

# HGS DINNER MEETING

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## The Open-Coast Clastic Depositional Model, Theme and Variations

H. Edward Clifton

**HGS DINNER MEETING - January 10, 1994**

**Social Period, 5:30 p.m. Dinner and Meeting, 6:30 p.m.**

**Post Oak Doubletree Inn**

Studies of modern coastal systems indicate that the upward depositional facies sequence - bioturbated inner shelf - crossbedded upper shoreface - planar-laminated foreshore - nonmarine deposits - characterizes most open-coast clastic successions. This generalized model has been applied successfully to a variety of ancient coastal deposits, owing largely to consistency of both processes and preservation through geo-

logic time. Any such model, however, must accommodate significant internal variability, imposed by differences in sediment texture, nearshore bathymetric profile, ambient energy, storm events, and relative sea-level change. The resulting variations about the basic theme are reasonably predictable and provide a basis for enhanced paleo-environmental understanding. Ignoring them, however, can lead to misinterpretation of ancient

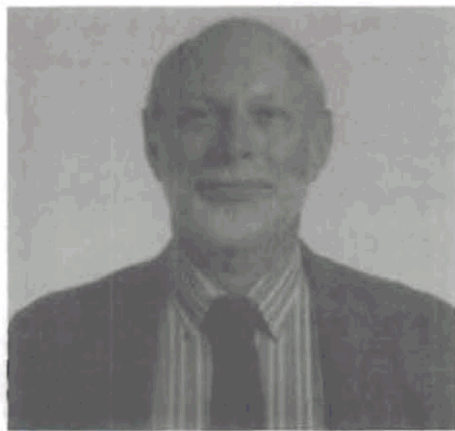
coastal deposits.

As one example, the fine-grained, low-energy, microtidal Texas Gulf shorefaces have a distinctive vertical sequence that contrasts sharply, as one might expect, with that of the more energetic Pacific coast. The Gulf of Mexico sequence also differs, however, to nearly the same degree from that generated in a similar low-energy, microtidal setting on coarse-grained Mediterranean coasts.

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### H. EDWARD CLIFTON -

#### Biographical Sketch



Ed Clifton joined Conoco in 1991 after serving 30 years with the U.S. Geological Survey, most of it with the Branch of Pacific Marine Geology in Menlo Park, California. He received his Bachelors degree in geology from Ohio State University in 1956 and a Ph.D. from Johns Hopkins in 1963, where he studied under Francis Pettijohn. His career with the USGS focused largely on comparative analysis of modern and ancient shallow marine depositional systems and culminated in numerous publications. In 1969 and 1970 he accumulated 80 days of underwater research from an undersea habitat as an aquanaut in Tektite man-in-the-sea experiments. In 1978-1981, he served as Chief of the Branch of Pacific

Marine Geology. He has been active in professional societies and was elected National President of SEPM (Society for Sedimentary Geology) in 1986. In addition to his USGS responsibilities, Ed has taught at San Francisco State University, University of California at Santa Cruz, and at Stanford University, where he served as Adjunct Professor of Geology from 1982 - 1991. After spending two years in Conoco's Research Lab in Ponca City, where his focus was largely on sequence stratigraphy and sedimentology of Lower Jurassic units in the North Sea, Ed has recently moved to Houston to join a project directed toward the applications of sequence stratigraphy.