

International Explorationists Meeting

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The Doubletree Hotel on Post Oak

[West Africa Night — two speakers will present their work]

Yombo Field, People's Republic of the Congo, West Africa: An Exploration Model

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Yombo Field in the Congo was sourced by the lacustrine shales of the pre-salt (rift stage) and produces from the Albian and Cenomanian aged, post-salt, Sendji carbonate, and Tchala sandstone. The exploration model for the Yombo prospect included an upper Sendji stratigraphic trap involving two differing components crossing a structural nose.

The first component of the trap was a buried hill. Topographic relief developed below the top-Sendji unconformity. The lower Sendji slump blocks provided a high on top of which the upper Sendji grainstone shoal fa-

cies developed. Topographic relief on the top Sendji unconformity is due to both depositional relief and later erosion. A map of the overlying Tchala valley-fill sediments defines a drainage pattern on the unconformity around the buried hill of the underlying upper Sendji.

The second component of the trap is the facies change from the grainstone shoal reservoir facies into the porous but impermeable lagoonal dolomites interbedded with anhydrite and shale. Capillary pressure measurements on the lagoonal dolomite together with pore throat radius and bouyancy cal-

culations indicate that this rock could trap a significant column of low-gravity oil at shallow depth.

The Tchala sandstone contains several separate hydrocarbon accumulations. A stratigraphic trap in the lower Tchala was formed by marine and tidal channel sandstones grading into lagoonal shales. The nearshore marine sandstones of the upper Tchala also contain hydrocarbons. The stratigraphic pinchouts that cross the Yombo nose are trapped even though the four-way structural closure is relatively small.