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SIGNIFICANT PROPERTIES OF SANDSTONES—AIDS TO EXPLORATION AND EXPLOITATION

Certain physical properties of sandstones reveal both depositional and diagenetic history from which continuity, heterogeneity, reservoir potential, and producing capability can be deduced. Many of these properties can be measured and observed in cores, on outcrops, or from electrical log characteristics. Both log characteristics and patterns of logs become more useful when related to depositional history. Parameters such as sorting, skewness, roundness, and sphericity are helpful in characterizing sands but few are definitive enough for recognition of depositional environments. Mineralogic compositions of sandstones can be useful in determining provenance, but the influence of authigenic minerals and diagenetic alterations must be kept in mind.

Diagnostic sequences of sedimentary structures are also of prime significance in interpreting sandstones. For example, channel sands, barrier sands, and turbidites can all be characterized by sequences of sedimentary structures. In conjunction with other geologic data, such sequences can be used to define depositional history which in turn can enhance judgments concerning sandstone reservoir geometry and performance. Adequate prediction of porosity and permeability homogeneities is becoming increasingly important in view of industry's continuing dependence upon secondary and tertiary recovery methods.

The advent of the scanning electron microscope has added a new dimension to studies of sandstones. The technique provides the capability to "see" various stages of diagenetic change in porosity and permeability and, in combination with production test data, is helping clarify understanding of variations in effective porosity and permeability. The importance of recognizing microporosity and the difficulties in measuring irreducible water are becoming more apparent in light of increasing incidents of passed-up production. Use of the SEM in studies of sandstones has demonstrated the importance of authigenic clays and feldspars. Due to the variety of forms of these minerals, their physical characteristics can greatly affect both reservoir performance and completion techniques.

The role of the geologist in making detailed studies of sandstone reservoir types and producing characteristics will be of utmost importance in future years as industry strives to meet increased energy demands by getting more oil out of the ground once the reservoirs have been found.

**23RD ANNUAL MEETING
GULF COAST ASSOCIATION OF
GEOLOGICAL SOCIETIES
(GULF COAST SECTION OF AAPG)**

**and
SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS
(GULF COAST SECTION)**

**"TNT—TODAY'S NEW TECHNOLOGY,
TOMORROW'S NEW TARGET"**

**Houston, Texas
October 24–27, 1973**

FIELD TRIPS

- (1) Recent Sediments of Southeast Texas—A 1-day trip to observe principal environments and related sediment types of recent coastal plain deposits, the Brazos River alluvial valley and Galveston barrier-island complex. Cost about \$15; limited to 45 participants. Saturday, October 27.
- (2) Yucatan Peninsula, Mexico—A 7-day trip to the coastal Quintana Roo area to study a wide variety of carbonate-evaporite-reef sediments. Also, visit to Mayan ruins. Rustic, tropical setting, snorkeling. Cost about \$265; limited to 35 participants. Friday p.m., October 26 thru Friday, November 2.
- (3) Edwards Reef Trend, Central Texas—A 1½-day trip to the Moffat Mound area near Belton to study carbonate-reef facies. Cost about \$40; limited to 40 participants. Friday p.m., October 26 through Saturday, October 27, overnight in Salida.



GCAGS PROGRAM COMMITTEE

*Seated, left to right: Amos Salvador, chm., Martha Lou Shirley Broussard, W. H. Roberts, III.
Standing, left to right: Wayne M. Ahr, DeWitt C. Van Sicken, W. C. Wardle.*