ON THE IDENTITY OF *SOLECURTUS SCOPULA* (TURTON 1822) AND THE ESTABLISHMENT OF *S. CANDIDUS* (BROCCHI 1814)

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Abstract *The genus* Solecurtus *in British and Irish waters is represented by two species* S. scopula *(Turton 1822) and* S. candidus *(Brocchi 1814).* Solecurtus candidus *(Brocchi) is conspecific with* S. scopula sensu auct. *when applied to Mediterranean and Lusitanian shells, and the synonymy presented in current checklists is revised.* Solecurtus multistriatus *(Scacchi 1835),* S. albus *de Blainville 1827,* S. gallicus *(Chenu 1843) and* Adasius loscombeus *Leach 1852 are all considered junior synonyms of* S. scopula *(Turton).* Solecurtus scopula sensu auct. *and the unavailable name* S. candidus *(Renier 1804) are replaced by* S. candidus *(Brocchi 1814), for which a lectotype is designated. Diagnoses and revised distributions are given;* S. scopula *ranges through the Mediterranean and European Atlantic north to Shetland;* S. candidus *ranges through the Mediterranean and European Atlantic north to the Celtic Sea.*

Key words Solecurtus, *Mediterranean, northeast Atlantic, taxonomy, nomenclature,* S. scopula, S. candidus

INTRODUCTION

It has been assumed, since Forbes & Hanley (1853), that the genus *Solecurtus* is represented in the British and Irish faunas by a single strigilate form named initially as *S. candidus* (Renier 1804). Included in the synonymy of Forbes & Hanley (1853) is *Psammobia scopula* Turton 1822. Jeffreys (1865) considered *S. candidus*, *S. scopula* and the fossil species *S. multistriatus* (Scacchi 1835) to be synonymous. Since the rejection of Renier's work, by the ICZN (1954), the British shells have been named *S. scopula* (Turton 1822). This is the name used by McMillan (1968), Tebble (1969) and the supposition that only a single species occurred in British waters was maintained by Smith & Heppell (1991). *Solecurtus multistriatus* was originally described from fossil material but Mariottini, Smriglio & Ciommei (1994) recognised it as a living species in the Mediterranean and to be different from the shells that they named *S. scopula*. *Solecurtus multistriatus* was added to the European checklist of living species and three species are now recognised: *S. scopula*, *S. multistriatus* and *S. strigilatus* (Linnaeus 1758) (CLEMAM, 2009). *Solecurtus strigilatus* is a very distinctive species that is restricted to the Mediterranean, and is not considered further.

Recently Nolf & Verstraeten (2002; 2003) proposed that *S. multistriatus* was also to be found living in the eastern Atlantic as far north as Shetland and that *S. scopula* was found as far north as the Irish Sea. It should be noted that only a single, aberrant shell of *S. scopula* was identified by Nolf & Verstraeten (2002) from British waters. The concepts of *S. scopula* by Mariottini *et al.* (1994) and Nolf & Verstraeten (2002, 2003) are the same and will be referred here to *S. scopula* sensu auct. From the latter studies two species were to be found in British waters.

In preparing a new web-based guide to the marine Bivalvia of the seas around the British Isles one of us (PG Oliver) reviewed the collections in the National Museum of Wales with respect to the studies of Nolf & Verstraeten (2002, 2003). The initial conclusion was that all 65 shells examined were of the *S. multistriatus* form of Nolf & Verstraeten (2002) and none attributable to *S. scopula* sensu auct. Given that *S. scopula* was described from a shell collected off Exmouth, S. Devon in the English Channel it seemed incongruous that none of the above British shells could be attributed to *S. scopula* sensu auct. Furthermore the illustrations in British books such as Forbes & Hanley (1853), Jeffreys (1869), McMillan (1968) and Tebble (1969) all agree with *S. multistriatus* and not *S. scopula* sensu auct.

The problems that this paper attempts to resolve are therefore

- the number of species in British waters
- the identity of *S. scopula* as described by Turton and its relationship to other European species

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- the relationship of *S. scopula* sensu auct. to *S. candidus* (Renier) and *S. candidus* of authors other than Mariottini *et al.* (1994) and Nolf & Verstraeten (2002, 2003).

Methods

The morphological differences between *S. multistriatus* and *S. scopula* sensu auct. were identified by Mariottini *et al.* (1994) and generally confirmed by Nolf & Verstraeten (2002). The major differences were in the position of the beaks and the density of the strigilate ribs. These measurements are repeated here to include the British shells in order to test the assumption of the number of species present.

The figure of *S. scopula* by Turton (1822) is of a small shell and in order to assess its likeness to that of *S. multistriatus* and *S. scopula* sensu auct. the umbonal regions of all shells were imaged.

Sensing that the nomenclature was of concern all relevant publications were viewed in their original form. The Tomlin library in the National Museum of Wales holds a photographic copy of Renier (1804) and original copies of all cited works except that of Deshayes (1839) which was viewed from the original on the "Gallica" web site (http://gallica.bnf.fr/).

Abbreviations Used:

MSNMi Museo di Storia Naturale di Milano, Italy.
NHMW Natural History Museum, Vienna, Austria.
NMW National Museum of Wales, Cardiff, UK.
RBINS Royal Belgian Institute for Natural Sciences, Brussels, Belgium.

Materials Examined

The shells examined include those in the collection of the National Museum of Wales, those in the collections of Frank Nolf and Johan Verstraeten and shells borrowed from Paolo Mariottini. The shells examined are listed in detail under their appropriate revised identifications in the descriptive section of this paper.

Results

Shell morphology The morphometric analysis shows that for the parameter "posterior length/total length" there are two apparent groups (Fig. 1). The first group includes all of the shells taken in British waters from the Scilly Isles, Channel Isles and English Channel. The means of these three populations range from 0.55 to 0.56, and the p-values derived from a t-test range from 0.31 to 0.59 and are not significant. The overall mean for the groups combined is 0.56 ± 0.015, N = 54. The shell from Liverpool Bay (Nolf & Verstraeten, 2003, p. 17) falls within this group. The second group consists of all shells identified by Mariottini and Nolf & Verstraeten as *S. scopula* from the Mediterranean and Lusitanian regions and includes a single shell from the Celtic Sea. The mean value is 0.62 ± 0.022, N = 21 and a comparison of these means is highly significant, t-test, $p < 0.0001$ (Fig. 3). For the parameter "number of ribs/total length" (Fig. 2) there is great variation across all populations sampled and this is due to the many shells that show interruptions and loss of ribbing. Apparent grouping is not obvious from Fig. 2, due to the size range differential between the groups measured. A comparison of the means (Fig. 4), however, suggests that the British shells have a denser pattern than the *S. scopula* sensu auct. group. The means are 0.80 ± 0.155 and 0.66 ± 0.144 respectively and give a t-test p = 0.0006.

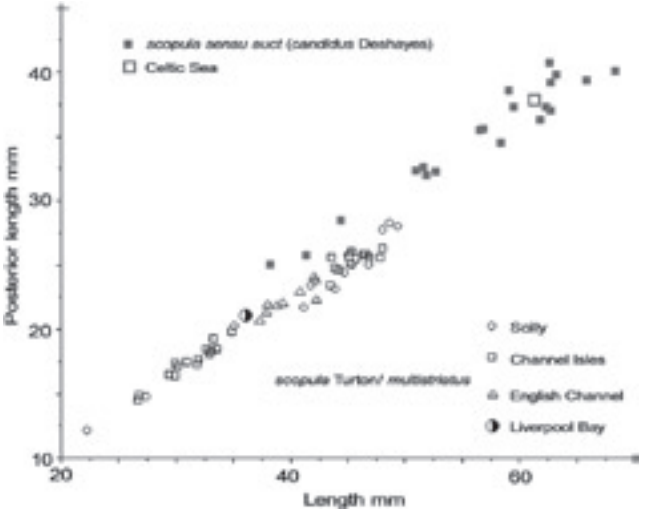


Figure 1 Relative position of the beaks as expressed by the comparison of "total length" to "posterior length" for populations of *S. scopula* and *S. candidus*.

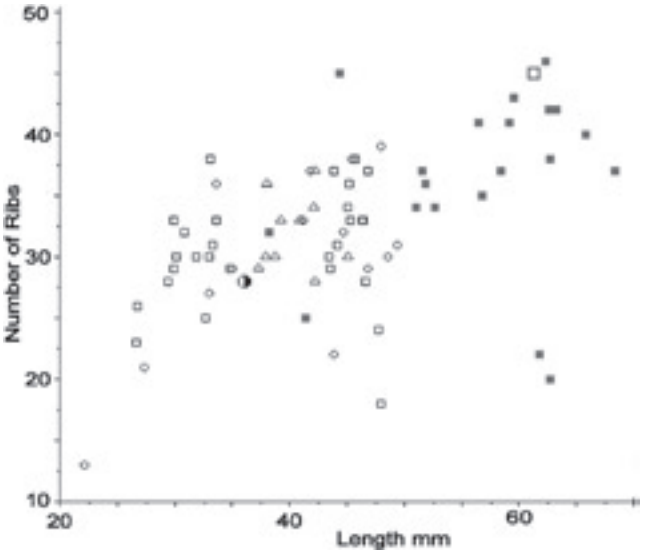


Figure 2 Relative number of ribs as expressed by the comparison of "rib number" to "total length" for populations of *S. scopula* and *S. candidus*. Labels as in Fig. 1.

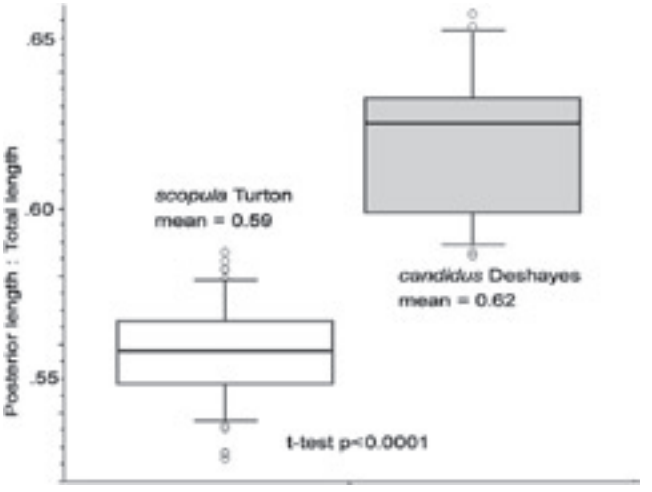


Figure 3 Box plots for the ratio "total length to posterior length" for *S. scopula* and *S. candidus.*

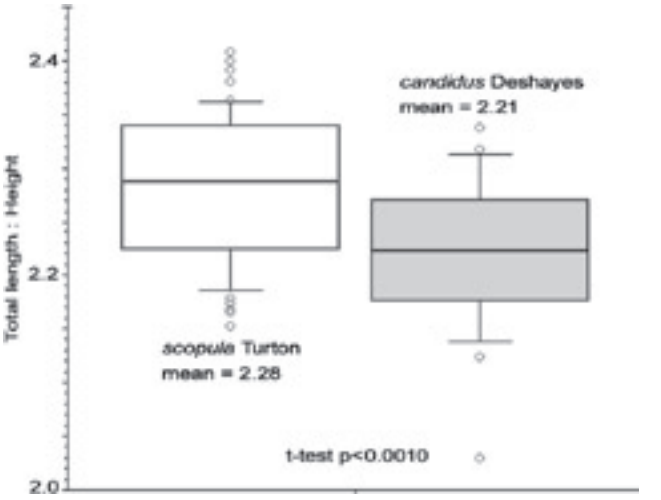


Figure 4 Box plots for the ratio "total length to height" for *S. scopula* and *S. candidus.*

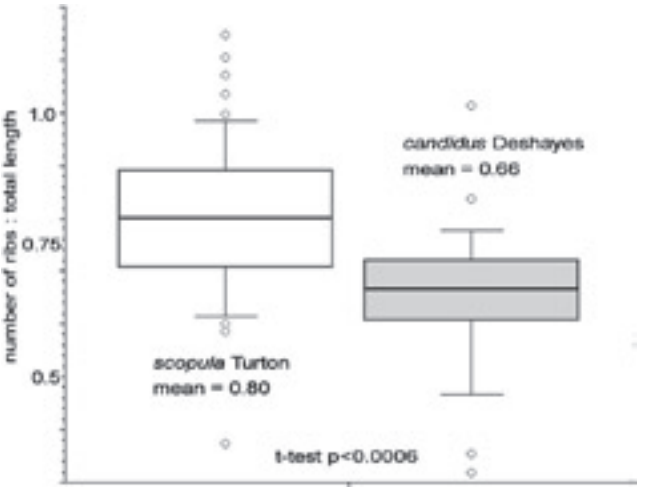
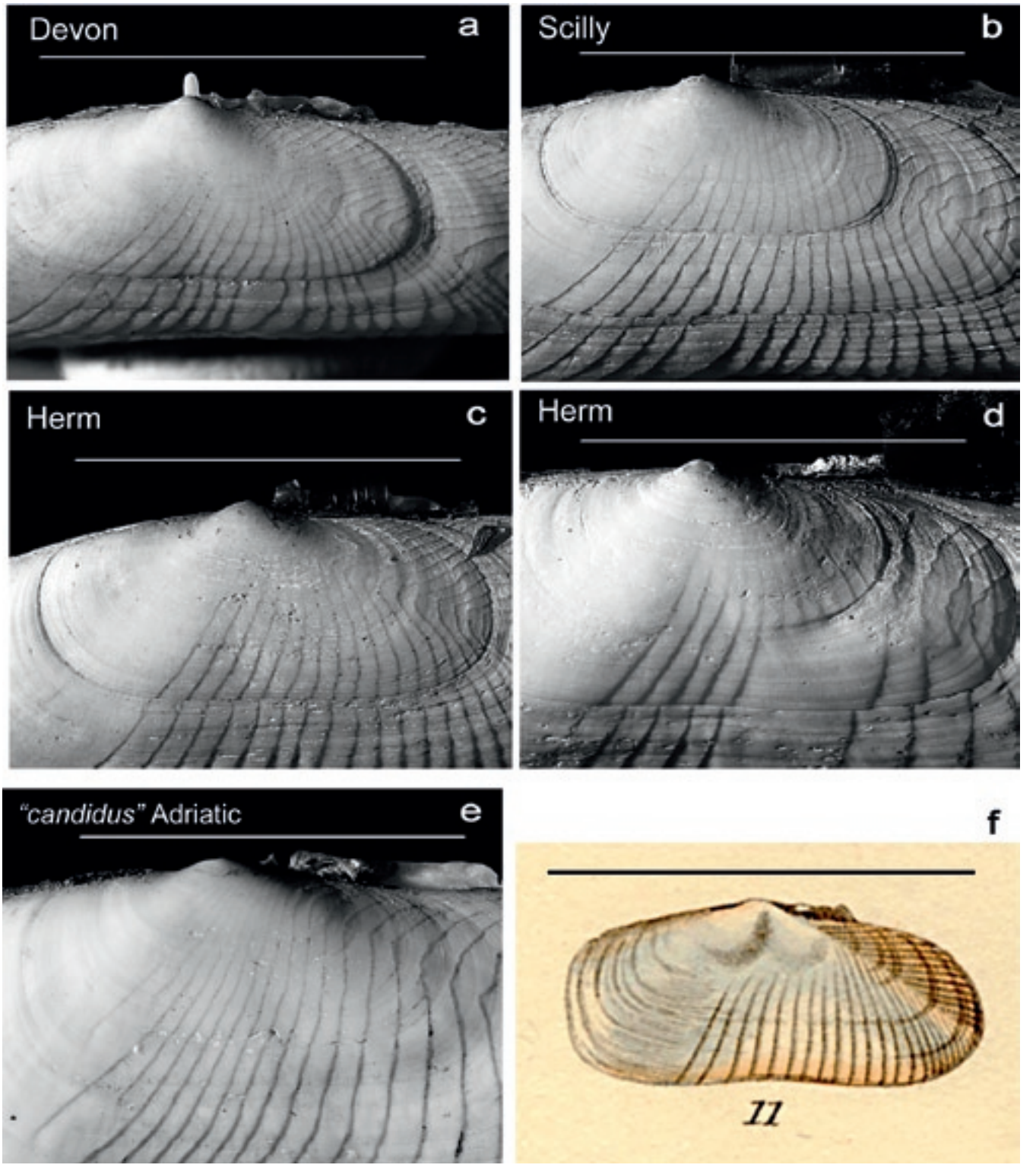


Figure 5 Box plots for the ratio "rib number to total length" for *S. scopula* and *S. candidus.*

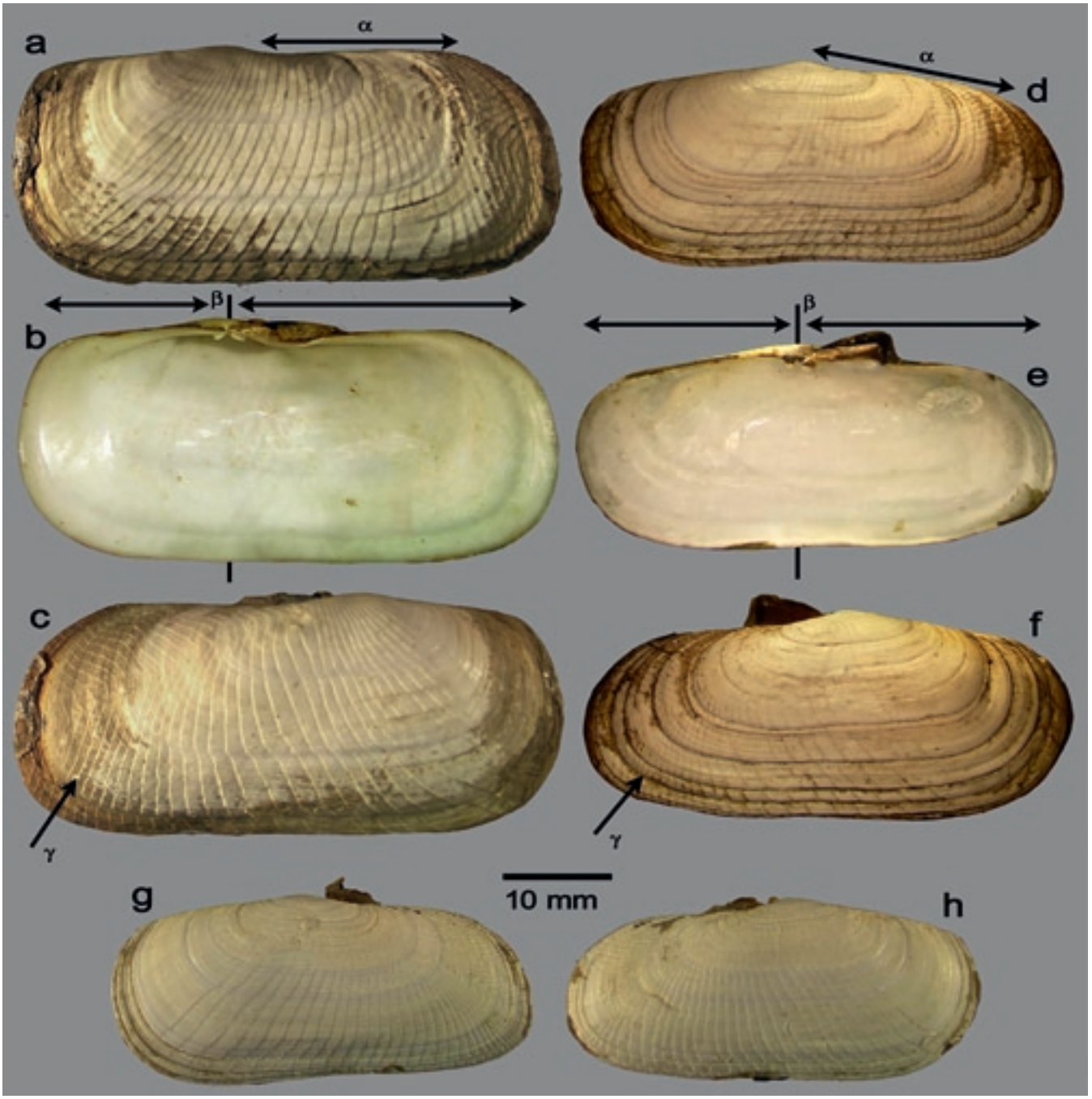
The parameter "length/height" was also analysed (Fig. 5) with a significant difference found between the British shells and the *S. scopula* sensu auct. group, but no significant difference between the populations with the British group. The respective means were 2.28 ± 0.069 and 2.21 ± 0.073 and gave a t-test p = 0.0010.

Examination of the umbonal region (Figs 6a–d) shows that the outline of the young British shells can often have a slight ventral indentation (Fig. 6a), giving rise to the "kidney-shape" mentioned by Turton (1822) and seen in the reproduction of his figure given here (Fig. 6f), but that this has a variable expression. The sculpture on the early shell is less irregular and consistently portrays an acute angulation between the median and posterior arms of the ribs. The shell in figure 6d has angled ribs on the earliest part but this is interrupted and becomes wavy; this aberration is not uncommon. However, the angulation of the ribs is far less in *S. scopula* sensu auct. and the posterior slope is considerably more flattened (compare ◢ in Figs 7c & 7f). These differences can also be seen in the early shell (Fig. 6e). Qualitative observations could reveal no significant differences in the outlines of the shells between the British populations, all having slightly sloping dorsal margins and the posterior being distinctly



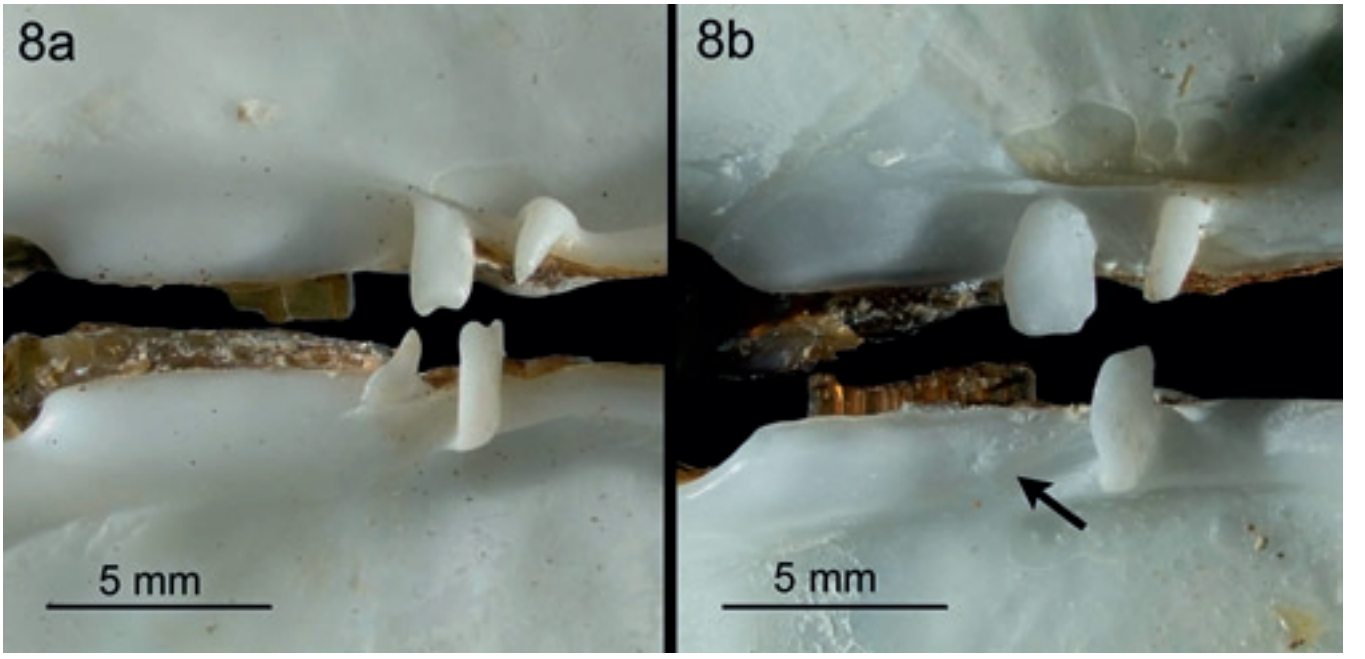
Figures 6a–d *Solecurtus scopula*, digital images of the umbonal region of shells from British waters. Fig. 6e, *S. scopula* sensu auct. (= *S. candidus* Brocchi), digital image of the umbonal region of a shell from the Mediterranean. Fig. 6f, reproduction of the original illustration of *S. scopula* from Turton, 1822. All scale bars = 10 mm.

more narrow than the anterior (Figs 7d, f, g, h). The slope of the dorsal margins is quite different in *S. scopula* sensu auct., being straight and parallel to the ventral margin (compare ◢ in Figs 7a, d). The posterior in *S. scopula* sensu auct. remains deep and similar to the anterior outline.



Figures 7a–c Shells of *S. scopula* sensu auct. (= *S. candidus* Brocchi), Mediterranean, NMW.1955.158. Figs 7d–h, Shells of *S. scopula* (Turton) from British waters; d–e from the Scilly Isles, NMW. 1953.164; g–h from adjacent to the Eddystone rock, off Devon, English Channel, NMW Killeen Coll.
α, comparative slope of the posterior dorsal margin; β, comparative position of the beaks; γ, comparative densities of the posterior ventral ribs.

The hinge of the British shells (Fig. 8a) is composed of two cardinals in each valve; the posterior tooth in the left valve is very thin and in most shells broken, leaving only a slightly raised ridge. The left anterior and right posterior teeth are weakly bifid. In *S. scopula* sensu auct. the hinge (Fig. 8b) does appear to lack the posterior tooth in the left valve as none could be found after careful examination of co-joined valves, but a slight ridge is present where this tooth would be located (arrowed in Fig. 8b). The larger cardinals appear not to be bifid but this could be a result of wear as all shells examined were large.



Figures 8a–b Hinge teeth of *Solecurtus* shells viewed from below. 8a, *S. scopula* (Turton), from the Scilly Isles; 8b, *S. candidus* (Brocchi), from the Mediterranean.

The anterior and posterior gapes were consistent across the material examined those in *S. scopula* sensu auct. being consistently greater.

The data presented here suggests that only a single species is represented in the British material examined but that there are two distinct morphologies in the north-east Atlantic corresponding with the *S. multistriatus* and *S. scopula* of Mariottini *et al.* (1994) and Nolf & Verstraeten (2002, 2003).

The identity of S. scopula (Turton) and its relationship to other European species Turton's collection was acquired by Jeffreys (Warén, 1980) but no type material of *Psammobia scopula* is extant. The type was a small shell and therefore comparisons need to be made with the umbonal region of adult shells. Recourse to the original figures (Turton, 1822, tab. 6, fig. 11) clearly shows a sharp angulation between the median and posterior arms of the ribs (Fig. 6f) and equate to those observed in the British shells examined here (Figs 6a–d) and not with *S. scopula* sensu auct. (Fig. 6e).

The British shells examined can therefore be identified as *S. scopula* (Turton 1822) and the use of the name by McMillan (1968) and Tebble (1969) is substantiated. Turton (1822) also illustrated an adult shell that he named *Psammobia strigilatus* but this can clearly be seen to be typical of the British material here and was an adult shell of *S. scopula*.

The form of the British shells examined here and the morphometric data agree with *S. multistriatus* as described by Mariottini *et al.* (1994) and Nolf & Verstraeten (2002, 2003). This is further substantiated by a comparison with the type of *S. multistriatus* figured by Cretella *et al.* (2004). It must therefore be concluded that *S. scopula* (Turton) and *S. multistriatus* (Scacchi) are conspecific but that they are not the same species as *S. scopula* sensu auct.

Other nominal taxa that can also be synonymised with *S. scopula* and *S. multistriatus* are as follows:

Solecurtus albus de Blainville 1827 is briefly described but not figured. Critically, the comparatively median position of the beaks is mentioned, indicating strongly that this is *S. scopula* (Turton) and not *S. scopula* sensu auct. The type locality is the French coast of La Manche, the collector coming from the town of Gervilles on the coast of Seine Maritime.

Solen gallicus Chenu 1843 is illustrated by Chenu and the form is that of *S. scopula*. The type locality is unknown.

Adasius loscombeus Leach 1852 was noted by Jeffreys (1865) to be the same species as *S. scopula* (Turton). Leach obtained his specimens from Torbay, and off Dawlish in the English Channel; and from Barmouth sands in the Irish Sea (Leach, 1852).

The relationship of S. scopula sensu auct. to S. candidus (Renier) and a review of available names

Given that *S. scopula* sensu auct. cannot be assigned to *S. scopula* (Turton) an alternative name must be found. Mediterranean shells similar to those described as *S. scopula* by Mariottini *et al*. (1994) have been known since the seventeenth century (Chemnitz in Martini & Chemnitz, 1782; Olivi, 1792) as a variety of *S. strigilatus* and first given species rank as *S. candidus* by Renier (1804). The application of the name *S. scopula* to Mediterranean shells has only been commonplace since the placement of Renier's work on the Official Index of Unavailable Works (ICZN, 1954). The synonymy of *S. scopula* and *S. candidus* can be traced to British workers such as Forbes & Hanley (1853) and Jeffreys (1865). Numerous references were subsequently made to *S. candidus* (Renier) but the exact identity of this taxon is not clear. A sequential review of the literature is made here in an attempt to clarify the identity of shells named as *S. candidus*, and to confirm the earliest available name.

Renier, 1804, 1st page, entry 4/22/24 footnote 'f.'

There is no description and the footnote refers to Olivi (1792) only. There are no references to any other works and it is clear from the title and the Olivi reference that this shell came from the Adriatic.

Our concept of *Solen candidus* Renier should therefore be limited to Olivi's notes and any specimens of Renier's that are extant.

In footnote 'f' Renier states "referred by Olivi to *Solen strigilatus* from which it differs significantly" (Winckworth's ms translation with Tomlin's copy of Renier, 1804).

The Renier collection is recorded as being acquired by the Konglisch Museum, Vienna, now the Natural History Museum, Vienna but attempts to locate any possible type material are as yet unfruitful (but see under Nardo below).

Olivi, 1792, p. 99

This work briefly describes a variety of *S. strigilatus* and is translated as follows by Paolo Mariottini but the information presented is not sufficient to distinguish between *S. multistriatus* and *S. scopula* sensu auct.:

"A variety completely white (with the exception of some yellowish thin epidermis on the edges) without pink transverse rays, almost half the size of the true species, living in the littoral mud, often "floating" on the lido. We thought it was a new species, but we found specimens that are intermediates between the two forms, making a continuous gradient. In general, it is a good attitude when studying marine vegetal and animal species to be aware about the observed differences, that could be simply due to different nutritional conditions, age and so on. These variations can lead us to make the common error in considering two different species that are indeed just forms of an already known species."

Brocchi, 1814, pp. 497–498

Brocchi (1814) is the first author to discuss the identity of Renier's *S. candidus* and begins by citing figures 43–44 of Chemnitz in Martini & Chemnitz, 1782 and the fossil shells identified and figured as *S. strigilatus* by Lamarck (1806 text, 1808 figure). The latter is now recognised as *Solecurtus deshayesii* Desmoulins 1832 and is of Eocene age. He then mentions Renier's shells from the Adriatic and material in his own collection. He discusses Olivi (1792) and refers to varieties in Linnaeus (1764) and Gmelin (1791).

There is sufficient indication, however, that Brocchi did consider Renier's species to be different from *S. strigilatus* and that Brocchi can be adopted as the authority for the name *S. candidus*. This decision can be supported by selecting a lectotype from the material listed by Brocchi.

Possible lectotypes are as follows:

- Shells figured by Chemnitz in Martini & Chemnitz (1782): these originate from the East Indies and would no longer be considered to be conspecific with the Mediterranean taxon. They are most likely one of the sixteen nominal taxa described from the Indo-Pacific (OBIS, 2006) and are therefore not chosen.
- Shells figured by Lamarck (1808). These shells, now known as *S. deshayesii* Desmoulins 1832, are most similar to *S. scopula* and we do not consider these conspecific with *S. candidus*.
- Renier's original shells would be the most appropriate but appear to be no longer extant. Shells from the Nardo collection, collected in the Adriatic, are excellent representations but

these shells were never seen by Brocchi and cannot be chosen.

- The shells from Brocchi's own collection. Brocchi's material consists of six valves and one complete shell (MSNMi13351) and have been examined from photographs supplied by the Museo di Storia Naturale di Milano. They are Pliocene in date and collected from Valle Andona (Piacenzian). Similar shells of Pliocene age from the Astigian, identified as *S. candidus*, are figured by Sacco, 1901 (Tav III, figs 10–12). We are unable to distinguish these Italian Pliocene shells from Recent Mediterranean shells and consequently select a lectotype from Brocchi's material (Fig. 9).

There are numerous references to *S. candidus* in the Recent and fossil literature but only those of Deshayes (1839, 1843) and Nardo (1847) have nomenclatural significance.

Deshayes (1839, p. 122., pl. 6, figs 11–13) is a re-description of *S. candidus* (Renier), for which Deshayes gives authorship to himself. Deshayes remarks upon the confusion created by Martini & Chemnitz (1782) and refers only figure 43 to his species. He figures his species on Tab. 6 of the Traité but with Renier as author. Brocchi (1814) is listed in the synonymy. The figure is clearly of the *S. scopula* sensu auct. *(= S. candidus* Brocchi*)* and reproduced here (Fig. 10) from a copy supplied by the National Library of France. It is not known if the illustrations figure Recent or fossil shells but can be regarded as representing the type specimen of *S. candidus* Deshayes 1839. Given the priority attributed to Brocchi (1814) (above) this renders Deshayes' name a junior secondary homonym and contrary to CLEMAM (2009) it is not available and is not a synonym of *S. scopula*. In Deshayes (1848, pl. X, figs 6–10) *S. candidus* is illustrated from living material collected off the Algerian coast. These beautiful illustrations clearly show the *S. scopula* sensu auct. (= *S. candidus* Brocchi) form and are reproduced here (Fig. 11) from the atlas in the Tomlin library, NMW. Deshayes' illustrations confirm the concept of Renier's species and also confirm the Pliocene to Recent range of this species.

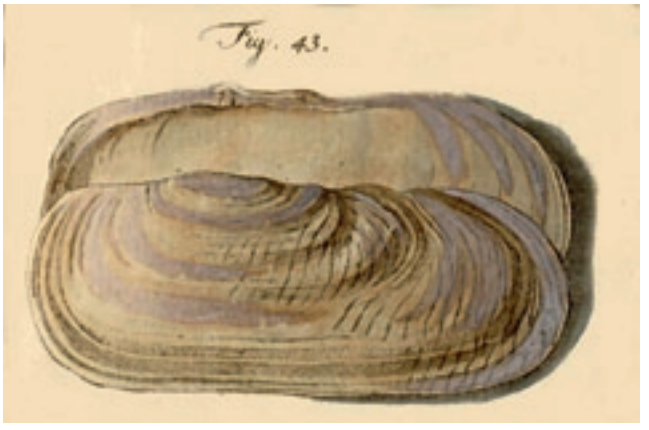


Figure 9 Lectotype of *Solen candidus* Brocchi 1814, Valle Andona, Upper Pliocene (Piacenzian), Brocchi collection, MSNMi13351.

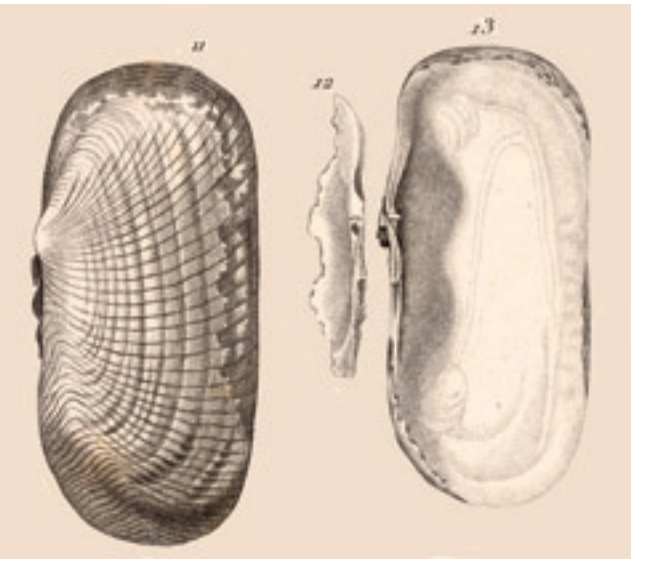


Figure 10 Reproduction of the original figures of *Solecurtus candidus* Deshayes 1839.

Nardo's 1847 paper takes the form of a two-column list where *S. albicans* Chiereghini ms is identified with *S. candidus* Renier. Specimens in the Natural History Museum, Vienna from the Nardo collection (Fig. 12) are conspecific with *S. candidus* (Brocchi). As Nardo was familiar with Renier's collection and concepts of the Adriatic fauna these specimens are strong indications that *S. candidus* (Renier) and *S. candidus* (Brocchi) are conspecific.

Although the exact identity of Renier's *S. candidus* remains unproven the concept has been widely agreed by subsequent workers and is of a white, oblong shell with the beaks in front of the midline and with weakly angulate strigilate sculpture. From a nomenclatural position the exact nature of Renier's *Solen candidus* is not vital as his name is unavailable but it is convenient that the concept is perpetuated in the next available name, which is *S. candidus* (Brocchi 1814).

Figure 11 Reproduction of the figures of *S. candidus* from Deshayes (1848).

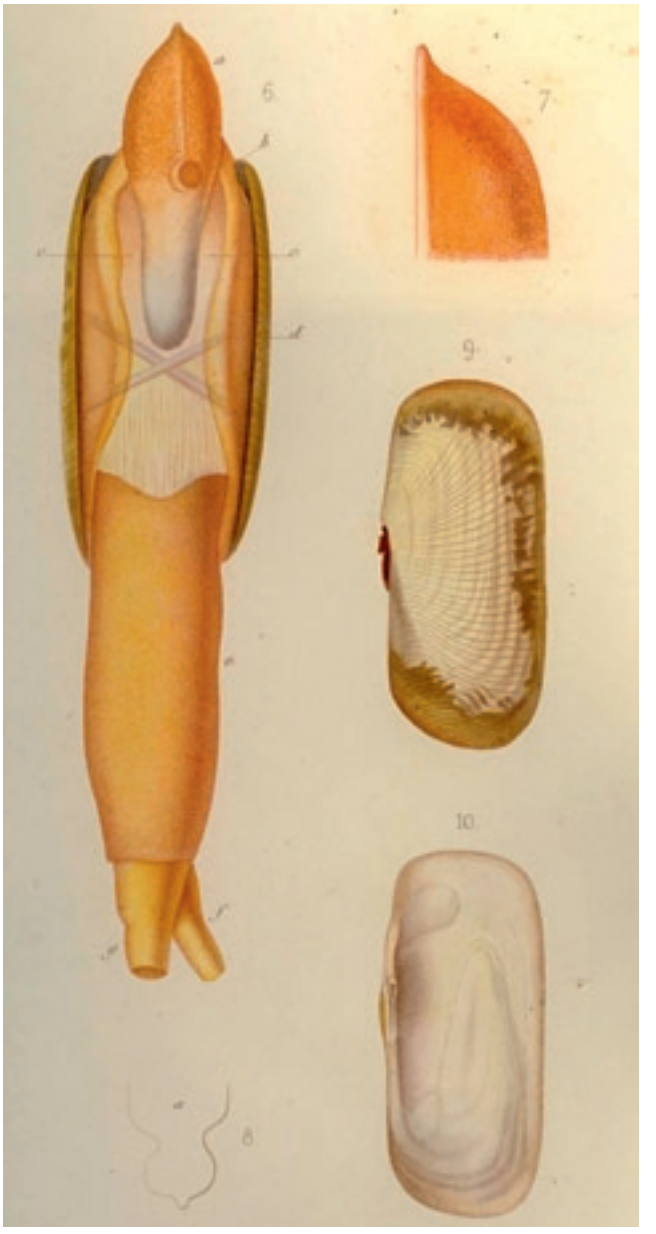


Figure 12 Specimen and label of *S. candidus* from the Nardo Collection, NHMW.

Synonymies, diagnoses and distributions

Solecurtus scopula (Turton 1822)
Figs 7d–h

Psammobia scopula Turton 1822: p. 98; Tab. 6, figs 11 & 12.
Psammobia strigilata Linnaeus – Turton, 1822: Tab. 6, fig. 13.
Solecurtus albus de Blainville 1827: Volume 49, p. 420.
Solen multistriatus Scacchi 1835: 76–77, pl. 1, fig. 1.
Solen gallicus Chenu 1843: pl. 6 fig. 8.
Solen candidus Renieri – Thorpe, 1844: p. 38.
Solen scopula Turton – Thorpe, 1844: p. 38.
Adasius loscombeus Leach 1852: p. 266.
Solecurtus candidus – Forbes & Hanley, 1853: p. 263, pl. XV, figs 1–2.
Solecurtus candidus Renier – Jeffreys, 1865: pp 3–6; 1869, 190, pl. 54, fig. 1.
Solecurtus scopulus multistriatus (Scacchi 1836) – Nordsieck, 1969: fig. 71.42.
Solecurtus multistriatus (Scacchi 1834) – Sabelli *et al*., 1992: p. 483.
Solecurtus multistriatus (Scacchi 1835) – Cretella *et al*., 2004: p. 127, fig. 1 m.
Solecurtus multistriatus (Scacchi 1835) – Mariottini *et al*., 1994: pp 35–40, figs 1–5.
Solecurtus multistriatus (Scacchi 1835) – Nolf & Verstraeten, 2002: pp 1–5 and figs on pp 10–14 & 15.
Solecurtus scopula (Scacchi 1835) – Nolf & Verstraeten, 2003: fig. on p. 17.

Material examined 10 sh. as *S. candidus*, Scilly Isles, ex Marshall NMW.1953.183.1476. 3 sh. as *S. candidus* var. *oblonga*, Scilly Isles, leg. Marshall, NMW.1955.158. 1 sh. as *S. scopula*, Scilly Isles, leg. Sowerby, NMW.1955.158. 2 sh. as *S. candidus*, Scilly Isles, ex Bartlett-Span, NMW.1915.237.457. 3 sh +1 v, as *S. candidus*, South Devon, ex Phelps, NMW. 1916.174. 2 sh +2 v, as *S. scopula*, English Channel, off Plymouth, 50°14'N 04°24'W, 51-57 m, MAFF scallop survey, RV Corystes, 1992–1993, ex IJ Killeen coll in NMW. 1 sh, as *S. scopula*, English Channel, Lyme Bay, 50°19'N 02°56.6'W, 58 m, MAFF scallop survey, RV Corystes, 1993, ex IJ Killeen coll in NMW. 28 sh, as *S. scopula*, Herm, Channel Isles, ex Marshall, NMW. 1953.183. 12 sh. as *S. scopula* var. *oblonga*, Herm, Channel Isles, ex Marshall, NMW. 1953.183. 3 sh, as *S. candidus*, Guernsey, Channel Isles, leg. Sowerby, ex. PP Cambridge, NMWZ. 1992.023. 2 sh, as *S. multistriatus*, Cardigan Bay, Irish Sea, coll. Nolf (3602). 1 sh, as *S. multistriatus*, Pte de Mousterlin, Bénodet, Brittany, coll. Nolf (3602a). 1 sh, as *S. multistriatus*, South of La Rochebonne Bank, off La Rochelle, Bay of Biscay, 90 m, coll. Nolf (3602c). 1 sh, as *S. scopula*, Liverpool Bay, Irish Sea, 45 m, coll. Nolf (3602f). 1 sh, Bristol Channel, 51°43'N 5° 40'W, 70 m, coll. Nolf (3602d), 2 sh, as *S. multistriatus*, Chioggia, Italy, 23 m, coll. Nolf (3602b).

Diagnosis Shell reaching 50 mm, robust, equivalve, slightly inequilateral with beaks just in front of midline. Outline cylindrical anterior and posterior gaping; dorsal margins sloping gently, posterior rounded and narrower than anterior. Posterior curvature distinct. Sculpture strigilate, junction of median and posterior ribs acute, median posterior ribs often crowded. Ligament large, nymph prominent. Hinge with two cardinal in each valve, left posterior fragile, often lost; left anterior and right posterior weakly bifid.

Distribution Mediterranean and NE Atlantic north to the Shetlands.

Solecurtus candidus (Brocchi 1814)
Figs 7a-c; 9–13.

Solen candidus – Brocchi, 1814: pp. 497–499.
Solen strigilatus var. – Olivi, 1792: p. 99.
Solen candidus Renier 1804: p. 1.
Solen strigilatus var. *minor* Menke 1830: p. 120.
Solen candidus Ren. – Deshayes, 1835: p. 85.
Solen strigilatus var. b *alba* Scacchi 1836: p. 5.
Solecurtus candidus Deshayes 1839: p. 122. pl. 6, figs 11–13.
Solen albicans Chiereghini ms. *in* Nardo 1847: p. 19.
Solecurtus candidus Deshayes – Deshayes, 1848: pl. X, figs 6–10.
Solenocurtus candidus (Ren.) – Sacco, 1901: pp. 14–15, tav. III, figs 10–12.
Solecurtus scopulus multistriatus (Scacchi 1836) – Nordsieck, 1969: fig. 71.41.
Solecurtus candidus (Renieri) – Parenzan, 1976: pp 328–329, fig. 289.
Solecurtus albus (Blainv.) – Parenzan, 1976: p. 328, fig. 288.
Solecurtus scopula (Turton 1822) – Sabelli *et al*., 1992: p. 483 .
Solecurtus scopula (Turton 1822) – Poppe & Goto, 1993: p. 117, pl. 18, fig. 16a, b.
Solecurtus scopula (Turton 1822) – Mariottini *et al*., 1994: pp 35–40, figs 6a–d.
Solecurtus scopula (Turton 1822) – Nolf & Verstraeten, 2002: pp 1–5 and figs on pp. 7–9, 12–13 & 16.
Solecurtus scopula (Turton 1822) – Nolf & Verstraeten, 2003: pp 15–18 and figs except for p. 17.

Type Material Lectotype (selected here, Fig. 9), 1 sh. (47 mm in length), Valle Andona, Piacenza, Italy, from the Piacenzian Unit, Late Pliocene, ex Brocchi Coll. MSNMi13351. Paralectotypes 6 v., as Lectotype, MSNMi13351.

Other Material examined 1 sh, as *S. candidus*, Mediterranean, leg Monterosato, Melvill-Tomlin Coll. NMW.1955.158. 1 sh, as *S. scopula*, Pouza Is, Tyrrenian Sea, leg. Mariottini. 1 sh, as *S. scopula*, Elba Is, Tyrrenian Sea, leg. Mariottini. 1 sh, as *S. scopula*, Adriatic Sea, leg. Mariottini. 1 sh, as *S. scopula*, Fuengirola, Spain, Alboran Sea, coll. Nolf (8823e). 4 sh, as *S. scopula*, Santa Cruz de la Palma, La Palma, Canary Islands, coll. Nolf (8823c). 1 sh, as *S. scopula*, Off Cork, Celtic Sea, 72 m, October 2003, coll. Verstraeten. 2 sh, as *S. scopula*, off Waterford, Southern Ireland, 70 m, coll. Kreps, RBINS. 1 sh, as *S. scopula*, Lagos, Portugal, coll. Nolf (8823b). 2 sh, as *S. scopula*, Chioggia, Italy, coll. Nolf (8823d). 2 sh, as *S. scopula*, South of La Rochebonne Bank, off La Rochelle, Bay of Biscay, 140 m, coll. Nolf (8823 g). 2 sh, as *S. scopula*, Off Plouharnel, Morbihan, Brittany, coll. Nolf (8823).

3 sh, as *S. scopula*, Malaga, Spain, coll. Nolf (8823a).

Diagnosis Shell reaching 68 mm, thin, equivalve, inequilateral, beaks distinctly in front of midline. Outline cylindrical anterior and posterior gaping widely; dorsal margins straight and parallel to ventral margin, posterior broadly rounded and similar to anterior. Posterior area flat. Sculpture strigilate, junction of median and posterior ribs obtusely angled, median posterior ribs well spaced. Ligament low, nymph narrow. Hinge with one cardinal in left valve posterior tooth as a low ridge; left anterior and right posterior not bifid.

Distribution Mediterranean, NE Atlantic north to the Celtic Sea. The shells from the Celtic Sea (Fig. 13) are the first for Irish waters and the first for the census of marine molluscs undertaken by the Conchological Society of Great Britain and Ireland.

DISCUSSION

The nomenclatural confusion reviewed here has its roots early in the history of European Mollusca and can be traced to the adoption of Renier's name of 1804, which had neither description nor illustration. This was probably compounded by subsequent reference to Chemnitz in Martini & Chemnitz (1782), which confuses taxa from many parts of the world. With the placing of Renier's work on the unavailable list the long standing assumption that *S. scopula* and *S. candidus* were synonymous was established and not questioned. The absence of type material for many of the early names would not have encouraged investigation and it was not until the studies of Mariottini *et al*. (1994) and Nolf & Verstraeten (2002, 2003) that the confusion was realised. Similar investigations should be encouraged, as there are undoubtedly many similar taxonomic and nomenclatural problems to be resolved.

Figure 13 Right valve of *S. candidus*, first record for Irish waters; Off Cork, Celtic Sea, 72 m, October 2003, coll. J. Verstraeten.

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