

# Proceedings of the Iowa Academy of Science

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Volume 53 | Annual Issue

Article 11

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1946

## An Ice-Push Ridge

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### Recommended Citation

Anderson, W. A. (1946) "An Ice-Push Ridge," *Proceedings of the Iowa Academy of Science*, 53(1), 121-122.  
Available at: <https://scholarworks.uni.edu/pias/vol53/iss1/11>

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## AN ICE-PUSH RIDGE

W. A. ANDERSON

The phenomenon of ice-push ridges on lake shores is a fairly common one, and the enormous pressures developed by ice need no comment. All of the lakes in the Okoboji region show ice-push ridges along their shores, with effects that persist for several years. Shimpek (1915, Pl. VI, Fig. 3) included an excellent picture of such a ridge in his Plant Geography of the Lake Okoboji Region.

About three years ago an interesting variant of the usual ice push appeared on part of the shore line of West Lake Okoboji, adjoining the Iowa Lakeside Laboratory. At the eastern side of the Laboratory tract, along the north shore of Miller's Bay, a low ridge of glacial till grades off gently into a long sand bar, which at present is under water. Both the ridge and the bar contain numerous granite boulders, of the type general in this region. In either the winter of 1942-43 or 1943-44 the ice push developed at a right angle to this shore, moving in a northwesterly direction. The sand bar was scoured completely, with considerable material, including small trees, being pushed into Little Miller's Bay. On the higher bank to the east, for a distance of 200 feet, boulders, trees, shrubbery and ground cover were moved from one to three feet, as evidenced by the ridge in the top of the bank, behind the line of woody plants. Trees as large as one foot in diameter were moved in this way. None of this vegetation seems to have been injured, though the destruction of roots

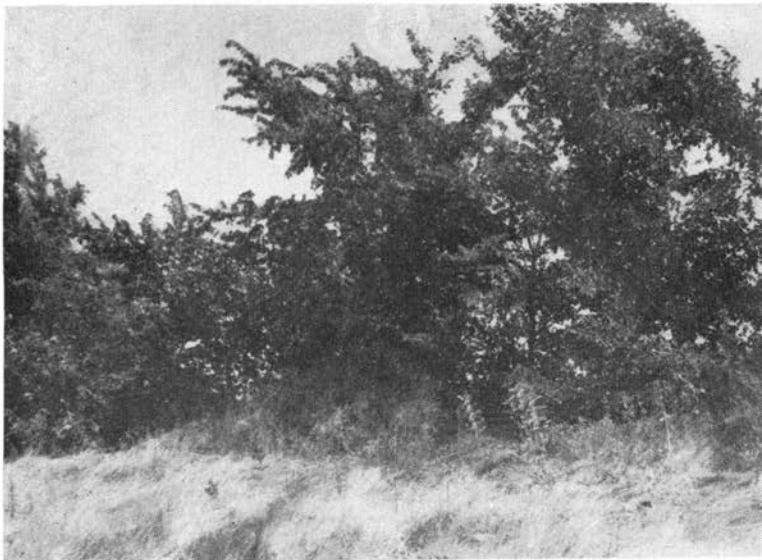


Fig. 1. An ice-push ridge on West Lake Okoboji.

must have been considerable. Most of the trees are elm and green ash, with abundant *Cornus* species, *Vitis vulpina* and ubiquitous *Rhus radicans*.

In the accompanying photograph, taken August 16, 1945, the camera was pointed to the southeast, exactly opposite the direction of ice push. The ridge appears in the foreground.

Shimek, B., 1915. Plant Geography of the Lake Okoboji Region. Bull. Laboratories of Nat. Hist., S.U.I., VII, 2.

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