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THE FORMATION OF THE EARLY CAMBRIAN SINSK LAGERSTÄTTEN AND THEIR BIOTA (SIBERIAN PLATFORM)

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The Sinsk Lagerstätten are almost the only Lagerstätte occurring in carbonate facies. They are among the typical Lagerstätten, where the preservation of organic remains is due to the following factors: (1) the presence of firm, resistant cuticles, (2) a low oxygen tension in the milieu of burial, and (3) high rates of burial in (4) a fine grained sediment. A late Atdabanian - early Mayan taphonomic window, to which the Cambrian Lagerstätten are restricted, existed due to an appearance of firm cuticles in a number of groups of organisms and due to a relatively late intensification of bioturbation and a shift of bioturbators to deeper marine settings.

The biota of the Sinsk Lagerstätten inhabited an open-marine basin within the photic zone, but in conditions characterized by lowering oxygen tensions. All the organisms of the biota were quite adapted to a life in dysaerobic conditions. Nowadays these groups comprise only a negligible part of communities and commonly survive in settings with low levels of competition. The organization of Sinsk paleocommunities was not simple. They comprised diverse trophic groups and the tiering among sessile suspension-feeders was well-developed with the upper tier at the 50 cm level. Despite the differences in environmental conditions, a number of similar features of the Vodoroslevaya Linza (Sinsk Formation) and Phyllopod Bed (Burgess Shale) fossil communities, such as a significance of different groups of organisms in the biodiversity, a relative percentage of fauna in terms of number of individuals and biovolumes of major groups, feeding types, and life habits, suggest a relative stability (during ca. 25 m.y.) of Cambrian communities occupying similar subtidal settings.