tional environments interpreted as being fluvial-deltaic (Pleistocene), estuary and lagoon, and a barrier island complex (both Holocene). The clay-mineral assemblages of the Corpus Christi Bay cores were compared to those from similar environments in Aransas Bay, adjacent to the north, and were found to be different.

In the Corpus Christi Bay area, the uniform distribution of clay-mineral species in the cores studied strongly suggests a more or less constant detrital source from the Nueces River over a period of approximately the last 35,000 yr. Available data on the clay mineralogy of sediments in the Nueces River drainage system, which flows into Corpus Christi Bay, indicate that kaolinite is the dominant clay mineral of lower Eocene sediments, and that montmorillonite is found in upper Eocene through Pleistocene sediments. We conclude that the clay-mineral assemblage found in cores in the Corpus Christi Bay is detrital, and that diagenetic clays are of minor significance.

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Basement Structure of Gulf Coast: Interpretation of Gravity Anomalies Supported with Structural, Magnetic, and Seismic Data

The filtered gravity map of the 48 contiguous states by Hildenbrand et al illustrates the relationships of anomalies in the Gulf Coast more clearly than previous (unfiltered) presentations. Gravity anomalies are recognized, which lead to the following hypotheses. (1) The passive margin of a late Precambrian to early Paleozoic rift underlies the Ouachita foldbelt from the Marathons through the end of the exposed Ouachitas in Arkansas. (2) A late Precambrian to early Paleozoic transform passive margin underlies the buried Ouachita-Appalachian connection in Arkansas, Mississippi, and Alabama. (3) A continuation of the rift passive margin underlies the Appalachians. (4) An early Mesozoic rift passive margin underlies southern Mississippi, south Louisiana, and coastal Texas. (5) This Mesozoic margin has at least two transform offsets in southern Louisiana and southern Mississippi. (6) The Sabine uplift, the Monroe-Sharkey uplift, and other features along the Atlantic coastal plain are buried portions of a late Paleozoic island-arc complex. (7) The Florida platform is accreted Africa–South American continental material. These hypotheses are supported by structural, magnetic, and seismic data obtained over some of the features.

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Morphology and Dioptrics of Some Ostracod Eyespots

On the Gulf Coast, as in other areas, ostracods have been much used in interpreting paleoenvironments. Such use may be enhanced by study of the ocular structures, including eyespots. Eyespot morphology appears to relate to light levels, which in turn are related to water depths. Thus, a new means of reconstructing water depths may be available.

Eyespots from two species of *Echinocythereis* from modern sediments along the Gulf Coast were studied using polished sections and electron and light microscopy. The inner surface of an eyespot is undulating and has a central convex portion and posterior concavities, each with a small radius of curvature compared to the convex outer surface. Light is converged most strongly by the central area and is focused in the underlying eye space. Astigmatism occurs as light passes through the areas away from the center, in which case the focus is beyond the eye cavity in the absence of a tapetal layer. Comparison of a modern and an extinct (Eocene) species of *Echinocythereis* indicates similar morphology and presumably similar functioning. A potential exists for discerning modern morphology as related to water depth and applying such knowledge to fossil forms and their environments.

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New Reference Locality for Saratoga Chalk, Howard County, Arkansas

The Saratoga Chalk (Navarro Group, Gulf Series, Upper Cretaceous) crops out in a narrow band trending northeast-southwest through Howard, Hempstead, Pike, and Clark Counties, southwest Arkansas. The Saratoga Chalk is a fossiliferous, hard, sandy chalk, somewhat glauconitic in composition, with thin beds of marly chalks and chalky sands scattered through the formation. Lying disconformably on the Marlbrook Marl, the basal contact is quite distinctive owing to a persistent break in lithology and faunal types. The overlying Nacatoch sandstone disconformably overlies the Saratoga Chalk.

The outcrop, located in Sec. 32, T11S, R27W, approximately 0.5 mi (800 m) west of the Saratoga townsite, provides a complete, easily accessible exposure of the Saratoga Chalk (here 24 ft or 7 m thick) within 1 mi (1.6 km) of the type locality. This new reference locality will complement the poor exposure of the formation at the type locality at Saratoga, Arkansas.

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Catahoula Formation as Uranium Source Rock in East Texas

The Oligocene-Miocene Catahoula Formation of the Texas Gulf coastal plain is a fluvial and lacustrine volcaniclastic unit composed of "normal" fluvial material mixed with distal rhyolitic air-fall ash. In the lower Texas Gulf coastal plain, it consists of stream-transported detritus from the volcanic source area in Trans-Pecos Texas and adjacent Mexico. This volcaniclastic component has altered to release uranium to mineralization processes in the lower Gulf Coast, but there has not been uranium production in the middle and upper Gulf Coast.

To evaluate the potential of the upper Texas Gulf coastal plain for uranium ore deposits, a geochemical study was undertaken. The Catahoula Formation was analyzed for U, Th, K, Rb, Sr, Zr, and Ti to estimate the nature of volcanic glass and its abundance and alteration. Concentrations from three key outcrops were compared. They were also compared to samples from a volcanic area in Trans-Pecos Texas, which is chemically appropriate as a source for the volcanic material in the Catahoula Formation.

In the lower Texas Gulf coastal plain, where uranium is produced, the glassy volcanic material has been pervasively altered, but in the upper coastal plain much glass remains. Because glass alteration is necessary for uranium release and concentration, the potential is low for large, shallow uranium ore bodies in the upper Texas Gulf coastal plain.

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Seismic Signature of Serpentine Plugs in Maverick Basin, Texas

Basalt necks occur on the surface of Uvalde and Kinney Counties in southwest Texas. These basalt necks are the "serpentine plugs" that produce from the Taylor section in the subsurface of Zavala County. Many plugs are present in both the surface and subsurface.

Geology of the serpentine plugs indicates that most of the volcanic activity occurred as post-Austin subaqueous extrusions. Formations below the volcanic material show no structural deformation. Formations above the Cretaceous show evidence of the pile of volcanic material in few places. The most significant evidence of structure and faulting is within the Taylor section.

Strategically placed seismic lines will give obvious evidence of the existence of a serpentine plug.

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Channels in Resedimented Chalks, Cretaceous Gulf Coastal Province of Texas and Mexico

Extensive roadcuts on U.S. Highway 90 in the vicinity of Langtry in west Texas display superb exposures of well-bedded chalky limestones comprising the lowest 27 m (89 ft) of the Austin Chalk equivalent. The limestone occurs as highly persistent beds averaging about 40 cm (15 in.) thick and separated by shale partings averaging 2-3 cm (about 1 in.). Limestone-shale contacts are very sharp. Nannoplankton indicate a Turonian to Santonian age and an outer shelf source; sedimentary features suggest redeposition by moderately low-density turbidity currents in a midfan setting characterized by distinctive distributary channels with channel-mouth bars and levees.