

INVESTIGATIONS OF ANOMALOUS
GLACIAL DEPOSITS IN THE MACOMB, ILLINOIS AREA

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ABSTRACT

This study was initiated because of conflicting research results dealing with glacial deposits in the Macomb, Illinois area. The surface till in this area is designated as Kellerville Till, but exhibits an unusually high expandables content (around 60%) for type Kellerville (40% expandables). Some authors (Lineback, ISGS) have claimed that there were possibly six or seven intra-glacial advances and retreats during the Illinoian glacial stage. The discovery of shallow, buried paleosols and oxidized zones within Illinoian deposits, has helped to reinforce this theory.

To resolve some of these conflicting interpretations comparisons were made between some of the existing Macomb data and newly obtained core samples from the Georgetown housing complex just west of Macomb. Textural, Carbonate Mineral, and Clay Minerals were all performed on the Georgetown cores to obtain a basic foundation for comparisons. When the initial results proved to be riddled with incongruities, a different technique, for comparison purposes, was sought. The technique was Cluster Analyses computer programs.

The major findings of the study were as follows:

1. There appears to be mixing zones between distinct till deposits that exhibit characteristics of both the upper and lower till deposits.

2. The surface till in the Macomb area (Industry Type Kellerville Till) was formed by the homogenous mixing of the Yarmouth surface with the advancing Illinoian glacier.

3. Many of the reported shallow, intra-Illinoian paleosols are "lineated" block inclusions.

4. Cluster analyses can be effective in delineating glacial deposits.