GEOLOGICAL NOTES

FAULT PATTERNS IN NORTHWEST LOUISIANA

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INTRODUCTION

The fault patterns illustrated in this paper were mapped in Sabine and De Soto parishes during the summer of 1954. Two areas, the Naborton area (Fig. 1) and the Bayou San Miquel area (Fig. 3) best illustrate the fault pattern in northwest Louisiana. The Naborton area is located on the Tertiary structural high of the Sabine uplift region, and the major part of the Bull Bayou field is within the Naborton area of this paper. The term, Sabine uplift, here refers to a dome-like uplift whose pear-shaped outcrop pattern of Tertiary sediments is present in northwest Louisiana, eastern Texas, and southern Arkansas. The Bayou San Miquel area is on the southwest flank of the uplift and is 6 miles south of the Zwolle field. Similar patterns were observed in other areas of the two parishes but are not included for lack of sufficient vertical control.

H. N. Fisk (1944) wrote concerning a rectangular fracture pattern in which two sets of fractures strike northeast-southwest and northwest-southeast. His maps indicate a fracture pattern throughout the Mississippi embayment including all of Louisiana and adjacent parts of Mississippi, Tennessee, Missouri, Arkansas, and Texas. There he found escarpments offsetting meander patterns, abrupt soil changes, and a drainage pattern of extended linear tributaries. Also, borings confirmed subsurface displacement along several larger faults in the Mississippi alluvial valley. Fisk suggested that the fracture pattern may be related to subsidence in the Gulf Coast geosyncline since the fracture pattern is relatable to the axis of Mesozoic and Cenozoic deltaic accumulation.

In Table I, illustrating the position of various strata, only the capitalized units are mentioned in this discussion.

PROCEDURE

In this investigation the tracing of carbonaceous or lignitic strata began with the location of an outcrop. The datum beds were then extended by traversing streams for additional outcrops and boring test holes with a power auger. A Cardox-Hardsogg vertical drill was used for the augering with enough pipe to drill 66 feet deep. Stations were located on a topographic base map, and their elevations were determined with a Paulin altimeter. In using the altimeter a

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