Permian Basin and Mid-Continent Exploration Meeting
Tuesday, November 20, 1990
5:30 p.m. - Westin Oaks

The third dinner meeting of the Houston Geological Society Permian Basin and Mid-Continent group will feature a fascinating paper by Wayne B. Gardiner. The results of the Interest Survey from the last meeting will be reported and there will be an opportunity for recommendations from those attending.

Our dinner speaker, Wayne B. Gardiner, will present his highly acclaimed paper which uses the Central Basin Platform as a demonstration model of strike slip movement.

Reservations must be made by Friday, November 16, 1990, by calling Margaret at the Houston Geological Society office (785-6402) before 4:00 p.m. Dinner is $20 and no-shows will be billed.

WAYNE B. GARDINER—Biographical Sketch

Wayne Gardiner received his B.S. in geology from Bates College in 1981 and explored for gold in Nevada until 1983. He then received his M.S. in oceanography from Texas A&M University in 1986. From 1986 until the present, he has worked for Amoco as a geologist in areas including the Permian Basin and Ouachita overthrust play.

THE FAULT FABRIC AND STRUCTURAL SUBPROVINCE OF THE CENTRAL BASIN PLATFORM OF WEST TEXAS AS A MODEL OF STRIKE-SLIP MOVEMENT

The Central Basin platform (CBP) of west Texas is composed of six structural blocks which moved independently during the Ouachita orogeny. Shear forces transmitted through the crust resulted in buckling, uplifting, and faulting of the greater CBP. Although the platform is dominated by vertical movement, it did not, however, uplift as a single tectonic unit. Rather, it splintered into six megablocks, which moved simultaneously along oblique-slip fault systems. A tectonic model for formation of the CBP is useful for predicting the orientation and spacing of fault systems.

The three structurally highest blocks on the CBP, the Eunice high, the Sand Hills high, and the Fort Stockton uplift, show three distinct positive gravity and magnetic anomalies. These county-sized blocks (35 x 80 km) share similar characteristics: (1) they are bounded by strike-slip faults that involve basement uplift; (2) they have maximum structural deformation along their margins where bends in the strike-slip fault system enhance compressions; and (3) their oil is trapped in high-angle fault structures (R-shears?) along the block boundaries, but toward the center of the blocks, oil tends to accumulate at uncomformity and fold traps. Strike-slip fault systems in west Texas are subtle, with only about 3-7 km of offset, and commonly may be overlooked. However, detailed regional mapping indicates that these individual fault segments are parts of through-going systems, which are distributed in logical patterns based upon models for strike-slip tectonics.