

Catalogue of supraspecific taxa of Scaphopoda (Mollusca)

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ABSTRACT

This annotated catalogue of Recent and fossil supraspecific names of the molluscan class Scaphopoda contains 15 class- and ordinal-level names, 33 family-level names, 114 genus-group names, and 12 non-scaphopod names erroneously assigned to this class. For the suprageneric names, this catalogue provides their original rank, their current systematic status and, if applicable, their type genus. For the genus-group names, this catalogue provides the type species, mode of designation, systematic position, and the listing of the Recent species. Complete bibliographic references are provided for all supraspecific names. The current validity of each nominal taxon is assessed based upon the literature, with junior synonyms cross-referenced.

KEY WORDS

Mollusca,
Scaphopoda,
Dentaliidae,
Dentalium,
Gadilidae,
Cadulus,
catalogue.

RÉSUMÉ

Catalogue des taxons supraspécifiques de Scaphopoda (Mollusca).

Le présent catalogue des noms de taxons supraspécifiques, fossiles et actuels, de la classe des Scaphopodes comprend 15 noms des niveaux classe et ordre, 33 noms du niveau famille et 114 noms du niveau genre, auxquels s'ajoutent 12 noms proposés à l'origine comme des noms de Scaphopodes mais qui n'en sont pas. Pour les noms au dessus du niveau genre, le catalogue indique le rang auquel ils ont été établis à l'origine et leur statut taxonomique actuel et, quand il y en a lieu, le genre-type. Pour les noms du niveau genre, le catalogue indique l'espèce-type et son mode de désignation, la position systématique, ainsi que le nombre et une liste alphabétique des espèces actuelles connues. Des références bibliographiques complètes sont données pour tous les noms de taxons supraspécifiques. La validité de chaque taxon nominal est évaluée à partir de la littérature, avec des renvois appropriés entre synonymes.

MOTS CLÉS

Mollusca,
Scaphopoda,
Dentaliidae,
Dentalium,
Gadilidae,
Cadulus,
catalogue.

INTRODUCTION

The increased and technically improved sampling of marine sediments and subsequent morphological studies during the 20th century resulted in a high number of new species of benthic invertebrates in general, including the molluscan class Scaphopoda. The increased number of known species and the assessment of additional anatomical character sets (e.g., radula, pedal musculature, mantle morphology) led to an improved classification of the group and to the creation of numerous supraspecific taxa from genus-group to ordinal levels. In their fundamental work on scaphopod systematics, Pilsbry & Sharp (1897-1898) recognized 23 genus-group taxa in two families. Since then, 20 valid suprageneric taxa and 36 valid genera have been described. Previous papers on scaphopod classification (Ludbrook *in* Moore 1960; Emerson 1962; Palmer 1974; Scarabino 1995; Lamprell & Healy 1998) and catalogues of genus-group taxa (Emerson 1952a; Palmer 1986) listed these names with a varying amount of accompanying information and, together with the work of Pilsbry & Sharp (1897-1898), form the starting point for the present catalogue.

This publication attempts to compile all supraspecific scaphopod names appearing in the literature to date, including incorrect subsequent

spellings, emendations, and those taxa originally described as scaphopods but no longer included in this class, together with information relevant for the taxonomy and systematics of the group. The validity of the Recent taxa is indicated based upon the scaphopod classification of Scarabino (1995), as modified by Steiner (1998, 1999) (Table 1). In addition, the Recent species are listed for each valid genus. The generic assignment for Recent species is, with few exceptions, taken from the literature. Several new generic combinations and new species synonymies will be discussed in detail in the catalogue of species-level taxa (Steiner & Kabat *in* prep.).

Class-level to ordinal names, family-group names, genus-group names, and the non-scaphopod genus names are each listed separately and in alphabetic order. The list of class- and order-level names consists of 15 entries. The second section contains family-group names of 29 Recent and 4 extinct taxa. The classification scheme used herein (Table 1) recognises 23 Recent suprageneric taxa.

Of the 114 entries in the genus-group name section, 60 refer to valid genera, 46 Recent and 14 extinct taxa. Of the remaining entries, 22 are junior synonyms, unjustified emendations or unavailable names, 20 are incorrect subsequent spellings, and 11 are names of genera which were erroneously assigned to the Scaphopoda. Of the

46 Recent genera here considered valid, 22 are in the order Dentaliida and 24 in the order Gadilida. Lamprell & Healy (1998) presented a classification of Recent Australian taxa, using the dentaliid genera *Dentalium*, *Fissidentalium*, *Tesseracme* and *Laevidentalium* all *sensu lato* by including species assigned by other authors to *Antalis*, *Striodentalium*, *Paradentalium*, *Eudentalium* or *Calliodentalium*. Similarly, the genera *Rhomboxiphus* and *Entalinopsis* (Gadilida, Entalimorpha) were not accepted by Lamprell & Healy (1998), thus reducing the number of genera recognized in their publication by at least seven. However, we herein follow the classification scheme of Scarabino (1995).

The number of Recent species placed in each genus varies from 1 to 67. Six genera (*Dentalium*, *Antalis*, *Fissidentalium* of the order Dentaliida; *Cadulus*, *Gadila*, *Polyschides* of the order Gadilida) have more than 20 species. Nine genera (*Paradentalium*, *Compressidentalium*, *Graptacme*, *Episiphon*, *Fustiaria*, *Laevidentalium*, *Pulsellum*, *Dischides*, *Siphonodentalium*) have 10 to 20 species. Of the 31 genera having fewer than 10 species, 12 are monotypic. Species numbers for family-level taxa are not calculated here because of the divergent use and ranking of taxa by various authors which indicates the instability of several of these taxa. However, there are 276 currently recognized Recent species in the order Dentaliida and 241 Recent species in the order Gadilida.

The catalogue is planned to be updated in suitable intervals to account for new taxa and, inevitably, changes in systematics due to new phylogenetic data. The successive updated versions will be available on internet at the URL: <http://www.mnhn.fr/publication/zoosyst/z01n3a4.pdf>

CLASS-LEVEL AND ORDINAL NAMES

The name of the class Scaphopoda dates from Bronn (1862) who listed it as an order containing the single suborder Prosopoccephala. These names are antedated by Cirrhubranchiata de Blainville,

1824, Lateribranchiata Clark, 1851 (both de Blainville and Clark had mistaken the captacula or the tubules of the midgut gland, respectively, for the “gills” of the scaphopod animal, hence the mistaken etymology of their names), and Solenoconques Lacaze-Duthiers, 1857. In the last decade of the 19th century, Simroth (1894) and Pilsbry & Sharp (1897-1898), through their consistent use of Scaphopoda (and their implied rejection of the other class-level names) set the precedent followed by essentially all subsequent researchers who have invariably used Scaphopoda as the name of this class.

The ordinal rank had not been used for this class until 1974 when almost simultaneously Starobogatov and Palmer proposed new classifications for the Scaphopoda. The ordinal names of Starobogatov (1974), Dentaliida and Gadilida, became more accepted, not only for their slight seniority, but also for being shorter than Palmer's (1974) Dentalioidea and Siphonodentalioidea, which could also be confused with the names of superfamilies.

Names that are currently considered to be valid are in boldface, whereas synonyms, questionable and unavailable names are in regular type. Each entry is followed by the author and citation; rank in original description (if given); synonymy and nomenclatorial remarks where appropriate; and the current systematic position, if known.

Cirrhubranchiata de Blainville, 1824: 286; 1825: 495.

As an order of the sub-class “Paracephalophora hermaphrodita”, for the genus *Dentalium*, listing “*Dentalium elephantinum* d’Argenville” and “*Dentalium entalis* d’Argenville” (both names from d’Argenville (1742) and, thus, not available under ICZN Article 3.2).

Dentalia Da Costa, 1776: 127, 152, 297.

For *Dentale* [= *Antalis*].

Emended to **Dentaliida** by Starobogatov (1974: 8). Order for Pro dentaliidae, Plagioglyptidae, and Dentaliidae (*vide* Starobogatov 1974).

Synonyms: *Antalinae* Stoliczka, 1868, *partim* (Emerson 1962: 466).

Current use: Anulidentaliidae, Calliodentaliidae, Dentaliidae, Gadiliniidae, Laevidentaliidae, Omniglyptidae; and for the extinct family Prodentaliidae.

Dentalioidea Palmer, 1974: 119.

Order for Dentaliidae and Laevidentaliidae.

Junior synonym of, and much less used than, **Dentaliida** *sensu* Starobogatov (1974).

Entalimorpha Steiner, 1992: 397.

Suborder of the order Gadilida, for Entaliniidae.

Gadilida Starobogatov, 1974: 9.

Order for Siphonodentaliidae, Loxoporidae, Gadilidae.

Synonym: Siphonopoda G. O. Sars, 1878.

Current use: Entalimorpha-Entaliniidae, Gadilimorpha-Pulsellidae, Wemersoniellidae, Siphonodentaliidae; *incertae sedis* *Compressidens*, *Megaentalina*.

Gadilimorpha Steiner, 1992: 398.

Suborder of Gadilida, for Pulsellidae (including *Compressidens*), Wemersoniellidae, Siphonodentaliidae, Gadilidae, *incertae sedis* *Megaentalina* (added by Scarabino 1995: 196).

Lateribranchiata Clark, 1851: 471, 476.

In the "Third Division of Gasteropoda, as Gasteropoda lateribranchiata, *Hermaphrodite, sine congressu*"; for the family Dentaliadae, genus *Dentalium*.

Nematobranchia Gravenhorst, 1843: 66.

In Gastropoda; as family for *Dentalium*. Emended to Nematobranchiata by Agassiz, Gould & Perty (1855: 610).

Nematobranchiata Agassiz, Gould & Perty, 1855: 610.

Emendation of Nematobranchia Gravenhorst, 1843.

Plagioglyptida Chistikov, 1979: 21.

Order for Plagioglyptidae.

"Prosocephala" – Habe 1964: 1.

Incorrect subsequent spelling of Prosopocephala Bronn, 1862.

Prosopocephala Bronn, 1862: 522.

In the "2. Unterkreis, Malacozoa cephalophora (or cephalota) = Cephalomalacia" (including the classes Scaphopoda, Gastropoda, and Cephalopoda); as the only suborder of the class Scaphopoda.

Scaphopoda Bronn, 1862: 522.

As class of the "2. Unterkreis, Malacozoa cephalophora (or cephalota) = Cephalomalacia" (including the classes Scaphopoda, Gastropoda, and Cephalopoda).

Siphonodentalioidea Palmer, 1974: 120-121.

Order for families Siphonodentaliidae Simroth, 1894 and Cadulidae Grant & Gale, 1931.

Junior synonym of, and less used than, Gadilida Starobogatov, 1974.

Solenocoques Lacaze-Duthiers, 1857: 42-43 [285 in reprint].

Emended to Solenoconchae by M. Sars (1861: 22), and to Solenoconchia by Monterosato (1872: 27) and G. O. Sars (1878: 100).

FAMILY-GROUP NAMES

Recent and fossil (marked [F]) family-group taxa are listed alphabetically, with valid names in bold. The author and reference for each are followed by the type genus and the junior synonyms. Where appropriate, the originally assigned rank, current usage and the included subtaxa are given for each taxon under Remark.

Antalinae Stoliczka, 1868: 437.

TYPE GENUS. — *Antalis* H. & A. Adams, 1854.

Currently included in **Dentaliidae** [Children, 1834] (*vide* Emerson 1962: 466).

REMARK. — Introduced as a subfamily of Dentaliidae, for *Dentalium*, *Antale*, *Entalis* [both *Antalis*], and *Fustiaria* [including *Fustiaria* and *Laevidentalium*].

Anulidentaliinae Chistikov, 1975: 20.

TYPE GENUS. — *Anulidentarium* Chistikov, 1975.

REMARK. — Proposed as subfamily of Dentaliidae; current use: **Anulidentaliidae** (*vide* Steiner 1999: 151), including *Anulidentarium* and *Epirhabdoides*.

[F] **Baltodentaliidae** Engeser & Riedel, 1992: 49.

TYPE GENUS. — *Baltodentalium* Engeser & Riedel, 1992.

Bathoxiphinae Chistikov, 1983: 181.

TYPE GENUS. — *Bathoxiphus* Pilsbry & Sharp, 1897.

REMARK. — Introduced as a subfamily of Entalinidae, including *Bathoxiphus*, *Rhomboxiphus*, and *Solenoxiphus*.

Cadulidae Grant & Gale, 1931: 438.

TYPE GENUS. — *Cadulus* Philippi, 1844.

Incorrectly proposed replacement name for **Siphonodentaliidae** Tryon, 1884, because the authors listed Siphonodentaliidae as a junior synonym, although it actually antedates their establishment of Cadulidae.

REMARK. — Originally included *Cadulus*, *Siphonodentalium*, and *Entalina*; adopted by Palmer (1974: 121) for *Cadulus*, *Gadila*, *Dischides*, *Polyschides*, *Striocadulus*, *Sagamicadulus*.

Calliodentaliinae Chistikov, 1975: 20.

TYPE GENUS. — *Calliodentalium* Habe, 1964.

Objective junior synonym: Eboreidentidae Chistikov, 1975 (n. syn., see under *Eboreidens* in the genus-group section).

REMARK. — Introduced as a subfamily of Dentaliidae, including *Calliodentalium*, *Laevidentarium*, and *Pseudantalis* (*sensu* Monterosato 1884); current use: **Calliodentaliidae** including only *Calliodentalium* (*vide* Scarabino 1995: 271).

“Dentaliacea” – Römer, 1836: 133.

Incorrect subsequent spelling of **Dentaliidae** [Children, 1834] (ICZN Article 32.5.3).

“Dentaliadae” – Clark, 1851: 471.

Incorrect subsequent spelling of **Dentaliidae** [Children, 1834] (ICZN Article 32.5.3).

“Dentalidae” – d’Orbigny, 1843: 399.

Incorrect subsequent spelling of **Dentaliidae** [Children, 1834] (ICZN Article 32.5.3).

Dentaliidae [Children, 1834]: 112.

TYPE GENUS. — *Dentalium* Linnaeus, 1758.

Junior synonyms: Antalinae Stoliczka, 1868 (*partim*); Dentaliacea Römer, 1836; Dentaliadae Clark, 1851, Dentalidae d’Orbigny, 1843; Dentaliina MacGillivray, 1843; Plagioglyptidae Starobogatov, 1974 (*partim*); Scaphopoda G. O. Sars, 1878: 100.

REMARK. — The “Synopsis of the Contents of the British Museum” for 1834 did not indicate the authorship of the conchological section. However, J. G. Children was in charge of the mollusc collection at that time, and he was credited with the authorship of the conchological section of the “Synopsis of the Contents of the British Museum” for 1838 (Children 1838). Thus, it is most logical to infer, pursuant to ICZN Article 51, Recommendation 51D, that Children was the author of this section in the 1834 edition. The family originally included only *Dentalium* and was subsequently enlarged with the addition of *Entalis* and *Gadila* by Gray (1847: 158).

“Dentaliina” – MacGillivray, 1843: 72.

Incorrect subsequent spelling of **Dentaliidae** [Children, 1834] (ICZN Article 32.5.3).

Eboreidentidae Chistikov, 1975: 20.

TYPE GENUS. — *Eboreidens* Chistikov, 1975, a junior synonym of *Calliodentalium* Habe, 1964 (n. syn., see under *Eboreidens* in the genus-group section).

Objective junior synonym of **Calliodentaliidae** Chistikov, 1975 (*vide* Scarabino 1995: 243, the first reviser who tentatively synonymized these names).

Entalinidae Chistikov, 1979: 21.

TYPE GENUS. — *Entalina* Monterosato, 1872.

REMARK. — Originally included genera are *Bathoxiphus*, *Entalina*, *Entalinopsis*, *Heteroschismoides*, and *Megaentalina*. Scarabino (1995:

196; 365) removed *Megaentalina* from this taxon. Also used as subfamily **Entalininae** (diagnosis in Chistikov 1982c: 1492) for *Entalina*.

Episiphonidae, Episiphoninae Chistikov, 1975: 20.
TYPE GENUS. — *Episiphon* Pilsbry & Sharp, 1897.

Fustiariidae Steiner, 1991: 18.
TYPE GENUS. — *Fustiaria* Stoliczka, 1868.

Gadilinae Stoliczka, 1868: 440.
TYPE GENUS. — *Gadila* Gray, 1847.
REMARK. — Introduced as a subfamily of Dentaliidae, for *Siphonodentalium*, *Gadila*, *Helonyx* [*Cadulus*], *Pulsellum*; current use: **Gadilidae sensu** Steiner (1992), equivalent to **Siphonodentaliidae sensu** Scarabino (1995), including the subfamilies **Siphonodentaliinae** (*Siphonodentalium*, *Sagamicadulus*, *Striocadulus*, *Polyschides*, *Dischides*) and **Gadilinae** (*Cadulus*, *Bathycadulus*, *Gadila*).

Gadiliniidae Chistikov, 1975: 20.
TYPE GENUS. — *Gadilina* Foresti, 1895.
REMARK. — The family originally included *Gadilina* and *Bathoxiphus*; current use: **Gadiliniidae**: *Gadilina*, *Episiphon* (*vide* Steiner 1999: 157); **Gadiliniinae**: *Gadilina*.

Gadinae Cossmann in Cossmann & Peyrot, 1917: 159.
TYPE GENUS. — *Gadila* Gray, 1847.
Objective junior synonym of **Gadilinae** Stoliczka, 1868.
REMARK. — Originally proposed as a subfamily of Dentaliidae for *Gadila* and *Siphonodentalium*.

Heteroschismoidinae Chistikov, 1982a: 675.
TYPE GENUS. — *Heteroschismoides* Ludbrook, 1960.
REMARK. — Introduced as a subfamily of Entalinidae, for *Heteroschismoides*, *Costentalina*, *Entalinopsis*, *Pertusiconcha*, *Spadentalina*.

Laevidentaliiidae Palmer, 1974: 120.
TYPE GENUS. — *Laevidentalium* Cossmann, 1888.

REMARK. — Introduced as a family for *Laevidentalium*, *Calliodentalium*, *Pseudantalis*, *Rhabdus*, *Fustiaria*, *Plagioglypta*, *Omniglypta*, *Progadilina*, *Gadilina*, *Lobantale*, *Episiphon*, *Bathoxiphus*; current use: **Laevidentaliiidae**: *Laevidentalium*.

[F] **Lobantalinae** Chistikov, 1975: 20.
TYPE GENUS. — *Lobantale* Cossmann, 1888.
REMARK. — Introduced as a subfamily of Episiphonidae for *Lobantale*.

Loxoporidae Starobogatov, 1974: 10.
TYPE GENUS. — *Loxoporus* Jeffreys, 1868, a junior synonym of *Cadulus* Philippi, 1844.

Omniglyptidae Chistikov, 1975: 21.
TYPE GENUS. — *Omniglypta* Kuroda & Habe in Habe, 1953.

Plagioglyptidae Starobogatov, 1974: 8.
TYPE GENUS. — *Plagioglypta* Pilsbry in Pilsbry & Sharp, 1898. Currently included in **Dentaliidae** [Children, 1834].

[F] **Prodentaliidae** Starobogatov, 1974: 8.
TYPE GENUS. — *Prodentalium* Young, 1942.

Pulsellidae Boss, 1982: 1166 (*ex* Scarabino MS).
TYPE GENUS. — *Pulsellum* Stoliczka, 1868.
REMARK. — Originally included *Pulsellum*, *Striopulsellum*, *Annulipulsellum*, *Compressidens*, *Emersoniella* [= *Wemersoniella*]; current use: **Pulsellidae**: *Pulsellum*, *Annulipulsellum*, *Striopulsellum*.

[F] **Quasidentaliiidae** Chistikov, 1975: 19.
TYPE GENUS. — *Quasidentalium* Shimansky, 1974. *Quasidentalium* is no longer classified as a scaphopod. See section “Other taxa described as Scaphopoda”.

Rhabdidae Chistikov, 1975: 20.
TYPE GENUS. — *Rhabdus* Pilsbry & Sharp, 1897.
REMARK. — Also used as superfamily taxon Rhabdoidea (Chistikov 1975: 20).

Scaphopoda G. O. Sars, 1878: 100.
TYPE GENUS. — *Antalis* “Aldrovandus” (unavailable under ICZN Article 3.2).

Junior synonym of **Dentaliidae** [Children, 1834].

REMARK. — As family-group name not based on a genus name and, thus, not available (ICZN Article 11.7.1).

Siphonodentaliinae Tryon, 1884: 114.

TYPE GENUS. — *Siphonodentalium* Sars, 1859.

REMARK. — Introduced as a subfamily of Dentaliidae, for *Siphonodentalium*, *Cadulus*, *Dischides*; current use **Siphonodentaliidae sensu** Scarabino (1995), equivalent to **Gadilidae sensu** Steiner (1992), including the subfamilies **Siphonodentaliinae** (*Siphonodentalium*, *Sagamicadulus*, *Striocadulus*, *Polyschides*, *Dischides*) and **Gadilinae** (*Cadulus*, *Bathycadulus*, *Gadila*).

Siphonopoda G. O. Sars, 1878: 102.

Family-group name for *Siphonodentalium*, *Siphonentalis* [*Pulsellum*, *Entalina*] and *Cadulus*.

REMARK. — As family-group name not based on a genus name and, thus, not available (ICZN Article 11.7.1).

Siphonopodidae Simroth, 1894: 366; 1895: 465.

Family for *Entalina*, *Pulsellum*, *Siphonodentalium*, *Dischides*, *Cadulus*, *Lexoporus* [sic], *Gadila*.

REMARK. — Name not based on a genus name and, thus, not available (ICZN Article 11.7.1).

Wemersoniellidae Scarabino, 1986a: 2.

TYPE GENUS. — *Wemersoniella* Scarabino, 1986.

GENUS-GROUP NAMES

The alphabetic catalogue of genus-group names of Scaphopoda contains both Recent and fossil (marked [F]) taxa and is an update of the compilations by Emerson (1952a, 1962). For the sake of completeness, we have included incorrect subsequent spellings in this catalog. They are set off by quotation marks and followed by “—”. Although these are not available names for the purposes of homonymy (ICZN Article 33.3),

their inclusion herein will readily allow future generations of researchers who find these names in the older literature to determine their status from this catalog. Recent genera included in the classifications of Scarabino (1995) and Steiner (1999) (Table 1) and valid fossil genera are in boldface, whereas synonyms, questionable and unavailable names are in regular type. Each entry name is followed by the author and citation; type species and mode of designation; synonymy and nomenclatorial remarks; and the systematic position of the genus. The number of valid Recent species and an alphabetical list of the species names terminate the entries for valid genera.

Annulipulsellum Scarabino, 1986b: 4.

TYPE SPECIES. — *Annulipulsellum euzkadii* Scarabino, 1986, by original designation.

REMARK. — *Nomen nudum* in Boss (1982: 1166, ex Scarabino MS), and in Palmer (1986: 396). [Gadilida, Gadilimorpha, Pulsellidae].

RECENT SPECIES. — 1 [*euzkadii* Scarabino, 1986].

Antale Sacco, 1896: 97.

TYPE SPECIES. — *Dentale vulgare* Da Costa, 1778, by subsequent designation (Sacco 1897: 98). Objective junior synonym of *Dentale* Da Costa, 1778 (*fide* Emerson 1951: 298), which was placed on the *Official Index of Rejected and Invalid Names in Zoology* by ICZN Opinion 361 (1955) and replaced by *Antalis* H. & A. Adams, 1854.

REMARK. — The name is taken from *Antale* of Aldrovandi (1606).

Antalis Herrmannsen, 1846: 63 [without species].

TYPE SPECIES. — *Dentalium entalis* Linnaeus, 1758, by subsequent designation (Pilsbry & Sharp 1897: 37). Placed on the *Official Index of Rejected and Invalid Names in Zoology* by ICZN Opinion 361 (1955).

REMARK. — See also Emerson (1951), Pilsbry (1951), and Ludbrook & Emerson (1952).

Antalis H. & A. Adams, 1854: 457.

TYPE SPECIES. — *Dentalium entalis* Linnaeus, 1758, by subsequent designation (Pilsbry & Sharp 1897: 37).

REMARK. — Placed on the *Official List of Generic Names in Zoology* by ICZN Opinion 361 (1955), after an application by Ludbrook & Emerson (1952), by which *Dentale* Da Costa, 1778, and *Antalis* Herrmannsen, 1846 are placed on the *Official Index of Rejected and Invalid Names in Zoology*. Other synonyms: *Entalis* Gray, 1847 non *Entalis* Sowerby, 1839 (Annelida), *Entaliopsis* Newton & Harris, 1894, *Antale* Sacco, 1896 (all *vide* Emerson 1951). [Dentaliida, Dentaliidae].

RECENT SPECIES. — 40 [*aculeata* (Sowerby, 1860); *agilis* (G. O. Sars, 1872); *antillaris* (d'Orbigny, 1853); *bartletti* Henderson, 1920; *berryi* (Smith & Gordon, 1948); *boucheti* Scarabino, 1995; *cerata* (Dall, 1881); *circumcincta* (Watson, 1879); *dentalis* (Linnaeus, 1758); *diarrhox* (Watson, 1879); *disparile* (d'Orbigny, 1853); *entalis* (Linnaeus, 1758); *gardineri* (Melvill, 1909); *glaucarena* (Dell, 1953); *guillei* Scarabino, 1995; *inaequicostata* (Dautzenberg, 1891); *inflexa* (Sowerby, 1903); *infracta* (Odhner, 1931); *intesi* Nicklès, 1979; *longitrorsa* (Reeve, 1842); *marukawai* Otuka, 1933; *nana* (Hutton, 1873); *novemcostata* (Lamarck, 1818); *occidentalis* (Stimpson, 1851); *panorma* (Chenu, 1843); *perinvoluta* (Ludbrook, 1954); *phanea* (Dall, 1895); *pilsbryi* Rehder, 1942; *porcata* (Gould, 1859); *pretiosa* (Sowerby, 1860); *rossati* Caprotti, 1966; *senegalensis* (Dautzenberg, 1891); *suteri* (Emerson, 1954); *taphris* (Dall, 1889); *tibana* (Nomura, 1940); *tubulata* Henderson, 1920; *usitata* (E. A. Smith, 1894); *valdiviae* Plate, 1908; *vulgaris* (Da Costa, 1778); *weinkauffi* (Dunker, 1877)].

Anulidentalium Chistikov, 1975: 19.

TYPE SPECIES. — *Anulidentalium bambusa* Chistikov, 1975, by original designation. [Dentaliida, Anulidentalidae].

RECENT SPECIES. — 1 [*bambusa* Chistikov, 1975].

[F] *Baltodentalium* Engeser & Riedel, 1992: 49-50.

TYPE SPECIES. — *Baltodentalium weitschati* Engeser & Riedel, 1992 [Early Jurassic of Germany], by original designation. [? Dentaliida, Baltodentaliidae].

“*Bathoxifus*” – Palmer, 1974: 120.

Incorrect subsequent spelling of *Bathoxiphus* Pilsbry & Sharp, 1897.

Bathoxiphus Pilsbry & Sharp, 1897: 121.

TYPE SPECIES. — *Dentalium ensiculus* Jeffreys, 1877, by subsequent designation (Boissevain 1906: 48).

REMARK. — Pilsbry & Sharp (1897) introduced the taxon for *Dentalium ensiculus* and *Dentalium ensiculus* var. *didymum*, but only the former was cited by Boissevain (1906), the latter taxon is not congeneric and is referable to *Episiphon* (*vide* Scarabino 1995: 186). As ICZN Article 69.4 excludes “fixation by elimination” the type species fixation is by subsequent designation and not monotypy. [Gadilida, Entalimorpha, Entalinidae, Bathoxiphinae].

RECENT SPECIES. — 5 [*ensiculus* (Jeffreys, 1877); *inexpectatus* Scarabino, 1995; *soyomaruae* Okutani, 1964; *stanisici* Lamprell & Healy, 1998; *steineri* Lamprell & Healy, 1998].

Bathycadulus Scarabino, 1995: 354 [*nomen nudum* in Palmer 1986: 396].

TYPE SPECIES. — *Bathycadulus fabrizioi* Scarabino, 1995, by original designation. [Gadilida, Gadilimorpha, Gadilidae, Gadilinae].

RECENT SPECIES. — 1 [*fabrizioi* Scarabino, 1995].

“*Cadila* Gray” — Cotton & Godfrey, 1933: 148. Incorrect subsequent spelling of *Gadila* Gray, 1847.

Cadulus Philippi, 1844: 209.

TYPE SPECIES. — *Dentalium ovulum* Philippi, 1844, by monotypy.

Junior synonym: *Loxoporus* Jeffreys, 1868 (*vide* Jeffreys 1883: 664). [Gadilida, Gadilimorpha, Gadilidae, Gadilinae].

RECENT SPECIES. — 53 [*aequatorialis* Jaekel, 1932; *amphora* Jeffreys, 1883; *ampullaceus* Watson, 1879; *aratus* Hedley, 1899; *artatus* Locard, 1897; *atlanticus* Henderson, 1920; *attenuatus* Monterosato, 1875; *californicus* Pilsbry & Sharp, 1898; *campylus* Melvill, 1906; *catharus* Henderson, 1920; *chuni* Jaekel, 1932; *colliverae* Lamprell & Healy, 1998; *congruens* Watson, 1879; *cucurbitus* Dall, 1881; *curtus* Watson, 1879; *cyathoides* Jaekel, 1932; *cylindratus* Jeffreys, 1877; *delicatulus* Suter, 1913; *euloides* Melvill & Standen, 1901; *exiguus* Watson, 1879; *florencae* Scarabino, 1995; *gibbus* Jeffreys, 1883; *glans* Scarabino, 1995; *gracilis* Jeffreys, 1877; *podagrinus* Henderson, 1920; *jeffreysi* (Monterosato, 1875); *labeyriei* Lamprell & Healy, 1998; *lunulus* Dall, 1881; *macleani* Emerson, 1978; *martini* Scarabino, 1995; *minusculus* Dall, 1889; *obesus* Watson, 1879; *occidius* Verco, 1911; *ovulum* Philippi, 1844; *parvus* Henderson, 1920; *platei* Jaekel, 1932; *platensis* Henderson, 1920; *podagrinus* Henderson, 1920; *propinquus* G. O. Sars, 1878; *rossoi* Nicklès,

1979; *rudmani* Lamprell & Healy, 1998; *siberutensis* Jaeckel, 1932; *simillimus* Watson, 1879; *simpsoni* Henderson, 1920; *sofae* Scarabino, 1995; *subfusiformis* (M. Sars, 1865); *teliger* Finlay, 1926; *tersus* Henderson, 1920; *thielei* Plate, 1908; *transitorius* Henderson, 1920; *tumidosus* Jeffreys, 1877; *valdiviae* Jaeckel, 1932; *vincentianus* Cotton & Godfrey, 1940; *woodhousae* Lamprell & Healy, 1998].

Calliodentalium Habe, 1964: 30.

TYPE SPECIES. — *Dentalium crocinum* Dall, 1907, by original designation.

Objective junior synonym: *Eboreidens* Chistikov, 1975 (n. syn., see under *Eboreidens*). [Dentaliida, Calliodentaliidae].

RECENT SPECIES. — 4 [*balanoides* (Plate, 1908); *calipeplum* (Dall, 1889); *crocinum* (Dall, 1907); *semitra-cheatum* (Boissevain, 1906)].

[F] *Calstevenus* Yancey, 1973: 1063.

TYPE SPECIES. — *Calstevenus arcturus* Yancey, 1973 [Lower Permian of Nevada, USA], by original designation. [Gadilida, Siphonodentaliidae].

Chistikovia Scarabino, 1995: 327.

TYPE SPECIES. — *Chistikovia kermadecae*, by original designation. [Gadilida, Gadilimorpha, Wemersoniellidae].

RECENT SPECIES. — 1 [*kermadecae* Scarabino, 1995].

“*Cladulus*” — Jaeckel 1932: 311, fig. 9.

Incorrect subsequent spelling of *Cadulus* Philippi, 1844.

[F] *Clavulites* Girty, 1904.

Not a scaphopod.

See section “Other taxa described as Scaphopoda”.

Coccodentalium Sacco, 1896: 98.

TYPE SPECIES. — *Dentalium radula* Gmelin, 1791 [fossil, Miocene of Italy], by original designation. Described as subgenus of *Dentalium* Linnaeus, 1758.

REMARK. — The authorship of the type species has frequently been attributed to “Schröter, 1784” (e.g., Emerson 1952a: 298, 1962: 469; Ludbrook 1960: I 38; Palmer 1974: 119, 1986: 395).

However, Schröter 1784 is a non-binomial publication (*vide* Sherborn 1902: xlvi). Kohn (1992: 40, 41) noted that most of the names in Schröter were validated by Gmelin (1791). [Dentaliida, Dentaliidae].

RECENT SPECIES. — 2 [*cancellatum* (Sowerby, 1860); *gemmiparum* (Melvill, 1909)].

Compressidens Pilsbry & Sharp, 1897: 123.

TYPE SPECIES. — *Dentalium pressum* Pilsbry & Sharp, 1897, by original designation.

REMARK. — Described as subgenus of *Dentalium* Linnaeus, 1758. [Gadilida, Gadilimorpha, *incertae sedis*].

RECENT SPECIES. — 9 [*brevicornu* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *comprimatum* Plate, 1908; *infimus* Scarabino, 1995; *kikuchii* (Kuroda & Habe, 1952); *ophiodon* (Dall, 1881); *platyceras* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *pressum* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *stearnsii* Pilsbry & Sharp, 1898; *wellsiana* Kraeuter, 1972].

Compressidentalium Habe, 1963: 260.

TYPE SPECIES. — *Dentalium hungerfordi* Pilsbry & Sharp, 1897, by original designation.

REMARK. — Described as a subgenus of *Fissidentalium* Fischer, 1885. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 10 [*ceciliae* Scarabino, 1995; *clathratum* (von Martens, 1881); *compressiusculum* (Boissevain, 1906); *hungerfordi* (Pilsbry & Sharp, 1897); *lardum* (Barnard, 1963); *sedecimcostatum* (Boissevain, 1906); *sibogae* (Boissevain, 1906); *subcurvatum* (E. A. Smith, 1906); *sumatrense* (Plate, 1908); *zanzibarense* (Plate, 1908)].

Costentalina Chistikov, 1982b: 1309.

TYPE SPECIES. — *Costentalina elegans* Chistikov, 1982b, by original designation. [Gadilida, Entalimorpha, Entalinidae, Heteroschismoidinae].

RECENT SPECIES. — 7 [*caymanica* Chistikov, 1982; *elegans* Chistikov, 1982; *indica* Chistikov, 1982; *leptoconcha* Chistikov, 1982; *pacifica* Chistikov, 1982; *tuscarorae* Chistikov, 1982; *vemae* Scarabino, 1986].

[F] *Cyrtocconella* Patruilius, 1996: 18.

TYPE SPECIES. — *Cyrtocconella tenuistriata* Patruilius, 1996 [Lower Bathonian-Callovia, Middle Jurassic of Romania], by monotypy. [*incertae sedis*].

REMARK. — This taxon was tentatively classified in the Scaphopoda.

“*Dantalium*” – Keen 1971: 884.

Incorrect subsequent spelling of *Dentalium* Linnaeus, 1758 (*vide* Keen & Coan 1975: 48).

Dentale Da Costa, 1778: 24.

TYPE SPECIES. — *Dentale vulgare* Da Costa, 1778, by monotypy.

Unavailable senior synonym of *Antalis* H. & A. Adams, 1854 (ICZN 1955).

Dentalia Perry, 1811: caption to pl. 52.

TYPE SPECIES. — *Dentalia viridis* Perry, 1811 (a junior synonym of *Dentalium elephantinum* Linnaeus, 1758), by subsequent designation (Emerson 1952a: 298).

Objective junior synonym of *Dentalium* Linnaeus, 1758.

“*Dentalinn*” – Pilsbry & Sharp 1898: xxviii.

Incorrect subsequent spelling of *Dentalium* Linnaeus, 1758.

Dentalites Gmelin, 1793: 420.

[For “*Helmintholithus dentalii*”: *marmoreus*, *radulae*, *interrupti*, *vitrei*, *sexanguli*].

REMARK. — The third volume of Gmelin’s edition of Linnaeus is unavailable for nomenclatorial purposes (ICZN 1954).

Dentalites Schlotheim, 1813: 91, 100, 110.

For fossil species *Dentalites striatus*, *Dentalites obsoletus*, and *Dentalites minutus*, all *nom. nud.* Junior homonym of *Dentalites* Gmelin, 1793 (unavailable name for fossil Scaphopoda). Under ICZN Article 20, *Dentalites* Schlotheim, 1813 is not a valid name of a taxon, and is only available for the purposes of homonymy.

REMARK. — Schlotheim (1820) described six new fossil species in combination with the name *Dentalites*: *D. laevis*, *D. cingulatus*, *D. torquatus*, *D. nodulosus*, *D. elephantinus*, and *D. radularis*. The subsequent designation of *Dentalium elephantinum* Linnaeus, 1758, as type species by Emerson (1952a: 298) was incorrect because it was not originally included in *Dentalites*.

Dentalium Linnaeus, 1758: 785.

TYPE SPECIES. — *Dentalium elephantinum* Linnaeus, 1758, by subsequent designation (Montfort 1810: 23); placed on the *Official List of Specific Names in Zoology* as the type species of *Dentalium* by ICZN Direction 72 (1957).

Junior synonyms: *Dentalia* Perry, 1811; *Entale* Herrmannsen, 1848 (*vide* Emerson 1952a, b). [Dentaliida, Dentaliidae].

RECENT SPECIES. — 67 [*adenense* Ludbrook, 1954; *agassizi* Pilsbry & Sharp, 1897; *aprinum* Linnaeus, 1767; *austini* Lamprell & Healy, 1998; *bisexangulatum* Sowerby, 1860; *buccinum* Gould, 1859; *burtonae* Lamprell & Healy, 1998; *caledonicum* Scarabino, 1995; *cheverti* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *collinsae* Lamprell & Healy, 1998; *congoensis* Plate, 1908; *cookei* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *crosonieri* Scarabino, 1995; *curtum* Sowerby, 1860; *dacostianum* Chenu, 1843; *decemcostatum* Brazier, 1877; *deforgesi* Scarabino, 1995; *duodecimcostatum* Brazier, 1877; *elephantinum* Linnaeus, 1758; *eupatrides* Melvill & Standen, 1907; *exmouthensis* Lamprell & Healy, 1998; *filosum* Broderip & Sowerby, 1830; *flavum* Scarabino, 1995; *garrardi* Lamprell & Healy, 1998; *goftoni* Lamprell & Healy, 1998; *grahami* Lamprell & Healy, 1998; *hedleyi* Lamprell & Healy, 1998; *hillae* Lamprell & Healy, 1998; *hyperhemileuron* Verco, 1911; *invalidum* Emerson, 1954; *javanum* Sowerby, 1860; *jeanae* Lamprell & Healy, 1998; *jelli* Lamprell & Healy, 1998; *katchekense* Fischer-Piette & Nicklès, 1946; *kathwayae* Lamprell & Healy, 1998; *kessneri* Lamprell & Healy, 1998; *laqueatum* Verrill, 1885; *lessoni* Deshayes, 1825; *letsonae* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *leucoryx* Boissvain, 1906; *lochi* Lamprell & Healy, 1998; *majorinum* Mabilie & Rochebrune, 1889; *mannarensense* Winckworth, 1927; *mediopacificensis* Rehder & Ladd, 1973; *michelottii* Hörnes, 1856; *neohexagonum* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *obscurum* Dall, 1889; *obrusum* Qi & Ma, 1989; *octangulatum* Donovan, 1803; *oerstedii* Mörch, 1861; *oryx* Boissvain, 1906; *peitaihoensis* King & Ping, 1935; *pluricostatum* Boissvain, 1906; *potteri* Lamprell & Healy, 1998; *reevei* Fischer, 1871; *regulare* E. A. Smith, 1903; *robustum* Brazier, 1877; *rowei* Lamprell & Healy, 1998; *siberutense* Plate, 1908; *strigatum* Gould, 1859; *stumkatae* Lamprell & Healy, 1998; *tomlini* Melvill, 1918; *vallicolens* Raymond, 1904; *variabile* Deshayes, 1825; *vayssierei* Fenaux, 1942; *wellsi* Lamprell & Healy, 1998; *woolacottae* Lamprell & Healy, 1998].

“*Dentaliumu*” – Habe 1963: 255.

Incorrect subsequent spelling of *Dentalium* Linnaeus, 1758.

Dentalius Forbes, 1841: 253.

Incorrect subsequent spelling of *Dentalium* Linnaeus, 1758; placed on the *Official Index of Rejected and Invalid Generic Names in Zoology* (ICZN 1957: 186).

“*Dertalium*” – Krotova 1885: 153.

Incorrect subsequent spelling of *Dentalium* Linnaeus, 1758.

“*Dicides*” – Pilsbry & Sharp 1898: 253.

Incorrect subsequent spelling of “*Discides*” Sacco, 1897, itself an incorrect subsequent spelling of *Dischides* Jeffreys, 1867.

“*Discides*” – Sacco 1897: 115.

Incorrect subsequent spelling of *Dischides* Jeffreys, 1867.

Dischides Jeffreys, 1867: 251.

TYPE SPECIES. — *Dentalium bifissum* S. Wood, 1848, by monotypy.

REMARK. — *Dentalium bifissum* is a junior synonym of *Dentalium politum* (S. Wood, 1842) (*vide* Pilsbry & Sharp 1897: 144). [Gadilida, Gadilimorpha, Gadilidae].

RECENT SPECIES. — 12 [*atlantideus* Nicklès, 1955; *belcheri* Pilsbry & Sharp, 1898; *dartevellei* Nicklès, 1979; *dichelus* (Watson, 1879); *hintoni* Lamprell & Healy, 1998; *leloeuffi* Nicklès, 1979; *minutus* (H. Adams, 1872); *ovalis* Boissevain, 1906; *politum* (S. Wood, 1842); *prionotus* (Watson, 1879); *viperidens* (Melvill & Standen, 1896); *yateensis* Scarabino, 1995].

Eboreidens Chistikov, 1975: 18-19.

TYPE SPECIES. — Now fixed (under ICZN Article 70.3) as *Calliodentalium crocinum* (Dall, 1907), misidentified as *Dentalium lacteum* Deshayes, 1825, in the original designation by Chistikov (1975). Objective junior synonym of *Calliodentalium* Habe, 1964.

REMARK. — Scarabino (1995: 243), as the first reviser, pointed out that Chistikov’s (1975) description and illustration are “not corresponding to the characteristics of *G.* [*Graptacme*] *lactea*. Examination of the figure of the radula [...] indicates that Chistikov’s species is

Calliodentalium crocinum”. The first author (GS) has examined Chistikov’s specimens labelled “*Eboreidens*” and confirms the conclusion reached by Scarabino (1995).

Emersoniella Boss, 1982: 1166 (*ex* Scarabino MS) *non* Tendeiro, 1965 (Insecta). *Nomen nudum*.

REMARK. — Subsequently, Scarabino (1986a) described *Wemersoniella* for this taxon.

Entale Herrmannsen, 1847 (vol. 1: 423).

TYPE SPECIES. — *Dentalium elephantinum* Linnaeus, 1758, by subsequent designation (Emerson 1952: 298).

Objective junior synonym of *Dentalium* Linnaeus, 1758.

Entalina Monterosato, 1872: 27.

TYPE SPECIES. — *Dentalium tetragonum* Brocchi, 1814, by subsequent designation (Sacco 1897: 114).

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Gadilida, Entalimorpha, Entalinidae, Entalininae].

RECENT SPECIES. — 7 [*adenensis* Ludbrook, 1954; *dorsicostata* Lamprell & Healy, 1998; *inaequisculpta* Ludbrook, 1954; *mirifica* (E. A. Smith, 1895); *platomodes* (Watson, 1879); *subterlineata* (Tomlin, 1931); *tetragona* (Brocchi, 1814)].

Entalinopsis Habe, 1957: 132.

TYPE SPECIES. — *Dentalium nivosum* Kuroda & Kikuchi, 1933, by original designation.

REMARK. — *Dentalium nivosum* is a junior synonym of *Entalinopsis intercostata* (Boissevain, 1906) (*vide* Habe 1963: 272). *Entalinopsis* was described as subgenus of *Entalina* Monterosato, 1872. [Gadilida, Entalimorpha, Entalinidae, Heteroschismoidinae].

RECENT SPECIES. — 4 [*habutae* (Kuroda & Kikuchi, 1933); *intercostata* (Boissevain, 1906); *micra* Scarabino, 1995; *stellata* Scarabino, 1995].

Entaliopsis Newton & Harris 1894: 66.

Replacement name for *Entalis* Gray, 1847 *non* *Entalis* Sowerby, 1839 (Annelida).

TYPE SPECIES. — “*Dentalium e.* Desh 1825” (= *Dentalium entalis* Linnaeus, 1758, *vide*

Emerson 1951: 18), by original designation (of *Entalis* Gray, 1847).

Objective junior synonym of *Antalis* H. & A. Adams, 1854 (*vide* Emerson 1952a: 298; ICZN 1955).

Entalis Gray, 1847: 158.

TYPE SPECIES. — “*Dentalium e.* Desh 1825” (= *Dentalium entalis* Linnaeus, 1758, *vide* Emerson 1951: 18), by original designation.

Junior homonym of *Entalis* Sowerby, 1839 (Annelida).

Replacement name: *Entaliopsis* Newton & Harris, 1894, an objective junior synonym of *Antalis* H. & A. Adams (*vide* Emerson 1952a: 298).

“*Entaliscri*” – Preston 1922: 54.

Incorrect subsequent spelling of *Entalis* Gray, 1847.

Entalites Walch, 1768: 276.

Junior synonym of *Dentalium* Linnaeus, 1758 (*vide* Herrmannsen 1847: 423).

REMARK. — Walch’s publication was rejected as an invalid non-binominal work (ICZN 1958).

[F] *Eodentalium* Medina & Del Valle, 1985: 3.

TYPE SPECIES. — *Eodentalium grandis* Medina & Del Valle, 1985 [Upper Cretaceous of Antarctica], by original designation. [Dentaliida, Dentaliidae].

Epirhabdoides Steiner, 1999: 153.

TYPE SPECIES. — *Epirhabdoides ivanovi* Steiner, 1999, by original designation. [Dentaliida, Anulidentaliidae].

RECENT SPECIES. — 1 [*ivanovi* Steiner, 1999].

Episiphon Pilsbry & Sharp, 1897: 117.

TYPE SPECIES. — *Dentalium sowerbyi* Guilding, 1834, by subsequent designation (Suter 1913: 821).

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliida, Gadiliniidae, Episiphoninae].

RECENT SPECIES. — 19 [*attenuatum* (Sowerby, 1860); *bordaensis* Cotton & Ludbrook, 1938; *candelatum* Kira, 1959; *didymum* (Watson, 1879); *filum*

(Sowerby, 1860); *fistula* (Sowerby, 1860); *gazellae* Plate, 1908; *innumerabile* Pilsbry & Sharp, 1897; *jamesoni* Lamprell & Healy, 1998; *kiaochowwanense* Tchang & Tsi, 1950; *longum* Sharp & Pilsbry in Pilsbry & Sharp, 1897; *minutissimum* Ludbrook, 1954; *pichoni* Lamprell & Healy, 1998; *sominium* (Okutani, 1964); *sowerbyi* (Guilding, 1834); *subrectum* (Jeffreys, 1883); *subtorquatum* (Fischer, 1871); *truncatum* (Boissevain, 1906); *virginiae* Scarabino, 1995].

Eudentalium Cotton & Godfrey, 1933: 140.

TYPE SPECIES. — *Dentalium quadricostatum* Brazier, 1877, by original designation.

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 1 [*quadricostatum* (Brazier, 1877)].

Fissidentalium Fischer, 1885: 894.

TYPE SPECIES. — *Dentalium ergasticum* Fischer, 1883, by monotypy.

REMARK. — *Dentalium ergasticum* is a junior synonym of *Dentalium capillosum* Jeffreys, 1877. *Fissidentalium* was described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 41 [*actiniophorum* Shimek, 1997; *aegeum* (Watson, 1879); *amphialum* (Watson, 1879); *candidum* (Jeffreys, 1877); *capillosum* (Jeffreys, 1877); *carduum* (Dall, 1889); *ceras* (Watson, 1879); *complexum* (Dall, 1895); *concinnum* (von Martens, 1878); *cornubovis* (E. A. Smith, 1906); *edenensis* Lamprell & Healy, 1998; *elizabethae* Lamprell & Healy, 1998; *erosum* Shimek & Moreno, 1996; *eualdes* (Barnard, 1963); *exasperatum* (Sowerby, 1903); *franklinae* Lamprell & Healy, 1998; *horikoshii* Okutani, 1982; *kawamurai* Kuroda & Habe in Habe, 1961; *laterischismum* Shikama & Habe, 1963; *levii* Scarabino, 1995; *magnificum* (E. A. Smith, 1896); *malayanum* (Boissevain, 1906); *megathyris* (Dall, 1890); *metivieri* Scarabino, 1995; *opacum* (Sowerby, 1829); *paucicostatum* (Watson, 1879); *peruvianum* (Dall, 1908); *platypleurum* Tomlin, 1931; *ponderi* Lamprell & Healy, 1998; *profundorum* (E. A. Smith, 1894); *salpinx* Tomlin, 1931; *semivestitum* (Locard, 1897); *serrulatum* (E. A. Smith, 1906); *shirleyae* Lamprell & Healy, 1998; *shoplandi* (Jousseau, 1894); *tenuicostatum* Qi & Ma, 1989; *verconis* Cotton & Ludbrook, 1938; *vicidani* Kosuge, 1981; *waterhousae* Lamprell & Healy, 1998; *yokoyamai* (Makiyama, 1931); *zelandicum* (Sowerby, 1860)].

Fissipulsellum Palmer, 1986: 396 (*ex* Scarabino MS).

TYPE SPECIES. — *Dentalium teres* Jeffreys, 1877. *Nomen nudum*.

REMARK. — Vaught (1989: 143) listed the *nomen nudum*, *Fissipulsellum* “Scarabino, 1979”, as a subgenus of *Pulsellum* Stoliczka, 1868.

“*Fustiaria*” – Noszky 1936: 83.

Incorrect subsequent spelling of *Fustiaria* Stoliczka, 1868.

“*Fustiaria*” – Fischer 1969: 76.

Incorrect subsequent spelling for *Fustiaria* Stoliczka, 1868.

Fustiaria Stoliczka, 1868: 439.

TYPE SPECIES. — *Dentalium circinatum* Sowerby, 1823 [fossil, Eocene of France], by subsequent designation (Pilsbry & Sharp 1897: 127).

Junior synonym: *Pseudantalis* Monterosato, 1884 (*fide* Emerson 1952b: 204; *fide* Steiner 1991: 2; but not according to Palmer 1974: 118; see also under *Pseudantalis*).

REMARK. — Cossmann (1888: 9) had previously designated *Dentalium politum* Linnaeus, 1758, as the type species; this designation was invalid as that nominal species was not an originally included species (ICZN Article 67.2). [Dentaliida, Fustiariidae].

RECENT SPECIES. — 11 [*caesura* (Colman, 1958); *crozieri* Nicklès, 1979; *engischista* (Barnard, 1963); *gruveli* (Dautzenberg, 1910); *langfordi* (Habe, 1963); *lodon* (Pilsbry & Sharp, 1897); *nipponica* Yokoyama, 1922; *politum* (Linnaeus, 1767); *rubescens* (Deshayes, 1825); *stenoschiza* Pilsbry & Sharp, 1897; *vagina* Scarabino, 1995].

Gadila Gray, 1847: 159.

TYPE SPECIES. — *Dentalium gadus* Montagu, 1803, by original designation.

Junior synonyms: *Helonyx* Stimpson, 1865; *Gadilopsis* Woodring, 1925 (*fide* Emerson 1962: 478); *Platyschides* Henderson, 1920 (*fide* Scarabino 1995: 196, 355). [Gadilida, Gadilimorpha, Gadilidae, Gadilinae].

RECENT SPECIES. — 65 [*aberrans* (Whiteaves, 1887); *abruptoinflata* Boissevain, 1906; *acuminata* (Tate, 1887); *acus* (Dall, 1889); *aequalis* (Dall, 1881); *agasizii* (Dall, 1881); *amianta* (Dall, 1889); *anguidens* (Melvill & Standen, 1898); *angustior* (Verco, 1911); *arctus* (Henderson, 1920); *austinclarki* (Emerson, 1951); *boissevainae* Jaekel, 1932; *bordaensis* Cotton &

Godfrey, 1940; *boucheti* Nicklès, 1979; *braziliensis* (Henderson, 1920); *brycei* Lamprell & Healy, 1998; *bushii* (Dall, 1889); *carlessi* Lamprell & Healy, 1998; *clavata* (Gould, 1859); *cobbi* Lamprell & Healy, 1998; *desaintlaurentae* Scarabino, 1995; *divae* (Vélain, 1877); *dominguense* (d'Orbigny, 1853); *doumenci* Scarabino, 1995; *elenae* Scarabino, 1995; *elephas* (Henderson, 1920); *fraseri* Nicklès, 1955; *gada* (Montagu, 1803); *greenlawi* Lamprell & Healy, 1998; *honoluluensis* (Watson, 1879); *iota* Henderson, 1920; *ludbrookae* (Cotton & Godfrey, 1940); *marchadi* Nicklès, 1979; *majori* Henderson, 1920; *minutalis* Scarabino, 1995; *monodonta* Scarabino, 1995; *nicklesi* (Dell, 1964); *olivi* (Scacchi, 1835); *opportuna* Kuroda & Habe in Habe, 1961; *pandionis* (Verrill & Smith in Verrill, 1880); *perpusilla* (Sowerby in Broderip & Sowerby, 1832); *peruviana* Dall, 1908; *platystoma* Pilsbry & Sharp, 1898; *providens* (Henderson, 1920); *pseudolivae* (Boissevain, 1906); *rastridens* (Watson, 1879); *regularis* Henderson, 1920; *rushii* Pilsbry & Sharp, 1898; *sagamiensis* Kuroda, Habe & Oyama, 1971; *sauridens* (Watson, 1879); *senegalensis* (Locard, 1897); *singaporensis* Sharp & Pilsbry in Pilsbry & Sharp, 1898; *spretta* (Tate & May, 1900); *strangulata* (Locard, 1897); *striata* Pilsbry & Sharp, 1898; *subcolubridens* Ludbrook, 1954; *subtilis* Plate, 1908; *subula* Henderson, 1920; *tolmiei* (Dall, 1897); *verrilli* Henderson, 1920; *virginalis* Boissevain, 1906; *vulpidens* (Watson, 1879); *watsoni* (Dall, 1881); *whitneyae* Lamprell & Healy, 1998; *zonata* (Boissevain, 1906)].

“*Gadilia*” – Tate & May 1900: 102.

Incorrect subsequent spelling of *Gadila* Gray, 1847.

Gadilina Foresti, 1895: 259.

TYPE SPECIES. — *Dentalium triquetrum* Brocchi, 1814 [fossil, Miocene of Italy], by monotypy.

REMARK. — Described as a subgenus of *Siphonodentalium* M. Sars, 1859. [Dentaliida, Gadiliniidae, Gadiliniinae].

RECENT SPECIES. — 2 [*insolita* (E. A. Smith, 1894); *pachypleura* Boissevain, 1906].

[F] *Gadilopsis* Woodring, 1925: 206.

TYPE SPECIES. — *Ditrupa dentalina* Guppy, 1873 [Miocene of Jamaica], by original designation.

REMARK. — Described as a “section” [= subgenus] of *Cadulus* Philippi, 1844. [Gadilida, Gadilimorpha, Gadilidae].

[F] *Gadus* Deshayes, 1861 [in 1861-1864]: 217-218 (*ex* Rang MS).

Junior homonym of *Gadus* Linnaeus, 1758 (Pisces).

TYPE SPECIES. — Not specified; three originally included species [*Gadus parisiensis*, *Gadus bilabiatatus*, and *Gadus brevis*, all Deshayes, 1861 (fossil, Eocene of France)].

REMARK. — The scaphopod species referred to *Gadus* Deshayes are now classified in *Gadila* Gray, 1847; therefore, *Gadus* Deshayes is herein considered to be a junior synonym of *Gadila* Gray.

“*Graotacma*” – Shikama 1964: 35, caption to fig. 62 (4).

Incorrect subsequent spelling for *Graptacme* Pilsbry & Sharp, 1897.

Graptacme Pilsbry & Sharp, 1897: 85.

TYPE SPECIES. — *Dentalium eboreum* Conrad, 1846 by subsequent designation (Woodring 1925: 201).

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliidae, Dentaliidae].

RECENT SPECIES. — 17 [*acicula* (Gould, 1859); *acuticostata* Plate, 1908; *acutissima* (Watson, 1879); *africana* (Sowerby, 1903); *calama* (Dall, 1889); *eborea* (Conrad, 1846); *elpis* (Winckworth, 1927); *inversa* (Deshayes, 1825); *lactea* (Deshayes, 1825); *marchadi* Nicklès, 1979; *nielsenii* Lamprell & Healy, 1998; *novaeollandiae* (Chenu, 1843); *perlonga* (Dall, 1881); *sectis* (Deshayes, 1825); *semistriata* (Turton, 1819); *splendida* (Sowerby in Broderip & Sowerby, 1832); *takakoae* Tsuchida & Tachi, 1999].

Helonyx Stimpson, 1865: 63.

TYPE SPECIES. — *Dentalium clavatum* Gould, 1859, by original designation.

Junior synonym of *Gadila* Gray, 1847 (*vide* Pilsbry & Sharp 1898: 162).

[F] *Hensonella* Elliott, 1960.

Not a scaphopod.

See section “Other taxa described as Scaphopoda”.

Heteroschisma Simroth, 1895: 460.

TYPE SPECIES. — *Dentalium subterfissum* Jeffreys, 1877, by subsequent designation (of *Heteroschismoides*) (Ludbrook 1960: I 39).

Described as subgenus of *Dentalium*, for *D. incertum* Deshayes, 1825 [fossil], *D. subterfissum* Jeffreys, 1877, *D. leoninae* Meunier, 1878 [fossil].

Junior homonym of *Heteroschisma* Wachsmuth, 1893 (Echinodermata).

Replacement name: *Heteroschismoides* Ludbrook, 1960.

REMARK. — Although Ludbrook (1960: I 39) attributed the subsequent designation of *D. subterfissum* as type species to Pilsbry & Sharp (1897) she was the first to do so. Pilsbry & Sharp (1897: 61-62) stated that “if adopted as a subgeneric or sectional name it may be restricted to species of the *subterfissum* type” and listed *D. subterfissum* and *D. callithrix* under the heading *Heteroschisma*. This statement by Pilsbry & Sharp does not constitute a valid type species designation according to ICZN Article 67.5.

Heteroschismoides Ludbrook, 1960: I 39.

TYPE SPECIES. — *Dentalium subterfissum* Jeffreys, 1877, by original designation.

Replacement name for *Heteroschisma* Simroth, 1895, non *Heteroschisma* Wachsmuth, 1893 (Echinodermata). [Gadilida, Entalimorpha, Entalinidae, Heteroschismoidinae].

RECENT SPECIES. — 1 [*subterfissus* (Jeffreys, 1877)].

Laevidentalium Cossmann, 1888: 7.

TYPE SPECIES. — *Dentalium incertum* Deshayes, 1825 [fossil, Eocene of France], by original designation.

REMARK. — Described as a subgenus (“section”) of *Dentalium* Linnaeus, 1758. [Dentaliida, Laevidentaliidae].

RECENT SPECIES. — 19 [*ambiguum* (Chenu, 1843); *arnoldi* Lamprell & Healy, 1998; *banale* Boissevain, 1906; *bisinuatum* (André, 1896); *coruscum* Pilsbry, 1905; *eburneum* (Linnaeus, 1767); *ensiforme* (Chenu, 1842); *erectum* (Sowerby, 1860); *gofasi* Scarabino, 1995; *houbricki* Scarabino, 1995; *jaffaensis* (Cotton & Ludbrook, 1938); *largicrescens* Tate, 1899; *lebruni* (Mabille & Rochebrune in Rochebrune & Mabille, 1889); *leptosceles* (Watson, 1879); *lubricatum* (Sowerby, 1860); *marshae* Lamprell & Healy, 1998; *martyi* Lamprell & Healy, 1998; *translucidum* (Deshayes, 1825); *zeidleri* Lamprell & Healy, 1998].

“*Laevidentialium*” – Okutani 1966: 13.

Incorrect subsequent spelling of *Laevidentalium* Cossmann, 1888.

Lentigodentalium Habe, 1963: 258.

TYPE SPECIES. — *Dentalium variabile* Deshayes, 1825, by original designation.

Junior synonym of *Dentalium* (*fide* Scarabino 1995: 194).

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758.

“*Loxoporus*” – Simroth 1895: 466.

Incorrect subsequent spelling of *Loxoporus* Jeffreys, 1868.

[F] *Lobantale* Cossmann, 1888: 7.

TYPE SPECIES. — *Dentalium duplex* DeFrance, 1819 [Eocene of Paris Basin], by original designation.

REMARK. — Described as a subgenus (“section”) of *Dentalium* Linnaeus, 1758. [Gadiliniidae, Lobantalininae].

Lobinterna Cossmann, 1919 [1920?]: 140 [88].

TYPE SPECIES. — *Dentalium subburneum* d’Orbigny, 1850, by original designation.

REMARK. — Described as a “section” (subgenus) of *Pseudantalis* Monterosato, 1884. This taxon was overlooked by subsequent scaphopod researchers (e.g., Emerson 1952a, 1962; Ludbrook 1960).

“*Loevidentalium*” – Dechaseaux 1952: 218.

Incorrect subsequent spelling of *Laevidentalium* Cossmann, 1888.

Loxoporus Jeffreys, 1868: 664; 1869: 233.

TYPE SPECIES. — Now fixed (under ICZN Article 70.3) as *Cadulus jeffreysi* (Monterosato, 1875), misidentified as *Siphonodentalium subfusiformis* Sars, 1865 (*fide* Monterosato 1875: 20, confirmed by Jeffreys 1883: 664–665), in the monotypic designation.

Junior synonym of *Cadulus* Philippi, 1844 (*fide* Jeffreys 1883: 664).

REMARK. — Jeffreys listed this name as “*Cadulus* (or *Loxoporus*) *subfusiformis*” in his discussion of the Shetland Islands deep-water fauna. Jeffreys (1883: 664) stated that “I proposed in 1869 [sic, 1868] the generic name *Loxoporus*, if Philippi’s

name *Cadulus* were not applicable to this group of shells”. Pilsbry & Sharp (1898: 162) incorrectly stated that *Loxoporus* was “apparently undescribed, and type unknown (said by Sacco to be *C. subfusiformis* Sars)”. Emerson (1962: 478) listed *Loxoporus* as a junior synonym of *Gadila* Gray, 1847, but erroneously dated this name to “Jeffreys, 1883” and stated that the type species was *Dentalium olivi* Scacchi, 1835, “by monotypy”. This is incorrect, since *D. olivi* was not an originally included species. The correct type species of *Loxoporus* is currently classified in *Cadulus*, not *Gadila*.

Megaentalina Habe, 1963: 272.

TYPE SPECIES. — *Megaentalina teramachii* Habe, 1963, by original designation.

REMARK. — *Megaentalina teramachii* is a junior synonym of *Megaentalina mediocarinata* (Boissevain, 1906) (*fide* Habe 1964: 42). [Gadilida, Gadilimorpha, *incertae sedis*].

RECENT SPECIES. — 2 [*cornucopiae* (Boissevain, 1906); *mediocarinata* (Boissevain, 1906)].

Omniglypta Kuroda & Habe *in* Habe, 1953: 296.

TYPE SPECIES. — *Dentalium cerinum* Pilsbry, 1905, by original designation. [Dentaliida, Omniglyptidae].

RECENT SPECIES. — 1 [*cerina* (Pilsbry, 1905)].

[F] *Paleodentalium* Gentile, 1974: 1213.

TYPE SPECIES. — *Dentalium (Paleodentalium) kansasense* Gentile, 1974 [Carboniferous, Pennsylvanian, of USA], by monotypy.

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliida, Dentaliidae].

Paradentalium Cotton & Godfrey, 1933: 139.

TYPE SPECIES. — *Dentalium intercalatum* Gould, 1859, by original designation.

REMARK. — Emerson (1952a: 299; 1962: 467) pointed out that Cotton & Godfrey (1933) had misidentified specimens of *Dentalium bednalli* Pilsbry & Sharp, 1897 as representing the type species, *Dentalium intercalatum* Gould, 1859. However, Verco (1904: 135) had synonymized

these two species. Subsequently, *Paradentalium* was used as a valid genus by Palmer (1974: 118) with the type species as *Dentalium bednalli*, and by Scarabino (1995: 194, 216) who listed the type species as *Dentalium intercalatum*. Most recently, Lamprell & Healy (1998: 59, 61) confirmed the synonymy of Verco (1904), thereby rejecting the conclusions of Emerson and Palmer.

RECENT SPECIES. — 14 [*americanum* (Chenu, 1843); *angustistriatum* Chistikov, 1979; *flindersi* Cotton & Ludbrook, 1938; *francisense* (Verco, 1911); *gradile* Chistikov, 1979; *hemileuron* (Verco, 1911); *hexagonum* (Gould, 1859); *intercalatum* (Gould, 1859); *katowense* (Brazier, 1877); *natalense* (Barnard, 1963); *octopleuron* (Verco, 1911); *pistis* (Winckworth, 1940); *pseudo-sexagonum* (Deshayes, 1825); *rudoi* Scarabino, 1995].

Pertusiconcha Chistikov, 1982a: 677-679.

TYPE SPECIES. — *Dentalium callithrix* Dall, 1889, by original designation. [Gadilida, Entalimorpha, Entalinidae, Heteroschismoidinae].

RECENT SPECIES. — 2 [*callithrix* (Dall, 1889); *tridentata* Chistikov, 1982].

Pictodentalium Habe, 1963: 255.

TYPE SPECIES. — *Dentalium (Pictodentalium) formosum hirasei* Kira, 1959, by original designation.

REMARK. — *Dentalium (Pictodentalium) formosum hirasei* is a junior synonym of *Pictodentalium formosum* (A. Adams & Reeve, 1850) (*vide* Scarabino 1995: 267). Since the generic name was introduced as a *nomen nudum* by Kira (1959: 105), Bieler & Petit (1990: 141) initially attributed the authorship to Palmer (1974), but later (Bieler & Petit 1996: 34) corrected this to Habe (1963) who provided a diagnosis and described the type species, which was subsequently placed in synonymy with *Pictodentalium formosum* by Scarabino (1995). [Dentaliida, Dentaliidae].

RECENT SPECIES. — 3 [*festivum* (Sowerby, 1914); *formosum* (A. Adams & Reeve, 1850); *vernedei* (Hanley in Sowerby, 1860)].

[F] *Pipadentalium* Yoo, 1988: 249.

TYPE SPECIES. — *Pipadentalium protuberans* Yoo, 1988 [Lower Carboniferous of Australia], by original designation. [Dentaliida, Laevidentaliidae].

Plagioglypta Pilsbry in Pilsbry & Sharp, 1898: xxxi-xxxii.

TYPE SPECIES. — *Dentalium undulatum* Münster, 1844 [fossil, Triassic of Austria], by original designation. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 1 [*pertracheata* Plate, 1908].

Platyschides Henderson, 1920: 104.

TYPE SPECIES. — *Cadulus grandis* Verrill, 1884, by original designation. Junior synonym of *Gadila* Gray, 1847 (*vide* Scarabino 1995: 196, 355).

REMARK. — Described as a subgenus of *Cadulus* Philippi, 1844.

[F] *Polylophia* Clark, 1925.

Not a scaphopod.

See section "Other taxa described as Scaphopoda".

Polyschides Pilsbry & Sharp, 1898: 146-147.

TYPE SPECIES. — *Cadulus tetraschistus* Watson, 1879, by original designation.

REMARK. — Described as a subgenus ("section") of *Cadulus* Philippi, 1844. [Gadilida, Gadilimorpha, Gadilidae, Siphonodentaliinae].

RECENT SPECIES. — 23 [*andersoni* Lamprell & Healy, 1998; *arnaudi* Scarabino, 1995; *carolinensis* (Dall, 1889); *cuspidatus* Nicklès, 1979; *elongatus* (Henderson, 1920); *fausta* Kuroda, Habe & Oyama, 1971; *foweyensis* (Henderson, 1920); *gibbosus* Verco, 1911; *grandis* (Verrill, 1884); *kaiyomaruae* Okutani, 1975; *miamiensis* (Henderson, 1920); *nedallisoni* Emerson, 1978; *nitidus* (Henderson, 1920); *pelamidae* Chistikov, 1979; *poculum* (Dall, 1889); *portoricensis* (Henderson, 1920); *quadrifissatus* Pilsbry & Sharp, 1898; *sakuraii* (Kuroda & Habe in Habe, 1961); *spectabilis* (Verrill, 1885); *sutherlandi* Lamprell & Healy, 1998; *tetraschistus* (Watson 1879); *tetrodon* Pilsbry & Sharp, 1898; *vietnamicus* Chistikov, 1979].

[F] *Prodentalium* Young, 1942: 120.

TYPE SPECIES. — *Prodentalium raymondi* Young, 1942 [Carboniferous, Pennsylvanian of New Mexico, USA], by original designation.

REMARK. — Described as genus of the family Dentaliidae. [Dentaliida, Dentaliidae].

[F] *Progadilina* Palmer, 1974: 118.

TYPE SPECIES. — *Dentalium trigonale* Moore, 1866 [Lower Jurassic of England], by original designation.

REMARK. — Emerson (1978: 118) erroneously listed *D. undulatum* as the type species; this is actually the type species of *Plagioglypta* Pilsbry & Sharp, 1897 (see Palmer 1987: 30-31). [Dentaliida, *incertae sedis*].

Pseudantalis Monterosato, 1884: 32.

TYPE SPECIES. — *Dentalium rubescens* Deshayes, 1825, by subsequent designation (Sacco 1897: 111). [Dentaliidae, Fustiariidae].

Junior synonym of *Fustiaria* Stoliczka, 1868 (*vide* Emerson 1952b: 204; *vide* Steiner 1991: 2; but not according to Palmer 1974: 118).

REMARK. — Emerson (1952b) analysed the complex history of misidentifications and subsequent type species designations for *Fustiaria* and *Pseudantalis*. He came to the conclusion that the type species of *Pseudantalis*, *Dentalium rubescens*, was referable to the genus *Fustiaria*, a decision he favored for nomenclatorial stability. Consequently, he used *Pseudantalis* as a subjective junior synonym of *Fustiaria*. Palmer (1974), however, kept the smooth-shelled *Pseudantalis* species separate from *Fustiaria circinatum*, the annulated type species of *Fustiaria*. Emerson's argument is herein given preference, as in Steiner (1991), especially because Stoliczka (1868) neither mentioned annulated shells in the diagnosis nor described an annulated species in combination with *Fustiaria*.

"*Pseudantalis*" – Habe & Kosuge 1964: 6.

Incorrect subsequent spelling of *Pseudantalis* Monterosato, 1884.

"*Pulchellum*" – Morlet 1888: 159 (*ex* Cossmann MS).

Incorrect subsequent spelling of *Pulsellum* Stoliczka, 1868.

Pulsellum Stoliczka, 1868: 441.

TYPE SPECIES. — *Siphonodentalium lofotense* M. Sars, 1865, by subsequent designation (Cossmann 1888: 11). [Gadilida, Gadilimorpha, Pulsellidae].

RECENT SPECIES. — 15 [*affine* (M. Sars, 1865); *beecheyi* Lamprell & Healy, 1998; *bushi* Henderson, 1920; *eboracense* (Watson, 1879); *falklandicum* Dell, 1964; *fragile* Scarabino, 1995; *hige* Habe, 1963; *kurogenge* Habe & Kosuge, 1964; *lofotense* (M. Sars, 1865);

occidentale Henderson, 1920; *pusillum* (Watson, 1879); *salishorum* Marshall, 1980; *teres* (Jeffreys, 1883); *thomassini* Lamprell & Healy, 1998; *verrilli* (Henderson, 1920)].

[F] *Quasidentalium* Shimansky, 1974.

Not a scaphopod.

See section "Other taxa described as Scaphopoda".

Rhabdus Pilsbry & Sharp, 1897: 112.

TYPE SPECIES. — *Dentalium rectius* Carpenter, 1864, by original designation.

REMARK. — Described as a subgenus of *Dentalium* Linnaeus, 1758. [Dentaliida, Rhabdidae].

RECENT SPECIES. — 6 [*aequatorius* Pilsbry & Sharp, 1897; *dalli* Pilsbry & Sharp, 1897; *perceptum* (Mabille & Rochebrune in Rochebrune & Mabille, 1889); *rectius* (Carpenter, 1864); *toyamaense* (Kuroda & Kikuchi, 1933); *watsoni* Pilsbry & Sharp, 1897].

"*Rhomboxifus*" – Palmer, 1986: 396.

Incorrect subsequent spelling of *Rhomboxiphus* Chistikov, 1983.

Rhomboxiphus Chistikov, 1983: 185.

TYPE SPECIES. — *Dentalium (Bathoxiphus) tricarinatus* Boissevain, 1906, by original designation.

REMARK. — Described as a subgenus of *Bathoxiphus* Pilsbry & Sharp, 1897. [Gadilida, Entalimorpha, Entalinidae, Bathoxiphinae].

RECENT SPECIES. — 2 [*colmani* (Palmer, 1974); *tricarinatus* (Boissevain, 1906)].

[F] *Rhytidentalium* Pojeta & Runnegar, 1979: 530-531.

TYPE SPECIES. — *Rhytidentalium kentuckyensis* Pojeta & Runnegar, 1979 [Upper Middle Ordovician of USA], by original designation. [Dentaliida, Laevidentaliidae].

Sagamicadulus Sakurai & Shimazu, 1963: 250.

TYPE SPECIES. — *Striocadulus (Sagamicadulus) elegantissimus* Sakurai & Shimazu, 1963, by monotypy.

REMARK. — Described as a subgenus of *Striocadulus* Emerson, 1962. [Gadilida, Gadilimorpha, Gadilidae, Siphonodentaliinae].

RECENT SPECIES. — 1 [*elegantissimus* Sakurai & Shimazu, 1963].

Schizodentalium Sowerby, 1894: 158.

TYPE SPECIES. — *Schizodentalium plurifissuratum* Sowerby, 1894, by monotypy. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 1 [*plurifissuratum* Sowerby, 1894].

[F] *Scissuradentalium* Yoo, 1988: 249.

TYPE SPECIES. — *Scissuradentalium runnegari* Yoo, 1988 [Lower Carboniferous of Australia], by original designation. [Dentaliida, Laevidentaliidae].

Siphonentalis G. O. Sars, 1878: 104.

TYPE SPECIES. — *Siphonodentalium lofotense* M. Sars, 1865, by subsequent designation (Emerson 1952a: 300).

Objective junior synonym of *Pulsellum* Stoliczka, 1868.

“*Siphodentalis*” – Paetel 1888: 565.

Incorrect subsequent spelling of *Siphonentalis* G. O. Sars, 1878.

Siphodentalium Monterosato, 1874: 258.

Unjustified emendation of *Siphonodentalium* M. Sars, 1859, and a name introduced in synonymy. It is available under ICZN Article 11.6.1 through its subsequent use by Jeffreys (1877: 155, and later) and Watson (1879 and later).

“*Siphonodentalis*” – Clessin 1896: 30.

Incorrect subsequent spelling of *Siphonentalis* G. O. Sars, 1878.

Siphonodentalium M. Sars, 1859: 52; 1860: 183.

TYPE SPECIES. — *Dentalium vitreum* M. Sars, 1851, by monotypy.

REMARK. — *Dentalium vitreum* is a junior homonym of *Dentalium vitreum* Gmelin, 1791. Pilsbry & Sharp (1897: 136-137) recognized that *D. vitreum* was preoccupied and replaced it by its junior synonym *Dentalium lobatum* Sowerby, 1860. [Gadilida, Gadilimorpha, Gadilidae, Siphonodentaliinae].

RECENT SPECIES. — 16 [*australasiae* Boissevain, 1906; *booceras* (Tomlin, 1926); *colubridens* (Watson, 1879); *dalli* (Pilsbry & Sharp, 1898); *hexaschistum* (Boissevain, 1906); *isaotakii* Habe, 1953; *jaeckeli* Scarabino, 1995; *japonicum* Habe, 1960; *laubieri*

Bouchet & Warén, 1979; *lobatum* (Sowerby, 1860); *longilobatum* (Boissevain, 1906); *magnum* (Boissevain, 1906); *okudai* Habe, 1953; *promontorii* (Barnard, 1963); *summa* (Okutani, 1964); *tythum* Watson, 1879].

Siphonodontum Locard, 1887: 359 (in footnote).

Unjustified emendation of *Siphonodentalium* Sars, 1859, and a name introduced in synonymy (not available under ICZN Article 11.6.1).

Solenoxiphus Chistikov, 1983: 187.

TYPE SPECIES. — *Solenoxiphus striatulus* Chistikov, 1983, by original designation. [Gadilida, Entalimorpha, Entalinidae, Bathoxiphinae].

RECENT SPECIES. — 1 [*striatulus* Chistikov, 1983].

Spadentalina Habe, 1963: 264.

TYPE SPECIES. — *Dentalium tubiforme* Boissevain, 1906, by original designation.

REMARK. — Described as a genus of the Dentaliidae. [Gadilida, Entalimorpha, Entalinidae, Heteroschismoidinae].

RECENT SPECIES. — 2 [*ingrata* Scarabino, 1995; *tubiformis* (Boissevain, 1906)].

Striocadulus Emerson, 1962: 478-479.

TYPE SPECIES. — *Cadulus albicomatus* Dall, 1890, by original designation.

REMARK. — Described as a subgenus of *Cadulus* Philippi, 1844. [Gadilida, Gadilimorpha, Gadilidae, Siphonodentaliinae].

RECENT SPECIES. — 4 [*albicomatus* (Dall, 1890); *ludbrookii* Scarabino, 1995; *pulcherrimus* (Boissevain, 1906); *sagei* Scarabino, 1995].

Striodentalium Habe, 1964: 22.

TYPE SPECIES. — *Dentalium rhabdotum* Pilsbry, 1905, by original designation. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 8 [*chinensis* Qi & Ma, 1989; *concretum* (Colman, 1958); *hosoi* (Habe, 1963); *kanakorum* Scarabino, 1995; *polycostatatum* Qi & Ma, 1989; *rhabdotum* (Pilsbry, 1905); *thetidis* (Hedley, 1903); *tosaensis* (Habe, 1963)].

Striopulsellum Scarabino, 1995: 323 (*nomen nudum* in Vaught 1989: 143; Boss 1982: 1166; and Palmer 1986: 396).

TYPE SPECIES. — *Siphonodentalium minimum* Plate, 1908, by original designation. [Gadilida, Gadilimorpha, Pulsellidae].

RECENT SPECIES. — 3 [*galathea* (Knudsen, 1964); *minimum* (Plate, 1908); *striatinum* (Henderson, 1920)].

[F] *Suevidontus* Engeser, Riedel & Bandel: 1993: 94.
TYPE SPECIES. — *Suevidontus jaegeri* Engeser, Riedel & Bandel, 1993 [Middle Jurassic of Germany], by original designation. [Dentaliida, *incertae sedis*].

[F] *Sulcogadila* Moroni & Ruggieri, 1981: 29-30.
TYPE SPECIES. — *Cadulus (Sulcogadila) caprotii* Moroni & Ruggieri, 1981 [Lower Pleistocene of Italy], by original designation.

REMARK. — Described as a subgenus of *Cadulus* Philippi, 1844. [Gadilida, Gadilimorpha, Gadilidae, Gadilinae].

Tesseracme Pilsbry & Sharp, 1898: 249.

TYPE SPECIES. — *Dentalium quadrapicale* Sowerby, 1860, by subsequent designation (Woodring 1925: 199).

REMARK. — Described as a subgenus (“section”) of *Dentalium* Linnaeus, 1758. [Dentaliida, Dentaliidae].

RECENT SPECIES. — 7 [*dispar* (Sowerby, 1860); *hancocki* Emerson, 1956; *philcolmani* Lamprell & Healy, 1998; *quadrangularis* (Sowerby in Broderip & Sowerby, 1832); *quadrapicalis* (Hanley in Sowerby, 1860); *tesseragona* (Sowerby in Broderip & Sowerby, 1832); *tetrapleura* (Boissovain, 1906)].

[F] *Throopella* Greger, 1933.

Doubtful scaphopod.

See section “Other taxa described as Scaphopoda”.

Tubidentalium Locard, 1887: 149 (in footnote).
Unjustified emendation of *Siphonodentalium* Sars, 1859, and a name introduced in synonymy (not available under ICZN Article 11.6.1).

Wemersoniella Scarabino, 1986a: 3.

TYPE SPECIES. — *Wemersoniella turnerae* Scarabino, 1986, by original designation.

REMARK. — *Emersoniella* Boss, 1982 (*ex* Scarabino MS), a *nomen nudum*, could not have been validated due to the valid name *Emersoniella* Tendeiro, 1965 (Insecta), so Scarabino proposed *Wemersoniella* instead. [Gadilida, Gadilimorpha, Wemersoniellidae].

RECENT SPECIES. — 4 [*duartei* Scarabino, 1986; *indica* Scarabino, 1995; *knudseni* Scarabino, 1995; *turnerae* Scarabino, 1986].

OTHER TAXA DESCRIBED AS SCAPHOPODA

The list of non-scaphopod supraspecific taxa erroneously described or assigned to this class contains names of 12 extinct taxa of Scaphopoda. The format is that of the preceding list of genus-group names and includes the taxon the name is currently referred to.

[F] *Clavulites* Girty, 1904: 732.

TYPE SPECIES. — *Clavulites howardensis* Girty, 1904, by original designation. Burlingham Shale, Howard, Kansas, USA (Carboniferous).

REMARK. — Girty (1904: 733) noted that he had discussed this taxon with Pilsbry, who “suggested as a possibility that this genus may be related to *Hyolithes* or to the Conulariidae”. However, Girty (1904: 733) concluded that “it appears much more probable that *Clavulites* is allied to *Dentalium* than [to any other genus]”. Yochelson (1971: 128) argued that the welt on the concave side, the irregular growth lines, and several taphonomic factors associated with the specimens justified the removal of this taxon from the Scaphopoda, and he tentatively classified it into the polychaete family Serpulidae.

[F] *Entalium* Defrance, 1819: 517-518.

TYPE SPECIES. — *Entalium rugosum* Defrance, 1819; by monotypy. Cretaceous. Saint-Pierre, near Maastricht, Netherlands.

A junior synonym of *Pyrgopolon* Montfort, 1808 (Polychaeta) (*vide* Pilsbry & Sharp 1898: 245).

REMARK. — Pilsbry & Sharp (1898: 245-246) explained that “*Entale Defrance*” (Blainville, 1825: 628) and “*Entalis Defr.*” (Sowerby, 1839: 42) are errors for *Entalium* Defrance.

[F] *Falcula* Conrad, 1870: 77.

TYPE SPECIES. — *Dentalium "hamatus"* [sic] Conrad, 1869; by original designation. Cretaceous. New Jersey, USA.

REMARK. — Conrad (1870: 77) noted that the characters of this taxon “renders it doubtful whether this shell belongs to the family Dentaliidae”. Pilsbry & Sharp (1898: 244-245) concluded that this taxon “was based upon internal casts of *Hamulus*” Morton, 1834 (Polychaeta).

[F] *Hamulus* Morton, 1834: 73.

TYPE SPECIES. — *Hamulus onyx* Morton, 1834; by monotypy. Cretaceous. South Carolina and Alabama, USA. Polychaeta (*fide* Pilsbry & Sharp 1898: 244-245).

REMARK. — Pilsbry & Sharp (1898: 245) stated that “we do not hesitate to refer it to the Serpuliidae”.

[F] *Hensonella* Elliott, 1960: 229.

TYPE SPECIES. — *Hensonella cylindrica* Elliott, 1960, by original designation. Lower Cretaceous of Iraq and Iran.

REMARK. — The author noted that this common microfossil “has sometimes been taken for a dasy-clad alga”, but cross-sections revealed a two-layered shell that was inconsistent with botanical structures (Elliott 1960: 229). The author concluded that “it is tentatively suggested here that it may be a little scaphopod species in which changes during fossilization have removed the outer surface layer and accentuated the radial structure of the inner layer” (Elliott 1960: 229-230). Since the microstructure of the tube does not resemble that of other Scaphopoda, it is unlikely that this taxon even belongs to the Mollusca, and it is herein excluded from the Scaphopoda.

[F] *Pharetrium* König, 1825: 4.

TYPE SPECIES. — *Pharetrium fragile* König, 1825; monotypy. Cretaceous.

Junior synonym of *Pyrgopolon* Montfort, 1808 (Polychaeta) (*fide* Pilsbry & Sharp 1898: 245).

[F] *Polylophia* Clark, 1925: 12.

TYPE SPECIES. — *Salterella billingsi* Safford, 1869; original designation. Ordovician. Transferred to

the Scaphopoda by Fisher (1958: 144-146). Yochelson (1968) concluded that this taxon was not a scaphopod and was probably referable to the Hyolitha.

[F] *Pyrgopolon* Montfort, 1808: 394-396.

TYPE SPECIES. — *Pyrgopolon mosae* Montfort, 1808; original designation. Cretaceous. Maastricht, Netherlands.

REMARK. — Pilsbry & Sharp (1898: 246) stated that the “irregular growth and two-layered structure of these shells is conclusive evidence that they belong to the Serpulid worms”.

[F] Quasidentalidae Chistikov, 1975: 19.

Family for *Quasidentalium*. Also used as superfamily taxon Quasidentalioidea (Chistikov 1975: 19).

REMARK. — *Quasidentalium* was excluded from the phylum Mollusca by Yochelson (1999).

[F] *Quasidentalium* Shimansky, 1974: 135 [Russian], 126 [English].

TYPE SPECIES. — *Quasidentalium opiparium* Shimansky, 1974, by original designation. [Carboniferous of Russia].

REMARK. — Palmer (1986: 397) suggested that this taxon “is probably neither a scaphopod nor even closely related to the class”. Yochelson (1999) rejected the alleged molluscan nature of the type species *Quasidentalium opiparium* and placed it in the taxon Coleolidae (phylum *incertae sedis*).

[F] *Spirodentalium* Walcott, 1890: 271.

TYPE SPECIES. — *Spirodentalium osceola* Walcott, 1890; by original designation. Upper Cambrian. Osceola Mills, Wisconsin, USA.

REMARK. — Pilsbry & Sharp (1898: 247) concluded that the shell sculpture “is radically unlike any form known to belong to the Scaphopoda, and the genus can scarcely be admitted to be molluscan without more evidence than the wretchedly preserved specimen yet known affords. It may belong to the Vermes, or to the ancient group of so-called Pteropoda”. Yochelson (1987) concluded that this taxon was actually an

TABLE 1. — Classification of Recent Scaphopoda (from Scarabino 1995; modified by Steiner 1998, 1999). Family taxa are in phylogenetic order, and genera are in alphabetic order.

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- Class **SCAPHOPODA** Bronn, 1862
 Order **DENTALIIDA** da Costa, 1776
 Family GADILINIDAE Chistikov, 1975
 Subfamily GADILININAE Chistikov, 1975
 Genus *Gadilina* Foresti, 1895
 Subfamily EPISIPHONINAE Chistikov, 1975
 Genus *Episiphon* Pilsbry & Sharp, 1897
 Family FUSTIARIIDAE Steiner, 1991
 Genus *Fustiaria* Stoliczka, 1868
 Family OMNIGLYPTIDAE Chistikov, 1975
 Genus *Omniglypta* Kuroda & Habe in Habe, 1953
 Family DENTALIIDAE [Children, 1834]
 Genus *Antalis* H. & A. Adams, 1854
 Genus *Coccodentalium* Sacco, 1896
 Genus *Compressidentalium* Habe, 1963
 Genus *Dentalium* Linnaeus, 1758
 Genus *Eudentalium* Cotton & Godfrey, 1933
 Genus *Fissidentalium* Fischer, 1885
 Genus *Graptacme* Pilsbry & Sharp, 1897
 Genus *Paradentalium* Cotton & Godfrey, 1933
 Genus *Pictodentalium* Palmer, 1974
 Genus *Plagiogypta* Pilsbry in Pilsbry & Sharp, 1897
 Genus *Schizodentalium* Sowerby, 1894
 Genus *Striodentalium* Habe, 1964
 Genus *Tesseracme* Pilsbry & Sharp, 1897
 Family CALLIODENTALIIDAE Chistikov, 1975
 Genus *Calliodentalium* Habe, 1964
 Family LAEVIDENTALIIDAE Palmer, 1974
 Genus *Laevidentalium* Cossmann, 1888
 Family RHABDIDAE Chistikov, 1975
 Genus *Rhabdus* Pilbry & Sharp, 1897
 Family ANULIDENTALIIDAE Chistikov, 1975
 Genus *Anulidentalium* Chistikov, 1975
 Genus *Epirhabdooides* Steiner, 1999
 Order **GADILIDA** Starobogatov, 1974
 Suborder **ENTALIMORPHA** Steiner, 1992
 Family ENTALINIDAE Chistikov, 1979
 Subfamily BATHOXIPHINAE Chistikov, 1983
 Genus *Bathoxiphus* Pilsbry & Sharp, 1897
 Genus *Rhomboxiphus* Chistikov, 1983
 Genus *Solenoxiphus* Chistikov, 1983
 Subfamily ENTALININAE Chistikov, 1979
 Genus *Entalina* Monterosato, 1872
 Subfamily HETEROSCHISMOIDINAE Chistikov, 1982
 Genus *Costentalina* Chistikov, 1982
 Genus *Entalinopsis* Habe, 1957
 Genus *Heteroschismoides* Ludbrook, 1960
 Genus *Pertusiconcha* Chistikov, 1982
 Genus *Spadentalina* Habe, 1963
 Suborder **GADILIMORPHA** Steiner, 1992
 Family PULSELLIDAE Scarabino in Boss, 1982
 Genus *Annulpusellum* Scarabino, 1986
 Genus *Pusellum* Stoliczka, 1868
 Genus *Striopusellum* Scarabino, 1995
 Family WEMERSONIELLIDAE Scarabino, 1986
 Genus *Chistikovia* Scarabino, 1995
 Genus *Wemersoniella* Scarabino, 1986
 Family GADILIDAE Stoliczka, 1868
 Subfamily SIPHONODENTALIINAE Simroth, 1894
 Genus *Dischides* Jeffreys, 1867
 Genus *Polyschides* Pilsbry & Sharp, 1898
 Genus *Sagamicadulus* Sakurai & Shimazu, 1963
 Genus *Siphonodentalium* M. Sars, 1859
 Genus *Striocadulus* Emerson, 1962
 Subfamily GADILINAE Stoliczka, 1868
 Genus *Bathycadulus* Scarabino, 1995
 Genus *Cadulus* Philippi, 1844
 Genus *Gadila* Gray, 1847
incertae sedis
 Genus *Compressidens* Pilsbry & Sharp, 1897
 Genus *Megaentalina* Habe, 1963
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open-coiled gastropod, which he referred to the Euomphaloidea.

[F] *Throopella* Greger, 1933: 373-374.

TYPE SPECIES. — *Throopella typa* Greger, 1933, by monotypy [Upper Devonian of USA].

REMARK. — Of doubtful scaphopod affinities; Emerson (1962: 480) and Starobogatov (1974: 8) excluded this taxon from the Scaphopoda.

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