cesses. Narrow, shell-rich peninsulas are moving toward the mainland at rates of 2-14 ft/year. Narrow, shell-rich strand plains are in a state of rapid erosion—up to 30 ft/year.

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REVIEW OF SOUTH TEXAS URANIUM GEOLOGY

Projected increases in U. S. energy requirements in the future have caused many oil companies to explore for uranium in addition to their exploration programs for hydrocarbons. Uranium requirements in the U. S. will be governed primarily by the role of uranium in the generation of electric power. Nuclear plants are expected to generate between 35 and 45% of the nation's electric power by the year 1985.

Exploration for uranium in South Texas started in 1954 and has undergone several stages of activity since that time. All production in the South Texas area is from Tertiary sandstone units representing marginal marine to continental depositional environments. These uranium accumulations are dominantly "roll-front" type deposits which owe their existence to the geochemistry and stratigraphy of the sediments. Exploration techniques utilized in locating these deposits are similar to hydrocarbon techniques because of similarities in the mode of migration of uranium-bearing solutions and hydrocarbons. Stratigraphic and structural controls of hydrocarbon and uranium accumulations have many common characteristics although trapping mechanisms are physical for hydrocarbon and chemical in the case of uranium.

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ENERGY AND THE ENVIRONMENT

Man's conversion of natural resources to usable forms of energy has resulted in control and modification of segments of the landscape and environment; free movement over the earth, across the seas, and in the sky; and penetration of the "solid" earth, the oceans, and outer space. The search for energy resources has despoiled segments of the landscape and conversion of fossil fuels and atomic materials to energy has contributed to pollution of the atmosphere, waters, and rocks of the earth.

The exponential increase in energy requirements has brought the U.S. to the verge of a crisis not hitherto experienced by the nation. Factors contributing to the situation are (1) lack of a clearly defined, objective, realistic national energy policy; (2) restrictive, unrealistic price controls which inhibit or eliminate much of the financial incentive for exploration for new reserves; and (3) recently, vigorous opposition and actions designed to protect the environment.

The earth's landscape and environment have been transients throughout geologic history. Man has accelerated the natural transformation in many cases but decelerated it in others.

Man has used science, engineering, and technology to create, as well as to destroy. Realistic and enforceable regulations and laws should be enacted which will permit and encourage exploration and development of energy resources. The ensuing benefits would more than counterbalance the necessary modifications and redesign of the landscape and environment.

The national health and welfare—possibly even the nation's survival—are at stake!

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WAVES, CURRENTS, SEDIMENTS, AND SAND BARS ASSOCIATED WITH LOW-ENERGY COASTAL ENVIRONMENTS

Low-energy beaches are commonly characterized by a particular series of offshore sand bars which differ markedly, both in shape and sediment characteristics, from the classic offshore bar of high- and moderate-energy environments. This study reports on the physical interactions of waves and currents with low-energy bathymetric features that result in producing a distinct areal distribution of sediment parameters in the shallow offshore area. The trends in the sediment parameters are well correlated with the subtle bathymetric features of the offshore area and thereby may provide a method of determining low-energy environments in ancient deposits.

Prominent features in low-energy environments are subtle digital sand bars which trend perpendicular with, or at a high angle to, the beach face. These transverse bars have maximum relief of approximately 0.5 m with lengths ranging between 100 and 3,350 m and a quasi-regular spacing ranging from 300 to 2,000 m.

Investigations by several authors indicate that these bars act as avenues for onshore or offshore sediment transport. Recent studies by the writer have determined that the sediment is transported as a result of a nearshore current component caused by the transfer of momentum from unstable nearshore waves to the currents. The current component is characterized by a narrow relatively high-velocity current directed along the axis of the bars, with sluggish return currents between the bars. This current produces relatively coarse, well-sorted sediment along the crest of the bar and finer, less sorted sediment between the bars.

The scale of these features, as well as the obvious differences in sediment parameters, should permit their recognition in ancient deposits. Their presence allows inferences to be made about ancient wave energy levels and average wave approach directions.

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PRE-SANGAMON BEACH RIDGES ALONG NORTHEASTERN GULF COAST—FACT OR FICTION?

Field investigations failed to confirm the presence of earlier (pre-Sangamon) Pleistocene or Citronelle (Pliocene) littoral ridges and marine deposits on the surface in coastal Mississippi, Alabama, and the Florida Panhandle. The contrast between the numerous marine surfaces on the Atlantic coastal plain and the single Sangamon interglacial barrier complex of the Gulf Coast may be explained by the different regional tectonic behavior of the 2 provinces.

Only 1 Pleistocene coastwise alluvial depositional surface was found in Mississippi and southwestern Alabama in addition to the Prairie (Pamlico, Beaumont) alluvial coastal plain. Its age could not be exactly determined. In addition to the known Pearl and Pascagoula River valley locations, intermediate valley terrace fragments ("Deweyville"?) were found near the mouth of the Biloxi and Tchoutacabouffa Rivers. These surfaces indicate the latest higher sea level stage which probably existed during the early Wisconsin stage.

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COMPUTER MAPPING IN LOWER FRIO FORMATION (OLIGO-MIOCENE), SOUTHWESTERN LOUISIANA

Abstract *in* Am. Assoc. Petroleum Geologists Bull., v. 56, no. 3, p. 643.

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STRATIGRAPHY, SEDIMENTATION, AND PETROLOGY OF OLIGO-MIOCENE LOWER FRIO FORMATION, SOUTHWESTERN LOUISIANA

Abstract *in* Am. Assoc. Petroleum Geologists Bull., v. 56, no. 3, p. 643.