

upon it, is evidenced by the rings of black vegetable loam which appear in excavations made at Winnipeg for tanks and wells. It does not, however, appear to me necessary to assume that these were milder inter-periods. A northern temperate vegetation was already in Canada, I cannot avoid concluding. There is also some evidence of more than one depression during or after the glacial epoch in the Lower St. Lawrence valley, or of the renewed action of glaciers on the rising of the land there.

The hypothesis of a universal ice cap throughout Canada almost dispels the notion of any phænogamous flora in northern temperate America, or, at least, of any vegetation short of an extremely Arctic type. It assumes the gradual extermination of all northern and middle temperate plants in their native habitats, and the crowding of the species into a very circumscribed area to the southward, presently occupied by the south-temperate vegetation of the continent, of which crowding we have no evidence left, and which is hardly in accordance with existing possibilities. It also assumes the migration of the Arctic flora southward to at least northern temperate countries. Does not, however, the comparatively limited flora of the summits of the White Mountains and other considerable heights in New England and New York, comprising chiefly four or five really arctic and a few sub-arctic and boreal plants, nearly all also found on the coast of the Lower St. Lawrence, of the Gulf of St. Lawrence or of Labrador, show that the true Arctic flora had hardly reached as far south as these points? If, however, as I believe, there were only individual glaciers everywhere over the Laurentian and immediately surrounding country, on the high peaks and mountain ranges of that period, perhaps all of which are at much lower elevations now, it by no means follows that vegetation was entirely driven southward at this time. There could be a cold sufficient to produce glaciers on the mountain sides, and their resultant icebergs where, farther north, these glaciers met the sea, and these icebergs might be found even as far south as the New England States, for the cold Labrador current now existing would, without doubt,