Laurentian crinoids experienced a major extinction in the Late Ordovician, followed by a dramatic reorganization that saw (primarily) camerate crinoids rise to dominance in shallow marine environments. The ascendance of this Middle Paleozoic Crinoid Macromevolutionary Fauna occurred largely during the earliest Silurian, with camerate dominance established by the late Llandovery. Consequently, the occurrence of a diverse, abundant, and primarily invasive blastozoan fauna, including the youngest known eocrinoid and paracrinoid and nearly thirty species of diploporitan, in the Wenlock of eastern midcontinent North America is a paleoecological enigma, as this rich and arguably somewhat primitive blastozoan component represents an Ordovician-style anachronism. Moreover, this blastozoan fauna occurs in the same beds as a fairly diverse crinoid fauna, including many of the otherwise dominant camerate taxa, and a diverse assemblage of articulated brachiopods and bryozoans—this is significant because it indicates that development of this anachronistic biota is not related to temporary occupancy of niches vacated by taxa more typical of the age of the assemblage (i.e., camerates, atrypids).

Here, an anachronistic fauna appears linked to paleoenvironmental, rather than purely evolutionary, factors. The large thecal size but relatively inefficient food-gathering capabilities of the most abundant blastozoans, holocystitid diploporitans, suggests an abundance of food capable of supporting not only the efficient crinoids, but a suite of echinoderms that are otherwise insignificant in Silurian ecosystems. This influx in food is interpreted as reflecting changes in primary productivity linked to major paleoceanographic perturbations. Paleobiogeographic and sequence stratigraphic data further suggest linkage between cooling in high latitude environments and establishment of this anachronistic blastozoan fauna.