GEOSCIENCE NOTES

PALEO-STRUCTURAL ANALYSIS AND APPLICATION OF LATTER STRUCTURAL TILTING

by

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ABSTRACT

It is reasonable to conclude that hydrocarbons begin to form soon after the organisms from which they are derived are buried with the sediments that constitute both source rock and reservoir bed. Therefore, any structural mapping method used to define likely areas of accumulation should be an attempt to reconstruct the geologic history from time of deposition by analyzing both the initial structural growth and the later structural tilting that influence the migration and entrapment of the hydrocarbons.

The structural mapping method commonly in use today tends to locate "structure" as it appears today without due regard for (1) initial local structural uplift which influenced the hydrocarbons as they began to migrate initially or (2) later structural tilting which tended to breach the original " paleo-structural" trap and possibly have moved the original accumulation to another place. Therefore, it is possible, using the customary structural mapping method, to properly map a "high" that has no accumulation because no trap existed at the critical time of initial migration. Likewise, it is also possible that the initial structural closure has no accumulation today because it had been breached by later structural tilting.

Therefore, the purpose of this paper is (1) to set out a logical method of paleo-structural mapping by use of carefully selected isopach intervals and (2) to define later structural tilting and present a practical method of applying it in order to better understand and define likely areas of accumulation.

Examples of application at North Francitas Field, Jackson County, Texas, and at Rayne-Bosco-North Ossum Fields, Acadia and Lafayette Parishes, Louisiana are presented.

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