THE ASSOCIATION OF GLACIAL LANDFORMS, OIL FIELDS, AND BEDROCK STRUCTURES IN NORTH-CENTRAL SOUTHERN MICHIGAN

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ABSTRACT

Impact of the bedrock structures on glacial landforms have been recognized in Michigan since the turn of the century. In the north-central Lower Peninsula, near Houghton and Higgins lakes, there is an apparent genetic relationship between the anticlinal traps of the Norwich and Enterprise oil fields and the superjacent Higgins Lake and Houghton Lake moraines. The two juxtaposed moraines and anticlinal traps trend northwest-southeast and are developed in a large deep-drift reentrant.

Sediment characteristics combined with landform configuration suggest that the traditional interpretation of moraines and till plains do not best depict this area. Available evidence indicates that glaciofluvial materials make up the majority of the sediments and that the landforms are resultant of stagnant, not active ice.

The predominant trend for all bedrock structures in this area is northwest-southeast, as it is for the interlobate moraines of the reentrant. The genetic relationship between the two is most likely due to the constraints placed on glacial movements by the shape and lithologies of the Michigan Basin combined with the intrastructures developed by the formation of this basin.