

The basin contains several regional positive and negative structural features. Basement consists predominantly of extrusive igneous rocks.

In the deeper part of the basin, Coahuilan carbonates and probably Jurassic rocks overlie the basement. Tertiary, Gulfian, and Comanchean strata have been penetrated by numerous deep wells. Comanchean rocks are cyclic in nature and consist of limestone, dolomite, and anhydrite.

Three units are favorable for oil production: the "brown dolomite," the Sunniland Limestone, and Unit C of the Dollar Bay Formation. Gulfian chalk is replaced by dolomite in southeast Florida where it has a low oil potential. The lower Tertiary Cedar Keys Formation, composed of dolomite and anhydrite, also has oil potential. Eocene interbedded limestone and dolomite have little potential because they are flushed by fresh water of the Floridan artesian aquifer. The upper Tertiary is thin and has no favorable characteristics or oil production.

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#### GULF COAST RULE OF THUMB ECONOMICS

A series of simple charts have been designed to aid the exploration geologist in prospect evaluation by "rule of thumb." The charts include example oil and gas condensate wells having typical Gulf Coast flow rates, pay thicknesses and reserves. The evaluation methods considered are: payout time, return per dollar invested, net worth, present worth, average annual rate of return, and profit-to-risk ratio. The charts make it possible for the geologist to see how a few factors control profitability. They allow direct comparison of evaluation methods. This gives the geologist a better eco-

nomics understanding and an improved perspective of how a prospect fits into an over-all exploration program.

The charts indicate: (1) average annual rate of return and present worth are good measures of profitability, but both should be related to wildcat risk; (2) profit-to-risk figures often misrepresent the actual risk; (3) large flow rates are as important as large reserves; (4) there is a need for increased flow rates where reserves are large. In lieu of increased flow rates, incentives are needed to encourage independent and major oil companies to seek larger discoveries per well. One such incentive would be larger depletion allowances for big discoveries.

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#### SEDIMENTARY ENVIRONMENTS AND OCCURRENCE OF MAJOR HYDROCARBON ACCUMULATIONS

Modern concepts concerning the origin of oil and gas are reviewed. Emphasis is stressed on those sedimentary environments under which conditions are most favorable for not only the origin but also the accumulation and preservation of major hydrocarbon reserves.

Over 90% of the oil and gas discovered to date has been found in 4 different sedimentary environments. The deltaic complex, in particular the delta margin environment, is probably the most favorable of these 4 environments. Second is the rapidly subsiding carbonate shelf or lagoon where carbonate and/or evaporite sedimentation keeps pace with subsidence. Third is the reef complex associated with the carbonate shelf. Fourth is the turbidite environment which includes all gravity-induced submarine flows, both arenaceous and carbonate.

#### WHERE THE ACTION IS



Pictured at the Canal St. dock of the S.S. *President*, which will be the scene of a Mississippi Riverboat cruise and dance during the 1971 GCAGS Convention in New Orleans, are GCAGS officers and convention officials. *Left to right*: PETER GRAY, treasurer; RAYMOND STEPHENS, program chairman; LEE MELTZER (seated front), president; WILLIAM KRUEGER, secretary (resigned); ROBERT JAMISON, convention vice-chairman; MARVIN DWIGHT, secretary; ROBERT WILLIAMSON, general chairman; and WILLIS TYRRELL, editor. Not pictured is DONALD BOYD, GCAGS vice-president.