

Obolellida

Article by:

Emig, Christian C. Centre d'Océanologie de Marseille, Marseille, France.

Publication year: 2014

DOI: <http://dx.doi.org/10.1036/1097-8542.463400> (<http://dx.doi.org/10.1036/1097-8542.463400>)

Content

- [Classification](#)
- [Morphology](#)
- [Bibliography](#)
- [Additional Readings](#)

A small extinct order of articulated brachiopods that ranges in age from Early to Middle Cambrian and includes the earliest known calcitic brachiopods.

Classification

The order Obolellida is included within the class Obolellata, subphylum Rhynchonelliformea, phylum Brachiopoda.

Phylum Brachiopoda

Subphylum Rhynchonelliformea

Class Obolellata

Order Obolellida

Superfamily Obolelloidea

Family Obolellidae

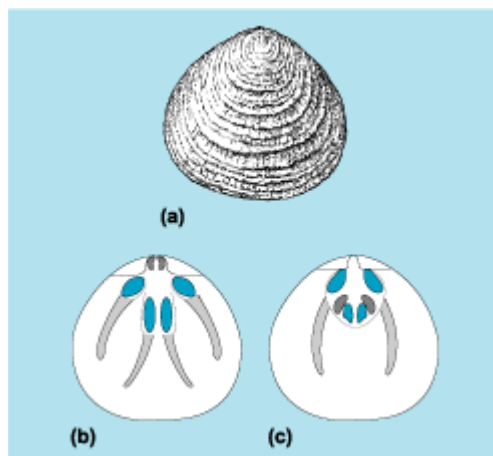
5 genera (Lower Cambrian)

Family Trematobolidae

3 genera (Early–Middle Cambrian)

Morphology

Obolliids have a biconvex, calcite, impunctate (lacking holes) shell with an elongated oval shape and a laminar secondary layer. The order includes forms that have primitive articulation of the ventral and dorsal valves—consisting of paired ventral denticles (hinge teeth), where the pedicle (fleshy stalk) attaches to the shell, and dorsal sockets along the internal posterior margin (hinge line)—and forms that lack denticles, such as the genus *Obolliella* (see [illustration](#)). The ventral valve (formerly named pedicle valve) has a well-defined, low, and relatively short flat shelf (interarea) at the posterior. The pedicle opening (delthyrium) is located between the valves, and is either uncovered, as in *Obolliella*, or closed off by convex plates (pseudodeltidium).



Obolliella. (a) Shell exterior (after J. Hall and J. M. Clarke, *An introduction to the study of the Brachiopoda intended as a handbook for the use of students, Report of the N.Y. State Geologist for 1891, 1894*). (b) Dorsal valve interior, and (c) ventral valve interior, with schematic illustration of musculature and mantle canals (parts b and c reprinted with permission from R. L. Kaesler, ed., *Treatise on Invertebrate Paleontology*, courtesy of and copyright © 2000, Geological Society of America and University of Kansas).

The mantle canal system lacks bifurcations (baculate type) in both valves. The ventral and dorsal valves contained main mantle canals known as vascula lateralia. The dorsal valve (formerly named brachial valve) also contained a secondary mantle canal, called the vascula media.

The muscle arrangement is very similar to that of other articulated brachiopods: in the dorsal valve, the pairs of anterior and posterior adductor muscles form a muscle field, while the single pair of oblique diductor muscles is attached at the bottom of the pedicle opening (notothyrial cavity). In the ventral valve, the pair of diductor muscles are located between the pairs of anterior adductor and posterior adductor muscles.

Members of this group were presumably epifaunal and sessile. See also: [Brachiopoda \(/content/brachiopoda/093000\)](#); [Rhynchonelliformea \(/content/rhynchonelliformea/053100\)](#)

Christian Emig

Bibliography

V. Iu. Gorjansky and L. E. Popov, Morphology, systematic position and origin of the inarticulate brachiopods with calcareous shells [in Russian], *Paleontologicheskii Zh.*, 1985(3):3–14, 1985

V. Iu. Gorjansky and L. E. Popov, On the origin and systematic position of the calcareous-shelled inarticulate brachiopods, *Lethaia*, 19:233–240, 1986 DOI: [10.1111/j.1502-3931.1986.tb00737.x](https://doi.org/10.1111/j.1502-3931.1986.tb00737.x)
(<http://dx.doi.org/10.1111/j.1502-3931.1986.tb00737.x>)

R. L. Kaesler (ed.), *Treatise on Invertebrate Paleontology, Part H, Brachiopoda*, Geological Society of America, Boulder, and University of Kansas, Lawrence, 2000

L. E. Popov, L. E. Holmer, and M. G. Bassett, Radiation of the earliest calcareous brachiopods, in P. Copper and J. Jin (eds.), *Brachiopods, Proc. 3d Int. Brachiopod Congr.*, pp. 209–213, A. A. Balkema, Rotterdam, 1996

A. Williams et al., A supraordinal classification of the Brachiopoda, *Phil. Trans. Roy. Soc. Lond. B*, 351:1171–1193, 1996 DOI: [10.1098/rstb.1996.0101](https://doi.org/10.1098/rstb.1996.0101) (<http://dx.doi.org/10.1098/rstb.1996.0101>)

Additional Readings

E. Clarkson, *Invertebrate Palaeontology and Evolution*, 4th ed., John Wiley & Sons, Hoboken, NJ, 2009

J. P. Rafferty (ed.), *The Paleozoic Era: Diversification of Plant and Animal Life*, Britannica Educational Publishing, New York, 2011

[BrachNet \(http://paleopolis.rediris.es/BrachNet/\)](http://paleopolis.rediris.es/BrachNet/)