condensed again in lower altitudes, this heat, latent away up in the lofty peaks, now comes out from its hiding-place, and the dry and warm air proceeds to business by licking up the snow, not leaving behind even the moisture caused by its melting. We are speaking now of the winter. Not much heat can be lost in contact with the dry snow, and what is lost by radiation into space may be made up by the heat of the sun, even in the short days of winter.

Some other considerations remain to be noticed. As I have just said, the time is winter. In the long, melting days of early summer, over the dissolving snows of the ravines and warm slopes, over thousands of foaming torrents and countless rivulets, the air, instead of gaining heat, now loses it by the reverse operations of liquefaction and evaporation, and thus chilled it falls on the ill-fated potato patch in the form of June frost. This matter of heat being absorbed by thawing and set free by freezing is one of common experience. The chilly feeling of a March or April day is shiveringly in the memory of all of us, who, in early life, braved the inclement skies of Ontario. And some of us have known the farmer's plan of saving his potatoes by carrying water into the cellar on an extra cold night—the water giving off in the process of freezing sufficient heat to save the vegetables. Of course the process does not go on *ad infinitum*. But the process of heat disappearing by the rarefaction of air and becoming sensible again on re-condensing—this is not so much within the range of our daily experience. The falling of a barometer before a storm is due to the rarefaction of the air, and we have all noted the increasing coolness at such a time, though almost invariably this is accompanied by the formation of clouds which quickly shut out our great source of heat, the sun, so that the lesser cause of coolness is obscured by the greater. Those who have ascended mountain peaks have observed, first, the rarity of the air, and second, the coolness. They may consider if the latter is caused by the former, as *post hoc* is not always *propter hoc*. Suppose they are not related as cause and effect, but only accidentally. Then, first, why is it warmer near the sea-level? It can not be the earth simply which gives the heat, for then, a high plain, or even a mountain peak, might be as hot as the low level, and second, we know that heated air rises, so the greater the elevation the warmer should be the air. The fact is, nature does not work for nothing, or with nothing. If a gas, air for example, becomes rarefied—and it will if it gets a chance—heat is used in the process; and when the re-condensing takes place the heat is given off again, all of it. Nature is not a banker, and knows nothing of discount. When a spring is compressed, its power lies dormant. When you wind up your watch, you are only storing up the force exerted by the muscles of your fingers, and the spring will give back all the force again, minus the friction, of course. I have dwelt at some length on this point because it is one in which the greatest incredulity is manifested, and all sorts of theories have been projected from the refusal to believe that warm winds can come from snow-clad mountains. When Sir Alexander MacKenzie first wintered on the Peace river, away up in latitude fifty-nine degrees, like a second Balboa looking out in his mind's eye over the great Pacific, he saw the striking effect of these southwest winds and noted in his journal that the ocean could not be far away. Little did he think that nearly six hundred miles of rough mountains lay between him and its warm shores. This was in 1792. He remarked the difference between the effect there at the mouth of Smoky river, where the snow disappeared in a few hours, and at Fort Chipewyan, on Lake Athabasca, three hundred miles further east, where no thaw occurred, though the wind brought delightful, clear weather. It is only a few years since one of those indefatigable slaves of nature, a German doctor—what should we know but for the German doctors?—worked out a mathematical demonstration of the amount of heat made latent by rarefaction in the higher altitudes and regained by condensation; and, still more, the amount of heat caused by the precipitation of moisture as the wind rises up the slope of the mountain. This calculation, I may say, seems to have been undertaken to solve the same problem in Europe, as they have, it seems, Chinook winds under the lee of the Alps and the mountains of Norway, only Chinook is not the German name of it. It is said that even the west coast of Greenland is visited by such a wind, coming over the elevated lands of the interior. These winds come from the southwest, far away over the ocean, and are not cooled by the colder current along the coast inside the Japan current. We have constantly to remember the looseness that prevails in our ideas of heat and cold. Two quite different standards prevail, one the thermometer, the other our feelings. In summer a zone of forty degrees F. is quite too near the freezing point to be pleasant, while, as we all know, anything near zero in winter is bracing and delightful. But water freezes and snow melts, not by our feelings but by the thermometer. Thirty-five degrees F. with dry air is quite sufficient to remove six inches of new fallen snow. And we must not think of these winds as constant. They alternate with their contending brothers from the north, this fury of alternate winds extending around the whole globe. The great fertile belt lies just on the border where the polar winds, somewhat moist and decidedly cold, meet and contend with the heated air from the Pacific, dried but only partially cooled by the mountain ranges it has crossed. This contact of heat and cold in the air always produces precipitation, rain or snow. It may not be superfluous to call attention to the fact that the same cause which now keeps up the fertility of the great Northwest evidently produced that fertility. Even in remote ages—geological ages—there must have prevailed the same climatic conditions, the same warm Pacific winds, dry to a degree probably forbidding forest growth, the same colder and damper winds from the north, the same mantle of snow and same deep grip of winter's frost to modify the too ardent flame of our long summer's day, which would otherwise parch the tender