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The Algona Recessional Stages of the Wisconsin Glaciation in Iowa

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Series, and have been faulted into a series of parallel blocks which dip from 20 to 75 degrees to the northeast, and trend north 45 degrees west. Two examples of drainage changes due to glaciation are cited.

SOME THEORETICAL STAGES IN THE RETREAT OF THE IOWAN ICE SHEETS

JOHN E. SMITH

A definite moraine extends southeastward across the southwestern township of Butler County to central northern Grundy County where it swings to the northeast passing north of Cedar Falls and southward (less distinct here) along the Cedar River and just east of it to Vinton. East of Vinton it crosses the river and extends southward along the eastern part of Benton County and thence toward the east. Similar deposits in several other places have been recognized as possible recessional moraines.

THE ALGONA RECESSIONAL STAGES OF THE WIS- CONSIN GLACIATION IN IOWA

JOHN E. SMITH

The city of Algona is the best known locality near the maximum southern extent of these recessional stages of the Wisconsin glaciation in Iowa. This city is near the most pronounced concentration of the chief moraine in mass and height, hence the name.

In Winnebago county the principal moraine extends from the northeastern corner in a southwesterly direction past Lake Mills and just west of Forest City. Other distinct substages are marked by smaller moraines approximately parallel to the main one (see map Fig. 1). In some places there are ridges or low ranges of hills which connect two of the substages with each other, or that extend only part way toward another ridge. There are also small hills of other recessional deposits irregularly disposed which seem to have no positive relation with the well defined substages. One of these moraines lies just west of Thompson, another a few miles east of Buffalo Center, and another just west of it.

In Hancock county the principal moraine lies west of Britt crossing nearly in a due northeast-southwest direction. This moraine is cut into two nearly equal parts in this county by the west branch of the Iowa River and near the stream it has been eroded away. Toward the west where it enters Kossuth county, this

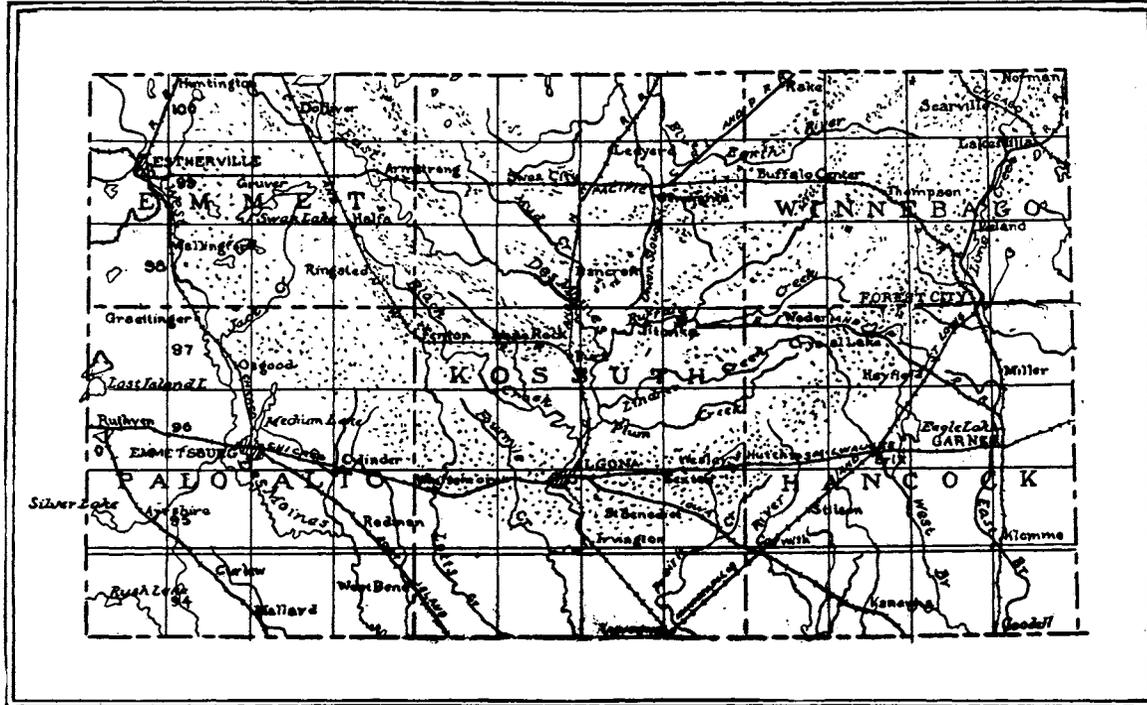


Fig. 1. Algonia Recessional Stages.

Fig. 1. An incomplete map showing the position of the principal moraine of the Algonia recessional stage and of some of the minor moraines.

moraine assumes massive proportions and extends across Kossuth county as a long, high hill several miles wide except where it has been cut by the Des Moines River, Four Mile creek and Lott's creek. Its outer margin passes near Irvington and Whittemore.

Northward the smaller and lower moraines of the substages are roughly parallel to the larger one and are somewhat irregularly distributed as described for Winnebago county. Examples are located just south of Lakota and another about two miles north of Titonka. Others near Burt, Fenton, and Swea City extend northwestward into Palo Alto and Emmett counties. Some of these are prominent just west of Armstrong and near the railroad southward from Ringsted, also in the area between Armstrong and Ringsted.

The principal moraine is much less prominent in Palo Alto and Emmett counties than elsewhere. This is partially due to erosion but chiefly due to the fact that as a deposit it was not so massively concentrated here. East of the Des Moines River but near it in Emmett county, the moraine is so high as to cause the drainage to flow away from the river along the depression partially occupied by High, Mud, and Swan lakes to be carried southward in Jack creek. Westward from the river and northward from Estherville the moraines are not distinctly separated from those of the Humboldt and Gary stages. In general the Algona stage correlates with an unnamed one mapped by Professor J. E. Todd in the Aberdeen-Redfield area in South Dakota (U.S.G.S. Folio No. 165).

IOWA STATE COLLEGE.

A PRELIMINARY MAP OF THE WISCONSIN TILL IN IOWA

JOHN E. SMITH

This map shows the positions of the margin, of the recessional stages and of the substages respectively of the Wisconsin ice sheet in Iowa where these positions have been determined. The outer boundary shown is taken chiefly from the maps of the Iowa Experiment Station and of the U.S. Soil Survey. The margin of the Altamont moraine is taken principally from the maps by the Iowa Geological Survey.

The Gary moraine as located on this map is chiefly the work of the writer but parts of it were either mapped or described some