

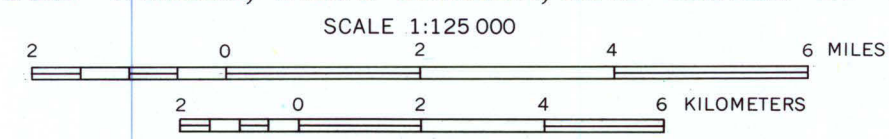
EXPLANATION

- Q1**
Glacial lake deposits
Mostly sand, silt, and clay; may consist of gravel and boulders along old shorelines. Include deposits of Recent age and till in some areas where lake sediments have been eroded. May include some alluvial and outwash channel deposits. Small yields obtainable locally from lake sand
- Qoa**
Alluvium and outwash, undifferentiated
Gravel, sand, silt, and clay deposited by glacial melt water streams and by postglacial streams. Includes some channelled areas with little or no alluvial cover and some lake deposits within the channels. Includes some ice-contact deposits. Yields small to large quantities of water from shallow wells
- Qcd**
Glacial drift: Cary Substage
Mostly clay till, locally includes stratified drift generally associated with end moraines. Darker pattern denotes end moraine; lighter pattern denotes ground moraine. Locally mantled by loess. Saturated outwash yields small to large quantities of water
- Qs**
Sand, high-level outwash terrace fill
Chiefly very fine to coarse sand on and adjacent to bluffs of Kanaranzi Creek drainage system; may grade locally into coarse kame gravels at creek bluff. Fluting at surface due to wind action (?). Where saturated, will yield sufficient quantities of water for domestic and stock use
- Qtd**
Glacial drift: Tazewell Substage
Mostly clay till, some stratified drift generally associated with end moraine and along bluffs of melt water channels. Extent of end moraine not determined. Mantled by loess. Saturated outwash yields small to large quantities of water
- Qf**
High-level terrace fill or ice-contact deposit
Where saturated, will yield sufficient quantities of water for domestic and stock use
- Qid**
Glacial drift: Iowan Substage
Clay till, stratified drift along bluffs of melt water channels. Locally overlain by gravel of Tazewell (?) age on interfluvial areas. Mantled by loess. Saturated outwash yields small to large quantities of water
- ▲**
Paleosol outcrop
Described in text
- Contact
Long dashed where approximately located; short dashed where inferred from aerial photographs
- +**
Topographic trough in till
Line denotes direction and extent
- Test hole
Location number refers to system as described in text
- Test hole drilled by U.S. Geological Survey
- Auger hole drilled by U.S. Geological Survey
- Well
Location number underlined denotes chemical analysis listed in table
- Well and test hole
Log available except where designated by (nl)
- Spring
- A** **ab1** **ab1** **ccc1** **A'**
Line of test-hole section
Lithologic logs of test-hole sections shown on plate 2

Nobles County base from unpublished U.S. Army Map Service compilation with minor adjustments; Jackson County base from General Highway Map Series of Minnesota

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1964—W62413
Geology mapped by Ralph F. Norvitch and Henry G. Dyer, 1957-59. Morainal boundaries modified after mapping done by Leverett and Sardeson (1932, pl. 2)

MAP OF THE NOBLES-JACKSON COUNTY AREA, MINNESOTA, SHOWING SURFICIAL GEOLOGY AND POSITION OF THE MISSISSIPPI-MISSOURI RIVER DIVIDE AND LOCATION OF SELECTED WELLS, TEST HOLES, AND LINES OF TEST-HOLE SECTIONS



APPROXIMATE MEAN DECLINATION, 1964