

One line along which it is evident the edge of this glacier made a halt as shown by an extra amount of boulder-clay, is along the western margin of the Duck mountains then southward skirting the eastern bank of the Assiniboine river, crossing to the south side through the Brandon hills and by the Tiger hills to the Pembina mountain. There is evidence that a lake filled the valley of the Souris and part of the Assiniboine, while the ice front was at this line. (This is outlined in the second illustration.) The drainage of this lake was to the south-east along the foot of the glacier and the scouring of this large stream wore a great valley through which now runs a small stream—the Pembina river. The change in drainage was accomplished by the further melting of the ice so that the Assiniboine and the Souris rivers united in the present valley.

The retreat of the ice down the Red River valley was accompanied by the formation of a large lake at its southern margin, for the water was obliged to accumulate till it found an outlet, which in this case was to the south through what is now Lake Traverse to the Mississippi. As the retreating front passed farther north the lake grew in dimensions and beaches were formed along its shores. There is evidence that another great invasion of ice this time from the north-east, was threatened but its margin did not probably cover the entire basin. It still held the water, as a long inland sea, from draining to Hudson Bay. During this period the removal of the weight of the former glacier from the earth caused a gradual rising of the land at the north to probably its previous elevation and maintained the flow of the waters of the lake to the southward. This rise was continued as the second glacier disappeared and there came a time when the water found other outlets probably toward Hudson Bay and a gradual contraction of the lake ensued in which successive beaches mark the different stages.

The evidence of the former occupation of this great plain by a vast lake is clearly shown in the beautiful beaches in Manitoba, Dakota and Minnesota. These have been examined, traced and had their levels determined. In the tracing and levelling it was discovered that instead of being laid in level rows, the surface of the higher ones rise to the north at a rate increasing from six inches to one foot in the mile. The lower ones are more nearly level as is the case of the lowest or those at present around the present lakes. This is the evidence of the upward rise of the land to the