holotype, vóór desarticulatie, x 8,4 (Kaas, 1985)
2. Holotype, camera lucida schets, onderzijde van schelpstuk I, x 17,5 (idem)
3. Holotype, bovenzicht van schelpstuk II, x 17,5 (idem)
4. Holotype, bovenzicht van schelpstuk V, x 17,5 (idem)
5. Holotype, bovenzicht van schelpstuk VIII, x 17,5 (idem)
6. Holotype, zijzicht van schelpstuk VIII, x 17,5 (idem)
7. Holotype, hoektand van de radula, x 175 (idem)
8. Holotype, ventrale schalen, a in situ, x 175, b afzonderlijke schaal, x 350 (idem)
9. Holotype, dorsale kalklichaampjes in situ, x 87,5 (idem)
10. Holotype, afzonderlijke, dorsale kalklichaampjes, x 175 (idem)
11. Holotype, randstekel, x 350 (idem)

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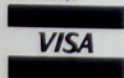
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Gloria Maris	25 (4)	156 - 159	Antwerpen, juli 1986
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RADULA: VASUM (ALTIVASUM) FLINDERSI VERCO, 1914

A. DELSAERDT (tekst)

T. BACKELJAU (radula-foto's)

Latirus aurantiacus Verco, 1895. Trans. Roy. Soc. S. Austr., vol. XIX: 89 (79), pl. II, fig. 1, 1 a.

Altivasum aurantiacum (Verco, 1895). Hedley, 1913. Fisheries, vol. II (2): 69, pl. 9.

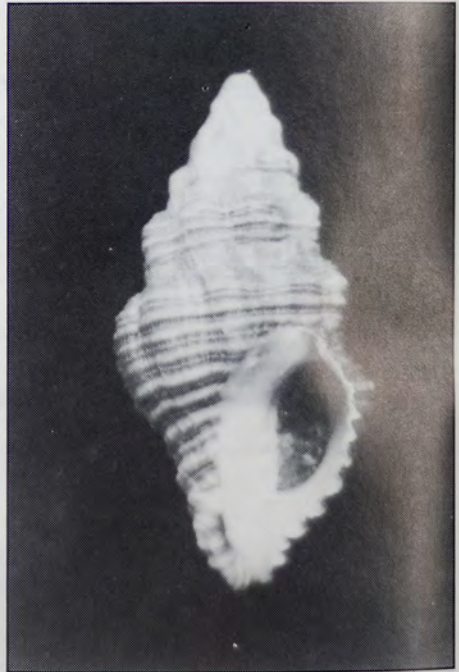
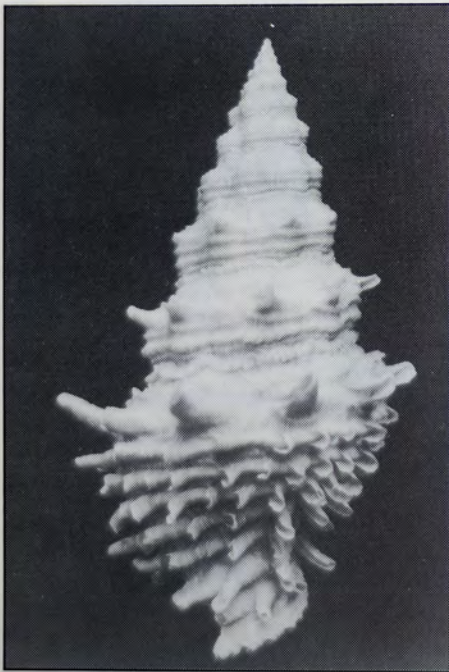
A very large specimen, dredged by the "Endeavour" in the west of the Australian Bight, is the type species of Hedley's new genus *Altivasum*.

Altivasum flindersi Verco, 1914. Trans. Roy. Soc. S. Austr., vol. XXXVIII: 484. Nom. mut. (advised Iredale).

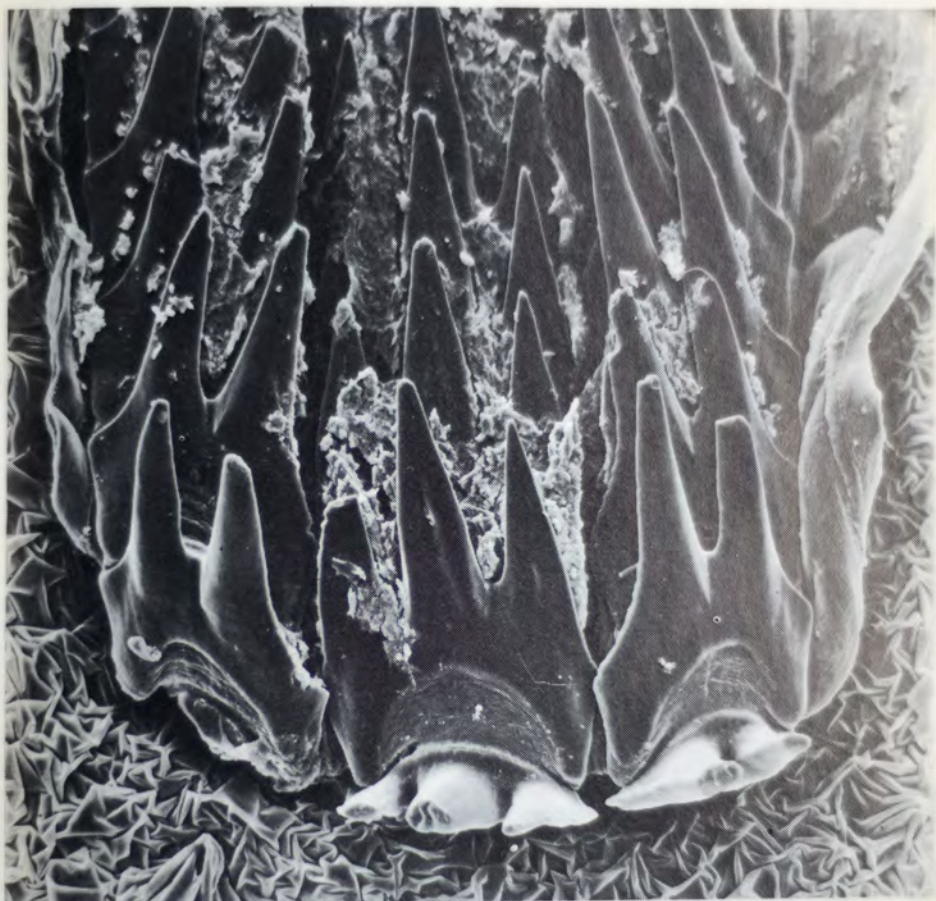
Latirus aurantiacus Montfort, 1810 (non Verco, 1895):

Murex gibbulus Gmelin, 1791 (3557, n° 125) = *Fusus filiosus* Lamarck (in An.s.Vert., 2° ed., IX: 454) = *Latirus aurantiacus* Montfort, 1810 (Conchy-biologie Systématique..., II: 531) = *Latirus gibbulus* (Gmelin, 1791), type species of the genus *Latirus* Montfort, 1810 - FASCIOLARIIDAE.

"...*flindersi*, as its range is along the line of Flinders' south-coast voyage of discovery."

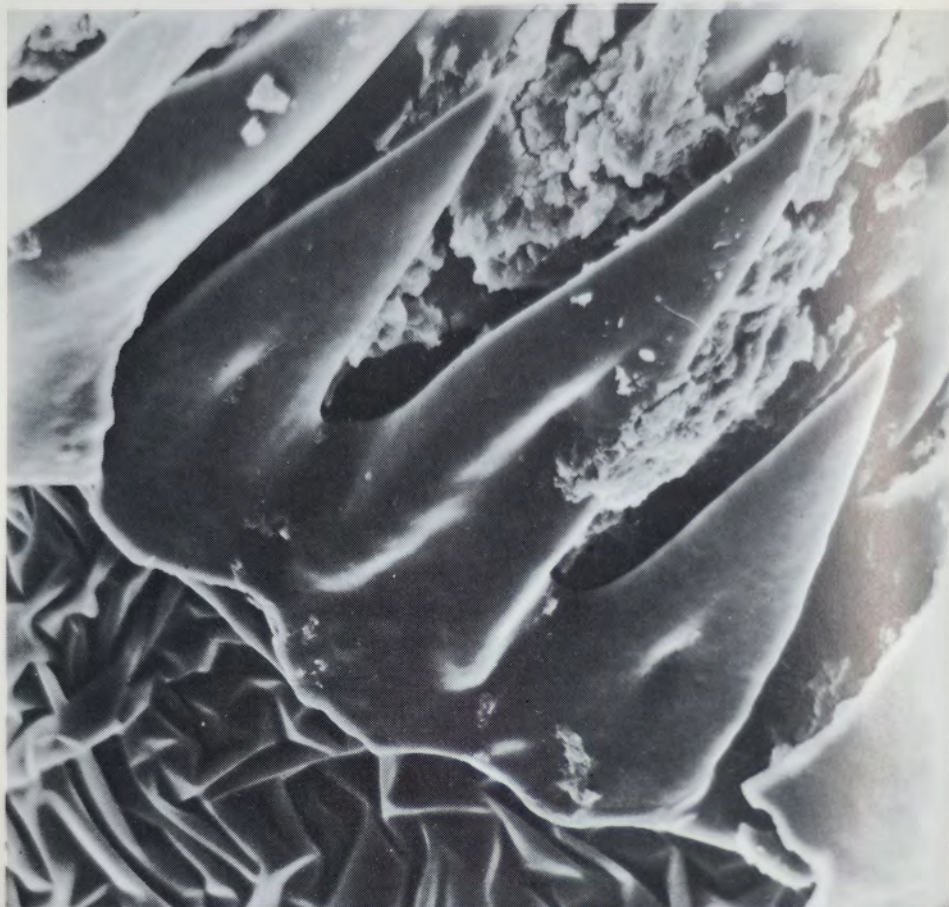


Vasum (Altivasum) flindersi Verco. Vooral volwassen dieren hebben een bijzonder attractieve schelp. Het specimen links meet 155 x 92 mm en werd opgehaald van 150 meter. Het onvolgroeide exemplaar rechts, 97 x 50 mm, werd door Gary Smith (Rossmoyne) levend gevonden op ongeveer 45 meter diepte.



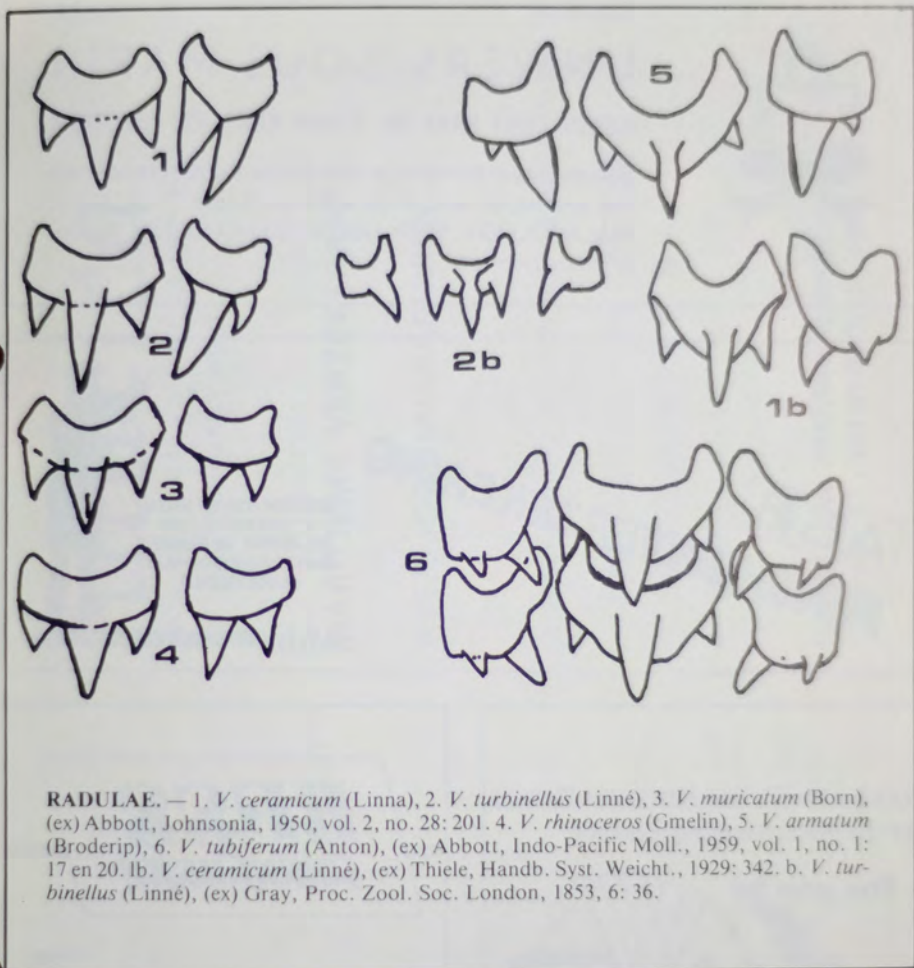
Vasum flindersi (radula) — Foto met raster-electronen-microscop ('scanning'): 80 x 1,6 op negatief.

Vasum flindersi steekt niet alleen in lengte boven zijn genus-genoten uit, maar ook in schoonheid. In adult stadium bereiken de schelpen afmetingen van 130 à 160 mm. Ze hebben dan een 12tal windingen, waarvan de laatste drie de prachtige uitsteeksels dragen. Ze vertonen doorgaans een zalmroze kleur, maar beige- en geel-oranje exemplaren worden ook aangetroffen. Witte specimens werden meestal als afgebleekte schelpen beschouwd, tot twee levende albino's (afmetingen 96 en 91 mm) voor Albany, S.W. Australia, door trawlers werden opgehaald van 800 ft (Hawaiian Shell News, 1980, feb.: 9). Levende exemplaren werden vroeger zelden gevonden (zeker wanneer het volwassen dieren betrof). Het was dan ook één van die hoogdagen, toen een derde *V. flindersi* voor mijn collectie aankwam, samen met deze woorden van Gary Smith: "A week ago I was diving in 150 ft of water on the side of an island that comes up from 250 ft and I picked up two small orange live speci-



Vasmus flindersi (radula) — Foto met raster-electronen-microscop ('scanning') van de centrale tand (tricuspid): 200 x 1,6 x 1,4 op negatief.

mens. They were taken while diving for *Cypraea rosselli*." De schelp bezat nog wel de geur van 'vers', maar de interessante resten van het dier waren verdwenen! Een vierde exemplaar werd een jaar later opgezonden, met dier (in alcohol), door Ray Walker, eveneens van Amora Shells (Rossmoyne). Het is uit dit dier dat T. Backeljau de radula prepareerde, waarvan hij de prachtige foto's realiseerde op deze bladzijden. Afmettingen van de schelp: 64 x 35 mm. De eerste keer wellicht dat de radula van *V. flindersi* wordt afgebeeld. Ter vergelijking op volgende bladzijde, enkele schematische voorstellingen van radulae (gecopieerd), alle van *Vasmus*-soorten. *V. flindersi* wordt gevonden in Z.W. Australië in dieper water (vaak bij het vangen van zgn. rotskreeft). Beslist geen gemakkelijk te vinden soort. Door de hoge spira ('Altivasmus') en de basis, doen jonge exemplaren denken aan het genus *Latirus* (FASCIOLARIIDAE), waarin ook Verco (1895) oorspronkelijk de soort foutief klasserde. **SUMMARY.** The beautiful specimens on our photos of *V. flindersi*, were sent by



RADULAE. — 1. *V. ceramicum* (Linna), 2. *V. turbinellus* (Linné), 3. *V. muricatum* (Born), (ex) Abbott, Johnsonia, 1950, vol. 2, no. 28: 201. 4. *V. rhinoceros* (Gmelin), 5. *V. armatum* (Broderip), 6. *V. tubiferum* (Anton), (ex) Abbott, Indo-Pacific Moll., 1959, vol. 1, no. 1: 17 en 20. lb. *V. ceramicum* (Linné), (ex) Thiele, Handb. Syst. Weicht., 1929: 342. b. *V. turbinellus* (Linné), (ex) Gray, Proc. Zool. Soc. London, 1853, 6: 36.

G. Smith (Amora Shells, Rossmoyne), of which one was taken alive. One year later another *V. flindersi* arrived (with animal) from R. Walker (Amora Shells). From this last (64 x 35 mm) the radula was taken by T. Backeljau. We copied some schematic figures of radulae from other species of the genus *Vasum*. Perhaps this is the first paper showing the radula of *V. flindersi*.

Backeljau, T. — (lic. biologie). Labo. Algemene Dierkunde, Rijksuniversitair Centrum, Groenenborgerlaan 171, B. 2020 Antwerpen.

Delsaerd, A. — Revisie TURBINELLIDAE (Gloria Maris), Stationsstraat 10, B. 3220 Aarschot.



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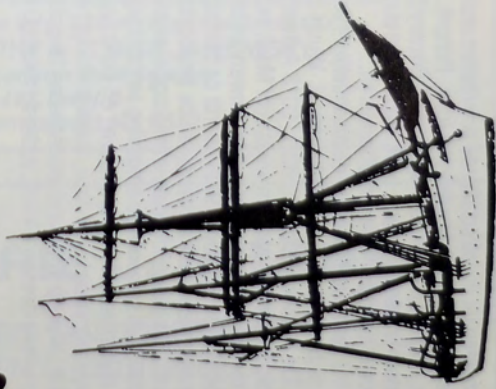
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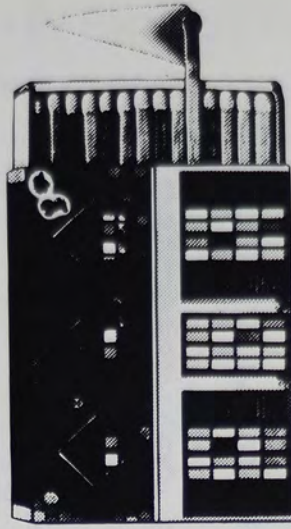
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