HGS DINNER MEETING

Structural Provinces In The Cover Sediments Of The U.S. Gulf Of Mexico Basin: Linked Systems Of Extension, Compression And Salt Movement

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HGS DINNER MEETING – November 8, 1993
Social Period, 5:30 p.m., Dinner and Meeting, 6:30 p.m.
Post Oak Doubletree Inn

Jurassic-Quaternary strata of the northern Gulf of Mexico basin form discrete structural provinces of differing age, extent and style. Major controls on the development of these provinces include variations in the age and locus of sediment input to the shelf/slope, distribution of autochthonous salt and salt canopies, and basement topography.

Mesozoic gravity sliding in the eastern Gulf was controlled by regional basement slope and local basement morphology. Basement morphology and the distribution of autochthonous salt determined structural style. In contrast, Tertiary structuring was driven by sediment loading. Each major sediment influx during the Tertiary caused updip extension coupled with downdip compression. Salt canopy spreading appears to have occurred at the end of periods of compression.

Structural style within provinces was controlled by the distribution of autochthonous and allochthonous salt. Where sediment input loaded the top of a salt canopy, movement was accommodated within that canopy. Local extensional systems were balanced by local compression at the canopy front (e.g., the lower Pleistocene system of West Cameron). In contrast, where shallow canopies were absent, sediment loading drove large, deep growth faults, which often cut down to autochthonous salt. The compression was transferred far downdip into mid-lower slope fold belts (e.g., Eo-Oligocene and Oligo-Miocene systems of the western Gulf). Combined behavior was possible in a mixed setting. Early Pliocene sediment loading around the Mississippi Delta was taken up partly within a canopy, and partly by deep growth faulting balanced downdip by the Atwater thrust belt.

FRANK J. PEEL - Biographical Sketch

Frank Peel was born in 1958 in Birmingham, England. He took his bachelors degree at Cambridge University, UK, where he met his wife, Gill Apps. Frank received his Masters Degree in Structural Geology and Rock Mechanics at Imperial College, London. His thesis was a study of the driving forces of plate tectonics. Frank's Doctorate degree is from Oxford University, UK. His dissertation topic was a structural analysis of part of the French Alps.

Frank joined BP as a geologist in Aberdeen, Scotland, in 1985, and in 1986 transferred to the BP Structural Studies Group in London where he worked on projects including studies of the Colombian Andes, Pan-Andean foldbelt review, Iraq, Algerian Atlas, and Arabia. Typical projects involved an integration of outcrop data, map and seismic data, and remote sensing. After detailed analysis, his final conclusion was that Iraqi beer is probably the worst in the world.

In 1989, Frank transferred to BP Houston, where he has been working in the Gulf of Mexico regional study team, both in the USA and Mexico.

Outside of work, the Peels enjoy traveling and mountains (especially during ski season), and for many years Frank has played guitar in one of the world's worst rhythm and blues bands.