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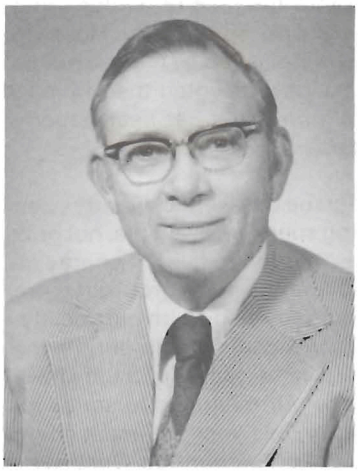
JAMES LEE WILSON — Biographical Review



James Lee Wilson was born in Waxahachie, Texas. He attended Rice University and the University of Texas where he received his B.A. and M.A. degress in 1942 and 1944. He received his Ph.D. from Yale University in 1949. His geologic experiences include that of a field geologist in the Rocky Mountains, Associate Professor at the University of Texas, Austin, Research Geologist for Shell Development Company in Houston and for Shell International in Rijswijk, Netherlands from 1942 through 1965. He has been Professor of Geology at Rice University since 1966, appointed to the Wiess Chair in Geology succeeding Carey Croneis in 1972, and is at present Chairman of the Geology Department. In recent years he has also taught at the University of Calgary (1970) and the University of Munich (1972-1973).

Dr. Wilson is the current President of the S.E.P.M., which celebrates its golden anniversary in New Orleans in May. He has just completed a text-reference book entitled "Carbonate Facies in Geologic History" (Springer-Verlag). He is a member of numerous Geological Societies and regularly participates in carbonate field courses with the Laboratory of Comparative Sedimentology of Miami University, Florida, and with Geological Research International in Europe. Recent field experience includes work in New Mexico, North Africa, and the Austroalpine area.

GRAINSTONES AND TYPES OF CARBONATE SHELF CYCLES (Abstract)

by: James Lee Wilson

Carbonate shelf and shelf margin strata commonly consist of hemicyclic deposits following three upward shoaling patterns: (1) a shelf to shelf margin sequence containing a prominent grainstone unit capped either by a hard ground or by a thin restricted-marine peloidal micrite unit, (2) shelf interior low energy sequences with almost all phases of the cycle highly micritic, or (3) a cycle common in well-drained offshore banks and margins of large platforms, containing a major unit of peloids, onkoids, and grapestones and showing considerable syndepositional diagenesis by marine splash zone and/or vadose meteoric waters.

Jurassic and Mississippean strata of Europe, Arabia, Gulf of Mexico, and the northern Rockies all contain cycles with well developed oolitic grainstone. Such strata are developed at shelf margins, but also in places uniformly across wide shelves indicating either extremely high tidal ranges or deposition under continuous widespread progradation. The latter process seems more reasonable.

The coincidence of wide shelves and evaporitic climate offers a possible explanation for the reciprocal relationship between reefs and oolite both geographically and in the geologic record. Oolite appears to form best when tidal and wind induced currents on bank and platform edges are not inhibited by abundant organic buildups. The latter are prevented by seaward flow of hypersaline or nutrient depleted water from off wide shelves or by lack of framebuilding corals and stromatoporoids in certain parts of the geologic record.

Porosity in oolitic grainstone is controlled by the amount and timing of early marine, isopachous, drusy cementation, the degree of solution—compaction at early diagenetic stages and the effectiveness of common second generation cementation of blocky ferroan calcite. Variability in the amount of repeated early subaerial exposure as well as the amount of much later groundwater movement offer critical controls on grain solution and precipitation of these cements.