

A new genus of Late Ordovician–Early Silurian pentameride brachiopods and its phylogenetic relationships

Jisuo Jin and Leonid E. Popov

Acta Palaeontologica Polonica 53 (2), 2008: 221–236 doi:<http://dx.doi.org/10.4202/app.2008.0205>

Protanastrophia repanda gen. et sp. nov. is a reef-dwelling parastrophinid brachiopod in the Lower Silurian (uppermost Telychian) Attawapiskat Formation of the Hudson Bay region of Canada. It is characterized by a small, quasi-smooth shell with gentle anterior costae, a tendency towards an asymmetrical, sigmoidal anterior commissure, and widely separate, subparallel inner hinge plates. *Protanastrophia* first appeared in the marginal seas of Siberia (Altai, Mongolia) during the Late Ordovician, retaining the primitive character of discrete inner hinge plates in the superfamily Camerelloidea, and preferred a carbonate mound depositional environment. It survived the Late Ordovician mass extinction and subsequently spread to Baltica and Laurentia during Early Silurian (Llandovery) time. Superficially similar asymmetrical shells of *Parastrophina portentosa* occur in the Upper Ordovician carbonate mound facies of Kazakhstan but differ internally from the new genus in having a septum-supported septalium. Phylogenetic analysis indicates that, within the Camerelloidea, asymmetrical shells with a sigmoidal anterior commissure evolved in *Protanastrophia repanda* and *Parastrophina portentosa* independently during the Late Ordovician as a case of homoplasy. The two species belong to separate parastrophinid lineages that evolved in widely separate palaeogeographic regions.

Key words: Brachiopoda, Parastrophinidae, Ordovician, Silurian, Canada, Siberia

Jisuo Jin [jjin@uwo.ca], Department of Earth Sciences, The

University of Western Ontario, London, Ontario, Canada N6A 5B7;

Leonid E. Popov [leonid.popov@museumwales.ac.uk], Department of Geology, National Museum of Wales, Cathays Park, Cardiff, CF10 3NP, UK.

 [Full text \(597.8 kB\)](#)