

The genus is unique in the subfamily Leptopsyllinae in that it lacks a genal ctenidium and it possesses a distinct eye and has five pairs of lateral plantar bristles on the last segment of the tarsi. While essentially an unspecialized leptopsylline flea, the new genus links this subfamily with the Amphipsyllinae.

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LIST OF ABBREVIATIONS

AE.A.	Aedeagal apodeme.
A.I.T.	Armature of inner tube of aedeagus.
A.M.S.	Apicomedian sclerites of aedeagus.
AP.A.	Apical appendage of aedeagus.
AP.S.	Sclerite of apodemal strut.
B.I.T.	Band of inner tube extending distad of apex of sclerotized inner tube.
CR.	Crochet of aedeagus.
D.A.L.	Dorsal anal lobe.
D.A.9	Distal arm of ninth sternum.
F.	Digitoid or movable finger.
I.R.	Ventral intramural rod of endophallus.
L.M.	Lateral metanotal area.
MB.	Manubrium
M.D.L.	Median dorsal lobe.
MPM.	Mesepimere
MSN.	Mesonotum
MPS.	Mesepisternum
MTM.	Metepimere
MST.	Mesosternum
MTS.	Metepisternum
P.	Immovable process of clasper.
P.A. 9	Proximal arm of ninth sternum.
PL.A.	Pleural arch of metathorax.
P.R.	Penis rods.
P.S.	Proximal spur of aedeagus.
PS.S.	Pseudoseta
P.W.	Wall of aedeagal pouch.
RG.	Pale ring above ventral margin of antennal groove.
S.I.T.	Sclerotized inner tube.
SN.	Sensillum
T.A.	Anterior tentorial arm of endoskeleton.
V.A.L.	Ventral anal lobe.
VC. 1	First vinculum or link-plate.
VC. 2	Second vinculum or link-plate.
8S.	Eighth sternum.
1T.	First tergum.

MALACOLOGY.—*Generic and subgeneric names in the molluscan class Scaphopoda*.¹
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(Communicated by Harald A. Rehder.)

The supraspecific categories of the molluscan class Scaphopoda have not received serious study for more than 50 years. In the light of present knowledge it is apparent that they are in need of taxonomic review. The purpose of this paper is to indicate the

nomenclatural units that are available for future taxonomic and phylogenetic work in the class.

The Scaphopoda, the smallest of the five classes of the phylum Mollusca, are divided into the families Dentaliidae and the Siphonodentaliidae.³ The families are distin-

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² Formerly of the Allan Hancock Foundation, University of Southern California.

³ D. K. Greger, 1933, p. 373, described *Thro-opella typa*, n. gen., n. sp., from the Devonian of

guished from each other by differences in the median tooth of the radula, the form of the foot, and certain definite shell characters. The reader is referred to the excellent monographs by Pilsbry and Sharp (1897-98) and Henderson (1920) for keys which differentiate the two families and for the distinguishing characters of the genera and subgenera which comprise the two families.

With the exception of the fossil genus *Plagioglypta*, the genus *Dentalium* (*sensu lato*) has been considered by many taxonomists to include all the remaining representatives of the family Dentaliidae. Thus, the genus *Dentalium* has been divided into a number of subgenera, some of which are of much greater biological significance than others. On the other hand, most students have recognized for the Siphonodentaliidae three genera, *Entalina*, *Siphonodentalium*, and *Cadulus*. The last named has been divided into several subgenera and sections. While some of these nomenclatural units are useful for distinguishing evolutionary trends, many are objectionable synonyms of no apparent taxonomic significance.

A number of tubiculous gastropod shells and calcareous worm tubes were described as scaphopods during the early period of systematics. Thus, tubes of the gastropod family Caecidae and the annelid family Serpulidae form a sizable list of spurious scaphopods. Some of the Siphonodentaliidae were originally assigned to vermian genera by their describers.

Procedure.—All scaphopod generic and subgeneric names known to the writer are reviewed and the genotype (type species) of each valid supraspecific unit is indicated. In order to retain a purely objective approach, no distinction is made between genera, subgenera, and "sections." It is beyond the scope of this paper to evaluate their taxonomic rank. Such an evaluation is reserved for a future paper.

The nomenclatural units are listed alphabetically with the valid names in boldface letters and the invalid names in italics.⁴

central Missouri. Should this actually prove to be a scaphopod, a new family would have to be formed to contain it.

⁴ The changes in the Règles made by the 1948 meeting of the International Commission on

Although the capitalized names are valid, many are junior synonyms and, therefore, are not available taxonomically. Names which are objective synonyms⁵ of earlier valid names are so indicated. Every effort has been made to rigidly follow the International Rules of Zoological Nomenclature in establishing the types of the genera. In order to prevent any misunderstanding with regard to the selection of the types, and thus the generic concepts, the reason governing the type selection is given. Fortunately, the majority of the names have original designations or are monotypic. In cases of subsequent designations, the species originally contained in the genus are listed together with the author and the date of the subsequent designation. By possessing these data the reader may determine the validity of possible earlier designations without having access to the original description. The source of the original description is cited for each genotype and reference is made to a generally accessible subsequent description and illustration. Inasmuch as the locality data for the fossil and living species were obtained principally from Pilsbry and Sharp (1897), the majority of the geologic age assignments is of that date.

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Zoological Nomenclature became effective January 1, 1951. While the official Règles are not at this date in print, it is the author's understanding that under the revised Règles emendations of generic names whether justified or not, preoccupy for the purpose of homonymy, and erroneous emendations are available as junior synonyms in cases where the original names are later rejected. This change creates a rather unfortunate and nearly infeasible system for determining the next available junior synonym in cases of rejected names. Until this situation is clarified, it seems proper to consider unjustified emendations as being invalid and unavailable.

⁵ Objective or absolute synonyms are those having identical genotype species.

GÉNERA AND SUBGENERA ALPHABETICALLY
ARRANGED

DENTALIIDAE

- Antale** Sacco, 1896, p. 97, for *Antale vulgare* (Da Costa), etc. Genotype: (by subsequent designation, Sacco, 1897, p. 98) *Antale vulgare* (Da Costa), 1778, p. 28; Pilsbry and Sharp, 1897, p. 41, pl. 8, figs. 22-24. Recent, Mediterranean and Adriatic Seas, Northeastern Atlantic Ocean; Pliocene of Italy. Name taken from *Antale* of "Aldrov. [andus] 1618." A junior objective synonym of *Dentale* Da Costa, 1778. Used by subsequent authors, e. g., Rovereto, 1900, p. 201, and Cossmann and Peyrot, 1916, p. 160.
- Antalis** Herrmannsen, 1846, vol. 1, p. 63 (genus without species; first species assigned by H. and A. Adams, 1854, vol. 1, p. 457, for 16 species, including "*Antalis entalis* Linn."). Genotype: (by subsequent designation, Pilsbry and Sharp, 1897, p. 37) *Dentalium entalis* Linné, 1758, p. 758; Pilsbry and Sharp, 1897, p. 42, pl. 8, fig. 25. Recent, North Atlantic Ocean. Herrmannsen, 1846, proposed *Antalis* without species from *Antale* Aldrovandus, 1606, see Emerson, 1951, p. 17. *Antalis* is often attributed to H. and A. Adams, 1854, vol. 1, p. 457, genotype: (by subsequent designation, Pilsbry and Sharp, 1897, p. 37) *Dentalium entalis* Linné, 1758, p. 758.
- Bathoxiphus** Pilsbry and Sharp, 1897, p. 121, for *Dentalium ensiculus* Jeffreys, 1877, *D. ensiculus* var. *didymum* Watson, 1879. Genotype: (by subsequent designation, Boissevain, 1906 p. 48) *Dentalium ensiculus* Jeffreys, 1877, p. 154; Henderson, 1920, p. 81, pl. 14, figs. 1, 4, 5, 7, 9. Recent, Atlantic Ocean in deep water.
- Coccodentalium** Sacco, 1896, p. 98. Genotype: (by original designation) *Coccodentalium radula* (Schroeter, 1784), p. 530; Sacco, 1897, p. 111, pl. 10, figs. 7-21. Miocene, Piedmont of Italy.
- Compressidens** Pilsbry and Sharp, 1897, p. 123. (See under family Siphonodentaliidae.)
- Dentale** Da Costa, 1778, p. 24. Genotype: (by monotypy) *Dentale vulgare* Da Costa, 1778, p. 24, pl. 2, fig. 10; Pilsbry and Sharp, 1897, p. 41, pl. 8, figs. 22-24. Recent, Mediterranean and Adriatic Seas; Atlantic Ocean from Spain to Belgium, etc.; Miocene of Belgium, Pliocene of Italy. For a review of the synonymy of this unit see Emerson, 1951, p. 19.
- Dentalia** Perry, 1811, pl. 52, for *Dentalia viridis* Perry, 1811, *D. bandata* Perry, 1811, *D. denacta* Perry, 1811. Genotype: (here designated) *Dentalia viridis* Perry, 1811, p. 52 = *Dentalium elephantinum* Linné, 1758. As a result of the above designation, *Dentalia* is a junior "objective" synonym of *Dentalium* Linné, 1758.
- Dentalium* Pilsbry and Sharp, 1897, p. xxviii. Error for *Dentalium* Linné, 1758.
- Dentalites** Schlotheim, 1813, pp. 91, 100, 110, for *Dentalitus striatus*, *D. obsoletus*, and *D. minutus*, nude names. Genotype: (here designated) *Dentalium elephantinum* Linné, 1758, p. 785. With the above designation *Dentalites* is a junior objective synonym of *Dentalium* Linné, 1758.
- Dentalium** Linné, 1758, p. 785, for *D. elephantinum* L., *D. Dentalis* L., *D. Entalis* L., *D. minutum* L. Genotype: (by subsequent designation, Montfort, 1810, p. 23) *Dentalium elephantinum* Linné, 1758, p. 785; Pilsbry and Sharp, 1897, p. 1, pl. 1, figs. 1-7. Recent, Amboyna and Philippine Islands.
- Dentalius* Forbes, 1841, p. 253, for "*Dentalius Entalis*." Error for *Dentalium* Linné, 1758.
- Dentalium* Krotow, 1885, p. 153. Error for *Dentalium* Linné, 1758.
- Entale** Herrmannsen, 1848, vol. 1, p. 423 (genus without species). Genotype: (here designated) *Dentalium elephantinum* Linné, 1758, p. 785. As a result of the above designation, *Entale* is a junior objective synonym of *Dentalium* Linné, 1758. Name taken from *Entale* of Tournefortio in Gualtieri, 1742. No species were validly assigned but a brief description was given.
- Entaliopsis** Newton and Harris, 1894, p. 66. Genotype: (by original designation) *Dentalium entalis* Linné, 1767, p. 1263 = *D. entalis* Linné, 1758, p. 785. Proposed as a new name for the preoccupied *Entalis* of Gray, 1847, not Sowerby, 1839, an annelid genus. *Entaliopsis* is a junior objective synonym of *Antalis* Herrmannsen, 1846.
- Entalis* Gray, 1847, p. 158. Genotype: (by original designation) "*Dentalium e.[ntalis]* Desh. [aves] 1825" p. 359 = *Dentalium entalis* Linné, 1785, p. 785; Pilsbry and Sharp, 1897, p. 43, pl. 8, fig. 25. Recent, Atlantic Ocean. Not *Entalis* Sowerby, 1839, p. 42 (Annelida, Serpulidae). A junior objective synonym of *Antalis* Herrmannsen, 1846.
- Episiphon** Pilsbry and Sharp, 1897, p. 117, for *Dentalium sowerbyi* Guilding, 1834, *D. fistula* Sowerby, 1860, *D. filum* Sowerby, 1860, *D. innumerabile* Pilsbry and Sharp, 1897, *D. subrectum* Jeffreys, 1882, *D. longum* Sharp and Pilsbry, 1897, *D. tornatum* Watson, 1879. Genotype: (by subsequent designation, Suter, 1913, p. 821) *Dentalium sowerbyi* Guilding, 1834, p. 35, pl. 3, fig. 7; Henderson, 1920, p. 77, pl. 13, figs. 2, 3, 10. Recent, off Southeastern United States and West Indies.

Eudentalium Cotton and Godfrey, 1933, p. 140. Genotype: (by original designation) *Dentalium quadricostatum* Brazier, 1877, p. 58. Recent, Princess Charlotte Bay, Australia; Katow, New Guinea.

Fissidentalium Fischer, 1885, p. 894. Genotype: (by monotypy) *Dentalium ergasticum* Fischer, 1882, p. 275; Pilsbry and Sharp, 1897, p. 74, pl. 15, figs. 35-36. Recent, Gulf of Gascony and Atlantic Ocean in deep water.

Fustaria Noszky, 1936, p. 83. Error for *Fustiaria* Stoliczka, 1868.

Fustiaria Stoliczka, 1868, p. 439, for *Dentalium circinatum* Sowerby, 1823, *D. eburneum* Lamarck, 1818 = *D. eburneum* Linné, 1767. Genotype: (by subsequent designation, Newton and Harris, 1894, p. 64) *Dentalium eburneum* Linné, 1767, p. 1264; Pilsbry and Sharp, 1897, p. 115, pl. 20, figs. 33, 34. Recent, South Pacific.

Gadilina Foresti, 1895, p. 259. Genotype: (by monotypy) *Siphonodentalium (Gadilina) triquetrum* (Brocchi), 1814, p. 628; Sacco, 1897, p. 113, pl. 10, figs. 35-46. Miocene, Piedmont of Italy.

Graptacme Pilsbry and Sharp, 1897, p. 85, for *D. sericatum* Dall, 1881, *D. circumcinctum* Watson, 1879, *D. eboreum* Conrad, 1846, *D. leptum* Bush, 1885, *D. semistriatum* Turton, 1819, *D. semistriatum* var. *semipolitum* Broderip and Sowerby, 1829, *D. aciculum* Gould, 1859, *D. novaehollandiae* Chenu, 1858, *D. acutissimum* Watson, 1879, *D. inversum* Deshayes, 1825, *D. splendidum* Sowerby, 1832. Genotype: (by subsequent designation, Woodring, 1925, p. 201) *Dentalium eboreum* Conrad, 1846, p. 27; Pilsbry and Sharp, 1897, p. 89, pl. 16, figs. 47-49, 55-56. Recent, off Southeastern United States and West Indies.

Heteroschisma Simroth in Bronn, 1895, p. 460, for *Dentalium inversum* Deshayes, 1825, *D. subterfissum* Jeffreys, 1877, *D. Leoninae* Meunier, 1878. Genotype: (here designated) *D. subterfissum* Jeffreys, 1877, p. 154; Pilsbry and Sharp, 1897, p. 61, pl. 7, figs. 15-19. Not *Heteroschisma* Wachsmuth, 1883, (Echinodermata), nor Kofoid and Skogsberg, 1928, (Protozoa). Since this is not considered to be a natural biological unit no new name is here proposed.

Laevidentalium Cossmann, 1888, p. 7. Genotype: (by original designation) *Dentalium incertum* Deshayes, 1825, p. 362, pl. 7, fig. 17. Eocene of Paris Basin.

Lobantale Cossmann, 1888, p. 7. Genotype: (by original designation) *Dentalium duplex* DeFrance, 1819, p. 71; Pilsbry and Sharp, 1898, p. 203, pl. 39, fig. 12. Eocene of Paris Basin.

Paradentalium Cotton and Godfrey, 1933, p. 139. Genotype: (by original designation) "*D. [entalium] intercalatum* Gould, 1859," p. 166; Pilsbry and Sharp, 1897, p. 23, pl. 11, figs. 88-89. Recent, "China Seas." Cotton and Ludbrook, 1938, p. 218, state that *D. intercalatum* of Cotton and Godfrey, 1933, was misidentified, being actually *D. bednalli* Pilsbry and Sharp, 1897, p. 248, and that the genotype of *Paradentalium* thus should be considered the *D. bednalli*. In the case of a misidentified genotype, the original genotypic concept can not be changed once formulated unless an appeal is made to and is favorably acted upon by the Commission.

Plagioglypta Pilsbry and Sharp, 1897, p. xxxi. Genotype: (by original designation) *Dentalium undulatum* Muenster, in Goldfuss, 1844, p. 3, pl. 166, fig. 8. Triassic, St. Cassian, Tyrol mountains.

Prodentalium Young, 1942, p. 120. Genotype: (by original designation) *Prodentalium raymondi* Young, 1942, p. 120, pl. 20, figs. 3-6, 8, 12. Pennsylvanian, Magdalena group, New Mexico.

Pseudantalis Monterosato, 1884, p. 32, for *Dentalium fissura* Lamarck, 1818, *D. inversum* Deshayes, 1825, *D. rubescens* Deshayes, 1825, *D. tenuifissa* Monterosato, 1884, *D. filum* Sowerby, 1860. Genotype: (by subsequent designation, Sacco, 1897, p. 111) *Pseudantalis rubescens* (Deshayes), 1825, p. 363, pl. 16, figs. 23-25; Pilsbry and Sharp, 1897, p. 105, pl. 19, fig. 2. Recent, Mediterranean Sea; Pliocene of Italy.

Schizodentalium Sowerby, 1894, p. 158. Genotype: (by monotypy) *Schizodentalium plurifissuratum* Sowerby, 1894, p. 158, pl. 12, fig. 24; Pilsbry and Sharp, 1897, p. 82, pl. 6, figs. 87-89. Recent, "Hong Kong?"

Rhabdus Pilsbry and Sharp, 1897, p. 112. Genotype: (by original designation) *Dentalium rectius* Carpenter, 1865, p. 59; Pilsbry and Sharp, 1897, p. 113, pl. 21, fig. 45. Recent, Eastern North Pacific Ocean.

Tesseracme Pilsbry and Sharp, 1898, p. 249, for "group of *D. quadruplicale*" = *Dentalium dispar* Sowerby, 1860, *D. quadricostatum* Brazier, 1877, *D. dipsycha* Pilsbry and Sharp, 1897, *D. quadruplicale* Sowerby, 1860, *D. tesseragonum* Sowerby, 1832, *D. quadrangulare* Sowerby, 1832, *D. fisheri* Pilsbry and Sharp, 1897. Genotype: (by subsequent designation: Woodring, 1925, p. 119) *Dentalium quadruplicale* Sowerby, 1860, p. 103, pl. 225, fig. 61; Pilsbry and Sharp, 1897, p. 34, fig. 50. Recent, Cochin and Malabar, Eastern seas.

SIPHONODONTALIIDAE

- Cadulus** Philippi, 1844, p. 209. Genotype: (by monotypy) *Dentalium ovulum* Philippi, 1844, p. 208, pl. 27, fig. 21; Pilsbry and Sharp, 1898, p. 157, pl. 32, figs. 40–41. Recent, southern Italy; Pliocene of Calabria and Sicily; Miocene of Piedmont, Italy.
- Cladulus* Jaekel, 1932, p. 311, (caption for text fig. 9). Error for *Cadulus* Philippi, 1844.
- Compressidens** Pilsbry and Sharp, 1897, p. 123. Genotype: (by original designation) *Dentalium pressum* Sharp and Pilsbry, 1897, p. 124, pl. 22, figs. 50–52; new name for *D. compressum* Watson, 1879, p. 516, not D'Orbigny, 1850, p. 233. Recent, Caribbean to off Florida Keys. The taxonomic position of this genus is somewhat uncertain. Though it is generally placed in the family Dentaliidae, a reexamination of the anatomy may necessitate placing it in the Siphonodentaliidae.
- Discides* Pilsbry and Sharp, 1898, p. 253. Error for *Discides* Sacco, 1897.
- Discides* Sacco, 1897, p. 115. Error for *Dischides* Jeffreys, 1867.
- Dischides** Jeffreys, 1867, p. 251. Genotype: (by monotypy) *Dentalium bifissum* S. Wood, 1848, p. 190, pl. 20, fig. 3 = *Ditrupa polita* S. Wood, 1842, p. 459, pl. 5, fig. 14; Pilsbry and Sharp, 1898, p. 144, pl. 27, figs. 90–94. Recent, Mediterranean and Eastern Atlantic; Pliocene of England and Italy. The designation of the type might possibly be interpreted as being by original designation as Jeffreys, 1867, states, “*D. bifissum* Searles Wood, from the Coralline Crag, is possibly of the type of another genus, for which I would suggest the name of *Dischides*.”
- Entalina** Monterosato, 1872, p. 27, for “*Dentalium ?tetragonum*, Brocc.” = “*D. quinquangulare*, Forbes.” Genotype: (by subsequent designation, Sacco, 1897, p. 114) *Entalina tetragona* (Brocchi), 1814, p. 627, pl. 15, fig. 26; Pilsbry and Sharp, 1898, p. 234, Miocene of northern Italy and Vienna Basin.
- Gadila** Gray, 1847, p. 159, no. 280. Genotype: (by original designation) *Dentalium gadus* Montagu, 1803, p. 496, pl. 14, fig. 7; Pilsbry and Sharp, p. 186, pl. 31, figs. 28–32. Recent, British Channel, *vide* Montagu, 1803.
- Gadilopsis** Woodring, 1925, p. 206. Genotype: (by original designation) *Ditrupa dentalina* Guppy, 1873, p. 87, pl. 1, fig. 11; Pilsbry and Sharp, 1898, p. 190, pl. 36, figs. 21–22. Miocene of Jamaica.
- Gadus* “Rang” Deshayes, 1861 (“1864”), p. 217, for *Gadus parisiensis* Deshayes, 1861, *G. bilabiatus* Desh., 1861, *G. brevis* Desh., 1861. Not *Gadus* of Rang, 1829, p. 498, nor of Linné, 1758, pp. 242, 251. Deshayes, 1861, incorrectly assigned three “new” species from the Paris Basin to the pteropod genus *Gadus* of Rang, 1829; *Gadus* of Linné, 1758, a fish genus, is the first valid use of the name. Conrad, 1866, p. 75, used “*Gadus*, Montagu? Rang, 1829” for *Dentalium clavatus* Gould, 1859, *D. pusillum* Gabb, 1864, *D. subcoarctata* [sic] (Gabb), 1860, and *D. thallus* Conrad, 1834, considering *Helonyx* of Stimpson, 1865, a synonym.
- Helonyx** Stimpson, 1865, p. 63. Genotype: (by original designation) *Dentalium clavatum* Gould, 1859, p. 166; Stimpson, 1865, p. 63, pl. 9, fig. 14. Recent, Western Pacific, “Hong Kong.”
- Loxoporus** Jeffreys, 1883, p. 664. Genotype: (by monotypy) *Cadulus olivi* (Scacchi), 1835, p. 56, pl. 2, fig. 6, a b; Pilsbry and Sharp, 1898, p. 170, pl. 31, figs. 33–35. Pliocene of southern Italy and Sicily.
- Platyschides** Henderson, 1920, p. 104. Genotype: (by original designation) *Cadulus grandis* Verrill, 1884, p. 219, pl. 44, fig. 20; Pilsbry and Sharp, 1898, p. 154, pl. 25, fig. 66. Recent, Western Atlantic, north of Cape Hatteras.
- Polyschides** Pilsbry and Sharp, 1898, pp. 142, 146. Genotype: (by original designation, p. 146) *Cadulus (Polyschides) tetraschistus* Watson, 1879, p. 521; Watson, 1885, p. 15, pl. 2, fig. 8. Recent, off Fernando Noronha, Brazil.
- Pulsellum** Stoliczka, 1868, p. 441, for *Siphonodentalium lofotense* M. Sars, 1865, *S. affine* M. Sars, 1865, *S. pentagonum* M. Sars, 1865. Genotype: (by subsequent designation, Cossmann, 1888, p. 11) *Pulsellum lofotense* (M. Sars), 1865, p. 297, pl. 6, figs. 29–33; Pilsbry and Sharp, 1897, p. 138, pl. 24, figs. 40–44. Recent, North Eastern Atlantic, Mediterranean and Aegean Seas; Pliocene of Calabria and Sicily.
- Siphodentalis* Paetel, 1888, p. 565. Error for *Siphonentalis* G. O. Sars, 1878, p. 104.
- Siphodentalium* Monterosato, 1874, p. 258. An invalid emendation of *Siphonodentalium* M. Sars, 1859. Other authors, including: Jeffreys, 1877, p. 155 (and later papers), and Watson, 1879, p. 519 (and later papers), have followed Monterosato in using this emendation.
- Siphonentalis** G. O. Sars, 1878, p. 104, for *Siphonentalis lofotensis* (M. Sars), 1865, *S. affinis* (M. Sars), 1865, *S. tetragona* “Brocchi” G. O. Sars = *Dentalium quinquangulare* Forbes, 1844, a member of the genus *Entalina* of Monterosato, 1872. Genotype: (here designated) *Siphonodentalium lofotense* M. Sars, 1865, p. 297, pl. 6, figs. 29–33; Pilsbry and Sharp, 1897, p. 138, pl. 24, figs. 40–44. Recent, North Eastern

Atlantic, Mediterranean and Aegean Seas; Pliocene of Calabria and Sicily. As a result of the above designation of *Siphonodentalium lofotense* as genotype, *Siphonentalis* becomes a junior objective synonym of *Pulsellum* Stoliczka, 1868.

Siphonodentalis Clessin, 1896, p. 30. Error for *Siphonentalis* G. O. Sars, 1878, p. 104.

Siphonodentalium M. Sars, 1859, p. 52. Genotype: (by monotypy) *Siphonodentalium vitreum* (M. Sars) = *D. vitreum* M. Sars, 1851, p. 178, (not Gmelin, 1791, p. 3739), = *Siphonodentalium lobatum* (Sowerby), 1860, p. 100, pl. 225, fig. 44. Recent, North Atlantic.

Siphonodontum Locard, 1887, p. 149 (contained in footnote). An invalid emendation of *Siphonodentalium* M. Sars, 1865, p. 296 = *Siphonodentalium* M. Sars, 1859, p. 52.

Tubidentalium Locard, 1887, p. 149, (contained in footnote). An invalid emendation of *Siphonodentalium* M. Sars, 1865, p. 296 = *Siphonodentalium* M. Sars, 1859, p. 52.

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NEMATOTOLOGY.—*The teasel nematode*, *Ditylenchus dipsaci* (Kühn, 1857), Filipjev, 1936. WILBUR D. COURTNEY, Bureau of Plant Industry, Soils, and Agricultural Engineering. (Communicated by G. Steiner.)

Textile mills have long depended on the spiny heads or "burs" of cultivated teasel plants to produce the nap on fine woolens. Other materials have been tested for this use, but only nylon bristles have shown promise of success. Teasel culture constitutes an agricultural crop of extreme geographical limitations with the principal American planting being located in the Pacific Northwest.

The teasel is a biennial with a rosette of stout, coarse leaves attached to a fleshy crown during its first year. In late spring of the second year, a main stem with side branches rapidly grows or "runs" to a height of 4 to 7 feet and bears a spiny head at each terminal. When these heads are in the correct stage of development they are removed from the plant together with some 8 inches of stem. This is a hand operation, since the heads mature at three or four different times, depending on the part of the plant to which they may be attached. The harvested heads are placed in large, aerated sheds to cure, after which the salables are trimmed, graded to size and shipped to various textile mills. These teasel heads must be of uniform cylindrical shape and bear strongly attached spines in order to serve their purpose in finishing fine woolens.

The production of "puff balls" instead of sound heads, and the failure of second year plants to produce heads have resulted in various degrees of losses due to nematode infection. These losses have ranged from a

trace, in a number of cases, to complete destruction, in a few isolated fields.

The bulb and stem nematode, *Ditylenchus dipsaci*, was first described by Kühn (2) in 1857 as the cause of "Kernfäule" of the inflorescence in fullers teasel, *Dipsacus fullonum* L. His description of the symptoms of nematode infection in teasels was confined to the characteristic misshapen, "soft shelled" heads or puff balls instead of the normal burs. Later, Ritzema Bos (3) reported negative results in his attempts to transfer the rye, onion and hyacinth populations of the bulb and stem nematode to teasel seedlings. His work was restricted since he had never observed nematode infection of teasel plants. These early investigations were quoted by later workers and little in addition was accomplished until Thorne (4) in 1945 illustrated and amended the diagnosis of the teasel nematode from the Pacific Northwest.

SYMPTOMS OF NEMATODE INFECTION

Bulb and stem nematodes usually enter teasel plants in the young seedling stage during prolonged moist conditions. They feed and reproduce in the young crowns and leaves, causing large populations to be built up under favorable circumstances. When the bud for the central shoot develops from an infected crown during the second year many nematodes attack the tissue surrounding the growing point, reproduce rapidly and are carried upward by plant



Emerson, William K. 1952. "Generic and subgeneric names in the molluscan class Scaphopoda." *Journal of the Washington Academy of Sciences* 42, 296–303.

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