

Evolution of 'small shelly fossils' assemblages of the Early Paleozoic

Jerzy Dzik

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The allegedly sudden appearance of skeletal fossils at the beginning of the Cambrian is a preservational artifact. The most characteristic earliest Cambrian fossil assemblages are calcareous fossils with secondary phosphatic envelopes. Such preservation, although less and less abundant, continued to occur throughout the whole Early Paleozoic. A high organic productivity, low sedimentation rate, and shallow bioturbation controlled their distribution. It is proposed that the evolutionary diversification and ecologic expansion of infaunal detritus feeders resulted in extinguishing the 'small shelly fossils' benthic environments. Gradual replacement of the Cambrian coeloscleritophoran-monoplacophoran associations by Ordovician machaeridian-gastropod and then by Silurian and later bivalve-gastropod dominated ones is evident in the series of the Meishucun-, Mójcza-, and Kok-type faunas. This is followed by a reduction in diversity of associated organisms, starting with the anabartids (possibly of trilobozoan or nemathelminthan affinities), through tornrnotiids (possible machaeridians), palaeoscolecid priapulids, hyoliths (with monoplacophoran-cephalopod relationships), octactinellid and receptaculitid sponges, and then the septemchitonid polyplacophorans.

Key words: taphonomy, Cambrian, Ordovician, Silurian, molluscs, sponges, problematica.

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