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# INTERNATIONAL EXPLORATIONISTS

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## INTERNATIONAL EXPLORATIONISTS DINNER MEETING—APRIL 19, 1989

JOHN L. WEINER—Biographical Sketch



John L. Weiner, chief geologist for Gustavson Associates, received his bachelor's degree in geology from University of Notre Dame in 1959, a master's degree from University of Illinois, Urbana in 1961, and his doctorate from University of Alberta, Edmonton in 1966. Dr. Weiner was a postdoctoral fellow at Aarhus University in Denmark before joining the Geology Department at Oregon State University.

After teaching for three years, he entered the oil industry.

During his seventeen years in the oil industry, he held the positions of chief geologist, Ensource Inc., vice president for exploration & frontier district geologist, Impel Energy Corp., and special projects geologist, Texaco Inc. His duties included basin evaluation and regional tectonic studies, play and prospect generation, interpretation and coordination of geological/geophysical programs, and directing exploration staffs. Dr. Weiner has widespread experience in the western United States. More recently, he has been involved with Gustavson Associates Inc. in basin evaluation studies of offshore Brazil and the Arctic.

### OFFSHORE BRAZIL GEOLOGY AND HYDROCARBON POTENTIAL

Fourteen basins lie offshore along the 7000-kilometer rifted and divergent margin of Brazil. Three tectonic-stratigraphic sequences characterize the geologic framework of many of these marginal basins: 1) an Early Cretaceous rift sequence, 2) an Aptian evaporite sequence, and 3) a Late Cretaceous to Recent passive margin sequence. The latter sequence consists of platform carbonates followed by transgressive-regressive clastics with turbidite sandstones encased in marine shales.

Offshore Brazilian exploration was initiated by Petrobras, the state-owned oil company, in 1968. At the start of 1988, more than 410,000 barrels of Brazil's daily production of 590,000 barrels came from offshore wells. Almost 370,000 barrels per day were produced from the Campos basin alone. The Campos basin, a nearly "ideal" example of a Brazilian marginal basin, contains the bulk of Brazil's known reserves. Oil is produced from fault traps in the rift sequence, from platform carbonates on rollovers induced by salt flowage and from stratigraphic traps in Late Cretaceous to Miocene-age turbidites. The giant Albacora and Marlim turbidite fields, discovered in 1984 and 1985, respectively, lie in waters 300 to 2000 meters deep and contain an estimated 1.1 and 3.6 billion barrels of recoverable oil,

respectively. Source rocks for these and other fields in the Campos basin and for five other producing offshore basins, are the lacustrine to transitional shales of the Early Cretaceous rift sequence. Faults, windows in the evaporites and unconformities have served as conduits for migrating hydrocarbons. Marine shales of the Late Cretaceous transgressive subsequence are mature in a few basins, but have poorer source-rock characteristics than shales in the rift sequence.

In addition to the Campos basin, a number of other Brazilian marginal basins will be described and their hydrocarbon favorability assessed.