

Obolellida

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)

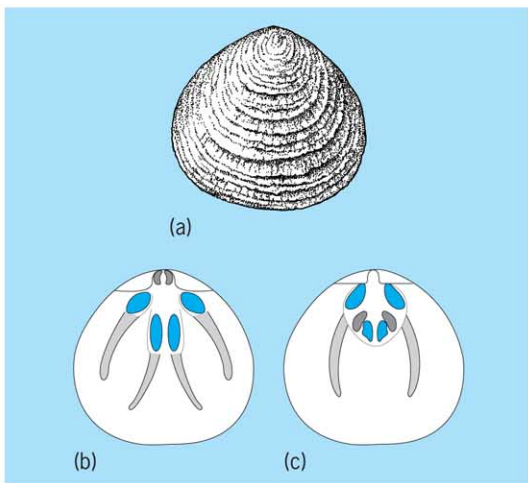
Morphology. Obolellids have a biconvex, calcite, impunctate (lacking holes) shell with an elongated oval shape and a laminar secondary layer. The order includes forms that have primitive articulation of the ventral and dorsal valves—consisting of paired ventral denticles (hinge teeth), where the pedicle (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 *Obolella*. 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 *Obolella*, or closed off by convex plates (pseudodeltidium).

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 BRACHIOPODA; RHYNCHONELLIFORMEA. 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, *Letbata*, 19:233–240, 1986; R. L. Kaesler (ed.), *Treatise on Invertebrate Paleontology, Part H. Brachiopoda*, Geological Society of America, Boulder, Co, and University of Kansas, Lawrence, vol. 2, 2000; Yu. L. Pelman, Early and Middle Cambrian inarticulate brachiopods of the Siberian Platform [in Russian], *Trudy Inst. Geologii i Geofiziki*, Sibirskoe otdelenie, vol. 316, 1977; 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.*, Sudbury, Ontario, Canada, Sept. 2–5, 1995, pp. 209–213, A. A. Balkema, Rotterdam, Brookfield, 1996; A. J. Rowell, The genera of the brachiopod superfamilies Obolellacea and Siphonotretacea, *J. Paleontol.*, 36:136–152, 1962; A. J. Rowell, Inarticulate, in R. C. Moore (ed.), *Treatise on Invertebrate Paleontology, Part H, Brachiopoda*, pp. 260–296, Geological Society of America, Boulder, Co, and University of Kansas Press, Lawrence, 1965.



Obolella (a) Shell exterior (after J. Hall and J. M. Clarke, *An introductory 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 (b and c reprinted with permission from R. L. Kaesler, ed., *Treatise on Invertebrate Paleontology*, courtesy of and © 2000, Geological Society of America and University of Kansas).