

Kentland Structural Anomaly

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The structurally disturbed area near Kentland in Newton County, Indiana, is generally believed to be the result of a meteorite impact. Although the time of the event is impossible to pinpoint, we know from the age of the rocks affected that it occurred sometime after Early to Mid Pennsylvanian Time (circa 210 million years ago), but before glaciations of the region.

The feature consists of a domed structure with a mean diameter of about eight miles, the central portion of which was uplifted to displace the surface rocks of Lower Ordovician age (Shakopee Dolomite). Normal faulting within one of the ring structures outward from the central uplift zone has resulted in the preservation of a Pennsylvanian-age outlier consisting of sandstone, shale, and minor shows of coal. Some geologists estimate that as much as 3,000 feet of rock were uplifted at the time of impact with nearly 1,000 feet of the youngest strata having been eroded since the disturbance occurred. Although this estimate is conjectural we do know that nearly 2,000 feet of Paleozoic rocks spanning geologic time from 320 million years ago to more than 450 million years ago remain within the central uplift part of the structurally disturbed area.

The Newton County Stone Company Quarry, which is owned and operated by Rogers Group, Inc., was first opened in the early 1880's and has been more or less in continuous operation since then. The mining strategy has focused on the limestone and dolomite units within the Black River Group (Middle Ordovician) and the Trenton Limestone (Upper Ordovician). A southwestward extension of the quarry complex has exploited rocks of Lower Silurian and Upper Ordovician age.

Most of the bedrock quarries in Indiana are located south of the Wisconsin Glacial Boundary (e.g., line of maximum advance of the Wisconsin ice sheet during the Pleistocene Epoch). The Newton County Stone Quarry in company with other stone quarries located north of Indianapolis is, however, situated where the glacial deposits over bedrock are relatively thin.

Indiana is bounded on the northeast by the Michigan Basin, on the southwest by the Illinois Basin, and on the southeast by the Appalachian Basin. The presence of these broad depressional regions has affected sediment deposition throughout much of the past 500 million years. The resultant pattern of rocks exposed at the surface or immediately below soft-sediment cover (sub crop) varies not only in rock type but also in age. The oldest rocks occur at the bedrock surface in southeastern Indiana whereas the youngest rocks are found in the western part of the state. The Kentland disturbed area, however, is atypical of the bedrock outcrop and sub crop patterns elsewhere in the state. The intense energy released by the meteorite impact near Kentland so distorted and uplifted the bedrock sequence at the quarry site that the oldest rocks native to Indiana are now exposed within the quarry, erosion and finally quarrying bringing them to the light of day.