Several earth-science societies—the Society of Exploration Geophysicists, Geological Society of America, Seismological Society of America, American Geophysical Union, and American Geological Institute, for example—have adopted programs designed to increase the number of black, Spanish-surname, Indian-American, and other minority groups in the geosciences. These programs include (1) special efforts to motivate minority youths of precollege age to study geology and related sciences when they leave high school; (2) providing summer and part-time jobs in industrial, governmental, and academic geoscience programs for high school and college minority students; (3) encouraging undergraduate and graduate scholarships for minority geoscience students in colleges and universities; (4) giving grants to colleges and universities that make special efforts to train minority geoscientists; and (5) eventually finding professional jobs in the geosciences in oil and mining companies, state and federal geological surveys, universities, and other institutions for qualified graduates. The aim of these programs, as for all programs of geoscience education, is to provide a continuous flow of talented young people from all racial, ethnic, and economic backgrounds into geology, geophysics, and related geosciences.

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SEDIMENTARY AND STRUCTURAL CHARACTERISTICS OF LOWER PALEOZOIC STRATA ADJACENT TO BURIED PRECAMBRIAN TOPOGRAPHY IN SOUTHEASTERN MISSOURI

A mature Precambrian igneous topography in southeastern Missouri having a maximum relief of more than 2,000 ft was buried by Late Cambrian and Ordovician sediments, but is now extensively resurrected by stream erosion. Peripheral dips in sedimentary strata adjacent to the buried topography of as much as 34° are shown to be limited in lateral extent, and are interpreted as due mainly to the compaction of carbonate muds by as much as 25%.

Detrital igneous material ranging in size from fine sand to large boulders is locally abundant in some sedimentary units. Sedimentary breccias are common at the margins of depositional basins bordered by Precambrian ridges. These breccias are attributed by Snyder and Odell to submarine sliding on slopes of as little as 4°. Algal and stromatolite reef facies are developed at the margins of the depositional basins, and appear closely related to the Precambrian topography which apparently existed as islands or shoal areas in early Paleozoic seas.

Joints and fractures developed in sedimentary strata exhibit both radial and tangential orientation with respect to the configuration of the buried hills. Comparison with results of model experiments by Cloos and Beloussov, and theoretical analysis support a concept of origin in which tensional stresses developed in the sediments during compaction.

The area of these stratigraphic and structural features constitutes a unique "laboratory of exposures" which provides opportunities for comparison with facies encountered in deep drilling elsewhere in the Mid-Continent.

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FUTURE PLANS FOR DEEP SEA DRILLING PROJECT

The Deep Sea Drilling Project, funded by the National Science Foundation, guided by JOIDES, managed by Scripps Institution of Oceanography, and subcontracted for drilling by Global Marine, Inc., of Los Angeles, has been extended for 3 years of drilling. The 7-year period of drilling began August 11, 1968, and will extend until August 11, 1975. The present total estimated cost is approximately $70 million.

Drilling in the past has carried D/V *Glomar Challenger* into the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Caribbean and Mediterranean Seas. She is presently in the Indian Ocean and will proceed, by present plans, back into the Pacific Ocean in early 1973; in early 1974 her track will go into the Atlantic Ocean, to terminate at the end of contract in the Gulf Coast port. It is hoped that a program of drilling in Antarctic waters can be mounted satisfactorily from the *Challenger*. Such a program would involve either 2 or 3 austral summers. Additional drilling in the far North Atlantic would be visualized as part of the high-latitude work. It is hoped that penetration into 500-1,000 m of rock beneath the sediment cores can be achieved several times during this period.

Emphasis in the extension program, as assembled by the JOIDES panel structure, includes investigation of (1) chemical history of the oceans, (2) diagenesis, (3) basement rocks, (4) interaction between basement rocks and sediments, (5) history of ocean current systems, (6) organic evolution and productivity, (7) global tectonics, (8) trenches, (9) high-latitude oceans, (10) continental margins, and (11) remanent magnetism.

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SOME CASE HISTORIES IN PROJECTIVE WELL-LOG INTERPRETATION

A decade has passed since the introduction of projective well-log interpretation, *i.e.*, of a system of quantitative geologic well-log analysis and interpretation for the purpose of exploration for oil and gas.

Such projective techniques use well logs to investigate and map physicochemical rock modifications that may have taken place in the sedimentary geologic column as a result of the migration and accumulation of oil and gas in structural as well as in stratigraphic traps. The principles on which the individual techniques of this system rest have been reviewed in scientific and trade magazines. Many example surveys and discovery data have been published, but most survey results have remained confidential. With passing years some operators have drilled and discovered oil not knowing that such surveys have been made on their prospect areas. Some example surveys made in Florida, in the Permian basin, in the Denver-Julesburg basin, and in the Williston basin are presented in which a number of producing oil and gas wells, and fields, have now been developed in areas mapped and indicated as petroliferous long before discoveries.

One feature common to all petroliferous trends delineated by projective well-log interpretation is that the exact limits of expected production are not pinpointed nor is any claim made that the indicated petroliferous trends will be economically productive. To define economically productive limits, a much greater well density is needed. With such density all the oil fields within the explored depth would have been found, but deeper production possibilities would be indicated by projective techniques.