

**PRE-DESMOINESIAN ISOPACHOUS AND PALEOGEOLOGIC STUDIES
IN CENTRAL MID-CONTINENT REGION**

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Major tectonic features of the central Mid-Continent area are outlined and their relationship to present thickness and distribution of pre-Desmoinesian strata is discussed.

Cambro-Ordovician "Arbuckle Group" thickens southward from zero along the Nemaha and Central Kansas uplifts to nearly 7000 feet in southern Oklahoma. The Simpson, with maximum thickness of 3000 feet in southern Oklahoma, thins northward by convergence and overlap of younger units to extinction in northwestern Kansas. Viola-Fernvale thins northward from 1500 feet in Anadarko basin to 200 feet in southern Kansas and thickens to 400 feet in Salina basin.

The Sylvan-Maquoketa is limited to two areas, one in Oklahoma, the second in northeastern Kansas. Maximum thickness in Oklahoma is 600 feet, in Kansas about 150 feet. Distribution of Hunton resembles that of Sylvan; maximum thickness exceeds 1500 feet in Oklahoma and 650 feet in Forest City basin. Woodford-Chattanooga lies with regional unconformity on units from Precambrian through Hunton. A 600 foot maximum is postulated for the Anadarko basin; 50 to 100 feet covers eastern Oklahoma and Kansas. Mississippian limestones are widespread with 4000 feet in Anadarko basin, 1600 feet in Hugoton embayment and zero in northern Kansas.

Lower Pennsylvanian Springer is limited to a narrow belt in Anadarko and McAlester basins with maximum of 4000 feet near Ardmore. Overlying Morrow overlaps Springer reaching maximum of 1500 feet in McAlester basin and over 4300 feet in Anadarko basin. Distribution of Atoka resembles that of Morrow with 5000 feet maximum in the Anadarko basin and approximately 8000 feet in the McAlester basin. Widespread Desmoinesian sediments rest with marked unconformity on Atokan and older rocks.

Epeirogenic movements were mild throughout early Paleozoic with geosynclinal development in southern Oklahoma. Eustatic changes produced major unconformities and offlap-overlap relations. Strong warping occurred in post-Hunton, pre-Chattanooga time. Major orogenic movements are post-Mississippian, pre-Desmoinesian with maximum movement in late Morrow. Final structural development took place in late Cretaceous and early Tertiary. Throughout much of Paleozoic time, the axis of maximum deposition in southern Oklahoma paralleled the Wichita-Amarillo trend in the "Wichita embayment."

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