

and northern Alabama through data gathered from 550 oil well logs and 10 measured sections. Two deltaic depocenters, a carbonate-shelf complex, and a shallow-basin carbonaceous shale unit are the primary depositional systems in the area.

Three genetic intervals have been identified on the basis of thin marine transgressive carbonate units. The lowest (Lewis) interval involves a high-constructive lobate delta system whose axes of maximum sandstone thickness extend southeastward from Lee and Itawamba Counties, Mississippi, as far as Tuscaloosa County, Alabama. Maximum net sandstone thicknesses for individual lobes average 60 ft (18 m). The middle interval includes a western high-destructive wave-dominated delta complex (Evans) centered in Lee and Itawamba Counties, Mississippi and a more easterly high-destructive wave-dominated delta system (Hartselle) in northwestern Alabama. The Hartselle system attains net sandstone thicknesses greater than 160 ft (48 m) along a northwest-southeast trend that extends almost to Birmingham. Evans delta-lobe maxima average about half that thickness. The upper interval is dominated by the thick, multistoried Muldon high-constructive elongate delta system (Rea through Carter sandstone units), centered in Monroe County, Mississippi. On the northeast, and laterally equivalent to the Muldon delta, is the Bangor carbonate shelf.

The Lewis, Evans, and Muldon units represent relatively thin, cratonic deltas whose sandstone provenance is north-northwest of the Black Warrior basin, in perhaps a southeastern Missouri source area. Hartselle terrigenous clastic rocks were transported from the northeast and southeast and probably have an Appalachian source.

BURGESS, WILLIAM J., Omni-Exploration, Inc., Radnor, Pa.

How to Create and Submit a Winning Prospect

The oil and gas energy crisis will last until other sources of energy become available in abundance. For much of its hydrocarbon supply, the United States now relies on countries which may be subject to political instability. Therefore, it would appear that the need for good, drillable prospects within the United States will be present for the next 20 to 30 years, so that the creation and marketing of prospects will continue to be of primary importance to the oil and gas industry and to the country.

The drilling deal or prospect may be discussed in terms of its elements: reserves, risk, and terms. Practical ways of evaluating reserves include simple volumetric analysis and comparison methods. The study of risk inquires about the chances for commercial success of a drilling prospect, and involves the geology. Risk may be studied in terms of the presence or absence of control for the structural and stratigraphic elements of a prospect. The terms of a deal involve cost; the buyer wants to know what he will pay for how much working interest which will yield how much revenue interest.

A "winning" prospect is one that will sell fast and has a high chance of bringing in a producing field. Submittals should include exhibits which represent clearly the

geological reasons for the prospect. Unless the exhibits of maps, cross sections, and other representational data are entirely self explanatory a written description of the prospect should also be included.

CASEY, RICHARD, Rice Univ., Houston, Tex., LINDA GUST, Australian National Univ., Canberra, Australia, ANN LEAVESLEY, Cities Service Co., Houston, Tex., DAMON WILLIAMS, Radian Corp., Austin, Tex., RICHARD REYNOLDS, Rice Univ., Houston, Tex., THEO DUIS, Texas A&M Univ., Marine Facility, Galveston, Tex., and JOAN MUSSLER SPAW, Rice Univ., Houston, Tex.

Ecologic Niches of Radiolarians, Planktonic Foraminifers, and Pteropods Inferred from Studies on Living Forms in Gulf of Mexico and Adjacent Waters

Living radiolarians, planktonic foraminifers, and pteropods have been collected during 1972-74 from the waters of the Gulf of Mexico and adjacent seas using Nansen closing nets, DUCA high-speed plankton nets, water bottles, and plankton pumps by micropaleontologists at Rice University. These samples included other shelled microplankton (diatoms, dinoflagellates, silicoflagellates, mollusk larvae, etc), nonshelled microplankton (blue-green algae, dinoflagellates, etc), and larger plankton (e.g., copepods, chaetognaths). Radiolarian, planktonic foraminifer, and pteropod species compositions, diversities, and densities were compared with those of other plankton, and were related to physical and chemical oceanographic parameters. Our studies suggest that certain radiolarian, planktonic foraminifer, and pteropod species may be nanoherbivores, bacterivores, detritivores, and/or associated with symbiotic algae and may be characteristic of eutrophic, mesotrophic, or oligotrophic conditions.

This information can be applied to studies of the fossil record for finer resolution of paleoecologic conditions (e.g., paleoproductivities) and for inference of the presence and nature (abundance and diversities) of certain nonfossilizable planktonic components.

CASEY, RICHARD, Rice Univ., Houston, Tex., KEN MCMILLEN, Univ. Texas, Marine Sci. Inst., Galveston, Tex., RICHARD REYNOLDS, Rice Univ., Houston, Tex., JOAN MUSSLER SPAW, Rice Univ., Houston, Tex., RUDY SCHWARZER, Texas Southern Univ., Houston, Tex., JOEL GEVIRTZ, Tenneco Oil Co., Houston, Tex., and MARY BAUER, Carter Oil Co., Houston, Tex.

Relict and Expatriate Radiolarian Fauna in Gulf of Mexico—Implications

The presence of living specimens of *Spongaster pentas* and related spongadiscid forms, *Buccinosphaera invaginata*, and certain other radiolarians in plankton samples from the Gulf of Mexico is evidence of a unique radiolarian population that is composed in part of relict and/or expatriate forms. These populations may have survived in the Gulf because: (1) the closure of the Tethys seaway by the uplift of the Panamanian block isolated the equatorial and temperate Atlantic waters and blocked radiolarian faunas from entering the Pacific