The Murray geologic quadrangle area of Newton County, Arkansas, is characterized by a variety of Paleozoic-aged sedimentary rocks and tectonic features. Geologic mapping by M.R. Hudson and K.J. Turner from 2010 to 2015 has helped to identify and describe the region's geologic framework.

The bounding faults of the Murray quadrangle include Hoghead Creek, Taylor Mountain, and Major unconformities. These faults have movement occurring southwest to northeast, as documented through paleostress analysis.

Structural contours on the top of the Mississippian Boone Formation and the bottom of the Upper Ordovician St. Joe Limestone Member show a significant topographic elevation (in feet) of the top of the Boone Formation, Ball and bar on the downthrown block, arrows showing elevation.

Major unconformity Chert sandstones and shales (Purdue and Miser, 1916). Valleys of the Buffalo River and Little Buffalo quadrangle are within the Boston Mountains, a high plateau region underlain by Pennsylvanian environments. The Everton Formation is unconformably overlain by the Upper Ordovician sandstone. The middle Bloyd sandstone interval comprises the basal interval of the Bloyd Formation farther west and designated it informally as the "middle Bloyd shale. Purdue and Miser (1916) originally assigned rocks of the upper part of the Bloyd Formation to the "archimedes" unit, which mainly consists of conglomerates and sandstones, and the "hindsville" unit, which mainly consists of conglomerates and sandstones (probably of the Pitkin Limestone) within basal conglomerate lenses of the Cane Hill Member of the Batesville Sandstone. Top of the Cane Hill Member at the top of the Bloyd Formation is gradational with the overlying main body of the Boone Formation. The St. Joe Limestone Member of the Batesville Sandstone consists of angular white chert clasts in gray limestone matrix, 2- to 4-ft thick, and locally, the Hindsville Limestone Member of the Batesville Sandstone contains angular chert clasts.

Both Hoghead Creek and Taylor Mountain faults have maximum down-to-the-southeast throw near the west in Washington County where the Kessler Limestone Member at the top of the Bloyd Formation is unconformable with the underlying rocks. Both fault zones are northeast trending structural zones of the Midcontinent Rift System.

REFERENCES CITED

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