

On the west it approached some of the lobes of the Cordilleran glacier that descended down the valleys of the Rocky Mountains, while on the east it, at one time at all events, coalesced with the face of the Labradorian glacier.

Two sheets of till, one beneath the other, and in places separated by a boulder pavement, can be recognized in a number of places throughout the Canadian provinces which have been overridden by this glacier.

The epoch or time of the last ice invasion of this glacier has not been very exactly determined, and Mr. F. H. H. CALHOUN of the United States Geological Survey has stated his belief that it was not older than the Wisconsin period. However, if we assume that its whole southern face advanced southward and reached its southern extension at about the same time, and I know of no reason to lead one to suppose that it did not, then, as is clearly shown by the striae, grooves and all the other evidences so well known to geologists on the rocks which form the floor of the Winnipeg basin, the glacier had advanced into the United States and had retired at least as far as the region of the Saskatchewan River before the Wisconsin stage of the Labradorian Glacier reached and crossed the Winnipeg basin to the Manitoba escarpment. Therefore the last advance of the Keewatin glacier must have been of early Wisconsin or pre-Wisconsin age.

At this stage in the life of these two great glaciers, the one of which was retiring, and the other advancing, their fronts coalesced and together they formed the barrier which confined the waters of Lake Agassiz on the east and north.

The beaches formed around this lake and the stratified clays deposited in its waters show that, adding together its area at all times of its history, its waters covered more than 100 000 square miles, but it is reasonably certain that the lake did not cover this area at any one time. It was rather a long narrow body of water stretching between the front of the confluent glaciers and the rising land to the south and west of it. Finally it was drained by the drawing apart of the Keewatin and Labradorian glaciers shortly after the latter had retired as far as the present eastern shore of Lake Winnipeg, and the former to the vicinity of the Churchill River.

After they had separated, the Keewatin glacier continued to retire northward to the country west of Hudson Bay, while the Labradorian glacier retired eastward towards Labrador.

Of the character of the climate which prevailed while glaciers were retiring, very little evidence has yet been collected.

As the glacier retired northward across what are now the great plains between the southern boundary of Canada and the forest region which stretches north-westward through Manitoba and Saskatchewan and then westward across Alberta, the climate was probably at first much like that of the Barren Lands at the present time with a mean summer temperature below 10° C., permanently frozen sub-soil, and consequently a complete absence of trees. As the glacier retired farther northward and the climate of these southern plains became warmer, it also became drier, so that no forests were able to grow on them, neither were *Sphagnum* swamps ever formed on them. The whole known climatic history of these grassy plains is therefore included in the statement that a cold climate was succeeded by a dry continental climate, under neither of which conditions was a forest growth possible.

North and east of the dry grassy plains the country is now covered with a forest of poplar (*Populus tremuloides* and *balsamifera*), birch (*Betula alba*), spruce (*Picea alba* and