THE AGE OF NAUTILOIDS IN THE AMERICAN MIDWEST: THE PLATTEVILLE FAUNA IN ILLINOIS AND WISCONSIN

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Descriptive studies of fossil nautiloids from the Ordovician Platteville Group exposed in north-central Illinois and adjacent portions of Wisconsin have identified 50 species, belonging to 27 genera, and ten orders. Nautiloids are most abundant in the ledgy, fossiliferous dolomites of the Mifflin Formation and the overlying Grand Detour Formation (Late Ordovician, Turinian). Both units represent deposition in tropical carbonate platform environments. The Mifflin fauna includes 32 species, belonging to 22 genera and ten orders. The fauna of the Grand Detour is one of the most diverse and abundant nautiloid faunas known, consisting of 49 species, belonging to 27 genera and ten orders. The Mifflin fauna is dominated by numerous specimens of the small fusiform orthocerid *Whitfieldoceras* and an undescribed primitive ascocerid, with lesser numbers of small oncocerids and coiled tarphycerids. The succeeding Grand Detour fauna is dominated by a diverse group of cyrtoconic oncocerids plus common specimens of the large actinocerids *Actinoceras* and *Gonioceras.*

These diverse early Late Ordovician nautiloid faunas in cratonic Laurentia were decimated by a regional extinction event in the latest Turinian-early Chatfieldian. Causes remain speculative but include a regression of the seas from the area, an ingress of clastic sediments, and deleterious effects from the Deicke volcanic event.

Relic populations of a number of these Turinian nautiloid genera found refugia in carbonate platform environments in what is now the Arctic archipelago in the succeeding Chatfieldian. These relic taxa seeded a resurgence of nautiloid evolution leading to the development of the diverse, abundant, often gigantic taxa that characterize the Arctic Ordovician Fauna associated with widespread carbonate platform facies in Laurentia in the Edenian and Maysvillian.