

is that immense series of ridges of drift piled against an escarpment of Laramie and Cretaceous rocks, at an elevation of about 2,500 feet, and known as the "Missouri Coteau." It is in some places 30 miles broad and 180 feet in height above the plain at its foot, and extends north and south for a great distance: being, in fact, the northern extension of those great ridges of drift which have been traced south of the great lakes, and through Pennsylvania and New Jersey, and which figure on the geological maps as the edge of the continental glacier—an explanation obviously inapplicable in those western regions where they attain their greatest development. It is plain that in the north it marks the western limit of the deep water of a glacial sea, which at some periods extended much farther west, perhaps with a greater proportionate depression in going westward, and on which heavy ice from the Laurentian districts on the east was wafted southwestward by the arctic currents, while lighter ice from the Rocky Mountains was being borne eastward from these mountains by the prevailing westerly winds. We thus have in the west, on a very wide scale, the same phenomena of varying submergence, cold currents, great ice floes and local glaciers producing icebergs, to which I have attributed the boulder clay and upper boulder drift of eastern Canada. In short, we arrive at the conclusion that there never has been a continental glacier, properly so called, but that in the extreme Glacial period there have been great centres of snow and glacial action, in the Cordillera of the west, in the Laurentian plateau of the north, and in the northern Appalachians, and the Adirondacks, while the lower lands have been either submerged, or enjoying a climate habitable by hardy animals and plants.

The till or boulder clay has been called a "ground moraine," but there are really no Alpine moraines at all corresponding to it. On the other hand, it is more or less stratified, often rests on soft materials which glaciers would have swept away, some