24. FRANCIS F. CAMPBELL,[1] Amerada Petroleum Corporation, Tulsa, Oklahoma

FAULT CRITERIA[2]

Examples of six criteria for fault interpretation of seismic data in East Texas and the Gulf Coast are presented on a series of maps and cross sections. The six criteria are: (1) *correlation* of reflection horizons which bracket the producing objective; (2) *projection* of a fault from a shallow bed with correlatable reflections to a deep producing objective; (3) *variation* between geological correlations and geophysical dips; (4) *misclosure* around a grid unit of seismic control; (5) *dip pattern* along several lines of control; and (6) *diffraction*. The diffraction example includes results of fault-model experiments in the laboratory. Although each example was selected as a particularly clear illustration of one criterion, fault interpretation generally depends on a combination of several criteria. Additional criteria for fault interpretation may be used. The criteria presented are not infallible and they do not detect very small faults.

25. E. D. BURDINE, Sunray DX Oil Company, Lafayette, Louisiana, W. R. PAINE, University of Southwestern Louisiana, Lafayette, Louisiana, AND J. C. WIRE, Sunray DX Oil Company, Lafayette, Louisiana

ENVIRONMENTAL OBSERVATIONS IN GRANDE ISLE—GRANDE TERRE AREA OF SOUTH LOUISIANA

The environmental complexes of the longshore islands and cheniers of southern Louisiana were examined during the spring of 1965 as an aid to the interpretation of their subsurface counterparts.

Three major observations resulted from these studies: (1) extreme local and regional variation of environmental conditions exist through a wide area in sediments of the same age; (2) sparsity of recent sand deposition in offshore and lagoonal areas adjacent to the present Mississippi delta; and (3) rapidity of the westward migration of existing sands as a result of longshore currents.

Published data on recent depositional environments have been applied in identification of similar complexes in the subsurface. However, actual observation of existing environments is a much greater aid in reconstructing the depositional history of southern Louisiana.

26. WALTER A. ANDERSON, Texaco Inc., Houston, Texas

INTRODUCTION TO DELTA SYMPOSIUM

The definition, development, and geometry of deltas have recently experienced a crescendo of interest in many areas of geological investigations. The importance of deltas, their sedimentary processes, and the association of petroleum with deltaic sediments are recognized by workers in both basic and applied research.

Data must be collected and compiled before any conclusions can be made about deltas. To enhance knowledge of deltaic sedimentation and to encourage further work in this field, the Research and Study Committee of the Houston Geological Society is engaged in a threefold program. (1) A Delta Study Group is compiling from published sources, in easily usable format, data on the modern deltas of the world. The format will include geologic, hydrologic, climatologic, and biologic characteristics of each delta. (2) Papers have been solicited for a volume devoted to both ancient and modern deltas, unrestricted as to location. (3) The Houston Geological Society is sponsoring this symposium which is concerned with Gulf Coast deltas.

27. CHARLES R. KOLB, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, AND JACK R. VAN LOPIK, Texas Instruments Inc., Dallas, Texas

DEPOSITIONAL ENVIRONMENTS OF MISSISSIPPI RIVER DELTAIC PLAIN—SOUTHEASTERN LOUISIANA

Seaward progradation of the land surface by the present and former Mississippi River deltas has created the Recent deltaic plain of southeastern Louisiana. Each time the Mississippi has advanced a major deltaic lobe seaward, subsequent abandonment of the overly extended river course in favor of a shorter, more direct route to the Gulf has occurred. These course changes and accompanying shifts in centers of deposition have resulted in the distribution of deltaic sediments along a 200-mile arc in coastal Louisiana. As soon as a depositional center or delta is abandoned, marine transgression begins. This process is aided by subsidence of the deltaic plain resulting from tectonism and gradual consolidation of deltaic deposits. Nevertheless, the net result of the struggle between the advancing deltas and the encroaching sea has been an overall increase in the size of the Recent deltaic plain.

The sediments of four major depositional environments are complexly interfingered in the deltaic plain: (1) *fluvial*—natural levee, point bar, abandoned course, and abandoned distributary sediments deposited in fresh to brackish water, principally in inland areas within and along streams; (2) *fluvial-marine*—prodelta, intradelta, and interdistributary sediments laid down near the mouths of distributary channels in brackish to marine water; (3) *paludal*—marsh, swamp, tidal channel, and lacustrine deposits formed primarily *in situ;* and (4) *marine*—bay-sound, reef, beach, and nearshore Gulf sediments formed by erosion and deposition in marine water. Processes active within each environment and the distribution and physical properties of associated deposits or soil types are of vital interest in investigations of engineering geologists.

28. JACK L. GREGORY, Tenneco Oil Company, Corpus Christi, Texas

STUDY OF VICKSBURG DELTA OF HARRIS AND FT. BEND COUNTIES, TEXAS

(No abstract)

29. A. H. WADSWORTH, JR., Independent geologist and producer, Houston, Texas

RECENT DELTATION OF COLORADO RIVER DELTA, TEXAS

The modern delta of the Colorado River is unique among Gulf coastal plain deltas because of the remarkable speed with which it was deposited. Rapid deltation was caused by the removal of a log jam, or raft, that choked the river from its mouth to a point 46 miles upstream. The earliest survey of the delta was in 1908 when it comprised about 45 acres. Removal of the raft began in 1925 and by 1929 a pilot channel was completed through it. That year a flood swept much of the raft and the sediments impounded by it into Matagorda Bay. Rapid deltaic growth resulted, and in 1930 the delta covered 1,780 acres. By 1936 the delta extended across the bay to Matagorda Peninsula, and by 1941 it covered 7,098 acres.

[1] All of the data have been drawn from exploration programs of Amerada Petroleum Corporation and have been released through the courtesy of K. M. Lawrence.

[2] This paper will be published in *Geophysics*, v. 30, no. 6, December, 1965.