for attenuation in solids is substantially different from that in liquids; a non-linear mechanism for attenuation has been proposed.

An inversion method can be used to compute the intrinsic Q in shear of the earth's mantle from available data on attenuation of the surface waves and free oscillations. The restrictions and assumptions in the calculation are: (1) Q must be positive; (2) Q is assumed to be independent of frequency; and (3) the mechanism of energy dissipation is through a complex modulus.

The results show that, in shear, the upper mantle has a much higher attenuation than the lower mantle. Q for the upper mantle, from the surface to a depth of 650 km., is estimated at 110; for the lower mantle, below 650 km., it is much higher than this, but the exact value cannot be estimated with precision. There are indications of fine variations of Q in the upper mantle, but present accuracy of the data and the assumptions used do not permit the literal use of these indications. Partial melting in a low velocity layer at shallow depth is considered and a small amount of partial melting is not inconsistent with the above result and the data.

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MINERALOGICAL COMPOSITION AND TEXTURAL PROPERTIES OF RIVER SEDIMENTS FROM BRITISH HONDURAS

An investigation of the mineralogical and textural properties of channel sediments from certain selected rivers of British Honduras, Central America, indicates that the material carried by the northern rivers is distinctly different from that in the southern ones.

The northern rivers contain mainly a carbonate sediment of cryptocrystalline grains and mollusk fragments. A multiple origin for these cryptocrystalline carbonate grains is proposed. Undoubtedly, some grains are recrystallized mollusk fragments. Other grains are rock fragments, while still others appear to have been indirectly precipitated by blue-green algae. The noncarbonate grains have been derived from Pleistocene stream deposits. Abrasion of the heavy minerals and quartz grains appears to be lacking.

The southern rivers contain mainly silici-clastic sediments. The size distributions of bed-load samples plot as approximately straight lines on phi probability paper with a deviation near +2 phi. This deviation is real and has been attributed to an abrasional mechanism. The heavy mineral suites from the southern rivers indicate a more metamorphic provenance than is seen in outcrop in the source areas. The primary provenance has been interpreted to be the metamorphic belts in Guatemala. Petrographic work also indicates a more metamorphic source to the south. The river detritus, if indurated, would appear as lithic graywackes or subgraywackes, depending on the percentage of detrital matrix.

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THE RELATIONSHIP BETWEEN INTERNAL AND EXTERNAL STRUCTURE IN GULF COAST SALT DOMES

Internally, salt stocks consist of isoclinal, attenuated, vertically-plunging, complex folds and resemble a handkerchief drawn vertically through a small ring. They appear to have developed by intermittent and shifting movements which may have been controlled largely by strain hardening of halite crystals and varying rates of sedimentation. These movements must have strongly affected external structures and oil migration. External structures, like grabens and faults, may be related to internal structures like zones of shearing and differential movement (faulting?). Close cooperation among petroleum geologists, geophysicists, and salt-fabric geologists is needed if we are to decipher the origin of salt massifs, salt spines, overhangs, and intermittent salt movements.

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SEDIMENTS AND FAUNA OF THE RHONE DELTA, FRANCE

The Rhone delta is an example of a rapidly growing delta, prograding over a relatively steep slope into the essentially tideless, highly saline Mediterranean. Detailed studies of the sediments and microfaunas by the author and his colleagues have shown that rate of deposition, even more than depth, is the primary factor controlling the nature of the sediments and faunas offshore. Our classification of deltaic-marine environments is accordingly based on rates and depth of deposition.

These studies, supplemented by earlier work in the land part of the delta (Kruit, 1955), have provided the basis for the interpretation of 26 core holes drilled to the top of the Pleistocene "basement." A clearcut distinction can be made between the *onlap complex* of coastal-plain sediments formed under conditions of rising sea level during the late Pleistocene—middle Holocene and the *offlap delta* consisting of marine sediments laid down under conditions of stable sea level since 5,500 B.P.

All core holes through the offlap delta reveal a transgressive-regressive sequence. Those sequences with a typical fluviomarine regressive development consist of (in upward direction):

1) a thin slow-deposition basal bryozoa bed;
2) moderate-deposition distal-fluviomarine clays;
3) rapid-deposition proximal-fluviomarine clays and silts; and
4) rapid-deposition fluviomarine-barrier sands.

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A MICRO-ORGANIC AND ECOLOGIC INVESTIGATION OF RECENT SEDIMENTS FROM TWO GULF COAST CORES

The relationship between the recoverable microorganic remains and the depositional environment of Recent sediments in two cores from the Gulf Coast area was studied.

One continuous $3\frac{3}{4}$-foot core from Matagorda Delta was sectioned and studied every three inches in order to detect minute vertical variations. The second core from Galveston Bay was 63 feet long, but not continuous. Nine samples were studied, each sample representing an interval of two to three feet of sediment.

The detailed analysis of the Matagorda core indicates three distinct depositional environments within the few feet of core. In descending order, these are marine, less marine, and more marine. In the 63 feet of Galveston core, analysis of samples gave an over-all picture of depositional environments, in descending order: marine, less marine, more marine, and continental. Therefore, the environments detected in the very detailed analysis of the continuous samples represent minor fluctuations in what shows up as a single environment in the longer core.

The calcium carbonate content decreases with depth