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NATURE OF THRUST FAULTING IN SOUTHERN INYO MOUNTAINS, SOUTHEASTERN CALIFORNIA

East of Lone Pine, California, on the west flank of the Inyo Mountains, a series of imbricate thrust faults appears in a narrow belt that trends roughly N30°W for a distance of approximately 17 m. The faults cut rocks ranging in age from Late Cambrian to Middle Triassic(?) and are cut by plutonic rocks possibly as old as Early Jurassic. The pattern exhibited by these faults is similar to that of folded overthrust faults generated by Link in model experiments. The faults decrease from approximately 50° dip to flat-lying, with increasingly higher structural position. They do not cut and offset one another, but converge upward with attendant decrease in dip.

Thrust faults of the southern Inyo Mountains are thought to be closely related to other extensive, essentially flat-lying thrust faults on the north and east, because of the similarity in time of emplacement and sense of movement of the allochthons involved. A general alignment of trend, considering some left-lateral offset north of Darwin, and other similarities suggest that thrust faults in the Darwin district are a southeastward continuation of thrust faults exposed in the southern Inyo Mountains. Thrust faults exposed farther north and east may represent higher structural positions.

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CORAL-REEF AND BIOHERM MORPHOLOGY—CRITERIA FOR INTERPRETATION OF EVOLUTION OF JURASSIC BASIN OF CENTRAL HIGH ATLAS MOUNTAINS, MOROCCO

The Jurassic sedimentary basin of the High Atlas Mountains is an elongate northeast-southwest trough 100 km wide and 800 km long in which sedimentation was initiated across continental Triassic sediments and terminated with Upper Jurassic continental sediments. More than 75% of the rocks of this sequence are exposed and provide a unique opportunity for the study of the evolution of a sedimentary basin; some of the best tools for this analysis are the coral reefs and related bioherms common to the basin.

Biohermal structures include the following. (1) Micrite and sponge bioherms range from a few meters to more than 1 km in diameter and are approximately 100 m thick. Their lack of sorting and geographic position in the center of the basin suggest formation below wave base. (2) Barrier coral reefs are several hundred meters in diameter and thickness. The position on the shelf margin, sorting of the interbedded sediments, and the presence of flanking and capping beach sediments suggest formation just below and within the intertidal zone. (3) Coral-reef pinnacles are 100 m in diameter and thickness. The bases of the pinnacles lack evidence of wave sorting, but their tops are sorted and are covered by lag deposits, suggesting, together with their central position in the basin, that the pinnacles formed just below and up to wave base. (4) Patch reefs consist of (a) microatolls of mud and brachiopod hash up to 100 m in diameter and a few meters thick (sorting of the related sediments suggests that they formed above wave base, but lack of beach features or supratidal evidence indicates a lagoonal environment) and (b) coral-lined channels several tens of meters across and a few meters deep. Their occurrence within crossbedded and sorted sands without sorting of the coral suggests formation within the subtidal zone. By using the coral reefs and other sedimentary features, it can be shown that the margins of the basin remained shallow platforms throughout the basin history, and that the center of the basin deepened progressively.

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PHYSICAL AND BIOGENIC CHARACTERISTICS OF NEARSHORE SHELF, PENSACOLA, FLORIDA

Two sampling profiles were made from the high-tide line to 15 n. mi. seaward of Santa Rosa Island, Florida, to determine the beach-to-offshore sequence of a medium-high energy environment. Preliminary results are based on examination of sediment texture, zoologic collections, scuba observations, epoxy relief casts, X-ray radiographs, and submarine morphology.

A steep profile exists from the backshore to 400 m offshore in a water depth of 8 m. The substrate is composed of clean, well-sorted, white, medium- to fine-grained, crossbedded sand; bioturbation is negligible, and few species or individuals are found. Between 8 and 12 m water depths (horizontal distance of 1 n. mi.), the clean white sand is highly bioturbated, mud layers are present, and the number of benthic species and individuals is high. The seaward limit of this zone is the "relict-recent" boundary.

From approximately 1 to 7 n. mi. offshore (12-36 m water depth), the submarine topography is irregular. The substrate in this zone is composed of "relict," coarse, moderately well-sorted, brown to gray sand, which is crossbedded and bioturbated by heart urchins. Seaward of this zone to 12 n. mi. offshore (maximum depth of 25 m), sediment texture remains unchanged, but crossbedding and the distinct heart-urchin traces are replaced by complete bioturbation, and a second maximum in the number of species and individuals is found. The most seaward samples were taken at 14 to 15 n. mi. offshore in water depths of 32 and 34 m, where the bioturbation is low, and the coarse, clean sand is crossbedded.

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PRIMARY SUBTIDAL DOLOMICRITE FROM BAFFIN BAY, TEXAS

Unlithified to lithified beds of dolomicrite, 1-3 cm thick, have been cored from the muds of Baffin Bay from depths greater than 350 cm below the water-sediment interface. From a consideration of the 7 m and greater depth of these dolomicrites below present sea level, the relative stability of this part of the Texas coast, and comparison with accepted sea-level curves, it has been demonstrated that these dolomicrites must be of subtidal origin. C^{14} dates on the dolomicrites indicate that they formed 2,000-4,000 years B.P.

The δ O^{18} values of Baffin Bay surface waters reflect the salinity conditions of the waters. With salinity ranges of 5°/oo to 60°/oo, the corresponding δ O^{18} values are -3.4°/oo to $+3.3$°/oo. Intermediate salinities have intermediate δ O^{18} values.

The δ O^{18} ranges for the dolomicrite sediments are $+4.8$°/oo to $+5.4$°/oo relative to PDB. These values indicate that the dolomicrites precipitated from hypersaline waters. δ C^{13} ranges for the dolomicrite sediments range from -1.6°/oo to -7.5°/oo relative to PDB. These values indicate a considerable influence of metabolic carbon during the precipitation of the dolomicrites.

Lack of textural or isotopic evidence of a carbonate precursor to the dolomicrite, as well as the observed isotopic ranges of the dolomicrites and their position in the sedimentary column, lead to the belief that the dolomicrites from Baffin Bay, Texas, are of a primary, subtidal origin.

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DOLOMITIZATION PROCESS IN SABKHA ENVIRONMENT