

## The Subsurface Extension of the DeQueen Limestone in Southern McCurtain County, Oklahoma<sup>1</sup>

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### ABSTRACT

Logs of oil-test wells in southern McCurtain County, Okla., many of them drilled since late 1952, indicate that the DeQueen limestone, of Early Cretaceous age, extends southward from its outcrop, thickening and grading into gypsum and anhydrite.

The outcrop of the DeQueen enters McCurtain County from Arkansas in sec. 10, T. 6 S., R. 27 E., and it extends westward to a point about 6.5 miles northwest of Broken Bow, Okla., in the northeast part of sec. 1, T. 6 S., R. 23 E. There it is overlapped by the Paluxy sand, also of Early Cretaceous age. The DeQueen is absent in the subsurface rocks northwest of a line drawn from that point southwestward to the vicinity of Valliant, Okla.

Surface exposures of the DeQueen limestone in McCurtain County consist of thin limestones with thin clay-shale interbeds. According to Milton May the DeQueen is about 38 feet thick just east of Broken Bow, and 6.5 miles to the northwest it is only about six inches thick. Well logs confirm the westward thinning of the formation. They also show southward thickening. The formation is more than 190 feet thick in the southern part of the county.

South of an east-west line approximately at the latitude of Little River, thin beds of gypsum appear in the middle part of the DeQueen limestone. Traced southward and southeastward, these rapidly thicken and grade into anhydrite. These evaporites in the DeQueen attain a thickness of 80 feet in southern McCurtain County, where they are underlain and overlain by chalky fossiliferous limestones and clay shales which are the upper and lower parts, respectively, of the formation.

The DeQueen limestone has a southward monoclinal dip of about 100 feet to the mile. This monoclinal dip is interrupted by a southwest-plunging structural nose about five miles west of Idabel, where oil has been produced from the upper part of the Paluxy sand. Other flexures may be present but none have been identified.

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