Wednesday, May 28, 2008

Petroleum Club • 800 Bell (downtown)
Social 11:30 a.m., Lunch 11:45 a.m.

Cost: $30 with advance reservations, $35 for walk-ins, space available ($15 for Emeritus and Honorary).

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476 (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

HGS General Luncheon Meeting

by ***George Devries Klein***
SED-STRAT Geoscience Consultants, Inc.

The Bossier Play (Tithonian) of the East Texas Basin: Controls on Stratigraphy and Play Concepts—An Update

Sandy depositional environments in the Bossier Shale (a mud-dominated system) of the East Texas basin range from fluvial to deep water. Their occurrence is controlled by a combination of climate and sea level change.

Sequence/seismic stratigraphic analysis of well logs and 2-D seismic lines from the East Texas basin demonstrates that the Bossier Shale can be subdivided into two sequences separated by a major sequence boundary (SB-2). Bossier Shale is also bracketed by a basal (SB-1) and upper (SB-3) sequence boundary separating it from the Cotton Valley Lime below and the Cotton Valley Sand above.

In seismic sections, the mid-Bossier (SB-2) boundary was identified by tracing mounded reflectors and sigmoid signatures representing basin floor and slope fans. SB-2 correlated onto the shelf below stacked deltas. In well log sections, basin floor fans were traced laterally into slope fans and stacked deltas. These basin floor and slope fans represent a lowstand systems tract, whereas the Lower Bossier represents a transgressive systems tract and the Upper Bossier is a prograding complex.

Recent exploration activity… appears to focus on base-of-slope to basin floor fan plays.

Burial history analysis suggests the Lower Bossier accumulated during rapid mechanical subsidence when the East Texas Basin was underfilled. Sea level drop associated with the SB-2 represents a major climate shift from tropical to cooler conditions favoring rapid influx of sands from the ancestral Mississippi, Ouachita and Red River Systems. These sands developed inner shelf prograding deltas, outer shelf and incised valley fill stacked deltas, and basin submarine fan systems. Their occurrence is due to a combination of global cooling and sea level change.

Recent exploration activity in Robertson County, Texas, appears to focus on base-of-slope to basin floor fan plays. Alternate explanations are possible and may include distal pro-deltas at the shelf-edge of incised valleys. The distribution of associated deep-water-equivalent seismic features over a wide area suggests long-term potential for the developing Bossier Play. ■

Biographical Sketch

George Devries Klein earned degrees in geology from Wesleyan University (BA), Kansas (MS) and Yale (PhD). He worked as a Research Geologist for Sinclair Research and then taught at the Universities of Pittsburgh, and of Pennsylvania. He joined the University of Illinois in Urbana-Champaign in 1970 where he served as a Full Professor from 1972 until 1993. After serving as Executive Director of the New Jersey Marine Sciences Consortium, and Director, New Jersey Sea Grant College Program, he opened a full time geological consulting practice in 1996, SED-STRAT Geoscience Consultants, Inc., where he is president and chief geologist.

Dr. Klein has expertise in play concepts, clastic facies, sequence stratigraphy, seismic sedimentology, basin analysis, clastic reservoir characterization and framework geology. He has experience working in many basins world-wide.

He has discovered 160 mmb oil and 3.2 tcf gas, both solo and as team member, including the largest gas producing well in the Barber County Field of West Virginia, a new exploration play concept in the eastern Gulf Coast, and many others both domestic and international. He has published 300 refereed articles, books and abstracts, including the book *Sandstone Depositional Models for Exploration for Fossil Fuels* and a widely-used wall chart on "Vertical Sequences and Log Shapes of Major Sandstone Reservoir Systems."

Dr. Klein is a licensed Texas Registered Geologist (#440) and a member of AAPG (DPA Board CPG #5662), HGS, SEG, SIPES (CPES #2705), SEPM and GSA.