lithified patches of the formation take on a nodular appearance as bioclastic debris is cemented. Cementation by microspar and bladed pseudospar occurs in burrows, shells, and as random nodules. Microspar is typically equant and uniform with an average crystal diameter of 14 μm. Microspar formation results in an increased crystal volume characterized by exploded shells and extruded matrix. The crystal formation is an early diagenetic phenomena and probably driven by the presence of organic matter.

In addition to microspar, aragonitic shells are commonly replaced by neomorphic sparry calcite. Replacement appears to occur along an advancing front and is probably a result of thin-film reactions. There is no crystal volume increase.

Neomorphic spar (often referred to as "pseudospar") is formed by a different process than microspar (pseudospar) and the final diagenetic effects are different. Distinction should be made between types of pseudospar, and the terminology clarified.

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Should We Permit Mississippi-Atchafalaya Diversion?

About one and a half billion dollars is planned for the relocation of control structures, upgrading guide levees, and developing the Atchafalaya basin as a wetlands resource in the coming decade. What would be the engineering, cultural, environmental, and economic consequences should the Mississippi River be diverted through its Atchafalaya distributary? Perhaps the answer is that the future of southern and coastal Louisiana would be better served if the river were not shackled with artificial and costly engineering restraints and were permitted to choose the shorter, natural path to the sea. This paper proposes an in-depth comparison of situations which: (a) maintain the status quo, (b) consider the effects of a gradual, planned increase in the rate of diversion, and (c) consider the effects of a rapid, uncontrolled diversion during an immense flood or series of floods.

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Modern Lagoonal Ostracodes and Species Diversity Gradients, Gulf of Mexico

Observed species diversity trends have been explained by the time-stability model of Slobodkin and Sanders. Their model predicts low rates of speciation from equable into hostile environments. Species radiation from tropical, unstressed (equable) environments into higher latitude stressed (unequable) zones should be relatively slow. Speciation from hostile (stressed) to equable (unstressed) biotopes should occur faster. These differences in rate will theoretically result in lower species diversity in hostile regions. This model is tested with ostracode population data collected from two modern lagoons in the Gulf of Mexico: Laguna Mandinga, Veracruz, Mexico (19°04′N lat., 96°04′W long.), lies south of the Tropic of Cancer, and is a small (20.39 sq mi or 53 sq km) tidal lagoon indenting the coastal plain of Mexico about 5 mi (8 km) southeast of the port of Veracruz; and Bay St. Louis, Mississippi (30°20′N lat., 89°20′W long.), is a shallow bay of slightly smaller area (16.52 sq mi or 43 sq km) about 13 mi (21 km) southwest of Gulfport. These two brackish-water bodies are separated by 11°16′ lat. (~ 716 mi or 1,146 km) and 6°44′ long. (~ 422 mi or 675 km). Both water bodies have been quantitatively sampled for benthic ostracodes. Total (live + dead) populations from 35 sample stations in Laguna Mandinga and 23 stations in Bay St. Louis ($\sum = 58$) furnish data which provide an estimate of latitudinal diversity gradients between these two depositional environments. Diversity measures calculated for each water body include S (number of species), H(S) (Shannon-Wiener function), and E (equitability). Calculations show that average S values in Mandinga (5.171) are higher than those in Bay St. Louis (2.870). Average H(S) values in Mandinga (1.214) are also higher than in the Bay (0.633). Average E values in Mandinga (0.673) are lower than those in the Bay (0.842). These diversity values indicate ostracode species are more prolific in Gulf of Mexico tropical lagoons; they demonstrate lesser species dominance in tropical Mexican lagoons; and they show less species equitability in the tropical environments. Temperate bays in the northern Gulf apparently support fewer ostracode species, show stronger species dominance, and are more equable in species distribution. These data support the time-stability hypothesis, and suggest the tropical Mexican ostracode fauna is slightly older, hence more diverse than the temperate northern Gulf fauna.

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Environmental and Diagenetic Controls of Carbonate and Evaporite Source Rocks

The organic geochemistry of shale source rocks has been a subject for extensive research during the past two decades. Many useful interpretive techniques have been developed for the assessment of hydrocarbon potential of sedimentary basins in which shales are the principal and logical source for petroleum generation. Nevertheless, the present understanding of carbonate and evaporite source rocks remains superficial. The criteria generally employed to assess shale source rocks are inadequate and misleading when applied to carbonate-evaporite basins.

Most misconceptions regarding the hydrocarbon potential of carbonate and evaporite rocks stem from a simplistic notion that organic matter associated with the sediments on well-aerated carbonate shelves and evaporite-depositing environments is not likely to be preserved. Recent data on organic geochemistry of Holocene carbonates from shallow shelves suggest that (a) organic matter can be preserved in certain environments; and (b) the kerogens produced from degradation of organic matter in carbonate sediments are predominantly sapropelic and therefore much more efficient sources for hydrocarbons than the mixed humic-sapropelic kerogens of shales.

The preservation of organic matter in carbonates and evaporites is controlled primarily by environments of deposition and the diagenetic overprints. Sabkha, lagoonal and basinal environments, for example, are excellent for organic-matter preservation; vadose and