

shallower pool discoveries were estimated. The approximate amount of oil that eventually will be produced in the United States (the grand total of all foregoing calculations) compares favorably with conservative predictions.

For detailed study of remaining oil and gas potential in the United States, the country was divided into seven producing regions. Analysis of each region suggested the probable locales of the remaining undiscovered giant oil and gas fields. The favored producing regions in the conterminous 48 states are the Rocky Mountains, Gulf Coast province, and California offshore.

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Speculations on Basement Mobility in Gulf of Mexico

Since the advent of plate tectonics, we have been faced with explaining the genesis of the Gulf of Mexico. The Gulf basin is the most heavily explored basin in the world, yet concrete evidence relative to its origin has not yet surfaced. Like pieces of a puzzle, major clues in bathymetry, paleobasin margins, and shifting depocenters are coming together to form a picture of the evolution of the gulf. It is reasonable to propose that the Yucatan Peninsula was once in Texas waters. Verification of this hypothesis may vastly expand the hydrocarbon potential of the United States Gulf Coast area. As more geophysical and geologic data are collected, extrapolation of sedimentary facies and the basin axis into the Yucatan shelf and interior may move these speculations into the realm of fact.

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Submarine Slides

Large submarine slides have long been known to damage structures in nearshore areas where lateral movements or depth changes have abruptly occurred when triggered by earthquakes and/or by periods of rapid deposition off large river mouths. Oldest reports of deep-water sliding are in connection with breaks in submarine telegraph lines. With the introduction of seismic profiling in the early 1960s, sub-seafloor sedimentary structures interpreted as slides have been recorded in many areas. The structures in these records are commonly equivocal and, to prevent misinterpretation, the limitations of the method must be recognized. Knowledge of the environment of submarine slides is equally important. Morphology, seismicity, and sedimentary processes are important in determining the relative stability of slope environments. Superimposed on these are the effects of Pleistocene lowered sea levels which resulted in pulses of sedimentation, overloading, sliding, and erosive turbidity currents. Slides reported in the literature range from rotational slumps off mouths of large rivers, where rapid outbuilding of delta-front deposits over fine-grained impermeable sediments develops excess pore pressures, to massive (over 900 cu km) allochthonous slides of complex structure displaced from an accretionary slope above a subduction zone.

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In Search of Resolution

In 1968, when the Deep Sea Drilling Project started, our biostratigraphy was held together almost totally by a single thread—the foraminiferal zonation. In carbonate-rich sediments, these zonation provided an average age resolution of about 6 m.y. in the Cretaceous and about 1.5 m.y. in the Cenozoic. The study of calcareous nannofossils was rapidly advancing at this time and soon “challenged” the Foraminifera for high stratigraphic resolution. Perhaps the biggest impact on biostratigraphy of the material recovered by DSDP has been the development of stratigraphic zonation for the siliceous microfossils. Radiolarian stratigraphy, in particular, has grown from a rough grouping of species with which one could distinguish epochs to a detailed zonation with an average age resolution of about 2 m.y. With this rapid growth in both the number of microfossil groups used in marine stratigraphy and in the degree of stratigraphic resolution, the question arises as to the ultimate resolution that is achievable. Recent work on the upper Tertiary and Quaternary provides a guide to what might be accomplished. The use of many biostratigraphic datums increases the average age resolution to as little as a few hundred thousand years, and the coupling with magnetic and isotopic stratigraphic zonation provides a check on global synchronicity. Development of stratigraphic zonation aided by the determination of fluctuations in abundance of faunal and floral assemblages offers the promise of increasing resolution another order of magnitude; studies of how faunal distribution patterns change with time indicate where such refined techniques may be useful and where they may be misleading.

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Characteristics of Shallow Subsurface Faults on Texas Inner Shelf

Faults mapped on the Texas inner shelf from high-resolution sparker profiles show diverse densities, continuities, orientations, displacements, and degrees of recent activity. Potentially active faults either intersect or are near the seafloor at the upper limit of detection on geophysical records, whereas inactive faults are usually overlain by continuous seismic reflectors. Fault characteristics are broadly defined by geologic age, depositional history, and degree of tectonic subsidence. Faults of greatest density and lateral continuity (<27 km) are peripheral to the Rio Grande delta, an area of active Holocene deposition. Faults are equally dense and less continuous (<16 km) near the Brazos-Colorado delta, whereas presently active faults are rare between the deltas except near Corpus Christi. Faults are least continuous (<5 km) and dense along the upper coast which has remained relatively stable during the late Quaternary. Displacements at depths of 150 m range from 3 to 30 m; most displacements, however, are between 3 and 10 m when rollovers are discounted. These en echelon growth