



**LEGEND**

Recent

- Qm Made land (Artificial fill, spoil banks, dumps, etc.)
- Qex Excavations in unconsolidated material
- Qp Peat and muck deposits
- Qr Basin fills of surface wash
- Qa Alluvium (Silt, sand, and gravel deposited by present streams)
- Qds Dune sand (Mainly beach sand eroded by wind)
- Qb Beach ridges and related deposits of sand and gravel (Made during and since the various stages of Lake Chicago)
- Q1 Glacial lake bottom (Commonly without lacustrine deposits)
- Q1s Glacial lake bottom (Covered by lacustrine silt and sand)
- Q1d Deltaic deposits in glacial lakes (Chiefly silt and sand)
- Q1r Glacial river bottom (Chiefly erosional, with some residual gravel)
- Q1b Glacial river bars (Low mounds and hills of gravel deposited by glacial streams)
- Q1p Outwash plains (Sand and gravel spread in front of melting glaciers)
- Q1t Valley-train (Mainly well-sorted sand and gravel deposited by glacial streams in open valleys)
- Q1e Kames, eskers, and similar deposits (Locally sorted sand and gravel deposited in close relation to glacial ice)
- Q1c Lake border ground-moraine
- Q1f Lake border moraines: f-Highland Park moraine; g-Bridglet moraine; d-Beechfield moraine; p-Park Ridge moraine
- Q1s Tinley ground-moraine
- Q1t Tinley moraine
- Q1v Valparaiso ground-moraine
- Q1v Valparaiso moraine
- Q1e Rockdale ground-moraine
- Q1e Lemont drift

Silurian

- Sn Niagara series of undifferentiated dolomitic formations, exposed
- Smc Niagara formations, thinly covered

Approximate position of shorelines of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)

Shoreline of Tolleston stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)

Shoreline of Calumet stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)

Shoreline of Glenwood (oldest) stage of Lake Chicago (Where defined by beach deposits or wave-cut cliffs)

Approximate position of shorelines of Lake Chicago (Where not defined by shore features but generalized with reference to contour lines)

Definitely determined boundary between deposits

Indefinite boundary between deposits

Boundaries between deposits determined in 1896-98, but now largely or completely destroyed or obscured. (W. C. Alden, U. S. Geol. Survey Geol. Atlas, Chicago folio [No. 81], 1902)

Glacial striae, oriented in direction

- Rock quarry
- Sand or gravel pit
- Clay pit

Mean elevation of lake surfaces in 1926 576 feet above sea level

Wisconsin

Chicago

Chicago River

Outer Breakwater

Municipal Pier

North Pier

Coast Guard Sta

Halsted

Breakwater

East

West

North

South

Topographic base surveyed in cooperation with the U. S. Geological Survey, 1926; 1936.

**SURFICIAL GEOLOGY OF THE CHICAGO LOOP QUADRANGLE**

BY  
 J HARLEN BRETZ

Geologically surveyed in 1930-1932  
 In connection with other quadrangles of the Chicago area.

