



<http://dx.doi.org/10.11646/zootaxa.3703.1.14>

<http://zoobank.org/urn:lsid:zoobank.org:pub:551D9553-7902-4EEF-BB22-349F573AC97A>

### Phylum Bryozoa Ehrenberg, 1831\*

PHILIP E. BOCK<sup>1</sup> & DENNIS P. GORDON<sup>2</sup>

<sup>1</sup>32 Swayfield Road, Mount Waverley VIC 3149, Australia. Email: philbock1@gmail.com

<sup>2</sup>National Institute of Water & Atmospheric Research, Private Bag 14901, Kilbirnie, Wellington 6022, New Zealand; email: d.gordon@niwa.co.nz

\* *In*: Zhang, Z.-Q. (Ed.) Animal Biodiversity: An Outline of Higher-level Classification and Survey of Taxonomic Richness (Addenda 2013). *Zootaxa*, 3703, 1–82.

This paper is an invited contribution to the *Zootaxa* series ‘Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness.’ (Zhang 2011). This series pertains to living biodiversity and the species numbers given here are more or less derived from the World Register of Marine Species (WoRMS), for which the two authors of this paper are listed as editors (PEB hands-on editor; DPG advisory editor). Thus circumscribed, Bryozoa includes 3 classes, 4 orders, 187 families, 808 genera and 5869 species [Phylactolaemata 86 species, Stenolaemata 543 species, Gymnolaemata 5240 species (Ctenostomata 319 species, Cheilostomata 4921 species)]. Although all Phylactolaemata and several species of Ctenostomata are freshwater organisms, the full list of bryozoan species is accessible on WoRMS. The WoRMS list must be understood to be provisional, owing to the need for taxonomic revisions of many genera. Nevertheless, even if not all species in the list are accurately attributed to genera, the names represent operational taxonomic units (OTUs) that are indicative of living species diversity as known to date.

The classification given here is interim, especially insofar as knowledge of bryozoan phylogeny is rapidly evolving. That for Phylactolaemata (and some of the species-per-genus estimates) is based on a number of works, especially Wood & Wood (2000), Wood & Okamura (2005), Massard & Geimer (2008) and Hirose & Mawatari (2011). Hirose *et al.* (2008) and Waeschenbach *et al.* (2012) have determined that Phylactolaemata comprises two main clades. One comprises Lophopodidae and Stephanellidae; the other comprises the balance of six other families. Each of these clades should constitute a superfamily but names have not yet been formally established for them. The genera *Gelatinella* and *Hyalinella* nest within *Plumatella* according to Hirose *et al.* (2008) and Waeschenbach *et al.* (2012) and are not separately counted here.

The traditional classification of order Cyclostomata, based on the skeleton and provisionally retained here, is highly problematic. Skeletal characters at ultrastructural, zooidal and colonial levels are all inferred to be homoplasious (Taylor & Weedon 2000). Recent molecular studies have confirmed homoplasy, and further taxon sampling is necessary to resolve several outstanding questions, but three main clades have twice been identified, along with several subclades (Waeschenbach *et al.* 2009, 2012). Formal taxonomy to establish new monophyletic suprafamilial taxa based on the new information has not yet been achieved.

Classification of Ctenostomata is based on a synthesis of data given in d’Hondt (1983), Jebram (1986), Todd (2000) and Waeschenbach *et al.* (2012). The order is monophyletic, but paraphyletic with respect to Cheilostomata, which originated from a ctenostome ancestor in the latest Jurassic (Taylor 1990). Traditional suborders are not retained here.

Classification of Cheilostomata is based on an evolving synthesis compiled by Gordon (2012), presented on the Bryozoa Home Page (Bock 2013) and used in the World Register of Marine Species. Cheilostomata is monophyletic (Waeschenbach *et al.* 2012) or perhaps diphyletic if the ctenostome superfamily Penetrantioidea is indeed ‘cheilostomatous’ (Soule & Soule 1975; Jebram 1992).

## Classification

Phylum **Bryozoa** Ehrenberg, 1831 (3 classes)

Class **Phylactolaemata** Allman, 1856 (1 order)

Order **Plumatellida** Pennak, 1953 (6 families)

Family **Cristatellidae** Allman, 1856 (1 genus, 1 species)

Family **Fredericellidae** Hyatt, 1868 (2 genera, 8 species)

Family **Lophopodidae** Rogick, 1935 (3 genera, 8 species)

Family **Pectinatellidae** Lacourt, 1968 (2 genera, 4 species)

Family **Plumatellidae** Allman, 1856 (6 genera, 64 species)

Family **Stephanellidae** Lacourt, 1968 (1 genus, 1 species)

Class **Stenolaemata** Borg, 1941 (1 order)

Order **Cyclostomata** Busk, 1852 (5 suborders)

Suborder **Tubuliporina** Milne Edwards, 1838 (15 families)

Family **Annectocymidae** Hayward & Ryland, 1985 (1 genus, 5 species)

Family **Cinctiporidae** Boardman, McKinney & Taylor, 1992 (2 genera, 2 species)

Family **Crisuliporidae** Buge, 1979 (1 genus, 4 species)

Family **Diaperoeciidae** Canu, 1918 (4 genera, 23 species)

Family **Diastoporidae** Gregory, 1899 (11 genera, 51 species)

Family **Fascigeridae** d'Orbigny, 1853 (2 genera, 8 species)

Family **Fron diporidae** Busk, 1859 (4 genera, 15 species)

Family **Hastingsiidae** Borg, 1944 (1 genus, 3 species)

Family **Mecynoeciidae** Canu, 1918 (2 genera, 21 species)

Family **Oncousoeciidae** Canu, 1918 (8 genera, 40 species)

Family **Plagioeciidae** Canu, 1918 (1 genus, 17 species)

Family **Pustuloporidae** Smitt, 1872 (2 genera, 4 species)

Family **Stomatoporidae** Pergens & Meunier, 1886 (6 genera, 16 species)

Family **Terviidae** Canu & Bassler, 1920 (1 genus, 3 species)

Family **Tubuliporidae** Johnston, 1838 (11 genera, 105 species)

Family **Incertae sedis** (5 genera, 10 species)

Suborder **Articulata** Busk, 1859 (1 family)

Family **Crisiidae** Johnston, 1847 (6 genera, 92 species)

Suborder **Cancellata** Gregory, 1896 (4 families)

Family **Crisinidae** d'Orbigny, 1853 (5 genera, 8 species)

Family **Horneridae** Smitt, 1867 (4 genera, 22 species)

Family **Pseudidmoneidae** Borg, 1944 (1 genus, 2 species)

Family **Stigmatoechidae** Brood, 1972 (1 genus, 2 species)

Suborder **Ceriporina** von Hagenow, 1851 (1 family)

Family **Ceriporidae** Busk, 1859 (5 genera, 19 species)

Suborder **Rectangulata** Waters, 1887 (2 families)

Family **Densiporidae** Borg, 1944 (5 genera, 17 species)

Family **Lichenoporidae** Smitt, 1867 (9 genera, 54 species)

Class **Gymnolaemata** Allman, 1856 (2 orders)

Order **Ctenostomata** Busk, 1852 (8 superfamilies)

Superfamily **Benedeniporoidea** Delage & Hérouard, 1897 (2 families)

Family **Benedeniporidae** Delage & Hérouard, 1897 (1 genus, 3 species)

Family **Labio stomellidae** Silén, 1942 (1 genus, 1 species)

- Superfamily **Alcyonidoidea** Johnston, 1838 (6 families)
  - Family **Alcyoniidae** Johnston, 1838 (3 genera, 66 species)
  - Family **Clavoporidae** Osburn & Soule, 1953 (5 genera, 6 species)
  - Family **Flustrellidridae** Bassler, 1953 (6 genera, 21 species)
  - Family **Lobiancoporidae** Delage & Hérouard, 1897 (1 genus, 4 species)
  - Family **Pachyzoontidae** d'Hondt, 1983 (1 genus, 1 species)
  - Family **Pherusellidae** Osburn & Soule, 1853 (1 genus, 3 species)
- Superfamily **Paludicelloidea** Allman, 1856 (1 family)
  - Family **Paludicellidae** Allman, 1836 (1 genus, 2 species)
  - Family **Panolicellidae** Jebram, 1985 (1 genus, 1 species)
- Superfamily **Arachnidoidea** Hincks, 1880 (4 families)
  - Family **Arachnidiidae** Hincks, 1880 (7 genera, 24 species)
  - Family **Immergentiidae** Silén, 1946 (1 genus, 10 species)
  - Family **Monobryozoontidae** Rémane, 1936 (1 genus, 3 species)
  - Family **Nolellidae** Harmer, 1915 (3 genera, 15 species)
- Superfamily **Victorelloidea** Hincks, 1880 (3 families)
  - Family **Pottsiellidae** Braem, 1940 (1 genus, 1 species)
  - Family **Victorellidae** Hincks, 1880 (4 genera, 10 species)
  - Family **Sundanellidae** Jebram, 1973 (1 genus, 1 species)
- Superfamily **Walkerioidea** Hincks, 1880 (8 families)
  - Family **Aeverrilliidae** Jebram, 1973 (1 genus, 2 species)
  - Family **Bathyalozoontidae** d'Hondt, 1975 (1 genus, 1 species)
  - Family **Farrellidae** d'Hondt, 1983 (1 genus, 1 species)
  - Family **Harmeriellidae** d'Hondt, 1983 (1 genus, 1 species)
  - Family **Hypophorellidae** Prenant & Bobin, 1956 (1 genus, 1 species)
  - Family **Mimosellidae** Hincks, 1977 (2 genera, 9 species)
  - Family **Triticellidae** G. O. Sars, 1874 (2 genera, 12 species)
  - Family **Walkeriidae** Hincks, 1880 (2 genera, 5 species)
- Superfamily **Hislopioidea** Jullien, 1885 (2 families)
  - Family **Haywardozoontidae** d'Hondt, 1983 (1 genus, 2 species)
  - Family **Hislopiidae** Jullien, 1885 (1 genus, 9 species)
- Superfamily **Vesicularioidea** Johnston, 1847 (5 families)
  - Family **Buskiidae** Hincks, 1880 (2 genera, 11 species)
  - Family **Spathiporidae** Pohowsky, 1978 (1 genus, 7 species)
  - Family **Terebriporidae** d'Orbigny, 1847 (1 genus, 10 species)
  - Family **Vesiculariidae** Johnston, 1847 (6 genera, 68 species)
- Superfamily **Penetrantioidea** Silén, 1946 (1 family)
  - Family **Penetrantiidae** Silén, 1946 (1 genus, 8 species)
- Order **Cheilostomata** Busk, 1852 (4 suborders)
  - Suborder **Malacostegina** Levinsen, 1902 (1 superfamily)
    - Superfamily **Membraniporoidea** Busk, 1852 (3 families)
      - Family **Electridae** Stach, 1937 (15 genera, 80 species)
      - Family **Membraniporidae** Busk, 1852 (3 genera, 45 species)
      - Family **Sinoflustridae** Gordon, 2009 (2 genera, 7 species)
  - Suborder **Inovicellina** Jullien, 1888 (1 superfamily)
    - Superfamily **Aeteoidea** Smitt, 1868 (1 family)

- Family **Aeteidae** Smitt, 1868 (2 genera, 15 species)
- Suborder **Scrupariina** Silén, 1941 (1 superfamily)
- Superfamily **Scruparioidea** Gray, 1848 (3 families)
- Family **Eucrateidae** Johnston, 1847 (1 genus, 1 species)
- Family **Leiosalpingidae** d'Hondt & Gordon (2 genera, 3 species)
- Family **Scrupariidae** Gray, 1848 (2 genera, 4 species)
- Suborder **Neocheilostomina** d'Hondt, 1985 (23 superfamilies)
- Superfamily **Calloporoidea** Norman, 1903 (12 families)
- Family **Antroporidae** Vigneaux, 1949 (4 genera, 19 species)
- Family **Bryopastoridae** d'Hondt & Gordon, 1999 (2 genera, 5 species)
- Family **Calloporidae** Norman, 1903 (38 genera, 271 species)
- Family **Chaperiidae** Jullien, 1888 (10 genera, 70 species)
- Family **Cupuladriidae** Lagaij, 1952 (2 genera, 35 species)
- Family **Doryporellidae** Grischenko, Taylor & Mawatari, 2004 (2 genera, 5 species)
- Family **Farciminariidae** Busk, 1852 (4 genera, 25 species)
- Family **Foveolariidae** Gordon & Winston *in* Winston, 2005 (3 genera, 8 species)
- Family **Heliodomidae** Vigneaux, 1949 (2 genera, 6 species)
- Family **Hiantoporidae** Gregory, 1893 (2 genera, 8 species)
- Family **Quadricellariidae** Gordon, 1984 (3 genera, 11 species)
- Family **Tendridae** Vigneaux, 1949 (2 genera, 3 species)
- Family **Incertae sedis** (5 genera, 14 species)
- Superfamily **Buguloidea** Gray, 1848 (7 families)
- Family **Beaniidae** Canu & Bassler, 1927 (3 genera, 72 species)
- Family **Bugulidae** Gray, 1848 (31 genera, 262 species)
- Family **Candidae** d'Orbigny, 1851 (23 genera, 255 species)
- Family **Epistomiidae** Gregory, 1893 (2 genera, 5 species)
- Family **Euoplozoidae** Harmer, 1926 (1 genus, 1 species)
- Family **Jubellidae** Reverter-Gil & Fernández-Pulpeiro, 2001 (1 genus, 1 species)
- Family **Rhabdozoidae** MacGillivray, 1887 (1 genus, 2 species)
- Superfamily **Incertae sedis** (1 family)
- Family **Mourellinidae** Reverter-Gil, Souto & Fernández-Pulpeiro, 2011 (1 genus, 2 species)
- Superfamily **Microporoidea** Gray, 1848 (16 families)
- Family **Alysiidiidae** Levinsen, 1909 (2 genera, 3 species)
- Family **Aspidostomatidae** Jullien, 1888 (4 genera, 11 species)
- Family **Calescharidae** Bock & Cook, 1998 (3 genera, 6 species)
- Family **Chlidonidae** Busk, 1884 (1 genus, 2 species)
- Family **Macroporidae** Uttley, 1949 (1 genus, 12 species)
- Family **Microporidae** Gray, 1848 (13 genera, 54 species)
- Family **Monoporellidae** Hincks, 1882 (1 genus, 11 species)
- Family **Lunulariidae** Levinsen, 1909 (1 genus, 2 species)
- Family **Onychocellidae** Jullien, 1882 (6 genera, 30 species)
- Family **Otionellidae** Bock & Cook, 1998 (3 genera, 15 species)
- Family **Poricellariidae** Harmer, 1926 (1 genus, 1 species)
- Family **Pyrisinellidae** Di Martino & Taylor, 2012 (2 genera, 2 species)
- Family **Selenariidae** Busk, 1852 (2 genera, 19 species)
- Family **Setosellidae** Levinsen, 1909 (1 genus, 5 species)

- Family **Steginoporellidae** Hincks, 1884 (3 genera, 38 species)
- Family **Thalamoporellidae** Levinsen, 1902 (6 genera, 65 species)
- Superfamily **Cellarioidea** Fleming, 1828 (2 families)
- Family **Cellariidae** Fleming, 1828 (16 genera, 106 species)
- Family **Membranicellariidae** Levinsen, 1902 (2 genera, 2 species)
- Superfamily **Flustroidea** Fleming, 1828 (1 family)
- Family **Flustridae** Fleming, 1828 (15 genera, 80 species)
- Superfamily **Hipbothoidea** Busk, 1859 (5 families)
- Family **Chorizoporidae** Vigneaux, 1949 (2 genera, 9 species)
- Family **Hipbothoidae** Busk, 1859 (7 genera, 65 species)
- Family **Haplopomidae** Gordon *in* De Blauwe, 2009 (1 genus, 7 species)
- Family **Pasytheidae** Davis, 1934 (6 genera, 11 species)
- Family **Trypostegidae** Gordon, Tilbrook & Winston *in* Winston, 2005 (1 genus, 8 species)
- Superfamily **Cribrilinoidea** Hincks, 1879 (3 families)
- Family **Cribrilinidae** Hincks, 1879 (26 genera, 151 species)
- Family **Euthyroididae** Levinsen, 1909 (1 genus, 3 species)
- Family **Polliciporidae** Moyano, 2000 (1 genus, 1 species)
- Superfamily **Bifaxarioidea** Busk, 1884 (2 families)
- Family **Bifaxariidae** Busk, 1884 (6 genera, 46 species)
- Family **Mixtopeltidae** Gordon, 1994 (1 genus, 1 species)
- Superfamily **Catenicelloidea** Busk, 1852 (4 families)
- Family **Catenicellidae** Busk, 1852 (20 genera, 85 species)
- Family **Eurystomellidae** Levinsen, 1909 (4 genera, 13 species)
- Family **Petalostegidae** Gordon, 1984 (2 genera, 11 species)
- Family **Savignyellidae** Levinsen, 1909 (2 genera, 2 species)
- Superfamily **Arachnopusioidea** Jullien, 1888 (2 families)
- Family **Arachnopusiidae** Jullien, 1888 (5 genera, 43 species)
- Family **Exechonellidae** Harmer, 1957 (4 genera, 20 species)
- Superfamily **Adeonoidea** Busk, 1884 (2 families)
- Family **Adeonidae** Busk, 1884 (10 genera, 106 species)
- Family **Inversiulidae** Vigneaux, 1949 (1 genus, 4 species)
- Superfamily **Pseudolepralioidea** Silén, 1942 (1 family)
- Family **Pseudolepraliidae** Silén, 1942 (1 genus, 1 species)
- Superfamily **Lepralielloidea** Vigneaux, 1949 (8 families)
- Family **Bryocryptellidae** Vigneaux, 1949 (9 genera, 64 species)
- Family **Dhondtiscidae** Gordon, 1989 (1 genus, 2 species)
- Family **Hincksiporidae** Powell, 1968 (1 genus, 4 species)
- Family **Lepraliellidae** Vigneaux, 1949 (7 genera, 106 species)
- Family **Metrarabdotosidae** Vigneaux, 1949 (3 genera, 8 species)
- Family **Romancheinidae** Jullien, 1888 (21 genera, 123 species)
- Family **Sclerodomidae** Levinsen, 1909 (4 genera, 27 species)
- Family **Tessaradomidae** Jullien & Calvet, 1903 (1 genus, 3 species)
- Family **Umbonulidae** Canu, 1904 (7 genera, 33 species)
- Superfamily **Chlidiopsoidea** Harmer, 1957 (1 family)
- Family **Chlidiopsoidea** Harmer, 1957 (1 genus, 1 species)
- Superfamily **Smittinoidea** Levinsen, 1909 (4 families)

- Family **Bitectiporidae** MacGillivray, 1895 (13 genera, 148 species)  
 Family **Smittinidae** Levinsen, 1909 (18 genera, 336 species)  
 Family **Lanceoporidae** Harmer, 1957 (4 genera, 86 species)  
 Family **Watersporidae** Vigneaux, 1949 (5 genera, 18 species)  
 Superfamily **Schizoporelloidea** Jullien, 1883 (32 families)  
 Family **Acoraniidae** López-Fé, 2006 (1 genus, 1 species)  
 Family **Actisecidae** Harmer, 1957 (1 genus, 2 species)  
 Family **Buffonellodidae** Gordon & d'Hondt, 1997 (7 genera, 33 species)  
 Family **Calwelliidae** MacGillivray, 1887 (7 genera, 15 species)  
 Family **Cheiloporinidae** Bassler, 1936 (5 genera, 17 species)  
 Family **Cryptosulidae** Vigneaux, 1949 (2 genera, 6 species)  
 Family **Cyclicoporidae** Hincks, 1884 (1 genus, 1 species)  
 Family **Echinovadomidae** Tilbrook, Hayward & Gordon, 2001 (1 genus, 3 species)  
 Family **Eminoeciidae** Hayward & Thorpe, 1988 (3 genera, 8 species)  
 Family **Escharinidae** Tilbrook, 2006 (9 genera, 66 species)  
 Family **Gigantoporidae** Bassler, 1935 (6 genera, 26 species)  
 Family **Hippaliosinidae** Winston, 2005 (1 genus, 12 species)  
 Family **Hippopodinidae** Levinsen, 1909 (4 genera, 17 species)  
 Family **Jaculinidae** Zabala, 1986 (1 genus, 4 species)  
 Family **Lacernidae** Jullien, 1888 (10 genera, 34 species)  
 Family **Margarettidae** Harmer, 1957 (1 genus, 12 species)  
 Family **Mawatariidae** Gordon 1990 (1 genus, 2 species)  
 Family **Microporellidae** Hincks, 1879 (8 genera, 172 species)  
 Family **Myriaporidae** Gray, 1841 (3 genera, 13 species)  
 Family **Pacificincolidae** Lu, 1999 (2 genera, 4 species)  
 Family **Petraliellidae** Harmer, 1957 (6 genera, 57 species)  
 Family **Petraliidae** Levinsen, 1909 (1 genus, 3 species)  
 Family **Phoceanidae** Vigneaux, 1949 (2 genera, 4 species)  
 Family **Phoriopnniidae** Gordon & d'Hondt, 1997 (3 genera, 5 species)  
 Family **Porinidae** d'Orbigny, 1852 (4 genera, 16 species)  
 Family **Robertsonidridae** Rosso, Sciuto & Sinagra, 2010 (2 genera, 8 species)  
 Family **Romancheinidae** Jullien, 1888 (20 genera, 143 species)  
 Family **Schizoporellidae** Jullien, 1883 (4 genera, 107 species)  
 Family **Stomachetosellidae** Canu & Bassler, 1917 (7 genera, 23 species)  
 Family **Tetraplariidae** Harmer, 1957 (1 genus, 13 species)  
 Family **Teuchoporidae** Neviani, 1895 (3 genera, 17 species)  
 Family **Vicidae** Gordon, 1988 (2 genera, 2 species)  
 Superfamily **Urceoliporoidea** Bassler, 1936 (1 family)  
 Family **Urceoliporidae** Bassler, 1936 (2 genera, 3 species)  
 Superfamily **Didymoselloidea** Brown, 1952 (1 family)  
 Family **Didymosellidae** Brown, 1952 (2 genera, 7 species)  
 Superfamily **Euthyriselloidea** Bassler, 1953 (1 family)  
 Family **Euthyrisellidae** Bassler, 1953 (5 genera, 6 species)  
 Superfamily **Siphonicytaroidea** Harmer, 1957 (1 family)  
 Family **Siphonicytaridae** Harmer, 1957 (1 genus, 12 species)  
 Superfamily **Mamilloporoidea** Canu & Bassler, 1927 (4 families)

- Family **Ascosiidae** Jullien, 1883 (2 genera, 5 species)
- Family **Cleidochasmatidae** Cheetham & Sandberg, 1964 (7 genera, 28 species)
- Family **Crepidacanthidae** Levinsen, 1909 (1 genus, 14 species)
- Family **Mamilloporidae** Canu & Bassler, 1927 (2 genera, 6 species)
- Superfamily **Celleporoidea** Johnston, 1838 (5 families)
- Family **Celleporidae** Johnston, 1838 (20 genera, 246 species)
- Family **Colatooeciidae** Winston, 2005 (3 genera, 19 species)
- Family **Hippoporidridae** Vigneaux, 1949 (5 genera, 31 species)
- Family **Phidoloporidae** Gabb & Horn, 1862 (22 genera, 324 species)
- Family **Torquatellidae** Tilbrook, 2006 (1 genus, 3 species)
- Superfamily **Conescharellinoidea** Levinsen, 1909 (4 families)
- Family **Batoporidae** Neviani, 1900 (3 genera, 11 species)
- Family **Conescharellinidae** Levinsen, 1909 (6 genera, 91 species)
- Family **Lekythoporidae** Levinsen, 1909 (8 genera, 23 species)
- Family **Orbituliporidae** Canu & Bassler, 1923 (1 genus, 1 species)

## References

- Bock, P.E. (2013) The Bryozoa home page. <http://bryozoa.net/>
- Gordon, D.P. (2012) Bryozoa: Cheilostomata. Interim classification for Treatise. Version of 1 November 2012. Unpublished. Available from [http://www.bryozoa.net/treat\\_family\\_2012.pdf](http://www.bryozoa.net/treat_family_2012.pdf)
- Hirose, M., Dick, M.H. & Mawatari, S.F. (2008) Molecular phylogenetic analysis of phylactolaemate bryozoans based on mitochondrial gene sequences. *In*: Hageman, S.J., Key, M.M. Jr & Winston, J.E. (Eds), *Bryozoan Studies 2007. Virginia Museum of Natural History Special Publication*, 15, 65–74.
- Hirose, M. & Mawatari, S.F. (2011) Freshwater Bryozoa of Okinawa, Japan, with descriptions of *Rumarcanella* gen. nov. (Phylactolaemata: Plumatellidae) and two new species. *Zootaxa*, 2732, 1–19.
- Hondt, J.-L. d' (1983) Tabular keys for identification of the Recent ctenostomatous Bryozoa. *Mémoires de l'Institut Océanographique, Monaco*, 14, 1–134.
- Jebram, D. (1986) The ontogenetical and supposed phylogenetical fate of the parietal muscles in the Ctenostomata (Bryozoa). *Zeitschrift für Zoologische Systematik und Evolutionsforschung*, 24, 58–82. <http://dx.doi.org/10.1111/j.1439-0469.1986.tb00616.x>
- Jebram, D. (1992) The polyphyletic origin of the “Cheilostomata” (Bryozoa). *Zeitschrift für Zoologische Systematik und Evolutionsforschung*, 30, 46–52.
- Massard, J.A. & Geimer, G. (2008) Global diversity of bryozoans (Bryozoa or Ectoprocta) in freshwater. *Hydrobiologia*, 595, 93–99. <http://dx.doi.org/10.1007/s10750-007-9007-3>
- Soule, J.D. & Soule, D.F. (1975) *Spathipora*, its anatomy and phylogenetic affinities. *Documents des Laboratoires de Géologie de la Faculté des Sciences de Lyon*, h.s. 3, 1, 247–253, 4 pls.
- Todd, J.A. (2000) The central role of ctenostomes in bryozoan phylogeny. *In*: Herrera Cubila, A. & Jackson, J.B.C. (Eds), *Proceedings of the 11th International Bryozoology Association Conference*. Smithsonian Tropical Research Institute, Balboa, pp. 104–135.
- Taylor, P.D. (1990) Bioimmured ctenostomes from the Jurassic and the origin of the cheilostome Bryozoa. *Palaeontology*, 33, 19–34.
- Taylor, P.D. & Weedon, M.J. (2000) Skeletal ultrastructure and phylogeny of cyclostome bryozoans. *Zoological Journal of the Linnean Society*, 128, 337–399. <http://dx.doi.org/10.1111/j.1096-3642.2000.tb01521.x>
- Waeschenbach, A., Cox, C.J., Littlewood, D.T.J., Porter, J.S. & Taylor, P.D. (2009) First molecular estimate of cyclostome bryozoan phylogeny confirms extensive homoplasy among skeletal characters used in traditional taxonomy. *Molecular Phylogenetics and Evolution*, 52, 241–251. <http://dx.doi.org/10.1016/j.ympev.2009.02.002>
- Waeschenbach, A., Taylor, P.D. & Littlewood, D.T.J. (2012) A molecular phylogeny of bryozoans. *Molecular Phylogenetics and Evolution*, 62, 718–735. <http://dx.doi.org/10.1016/j.ympev.2011.11.011>

- Wood, T.S. & Okamura, B. (2005) A new key to the freshwater bryozoans of Britain, Ireland and continental Europe, with notes on their ecology. *Freshwater Biological Association Scientific Publication*, 63, 1–111.
- Wood, T.S. & Wood, L.J. (2000) Statoblast morphology in historical specimens of phylactolaemate bryozoans. *In*: Herrera Cubilla, A. & Jackson, J.B.C. (Eds), *Proceedings of the 11th International Bryozoology Association Conference*. Smithsonian Tropical Research Institute, Balboa, Panama, pp. 421–430.
- Zhang, Z.-Q. (Ed.) (2011) Animal Biodiversity: An Outline of Higher-level Classification and Survey of Taxonomic Richness. *Zootaxa*, 3148, 1–237.