

Afgiftekantoor: Aarschot

GLORIA MARIS

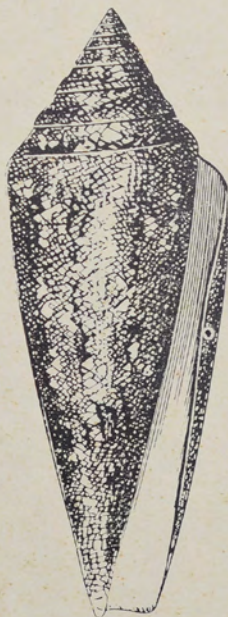
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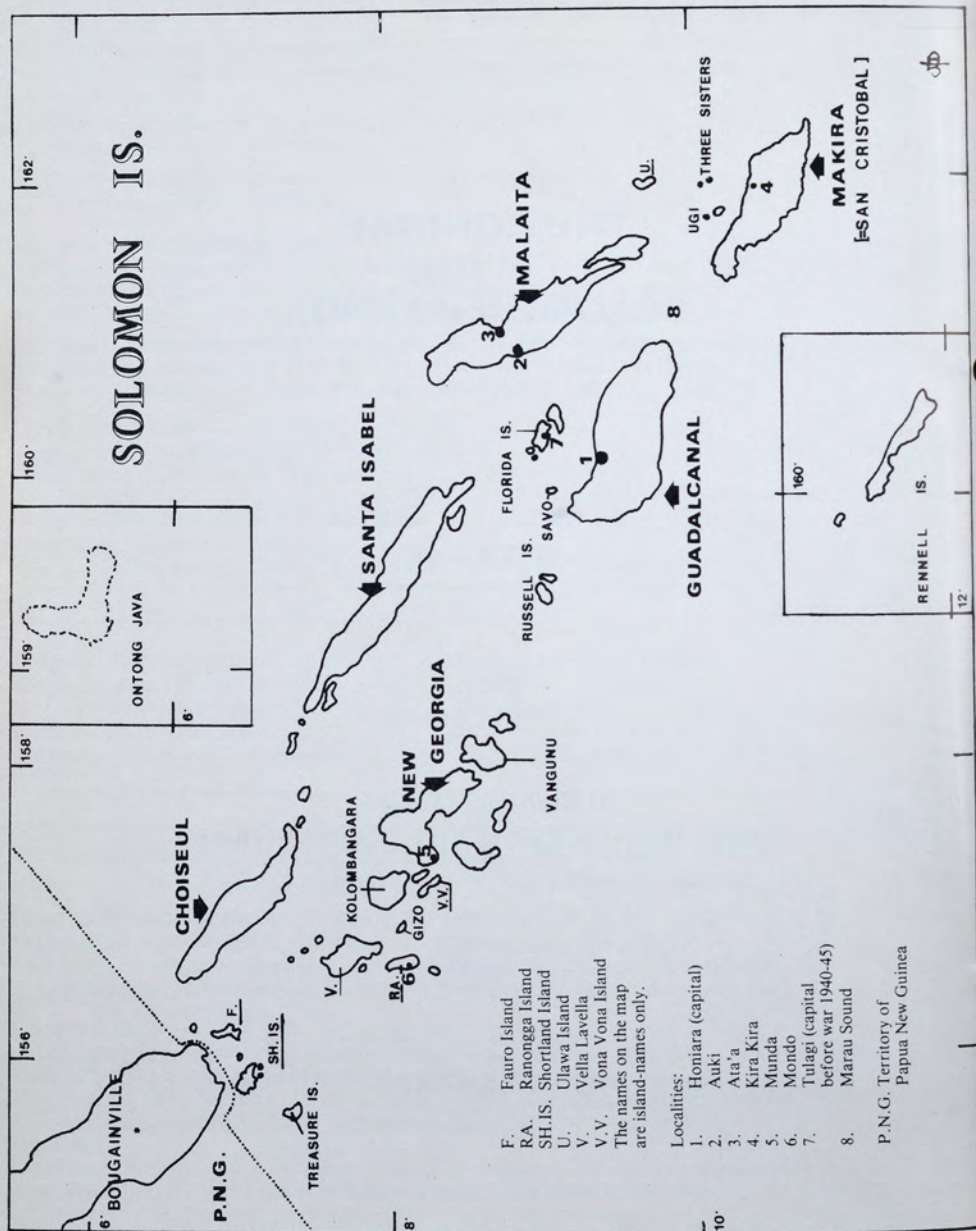
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**THE CONIDAE
OF THE
SOLOMON ISLANDS**

PART 2

Alphabetical review
treating the (sub)species up to **Conus granum**.

A. DELSAERDT



* Bougainville once was a North Solomon province, later became part of Papua New Guinea. Now the island is cut off from the outside by the insurrection of the Bougainville Revolutionary Army: Claiming Bougainville for Bougainvillians only, they preclude any entry to the island.

Mijn eerste deeltje over de Conidae van de Salomon Eilanden (1988) bevatte de belofte van een vervolg. Ik heb me daarbij laten leiden door mijn verlangen naar correcte informatie aangaande de originele beschrijvingen en het type materiaal. Natuurlijk kon ik dankbaar gebruik maken van de alfabetische revisie door Coomans-Moolenbeek-Wils, in zover deze al gepubliceerd is (tot *C. Elegans*, in 1986). In afwachting dat die zeer gewaardeerde revisie wordt verder gezet, waag ik me hierbij aan een alfabetisch overzicht van de Salomon Conidae. Velen van ons beschikken over een stel recente, populaire werken en tijdschriften die een schat aan informatie bevatten, maar waarin helaas een berg fouten (en vaak herhaald) ons van de wijs brengen. Het is genoegzaam bekend dat het *Conus*-boek van Walls (1979) in dit opzicht een ware ramp is. Ik citeer en corrigeer het toch maar, voor zover Salomon soorten daarin aan bod komen. Soms heb ik me laten verleiden ook nauw verwante (onder)soorten in de discussie op te nemen; maar dan om de juiste status van een Salomon *Conus* uit te klaren, of omdat ik de bijkomende informatie belangrijk vind.

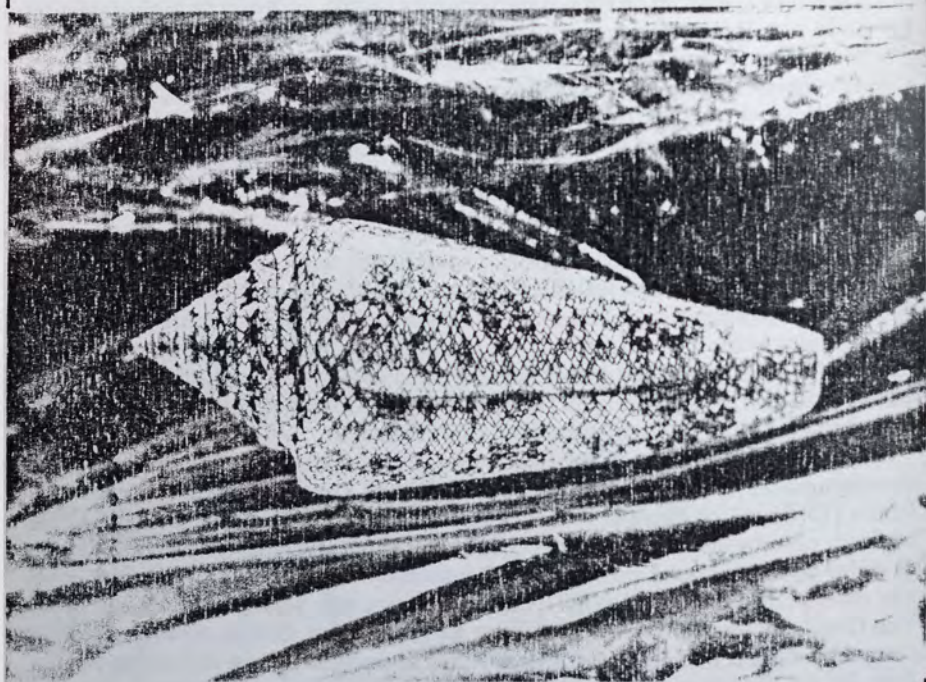
De werken, waar in de tekst naar verwezen wordt, zullen in de bibliografie op het einde van deze studie gegeven worden (na de behandeling van *C. zebra*).

Het spreekt vanzelf dat we niet het studiemateriaal vermelden uit onze algemene *Conus*-collecties, maar hoofdzakelijk vondsten uit de Salomons. De Collectie Wils (Conidae) werd onlangs overgebracht naar het KBIN. De hieruit vermelde exemplaren kunnen dan ook in ons Instituut verder bestudeerd worden. Tenslotte, bij (ons inziens) belangrijke besprekingen, voorzien we een samenvatting in onze moedertaal.

Het past hier een hartelijk woord van dank uit te spreken. Dhr. J. de Visser bezorgde me spontaan een volledige lijst van zijn verzameling Salomon Conidae, alsmede de opnamen van enkele merkwaardige soorten. In de zeer uitgebreide collectie Conidae van dhr. Ed. Wils zitten wellicht ook bijna alle soorten afkomstig van de Salomons. Hij leende me bereidwillig exemplaren van enkele zeldzame species. In de 18 jaar dat ik regelmatig met de studie van de Conidae bezig ben, heeft hij me trouwens veel van zijn kennis trachten door te geven.

Ook dhr. J. Buijse heeft me flink geholpen, onder meer nog door het kritisch doornemen van het MS van dit tweede deel. Verder kwam er nog hulp van dhr. M. Chino (Japan). Ook betreur ik de geografische afstand naar dhr. D. Röckel: De boeiende correspondentie tussen ons en het besef van zijn zeer rijke collectie Salomon Conidae doen me hopen op nog aanvullende informatie in deze studie. Het hoeft niet meer gezegd dat ik in het KBIN altijd welkom ben, waarvoor dank aan dr. J. Van Goethem; terwijl dhr. A. Lievrouw me graag al het nodige aanbrengt. Zoals vermeld in mijn eerste deel, startte deze studie in de collectie van wijlen Jan van der Riet. Bij elk bezoek word ik bijzonder hartelijk ontvangen door mevr. L. van der Riet-Rigaux. Ik heb ook voor deze studie heelwat te danken aan dhr. E. Le Compte, een vriend die me - en niet alleen in de conchylologie - in een stroomversnelling heeft gebracht.

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of the
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and its bulletin **GLORIA MARIS**
INTERNATIONAL SHELLSHOW
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In this part and following I will make the alphabetical review of the Conidae of the Solomon Islands. The references to the original descriptions are mentioned for all (sub)species, together with concise information concerning the type material. Of course the alphabetical revision of the (sub)species in recent Conidae by Coomans-Moolenbeek-Wils (as far as published: to *C. elegans*, in 1986) was very useful.

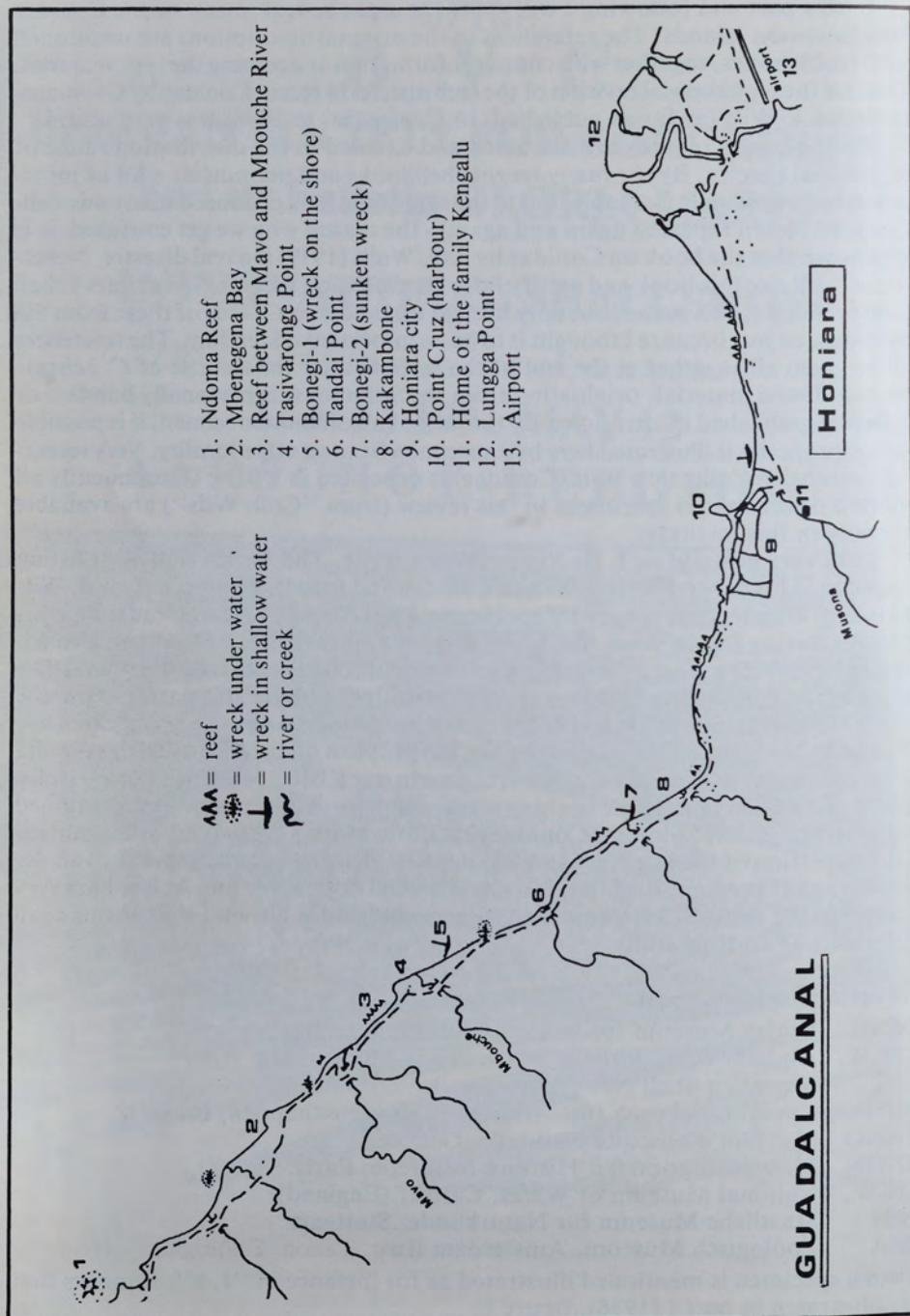
The Solomon records are discussed and situated in the distribution range of the nominal species. By the many recent shellbooks and periodicals a lot of information became widely available, but in the same time they produced many misidentifications (often repeated again and again) - the reason why we get confused. It is well known that the book on Conidae by J.G. Walls (1979) is a real disaster. Nevertheless I will cite this book and rectify it for the Solomon species. Sometimes I shall discuss related (sub)species, but only to clear up the correct status of these from the Solomons, or just because I thought it to be an important addendum. The references will be given all together at the end of the review (after the treatise of *C. zebra*). The mentioned material, originating from the Solomons, is personally handled or studied on published illustrations. By the lack of a Solomon specimen, it is possible that a rare species is illustrated here by a specimen from an other locality. Very recently the extensive Collection Wils (Conidae) is deposited in KBIN: Consequently all reported or illustrated specimens in this review (from "Coll. Wils") are available for study in this institute.

I am very grateful to J. de Visser (Westkapelle, The Netherlands) for listing all species in his collection of Solomon Conidae and for some photo's. To **Ed. Wils** (Antwerp) who lent me some rare specimens for this study and who taught me his opinions during the 18 years of my interest for Conidae. I have to thank also **M. Chino** (Japan) for reporting some species in his collection; and **J. Buijse** (Goes, The Netherlands) for his help and for reading critically the MS of this part. I regret the geographical distance to **D. Röckel** (Eberbach, Germany) who keeps an extensive collection of Solomon Conidae: He solved the problem of distance by a friendly and useful correspondence. I am always welcome in our KBIN, for which I am grateful to **dr. J. Van Goethem**; while nothing is too much for **A. Lievrouw**. As mentioned in the first paper on Solomon Conidae (in *Gloria Maris*, 1988-4) my study started in the collection of the late Rev. Jan van der Riet. During my visits Mrs. **L. van der Riet-Rigaux** (Tervuren, Belgium) is really a cordial hostess for me. At last I am very grateful to the artist **E. Le Compte** (Affligem, Belgium), a friend who encouraged me in his way for this study.

Abbreviations in this part.

- BMNH British Museum for Natural History, London.
 C.M.W. Alphab. Rev. Conidae by Coomans-Moolenbeek-Wils.
 HSN Hawaiian Shell News (periodical).
 KBIN Koninkl. Belgisch Inst. voor Natuurwetenschappen, Brussel.
 MHNG Muséum d'Histoire Naturelle, Genève.
 MNHN Muséum National d'Histoire Naturelle, Paris.
 MN-W. National Museum of Wales, Cardiff (England).
 SMN Staatliche Museum für Naturkunde, Stuttgart.
 ZMA Zoölogisch Museum, Amsterdam (Inst. Taxon. Zoölogie).

When a specimen is mentioned illustrated as for instance in "1, 1'": It means that it is illustrated in part I (1988), figure 1.



C. achatinus Gmelin, 1791.

Conus achatinus Gmelin, 1791. Syst. Nat. XIII: 3386, nr. 25.

Type material. — The specimen figured in Chemnitz (1788: pl. 142, fig. 1317) is designated lectotype (Kohn, 1966: 76-77).

Type-locality. — "Oceano americano" (Gm.) was not correct. The island of Java is selected as type locality by C.M.W. (1979: 15), being the centre of the distribution of this Indo-Pacific species.

Remarks. — *C. achatinus* is often considered a junior synonym of *C. monachus* Linné, 1758 by recent authors. Hinton (1972: pl. 36, fig. 1-5 - "*achatinus* (= *monachus* Linné?)"); 1977: 56, fig. 11-11d = 1977bis: 70, fig. 11-11d - "*C. monachus*"). Walls (1979: 473, 739-742 - "*C. monachus*"). Estival (1981: 66 - "34. var. *achatinus*"). Abbott & Dance (1982: 256 - "*C. monachus*. Syn. *achatinus* Gmelin, *vinctus* A. Adams"). Wells & Bryce (1985: pl. 44, fig. 503 - "*C. monachus*" = *C. achatinus*!). Short & Potter (1987: pl. 48, fig. 5 - "*C. monachus*. *C. achatinus* is a synonym"; the figured specimen is *C. achatinus*).

C.M.W. (1979: 15) considered *C. achatinus* a valid species, separated from *C. monachus* by the spiral rows of dark spots. Springsteen & Leobrera (1986: pl. 63, fig. 13 - "*C. monachus*" and fig. 14 - "*C. achatinus*") are of the same opinion. Besides the spiral rows of brown and white dashes *C. monachus* is said to have "a more convex spire, a narrower, more roundly angulated shoulder" and to be "more attenuated in general outline". I am convinced that *C. achatinus* is a valid species.

The specimens illustrated in Walls (1979: 473, above) and identified as "*C. monachus*" are in fact *C. achatinus*, of which the right one (53,2 mm) from Honiara. Walls (1979: 741): "The variation in color of a series from even one Solomon location may encompass the entire range of color variation typical of darker patterns of this species (*C. achatinus* - *C. monachus*), with grayish dashless shells, shells encircled by dark lines, very dark blue and gray shells, and almost black shells found together. Certainly none of these are worthy of even varietal status." I remark that even for a less experienced eye, the two species are to be separated immediately. Between the many Solomon specimens I saw in Honiara, I could select light brown and ashgrey specimens of *C. monachus* (of which several specimens with axial, dark flammules, apart from the deeper coloured *C. achatinus* with the spiral rows of dark spots. I did not find intermediates.

Material. — In Coll. author (nr. 02000) 3 gem specimens are kept from Guadalcanal, of which one illustrated in I, 1. In Coll. vd Riet 2 specimens from Ata'a, Malaita: 53,0 x 23,5 mm and 53,0 x 26,0 mm (very concave, w/p).

Samenvatting. — *C. achatinus* wordt vaak als synoniem beschouwd van *C. monachus* Linné, 1758. We citeerden hierboven een aantal populaire, recente werken. We volgen C.M.W. (1979: 15) die *C. achatinus* als een volwaardige soort beschouwen, gemakkelijk te onderscheiden van de andere door de spiraallijnen van witte en donkere streepjes. Ook Springsteen & Leobrera (1986: pl. 63) illustreren dezelfde opinie en voegen ter onderscheiding nog enkele vorm-kenmerken toe. We konden ter plaatse prachtig materiaal selecteren, waarbij het opviel hoe gemakkelijk het was om de twee soorten uit elkaar te houden. We vonden geen overgangen.

C. acutangulus Lamarck, 1810.

Conus acutangulus Lamarck, 1810. Annl. Mus. Hist. nat. Paris, 15: 286, nr. 121. Type material. — Lamarck, lacking this species in his collection, referred to Chemnitz (1795: pl. 182, figs. 1772-1773) which is not the species generally known as *C. acutangulus*. For the stability of nomenclature a neotype is designated by C.M.W. (1979: 18-20): The two specimens in MNHN, described and figured in Kiener (1847: pl. 72, fig. 1).

Type locality. — "Mers des grandes Indes" (Lamarck).

Remarks. — In spite of most authors, Wils (1986: 164-165) is not convinced that *C. gemmulatus* Sowerby, 1870 is just a synonym of *C. acutangulus*: Red Sea specimens resemble the holotype of *C. gemmulatus* (in BMNH) by a very produced spire and the nodules on the shoulder more pronounced - "the spire whorls are beautifully beaded with gem-like papillae" (Sowerby, 1870: 257) and the type is figured with enlarged detail (Sow.: pl. XXII, fig. 8). A subspecific status was suggested for *C. acutangulus gemmulatus*, living in the Red Sea, distinguished by the mentioned marks from the widely distributed Indo-Pacific *C. acutangulus acutangulus* (-Wils, 1986).

Material. — From many, equally small specimens in the Kengalu-stock I selected the specimen illustrated in I,2. The figure of the neotype in Kiener (pl. 72, fig. 1) is reproduced here on colour plate 1.

Samenvatting. — In tegenstelling met de meeste auteurs, is Wils (1986: 164-165) niet overtuigd dat *C. gemmulatus* Sowerby, 1870 slechts een synoniem zou zijn van *C. acutangulus*. Inderdaad beantwoorden exemplaren uit de Rode Zee, door een veel hogere spira en de uitgesproken knobbeltjes op de schouder, volledig aan het holotype van *C. gemmulatus* in het BMNH. Hierdoor onderscheiden Rode Zee-exemplaren zich van *C. acutangulus acutangulus* uit de Indo-Pacific.

C. adamsonii Broderip, 1836.

Conus adamsonii Broderip, 1836. Proc. Zool. Soc. Lond. 4: 44.

Syn.: *C. rhododendron* Jay, 1839.

Type material. — Broderip's type seems to be present in the NM-Wales, Cardiff.

Type locality. — American Samoa is designated by C.M.W. (1979: 20-21).

Remarks. — Walls (1979: 58-59) mentioned the famous rhododendron cone from Cook, Tonga, Gilbert, Society and Solomon islands, the Great Barrier Reef, New Hebrides and New Caledonia. Estival (1981: 92-93) restricted the distribution to the "Southern Pacific (Solomons, Society and Vanuatu)" and added that its habitat might be the same as *C. bullatus*. One specimen of *C. adamsonii*, live taken in the Marquesas by G. Hamann, is shown in H.S.N. (1983, Aug.: 5) and on the frontpage of La Conchiglia (1989, N. 246-249). I can not confirm that the species is really found in the Solomons. The figure from Sowerby's Thesaurus Conchyliorum (frontispiece) is reproduced on colour plate 6.

C. ammiralis Linné, 1758.

Conus ammiralis Linné, 1758. Syst. Nat. X: 713, nr. 257.

Type material. — Lectotype designated and illustrated by Kohn (1963: 744, fig. 1), in the Linnean Coll., London.

Type locality. — "O. Americae meridionalis" (Linné) is not correct. The Molucan Islands in Indonesia are designated type locality by C.M.W. (1980: 30-33).

Remarks: The species is very uncommon in the Solomons. Walls (1979: 85) figured a granulated specimen (37,1 mm) from Guadalcanal, off Lungga River.

Material. — In Coll. author (nr. 02003) a juvenile specimen is kept, collected near Honiara: 27 x 13 mm. In Coll. vd Riet two specimens from Malaita, measurements 64,0 x 35,6 mm and 49,0 x 26,0 mm (illustrated in I,3).

C. arenatus arenatus Hwass, 1792.

Conus arenatus Hwass in Bruguière, 1792. Enc. Méth.: 621, nr. 16. Tabl. Enc.: pl. 320, fig. 6 (var. A), fig. 3 and 7 (var. B), fig. 4 (var. C: "testa granulosa").

Type material. — The type specimen figured in Hwass (1792: pl. 320, fig. 4) is designated lectotype (Kohn, 1968: 441, pl. 2, fig. 8) and is kept in the MHNG (nr. 1106/41).

Type locality. — "Des Isles Philippines", the locality of the granulated type specimen is designated type locality of *C. arenatus* by Kohn (1968: 441).

Remarks. — C.M.W. (1981: 15-18) recognize three subspecies: *C. arenatus arenatus*, widely distributed in the Indo-Pacific, from India to the Tuamotu Arch. The pattern is very variable. *C. arenatus aequipunctatus* Dautzenberg, 1937 - from the Red Sea and the Gulf of Aden. Synonym: *C. arenatus armatus* Wils, 1969; "armatus" by the strong nodules at the shoulder. The last subspecies is *C. arenatus bizona* C.M.W., 1981 - from East Africa. The form *undata* Dautzenberg, 1937 is characterized by the fine spots arranged in zigzag pattern. The granulated form is rarely found.

Material. — In Coll. author (nr. 02004/5, 02230) 7 specimens are kept of which 4 belong to the form *undata*; length between 19,0 and 31 mm. In Coll. vd Riet a growth series of 16 specimens from Malaita; length between 14,6 and 45,0 mm. This last specimen is here illustrated on colour plate 1.

Samenvatting. — C.M.W. (1981: 15-18) onderscheiden drie subspecies: *C. arenatus arenatus* in de Indo-Pacific; *C. arenatus aequipunctatus* Dautzenberg, 1937 in de Rode Zee en de Golf van Aden; *C. arenatus bizona* C.M.W., 1981 van Oost Afrika.

C. articulatus Sowerby III, 1873.

Conus articulatus Sowerby III, 1873. Proc. Zool. Soc. Lond.: 146, pl. 15, fig. 3.

Type material. — The holotype is lost.

Type locality. — "Mauritius" by original designation, is a dubious locality.

Remarks. — According C.M.W. (1981: 23) the distribution of this species is in the tropical Western Pacific, from South Japan to New Guinea. Richer de Forges & Estival (in Rossiniana, 1986, N. 32: 13-18) collected *C. articulatus* in the Neo-Caledonian lagoon by dredging at a depth between 35 and 40 metres. Richards A. (in La Conchiglia, 1988, N. 232-233: 3-6) reported a few live specimens brought up in dredgings along the south and east coasts outside Blanche Bay, East New Britain. Hinton (1972: pl. 43, fig. 27 - dredged from 48 metres off central Queensland; 1977: 60, fig. 9 = 1977 bis: 74, fig. 9 - "*C. anabathrum* Crosse") misidentified the species as "*C. anabathrum* and *C. semisulcatus*". A clear illustration of *C. articulatus* can be found in Springsteen & Leobrera (1986: pl. 72, fig. 7).

Material. — One specimen from Guadalcanal is kept in Coll. Wils (nr. Co. 552) and illustrated here on colour plate 1: It is the specimen with the high spire, 23,3 x 11,5 mm. On the same picture an other specimen with a low spire is illustrated, from Phuket, Thailand.

C. artoptus Sowerby I, 1833.

Conus artoptus Sow. I in Sow. II, 1833. Conch. Ill. (*Conus*): pl. 33, fig. 35.

Type material. — The present whereabouts of the type are unknown. It is not in BMNH. The specimen figured in Sow., 1833 (fig. 35) must be considered lectotype and is reproduced here on colour plate 1.

Type locality. — "S. Seas per Endeavour" (Sow.) is restricted by C.M.W. (1981: 23) to Biak, New Guinea.

Remarks. — Sowerby II (1866. Thes. Conch., *Conus*: pl. 23: fig. 556) synonymised *C. tenellus* Chemnitz (pl. 183, fig. 1782-3) and *C. spectabilis* A. Adams, 1853 (P.Z.S.: 117) with *C. artoptus*. *C. tenellus* is considered a synonym of *C. nimbosus* Hwass, 1792. Adams (1853) compared *C. spectabilis* (= *C. artoptus*) with *C. nussatella* Linné, 1758 and *C. violaceus* Reeve, 1844 - both of the subgenus *Hermes*.

The last whorl of *C. artoptus* is spirally ridged; with three bands of golden brown to purplish brown colour, the interstices spotted with the same colour. The lectotype is shown on colour plate 1, together with the specimen of Coll. Wils (nr. Co. 607a). There is a very clear illustration in Springsteen & Leobrera (1986: 337, fig. 5), but with a misprint "*C. artoptus*". Walls (1979: 142-143) considered *C. viola* Cernohorsky, 1977 [nomen novum for *C. violaceus* Reeve, 1844 (non Gmelin, 1791)] synonym of *C. artoptus*. This is not correct. *C. viola* Cernohorsky is a valid species. One specimen from Coll. Saesen (the entire collection is deposited in KBIN) is illustrated on colour plate 1, side by side with *C. artoptus* for comparison. Maybe Walls's error is caused by Tomlin (1937: 328) who incorrectly changed the label of the three syntypes of *C. violaceus* Reeve, 1844 into "*C. luteus* Sow."... However, the specimen illustrated in Walls (1979: 113 below right) is *C. viola*, a valid species.

According to C.M.W. (1981) *C. artoptus* is known from Indonesia to the Solomons and Queensland.

Material. — In Coll. Wils (Co. 607a) one specimen, 27,2 x 9,4 mm, leg. J. vd.

Riet: Kakambone, Guadalcanal. In Walls (1979: 113 below left) one specimen of 41,5 mm from Marau Sound, Guadalcanal.

Samenvatting. — Het exemplaar, afgebeeld in Sowerby (1833: fig. 35) moet beschouwd worden als lectotype van *C. artoptus*. De schelp vertoont op de laatste omgang talrijke, concentrische ribjes en drie bruine banden.

C. spectabilis A. Adams, 1853 is een synoniem. Walls (1979) beschouwde ook *C. viola* Cernohorsky, 1977 als een synoniem van *C. artoptus*; *C. viola* is echter een volwaardige soort. *C. viola* is een nieuwe naam voor *C. violaceus* Reeve, 1844 (non Gmelin, 1791). Mogelijk is de fout van Walls veroorzaakt door Tomlin (1937), die het label van de syntypes van *C. violaceus* in BMNH veranderde in "*C. luteus* Sow." - met alle verwarring rond deze laatste.

Op onze kleurplaat 1 werden het lectotype en een exemplaar van *C. artoptus* afgebeeld, samen met een exemplaar van *C. viola* uit Coll. Saesen (in KBIN), ter vergelijking.

C. aulicus Linné, 1758.

Conus aulicus Linné, 1758. Syst. Nat. X: 717, nr. 279.

Type material. — The specimen figured in Gualtieri (1742: pl. 25, fig. Z) is designated lectotype by Kohn (1963: 744-745, pl. 1, figs. 3-4).

Type locality. — "Asia" (Linné) is restricted to the Moluccas, Indonesia, by C.M.W. (1981: 29).

Remarks. — This species has a distribution from East Africa to the Tuamotu Arch. Although several large specimens from Malaita are kept in Coll. vd Riet, it is surely not a common species in the Solomons.

Material. — Besides the specimen in I, 5 (Coll. author: 02124) two other specimens from Ata'a, Malaita, are here illustrated on colour plate 1: 110 x 45,9 mm and 93,5 x 34,8 mm (Coll. vd Riet).

C. auratinus da Motta, 1982.

Conus auratinus da Motta, 1982. Publ. Ocas. Soc. Port. Malac.-1: 2-3, fig. 2.

Type material. — The holotype, 82 x 29,5 mm, is in MHNG (nr. 982.118).

Type locality. — "Taken in shallow water, Fakarava Island, Tuamotu Archipelago" (da Motta).

Remarks. — I will not renew the long discussion about the real status of *C. auratus* Hwass, the doubtful lectotype designated by Kohn (1986), and the way out by *C. auratinus* da Motta. A summary of the problem is made by A. Richards (in Rossiniana, 1985, N. 27: 18). An excellent exposition to defend *C. auratus* Hwass is written by R. Martin (in HSN, 1983, Aug.: 4). I do not agree with Lauer (1989 "Complexe textile-10": 12-14) who considers *C. auratinus* a form of *C. aulicus*. *C. auratinus* is a valid species.

The Tuamotu Arch. is the most cited locality. But the species is also found in Vanuatu (in Rossiniana, 1984, N. 23: 14), in Futuna (in Rossiniana, 1986, N. 32:

11), in New Ireland (Hinton, 1972: pl. 38, fig. 1). Moreover, Springsteen & Leobrera (1986: pl. 70, fig. 4; p. 248) illustrate the species and mention Philippine records in Eastern Samar and Sulu.

Material. — In Coll. author (nr. 02006) one specimen of *C. auratinus*, 107 x 37 mm, leg. Johnson Kengalu: Ontong Java (in the north of the Solomons). This specimen is illustrated in I, 6 and here on colour plate 1. Another specimen was kept in the Kengalu Collection during my visit, 125 mm in length and from the same locality. In Coll. author (nr. 696) also a juvenile specimen of *C. auratinus*, 27,8 x 9,7 mm, leg. Maescot: Rangiroa - Theau Is., Tuamotu Arch. (after typhon).

Samenvatting. — *C. auratus*, door Hwass beschreven als een volwaardige soort, werd door Bruguière in dezelfde Enc. Méth. (1792) herleid tot slechts een variëteit van *C. aulicus*. Een twijfelachtig lectotype aangeduid door Kohn (1968), met als gevolg een lange en heftige discussie, waaraan da Motta een einde maakte door de beschrijving van *C. auratinus*. Hierover kan een samenvatting door A. Richards (in Rossiniana, 1985, N. 27) gelezen worden, terwijl R. Martin de verdediging op zich nam van *C. auratus* Hwass (in HSN, 1983, Aug.). Hoe ook, *C. auratinus* da Motta is een volwaardige en zeldzame soort.

Bij mijn bezoek (1987) kreeg ik als afscheidscadeau van Johnson Kengalu een exemplaar door hem gevonden aan Ontong Java. Het is afgebeeld in I, 6 en hier in kleur op plaat 1. Johnson beschikte over een tweede exemplaar, 125 mm lang en van dezelfde localiteit: De trots van zijn verzameling.

***C. aureus* Hwass, 1792 and
C. paulucciae Sowerby III, 1876.**

Conus aureus Hwass in Bruguière, 1792. Enc. Méth.: 742, nr. 135.

Type material. — A neotype is selected from the Coll. Sollier by Kohn (1968: 442-443). It is the specimen with measurements 56,5 x 23 mm in MHNG (nr. 1107/869) and figured in Kiener (1845: pl. 82, fig. 2a).

Type locality. — "l'Océan Indien, sur les côtes de la Chine" (Hwass).

Conus paulucciae Sowerby III, 1876. Proc. Zool. Soc. Lond.: 752-753, pl. XXV, fig. 3.

Type material. — Type? (According to Sowerby, 1876 and Tomlin, 1937 the type specimen was in Coll. Paulucci, Florence).

Type locality. — "Mauritius" (Sowerby).

Remarks. — Sometimes it is suggested by recent authors that *C. paulucciae* only should be a form of *C. aureus*, or that they are at least conspecific. Walls (1979: 171) could not find any real basis to recognize *C. paulucciae* as more than an "individual or perhaps localized populational variant". His nonsens goes on: "It would seem that large, exceptionally beautiful specimens are called *C. paulucciae*, while smaller and more typically colored specimens are called *C. aureus* by some dealers." Estival (1981: 86) considered *C. paulucciae* as the variety of *C. aureus* in the Indian Ocean. His figured specimen is the Indo-Pacific *C. aureus* - rare in New Caledonia. Abbott & Dance (1982: 245) illustrated both: *C. paulucciae* - "Southern Indian Ocean. Maybe a form of *C. aureus*" and *C. aureus*. In Springsteen & Leobrera (1986:

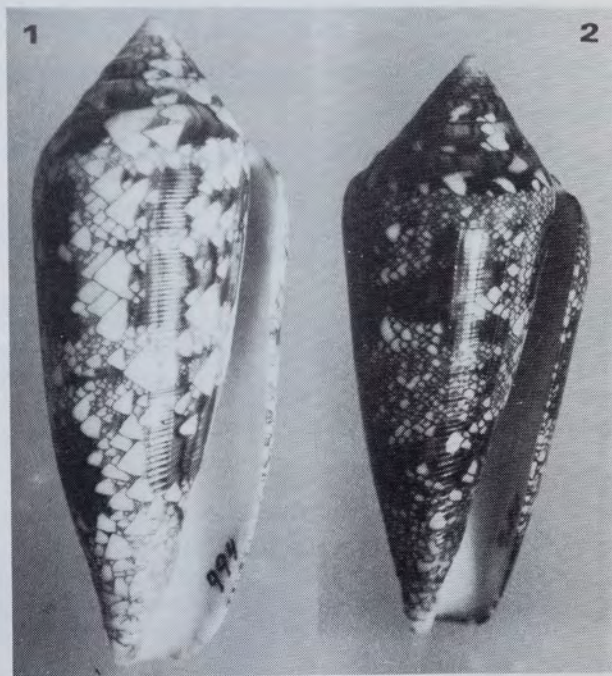
pl. 67, fig. 2a-b) one typical, live-taken *C. aureus* and one orange-coloured beach specimen, both from Eastern Samar. A typical *C. aureus* is also illustrated in C.M.W. (1981: fig. 162).

In his original description Sowerby discussed already the affinity of *C. paulucciae* with *C. aureus*: "In colour and marking it closely resembles *C. aureus*; but it is of a much more tapering form than that species, and its surface is much smoother." Indeed, besides the differences in general form, *C. aureus* is finely and regularly grooved on its surface.

In Coll. author a giant specimen of *C. aureus* is kept (length 70,4 mm), collected in the Maldives: Sympatric with *C. paulucciae*, a confirmation once again that *C. aureus* and *C. paulucciae* are two valid species.

Material. — In Coll. de Visser one specimen of *C. aureus*, collected off Guadalcanal. Surely a rare species in the Solomons.

The figure of the neotype in Kiener is reproduced on colour plate 1. Lauer (in Rossiana, 1989, N. 42: 17) illustrated two specimens of *C. aureus* from the Solomons (Coll. Röckel), length 58 mm and 51 mm.



1

C. aureus Hwass, 1792.
70,4 x 27,1 mm.
Maldives.
Scuba diving in -28 m.
In Coll. author (nr. 994).

2

C. paulucciae Sowerby III, 1877.
48,4 x 20,2 mm.
St. Denis, Réunion.
Scuba diving.
In Coll. author (nr. 922).

Samenvatting. — Recente auteurs interpreteren *C. paulucciae* als een ondersoort of zelfs een vorm van *C. aureus*. We citeerden hierboven Walls (nonsens!), Estival, Abbott & Dance.

Sowerby wees al in zijn beschrijving van *C. paulucciae* op de sterke overeenkomsten met *C. aureus*, maar onderstreepte naast een verschil in algemene vorm, dat *C. aureus* over het ganse schelp-oppervlak fijn en regelmatig gegroefd is, waar *C. paulucciae* veel gladder is. Exemplaren van beiden zijn gemakkelijk te onderscheiden. Het feit dat *C. aureus* ook al volop in het gebied van *C. paulucciae* werd gevonden (zie afgebeeld exemplaar uit Coll. auteur) en dus sympatrisch, kan het ene van het andere geen ondersoort zijn. Het gaat inderdaad om twee volwaardige soorten.

In Coll. de Visser bevindt zich een exemplaar van *C. aureus* uit de Salomons. Ook in Rossiniana (1989, N. 42: 17) worden twee exemplaren van *C. aureus* uit de Salomons afgebeeld. De soort is daar ongetwijfeld heel zeldzaam. Ter identificatie verwijzen we nog naar Springsteen & Leobrera (1986: pl. 67) waar een levend gevonden exemplaar naast een 'beach' wordt afgebeeld. Ook C.M.W. (1981: fig. 162) geven een typische *C. aureus*. Op onze kleurplaat 1 geven we de figuur van het neotype uit Kiener.

C. auricomus Hwass, 1792.

Conus auricomus Hwass in Bruguière, 1792. Enc. Méth.: 742-743, nr. 136.

Type material. — Holotype in MHNG (nr. 1106/45), figured in Tabl. Enc.: pl. 346, fig. 3.

Type locality. — "mers des grandes Indes" (Hwass) is restricted to the Sulu Sea by C.M.W. (1981: 35).

Remarks. — *C. debilis* Fenaux, 1943 (non Monterosato, 1917) = *C. dactylosus* Kiener, 1845, being a form of *C. auricomus*.

C. auricomus Lamarck, 1810 = *C. aureus* Hwass.

It is an uncommon Pacific species. Estival (1981: 98) mentioned it as a rare cone in New Caledonia, living in sand on the outer side of barrier reef at 20-40 m.

Material. — A specimen from Marau Sound (Guadalcanal) is illustrated in Walls (1979: 132, above left). One specimen from the same locality in Coll. author (nr. 02007) with measurements 49,0 x 18,0 mm, is illustrated in I, 7. In Coll. vd Riet one specimen from Ata'a, Malaita: 49,2 x 19,0 mm. In Coll. de Visser one specimen of the forma *dactylosus*, collected in the Solomons.

C. baileyi Röckel & da Motta, 1979.

Conus baileyi Röckel & da Motta, 1979. La Chonchiglia. Sept-Oct.: 9.

Type material. — The holotype (29,2 x 13,8 mm) is in MHNG.

Type locality. — "Dredged in depths of about 60 fathoms in rubble and sandy bottom, off Russel Island, Solomon Sea." (Röckel & da Motta).

Remarks. — *C. baileyi* is very close to *C. memiae* (Habe & Kosuge, 1970), of which *C. adonis* Shikama, 1971 is a synonym (being the subadult form of *C. memiae*). C.M.W. (1982: 6) provisionally considered *C. baileyi* a valid species. These authors have some remarks on the graph of the length/width ratio in the description by Röckel & da Motta. Other related species are *C. wakayamaensis* (Kuroda, 1956), *C. otohimeae* Kuroda & Ito, 1971 and *C. nereis* Petuch, 1979. These species

are very near to each other. It needs more study and a lot of material to make a decision concerning their real taxonomic status.

C. baileyi is described from the Solomons. One specimen is collected by T. Nielsen in the Capricorn Channel, 100 km east of Yeppoon, Australia (Coucon 1980: 1). *C. baileyi* is named after Brian Bailey, who's name is mentioned in the same breath with very rare or rediscovered species in the Solomons.

Material. — On Colour plate 2 we illustrate one specimen of *C. wakayamaensis* (Coll. author, nr. 886), together with a specimen of *C. memiae* (Coll. author, nr. 1014) and its subadult, forma *adonis* (Coll. author, nr. 859). One specimen of *C. baileyi* is illustrated on colour plate 5 (Coll. Wils, nr. Co. 657). None of these are from the Solomons.

C. balteatus pigmentatus Adams & Reeve, 1848.

C. balteatus balteatus Sowerby I, 1833.

C. cernicus H. Adams, 1869 (related species).

Conus balteatus Sow. I in Sow. II, 1833. Conch. Ill. (*Conus*): 3, pl. 37, fig. 58.

Type material. — The holotype must be considered lost. The type figure is reproduced below.

Type locality. — The Mascarenas are designated type locality by C.M.W. (1982: 7).

Conus pigmentatus Ad. & Rve., 1848. Zool. Voy. Samarang: 18, pl. V, fig. 11a-b.

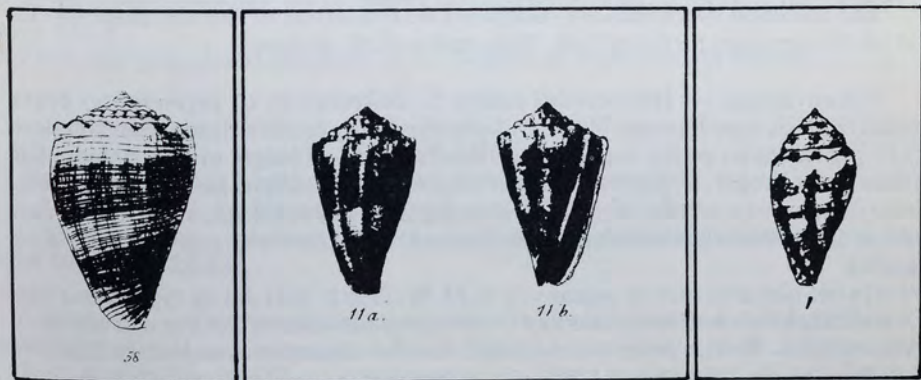
Type material. — Holotype in BMNH. The type figure is reproduced below.

Type locality. — "?? (from the Sulphur Voyage)" (Adams & Reeve).

Conus cernicus H. Adams, 1869. Proc. Zool. Soc. Lond.: 272, pl. 19, fig. 1.

Type material. — The present whereabouts of the holotype are unknown (C.M.W., 1983: 107). The type figure is reproduced below.

Type locality. — "Barkly Island, Mauritius" (H. Adams).



Type figures: *C. balteatus* (fig. 58); *C. pigmentatus* (fig. 11a/11b); *C. cernicus* (fig. 1).

Remarks. — The accurate type figures illustrate sufficiently the distinguishing marks. The last whorl of *C. balteatus* is rather slightly concave, while this of *C. pigmentatus* is more straight. Comparison of the measurements results in a different (although variable) length/width ratio. The two specimens, photographed together on colour plate 4, show clearly these marks. The range of *C. balteatus* is described from the Mascarenes, the Maldives and the Indian Ocean. Specimens from the Western Pacific belong to *C. pigmentatus*, with bluish-white spots on the brown last whorl.

I do not agree with the conclusion of C.M.W. (1983: 107) that the type figure of *C. cernicus* should represent a specimen of *C. balteatus* "with a somewhat raised spire" and I am absolutely not convinced by the specimen figured in C.M.W. (fig. 393a-b) as "possible holotype" of *C. cernicus*. Specimens from Réunion (as in Coll. author, nr. 990) are deeply (purplish) coloured, very slender, difficultly to identify with *C. balteatus*, but nearly identical with the type figure of *C. cernicus*. Because they are found sympatric and their shells so typical, *C. cernicus* and *C. balteatus* must be considered two valid species.

I do also not agree with the opinion that *C. moussoni* Grosse, 1865 (from the Seychelles) should represent "a slender form" of *C. cernicus* (= *C. balteatus*, according C.M.W.). Type figure of *C. moussoni* in J. de Conch. (XIII: 299, pl. X, fig. 3) and holotype in BMNH (27 x 14 mm).

Very typical specimens of *C. balteatus pigmentatus* are shown in Estival (1981: 28a-b), in Cernohorsky (1964: 68-69, pl. 16, fig. 49 "C. balteatus"), in Hinton (1972: pl. 43, fig. 15-16; 1977: 59, fig. 10-10a "C. balteatus") and in Springsteen & Leobrera (1986: pl. 66, fig. 13 "C. balteatus"). The figured specimen in Abbott & Dance (1982: 259 "C. balteatus") is in fact *C. parvulus* Link, 1807; This picture caused a lot of confusion.

Material. — The specimen of *C. balteatus pigmentatus* illustrated in I, 8 (Coll. author, nr. 02008) is collected during my visit by the young Johny Kengalu: In the reef between the Mavo - and Mbouche rivers in shallow water (-2m). In Coll. vd Riet several specimens from Ata'a, Malaita, length between 19,2 and 30,0 mm. One specimen 32,9 x 19,4 mm from Guadalcanal (Coll. Wils, nr. Co. 057b) is photographed together with *C. balteatus balteatus* 28,0 x 18,2 mm from Reunion - colour plate 4.

The Solomon specimens are compared with material of the nominate species and of *C. cernicus* chiefly in Coll. Wils and in Coll. author.

Samenvatting. — Het verschil tussen *C. balteatus* en *C. pigmentatus* blijkt duidelijk uit de type figuren: Heeft *C. balteatus* licht concave zijden, dan zijn deze bij *C. pigmentatus* eerder recht. De verhouding van de lengte met de breedte ligt in deze laatste hoger. *C. pigmentatus* wordt ook vaak opvallend getekend door vele, kleine, blauw-witte stipjes. Hun verspreidingsgebied is gescheiden. We besluiten dan ook tot *C. balteatus balteatus* (Indische Oceaan) en *C. balteatus pigmentatus* (West Pacific).

We zijn het niet eens met de opinie van C.M.W. (1983: 107) dat de type figuur van *C. cernicus* slechts een exemplaar van *C. balteatus* zou voorstellen met een wat meer verheven spira. We zijn zeker niet overtuigd door het afgebeeld exemplaar in C.M.W. (fig. 393a-b) als "possible holotype", zijnde een exemplaar van *C. balteatus*. Daarentegen stemmen exemplaren uit Réunion sterk overeen met de type figuur van

C. cernicus. Daar deze opvallende Réunion-exemplaren sympatrisch voorkomen met *C. balteatus*, moeten we besluiten tot volwaardige soorten. We betwijfelen ook de andere opinie van C.M.W. dat *C. moussoni* een slankere vorm zou zijn van *C. cernicus* (= *C. balteatus*, volgens genoemde bladzijde).

Vermelden we nog dat *C. balteatus pigmentatus* afgebeeld werd in I,8 en op kleurplaat 4; verder nog mooi geïllustreerd wordt in Estival (1981), in Hinton (1972; 1977) en in Springsteen & Leobrera (1986), telkens als "*C. balteatus*".

C. bandanus Hwass, 1792.

Conus bandanus Hwass in Bruguière, 1792. Enc. Méth.: 611, nr. 5.

Type material. — Lectotype designated by Walls (1979: 695) in MHNG (nr. 1107/10), figured in Tabl. Enc.: Pl. 318, fig. 5.

Type locality. — "l'isle de Banda, l'une des Moluques" (Hwass).

Remarks. — Contradictory opinions are written by recent authors about the *marmoreus-bandanus* complex. Besides the characteristic feature of two darker bands in the marmorate pattern (dixit C.M.W., 1982: 9-10), the triangular white markings are bordered with orange-brown, a feature absent in *C. marmoreus* (dixit Cernohorsky, 1964: 69). The last author stated that *C. bandanus* and *C. marmoreus* Linné, 1758 are clearly separable in Fiji and intermediate specimens are not known. I had the same experience in the Solomon specimens. He also stated that *C. bandanus* has never been collected in shallow water in Fiji, whereas *C. marmoreus* is a common intertidal species. Estival (1981: 50) added that *C. bandanus* usually is more coronated.

Material. — A lot of specimens were sold to Ed. Wils by Rev. J. vd Riet, collected in the area of Ata'a, Malaita, where this species must be commonly found. Not one specimen was found on the North of Guadalcanal during my visit.

In Coll. author (nr. 02354/5) 4 specimens, selected from the Kengalu's stock, of which illustrations in I, 10-11. Shells with a length of 60-65 mm in Coll. vd Riet, from Ata'a.

In ZMA one granulated specimen of *C. bandanus* from Florida Islands.

C. betulinus Linné, 1758.

Conus betulinus Linné, 1758. Syst. Nat. X: 715, nr. 266.

Type material. — Holotype in the Linnean Coll. London.

Type locality. — Island of Java, Indonesia, is designated type locality by C.M.W. (1982: 21-22).

Material. — This species is not common in the Solomons. In Coll. vd Riet a growth series of 4 specimens from Ata'a, Malaita (to a length of 86,3 mm). In Coll. author (nr. 02009) a juvenile specimen from Guadalcanal, 29 x 16,5 mm. illustrated in I,9.

C. blatteus Shikama, 1979.

Conus (Leporiconus) blatteus Shikama, 1979. Sci. Rep. Yokosuka City Mus. 26: 1-2, pl. 1, figs. 1-2.

Type material. — Holotype in the Kawamura Coll., Nat. Sc. Mus. Tokyo (measurements 33,6 x 11,0 mm), figured also in C.M.W. (1982, fig. 240).

Type locality. — "Off Taiwan" (Shikama) - which is at least doubtful.

Remarks. — In 1988 specimens were received from A. Kengalu, provisionally identified as "*C. artoptus*". A new species was suggested, but I could identify them as *C. blatteus*. This species in the Solomons is a rediscovery.

All the characteristic marks from the original description are according the Solomon specimens: "Reddish purple in ground colour... surface of the last whorl smooth, lustrous, carries many brownish purple spiral lines and feeble spiral striations. There are 3 colour bands with brown patches on shoulder, middle and anterior portions of last whorl... Aperture narrow with thin outer lip and lustrous purplish white inner surface". (Shikama)

I doubt the type locality. As far as I know there are no other records of this species from Taiwanese waters. Also not figured in Lan (1980). But I experienced Japanese people buying a lot of shells in the Solomons and carrying it to Japan. I am convinced that the Solomon Islands are the real type locality. Maybe it is an endemic Solomon species and surely found rarely.

In her interesting article A. Richards (in La Conchiglia, 1989, N. 242-245: 32 and fig. 5) illustrated also a Solomon *C. blatteus* in comparison with *C. corallinus*. She corrected in *C. blatteus* the specimen figured in Springsteen & Leobrera (1986: pl. 63, nr. 11) and identified as "*C. luteus*", but this illustration is not so clear.

Material. — One specimen in Coll. author (nr. 862), 26,5 x 10,0 mm, from Kakambone, Guadalcanal, is illustrated here on colour plate 4. Also in Coll. Wils one specimen is kept.

Samenvatting. — We ontvingen in 1988 van A. Kengalu exemplaren die voorlopig als "*C. artoptus*" gelabeld waren. Even werd er gesuggereerd dat het om een nieuwe soort ging. Na enig zoeken kon ik de soort identificeren als *C. blatteus*. Tot dezelfde ontdekking kwam ook D. Röckel en onlangs ook A. Richards (in La Conchiglia, 1989, N. 242-245: 32).

Ik betwijfel sterk de type localiteit: Bij mijn weten werd daar nooit een tweede exemplaar gevonden. Ik kon echter wel vaststellen dat Japanners massaal schelpen in de Salomons opkopen om ze in eigen land te importeren.

Ik ben dan ook overtuigd dat het holotype van Shikama eerder afkomstig is van de Salomons dan van de zgn. type localiteit.

C. boeticus Reeve, 1843

Conus boeticus Reeve, 1843. Proc. Zool. Soc. Lond. 11: 174.

-, 1844. Conch. Icon. I, *Conus*: spec. 226, pl. 42.

Type material. — The type specimen figured in Reeve (1844) must be considered lost.

Type locality. — "Philippine Islands" (Reeve).

Remarks. — I can extend the distribution as given by C.M.W. (1982: 31-32) by the fact that the species is found in the Solomons, but I do not agree with Walls (1979: 227, 230-231, 234 and ill. pl. 164) who mentioned *C. boeticus* "is commonly collected in the New Guinea-Solomons area". It is an uncommon species.

Material. — In Coll. author (nr. 02010) one specimen, 20,5 x 10,0 mm, from Guadalcanal, illustrated in I, 12.

***C. bullatus bullatus* Linné, 1758.**

Conus bullatus Linné, 1758. Syst. Nat. X: 717, nr. 281.

Type material. — Neotype designated by Kohn (1963: 746, figs. 7-8) from Coll. Mus. L. Urlicae, Uppsala.

Type locality. — The island of Amboina, Indonesia, is designated type locality by C.M.W. (1982: 47).

Remarks. — *C. bullatus pongo* Shikama & Oishi, 1977 is restricted to the tropical Indian Ocean, while *C. bullatus bullatus* is living in the Western and Central Pacific (dixit C.M.W.). I was surprised to see how many specimens were found in the Solomons (North Guadalcanal), but I agree that alive taken gems are extremely rare. The specimens are always found after severe storms.

Material. — In Coll. author (nr. 02073) 9 adult specimens, to a length of 58 mm, are kept; mostly of the form *articulata* Dautzenberg, 1937; all from North Guadalcanal. One of these is illustrated in I, 13. A beautiful juvenile, 20 x 10 mm, don. Kengalu is kept in Coll. author (nr. 02073) and illustrated here on colour plate 4. Four specimens are illustrated on colour plate 6 to show the variable pattern.

***C. canonicus* Hwass, 1792.**

Conus canonicus Hwass in Bruguière, 1792. Enc. Méth.: 749-750, nr. 143.

Type material. — A neotype from Coll. Sollier in MHNG (nr. 1107/87) is designated by Kohn (1968: 455-446, pl. 3, figs. 25-26).

Type locality. — "les mers des grandes Indes" (Hwass) restricted to the Maldives by C.M.W. (1983: 79-81).

Remarks. — This species is widely distributed in the Indo-Pacific Ocean. I collected specimens in the Ndoma reef near Honiara. Estival (1981: 88) mentioned it is uncommon in New Caledonia and collected it in sand under coral in shallow water, in the same habitat as *C. textile* Linné, 1758.

C. panniculus Lamarck, 1810, illustrated in Kiener (1849: pl. 87, fig. 1), is conspecific with *C. canonicus*. The type figure in Kiener is reproduced here on colour plate 3, together with one specimen from the Tuamotu Arch. During many years I was convinced *C. panniculus* was a subspecies. But I have my doubts. Two specimens from Guadalcanal, in Coll. author, seem to make the link between the typical form of *C. canonicus* and *C. panniculus*. Interesting for a comparison is the specimen in Coll. vd Riet, illustrated on colour plate 2 and the *C. panniculus* on colour plate 3.

Material. — In Coll. author (n. 01622/02011) 4 specimens, to a length of 42 mm, from Ndoma- and other reefs near Honiara; one shell has a very light colour. The specimen 38,5 x 17,5 mm is illustrated in I, 14.

In Coll. vd Riet are kept 11 specimens, length between 19,6 and 60,4 mm, collected in the Ata'a area, Malaita. We illustrate here the specimen 60,4 x 28,9 mm on colour plate 2.

Two specimens from Marau Sound were illustrated in Walls (1979: 188 above).

C. capitaneus Linné, 1758.

Conus capitaneus Linné, 1758. Syst. Nat. X: 713, nr. 254.

Type material. — Lectotype in the Linnean Coll., London, designated by Kohn (1963: 747, fig. 9).

Type locality. — "Asia" restricted by C.M.W. (1983: 83-84) to Larantuka, Flores, Indonesia.

Material. — One specimen in Coll. author (nr. 02013) from Guadalcanal and one specimen (nr. 02220) from Ata'a, Malaita (ex Coll. vd Riet). In Coll. vd Riet 10 specimens, length from 16,8 to 66,0 mm, from Ata'a. The species is illustrated in I, 16.

C. catus Hwass, 1792.

Conus catus Hwass in Bruguière, 1792. Enc. Méth.: 707-708, nr. 99.

Type material. — The type specimens, figured in Tabl. Enc. (pl. 332, figs. 3, 4, 7) as varieties A, B and C, are present in MHNG. The specimen (nr. 1106/535) of var. A is designated lectotype of *C. catus* by Kohn (1968: 446-447, pl. 4, figs. 28-29).

Type locality. — The 3 localities given by Hwass are erroneous. The type locality is restricted to Mauritius by Kohn.

Remarks. — *C. catus* is widely distributed in the Indo-Pacific. I found specimens in the Ndoma reef (Coll. author nr. 01619) and in the reef in front of the Mavo river (nr. 01614). The shells can be very granulated, with very light colours to chocolate brown and grey.

Material. — Besides the specimens from both reefs, 7 specimens are kept in Coll. author (nr. 02014) from Guadalcanal, selected in Kengalu's stock. Also 4 specimens (nr. 02142 and 02228) from Ata'a, Malaita (ex Coll. vd Riet). In Coll. vd Riet many specimens from the Ata'a area, length between 18,5 and 40,0 mm.

C. chaldeus (Röding, 1798).

Cucullus chaldeus Röding, 1798. Mus. Bolten. 2: 42, nr. 525/47.

Type material. — The 5 type specimens in the Coll. Bolten are lost. The specimen figured in Knorr (1768, vol. 3: pl. 4, fig. 2) is designated lectotype by Kohn (1975: 200, pl. 1, fig. 16).

Type locality. — The Moluccas are designated type locality by C.M.W. (1983: 111).

Remarks. — According to C.M.W. (1983: map in fig. 307) the species is found from the East African coast to the Eastern Pacific, to Central America (Costa Rica)! The species is living together with *C. ebraeus* Linné, 1758 in the same reefs.

Material. — One specimen from Coll. author (nr. 388) is illustrated in I, 15. In Coll. vd Riet a growth series of 5 specimens, from 17,7 to 21,0 mm length, is kept, collected in Ata'a.

***C. circumcisis brazieri* Sowerby III, 1881.**

Conus circumcisis Born, 1778. Index Mus. Vindob.: 147. -, 1780. Test.: 163.

Conus dux Hwass in Bruguière, 1792. Enc. Méth.: 732-733. Tabl.: 342, fig. 4-5.

Conus brazieri Sowerby III, 1881. J. Conch. Lond. 3: 234, pl. 1, fig. 9.

Type material. — The type specimen in MHNG (nr. 1106/68), figured in Kiener (1845: pl. 42, fig. 1A), is designated lectotype of *C. dux* by Kohn (1968: 454-455). This type specimen is also the lectotype of *C. circumcisis*. The holotype of *C. brazieri* is present in NMW (Cardiff).

Type locality. — The Moluccas are designated type locality of *C. circumcisis* by C.M.W. (1985: 228-229). The type locality of *C. brazieri* is "Solomon Islands (Brazier)" (Sowerby).

Remarks. — No discussion: *C. dux* is synonym of *C. circumcisis*. The cited figures all together make it easy to interpret this species correctly. The specimen of *C. circumcisis* from the Moluccas, illustrated on colour plate 2, resembles very well the characteristic features of the lectotype.

C. brazieri was based on specimens from the Solomons. Sowerby (1881: 235): "Mr. Brazier took it for a var. of *Conus circumcisis* Born, but it is evidently distinct from that species. It is somewhat nearer to *C. aurisiacus*..." In my opinion *C. brazieri* differs not only by its pattern, but also by its general form: The last whorl is more separated from the spire by a more angulated shoulder; the length to width ratio seems to be different in comparison with the somewhat more slender shell of *C. circumcisis* sensu strictu. And moreover, as illustrated on plate 2, *C. brazieri* is very different by its colour pattern on the spire and on the last whorl. I have never seen the typical *C. circumcisis* Born in specimens from the Solomons or from the Western Pacific. Nevertheless *C. brazieri* and *C. circumcisis* are always regarded as synonyms by recent authors, the first being only a form. I was convinced that *C. brazieri* is more than just a form of *C. circumcisis*. But the problem became complicated by the specimens sent from the Philippines. In Coll. author the specimens from the Solomons remain labeled "*C. circumcisis brazieri*".

C.M.W. (1985) indicated the distribution of the species in the Western Pacific: From the Philippines to New Caledonia. According to Estival (1981: 94) *C. circumcisis* is not found in New Caledonia, nor recorded by Richer de Forges & Estival (1986) in their list of dredged Conidae; but collected in Santo (Vanuatu).

Material. — In Coll. author (nr. 654) one specimen, 61,7 x 27,5 mm, from

Russell Island; (nr. 02016) four specimens, 39,5 x 17 (illustrated in I, 18), 43,5 x 20 mm, 66 x 30 mm and 71 x 31 mm (illustrated in I, 18 and on colour plate 2), all from Guadalcanal.

Three specimens were illustrated in HSN (1975, Nov.: 10), collected by I. Gower in Marau Sound (-100 feet, in coral rubble). We cite Gower: "When collected alive, *C. circumciscus* is chocolate brown, but the color fades rapidly into white and tan."

Samenvatting. — Het lectotype van *C. dux* is ook het lectotype van *C. circumciscus*, namelijk het type exemplaar in MHNG (nr. 1106/68), prachtig afgebeeld in Kiener (pl. 42, fig. 1A). De Molukken werden door C.M.W. (1985) aangeduid als type localiteit. Een zeer typisch exemplaar uit de Coll. Wils wordt afgebeeld op kleurplaat 2.

C. brazieri, waarvan het holotype bewaard wordt in NMW (Cardiff), heeft als type localiteit de Salomon eilanden. Meestal wordt *C. brazieri* slechts als een kleurvorm van *C. circumciscus* beschouwd en dus als een synoniem. Behalve in het kleurenpatroon van de spira en de laatste omgang, vinden we echter ook verschillen in de opbouw van de spira naar de laatste omgang toe en in de lengte-breedte verhouding. Filippijnse exemplaren vormen echter een onduidelijke toestand die de status van *C. brazieri* als ondersoort schijnt tegen te spreken. Persoonlijk blijven we het label bij de Salomon schelpen invullen met "*C. circumciscus brazieri*" omwille van de opvallende eigenschappen.

Gower (in HSN, 1975, Nov.: 10) vermeldde dat levend gevonden exemplaren van *C. circumciscus brazieri* chocolade-bruin zijn, maar snel verbleken tot witte schelpen met licht bruine banden. Tenslotte nog een opmerking bij het verspreidingsgebied: Volgens C.M.W. komt de soort voor tot N. Caledonia. Dat wordt echter tegengesproken door Estival (1981) en Richer de Forges & Estival (1986). De soort wordt nog wel gemeld van Vanuatu.

C. coccineus Gmelin, 1791.

Conus coccineus Gmelin, 1791. Syst. Nat. XIII: 3390, nr. 46.

Type material. - Because of nomenclatorial problems, a neotype for *C. coccineus* Gm. is selected by C.M.W. (1985: 241, fig. 490), in ZMA (nr. 3.84.005).

Type locality. - Samar Id., Philippines (- of the neotype).

Material. — I have experienced this species is really uncommon in the Solomons. One juvenile in Coll. author (nr. 02074), 11 mm length, don. A. Kengalu: Guadalcanal. In Coll. vd Riet one specimen, illustrated in I, 19, from Ata'a, Malaita. In Coll. de Visser one specimen from Malaita. Walls (1979: 288 above left) illustrated one specimen from Honiara (44,0 mm).

C. coffeae Gmelin, 1791.

Conus coffeae Gmelin, 1791. Syst. Nat. XIII: 3388, nr. 31.

Type material. — The holotype of *C. coffeae* Gm., figured in Martini (1773: pl. 56, fig. 618), is discovered by J.S. de Visser in the Coll. de Priester (Flushing, The Netherlands). It is now kept in ZMA (nr. 19 1001). We refer to Coomans & de



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PLATE 1

1. *C. acutangulus* Lamarck, 1810.
Figure of the neotype in Kiener, 1847 (pl. 72, fig. 1).
2. *C. arenatus arenatus* Hwass, 1792.
45,0 x 36,8 mm. Ata'a, Malaita.
Coll. vd Riet.
3. *C. articulatus* Sowerby III, 1873.
- (low spire) Phuket Island, Thailand.
- (high spire) 23,3 x 11,5 mm. Guadalcanal.
Coll. Wils (Co. 552).
4. *C. artoptus* Sowerby I, 1833.
Type figure in Sowerby, 1833 (pl. 33, fig. 35).
Lectotype.
5. *C. artoptus* Sowerby I, 1833.
27,2 x 9,4 mm. Leg. J. vd Riet: Kakambone, Guadalcanal.
Coll. Wils (Co. 607a).
6. *C. viola* Cernohorsky, 1977.
40,5 x 14,5 mm. Bathurst Is., North Terr., Australia.
Coll. Saesen (in KBIN).
7. *C. granum* Röckel & Fischöder, 1985.
32,4 x 12,6 mm. Guadalcanal (1988).
Coll. author (861).
8. *C. aureus* Hwass, 1792.
Figure of the neotype in Kiener, 1845 (pl. 82, fig. 2).
9. *C. auratinus* da Motta, 1982.
107 x 37 mm. Leg. Johnson Kengalu: Ontong Java.
Coll. author (02006).
10. *C. aulicus* Linné, 1758.
93,5 x 34,8 mm; 110,0 x 45,9 mm. Ata'a, Malaita.
Coll. vd Riet.

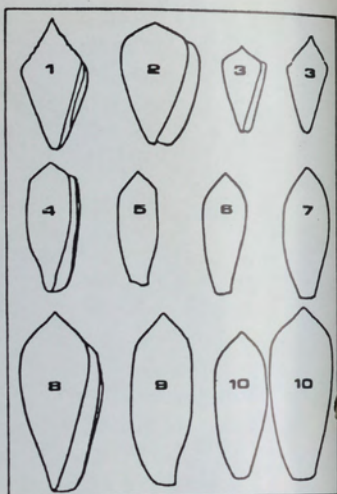
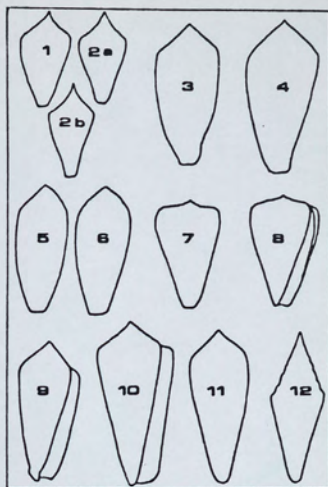


PLATE 2

1. *C. nereis* Petuch, 1979 (= *C. wakayamaensis* f. *nereis* ?).
22,0 x 10,8 mm. Gulf of Tomini, Sulawesi, Indonesia.
Coll. author. (886).
2. *C. memiae* (Habe & Kosuge, 1970).
a - 20,5 x 10,2 mm. Bohol, Philippines.
b - 18,9 x 9,4 mm. Bohol, Philippines.
Coll. author 1014 and 859).
3. *C. canonicus* Hwass, 1792.
60,4 x 28,9 mm. Ata'a, Malaita.
Coll. vd Riet.
4. *C. corallinus* Kiener, 1845. (photo J. Buijse).
22,3 x 10,7 mm. -35 m. Bonegi, Guadalcanal.
Coll. Buijse (4468).
5. *C. circumciscus circumciscus* Born, 1778.
43,5 x 18,4 mm. Moluccas, Indonesia.
Coll. Wils (Co. 533).
6. *C. circumciscus brazieri* Sowerby III, 1881.
42,9 x 19,4 mm. Guadalcanal.
Coll. author (02016).
7. *C. eburneus* Hwass, 1792. (forma *turbinatus* Sow. II, 1858).
40,7 x 25,8 mm. Ata'a, Malaita.
Coll. vd Riet.
8. *C. eburneus* (forma?) *crassus* Sow. II, 1857.
37,0 x 23,8 mm. Momi Bay, Fiji.
Coll. Wils (Co. 424a).
9. *C. turschi* da Motta, 1985.
Paratype 2: 69 x 28,5 mm. S.W. Thailand.
KBIN.
10. *C. consors* Sowerby I, 1833.
71,0 x 33,3 mm. Cebu, Philippines.
Coll. author (740).
11. "*C. pöhliaus*" of authors.
65,0 x 28,0 mm. Kakambone, Guadalcanal.
Coll. author (02058).
12. *C. excelsus* Sowerby III, 1908.
63,0 x 22,5 mm. Dredged -180 m, Russell Island.
Coll. Wils (Co. 679).





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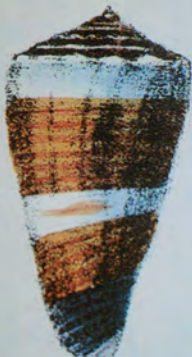
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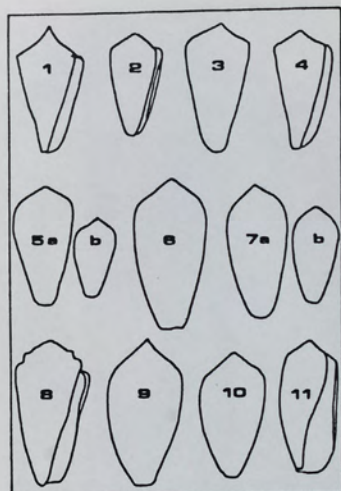
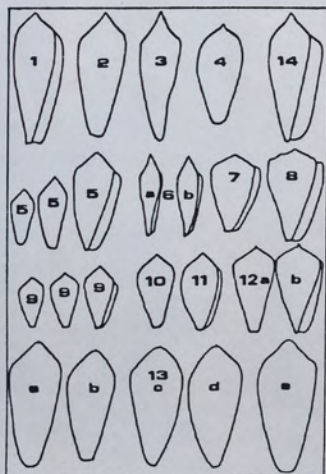


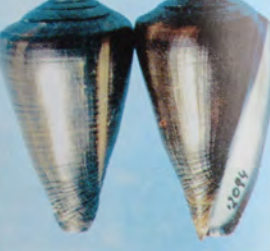
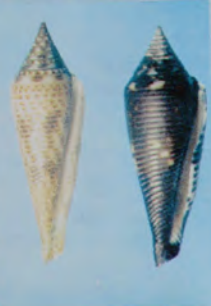
PLATE 3

1. *C. floridulus* Adams & Reeve, 1848.
Type figure in Adams & Reeve, 1848 (pl. 5, fig. 9b).
2. *C. muriculatus* Sowerby I, 1833.
Type figure in Sowerby, 1833 (pl. 24, fig. 1*).
3. *C. sugillatus* Reeve, 1844 (= *C. muriculatus* f. *sugillatus*).
Type figure in Reeve, 1844 (pl. 45, spec. 247).
4. *C. moluccensis moluccensis* Küster, 1838.
46,6 x 23,0 mm. -35 mm. Guadalcanal (1988).
Coll. author (881).
5. *C. floccatus* Sowerby I, 1841.
a - 49,2 x 24,8 mm. Guadalcanal.
b - 31,8 x 17,2 mm. (resembling the holotype of *C. circumsignatus* Crosse).
Guadalcanal. Coll. author (01747).
6. *C. magdalenae* Kiener, 1847 (= *C. floccatus* f. *magdalenae*).
Type figure in Kiener, 1849-50 (pl. 69, fig. 4).
7. *C. floccatus* Sowerby I, 1841. (forma *magdalenae* Kiener, 1847).
a - 59,0 x 27,7 mm. Guadalcanal.
b - 43,1 x 21,0 mm. (resembling the holotype of *C. magdalenae*).
Guadalcanal. Coll. author (01747).
8. *C. marmoreus* Linné, 1758.
113 x 54,4 mm (spire!). Ata'a Malaita.
Coll. vd Riet.
9. *C. panniculus* Lamarck, 1810 (= *C. canonicus* f. *panniculus*).
Type figure in Kiener, 1849-50 (pl. 87, fig. 1).
10. *C. canonicus* f. *panniculus* Lamarck, 1810.
58,5 x 31,9 mm. Leg. Rev. V. Vallons: Tuamotu Arch.
Coll. author (657).
11. *C. obscurus* Sowerby, I. 1833.
Type figure in Sowerby, 1833 (pl. 29, fig. 26).

PLATE 4

1. *C. blatteus* Shikama, 1979.
26,5 x 10,0 mm. Kakambone, Guadalcanal (1988).
Coll. author (862).
2. *C. gloriamaris* Chemnitz, 1777.
79 x 30,2 mm. Off Lungga Point, Guadalcanal.
By J. Kengalu (16-7-1987: -40 m). Coll. author (02034).
3. *C. hopwoodi* Tomlin, 1936.
Type figure of *C. gracilis*. Sow. III, 1875 (pl. 24, fig. 6)
= *C. hopwoodi*.
4. *C. bullatus bullatus* Linné, 1758.
Juvenile 20 x 10 mm. Guadalcanal. Don. Ann Kengalu (1987).
Coll. author (02073).
5. *C. crocatus crocatus* Lamarck, 1810.
35 x 17 mm; 43 x 18,5 mm; 59,5 x 27 mm. Guadalcanal.
Coll. author (02020/21).
6. *C. hopwoodi* Tomlin, 1936.
a - 29,7 x 9,2 mm. Kakambone, Guadalcanal.
b - 29,2 x 9,2 mm. Mavo Reef, Guadalcanal.
Coll. author (02001).
7. *C. balteatus balteatus* Sowerby I, 1833.
28,0 x 18,2 mm. Reunion.
(Disposable by Ed. Wils).
8. *C. balteatus pigmentatus* Adams & Reeve, 1848.
32,9 x 19,4 mm. Guadalcanal.
Coll. Wils (Co. 057-b).
9. *C. cumingii* Reeve, 1848.
30 x 16 mm; 33 x 18 mm; 37,5 x 20 mm. Guadalcanal.
Coll. author (02022/23).
10. *C. pauperculus* Sowerby I, 1834.
Type figure in Sowerby I, 1834 (pl. 56, fig. 78).
11. *C. glans* Hwass, 1792.
22,2 x 11,3 mm. Guadalcanal.
Coll. author (02031).
12. *C. hyaena concolor* Sowerby I, 1834.
a - 51,6 x 25,5 mm. Kakambone, Guadalcanal.
b - 54,2 x 27,2 mm. Ndoma Reef, Guadalcanal.
Coll. author (02094).
13. *C. magnificus* Reeve, 1843.
a - 62,6 x 26,7 mm. Ata'a, Malaita.
b - 54,4 x 24,4 mm. Ata'a, Malaita.
Coll. vd. Riet.
c - 45,7 x 20,6 mm. Mavo Reef, Guadalcanal. (-10 m).
Coll. author (01610).
d - 47,5 x 20,5 mm. Santa Anna, Solomons.
Coll. author (312).
e - 52,5 x 21,6 mm. Guadalcanal.
Coll. author (02084).
14. *C. pilkeyi* Petuch, 1974. (photo J. Buijse).
53,5 x 22,5 mm. Kakambone, Guadalcanal.
Coll. author (02089).





Visser (1987) and Delsaerdt (in Gloria Maris, 1990, 1: 1-4).

Type locality. - Not given for *C. coffeae*. Of the synonyms *c. caffer* (Röding, 1798), *C. scabriusculus* Dillwyn, 1817 and *C. fabula* Sowerby, 1833 only for *C. scabriusculus* is given a locality: "from West Africa" - which is erroneous.

Remarks. — The rediscovery of the holotype makes *C. coffeae* the first and valid name for a valid species, known very well from the Western Pacific.

Material. — In Coll. author (nr. 02063) two specimens with patches of dark blue-brown are kept, 28 and 29 mm length, and two specimens with brown patches, 20 and 27 mm; all from Guadalcanal. In Coll. vd Riet 5 specimens from Ata'a, Malaita. Walls (1979: 592 below) illustrated two specimens from Marau Sound, Guadalcanal. The blue-brown specimens from Coll. author are illustrated in I, 25-26.

C. consors Sowerby I, 1833

and "*C. pöhlianus* Sowerby" of authors.

Conus consors Sow. I, 1833, in Sow. II. Conch. Ill. (*Conus*): pl. 36 fig. 2.

Type material. — The holotype is not present in BMNH. The type figured is reproduced here.

Type locality. — Not given. Singapore is designated by C.M.W. (1985: 257).

Conus anceps A. Adams, 1854. Proc. Zool. Soc. Lond. 21: 119.

Type material. — From the syntypes in BMNH a lectotype is designated by C.M.W. (1980: 35); consequently the two other type specimens become paralectotypes.

Type locality. — "Moluccas" (A. Adams).

Conus pöhlianus Sow. III, 1887. Thes. 5 (*Conus*), Suppl.-2: 257, pl. 31, fig. 682/3.

Type material. — The holotype is present in BMNH.

Type locality. — "New Ireland (Pöhl)" (Sowerby).

Conus turschi da Motta, 1985. Publ. ocas. Soc. Port. Mal., 5: 1-7.

Type material. — Paratype 2 and 8 are deposited in KBIN. Holotype in MHNG.

Type locality. — "Trawled in depths of 20 to 40 fathoms in the Andaman Sea off Kantang, S.W. Thailand" (da Motta).

Remarks. — *C. consors* is generally considered a valid species, of which the forma *anceps*. So did C.M.W. (1980: 35; 1985: 257), who illustrated clearly a specimen of forma *anceps* (fig. 87) and the type figure with two resembling specimens of *C. consors* (fig. 519-521). So far no problem.

The holotype of *C. pöhlianus* is an old, faded specimen of *C. magus*: Successfully we compared a colour picture of the holotype with an albino form of *C. magus* in Coll. Wils. I don't know who was first to use the name "*pöhlianus*" for the slightly aberrant specimens, collected in the New Guinea-Solomons area. But already Hinton (1972: pl. 34, fig. 19) identified his specimen "*C. pöhlianus* Sowerby" and added that it is usually labelled in collections as *C. daullei* Crosse, of which W.E. Old Jnr. advised that this was the Madagascan representative of *C. magus*. Hinton (1977: 61, fig. 1) illustrated the same as "*C. pöhlianus* SOW. (of recent authors)". Walls

(1979: 545 above) identified two specimens from P.N. Guinea as "C. pöhlianus" which are probably *C. consors* forma *anceps*. Abbott & Dance (1982: 264, first picture) were following Walls, illustrating a specimen of *C. consors* forma *anceps* as "C. poehlianus Sow.". Resembling specimens but identified correctly in Estival (1981: 76, nr. 47).

In the description of *C. turschi*, da Motta (1985) considered "C. poehlianus" to be closest to the new species. He illustrated again a specimen of *C. consors*, identified as "C. poehlianus Sow." (fig. 3). Concerning *C. turschi*. I have two specimens in my collection (nr. 890), collected in the type locality, off Kantang; they resemble very well the maculate holotype and an immaculate paratype. They are very near to *C. consors* and I doubt *C. turschi* is a valid species. Provisionally I prefer *C. consors turschi*.

Springsteen & Leobrera (1986: pl. 66, fig. 4a/b) illustrated correctly *C. consors* and forma *anceps*.

During my visit I could obtain four specimens, collected by Kengalu's divers, by Ann Kengalu identified "C. poehlianus" according to Walls (1979) and Abbott & Dance (1982). Compared with specimens of *C. consors* from Réunion, Madagascar and the Philippines, I could not find such differences, that a subspecific status is justified.

About the name "poehlianus" of authors: When meant the shell described by Sowerby, it is *pöhlianus*, after the name Pöhl.

Material. — In Coll. author (nr. 02058 and 02080) four specimens, collected near Honiara, in Kakambone and Ndoma Reef: 21 x 9,5 mm; 24,5 x 11 mm; 43,5 x 24,5 mm and 65 x 28 mm. The last specimen is illustrated in I, 22 and on colour plate 2 (together with a paratype of *C. turschi* and a typical *C. consors*).

Samenvatting. — De meeste auteurs, ook C.M.W. (1980; 1985) beschouwen *C. consors* als een volwaardige soort, waarbij de slankere schelpen met hogere spira de forma *anceps* zijn. Het holotype van *C. pöhlianus* in BMNH is een oud, verbleekt exemplaar van *C. magus*. Ons inziens ten onrechte wordt de naam "C. pöhlianus" door enkele auteurs al enige tijd gebruikt voor de licht afwijkende exemplaren uit het gebied van Nieuw Guinea en de Salomons, zoals bijvoorbeeld Hinton (1972; 1977). Het probleem is ingewikkelder geworden doordat Walls (1979) exemplaren van *C. consors* forma *anceps* ook als "C. pöhlianus" identificeerde, nagevolgd door Abbott & Dance (1982) en nog versterkt door een overeenkomstige afbeelding met dezelfde verkeerde identificatie in da Motta's beschrijving (1985) van *C. turschi*. In onze collectie bevinden zich twee exemplaren die sterk gelijken op het holotype en een ongevekt paratype van *C. turschi* en bovendien afkomstig van de type localiteit. Deze exemplaren kunnen begrepen worden als vallend onder de variabiliteit van *C. consors*.

Bij mijn verblijf op de Salomons kon ik van de duikers vier schelpen verkrijgen welke door A. Kengalu geïdentificeerd werden als "C. poehlianus". Ze steunde daarbij op Walls (1979) en Abbott & Dance (1982). Vergeleken met sommige exemplaren van *C. consors* uit Réunion, Madagascar en de Filippijnen, vonden we geen afdoende verschillen om de Salomon schelpen als een verantwoorde ondersoort te beschouwen. Op kleurplaat 2 werden ter vergelijking afgebeeld: *C. consors*, een paratype van *C. turschi* en een zgn. "C. pöhlianus".

C. corallinus Kiener, 1845.

Conus corallinus Kiener, 1845. Coq. Viv. 2: pl. 73, fig. 2; 1849: 246-247.

Type material. — The holotype, figured in Kiener, is no more available.

Type locality. — Mactan Island, Philippines, is designated type locality by C.M.W. (1985: 261).

Remarks. — Fresh specimens are reddish orange. Walls (1979: 425 below right) illustrated a specimen of *C. corallinus* from E. New Britain, misidentified as "*C. luteus*". Röckel (1981: 167) described the distribution from Okinawa to the Solomons and N. Australia. Prigent (in Rossiniana, 1986, Oct.: 6) reported the species from New Caledonia. It is an uncommon species in the Solomons.

Material. — In Coll. author (nr. 855 and 02017) two specimens from Kakamone, Guadalcanal, both 18 x 9 mm, collected during the night by Johnson Kengaly and his diver Colin, -30 m. The specimen nr. 02017 is illustrated in I, 27. In Coll. Wils one specimen from Santa Cruz, 25,0 mm, illustrated in C.M.W. (1985: fig. 531). In Coll. de Visser two specimens from Guadalcanal. In Coll. Buijse (nr. 4468) one specimen, 22,3 x 10.7 mm, from Guadalcanal, collected in -35 mm; this specimen is illustrated in colour plate 2.

C. coronatus Gmelin, 1791.

Conus coronatus Gmelin, 1791. Syst. Nat. XIII: 3389, sp. 39.

Conus virgineus Link, 1807. Besch. Nat.-Samml. Univ. Rostock, 3: 106.

Conus aristophanes Sowerby II, 1857. Thes. Conch. 3: 9, sp. 63, pl. 4, f. 81-82.

Type material. — A neotype is designated by Kohn (1966: 83-84, pl. 1, figs. 11-12) for *C. coronatus*, kept in BMNH. The lectotype of *C. aristophanes* is designated by C.M.W. (1981: 19, fig. 132) and is kept together with two paralectotypes in BMNH. For *C. virgineus* Link referred to Martini (1773: pl. 63, figs. 701-702).

Type locality. — The neotype of *C. coronatus* is collected in Australia. The lectotype and paralectotypes of *C. aristophanes* are collected in "Philippine and Sandwich Islands".

Remarks. — *C. coronatus* is a very variable species, commonly found in the Solomons and widely distributed in the Red Sea and in the Indo-Pacific (to Hawaii and the Tuamotu Arch.). C.M.W. (1981: 19) considered *C. aristophanes* only a form of *C. coronatus* as they found that the shells of both integrate. Cernohorsky (1964: 67) and Springsteen & Leobrera (1986: 251) considered *C. coronatus* and *C. aristophanes* as two valid species. The shell of *C. coronatus* is more bulbous shaped and the spire more coronated; its colour is salmon and the brown blotching more pronounced than in *C. aristophanes*. But, as this species is so variable, provisionally I am following C.M.W. *C. virgineus* is the colour form, lacking the white spiral rows with dark spots and the brown blotching, showing only two broad greyish bands.

Material. — In Coll. author 4 specimens collected in the Ndoma reef (nr. 01617); 13 specimens selected, from Guadalcanal (nr. 02018); 1 specimen forma *virgineus*

(nr. 02019) 21,2 x 12,5 mm, from Guadalcanal, illustrated in I, 20b together with a specimen of *C. coronatus* 22,0 x 14,2 mm I, 20 a (this must be corrected in Gloria Maris 1988: 51 - "22,0 x 21,0 mm" into 22,0; 21,2 mm). Many specimens are kept in Coll. vd Riet, from Ata'a, Malaita.

Samenvatting. — In tegenstelling met Cernohorsky (1964) en Springsteen & Leobrera (1986) beschouwen C.M.W. (1981) *C. aristophanes* slechts als een vorm van de zeer variabele *C. coronatus*. Deze laatste heeft een meer bolle schelp, meer uitgesproken kroon, is eerder zalmkleurig en met meer donkere vlekken dan de *aristophanes*. De kleurvorm *virgineus* wordt getypeerd door de afwezigheid van de spiraallijnen en de donkere vlekken, terwijl de kleur zich beperkt tot twee brede grijze banden over de laatste omgang. De soort *C. coronatus* is talrijk vertegenwoordigd in Coll. vd Riet, waarin 5 pracht exemplaren. In Gloria Maris 1988: 51 moet bij *C. coronatus* "22,0 x 21,0 mm" verbeterd worden in 22,0; 21,2 mm - zijnde de lengte van beide afgebeelde exemplaren.

C. crocatus crocatus Lamarck, 1810.

Conus crocatus Lamarck, 1810. Anns. Mus. Hist. nat. Paris 15: 424-425, nr.

Conus thailandis da Motta, 1978. Thai Nat. Study: 7; ill.: 5, 7. 136.

Type material. — The holotype of *C. crocatus* Lamarck is in MHNG (nr. 1105/93), figured in Kiener (1845: pl. 52, fig. 3) and illustrated in C.M.W. (1985: fig. 558a-b). The holotype of *C. thailandis* da Motta, length 68 mm, in Coll. da Motta (now in SMN, Stuttgart, Germany).

Type locality. — "Mers des grandes Indes" (Lamarck) for *C. crocatus*. "...off Raya Island, Phuket" (da Motta) for *C. thailandis*.

Remarks. — *C. crocatus crocatus* is living in the Central Indian Ocean and in the Western Pacific, while *C. crocatus thailandis* is said to be restricted to West Thailand. Sometimes the very rare *C. lamberti* Soubervie, 1877 from New Caledonia is considered conspecific too with *C. crocatus*. The type figure of *C. lamberti* is reproduced in colour in Estival (1981: 109). A very good illustration is given in Rossiniana (1989. N. 42: 24): One specimen is collected on the Chesterfield Islands, -70 m, during the OSTROM campaign.

Although *C. crocatus* is easy to identify, troubles started by the misidentification of *C. colubrinus* Lamarck, 1810 in Walls (1979: 351, 354-355). This 'author' mentioned that Lamarck's description as well as Kiener's figure of the type let little doubt that *C. crocatus* was based on a bright orange specimen of *C. ermineus* Born (one of the worst pages in Walls, 1979). Abbott & Dance (1982: 246) took over this misidentification: "*C. colubrinus*" Lamarck, 1810. Western Pacific... Alias *C. crocatus*" (= *C. crocatus crocatus*); on the third row "*C. colubrinus* form *thailandis* da Motta, 1978, Andaman Sea; Thailand..." (= *C. crocatus thailandis*). Already da Motta (in HSN, 1981, March: 9) corrected *C. colubrinus* Walls (not Lamarck), illustrating the holotype of *C. crocatus* and two specimens of *C. colubrinus* Lamarck from Coll. Dautzenberg (KBIN), and listing the morphological characteristics.

A specimen of *C. crocatus*, collected on Réunion, near to the subspecies *thailandis*, is illustrated in Rossiniana (1984. April: 7). Although the species is found in an extend range, it is very uncommon everywhere. *C. crocatus crocatus* is included in the fifty rarest species in Dance (1969).

Material. — In Coll. author (nr. 02020) one specimen collected by Johnson Kengalu near Honiara, 54 mm length, and (nr. 02021) two specimens collected by local people of Guadalcanal, 35 mm and 59,5 mm length. These specimens are illustrated on colour plate 4 and the specimen of 59,5 mm is already figured in I, 23. Two specimens collected near Lungga Point (Guadalcanal) by I. Gower and B. Bailey, are illustrated in HSN (1975, Aug.: 4). One specimen from the same locality is illustrated in Walls (1979: 233). Also specimens in Coll. Wils and Coll. de Visser, from Guadalcanal.

Samenvatting. — Eens te meer veroorzaakte Walls (1979) heel wat misverstand door te verkondigen dat *C. crocatus* een oranje exemplaar was van *C. ermineus*, terwijl *C. colubrinus* de eigenlijke naam was voor bedoeld species. Abbott & Dance (1982: 246) namen deze blunder zonder meer over. Da Motta had ondertussen al gereageerd in HSN (1981, maart: 9). Hij beeldde het holotype van *C. crocatus* Lamarck af, alsmede twee exemplaren van *C. colubrinus* uit de Coll. Dautzenberg (KBIN). Da Motta had trouwens in 1978 het subspecies *thailandis* beschreven. *C. lamberti* Souverbie, 1877 wordt ook wel eens beschouwd als behorende bij de soort *C. crocatus*. Een mooie afbeelding van *C. lamberti* kan gevonden worden in Rossiniana (1989, nr. 42: 24); het exemplaar meet 72,2 mm en werd verzameld tijdens de OSTROM-expeditie aan de Chersterfield Eilanden.

C. crocatus crocatus leeft in de Indische Oceaan en de West Pacific, waar *C. crocatus thailandis* beperkt schijnt te zijn tot West Thailand.

Behalve het exemplaar gevonden door J. Kengalu bij Honiara, had ik het geluk dat een oude man twee prachtige exemplaren bij de Kengalu's te koop aanbood. Het waren de enige schelpen die deze man bij zich had: Hij was zich dus goed bewust van de financiële betekenis van zijn vondst.

C. cumingii Reeve, 1848.

Conus cumingii Reeve, 1848. Conch. Icon. I (*Conus*) Suppl.: pl. 3, nr. 282. Type material. — Holotype in BMNH (illustrated in C.M.W., 1985: fig. 567). Type locality. — "Island of Mindanao, Philippines" (Reeve).

Remarks. — This uncommon species is living from Indonesia to the Solomon Islands (distribution map in C.M.W., 1985: fig. 447). Less uncommon in the Solomons than in other localities.

Material. — In Coll. author (nr. 02022/23) 3 specimens from Guadalcanal, length 30 mm; 33 mm, 37,5 mm; illustrated on colour plate 4. One specimen is also illustrated in I, 21.

Walls (1979) illustrated specimens "off Mataniko river" (Honiara).

C. cylindraceus Broderip & Sowerby I, 1830.

Conus cylindraceus Brod. & Sow. I, 1830. Zool. Journ. Lond. 5: 51, suppl. pl. 40, fig. 5.

Type material. — The present whereabouts of the holotype are unknown. The type figure is reproduced in C.M.W. (1985: fig. 579).

Type locality. — New Caledonia is designated type locality by C.M.W. (1985: 286-287).

Remarks. — According C.M.W. the species is distributed from East Africa (Zanzibar) through the Indo-Pacific to the Tuamotu Arch. Estival (1981: 100) reported the species as "rare in New Caledonia; in sand under corals". Salvat & Rives (1983: 357; 1984: 130) reported the species from Mururoa. Ann Kengalu (in litt. 12-7-1989) mentioned that *C. cylindraceus* "usually only comes up in cyclones which I am glad to say we have not had lately..." Cernohorsky (1964: 71) reported the species very rare in West Viti Levu (Fiji) "dredged from deeper water". It must be considered a rare species in the Western Pacific.

Material. — The species is illustrated in I, 28. Also one specimen in Coll. de Visser, from the Solomons.

***C. distans* Hwass, 1792.**

Conus distans Hwass in Bruguière, 1792. Enc. Méth.: 634, nr. 32.

Type material. — The type specimen from the Hwass collection in MHNG (nr. 1106/67), named "holotype" by Mermod (1947: 178) and Kohn (1968: 454) is correctly designated lectotype by C.M.W. (1985: 171-172; ill.: fig. 644).

Type locality. — "dans l'océan pacifique, sur les côtes de la nouvelle Zélande" (Hwass) is corrected by C.M.W. in the Moluccas as type locality.

Remarks. — To the synonyms of this species must be considered: *C. kenyonae* Brazier, 1896 and *C. chinoi* Shikama, 1970 (named after Mr. Mitsuo Chino, one of our members). According to C.M.W. the species is living from the Red Sea and East Africa through the Indo-Pacific to the Tuamotu Arch.

Material. — In Coll. author (nr. 01608, 01672) two specimens collected alive in the Ndoma Reef, at night, in shallow water. The specimens nr. 01608 is illustrated in I, 24. Specimens from Ata'a, Malaita, in Coll. vd Riet.

***C. duplicatus* Sowerby I, 1823.**

Conus duplicatus Sowerby, I, 1823. Gen. Rec. Foss. Sh.-2, pt. 16, pl. 267, fig. 5.

Original description. — "C. gracilis, subventricosus, spira breviuscula acuta; anfractu ultimo superne rotundato, lineis transversim duplicatis impresso; testa alba, maculis, strigisque fulvis ornata."

Type material. — The holotype, described from the Coll. Goodall (which is present in BMNH), could not be traced (K. Way to C.M.W. in litt. 1980).

Type locality. — The Solomon Islands are designated type locality for *C. duplicatus* by C.M.W. (1985: 179).

Remarks. — Although the holotype must be considered lost, the actual discussion and confusion concerning this species is incomprehensible: The original description of *C. duplicatus* and its type figure sufficiently indicate how to distinguish the

species. "Lineis transversim duplicatis impresso" means: paired spiral grooves. Indeed the species was unambiguously named after this characteristic feature which is carefully drawn in the type figure. Also the description of the general form "subventricosus" (= slightly swollen) and "anfractu ultimo superne rotundato" (= last whorl rounded above) makes it easy to distinguish *C. duplicatus* from related species as *C. australis* Holten, 1802, *C. laterculatus* Sowerby III, 1870 and *C. kuroharai* (Habe, 1965). *C. armadillo* Shikama, 1971 is resembling in general form, but the shell is more swollen and has not the paired spiral grooves over the entire body whorl. None of the related species is found in the Solomons, while *C. duplicatus* seems to be endemic.

Three exceptional specimens of *C. duplicatus*, dredged by Brian Bailey near Honiara, are figured in HSN (1978, Aug.: 14): The regular form between a very rare albino and the equally rare melanistic; all still identified as "*C. armadillo*".

Walls (in HSN, 1977, Sept.: 9 "Conus neptunus Rediscovered" - fig. 7) identified a specimen of *C. duplicatus* from Russell Island as "*Conus cf. neptunus*". Walls (1979: 407, 410-411) was convinced that *C. armadillo* and *C. kuroharai* were conspecific with *C. duplicatus*. Under the name of *C. duplicatus* he illustrated two specimens of *C. kuroharai* (p. 269 above); the holotype of *C. armadillo* and one specimen of *C. duplicatus*, 49,1 mm, from Russell Island (p. 269 below). Differentiating the "Taiwanese population" from the "Solomon shells", he did not mention the important characteristic feature of the paired spiral grooves.

The same opinion is illustrated in Abbott & Dance (1982: 252): *C. duplicatus* (first row, second figure - correctly) said to be living in Southern Japan, Taiwan, Solomons - we restrict the Solomons. Under the third figure we read: "*C. duplicatus* Sowerby, 1823. Described recently as *armadillo* Shikama (extreme variant) and *Kuroharai* Habe (illus)" - is indeed *C. kuroharai*.

I agree with C.M.W. (1985: 179) who stated that *C. duplicatus*, *C. armadillo* and *C. kuroharai* are three valid species.

I can hardly understand the opinion of D. Röckel on the identity of *C. duplicatus* (in HSN, 1987, Sept.: 3) that this species is "next to *C. australis* and could be an ecological subspecies".

Sowerby I (1823: 267) distinguished *C. duplicatus* from *C. australis* by the fact that he illustrated side by side both species. I understand Sowerby II, (1857-1866 - pl. 104), Tryon (1884: 104) and Tomlin (1937: 242) who were convinced that *C. duplicatus* was a synonym of *C. australis* - by the lack of material. But there are no arguments for this opinion.

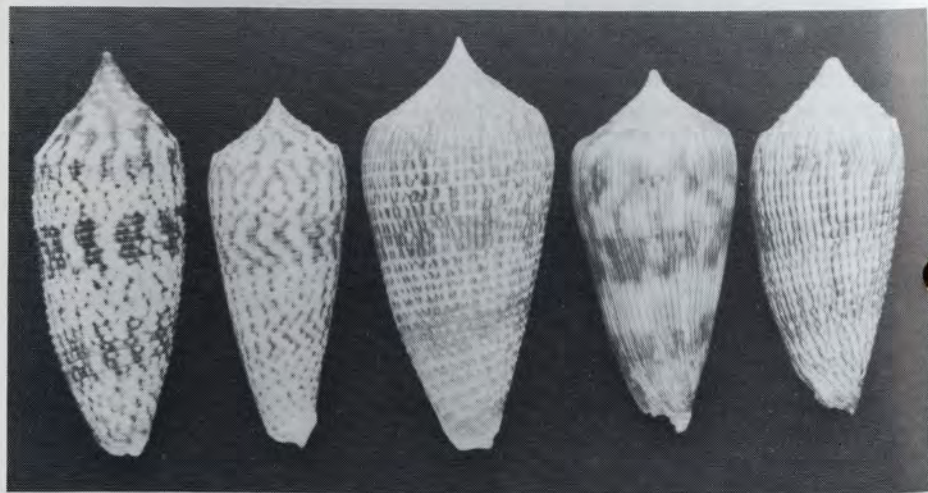
Springsteen & Leobrera (1986) illustrated *C. armadillo* and *C. kuroharai* (p. 225) both from Southern Mindano - and *C. australis* and *C. laterculatus* (p. 235) both from Tayasbay, Quezon, all as valid species.

Tan (1979: 48-49) illustrated correctly *C. kuroharai* and *C. armadillo*, indicating for both species "NE off Taiwan and South Taiwan Strait". Kawamura Collection (1983: pl. XL; index p. 11) figured the melanistic form of *C. duplicatus* (fig. 3), misidentified as "*Asprella almadillo* Shikama" (misprint for *armadillo*), from the "Solomons". Also the regular form of *C. duplicatus* is illustrated (fig. 4), misidentified as "*Asprella kuroharai*", from "Okinawa". Probably the specimens were mixed preparing this splendid photographic edition. I am convinced that also this illustrated specimen is collected once in the Solomons.

Material. — During my visite I have seen a few specimens, dredged by B. Bailey. One is now in Coll. author (nr. 02024), 59 x 25 mm, illustrated in I, 29; the second specimen is in Coll. de Visser, 55 x 23 mm. The other specimens were too encrusted, broken... According to J. Kengalu this species is living in a depth inaccessible for his divers (who collected at -50 m). In Coll. de Visser also a melanistic specimen.

Samenvatting. — Het is eigenlijk onbegrijpelijk dat deze soort recent weer het onderwerp geweest is van heel wat discussie. Ook al moest het holotype als verloren worden beschouwd, de oorspronkelijke beschrijving met bijhorende tekening van *C. duplicatus* geven toch duidelijk de kenmerken om deze soort te identificeren. De klemtoon ligt op "lineis transversim duplicatis impresso" (Sow., 1823: 266), wat betekent: Met concentrische, dubbele groeven. De speciesnaam *duplicatus* wijst ook ondubbelzinnig op die paarsgewijze groeven, die trouwens in de tekening van het type overduidelijk zijn weergegeven. In HSN (1978, Aug.: 14) worden drie prachtige exemplaren van *C. duplicatus* afgebeeld, gedregd door B. Bailey: Naast een zeldzame albino en het normale exemplaar wordt een uitzonderlijk, volledig donker specimen getoond; allen nog geïdentificeerd als "*C. armadillo*".

Auteurs als Walls (1977: 1979), Abbott & Dance (1982)... zijn overtuigd dat *C. duplicatus*, *C. armadillo*, *C. kuroharai* dezelfde soort zijn. Röckel (1987) vraagt zich af of taxonomisch *C. duplicatus* een vorm is van *C. armadillo* of van *C. australis* en besluit voorlopig dat *C. duplicatus* met zijn cilindrische vorm dicht staat bij *C. australis*. In zijn artikel "On the identity of *C. duplicatus* Sowerby, 1833" wordt



Comparison of five related species. (From left to right:)

1. *C. australis* Holten, 1802. 66,5 x 25,9 mm. Tayabas Bay, Philippines. Coll. author: 1004.
2. *C. laterculatus* Sow. III, 1870. 58,2 x 23,3 mm. Tayabas Bay, Philippines. Coll. author: 799.
3. *C. armadillo* Shikama, 1971. 67,1 x 31,4 mm. S. Mindanao, Philippines. Coll. author: 797.
4. *C. kuroharai* (Habe, 1965). 59,2 x 26,8 mm. Japan. Coll. author: 844.
5. *C. duplicatus* Sow. I, 1823. 58,2 x 25,3 mm. Solomon Islands. Coll. author: 02024.

met geen woord gesproken over hét eigenlijke kenmerk van de dubbele groeving in *C. duplicatus*. We wijzen erop dat in de oorspronkelijke beschrijving *C. australis* en *C. duplicatus* naast elkaar staan afgebeeld en Sowerby wel degelijk verschil gezien heeft. Dat Sowerby II (1857-1866), Tryon (1884) en Tomlin (1937) bij gebrek aan materiaal *C. duplicatus* synoniem beschouwden van *C. australis* is absoluut nog geen argument.

C.M.W. (1985) beschouwen *C. duplicatus*, *C. kuroharai* en *C. armadillo* als volwaardige soorten naast *C. australis*. Deze opvatting vinden we ook geïllustreerd in Springsteen & Leobrera (1986). Het is ook onze opvatting.

C. duplicatus kan alleen door dregging gevonden worden. De duikers van J. Kengalu, die tot een diepte van -50 m gaan, hebben nooit een exemplaar gevonden. Mogelijk is *C. duplicatus* endemisch in de Salomons.

C. ebraeus Linné, 1758.

Conus ebraeus Linné, 1758. Syst. Nat. X: 715, nr. 268.

Type material. — Lectotype designated by Kohn (1963: 748, fig. 10), in the Linnean Coll., London.

Type locality. — "India" (Linné).

Material. — This common species is widely distributed in the Indo-Pacific, from the Red Sea to Guatamala. I found specimens crawling at night, in the Ndoma Reef and in the reef in front of te Mavo river, near Honiara. Coll. author (nr. 01611). In Coll. vd Riet a specimen 40,7 x 26,2 mm. from Ata'a.

C. eburneus Hwass, 1792.

Conus eburneus Hwass in Bruguière, 1792. Enc. Méth.: 640-641.

Type material. — The two type specimens in Coll. Hwass are considered lost. The specimen figured in Tabl. Enc. (pl. 324, fig. 1) is designated lectotype by Kohn (1968: 455, pl. 4, fig. 40).

Type locality. — "aux mers des Indes orientales" (Hwass).

Conus crassus Sowerby II, 1857. Thes. Conch. 3: 25, pl. 12, figs. 254-255.

Type material. — Lectotype designated by Walls (1979: 419) in BMNH.

Type locality. — "Feejee Islands" (Sowerby).

Conus turbinatus Sowerby II, 1858. Thes. Conch. 3: 25, pl. 10, fig. 227.

Type material. — Holotype in BMNH. Type locality not given.

Conus polyglotta Weinkauff, 1874. Deutsch. Mal. Gesel. I: 244. "Pelew Is."

Remarks. — *C. crassus* usually is considered an abnormal forma of *C. eburneus*, characterized by the reddish dots, the concave pyriform shape by the bulging shoulder. According tot C.M.W. (1985: 272) ZMA has specimens from New Caledonia, Solomons (Florida Is.), New Guinea, the Moluccas, Sumatra, Ceylon and Japan. This is contradictory with A. Richards (in La Conchiglia, 1988, N. 232-233: 5-6) who restricted the range from New Britain to Fiji (= distribution quoted in Walls, 1979) adding that the specimens are not been reported from any other parts of the Pacific. Specimens of *C. crassus* are suggested to be a deeper water

form and Richards stated that "most specimens come from the prolific stalls of the Rabaul market". I have some doubt: *C. eburneus* is living sympatric with *C. crassus*, but it seems that there are no intermediates. In the Fiji *C. eburneus* is recorded by Cernohorsky (1964: 72) as a common species, but he only illustrated a specimen of *C. crassus* (1964: pl. 12, fig. 3) adding that "C. crassus appears to be an individual aberrant sporadically occurring in large populations of *C. eburneus* in Fiji".

The holotype of *C. turbinatus* is only a colour form of *C. eburneus* in which the black dots are lacking. A beautiful specimen is illustrated in colour plate 2. Mr. Wils took my attention to Van Nostrand's Catalogue (1966) in which *C. turbinatus* was considered a synonym of *C. suturatus* Reeve, 1844. This mistake is often copied, also by Walls (1979: 881).

C. eburneus forma *polyglotta* is the well known colour form with "commashed dots".

C. eburneus is found from Sri Lanka to the Tuamotu Arch. according the map in C.M.W. (1986: fig. 668).

Material. — Several specimens in Coll. author (nr. 02025 and 02162) from Guadalcanal and Malaita. Many specimens in Coll. vd Riet (to a length of 59 mm), of which several specimens of forma *turbinata*, from Ata'a, Malaita. Also a very freak specimen of forma *polyglotta*, 53,6 x 33,0 mm. In Coll. de Visser one specimen of "C. crassus" from the Solomons. The specimen in Coll. Wils (nr. 424a), illustrated on colour plate 2, is found in Momi Bay, Fiji. In HSN (1970, Febr.: 7) is illustrated the first specimen of "C. crassus" found in the Solomons.

Samenvatting. — In *C. eburneus* hebben we de gekende vorm van *polyglotta* (met uitgelopen, komma-achtige vlekken); de vorm *turbinata* (zonder de donkere stippen, zodat alleen de gele banden overblijven) welke door Van Nostrand (1966) ten onrechte in synoniem geplaatst werd met *C. suturatus* Reeve, 1844 - een fout die vaak zou gecopieerd worden, o.a. door Walls (1979). Tenslotte is er nog de zeldzame en door verzamelaar zeer gezochte (forma?) *crassus* (rode vlekjes en zeer gezwollen vorm) waarvan een exemplaar afgebeeld wordt in kleurplaat 2, uit Coll. Wils.

C. emaciatus Reeve, 1849.

Conus emaciatus Reeve, 1849. Conch. Icon. I (*Conus*) Suppl.: pl. 5, nr. 248.

Type material. — Lectotype designated by C.M.W. (1986: 110) in BMNH.

Type locality. — "Philippine Islands" (Reeve).

Material. — In Coll. author (nr. 02026) 4 specimens from Guadalcanal, of which one is illustrated in I, 32. Several specimens in Coll. vd Riet. This species is commonly found in the Solomons. Conformable the distribution map in C.M.W. (1986: fig. 672) it is living from the Red Sea to the Western Pacific.

C. excelsus Sowerby III, 1908.

Conus excelsus Sow. III, 1908. Ann. Mag. nat. Hist. (8) I: 465-466.

Type material. — Holotype in BMNH (nr. 1908.5.30.1).

Type locality. — "New Caledonia?" (Sowerby).

Remarks. — An interesting summary of the nomenclature is given by A. Limpus (in HSN, 1987, Oct.: 3) of which we cite: "A lone specimen of *C. excelsus* washed ashore on a beach at Tanna in the New Hebrides after an underwater eruption in 1878. This shell came into the Kenyon collection and is now in the South Australian Museum, the holotype of *C. tannaensis* Cotton, 1945 - No. D6172. Although previously described by Brazier as *C. pulcherrimus* in 1894 (non Heilprin, 1879 - fossil), Edward Cotton described it as *C. tannaensis* since Brazier's label on the shell box bore the locality but no name. However, in 1908 Sowerby III published the description of *C. excelsus* which is the now accepted name." We can add that Shikama & Habe, 1968 described *C. nakayasui* (= *C. excelsus nakayasui*) from Kashiwajima, Japan. A beautiful illustration of *C. excelsus* and subspecies *nakayasui* in the splendid edition of Kawamura Collection (1983: pl. XXXVIII, fig. 3 and pl. XXXIX, fig. 2).

This rare species with a very biconical shell, is also living in the Solomons. Estival (1981: 84) mentioned that its rarity seems to be due to the great depth of its habitat (100-200 m). Richard de Forges & Estival (1986: 17) reported *C. excelsus* from the exterior of the New Caledonian lagoon, dredged in -200 m. Springsteen & Leobrera (1986: 226) illustrated a specimen from Balut Is., Philippines. The first record from Australian waters is mentioned in Rossiniana (1986, 4: 11), trawled in 120 fathoms off Lady Elliot Island.

Limpus (1987) illustrated 3 specimens off Elliot Island too, collected by deep-water trawls off the Queensland coast, near the southern extremity of the Great Barrier Reef. Bouchet (in litt. to C.M.W., 1986) dredged *C. excelsus* at Réunion.

Lan (1980: 39, fig. 23-23a) illustrated a specimen of 97,8 mm and reported the species from South Taiwan Strait and NE off Taiwan.

Material. — One specimen in Coll. Wils (nr. Co. 679) from Russell Island, dredged by B. Bailey, -180 m, is illustrated here on colour plate 2. A beautiful specimen, 62 mm and 72 mm, off Russell Island, is illustrated in HSN (1979, Nov.: 5). It was also dredged by B. Bailey in -10 fathoms.

Samenvatting. — Een prachtige illustratie van *C. excelsus* en de ondersoort *nakayasui* kan gevonden worden in de al even prachtige uitgave van de Kawamura Collection (1983). *C. tannaensis* Cotton, 1945 en *C. pulcherrimus* Brazier, 1894 (non Heilprin, 1879) worden hierboven vernoemd als synoniemen van *C. excelsus*. De zeldzame soort wordt zeker gevonden in de Solomons. We beelden een exemplaar af uit de Coll. Wils (gedregd bij Russell eiland).

***C. figulinis* Linné, 1758.**

Conus figulinus Linné, 1758. Syst. Nat. X: 715, nr. 267.

Type material. — Lectotype designated by Kohn (1963) in the Linnean Coll., London.

Type locality. — Not given.

Remarks. — This common species is distributed in the Indo-Pacific from East Africa to Fiji. Although Walls (1979: 470-471) mentioned the species ranging to French Polynesia, the late Mrs. Marescot (in litt.) did not report *C. figulinus* from

the Tuamotu Arch., nor did Salvat & Rives (1983; 1984). Estival (1981: 90) mentioned the species as uncommon in New Caledonia; more frequent in Vanuatu.

Material. — Four specimens from Guadalcanal, Coll. author (nr. 02027), are illustrated in I, 35. The specimen of 47 mm length shows the two light bands of the forma *insignis* Dautzenberg, 1937 and it is aberrantly swollen. But I learnt the variability of the species by a set of specimens sent by M. Montilla (Philippines). In Coll. vd Riet a growth series to a specimen of 90,3 x 56,4 mm.

C. flavidus Lamarck, 1810.

Conus flavidus Lamarck, 1810. Anns. Mus. Hist. nat. Paris 15: 265.

Type material. — Holotype in Coll. Lamarck, MHNG.

Type locality. — "Guinea" (Lamarck), corrected by Wils (1986: 174) in New Guinea.

Material. — This very common species, distributed from the Red Sea throughout the Indo Pacific to the Tuamotu Arch., is also found in the reefs near Honiara: Specimens in Coll. author (nr. 02095/6) of which one illustrated in I, 33. Several specimens in Coll. vd Riet, from Ata'a.

C. floccatus Sowerby I, 1841.

Conus floccatus Sow. I in Sow. II, 1841. Conch. Ill. (*Conus*) - large list: 4, nr. 112.

Type material. — Not present in BMNH. The type figure (Sowerby, 1839: fig. 112) is reproduced here; the figured specimen must be considered the lectotype of *C. floccatus*.

Type locality. — Not given in the original description. "Luzon Philippines" (Sowerby II, 1863. Thes. Conch., *Conus*: pl. 21, fig. 500, sp. 325) must be considered the type locality.

Conus magdalenae Kiener, 1849-1850. Icon. Coq. Viv. 2: 293-294, pl. 69, fig. 4.

Type material. — Kiener's description of *C. magdalenae* was based on the specimen already figured in Chenu (Leçons élémentaires, pl. 12, fig. 7). This holotype in Coll. de Lessert, is kept in MHNG, length 52 mm. The type figure in Kiener is reproduced on colour plate 3.

Type locality. — Not mentioned.

Conus circumsignatus Crosse, 1865. J. de Conch. (13): 311, pl. 10, fig. 4.

Type material. — Holotype in BMNH and illustrated in C.M.W. (1985: fig. 466).

Type locality. — Unknown: "?(Coll. Cuming)" (Crosse).

Remarks. — The figured specimen in Sow. II (1839, fig. 112) was originally misidentified as "*C. dux* Lamarck" (non *C. dux* Lamarck = *C. circumcissus* Born). After the publication of the plates, the large list was made (1941) in which a new name was given, followed by a description of this species, distinguished from *C.*

The following Coni are represented in the 153rd and 154th
Parts of the

Conchological Illustrations,

By G. B. SOWERBY, JUN.

112 *Conus Dux Lam.*

113 *Generalis.*

114 *Maldivus.*

115 *Omaicus.*



112



112

112. *C. floccatus*, *Nob. Z. P.* 1841. (*C. Dux* *C. I.* list.)
This shell is much broader, less distinctly striated,
and more solid than the true *C. Dux* of Lamarck
and it is sprinkled with flakes of white.
113. *C. Generalis*, *Lam.*
114. *C. maldivus*, *Lam.*
115. *C. Omaicus*.

dux Lamarck - see reproduction here.

The holotype of *C. circumsignatus* is a pale form of *C. floccatus* with an obviously concentric pattern (= "circum - signatus"). It is a junior synonym of *C. magdalenae*, the golden form of the species. On colour plate 3 I illustrated two specimens (one with an axial, the other with a concentric pattern) together with the type figure of *C. magdalenae* in Kiener and two comparable "golden" shells (of which one with the pattern very near to the type figure).

C. floccatus is an uncommon species in the Western Pacific, recorded in the Philippines (Springsteen & Leobrera, 1986), in the New Guinea area, Bougainville and New Britain (Hinton, 1977: 57 "by scuba diving"), Marshall Islands (Hinton, 1972), Vanuatu and New Caledonia (Estival, 1981; but not reported by Richard de Forges & Estival, 1986), from the Fiji (Walls, 1979; but not by Cernohorsky, 1966) and in American Samoa (Portymun, 1978). Although Hinton (1972: 84) mentioned the Marshalls as the centre of distribution, the Solomons and Vanuatu are probably the real centre. *C. floccatus* is very rarely found alive, probably because the species is living on the outer side of reefs, in deeper water. After a heavy cyclone over the Solomons in 1972, I. Gower and B. Bailey collected a number of specimens in fresh conditions (14 specimens are illustrated in HSN, 1975, Sept.: 10). Also J. Kengalu had a lot of specimens in stock, collected after a hurricane - "never found alive by the divers" he said. Estival (1981: 94) mentioned that the species is rarely collected alive in sand pockets in 50-60 m. Portymun (in HSN, 1978, Febr.: 10) described the habitat where *C. floccatus* was regularly found alive and he named Samoa: "Floccatus Country"! Two live specimens were found in the Palau Lagoon by G. Cornfield (in HSN, 1988, Oct.: 1) in shallow water.

Material. — In Coll. author (nr. 01747) 13 specimens are kept, from 31,8 to 60,6 mm in length, of which the illustrated one in I, 34 and the specimens on colour plate 3. They are selected in Kengalu's stock during my visite. In Coll. de Visser one specimen from San Cristobal Island.

Samenvatting. — Sowerby (1839: nr. 112) identificeerde verkeerdelijk zijn exemplaar als *C. dux* Lamarck. Na de platen verscheen een volledige lijst van de Conidae (1941) waarin Sowerby zijn fout rechtzette, de schelp *C. floccatus* noemde en beschreef (zie hierbij de montage). *C. circumsignatus* = *C. magdaleana*, zijnde de "golden form" van *C. floccatus* (zie kleurplaat 3).

We vermelden hierboven een reeks vindplaatsen en zijn van mening dat de Salomons en Vanuatu de meeste exemplaren opleveren. Het moet gezegd dat de soort uiterst zelden levend gevonden wordt - enige tegenspraak geeft Portymun (1978) voor Samoa. Net als de exemplaren die Gower en Bailey verzamelden (zie HSN, 1975), kwamen ook de talrijke schelpen van J. Kengalu bereikbaar na wervelstormen.

***C. floridulus* Adams & Reeve, 1848.**

Conus floridulus Ad. & Rve., 1848. Zool. Voy. Samarang. Moll. pt. 1: 18, pl. 5, f. 9 ab.

Type material. — Holotype in BMNH (37 x 20 mm). Type figure 9b is reproduced on colour plate 3.

Type locality. — "?(From the Sulphur Voyage)" (Ad. & Rve.) - unknown.

Remarks. — Cernohorsky (1966: 87) regarded *C. floridulus* synonym of *C. sugillatus* Reeve, 1844, illustrating the smoot form of *C. muriculatus* Sowerby, 1833. Walls (1979: 747-749) synonymized *C. floridulus* and *C. sugillatus* with *C. muriculatus* being forms only. Estival (1981: 62) considered *C. sugillatus* the valid species and added that "the *muriculatus* variety, very granulose, has not been found in New Caledonia yet". He considered *C. floridulus* also a valid species (1981: 74). But Richard de Forges & Estival (1986: 15) reported correctly *C. muriculatus* var. *sugillatus*.

I have reproduced on colour plate 3 for comparison, side by side, the type figures. Comparing their spire it becomes easy to distinguish the two valid species, *C. floridulus* (spire convex) and *C. muriculatus*. Both species are known with a smooth and granulated form. *C. sugillatus* is the smoot form of *C. muriculatus*. The last whorl of *C. floridulus* is thinner than the last whorl of the other species; the base stained with pink-violet.

C. floridulus is well known in the Philippines and distributed in the Western Pacific, to New Caledonia.

Material. — A gem specimen in Coll. author (nr. 857), 24,0 x 11,5 mm, from Guadalcanal, is illustrated in I, 37. It is a smooth specimen of *C. floridulus*. Walls (1979: 481, above right) illustrated a granulated specimen of *C. floridulus*, 34,1 mm, from Russel Island, but misidentified as "*C. muriculatus*".

Samenvatting. — We verwijzen naar kleurplaat 3, waarop de type figuren zijn afgebeeld van *C. floridulus*, *C. muriculatus* en diens gladde vorm *sugillatus*. Bij vergelijking valt onmiddellijk de convexe spira op van *C. floridulus*; deze heeft ook een dunnere laatste winding dan de andere soort en heeft een rose-violette basis. Zowel *C. floridulus* als *C. muriculatus* komen voor in gladde en gegranuleerde vorm.

C. frigidus Reeve, 1848.

Conus frigidus Reeve, 1848. Conch. Icon. (*Conus*) Suppl.: pl. 3, nr. 284.

Type material. — Type in BMNH.

Type locality. — Not given.

Remarks. — Cernohorsky (1966: 74-75) distinguished the species very well from the related *C. flavidus* which "usually lacks the spiral ridges on the upper part of the body whorl; the transverse bands are white or bluish-white, not pale yellowish-fawn as in *C. frigidus*; the latter has a slightly rounded shoulder, distinctly striate whorls and a pale violet apex, features which distinguish it from *C. flavidus*." Also the radulae seems to be separable.

C. frigidus is distributed widely in the Indo-Pacific: Andaman Is (Wellens, 1988), Philippines (Springsteen & Leobrera, 1986: 238 "usually sympatric with *C. lividus* and *C. flavidus*." to Fiji (Cernohorsky, 1966) and French Polynesia (Salvat & Rives, 1984), (the late Mrs. Marescot, in litt.).

Material. — Several specimens collected by myself in the Ndoma Reef, near Honiara (Coll. author nr. 02088) of which one specimen is illustrated in I, 38. Many specimens (max. length 46,8 mm) from Ata'a, Malaita, in Coll. vd Riet. Walls (1979: 309) illustrated specimens from Honiara too.

C. generalis Linné, 1767.

Conus generalis Linné, 1767. Syst. Nat. XII: 1166, nr. 293.
 Type material. — Holotype in the Linnean Coll., London.
 Type locality. — "India Orientali" (Linné).

Remarks. — This well known Indo-Pacific species, commonly found in the Philippines, is regularly found in the Solomons, but is uncommon in New Caledonia (Estival, 1981: 36) and Fiji (Cernohorsky, 1966: 75). The species is absent in French Polynesia (Mrs. Marescot in litt.).

Material. — Four selected specimens in Coll. author (nr. 02028) from Guadalcanal, all of the forma *spirogloxus* Deshayes, 1863 (= with high spire) and one of the colour form *regenfussi* Dautzenberg, 1937 (= with two yellow bands on the last whorl; without axial pattern). Two specimens are illustrated in I, 36. In Coll. vd Riet a growth series of ten specimens, from a length of 38,0 mm to 73,5 mm, from Ata'a.

C. geographus Linné, 1758.

Conus geographus Linné, 1758. Syst. Nat. X: 718, nr. 283.
 Type material. — Holotype in the Linnean Coll., London.
 Type locality. — "Indii" (Linné).

Remarks. — This species is quite commonly found in the Indo-Pacific, from the Red Sea (Wils, 1986: 179) and East Africa. Common in the New Guinea-Solomon area. Uncommon in New Caledonia (Estival, 1969) and rare in Fiji (Cernohorsky, 1966). The aggressive animal can be found in shallow water, in sand pockets in reefs.

Material. — Subadult specimens from Guadalcanal in Coll. author (nr. 724) and one specimen (nr. 02029) selected during my visit, 75 x 34 mm, with a dark reddish brown pattern, illustrated in I, 39. Several specimens in Coll. vd Riet (to a length of 89,6 mm).

C. gilvus Reeve, 1849.

Conus gilvus Reeve, 1849. Conch. Icon. (*Conus*) Suppl.: pl. 6, nr. 255.
 Type material. — Two syntypes are kept in BMNH, labeled: "S. Africa".
Type locality. — "Saldanha Bay, South Africa" (Reeve). This locality data is impossible and **must be corrected in Solomon Islands.**

Remarks. — The type locality mentioned by Reeve is absolutely erroneous. This uncommon species is distributed in Eastern Indonesia and in the Solomons. One specimen collected in Flores (Indonesia) by Fr. M. Vianney (1966), is kept in Coll. author (nr. 550). Several specimens were obtained from Guadalcanal and Langa Langa Lagoon (Malaita). Walls (1979: 328) illustrated four specimens from Honiara. Although Walls (p. 511, 514) alleged to have seen specimens from New Guinea, the species is not mentioned by Hinton, nor reported from Queensland, also not from Vanuatu, Fiji or the Tuamotu Arch. Only one specimen is reported from New Caledonia (Prigent, 1986, in Rossiniana, N. 23: 7), collected in 1983. The species

seems to be unknown in the Philippines. After the study of the localities where specimens came from, I consider here the Solomon Islands as the correct type locality.

This species is difficult to confuse with *C. flavidus* or *C. frigidus* as Walls (1979: 514) suggested, describing the species as "rough, usually suffering from bad growth marks and unhealed breaks. The spire and shoulder often eroded, and the lip is often chipped..." - this is for *C. gilvus* not more frequent than for other Conidae!

Material. — Specimens from Guadalcanal in Coll. author (nr.662: 28,4 mm and 02030) of which two are illustrated in I, 40. Four specimens are illustrated in Walls, from Honiara. Also one specimen in Coll. de Visser.

Samenvatting. — Behalve een exemplaar verzameld op Flores (ex Coll. Vianen, 1966) bevinden er zich exemplaren in mijn verzameling van de Salomons, van Guadalcanal en Malaita. Uit de studie van de vindplaatsen van deze soort werd me duidelijk dat de type localiteit absoluut foutief is. Deze wordt hier dan ook verbeterd in "Solomon Islands", zijnde hét centrum bij uitstek waar de soort gevonden wordt.

C. glans Hwass, 1792.

Conus glans Hwass in Bruguière, 1792. Enc. Méth.: 735-736. Tabl. Enc.: pl. 342, fig. 7.

Type material. — Lectotype selected by Kohn (1968: 458-459, pl. 5, fig. 49) in Coll. Sollier, in MHNG (nr. 1107/88/1).

Type locality. — "Les mers d'Afrique, l'Isle-de-France aux Molluques" (Hwass). Restricted to Mauritius (= "Ile-de-France") by Kohn.

Remarks. — Hwass distinguished var. B, *granulata*, in which the ribs are pearled. Dautzenberg (1937: 126--130) distinguished var. *granulata* (pearled ribs) and var. *tenuigranulata* (1937: pl. 1, fig. 11); both forms are found in each population of *C. glans* and do not have any significance.

There is no unanousness between recent authors concerning the taxonomic status of *C. tenuistriatus* Sowerby II, 1858, often synonymized with *C. glans*. *C. tenuistriatus* has a more elongate, conical body whorl and more closely-set fine ribs. Röckel & Fischöder (1985: 70-71) counted the ribs: More than 25 / cm for *C. tenuistriatus*, 10-20 / cm for *C. glans*. The illustration of *C. tenuistriatus* in Springs-teen & Leobrera (1986: pl. 63, fig. 9) and in Röckel & Fischöder (1985: pl. 4, fig. 1) is very corresponding with the type figure of *C. tenuistriatus* in Sowerby, 1958 (Thes. Conch., pl. 22, fig. 532-533). The much finer and more numerous ribs are the most efficient characteristic feature to distinguish *C. tenuistriatus* from *C. glans*. This Indo-Pacific species, often commonly found from Eastern Africa to French Polynesia, seems hardly to find in the Solomons - "usually only come up in cyclones" (Ann Kengalu in litt., 12-7-89). The species is quite variable in form and colour.

Material. — In Coll. author (nr. 02031) two specimens from Guadalcanal: 22,1 x 11,2 mm, 25,5 x 12,2 mm. The illustrated specimen in I, 42 must be identified as *C. tenuistriatus*. See also colour plate 4. Three specimens from Ata'a area in Coll. vd Riet.

Samenvatting. — Overeenkomstig met Hwass (1792), onderscheidde Dautzenberg (1937) een var. *granulata* (geparelde vorm) en een var. *tenuigranulata* (de ribben hebben een veel minder uitgesproken parelstructuur). Het probleem bij deze algemeen gekende soort is echter de sterk gelijkende *C. tenuistriatus* Sowerby, 1858 die vaak met *C. glans* wordt verward. *C. tenuistriatus* is echter meer gerekt van vorm, en op de laatste omgang zijn de ribjes veel fijner en talrijker dan bij *C. glans*. Het geïllustreerde exemplaar in I, 42 moet geïdentificeerd worden als *C. tenuistriatus* en niet zoals verkeerdelijk staat aangegeven, als *C. glans*. Alhoewel de soort als algemeen en met een zeer groot verspreidingsgebied bekend staat, blijkt deze toch vrij schaars aan de oppervlakte te worden gebracht in de Salomons.

***C. glaucus* Linné, 1758.**

Conus glaucus Linné, 1758. Syst. Nat. X: 714, nr. 261.

Type material. — Lectotype selected by Kohn (1968) in the Linnean Coll.

Type locality. — "in Asia" (Linné).

Remarks. — I am agree with Walls (1979: 522) who stated that Solomon specimens "seem to be darker and more distinctly patterned than those from the Philippines". Compared with very good studymaterial sent by M. Montilla from the Philippines (Coll. author, nr. 1016), the groundcolour of the Solomon specimens is indeed ashengrey, the black spire blotches are obviously developed and even so the parallel black and white lines on the last whorl.

This species is living from the Indonesian area and the Philippines to the Solomons, sporadically found in Vanuatu but not in New Caledonia (Estival, 1981; not reported by Richer de Forges & Estival, 1986), not reported from Fiji (Cernohorsky, 1966) nor from French Polynesia (Salvat & Rives, 1983; 1984; Mrs. Marescot in litt.).

Material. — In Coll. author (nr. 02032) two specimens are kept, 31 mm and 35 mm in length, from Guadalcanal. The smallest specimen is illustrated in I, 43. In Coll. vd Riet six specimens in a growth series, from 33,0 tot 55,5 mm, from Ata'a. Walls (1979: 333) illustrated three specimens "Lungga R." (= Lungga Point, near Honiara).

Samenvatting. — Exemplaren uit de Salomons zijn opvallend donkerder gekleurd dan deze uit de Filippijnen bijvoorbeeld. De spira is ook sterker gevlamd en de spiraallijntje op de laatste omgang meer afgetekend.

***C. gloriamaris* Chemnitz, 1777.**

Conus gloria-maris Chemnitz, 1777. Besch. Berlin Ges. Naturf. Freunde (3): 321, pl. 8, fig. A.

Type material. — The holotype is kept in Zool. Mus. Univ. Copenhagen.

Type locality. — Not given by Chemnitz.

Remarks. — No other species has been the subject of as many articles as the famous *C. gloriamaris*, once so rare and foolishly prized. Before the seventies each Conus-collector was excited to may touch one museum specimen; now he can keep

several specimens of gem quality in his own collection. But it remains an exciting species. The follow-up of a "Gloriamaris Registry" (80 registered specimens in 1966) was stopped by the find of 70 specimens by Bailey, Gibbins and Gower off Lungga Point, near Honiara (Gibbins in HSN, 1970, Sept.: 7). Five years later *C. gloriamaris* was a common species in the Philippines. Before the big catch off Lungga Point, Bougainville and Kolombangara Island were the most cited localities in the Solomon area. Conformable the distribution-map by Cross & Fair (in HSN, 1970, Sept.: 4) the "*gloriamaris triangle*" is ranged between Luzon Island (Philippines), south to Flores (Indonesia) and eastwards to Fiji. But this latter is based on Cernohorsky (in HSN, 1968, March: 4) who mentioned a broken and worn specimen of 105 mm, found in the South of Viti Levu. I think that the distribution triangle must restricted eastwards to the Guadalcanal area.

Cross & Fair (1970) pointed out that the specimens of *C. gloriamaris* from the Philippines, living in deeper water, are quite slender with a length to width ratio of about 3 to 1; while the Solomon "shallow water form" has a length to width ratio of about 2, 5 to 1. A color variation is also stated: Philippine specimens are tan-brown to golden, while Solomon specimens are dark brown and often with a bluish tinge. This bluish tinge is said to be common in *C. textile* collected in areas where junk iron such as a ship wreck is found. Although I selected ten specimens of *C. textile* from the "Iron Bottom Sea" as variable as possible, no one is bluish tinged, but my specimens of *C. gloriamaris*, they are.

Material. — One specimen in Coll. author (nr. 02033), 46,1 x 17,6 mm, is collected off Kakambone, during a night-dive on 15 July 1987 by Colin, in -25 m. It was on a black sand bottom, behind the coral area mentioned as "cowry point" by the Kengalu's divers, because of the many Cypraeidae. It is illustrated in I, 44. A second specimen in Coll. author (nr. 02034), 79 x 30,2 mm, is collected alive by Johnson Kengalu off Lugga Point, at noon on 16 July 1987, in -40 m. The bottom was described from very muddy to black sand. The story of this find is told in Gloria Maris (1990, 1: 7-8). This specimen is illustrated in I, 41 and on colour plate 4. Walls (1979: 337 below) illustrated also a specimen from Guadalcanal.

Samenvatting. — Velen onder ons herinneren zich nog de tijd dat het een ware sensatie was een schelp van deze soort te mogen vasthouden. De prijs voor een schaars exemplaar was even sensationeel. Toen kwam het bericht van een grote vangst bij Honiara (1970): Niet minder dan 70 exemplaren. Enkele jaren later kwam er een ware stroom exemplaren op gang uit de Filippijnen... Voor 1970 werden Bougainville, Kolombangara en Vella Lavella genoemd als vindplaatsen van *C. gloriamaris* op de Salomons. Cross & Fair (1970) stelden vast dat de Filippijnse exemplaren slanker waren en meer goudgeel dan deze van de Salomons, die een blauwachtige tint vertonen.

C. granum Röckel & Fischöder, 1985.

Conus granum Röckel & Fischöder, 1985. (in) Spixiana, 8(1): 67-72.

Type material. — The holotype (28,5 x 10,8 mm) is kept in the Zoologische Staatssammlung, München (Germany).

Type locality. — "Manobol, Sulu Archipel, Philippinen" (R. & F.).

Remarks. — In the original description the authors pointed out how to distinguish this species from *C. glans*, *C. tenuistriatus*, *C. luteus*, *C. viola*, *C. blattus*, *C. corallinus* and *C. nucleus* - all related species with which *C. granum* often is confused. For instance, the specimen illustrated in Estival (1981: fig. 89) and identified as "*C. luteus*", is in fact a beautiful *C. granum*. The specimen illustrated in Springsteen & Leobrera (1986: 227, fig. 10) and identified as "*C. viola*" is also *C. granum*. On colour plate 1 are illustrated together in the middle: *C. artoptus* (type figure and one specimen), *C. viola* and *C. granum*. An interesting article about the related species of *C. granum* is written by A. Richards (in *La Conchiglia*, 1989, N. 242-245: 30-37).

This species is been collected from Okinawa, through the Philippines, to Fiji (Prigent, 1986). Specimens collected before 1985 and identified in collections as *C. tenuistriatus* from the Western Pacific, must studied again; maybe they belong to *C. granum*.

Material. — In Coll. author (nr. 861) one specimen from Guadalcanal (1988), collected in -35 m. Measurements 32,4 x 12,6 mm. It is illustrated on colour plate 1. In Coll. vd Riet one specimen, 24,3 x 10,0 mm, from Ata'a, Malaita; identified by J. vd Riet as "*C. glans*".

Samenvatting. — Deze soort is vaak verward met *C. tenuistriatus* en andere species. Exemplaren in onze collecties voor 1985 ondergebracht en toen geïdentificeerd als *C. glans*, *C. tenuistriatus*, *C. luteus* of *C. viola*, moeten opnieuw bekeken worden! Het exemplaar uit de Coll. auteur werd op de eerste kleurplaat afgebeeld. Een zeer goede afbeelding vindt men ook in Estival (1981: fig. 89) als "*C. luteus*". In Coll. vd Riet ontdekte ik een exemplaar onder deze van *C. glans*.



ON THE IRRITATING *EPITONIUM* FROM THE SOLOMON ISLANDS

The *Epitonium* species, illustrated in *Gloria Maris* 29 (1): 7-8, found by myself off Lungga Point, Guadalcanal, is no more "irritating". The species is identified as *Gyroskala lamellosa* (Lamarck, 1822) by:

1. H.P. Wagner, Inst. Taxon. Zoöl. (Zoöl. Mus.) Amsterdam. The Netherlands.
2. H. DuShane, Research Associate, Nat. Hist. Mus., Los Angeles County, California. (in litt. 15-9-1990).
3. R.N. Kilburn, Natal Museum, Pietermaritzburg, South Africa. (in litt. 6-12-1990).

"... Characteristics are the brown spots near the suture, costae continuous from whorl to whorl, brown between costae, basal ridge well developed, suture moderately deep. World wide in distribution, with many synonymic names..." (H. DuShane).
 "... Some regard the Indo-Pacific population as a different species, *G. perplexa* Pease in Deshayes, 1863 - but there are no grounds for this." (R.N. Kolburn).

I am grateful to this people who answered so willingly, solving my *Epitonium*-problem of the Solomons. Thanks!

A. Delsaerd

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