THE BALMY CHINOOK.

THE warm Pacific wind which penetrates inland across Oregon, Washington and British Columbia to the valleys of Idaho, Montana and the Canadian territories, melting the snow and keeping the cattle ranges clear for stock to graze the entire winter, is known throughout this whole region as the "Chinook." It follows the mountain passes in its journey inland, and consequently is in some localities a south wind, in others a north wind, and varying from all points of the compass west of these. This wind in its relation to the province of Manitoba, was thus recently discussed by Mr. A. Bowerman, B. A., at a meeting of the Manitoba Historical Society in Winnipeg:

Some one has said "The climate makes the country." If this proposition is only measurably true—and there seems no doubt of it—there are few questions of greater importance in connection with the capacities and future prospects of our land. It may have been noticed how readily the citizens of our country, having grown proud of the country, become likewise proud of the climate. It would be counted a strange method to open up the question of our climate with a consideration of a phenomenon occurring a thousand miles west, but our ideas readily adapt themselves to the largeness of our land. "No pent-up Utica contracts our powers; but the whole boundless continent is ours," and we easily regard the Rockies as only just the other side of our horizon. Moreover, it will appear on inquiry, that the Chinook winds are intimately connected with the whole question of our climate. These winds are noticed by the observer as coming down in the dead of winter from the snow-covered mountains so warm and dry as to cause the total disappearance of the snow in a few hours. So hard is it to credit the evidence of our senses, that the common description of these winds is that they come through the passes of the mountains from the Pacific—a wonder none the less than that which it is supposed to explain. One observer of some note, indeed, hazards the conjecture that the warm winds of the Gulf of Mexico reach all the way up north, over the high plateau of the great American desert, over the still higher mass of hot and rarified air overhanging this desert, and drop conveniently on our lower plains to the north. But as this writer—of deserved repute in his own department—manifestly confounds the lines of equal heat with the direction of the winds, we may be excused from giving much consideration to his theory. Fortunately, we have sufficient data of a strictly reasonable and scientific kind, without indulging in conjectures which, too often, are the only support of theories on climate or the weather. A very brief statement of a few points in physical geography may be necessary as a prelude to the matter before us. Outside of the region of trade winds, i. e., from thirty to sixty degrees north latitude, is a zone noted for its alternate winds; winds from the southwest alternately with winds from the northeast—the southwest prevailing. This is the belt of the return trades, or anti-trades. As the trade winds get their direction from the motion of the earth, which glides, as it were, from under the cool winds moving equatorwards, they retain the westward motion gained at the equator, and in latitudes not so progressive outstrip the motion of the earth, and thus give rise to southwest winds. But these have not the persistency of the genuine trades of the equatorial regions, and so merely alternate with the polar winds from the northeast. Such being the state of things in the wide belt including such a great part of the continent, we may now take up the local modifying influences. Consulting our map, we notice a lofty barrier along the west coast—in fact, a number of successive ranges of mountains. The point most interesting to us is where the Coast range is broken by the inlet called the Strait of San Juan. And here let me call attention to the peculiar elbow made by the ranges nearest the ocean, the direction changes from due north to northwest, best seen on a globe. Next note that all the ranges are much lower here than further south. The coast range south of forty-nine degrees rises up like a great wall, and the inner ranges are still loftier. Then the valleys of the Fraser and Columbia give unmistakable hints of passages through the mountains, which furnished a pathway for the winds long ages before the adventurous railroad builder threaded his way across and through the labyrinth. The southwest winds then blowing warm from the Japan current, the Gulf streams of the Pacific, brought to a focus, as it were, in this angle of the mountains, crowd onward through the river valleys, over the low ranges, across the sea of mountains of British Columbia, and finally breasting the last great wall of the Rocky mountains, make their final leap into the valley below.

Having thus traced their course over the mountains, let us inquire into their adventures in this journey of five hundred miles. On leaving the Pacific they are warm and heavily laden with moisture. The first range they meet takes toll from their burden. Heavy clouds are formed and rain falls. The process is repeated at each successive range. In higher regions the scanty supply of moisture now becomes snow. In lofty altitudes, almost completely robbed of moisture they become greatly rarified and very cold. Moisture is gone and heat is gone. Our problem is still unsolved. Let us now retrace our steps to the coast and examine into the question of heat, for modern science declares that that is never lost any more than any other force of nature. We find that in each condensation, first cloud, then rain and snow, heat is produced—to speak accurately, latent heat becomes sensible. Rain and snow remain behind, are absolutely lost to the air currents. Not so the heat; this remains with the air, and seems to be increased. But in the lofty regions of the mountains rarefaction takes place, and this uses up heat. It requires heat to produce rarefaction, or disappearance of heat accompanies rarefaction, put it which way you will; the heat is not lost, and when, pouring down the mountain side, the great volume of dry air becomes