DOUBLE PRESENTATION
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GEORGE J. GRABOWSKI, JR. --
Biographical Sketch

George Grabowski received his academic training in geology at Bucknell University (B.S. in 1974), Johns Hopkins University (M.A. in 1976), and Rice University (Ph.D. in 1981), where George was a Gulf Oil Foundation Fellow. His doctoral dissertation on the organic geochemistry of the Austin Chalk won honors from Sigma Xi and the Houston Geological Society.

Prior to attending Rice, George spent 2 1/2 years mapping for the USGS-Kentucky Geological Survey mapping program. He is a co-author of the 1981 *Geologic Map of Kentucky* and of a professional paper dealing with the geology of Kentucky.

Following his doctorate, George started working at Exxon Production Research Company in the Coal and Oil Shale Exploration Section. With the termination of most oil shale projects at Exxon in 1982, George transferred to the Carbonate Facies and Diagenesis Section, where he has served as group leader and has studied carbonate reservoirs in Alaska, the Gulf Coast, the Williston Basin and Utah as well as in France, Thailand and Indonesia. He is an instructor in many schools at EPRCo that deal with carbonate geology, and is currently working on source rocks in Europe, Africa and the Middle East.

AQUIFER MODEL FOR EARLY DIAGENESIS AND POROSITY PREDICTION, SMACKOVER FORMATION (JURASSIC), GULF OF MEXICO*

A confined-aquifer model of meteoric flow through the oolitic grainstones of the upper Smackover explains the systematic variation in early diagenesis and porosity from updip to downdip in the Smackover trend.

Updip limestones have moldic porosity and isopachous rims of clear, bladed calcite cement (freshwater phreatic). Brittle-compaction features indicate dissolution after initial burial. Classic vadose textures are not observed.

Downdip limestones have primary porosity and minor micro-moldic porosity. Grain interpenetration is common, and poikilitic calcite cement and saddle dolomite formed during and after this intergranular pressure solution.

Dolomite predominates in upper Smackover in the middle of the dip trend of Texas, Alabama and Florida. Most common is medium-crystalline dolomite which replaces grains and occurs as cement. These rhombs are interspersed with updip freshwater cements and overlie sutured grain contacts in downdip Smackover. Similar dolomite is in the basal Smackover above thick Norphlet sands in Alabama and Florida. Finer crystalline dolomite occurs in the uppermost Smackover and in evaporitic deposits of the Buckner/Lower Haynesville Formation.

Meteoric water in updip areas dissolved ooids and calcite cement reprecipitated. As groundwater flowed downdip, it mixed with interstitial fluids and dolomite precipitated and replaced grains. Meteoric flow slowed downdip, and marine pore fluids persisted in this area. Computer modeling suggests that hydraulic head for the meteoric flow was provided by falls in eustatic sea level and can be timed to three Late Jurassic sequence boundaries. Basal Smackover dolomites formed from meteoric fluids expelled from the Norphlet aquifer system. Dolomites of the Buckner/Lower Haynesville likely formed from evaporitic fluids related to sabkha deposition.

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