PART II—ABSTRACTS OF TECHNICAL PAPERS—1958-1959

THE NORTHERN SHELF OF THE ANADARKO BASIN

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The Northern Shelf of the Anadarko basin, also called the Northern Basin platform, comprises approximately 6500 square miles in northwestern Oklahoma. The area includes all or parts of Woods, Alfalfa, Grant, Canadian, Blaine, Dewey, Custer, Garfield, Major and Kingfisher counties. Although there are about 62 oil and gas fields within this area, which produce from 11 rock units, it is still relatively sparsely drilled over all. There are 43 townships that are as yet untested and 125 townships that contain 3 tests or less.

Drilling depths to the Mississippian range from less than 5,000' in the north to greater than 11,000' in the south. Drilling costs are also highly variable. The average contract price is approximately $4.00 per foot, increasing to more than $6.50 in Blaine and Dewey Counties. Normal drilling time in the northern portion of the area is 20-25 days and 30-35 days in the southern part, exclusive of the deep southwestern corner.

A line drawn from the southeastern corner of Kingfisher County northwest to the northwest corner of Woods County would separate the production in such a manner that possibly 90 percent would lie on the northeast side of the line. This is due largely to two factors. One is the increasing drilling depths to the southwest, and the other is that most of the favorable facies changes and regional depositional and erosional edges occur in the northeast portion of the mapped area.

Two major erosional surfaces are present. These are the Pre-Pennsylvanian and the Pre-Mississippian horizons. The Pre-Pennsylvanian surface exhibits the following sequence in order of occurrence from the deeper portion of the area shelfward: Chester, Meramec-Osage and "Chat". The Pre-Mississippian units, in the same order are: Hunton, Sylvan, Viola and Simpson.

The primary objective on the Northern Shelf has been the Cherokee sandstones, with the Chester accounting for much of the production, mainly at the Ringwood field. In addition to these two units, the Hunton (West Edmund and Northwest Cashion), Meramec, Simpson, "Chat" and Cottage Grove are all important factors in exploration programs in this area. Secondary targets, which do produce in the area, include: Viola, Misener, Marmaton and Permian.

The Cottage Grove sandstone is a relatively new objective in the Northern Shelf area, and because of its shallow depths and good reservoir characteristics, may become one of the most attractive targets. This unit is predominantly a sandstone which undergoes a regional facies change to the northwest, west and south, to first a shale then a limestone. To date, most Cottage Grove production has been established along these areas of rapid facies change.

Due to its multiplicity of zones that are currently producing, the presence of units that are very prospective, and the large tracts of acreage that are relatively untested, the Northern Shelf is an area that should enjoy an increasing amount of exploration in the months ahead.

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