

The Late Wisconsinan deglaciation of the Riding Mountain Uplands: the superglacial lake phase

R.A. McGinn

Department of Geography, Brandon University, Brandon, Manitoba R7A 6A9, Canada

The Late Wisconsinan deglaciation of the Riding Mountain Uplands was associated with the Lockhart Phase of Glacial Lake Agassiz (11,600-10,800 years B.P.). During the waning of the Falconer advance (post 11,400 years B.P.) a large area of glacial ice stagnated on the Riding Mountain Uplands. Subsequent downwasting generated a drainage network consisting of several superglacial lakes, spillways and meltwater channels. Many of these glacial rivers eroded their ice beds and incised into the substratum. Glaciofluvial sediments were deposited as sandurs eskers and kames. Subaqueous fans were deposited in the superglacial lakes and a major delta was built into the north end of Glacial Lake Hind. During this time an advance of the Valley River

Sublobe created the Mears kame moraine.

Following the Marchand advance (11,200 years B.P.), the Assiniboine Lobe built the Oak River, Pipestone Creek, and Arrow Hills kame moraines. Northeastern ice (the Assiniboine Sublobe) retreated from the Rivers - Rapid City end-moraine to the Brookdale position. Further retreat led to the drainage of Glacial Lake Hind by way of the Assiniboine River into an expanding Glacial Lake Agassiz. Downwasting of the stagnant ice on the uplands continued and the present day entrenched drainage system had developed on the stagnant ice moraine complex by approximately 10,800 years B.P.