

**PETROLOGY AND GEOCHEMISTRY OF UPPER CAMBRIAN AND LOWER ORDOVICIAN (ARBUCKLE GROUP)
CARBONATES, NORTHEAST OKLAHOMA AND SOUTHWEST MISSOURI**

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The Arbuckle Group carbonates in Oklahoma are an important petroleum reservoir and also are used to store petroleum wastewater from injection wells. The Arbuckle also may have sourced all or part of the hydrocarbons in many of the overlying younger oil fields in Oklahoma, including those in Silurian and Mississippian rocks. Additionally the Arbuckle may have been a major conduit for metalliferous fluids affecting the Ozark region and contributing to the Tri-State mineral district of Oklahoma, Kansas and Missouri. Despite this there have been very few studies conducted to understand the diagenesis of the Arbuckle carbonates. I propose to conduct a petrographic and geochemical study of the Arbuckle in northeastern Oklahoma and southwestern Missouri. This study will test the hypothesis that the porosity and permeability characteristics of the Arbuckle carbonates were significantly modified due to circulation of warm basinal fluids. The proposed study also will address the question if fluids sourced from the Arbuckle affected overlying Mississippian strata. This study will use petrographic and geochemical data to characterize the lithology and document diagenetic modification of the carbonates by basinal fluids. Samples will be obtained from cores available at the Oklahoma and Missouri Geological surveys.

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