slope in the Alaminos Canyon area, Gulf of Mexico, indicate sand input from the ancestral Colorado-Brazos and Mississippi River systems. The clay minerals in the area were derived from indeterminate sources and were incorporated in coarse samples through resuspension of former sediment. Vermiculite, as well as tubular hallaysite, were identified in clay samples. The first mineral is unreported in the northwest Gulf, and the latter is only known from the Mississippi delta in the northwest Gulf area.

The "hummocky" nature of the bathymetry in the area resulted from salt diapirism and scouring by tractive and/or density flow. Sand-size sediment was transported to the area from river systems by longshore drift during the Holocene transgression or through channels still identifiable on the present continental shelf. The lineation of one of these features, the Outer Colorado-Brazos Channel, is probably due to salt tectonics and not the result of a barrier spit as previously reported.

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Oil-Column Calculations in Stratigraphic Traps

Oil columns can be calculated for simple stratigraphic traps if the rock and fluid properties are known or can be estimated. Because oil migration is prevented by capillary pressure in small pores of the trap facies, direct measurements of capillary pressure allow oil columns to be calculated, but such measurements are rare. An alternative is to determine pore size from porosity and permeability data using an empirical equation, and then to compute the capillary pressure by an estimate of fluid properties.

An example of oil-column calculation is from the Milbur field, Burleson County, Texas, a lower Wilcox stratigraphic trap. Using core analysis from a nearby well, an oil column of 40-80 ft would be expected for the trap, and this estimate agrees reasonably well with an actual oil column of 60-75 ft for the field. The most important part of such calculations is the realization that the trapping facies itself can have significant porosity and permeability and yet form an effective barrier to oil migration. The result is that the best reservoir may occur downdip from dry holes with porous water-bearing sandstone and oil shows, rather than updip at the pinchout.

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Geothermal Power in the Southwest

In this era of great concern over the environment and the energy crisis, much attention is being directed toward geothermal power as a partial panacea for both predicaments. Of approximately 1,100 known geothermal occurrences in the United States, most of which are in and west of the Rockies, a relatively small percentage are classified as dry steam reservoirs, capable of producing hot unsaturated steam which poses minimal effluent disposal problems. Others, such as the Salton Sea field in southern California, pose critical waste brine difficulties, which will probably be solved only by reinjection. A major geothermal field, *e.g.*, the Geysers in northern California, is expected to produce steam adequate to generate from 1,000 to 2,000 megawatts of electricity, with 50-year gross revenue from steam sales on the order of $2 billion.

There are known geothermal occurrences in the southwestern states of Texas (less than a dozen), New Mexico (57), Arizona (21), Nevada (185), and southern California (about 30). It is likely that additional geothermal prospects will be developed by the use of sophisticated geologic mapping, coupled with such geophysical methods as studies of temperature-gradients, microseisms and ground noises, resistivity, and remote sensing, and chemical methodology useful in determining maximum water temperature in the system and the age of that water.

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Recent and Ancient Turbidites and Contourites

Fossil turbidites have been recognized and described from many areas all over the world. A turbidite model, comprised of a fixed succession of sedimentary structures, was established a decade ago and seems to be usable, although some changes have been suggested.

Turbidites are generally assumed to be deposited by turbidity currents, but the presence of these currents in the marine realm has not been definitely established. Submarine canyons presumably are the major, if not only, important transport route for moving "shallow" water material to "deeper" basins. Questions arise about the origin of turbidity currents when studying canyons in which gradual filling followed by sudden emptying has occurred. The material in the canyon head moves downward slowly, comparable to glaciers. Besides this slow sliding, traction currents and debris flow have been suggested. Where turbidity currents start, and if they absorb the slow moving canyon fill, are questions that cannot be answered yet. Other problems are the relation between fluxoturbidites, or gravities, and turbidites, and the use of the terms "proximal" and "distal" turbidites.

In comparing recent turbidites with ancient ones, many discrepancies appear, most of which can be eliminated by considering the influence of primary consolidation on sedimentary structures.

Studies indicate that the use of electrical logging and seismic records do not allow detailed interpretation of deposits such as turbidites. The resolution of the records is not fine enough, although their application for basin analyses and overall trends is necessary.

Recently a new genetic term, "contourites," was introduced for sediments redeposited by contour currents. Recent and ancient contourites are compared with turbidites and only minor differences exist. A combination of parameters may allow a distinction between the two types and it is possible that both can be found in the same area.

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South Texas Eolian System—Model of Coastal Eolian Processes

Few oil and gas reservoirs have been interpreted as sands deposited within eolian depositional systems. Eolian facies may, however, be more common in ancient basins than heretofore recognized. Continued documentation of Holocene eolian systems, such as the South Texas system, provides a model for reevaluating the genesis of numerous unfossiliferous, well-sorted blanket sand bodies, many of which are associated with ancient, paralic depositional systems.

Pleistocene paralic depositional systems along the South Texas coast dictate the nature and distribution of facies patterns, environments, and processes exhibited by the overlying Holocene South Texas eolian system. A dominant southeast wind, high summer temperatures, and high rainfall deficiency combine with an abundant supply of Pleistocene sand to provide the proper framework within which extensive eolian deflation and dune migration can occur.

Eolian lobes are supplied with sand from Pleistocene barrier-strandplain facies and fluvial meanderbelt deposits. Loess sheets are derived from distant lobes, as well as from deflation of local Pleistocene deltaic and fluvial facies. Deflation of thick Pleistocene fluvial-deltaic sand facies is commonly stabilized when erosion reaches the shallow groundwater table. Maximum deflation occurs on the upwind, coastward margin of the system, especially where only thin Pleistocene paralic sands are available to supply dune trains; mud deflated by strong off-