

RELATION OF PRODUCTION ON THE CENTRAL
KANSAS UPLIFT TO STRUCTURAL AND
STRATIGRAPHIC TRAPS

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Abstract Prepared by the Author

In the area of the Central Kansas Uplift oil and gas are produced from rocks ranging in age from Ordovician to Permian (Big Blue Series). Most of the oil is produced from limestone and dolomite, but important quantities are found also in sandstone and conglomerate, and minor amounts in fractured quartzite and granite.

Investigation of many fields shows that with probably one exception, namely the Fairport Field, none of the oil occurs as a simple anticlinal accumulation. Stratigraphic traps coupled with local structural conditions are responsible for most of the commercial oil pools.

Most of the pre-Pennsylvanian oil is found at the unconformity separating the Pennsylvanian from the Mississippian, or from the Ordovician. In some cases, as in the Gorham Field of Russell County, production is found in a basal Pennsylvanian sand, or in an Ordovician dolomite or sand, or, as in the Orth Pool of Rice County in fractured pre-Cambrian quartzite. In other fields, such as the Bemis Pool of Ellis County, the Lorraine Pool of Ellsworth County, and the Raymond Pool of Rice County, Pennsylvanian beds are separated from the Ordovician Arbuckle dolomite by a relatively thin veneer of Simpson beds. Most of the accumulation in these areas is in the Arbuckle dolomite. In the North Beaver Pool a sand at the base of the Pennsylvanian produces in contact with the Arbuckle dolomite, which also carries commercial production. Two miles to the south in the Beaver Pool the Arbuckle dolomite is absent, and production occurs in the Pennsylvanian sand, as well as the Arbuckle or pre-Arbuckle sand which in turn overlies pre-Cambrian. Intercommunication of fluids is evident in this and other pools by the similar characteristics of the water in Pennsylvanian and pre-Pennsylvanian beds.

Production from Pennsylvanian limestone, principally of Lansing-Kansas City age, is controlled by local variations in porosity, as well as present local structural conditions. The oil is here found in oolitic or coquina-like beds.

The abundance of commercial oil pools on the "ribs" or higher portions of the Central Kansas Uplift is believed to be due more to the past geological history of the Uplift than to its present structural form. As a recurrently positive element, this area has enjoyed shallow water conditions and hence favorable environment for oil generation many times. In other words the oil has accumulated on the Uplift in many different horizons not so much because it is now a broad anticlinal flexure but because it has been such repeatedly through geologic time.

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