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February 1993

**Review of *Integrated Characterization of Permian Basin
Reservoirs, University Lands, West Texas: Targeting the
Remaining Resource for Advanced Oil Recovery* by Noel Tyler**

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Babcock, Jack A., "Review of *Integrated Characterization of Permian Basin Reservoirs, University Lands, West Texas: Targeting the Remaining Resource for Advanced Oil Recovery* by Noel Tyler" (1993). *Great Plains Research: A Journal of Natural and Social Sciences*. 106.
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Integrated Characterization of Permian Basin Reservoirs, University Lands, West Texas: Targeting the Remaining Resource for Advanced Oil Recovery. Noel Tyler, et al. Austin, TX: Bureau of Economic Geology, 1991. ix + 136 pp. Sixty-seven figures, 26 tables, and references.

The authors of *Permian Basin Reservoirs* have discovered two billion barrels of recoverable oil! Even better, they found this oil in existing fields, on lands owned by their employer, the University of Texas. They also assert that the oil can be recovered at low cost.

Three ideas summarize the findings of the 5-year study that forms the basis of this book: 1. Significant quantities of unexpected oil can be recovered, using low-cost, low-risk techniques, from existing fields. 2. The resources are concentrated in a few geologic plays, or reservoir types, so that most of the oil can be recovered from just a small number of reservoirs. 3. "The fundamental reason for lack of recovery of remaining mobile oil is geologic heterogeneity." Therefore, the exploitation of this oil requires a detailed knowledge of geological architecture in the few critical reservoir types (plays) in order to apply targeted infill drilling (both vertical and horizontal) and improved waterflooding techniques. ("Mobile oil" is defined as "unrecovered oil that is movable at reservoir conditions but is prevented from migrating to existing well bores because of geologic complexities or heterogeneities.")

Permian Basin Reservoirs reads smoothly, thanks to a well-organized format that leads the reader from the general to the specific, and provides consistent and parallel subheadings within each chapter. The book begins with a discussion of resource assessment and play analysis. A volumetric ranking shows that three major plays dominate the resource base; the San Andres/Grayburg (Permian), Siluro-Devonian and Ellenburger (Ordovician) reservoir types contain 60 percent of the mobile oil remaining after recovery of proved reserves. Later sections provide detailed analyses of specific fields and reservoirs. Topics covered include geologic setting, depositional history, diagenetic aspects, petrophysical aspects, engineering and production aspects, and strategies for recovery of remaining mobile oil.

Figures and tables are clear, easy to read and understand, and they complement the text well. The most important observations and recommendations are clearly stated and prominently highlighted. There are few typos and the printing is sharp and clear.

Geologists, engineers, log analysts, managers and non-specialists will all find the clear, concise discussions worthwhile. However, only carbonate geologists will stay with the detailed descriptions of depositional and diagenetic

aspects, even though it is these details that must be understood to recover the mobile oil.

The main shortcoming of the book is the absence of pictures of reservoir rocks, porosity types, and other components. These would help the nongeologist to understand some of the terms being used and eccentricities of the heterogeneity. Despite this deficiency *Permian Basin Reservoirs* is a valuable contribution that documents the fact that significant oil reserves are readily available right in our own backyard. **Jack A. Babcock**, *Amoco Production Research, Tulsa, Oklahoma*.