

Born's strombs (Mollusca: Gastropoda), with some notes on *Strombus succinctus* LINNAEUS, 1767

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Zusammenfassung

Neun von Born untersuchte Exemplare der Gattung *Strombus* sensu LINNAEUS konnten in der Sammlung des Naturhistorischen Museums in Wien wiedergefunden werden. Darunter befinden sich der Lectotypus von *Strombus fasciatus* BORN, 1778. In dieser Arbeit wird die Identität der Syntypen von *Strombus succinctus* LINNAEUS, 1767 diskutiert. Weiters werden der Status und die Identität von *S. accinctus* erörtert.

Abstract

Nine specimens of *Strombus* sensu LINNAEUS examined by Born have been rediscovered in the Natural History Museum in Vienna. Among these is the lectotype (designated herein) for *Strombus fasciatus* BORN, 1778. The identity of the syntypes of *Strombus succinctus* LINNAEUS, 1767 and the status and identity of *S. accinctus* are discussed.

Key words: *Strombus*, Born, lectotype, *succinctus*, Linnaeus.

Introduction

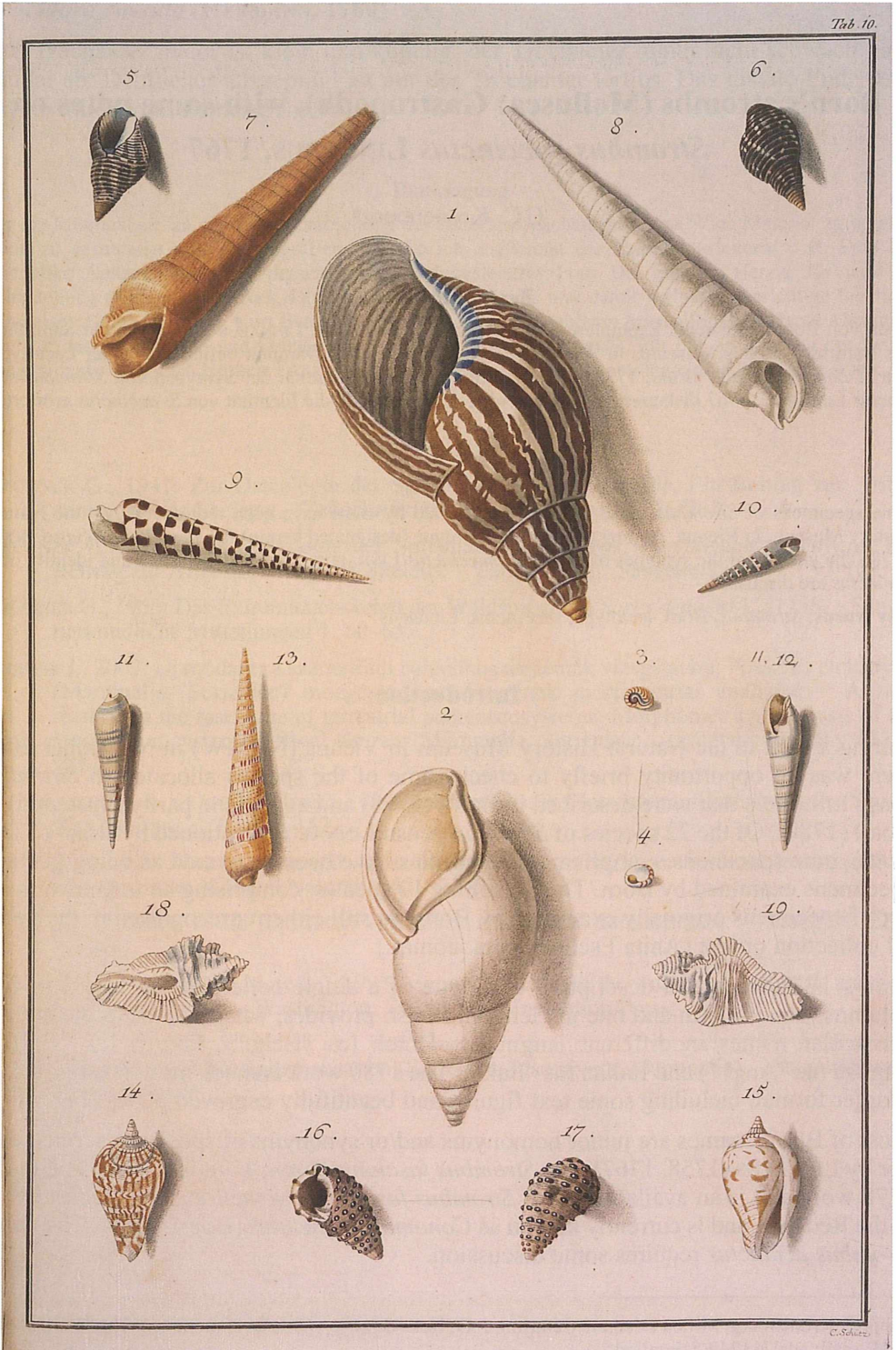
During a visit to the Natural History Museum in Vienna (NHMW) in November 2006 there was an opportunity briefly to check some of the species allocated to *Strombus* sensu LINNAEUS that were described in BORN (1778) and again (and partly illustrated) in BORN (1780). Of the 22 species of *Strombus* sensu LINNAEUS mentioned by BORN (1778, 1780), nine specimens, comprising nine species have been recovered as being genuine specimens examined by Born. The remaining 13 species, comprising an unknown number of specimens originally examined by Born are still either unrecognised in the general collection or lost (Anita Eschner, pers. comm.).

Born's 1778 work is a descriptive catalogue of a single collection, with text in two columns, one in Latin and one in German. It also provides, when known to the author, vernacular names in different languages: Dutch (as "Belg."), French (as "Gall."), English (as "Angl.") and Italian (as "Ital."). The 1780 work is much more prestigious, in a larger format, including some text figures and beautifully engraved plates (Fig. 1).

Most of Born's names are junior homonyms and/or synonyms of species described earlier by LINNAEUS (1758, 1767). But *Strombus fasciatus* BORN, 1778 is a new name in the 1778 work and is an available name. *Strombus fasciatus* is a well-known species living in the Red Sea, and is currently known as *Conomurex fasciatus* (BORN, 1778). The name *Strombus accinctus* requires some discussion.

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Tab. 10.



The collection in NHMW was examined earlier by BRAUER (1878) for the presence of specimens examined by Born. In his overview BRAUER (1878) made notes about all species mentioned by BORN (1778, 1780). The specimens examined by Born that BRAUER (1878) was able to retrieve from the general collection were marked by an asterisk (*) in that overview, sometimes accompanied by a question mark (?) when BRAUER (1878) was not sure.

It appeared that three of those uncertainties, viz. *Strombus lucifer*; *S. gigas*; and *S. epidromis* [spelled as *epidromus* by BRAUER (1878: 48)] were not present among the specimens during my visit. These specimens, which are possibly genuine Born specimens, may still be in the general collection of NHMW. This is also true for a second specimen of *Lambis truncata* (LIGHTFOOT, 1786), see further below.

Descriptive part

The species are mentioned in the same sequence in which they appear in BORN (1778) and BORN (1780). First the name under which the species was described by Born is noted with reference to pages and figures when appropriate. Secondly, the page reference to BRAUER (1878) with indication when retrieved by Brauer, using the same notation as BRAUER (1878) did. Third, the current NHMW number is noted with the length of the specimen, when present in 2006. Fourth, identifications are either verified or re-identified by the present author, except for NHMW 14269.

***Strombus fusus*; BORN, 1778: 265-266; BORN, 1780: 270.**

BRAUER (1878: 47): "Orig. nicht gefunden." (Original not found)

***Strombus pespelicani*; BORN, 1778: 266-267; BORN, 1780: 270-271, text fig. p. 269 b.**

BRAUER (1878: 47): "Original nicht bezeichnet" (Original not indicated).

Not found in 2006.

***Strombus chiragra*; BORN, 1778: 267-268; BORN, 1780: 271-272.**

BRAUER (1878: 47): *, "von mir mit "Born" bezeichnet" (indicated "Born" by me).

NHMW 14262 length: 125 mm.

Here identified as a subadult of *Harpago chiragra* (LINNAEUS, 1758).

***Strombus scorpio*; BORN, 1778: 268-269; BORN 1780: 272-273 (as *S. scorpius*).**

BRAUER (1878: 47): "Original ohne Bezeichnung" (Original without indication).

Not found in 2006.

Fig. 1. Plate 10 from BORN (1780). Figs. 14 - 15 represent *Strombus accinctus* BORN, 1778, figs 16 - 17 represent *S. tuberculatus* BORN, 1778 (a species in Cerithoidea). Other species on this plate represent Achatinidae (figs 1-2), Nassariidae (figs 3-4), Cerithoidea (figs 5 - 6), Terebridae (figs 7 - 13) and Muricidae (figs 18 - 19).

***Strombus lambis*; BORN, 1778: 269-270; BORN, 1780: 273-274.**

BRAUER (1878: 47): "?* Eine Mischart von *Pterocera lambis* Lk. und *Radix-Brioniae* Gmel. Originale letzterer Art im Schaukasten Nr. 111 u. 115 von der bei Born angegebenen Grösse" (A mixture of the species *Pterocera lambis* Lk. and *Radix brioniae* Gmel. Originals of the latter species in showcase No. 111 and 115 with sizes as indicated by Born).

Only one specimen found in 2006, NHMW 14337, length 206mm.

Here identified as *Lambis truncata* (LIGHTFOOT, 1786).

***Strombus millepeda*; BORN, 1778: 270; BORN, 1780: 274.**

BRAUER (1878: 48): "Orig. nicht bezeichnet" (Original not indicated).

Not found in 2006.

***Strombus lentiginosus*; BORN, 1778: 271; BORN, 1780: 274-275.**

BRAUER (1878: 48): "* Original Nr. 680"

NHMW 14263, length 66.1 mm

Here identified as *Lentigo lentiginosus* (LINNAEUS, 1758)

***Strombus gallus*; BORN, 1778: 271-272; BORN, 1780: 275-276.**

BRAUER (1878: 48): "Original nicht bezeichnet" (Original not indicated).

Not found in 2006.

***Strombus aurisdianae*; BORN, 1778: 272-273; BORN, 1780: 269 text fig. c, p. 276.**

BRAUER (1878: 48): "* Original Nr. 681 im Schaukasten" (Original Nr. 681 in showcase).

NHMW 14264, length 69.3 mm

Here identified as *Euprotomus bulla* (RÖDING, 1798)

***Strombus pugilis*; BORN, 1778: 273; BORN, 1780: 277.**

BRAUER (1878: 48): "Original nicht bezeichnet" (Original not indicated).

Not found in 2006.

***Strombus luhuanus*; BORN, 1778: 274; BORN, 1780: 277-278.**

BRAUER (1878: 48): "Original nicht bezeichnet" (Original not indicated).

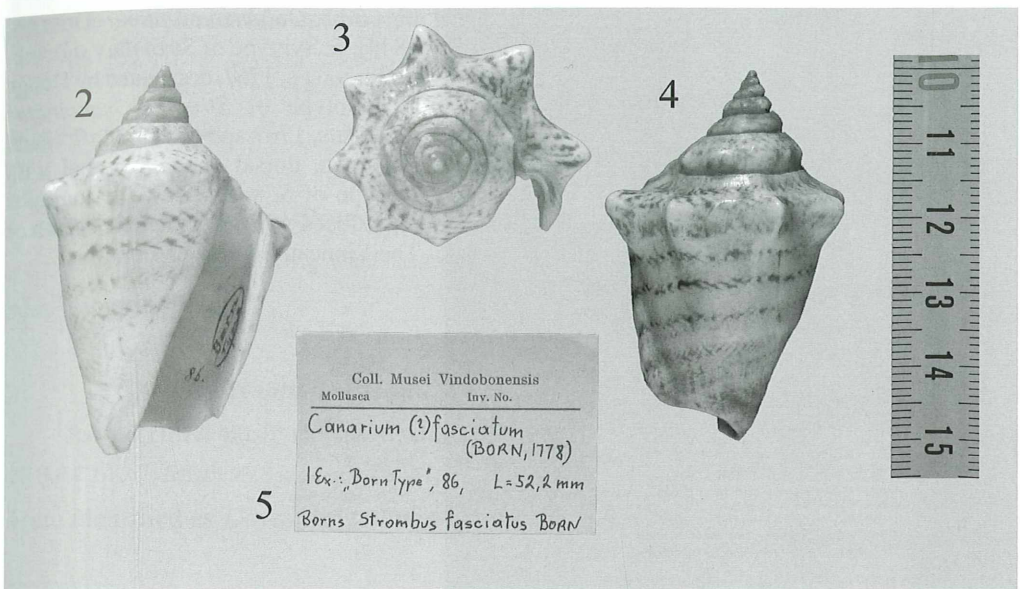
Not found in 2006.

***Strombus fasciatus* BORN, 1778: 274-275; BORN, 1780: 278.**

Type locality: "Habitat in mari rubro, *Davila*." (BORN, 1780: 278).

BRAUER (1878: 48): "Original ohne Nummer" (Original without number).

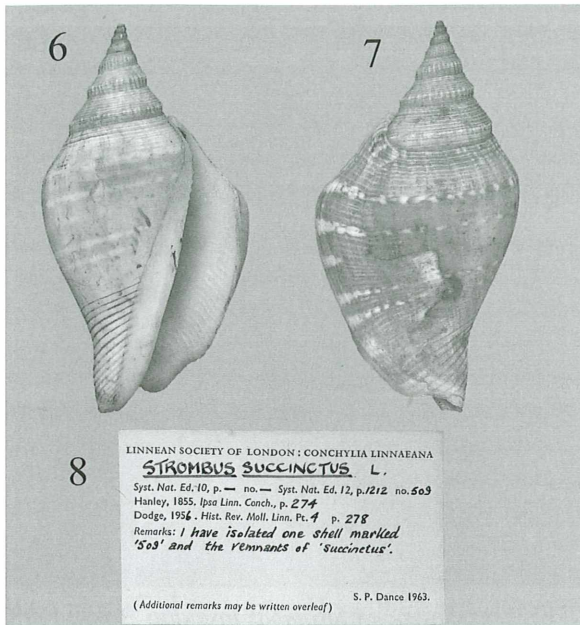
Lectotype, here designated: NHMW 14265, length 52.2 mm, Figs 2 - 4.



Figs 2 - 5: *Conomurex fasciatus* (BORN, 1778). 2. Lectotype of *Strombus fasciatus* BORN, 1778 apertural view. 3. Same specimen as fig. 2, apical view. 4. Same specimen as fig. 2, dorsal view with length scale. 5. Old NHMW label with lectotype of *S. fasciatus*.

In considering the specimen in NHMW as the lectotype of *Strombus fasciatus*, I do not follow the reasoning by BEU (1998: 110-111) in his acceptance of the specimen present in NHMW of *Cymatium parthenopeum* (SALIS MARSCHLINS, 1793) as the holotype of *Murex costatus* BORN, 1778. BRAUER (1878) already indicated that the situation concerning the specimens examined by Born was rather complex; some specimens were on exhibition, others were given away in exchange, shuffled back and forth between different classification systems, or sorted out as not beautiful enough (and possibly discarded, GCK). Also, BRAUER (1878) did not mark the entry *Strombus fasciatus* with an asterisk, yet he wrote: "Original ohne Nummer" indicating that he had found a specimen examined by BORN (1778), which is inconsistent. Dr. Peter Dworschak, NHMW (pers. comm.) informed me that more species are known to have such inconsistent entries. The measurements indicated by BORN agree with the size of NHMW 14265, and therefore it could indeed be the specimen referred to by BORN (1778, 1780). However, there are other examples where more than one specimen is present but only one measurement given in the publication (Peter Dworschak, pers. comm.).

Moreover, BORN (1778, 1780) referred also to MARTINI (1777 Vol. 3, pl. 78, figs. 800-802). Of these figures figs 800 and 802 probably represent the same specimen; fig. 801 is another specimen. Both these specimens are also the *Strombus fasciatus* of modern authors. Therefore I follow ICZN Recommendation 73F (avoidance of assumption of holotype) in designating the specimen present in NHMW 14265 as lectotype of *Strombus fasciatus* (BORN, 1778). This action is taken to avoid any possible future confusion with *Strombus fasciatus* GMELIN, 1791, which is a junior synonym of *S. latus* GMELIN, 1791 (see ABBOTT, 1960). A lectotype for *S. fasciatus* GMELIN will be selected by Harzhauser & Kronenberg (in prep.).



Figs 6 - 8. *Dolomena septima* (DUCLOS, 1844). 6. Syntype of *Strombus succinctus* LINNAEUS, 1767, designated by Dodge as holotype of *Strombus succinctus* LINNAEUS, 1767 apertural view. 7. Same specimen, dorsal view. 8. Label with syntype of *S. succinctus*. Photographs reproduced with the kind permission of The Linnean Society of London.

Here identified as *Conomurex fasciatus* (BORN, 1778). For allocation to *Conomurex* (as a subgenus), see MOOLENBEEK & DEKKER (1994).

***Strombus gibberulus*; BORN, 1778: 275; BORN, 1780: 278-279.**

BRAUER (1878: 48): "Original nicht bezeichnet" (Original not indicated).

Not found in 2006.

***Strombus oniscus*; BORN, 1758: 276; BORN, 1780: 279.**

BRAUER (1878: 48): "Original vorhanden, ohne Nummer" (Original present, without number).

NHMW 14266, length 32.5 mm

Here identified as *Morum oniscus* (LINNAEUS, 1767), family Harpidae.

***Strombus lucifer*; BORN, 1778: 276-277; BORN, 1780: 279-280.**

BRAUER (1878: 48): "?* (...) Original ohne Nummer" (Original without number).

Not found in 2006.

***Strombus gigas*; BORN, 1778: 277-278; BORN, 1780: 280-281.**

BRAUER (1878: 48): "?* Originale von der angegebenen Grösse im Schaukasten" (Originals of indicated size in showcase).

Not found in 2006.

***Strombus epidromis*; BORN, 1778: 278; BORN, 1780: 281.**

BRAUER (1878: 48): [as *Strombus epidromus* Lk.]"?* Ein Exemplar von der bezeichneten Grösse." (One specimen of the indicated size).

Not found in 2006.

***Strombus canarium*; BORN, 1778: 279; BORN, 1780: 281-282, text fig. p. 269d.**

BRAUER (1878: 48): "Orig. nicht nachweisbar" (Original not to be proven).

Not found in 2006.

***Strombus vittatus*; BORN, 1778: 279-280; BORN, 1780: 282-283.**

BRAUER (1878: 48): "* Original Nr. 126"

NHMW 14267, length 96.8 mm.

Here identified as *Doxander vittatus* (LINNAEUS, 1758).

***Strombus accinctus*; BORN, 1778: 280-281; BORN, 1780: 283, pl. 10 figs 14, 15 (Figs 9 - 15).**

BRAUER (1878: 48): "* Original (...) vorhanden" (Original present).

NHMW 14268, length 42 mm..

Here identified as *Dolomena sowerbyorum* (VISSER & MAN IN 'T VELD, 2006), see below for discussion.

***Strombus urceus*; BORN, 1778: 281; BORN, 1780: 283-284.**

BRAUER (1878: 48): "Originale nicht bezeichnet" (Originals not indicated).

Not found in 2006.

***Strombus tuberculatus*; BORN, 1778: 282; BORN, 1780: 284, pl. 10, figs 16, 17.**

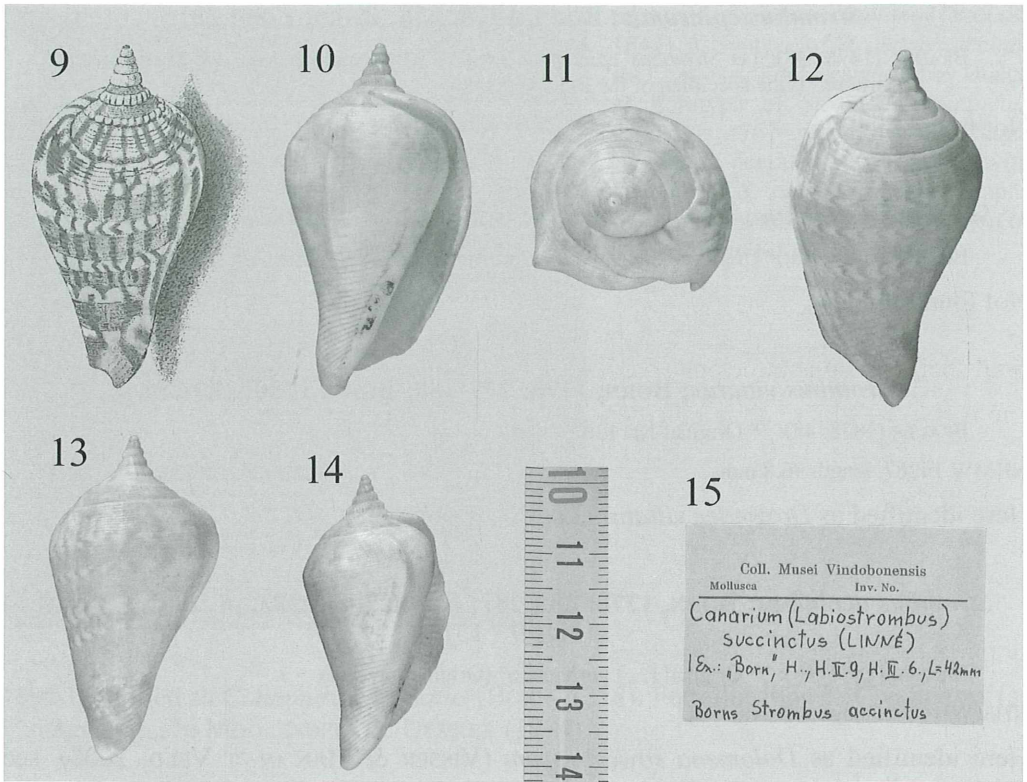
BRAUER (1878: 48): "* Die Orig. H. IV, I oder H. 39 sind *Cerithium Borni* Sow. (...)" (The original H. IV, I or H. 39 are *Cerithium Borni* Sow. (...))

NHMW 14269, length 30 mm.

One specimen found in 2006. Identified as *Batillaria sordida* (GMELIN, 1791). Identification not verified by the present author. Not in Stromboidea but in Cerithoidea.

Discussion

Before discussing the identity of *Strombus accinctus* BORN, 1778, the identity of *S. succinctus* LINNAEUS, 1767 needs to be established unequivocally. The name *S. succinctus* LINNAEUS, 1767 provides a nomenclatural as well as a taxonomic problem.



Figs 9 - 15. *Dolomena sowerbyorum* (VISSER & MAN IN 'T VELD, 2005). 9. Original figure from BORN, 1780 pl. 10 fig. 14, of *Strombus accinctus* BORN, 1778. 10. NHMW 14268, slightly tilted apertural view to show axial fold. Note the word "Born" written on the abapical part of the columella. 11. Same specimen, apical view. 12. Same specimen, dorsal view. 13. Same specimen, dorso-lateral view to show axial fold. 14. Same specimen, ventro-lateral view with length scale. 15. Old NHMW label accompanying specimen NHMW 14268.

DODGE (1956) discussed the name *Strombus succinctus* LINNAEUS, 1767 extensively. He referred to the original spelling by LINNAEUS (1767) as "ccinctus" This is not correct. The original spelling by LINNAEUS (1767: 1212) reads "uccinctus" The specific epithet of *Strombus uccinctus* LINNAEUS, 1767 is not demonstrably incorrect as provided in Article 32.5; it is therefore a correct original spelling as defined by Art. 32.2. The fact that Linnaeus added an "s" in his personal copy of his work as stated by DODGE (1956: 279) does not constitute a publication, see Article 8.1.3.

The spelling "uccinctus" is declared a typographical error in Sherborn's Index Animalium, which says "err. typ. succinctus, vide III. 1768, errata"

The erratum published in Vol. 1, part 2, of the 12th edition (LINNAEUS, 1767) (which includes the molluscs, available on-line at the University of Göttingen; see <http://resolver.sub.uni-goettingen.de/purl?PPN362053723>), shows no correction of "uccinctus" into "succinctus" Yet, in the errata published in Vol. 3 of the 12th edition (LINNAEUS, 1768), immediately after the "index universalis", there is an entry "1212

"succinctus lege succinctus" This confirms the observations made by Sherborn, and by IREDALE (1958). Applying Article 32.5.1.1 rigidly, i.e. exactly to the letter, Linnaeus' correction to "succinctus" possibly does not meet the requirements of the Article. But an erratum to vol. 2 published in vol. 3 would, in the opinion of Dr P. Bouchet (ICZN Commissioner; pers. comm. May 2007), meet the spirit of the article. The fact that LINNAEUS (1768) expressed his intentions clearly and that HOUTTUYN [1771: 268-269; species # 509, i.e. the same number as LINNAEUS (1767) used], soon followed by MÜLLER (1775: 488; also # 509) and a large number of others (see further below), adopted Linnaeus' correction to "succinctus" resulted in the spelling "succinctus" being the prevailing usage and the name being attributed to LINNAEUS (1767). Therefore, under Article 33.3.1, the spelling "succinctus" LINNAEUS, 1767 is deemed to be a correct original spelling and is to be preserved.

The first to use the spelling "accinctus" was THOMAE (1767). He uses the same references as LINNAEUS (1767) did [for the identity of the references LINNAEUS (1767) used, see further below], and his entry "accinctus" is accompanied by # 509 (THOMAE, 1767: 1212). The use of the spelling "accinctus" by THOMAE (1767) is an incorrect subsequent spelling. Under Article 33.3 the name *Strombus accinctus* THOMAE, 1767 is not an available name, and it does not enter homonymy.

This would leave the way open for *Strombus accinctus* BORN, 1778, but before discussing that, let us first have a look at the identity of *S. succinctus* LINNAEUS, 1767.

In his discussion on *Strombus succinctus*, DODGE (1956: 279) referred to the specimen in the Linnaeus collection in London as the holotype. This is not correct. In his description of *Strombus succinctus*, LINNAEUS (1767) referred to RUMPHIUS, 1705 pl. 37 fig. 10; GUALTIERI pl. 33 fig. B; DEZALLIER D'ARGENVILLE, 1742 pl.10, fig. c; and SEBA, 1758 pl. 61, fig. 15, pl. 62, fig. 20). Prior to Dodge's designation, these are to be considered as the syntypes of *Strombus succinctus* (ICZN art. 72.4.1, 73.2) together with the specimen in the Linnaeus collection in London. The action by DODGE (1956: 279) is deemed to be the designation of a lectotype (ICZN art. 74.6).

There are also specimens present in the University Zoological Museum, Uppsala, Sweden that need to be looked into as the fact that the name *Strombus succinctus* does not appear in LINNAEUS's (1764) 'Museum Ludovicae Ulricaе' does not automatically mean that Linnaeus saw no specimens from the queen's collection. Dr. Mats Eriksson, Museum of Evolution, Uppsala University (UUZM) writes (e-mail 12 Feb. 2007): "but it must be remembered that the manuscript of this work was written long before its publication. Linnaeus visited the queen's collection several times starting 1751 and planned to publish the manuscript in the mid 1750s. The publication was however postponed several times since the court run out of money and was not willing to pay for it. Linnaeus seems to have decided that this material was so important that he financed the publication himself in 1764. Linnaeus refers to the manuscript already in the 10th edition of *Systema Naturae* which indicates that it was finished at that time. He continued to visit the queen's collection until 1770 and new acquisitions were made during the whole period although declining after the 1750s. He visited the collection in 1766 just prior to the publication of the 12th edition of *Systema Naturae*, and he probably saw the specimens of *S. succinctus* then since not too many new acquisitions were made after 1766, but one cannot be absolutely sure on this. Unfortunately Linnaeus did not label any of

the specimens in the collection. The question then, did Linnaeus see these specimens, does not seem to have a definite answer."

Therefore, specimens from the queen's collection present in UUZM are to be regarded as possible syntypes.

Not all of Linnaeus' references are clearly recognisable; the GUALTIERI (1742) reference represents the species commonly known as *Dolomena septima* (DUCLOS, 1844); the RUMPHIUS (1705) reference is probably *D. septima*. RUMPHIUS (op. cit.) only illustrated specimens from Ambon or nearby localities (BEEKMAN, 1999), and both RAVEN (2002) and DHARMA (2005) illustrated *D. septima* (as *Strombus marginatus septimus*) from respectively Ambon and Haruku Isl., both in the Moluccas Archipelago. The figure by DEZALLIER D'ARGENVILLE (1752) shows a dorsal side, and could represent either *Dolomena sowerbyorum* or *D. septima* which is also true for the SEBA (1758: pl. 61, fig. 15) reference. The note by DEZALLIER D'ARGENVILLE (1742: 226) "Le petit Buccin C est fort singulier par ses tubercules en compartiment; (...)" is rather odd, neither *D. sowerbyorum* nor *D. septima* has tubercles.

The reference to SEBA (1758: pl. 62, fig. 20), is a specimen of *Doxander vittatus* (LINNAEUS, 1758), as already indicated by ABBOTT (1960: 100).

The specimen in the Linnaeus collection in London, collection number LSL 437, marked by Linnaeus, measuring 51.47 mm (Figs 6-7) would be the logical lectotype, as this is the same specimen as referred to by DODGE (1956: 279) as the holotype (Fig. 8). However, images made available by Ms. Kathie Way, The Natural History Museum, London, make it clear that this is a specimen of *Dolomena septima*.

As far as the collection in UUZM is concerned, specimens bearing the collection numbers 848-849, 1231, and 1234-1235 have to be taken into consideration. Dr. Mats Eriksson writes (e-mail 12 Feb. 2007): "The queen's collection was donated to Uppsala University by king Gustav IV Adolf in 1804. The numbers 848; 849; and possibly 1234 were included in this donation. The numbers 1231 and 1235 has a deviating story. Some of the specimens in the queen's collection were considered duplicates and sold to private collectors. (...) By a financial donation of king Carl XIII the University was able to buy these collections from the private collectors. Carl Peter Thunberg made the written labels when the collection was merged with the university collection. (...)"

Strombus succinctus of subsequent authors is a slender shell, with a narrow aperture and a weakly dilating outer lip, a distinct posterior canal extended adapically along the spire in the same plane as the outer lip, nearly reaching the apex and a low, but distinct knob on the dorsal side of the last whorl. It differs from the "holotype" (DODGE, 1956; Figs. 6-7), which is a species that is broader, with a less narrow aperture and a more dilating outer lip, and which lacks both the extended posterior canal and the dorsal knob, here identified as a specimen of *Dolomena septima*. It differs from the syntypes as referred to by LINNAEUS (1767) as they are all illustrations of specimens which are distinctly broader, do not have a dorsal knob and do not have a posterior canal (*D. septima*), or when present, this canal is first bent in an abapertural direction and very rarely reaches the apex, and a more or less distinct fold is present opposite of the aperture on the ventral side of shell (*D. sowerbyorum*, see below). It differs from most of the possible syntypes in UUZM for the same reasons as mentioned here above (UUZM 848 is *D. septima*);

and the fact that *D. succincta* auct. never has a dark blotch on the columella (present in two specimens in UUZM, here identified as *Dolomena variabilis* (SWAINSON, 1820) from samples 849 and 1235 respectively) that *D. succincta* auct. never has the outer lip thickened (a thickened outer lip is present in the second specimen of sample 1235), or a series of small shoulder knobs on the last whorl and a distinct spiral sculpture on the entire last whorl not restricted to the abapical part, present in UUZM 1234, here identified as an immature specimen of *D. sowerbyorum*. The sample UUZM 1231 contains two adult specimens of *D. septima* (for differences with *D. succincta* auct. see above) with in one specimen a number, possibly "509", written on the adapertural side of the outer lip; one subadult specimen, probably also *D. septima*; 1 adult specimen of *D. sowerbyorum* with a number, possibly "305", written on a piece of paper glued onto the adapertural side of the outer lip; and two specimens which are tentatively identified here as *D. sowerbyorum*. It should be stated here that only slight tilting of a specimen changes the observation angle, making a positive identification quite difficult.

The designation of the specimen present in the Linnaean collection in London, or one of the specimens present in the Museum of Evolution, Uppsala University, as the lectotype of *Strombus succinctus* would seriously affect nomenclatural stability, as subsequent authors have used the name *Strombus succinctus* for the slender species with a distinct dorsal hump, living in the Bay of Bengal, Sri Lanka to Thailand.

For the sake of stability a case will be made to the ICZN to set aside the designation by DODGE (1956), i.e. to disregard the Linnaean syntypes and agree with the designation of a neotype, which will represent *Strombus succinctus* of nearly all subsequent authors, e.g.: SOWERBY (1842, pl. 6, figs 20 - 21); REEVE (1851, pl. 17 fig. 43); TYRON (1885: 116, pl. 6 figs. 56) [not fig. 57 = *Dolomena septima*]; ABBOTT (1960: 99 - 100, pl. 18, figs 13, 14); SUBBA RAO (1970: 119 - 120); ROMAGNA-MANOJA (1974: 11 - 12, 13 top fig. 2); WALLS (1980: 117, 118 bottom figs); KRONENBERG & BERKHOUT (1986: 320, pl. 5, fig. 3); DE TURCK & al. (1999: 43, pl. 86 figs 1 - 3); VISSER & MAN IN 'T VELD (2005: 60, pl. 1 figs 5 - 6, pl. 2 fig. 3, pl. 3 fig. 7). The only exception the present author is aware of is KIRTISINGHE (1978: 60, pl. 32, fig. 7) who illustrated a specimen of *Dolomena succincta* identified as "*Dolomena variabilis* (SWAIN)"

In his description of *Strombus accinctus*, BORN (1778, 1780) referred to LINNAEUS (1767: sp. 509), and also used many of LINNAEUS' (1767) references: RUMPHIUS (pl. 37, fig. 10); PETIVER (pl. 14, fig. 19), DEZALLIER D'ARGENVILLE (1742: pl.10, fig. c) but added LISTER (1688, book 4, section 12, fig.16; this reference was omitted in BORN, 1780); and SEBA (1758: pl. 61, fig. 15). Although BORN (1780) no longer referred to LISTER (1688), the specimen illustrated (LISTER's fig. 16) shows a distinct axial fold, a distinguishing character for the species Born had at hand. Also, BORN (1780) no longer referred to SEBA (1758: pl. 62, fig. 20), which he probably recognised as a species not conspecific with his *S. accinctus*. The figure by PETIVER (pl. 14, fig. 19) cannot be identified with certainty, but the illustration shows a species with a more dilated outer lip than Born's specimen, and represents another species of *Dolomena*, conspecific with or similar to *D. hickeyi* (WILLAN, 2001) which has been reported from several Indo-Pacific localities (KRONENBERG & DHARMA, 2005).

The specimen examined by Born (Figs 10 - 14) has the word "Born" written on the abapical part of the columella (Fig.10). This may have been done by BRAUER (1878), when

examining the NHMW collection for original Born specimens (fide Dr. Peter Dworschak, pers. comm.). It is damaged; part of the adapical part of the outer lip is broken off (Fig. 14). At this point it should be noted that the colour pattern of the illustration in BORN (1780: pl. 10 figs 14, 15; Fig. 1) does not entirely match the colour pattern of the specimen attributed to Born (see Figs 10 - 14), especially at the ventral side. Also, the conspicuous fold present on the specimen NHMW 14268 is not visible on the figures in BORN (1780: pl. 10, figs 14, 15). This may be an indication that the "original" examined by BRAUER (1878) was in fact not the specimen examined by Born, or it may be due to some degree of "artistic freedom" by the person who made the drawings of the figures in BORN (1780).

The specimen NHMW 14268 (Figs 9 - 14) is a species quite different from *Dolomena succincta*; it is less slender, does not have the dorsal knob, and has a conspicuous axial fold on the last whorl, nearly opposite of the aperture. Despite these differences, I consider *Strombus accinctus* BORN, 1778 an incorrect subsequent spelling of *Strombus uccinctus/succinctus* LINNAEUS, 1767.

- 1) The references given by BORN for "accinctus" are essentially the same as LINNAEUS gave for "uccinctus"
- 2) The two specific epithets differ only by one letter, and I find it hard to believe that BORN would have deliberately chosen such a similar word to designate a species that he would have understood to be different from "uccinctus"
- 3) THOMAE (1767) had used the spelling "accinctus" from LINNAEUS' "uccinctus/succinctus" In fact, Born may very well had been using THOMAE's edition rather than the original Swedish one.

The specimen NHMW 14268 is identified here as *Dolomena sowerbyorum* (VISSER & MAN IN 'T VELD, 2006) which is a variable species, see RAVEN (2002: pl. 3 figs 15 - 17, pl. 4 figs 18 - 22); for a preliminary synonymy, see further below.

SOWERBY (1874: 599 - 600, pl. 72 figs 5 - 5a [not figs 3 - 3a as stated in text]) described *Strombus robustus* as a species that is "ventricose (...) whorls angulated and noduled at the angle" neither mentioning the conspicuous axial fold present in many specimens of *S. sowerbyorum* nor the axial plicae on the ventral side of the last whorl, which are visible on Sowerby's fig. 5. Sowerby's *S. robustus* was subsequently misidentified by ABBOTT (1960). This was discussed by VISSER & MAN IN 'T VELD (2005). They concluded that ABBOTT (1960) was mistaken in his concept of *S. robustus*. I agree with that conclusion.

For *Dolomena sowerbyorum* (VISSER & MAN IN 'T VELD, 2006), the following synonymy can be established:

- 1767 *Strombus uccinctus* LINNAEUS, p. 1212, # 509. (pars). Type locality: "In India."
- 1767 *Strombus accinctus* THOMAE, p. 1212, # 509. (pars; incorrect subsequent spelling). Type locality: "In India."
- 1778 *Strombus accinctus* BORN, p. 280 - 281. (pars; incorrect subsequent spelling). Type locality: not given.
- 1780 *Strombus accinctus* BORN, p. 283, pl. 10, figs 14, 15. (? pars; incorrect subsequent spelling). Type Locality: "Habitat in India, *Linnaeus*; ad Amboinam *Rumph.*" Also refers to LINNAEUS (1767: sp. 509); RUMPHIUS (pl. 37, fig. 10); PETIVER (Pl. 14, fig. 19), ARGENVILLE (pl.10, fig. c) and SEBA (Vol. 3: pl. 61, fig. 15).

- 1960 *Strombus (Dolomena) marginatus robustus* SOWERBY, 1874: ABBOTT, 1960: 100-101 (? pars), pl. 18 figs 8 - 9, pl. 76 figs 1, 2 [non SOWERBY, 1874].
- 2005 *Strombus (Dolomena) marginatus sowerbyorum* VISSER & MAN IN 'T VELD, 58-60, pl. 1, figs 3, 4; pl. 2 fig. 2; pl. 3 figs 3, 4. [holotype, Natuurmuseum Rotterdam 15986]. Type locality: Borneo, Brunei, Kuala Beliat, 27 July 1983, leg. J.N.J. Post.

Dolomena sowerbyorum (VISSER & MAN IN 'T VELD, 2005) lives from the east side of the Malaysian peninsula and NW Borneo (RAVEN, 2002: 12), northward along the Thai (SWENNEN & al., 2001: 116, fig. 337), Vietnamese (THACH, 2005: 59, pl. 16 fig. 25) and Chinese (MA SIU-TUNG, 1976: 363, pl. 4 fig. 2) coasts, including at least part of the Philippines (both REEVE, 1851: caption pl. 17 fig. 43; and SPRINGSTEEN & LEOBRERA, 1986: 72, pl. 17 figs 13a - 13b record Masbate) towards Japan (ABBOTT, 1960: 101). It lives at depths ranging from shallow water down to at least 15 m in sandy areas (RAVEN, 2002: 13); on sandy mud at 5 - 40 m (THACH, 2005: 59); at 12 - 51 m on a silt bottom (MA SIU-TUNG, 1976: 363).

The species can attain a size of about 70 mm.

At present, Sowerby's *S. robustus* is a bit of a mystery. Although ABBOTT (1960: 101) states that Sowerby's holotype is in the British Museum (Natural History), Ms Kathie Way (in e-mail to G. Visser, 2005), said they could not be found in the collection. Currently a large number of specimens is under study (KRONENBERG & al. in prep.) and the results will be published elsewhere. The attribution to the genus *Dolomena* WENZ, 1940 (for authorship of *Dolomena* see KRONENBERG & DHARMA, 2005) is provisional. Details of the outer lip (see KRONENBERG & VERMEIJ, 2002) are quite different from those of the type species of *Dolomena*, viz. *Strombus pulchellus* by monotypy. This will be discussed elsewhere (KRONENBERG & al. in prep.)

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References

- ABBOTT R.T., 1960: The genus *Strombus* in the Indo-Pacific. – Indo-Pacific Mollusca 1 (2): 33-146.
- BECKMAN E.M., 1999. The Ambonese Curiosity Cabinet Georgius Everhardus Rumphius. Translated, edited annotated, and with an introduction by E.M. Beekman. – Yale University Press, New Haven, cxii + 567 pp.

- BEU A.G., 1998: Indo-West Pacific Ranellidae, Bursidae and Personidae (Mollusca: Gastropoda). A monograph of the New Caledonian fauna and revisions of related taxa. Résultats des Campagnes Musorstom Vol. 19. – Mémoires du Muséum National d'Histoire Naturelle 178: 1-255.
- BORN I.A., 1778: Index rerum Naturalium Musei Caesarei Vindobonensis. Par I. Testacea. Verzeichnis der natürlichen Seltenheiten des K.K. Naturalien Cabinets zu Wien. Erster Theil. Schalthiere. – Vindobonae ex Officina Krausiana, xlii + 458 + 78 pp.
- BORN I.A., 1780: Testacea Musei Caesarei vindobonensis que jussu Mariae Theresiae angustae disposuit et descriptit Ignatius A. Born. – Vindobonae, Sumptibus Joannis Pauli Kraus, xxxvi + 442 + (index) pp + pls 1-18.
- BRAUER F., 1878: Bemerkungen über die im kaiserl. Zoologischen Museum aufgefundenen Original Exemplare zu Ign. Von Born's Testaceis Musei Caesarei Vindobonensis. – Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften, 1. Abtheilung 77: 1-76.
- DEZALLIER D'ARGENVILLE A.J., 1742: L'Histoire naturelle éclaircie dans deux de ses parties principales, la lithologie et la conchyliologie, don't l'un traite des pierres et l'autre des coquillages; ouvrage dans lequel on trouve une Nouvelle méthode & une notice critique des principaux auteurs qui ont écrit sur ses matières. – De Bure, Paris, 491 pp.
- DE TURCK K., KREIPL K., MAN IN 'T VELD L. & POPPE G.T., 1999: A Conchological Iconography Family Strombidae. – ConchBooks, Hackenheim, 58 pp + 130 pls + index (2 pp).
- DHARMA B., 2005: Recent & Fossil Indonesian Shells. – Conchbooks, Hackenheim, 424 pp.
- DODGE H., 1956: A historical review of the mollusks of Linnaeus, 4. The genera *Buccinum* and *Strombus* of the class Gastropoda. – Bulletin of the American Museum of Natural History 111: 238-300.
- GUALTIERI N., 1742: Index testarum conchyliorum quae adservantur in museo N. Gualtieri (...) et methodice distributae exhibentur tabulus CX. – Caietani Albizzini, Florence. i-xxiii + 1-110 pp.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1999: International Code of Zoological Nomenclature. – International Trust for Zoological Nomenclature, London, XIX + 306 pp.
- IREDALE T., 1958: On the thirteenth edition of Linne's Systema Naturae. – Proceedings of the Royal Zoological Society of New South Wales for 1956-1957: 61-62.
- HOUTTUYN F., 1771: Natuurlijke Historie of Uitvoerige Beschrijving der Dieren, Planten, Mineraalen, volgens het Samenstel van den Heer Linnaeus. Met naauwkeurige Afbeeldingen. Eerste deels, Zestiende stuk. De Hoorens. – De Erven van F. Houttuyn, Amsterdam, iv + 640 pp, pls. CXX-CXXV
- KIRTISINGHE P., 1978: Sea shells of Sri Lanka including forms scattered throughout the Indian and Pacific Oceans. – Charles E. Tuttle, Rutland, 202 pp incl. 61 pls.
- KRONENBERG G.C. & BERKHOUT J., 1986: Strombidae. – Vita Marina 31 (1-6) sect. Buikpotigen: 263-326, pls 1-9 [dated 1984].
- KRONENBERG G.C. & DHARMA B., 2005: New distributional records for four species of Stromboidea (Mollusca: Gastropoda) from Australasia. – The Beagle, Records of the Museums and Art Galleries of the Northern Territory 21: 47-51.
- KRONENBERG G.C. & VERMEIJ G.J., 2002: *Terestrombus* and *Tridentarius*, new genera of Indo-Pacific Strombidae (Gastropoda), with comments on included taxa and on shell characters in Strombidae. – Vita Malacologica 1: 49-54.
- LINNAEUS C., 1764: Museum S:ae R:ae M:itis Ludovicae Ulrica Reginae Svecorum, Gothorum, Vandalorumque &c. &c. &c. In quo Animalia Rarioria, Exotica, Imprimis Insecta & Conchilia describuntur & determinantur Literis & Impensis Lauyr. – Salvii, Holmiae Vol. 1: (6) + 1-720 + (2)pp.

- LINNAEUS C., 1767: *Systema naturae per regna tri naturae secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis, synonymis, locis. Editio duodecima, reformata. Tomus I. Impensis direct. – Laurentii Salvii, Holmiae. Vol. 1: 532 pp; Vol. 2: 794 pp.*
- LINNAEUS C., 1768: *Systema naturae per regna tri naturae secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis. Tomus III. Impensis direct. – Laurentii Salvii, Holmiae, 236 + (20) pp, 3 pls.*
- LISTER M., 1685-1697. *Historiae sive Synopsis methodicae Conchyliorum quorum omnium picturae ad vivum delineatae exhibentur Liber IV [1688] que est de Buccins Marins Etiam Vermiculj, Dentalia, et Patellae numerantur ibidem. – Londini aere incisus Sumptibus authoris 1688. Susanna et Anna Lister Pin.[xit]. Sect. 12, figs. 1-30.*
- MA SIU-TUNG, 1976: Notes on Chinese species of the family Strombidae (Prosobranchiata, Gastropoda). – *Studia Marina Sinica* 11: 355-371 + pls. 1-5.
- MARTINI F.H.W., 1777: *Neues Systematisches Conchylien-Cabinet, geordnet und beschrieben von Friedrich Heinrich Wilhelm Martini (...) – Gabriël Nikolaus Raspe, Nürnberg, 3: i-vi, 1-434, pls. 66-121.*
- MOOLENBEEK R.G. & DEKKER H., 1993. On the identity of *Strombus decorus* and *Strombus persicus*, with the description of *Strombus decorus masirensis* n. ssp. and a note on *Strombus fasciatus*. – *Vita Marina* 42(1): 3-10.
- MÜLLER P.L.S., 1775: *Des Ritters Carl von Linné, königlich Schwedischen Leibarztes etc. vollständiges Natursystem nach der zwölften lateinischen Ausgabe und nach Anleitung des holländischen Houttuynischen Werks mit einer ausführlichen Erklärung ausgefertigter von Philipp Ludwig Stälius Müller (...) Sechster Theil von den Würmern. Erster Band nebst neunzehn Kupfertafeln (...). – Gabriel Nicolaus Raspe, Nürnberg.*
- PETIVER J., 1714: *Aquatilium Animalium Amboinae, & c. Icones & nomina. Containing near 400 figures with their Latin, English, Dutch and Native Names. – Christopher Bateman, London, 4 pp, 20 pls.*
- RAVEN J.G.M., 2002: Notes on molluscs from NW Borneo. 1. Stromboidea (Gastropoda, Strombidae, Rostellariidae, Seraphidae). – *Vita Malacologica* 1: 3-32.
- REEVE L.A., 1850-1851: *Conchologia Iconica or Illustrations of the Shells of Molluscous Animals. Vol. 6. – Monograph of the genus Strombus: pls 1-19.*
- ROMAGNA-MANOJA E., 1974: Superfamilia Strombacea Part II (1). – *La Conchiglia* 6 (7-8): 3-13.
- RUMPHIUS G.E., 1705: *D'Amboinsche Rareitkamer, behelzende een Beschryvinge van allerhande zoo weeke als harde Schaalvisschen, te weeten raare Krabben, Kreeften, en diergelijke Zeedieren, als mede allerhande hoorntjes en schulpen, die men in d'Amboinsche Zee vindt: Daar beneven zommige mineraalen, gesteenten en soorten van Aarde, die in d'Amboinsche, en zommige omleggende Eilanden gevonden worden. Verdeelt in drie Boeken, en met nodige printverbeeldingen, alle naar 't leven getekent, voorzien. Beschreven door Georgius Everhardus Rumphius, van Hanau, [...] – François Halma, Amsterdam, xxviii + 340 pp, 60 pls.*
- SEBA A., 1734-1765 [2001]: *Cabinet of Natural Curiosities: Locupletissimi rerum naturalium thesauri accurate descriptio et iconibus artificiosissimis expressio per universam physices historiam. Opus, cui, in hoc rerum genere, nullum par extitit ex toto terrarum orbe collegit, digessit, descripsit, et depingendum curavit Albertus Seba, etzela Oostfrisius [...]. – Vol. 1 (1734): pls 1-111; Vol. 2 (1735): pls 1-114; Vol. 3 (1758): pls 1-116; Vol. 4 (1765): pls 1-108, [Reprint based on the copy in the Koninklijke Bibliotheek, the Hague, Taschen Verlag, Köln, 558 pp].*
- SOWERBY G.B. II, 1842: *Monograph of the genus Strombus. – Thesaurus Conchyliorum or monograph of genera of shells 1: pls 6-11.*

- SOWERBY G.B. II, 1874: Descriptions of five new species of shells. – Proceedings of the Zoological Society of London for 1874: 598-600, pl. 72.
- SPRINGSTEEN F.J., & LEOBRERA F.M., 1986: Shells of the Philippines. – Carfel Seashell Museum, Manila 1-377 pp.
- SUBBA RAO N.V., 1970: On the collection of Strombidae (Mollusca: Gastropoda) from Bay of Bengal, Arabian Sea and western Indian Ocean, with some new records, 1. Genus *Strombus*. – Journal of the Marine Biological Association of India 12 (1-2): 109-124.
- SWENNEN C., MOOLENBEEK R.G., RUTTANADAKUL N., HOBBLINK H., DEKKER H. & HAJISAMAE S., 2001: The Molluscs of the Southern Gulf of Thailand. – Thai Studies in Biodiversity 4: 1-210.
- THACH N.N., 2005: Shells of Vietnam. – Conchbooks, Hackenheim, 338 pp, 91 pls.
- THOMAE I., 1767: Caroli a Linné, Equites aur de stella polari, Archiatri regii (...) Systema Naturae per regna tria naturae secundum Classes, Ordines, Genera, Species cum charateribus, differentiis, synonymis, locis. Tomus 1. Editio decima tertia, ad Editionem duodecimam reformatum Holmiensem. – Vindobonae Typis ioannis Thomae nob. De Trattnern, Caes. Reg. Aulae Typogr. et Bibliopolae, 1317pp.
- TRYON G.W., 1885: Manual of Conchology 7: 99-152, pls. 1-12. – Academy of Natural Sciences of Philadelphia.
- VISSER G.J. & MAN IN 'T VELD L., 2005: Contributions to the knowledge of Strombaceae. 7. Notes on the *Strombus (Dolomena) marginatus* complex (Gastropoda: Strombidae) and the status of *Strombus (Dolomena) robustus* Sowerby, 1874; with description of a new subspecies and a neotype designation of *Strombus (Dolomena) marginatus* LINNAEUS, 1758. – Gloria Maris 44 (3-4): 55-68.
- WALLS J.G., 1980: Conchs, Tibias and Harps. – T.F.H. Publications, Neptune, 191 pp.