

stone found in Cordona Lake Company's (Texas Development) Cowden No. 1 in southwestern Crane County at 112 feet, as compared with the Wentz Oil Company's Bryan No. 1 central Midland County, which found Big Lake limestone at 1,540 feet, indicating a fall on the Big Lake limestone in a northeastern direction of 1,700 feet in approximately 40 miles.

Recent Developments in Geophysics

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The search for oil is based on the correlation process. One core is compared with another; one well log is matched against another; a seismic trace is correlated with the adjacent traces; and a seismic record is correlated with the adjacent records. The correlation process should be examined more closely. In the last few years, the process of correlating a well log with a seismic reflection record has been greatly improved. The improvement has been accomplished by changing the presentation of the well log so that, in its new form, the well log data are more comparable with the data on the seismic record. In other words, the well log curve has been filtered and redrawn to the seismic time scale. This process of filtering and changing the scale can be used in correlating one well log with another.

In the process of correlation, the manner of presenting the data is most important. Because of recent improvements in seismic instruments, it is now much easier to make seismic record sections. A record section presents many data on a single sheet of paper; no data are omitted; and the data can be presented in various ways. This flexibility in the process of storing and reproducing data greatly facilitates the correlation process. Faults, unconformities, steep dips, and unusual interference phenomena can be seen on a record section when they might not be seen in a study of separate seismic records.

Much of the present correlation process is subjective. The correlator merely decides that one wiggle looks like another wiggle. The process is not quantitative. It is possible to make a mathematical correlation between two curves. Because the use of magnetic tape is so well developed, it is now easy to build a computer to perform this mathematical correlation. The correlation of exploration data by means of a computer is new. At this time, the possibilities can not be evaluated.

Standards of Performance in Exploration

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Much has been written about increased finding costs for each barrel of new oil. Even greater attention has been devoted to the coordination of all phases of exploration. These problems can be stated simply, but perhaps our attempts at solutions have been too general.

"Standards of performance" are recognized as important tools in self evaluation and management evaluation of job performance. We believe these tools can be equally important to an exploration program. Their successful application will require substantial changes in initial planning, a precise statement of objectives, definite programs to overcome adverse factors, setting forth standards of performance, and establishing a timetable for periodic evaluation. A decision for geophysical work or the specifications of a geophysical field party is not made until these steps have been completed. If the evaluation warrants, a geophysical program is initiated. The timetable and standards of performance are constantly used to evaluate achievement of objectives. The program is terminated at any time objectives are not being realized.

Adherence to this plan will increase the probability of fulfilling stated objectives, or if this is impossible, will clearly indicate failure early in the program. In either event, more effective exploration results.