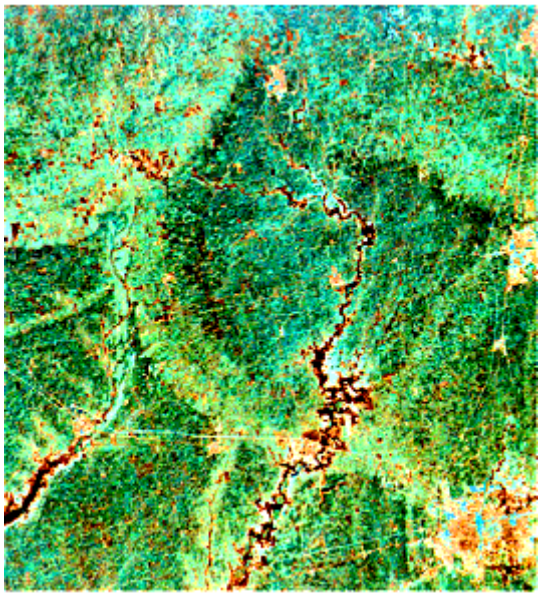
APPENDIX 7

END MORAINES

The following information is a 'Geobit' publication available on the Illinois State Geological Survey publications webpage at http://www.isgs.uiuc.edu/maps-data-pub/publications/geobits/pdf-files/geobit2.pdf

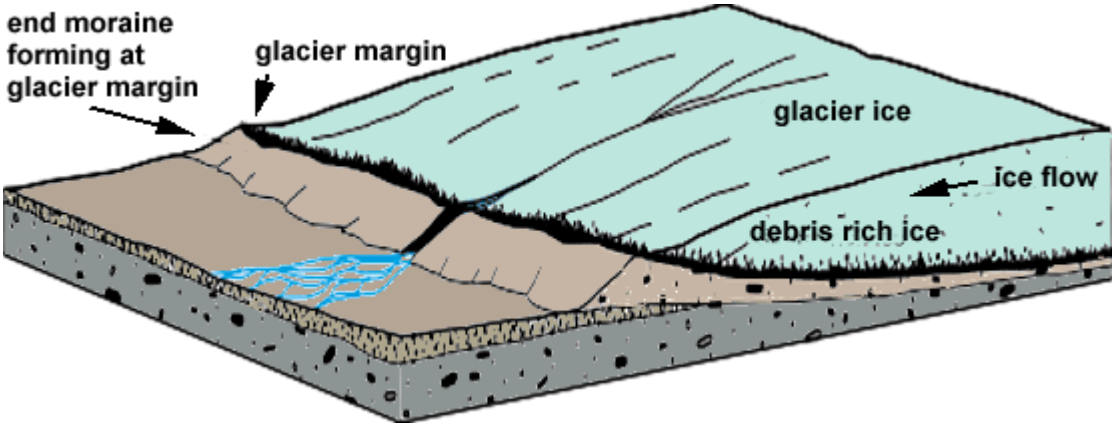
End Moraines—the End of the Glacial Ride



Satellite photo of central Illinois shows broad curved ridges in lighter green color.

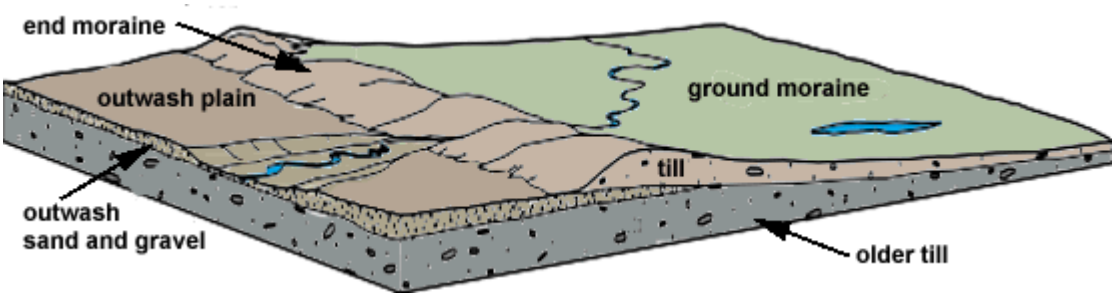
We tend to think of Illinois as very flat, but bike riders and joggers know that our landscape has many subtle hills, ridges, and long uphill slopes. From a satellite or the space shuttle high above the earth, large broad ridges can be seen that arc across northeastern Illinois. These ridges, left behind when the last Ice Age glaciers melted away, are called end moraines; they formed between about 25,000 and 14,000 years ago during the Wisconsin glacial episode. Although these ridges are easy to see from space, they are so broad and rounded you may sometimes overlook them when you drive across Illinois.

How do end moraines form?



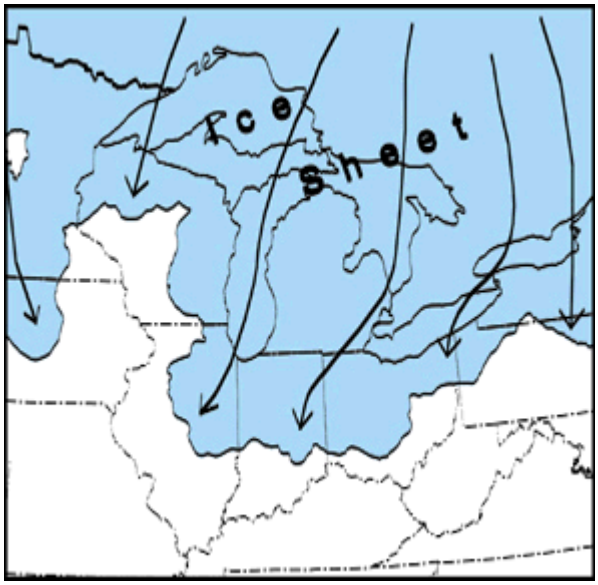
Melting at a glacier margin causes the ice to thin, and ground-up rock debris carried in the base of the ice or dragged along beneath the glacier is deposited. When the ice margin remains in the same place for a relatively long time (tens to hundreds of years), enough debris flows to the glacier's leading edge and piles up to form a large **end moraine** on the landscape.

What are end moraines made of?



The unsorted mixture of debris deposited by a glacier is called **till.** Most **end moraines** in Illinois are thick ridges of till. A **ground moraine**, the relatively flat, low-lying landscape across which the melting glacier retreated, consists of a thinner layer of till. Sheetlike deposits of sand and gravel, called **outwash plains**, were left behind by meltwater streams flowing away from the glacier.

During the Wisconsin glacial episode, a vast sheet of ice formed over most of Canada. Glaciers flowed away from the center of the ice sheet. The glacier that flowed through the Lake Michigan basin and into northeastern Illinois reached its southernmost extent at Shelbyville about 20,000 years ago.



End moraines in northeastern Illinois

The glacier did not just flow into Illinois and then gradually melt away. Its overall retreat was interrupted by many pauses during which moraines formed. Most of the more than 30 end moraines in Illinois (shown as dark arcs on the map) formed as the glacial lobe was "retreating" from its southernmost position. At times during the overall retreat, the ice temporarily readvanced, sometimes as much as 50 miles.

Even as the lobe was retreating, however, the glacier continued to flow toward its outer margin, delivering ice and debris to its leading edge. Large moraines mark positions where the ice margin remained in the same place for hundreds of years.

Moraine View State Recreation Area sits atop the Bloomington moraine, one of the four largest moraines in Illinois. This moraine arcs southwestward from north of DeKalb to Peoria, and then southeastward through Bloomington to Saybrook. The park area was chosen for its scenic, upland landscape and was named for the fine views it offers of the surrounding area.

Try to spot end moraines the next time you take a drive drive.

Their rounded crests form the highest parts of the landscape.
Radio and TV towers are commonly located atop these moraine ridges.

Contributed by A.K. Hansel

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