tary bays, and subaqueous distributary-mouth bars. The living specimens exhibit a primary habitat preference for levee localities, with a subsidiary preference for interdistributary bay locations. This distribution pattern is reflected by the dead forms. Living representatives belong to three families, three genera, and 10 species out of a total of four families, four genera, and 15 species retrieved. *Mississippiella multiapertura,* n. gen., et n. sp., is described and assigned to the Family Paraquadrulidae. Interactions between measured environmental parameters most frequently involve dissolved oxygen in the four subenvironments. This observation suggests that this parameter is of prime importance in deltaic ecology. However, no single ecologic parameter could be identified as the causative control to thecamoebinid distribution. The living thecamoebinids appear to be tolerant of significant variation in turbidity, temperature, and alkalinity. The living forms indicate a preference for moderately oxidized to oxidized, low-saline to fresh waters associated with reducing to highly reducing bottom conditions. Taxa occurrences are plotted on probabilistic ternary diagrams in order to differentiate the microfaunas characteristic of the various subenvironment traverses, and on probabilistic target plots for microfaunal differentiation of the subenvironments.

HAN, JONG H., Bur. Econ. Geology, Univ. Texas at Austin, Austin, TX, and ALAN J. SCOTT, Univ. Texas at Austin, Austin, TX

Effects of Syndepositional Structures on Lower Vicksburg (Oligocene) Fluvial-Deltaic Sedimentation, McAllen Ranch Field Area, Hidalgo County, South Texas

The lower Vicksburg sandstones of the McAllen Ranch field area (including McAllen Ranch, Santa Anita, and Guadalupe fields) in south Texas have been significant gas producers for almost 4 decades. However, the relationship of syndepositional structures to the type and distribution of depositional systems is still not fully understood. The importance of growth faults, especially major regional faults, has long been recognized. Further detailed studies concentrating on deeper sandstones of the Vicksburg Formation indicate that these faults in the lower Vicksburg are characterized by low-angle fault-planes and greatly expanded stratigraphic intervals with plunging rollover structures on the downthrown fault blocks. Greatest stratigraphic expansion is associated with channel-mouth bar or delta-front facies.

Extensive drilling and acquisition of high-resolution seismic data in this area have provided the necessary stratigraphic control to determine the significance of more subtle structural effects on sedimentation. The present study is based on the analysis of 142 well logs, 10 cores, and several seismic lines.

The information from cores, characteristic log patterns, and net-sandstone maps of discrete genetic subunits strongly suggests a high-constructive deltaic origin for the reservoir facies. The maps show areas of rapid subsidence associated with large-scale mud movements. These movements result in the formation of sediment-withdrawal basins and fringing syndepositional anticlinal ridges. The localized basins have a profound effect on the style of deltaic sedimentation. Most significant is the exceptional thickening of the distal delta-plain facies characterized by interdistributary bay mud and crevasse splay sands. The splay sands contain abundant macerated plant material. Individual splays have a limited lateral extent, are stacked vertically, and form complex imbricated sand bodies which are gas-prone stratigraphic traps. Such an area presents an ideal target for explorationists and a complex set of problems for the production staffs comtemplating secondary recovery projects.

HANOR, JEFFREY S., Louisiana State Univ., Baton Rouge, LA

Reactivation of Fault Movement, Tepetate Fault Zone, South-Central Louisiana

The Tepetate fault zone consists of a series of faults trending east-west along the northern margin of the South Louisiana salt dome basin. The fault is known to be currently active in the Baton Rouge area, where it has fractured and displaced pavement and foundations. Detailed subsurface mapping of the fault zone in an area of Pointe Coupee Parish to the west reveals that there have been two distinct periods of growth faulting, separated by a long period of inactivity. The first period of fault activity occurred during the time from Wilcox (or earlier) to Frio deposition. There then followed a period of quiescence characterized by deposition of nearly 8,000 ft (2,400 m) of fluvial sands and shales, primarily of Miocene age. In more recent times, probably Pleistocene, the fault has been reactivated, and up to 40 ft (12 m) of additional displacement has occurred in the area studied. Of concern is the fact that a site near this fault has been proposed for the surface and subsurface disposal of hazardous wastes.

Recognition of the interruption and reactivation of growth faulting in south Louisiana is of considerable importance with regard to problems of regional structural evolution, fluid migration, and the siting of surface and subsurface waste-disposal facilities. Because of difficulties in subsurface correlation, faults of small displacement in fluvial sequences can easily be overlooked. Further detailed study, however, is warranted.

ISPHORDING, WAYNE C., Univ. South Alabama, Mobile, AL

Misinterpretation of Environmental Monitoring Data—a Plague on Mankind

All too often, data collected as part of environmental monitoring programs are subjected to interpretation by those unqualified to do so, frequently with results that require extensive litigation. A recent example involved a study carried out in Mobile Bay where geochemical data were used by certain individuals to "identify" bottom sediments contaminated by the drilling of an exploratory well. Elevated barium contents of up to several hundred ppm near the mouth of the bay were attributed to the spillage of drilling mud, although all drill cuttings, mud, and effluent from the rig had been pumped directly onto barges for disposal at sites onshore. Unfortunately, those making the allegations failed to carry out two analyses on the sediments that would have identified the true source of the barium. First, the sediments should have been X-rayed to determine if the barium was, in fact, the result of barite (subsequent diffractograms were all negative for barite). Second, the actual source of the barium could have been determined. Chemical "stripping" techniques now allow the elements in an analysis to be partitioned into: (1) a pore-water fraction, (2) an exchangeable ion phase, (3) ions associated with disseminated carbonate minerals, (4) ions associated with iron and manganese oxide phases, (5) ions attached to clays as organometallically chelated compounds, and (6) ions held in structural sites in the clay mineral lattices.

Partitioning of the barium in the Mobile Bay sediments disclosed that most was associated with the various clay-mineral phases and substitutional impurities in shell material. Thus, the barium observed was not the direct result of the drilling operation but rather reflected its common association with disseminated oxides in the bottom muds, as a chelated form adhering