sediment-classification diagram. The map also depicts the precise locations of the hundreds of sediment-sampling points from which data were obtained.

3. Composite Environmental Suitability Map: Brazoria County Geopressured-Geothermal Prospect Area, which uses a series of transparent-translucent overlay sheets on which specific environmental characteristics are shown in varying shades (intensities) of gray to map relative environmental suitability for geopressured-geothermal fluid production and disposal activities.

4. Lavaca and Lower Guadalupe River Basins Environmental Geologic Map, which consists of units that are defined in terms of substrate lithology, soils, landscape morphology, biologic assemblages, and geologic processes. Derivative maps prepared from the environmental geologic map include substrate materials, active geologic processes, and biologic assemblages.

WILLIAMSON, CHARLES R., Union Oil Co. of California, Brea, Calif.

Deep-Sea Deposition in Density-Stratified Cratonic Basin, Bell Canyon Formation (Permian), Delaware Basin, Texas–New Mexico

Sand and silt of the Bell Canyon Formation were deposited in a euxinic, deep-water, density-stratified basin. Laminated silt formed by suspension deposition from density interflows which moved along thermohaline interfaces; silty sand was deposited by bottom-hugging density underflows in submarine channels. The geometry of sandstone bodies is controlled by the configuration of nearly parallel, erosional channels oriented at high angles to the basin margin which range from less than 0.5 km to more than 8 km in width, 1 m to greater than 35 m in depth, and extend more than 70 km basinward. Channel erosion and sediment transport are interpreted to have resulted from long-lived density underflows which had many irregular fluctuations in flow strength. The flows may have originated as saline water was flushed from evaporitic shelf lagoons during storm ebb flow. The channels differ from modern and ancient submarine-fan channels attributed to turbidity-current processes in several ways, including: (1) the lack of radial or branching distributary-channel pattern; (2) few proximal to distal changes in grain size, bed thickness, and sedimentary structures; (3) the presence of abundant large-scale cross-stratification; (4) the lack of graded beds and Bouma sequences; and (5) the absence of clay-size detritus, levee, or overbank deposits.

More than 100 oil and gas fields produce from the Bell Canyon Formation in west Texas and southeast New Mexico. Most reservoirs in the northern Delaware basin are stratigraphic-hydrodynamic traps which occur where deep sandstone-filled channels are incised into less permeable interchannel siltstone. Similar types of elongate, basinal, sandstone bodies confined to linear channels might be expected in other cratonic basins where there is a high potential for density stratification of basin waters and the generation of saline density currents.

WILSON, JAMES LEE, Michigan Univ., Ann Arbor, Mich.

Sedimentologic Studies in Jurassic of Tunisia

Modern sedimentologic interpretation of the Tunisian Jurassic is based on excellent field studies by Tunisian and French geologists from 1955 to 1972. Jurassic facies north to south across Tunisia were formed where the African craton sloped into the southern edge of the Tethyan Sea and to the south in a restricted marine and evaporitic basin on the African shield itself. Thickness of the system varies abruptly off banks and into starved basins between 300 and 1,000 m.

The Lias of central Tunisia forms a broad and typical carbonate platform separating the pelagic facies of the north from the major interior evaporite basin. A great north-south escarpment through southern Tunisia beautifully exposes these evenly bedded, restricted marine carbonate rocks and gypsum. Through the Middle and Late Jurassic the northern starved basin and slope facies (respectively radiolarian shales and Ammonitico Rosso) expanded into central Tunisia. Carbonate banks and patch reefs developed along the north-south axis west of the Sahel and its extension in the Jurassic ranges from Zaghouan to Bou Kornine uplifts. These probably rimmed the western margin of an ancestral Pelagian block. Bathonian slope deposits here consist of debris flows near Tunis, and the Kimmeridgian of Jebel Zaghouan shows a local reefy facies grading abruptly into turbidites and pelagic limestones to the north and west. These abruptly changing facies indicate a moderately unstable (rifting?) margin with intermittent reef growth. The Bathonian debris flows record a tectonic pulse which can be correlated with marked changes in thickening and elimination of strata along the Tebaga-Djeffara lineament, an important structural feature separating the southern evaporite basin from the northern unstable platform and basinal area.

WINTERER, EDWARD L., Scripps Inst. Oceanography, La Jolla, Calif.

Biogenous Sediments Recovered by Deep-Sea Drilling

The Deep Sea Drilling Project has provided about 60,000 m of cores that contain a record of biogenous sedimentation over a major part of the world ocean during the past 150 m.y. Subduction and subsidence bias the record in older strata toward sediments deposited near rise crests, and technical drilling problems bias the samples toward low latitudes. After factoring out the effects of plate motions and subsidence, the main features of maps of post-Jurassic biogenous facies reflect primarily the patterns of oceanic fertility and of dissolution of carbonates with depth. These in turn respond to changes in the interacting climate and the deep and surface oceanic circulation systems, which are ultimately determined by the changes in locations, shapes, and interconnections of the ocean basins and their marginal seas.

One great value of the cores is in their being samples whose biostratigraphic age is precisely known, whose paleolatitude, paleolongitude, and paleodepth can be specified, and whose pressure-temperature and pore-water history during burial and diagenesis generally can be far better constrained than for most sediments on land. Biostratigraphers and paleoenvironmentalists