and Indian Oceans; (2) temperate and perhaps equatorial radiolarian faunas of the Pacific and Indian Oceans have contributed to the temperate and ?equatorial Atlantic radiolarian faunas since the closure of Panama; (3) the ability of relict and related forms to carry on symbiotic relations with algal associates may have enabled these forms to adapt and survive. This information adds insight into our understanding of the evolution of Cenozoic radiolarian faunas, and perhaps also Mesozoic and Paleozoic faunas.

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Radiolarian Distribution, Diversity, and Density in Water Column and Holocene Sediments of Gulf of Mexico and Adjacent Waters

Approximately 200 radiolarian species have been collected and identified from the water column and Holocene sediments of the Gulf of Mexico and adjacent seas using Nansen closing nets, DUCA high-speed plankton nets, water bottles, bottom grabs, and gravity and box cores. None of the identified species are endemic to the Gulf of Mexico. Most species appear to be endemic to or indicative of tropical surface water, subtropical underwater, North Atlantic central water, subantarctic intermediate water, and North Atlantic deep water. These water masses enter the Gulf of Mexico through the Yucatan Channel.

Living radiolarian diversities (number of species present) and densities (number of individuals/cu m of water filtered) are generally low in waters over the continental shelves in the Gulf of Mexico. Diversities and densities are highest in the surface waters of the open gulf, peak at about 100 m, and decrease to minimum values with increasing water depth.

Radiolarians are low in diversity and density in most shelf, slope, and basin-floor Holocene sediments. The fossil record for radiolarians in gulf sediments is characterized by sparse occurrences in surficial Holocene sediments, absence from subsurface Holocene to mid-Miocene sediments, and moderate occurrences in many mid-Miocene and older sediments.

Conditions of hypersalinity and/or anoxia appear to enhance radiolarian preservation in fossil sediments in the Gulf of Mexico. Previously unsampled subsurface Holocene to mid-Miocene sediments deposited under these conditions should be useful in future studies of radiolarian biostratigraphy and paleo-oceanography in the gulf.

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You Ain't Seen Nothing Till You've Seen the Tuscaloosa!

The "Baton Rouge megastructure," a giant structural complex at least 20 mi (36 km) long and 15 mi (24 km) wide, is emerging as the dominant one of several exceptionally large structural features in the Tuscaloosa gas trend. False River reservoir A and reservoir B, Profit Island, Irene, and Port Hudson fields, all large fields in themselves, are merely separate structural closures and fault blocks on the partially explored megastructure. Other fields will surely be found within the 300-sq-mi (780 sq km) area presently indicated to be productive.

The "Judge Digby megastructure," a slightly lesser feature just west of the "Baton Rouge megastructure," also contains major gas reserves. These two represent the largest structural features currently known in the trend.

Indicated reserves on these two megastructures total approximately 17.5 Tcf of gas and 1 billion bbl of condensate, representing 1/12 of the United States gas reserves and 1/30 of the United States crude oil or condensate reserves. Across south Louisiana the trend has the potential of producing at least 50 Tcf of gas and 2 billion bbl of condensate.

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Exploration Methods of Discovery and Development of Lower Wilcox Reservoirs in Valentine and Menking Fields, Lavaca County, Texas

Regional computer-aided stratigraphic studies in a 185-sq mi (481 sq km) area resulted in the broad definition and ultimate drilling of the Mixon Creek prospect and the discovery of Valentine field, Lavaca County. About 50 wells were picked for structural tops, interval sand counts, and isopach data. Simple computer printouts were contoured and analyzed to determine the trends of successive delta-front or barrier-island alignments. Ultimately a drill site was chosen updip from a show on a seismic nose.

Development of the field resulted from drilling essentially offset locations in a northeast-southwest alignment along what was believed to be a lower Wilcox barrier island cut by a tidal channel at the southwest end and truncation by a shale-filled gorge on the northeast. The Menking field discovery was made in a stratigraphically separate lower Wilcox sand in an attempt to extend the Valentine field southwest. Additional drilling along the northwest margins of these fields shows that the stratigraphic relations are complicated and difficult to solve with subsurface data. Two Valentine wells were cored, slabbed, and analyzed petrographically. R. R. Berg of Texas A&M University has suggested that these data indicate a deep marine-turbidite environment.

Valentine field has 12 wells and covers approximately 1,000 acres (400 ha.). The productive Technick sand averages 12 ft (3.6 m) in thickness with porosity of 19 to 21% and permeability of 10 to 30 md. Recoverable reserves are estimated at 1.2 million bbl. Through 1978, 758,801 bbl of oil and 2,575 Mcf of gas have been produced.

There are four wells in the Menking field draining about 300 acres (120 ha.). The principal production comes from the Kubena sand which averages 18.9% porosity and 23.9 md permeability. Recoveries are low because of restricted reservoir communication. Reserves are estimated at 300,000 bbl and production through