

CLIMATE AND FARM PRODUCTS

mometer was on October 2, when the thermometer fell to 24° F. I was at Methye portage, latitude N. 56° 36', on September 17, and the potato tops were not frozen in the least. The garden was also quite untouched. Nor had I seen any frozen vegetables on the way up. The lakes began to freeze on October 20, but remained open for perhaps two weeks, the weather turning quite mild again." In another report of explorations in the same district the following year, Mr. Crean said: "Lettuce and radishes in fourteen days grow from the seed to a size fit for table use. On Sunday, July 14, I saw some radishes one-and-a-half inches in diameter, fourteen days' growth."

In the settled parts of Ontario and Quebec old settlers say that many districts in which summer frosts are never experienced now were formerly quite liable to summer frosts, and they attribute the change to improved drainage. In districts of southern Manitoba, where the early settlers often lost their crops through summer frosts, no such trouble is now experienced. In these Manitoba districts the lands did not require drainage, but many farmers believe that the general cultivation of the soil, by opening it up to the sun and the air, warms it. They say that the cultivated soil receives and stores heat during the long, hot summer days, and in the cool nights the heat radiates from the soil, thus preventing blighting frosts. There is very little doubt that when the sections of Ontario and Quebec lying between the Height of Land and James bay and on the east and west sides of James bay and the northern half of Manitoba, Saskatchewan and Alberta have been thoroughly drained and brought under cultivation there will be a great improvement in climatic conditions so far as they affect agriculture. This is true also of a large portion of the Northwest Territories which lie to the north of the 60th parallel of latitude. In fact, at some of the Hudson's Bay Company posts in these territories, the clearing, draining and cultivation of land has already had a remarkable effect, and if this is true where very small areas have been brought under cultivation it is conceivable that the cultivation of wide areas might have a very great influence in preventing summer frosts. If well cultivated soil does receive and store the sun's heat it seems reasonable to suppose that in these northern districts where the summer days are so long the general opening of the soil to the sun and the air should have a marked effect.

Mr. William Ogilvie, in a report on the Mackenzie river valley, made an interesting comparison between the hours of sunlight from May 1 to August 31, at Hudson's Bay Company posts on the lower Mackenzie river in the Northwest Territories and at the city of Ottawa. He pointed out that if the hours of sunlight were reduced to days of twenty-four hours at each place, Ottawa would have seventy-five days and five hours of full sunlight; Fort Simpson, eighty-nine days, eleven hours; Fort Good Hope, ninety-nine days, twenty-two hours; and Fort McPherson, one hundred and nine days, twenty-one hours during the four months. "Everywhere the Mackenzie basin is quite as capable, so far as quality of soil is concerned, of supporting an agricultural population as the greater part of the provinces of Ontario and Quebec," wrote Mr. Ogilvie in 1888, before Ontario and Quebec provinces had