

small rainfall. The Cascades and the Rocky Mountains prevent the moisture-laden breezes of the Pacific from reaching the tracts under their special influence, and the distance of great prairies from the sea-board of the Atlantic, renders the moist wind of little influence before reaching the country over which the great "plains" extend. East of the Mississippi the rainfall is greater, and here we have an almost unbroken forest. Between the Cascades and the Rocky Mountains, for the same reason, trees are scarce and the climate dry; so much so, that some portions of the country are little better than desert, while immediately to the west of the former range, the slopes of the mountains are covered with luxuriant forest and fertile soil.

Along the line where the treeless and forest districts meet, local causes determine the presence or absence of trees. Belts of timber border the streams, and cover the more porous and absorbent soils, while level surfaces, with fine and unporous soils, sometimes very wet, and sometimes very dry, sustain only a growth of grass, which could endure the alternations fatal to trees. Annual fires have had their influence in extending the area of grassy surface, and over much of their middle ground, by man's intervention, the causes limiting the growth of trees could be removed, and the forest area extended. The forces of nature are here so nicely balanced, that slight causes would make one or the other preponderate. The many theories which attribute prairies to other causes than the want of water are wholly erroneous, and of only local value. On the great prairies west of the Mississippi, every variety of soil and surface fails to sustain trees, and only a change of climatic conditions will there change the grass-covered surface to forest.*

It would, however, be generalising on very imperfect data were we to conclude that all grassy land known vaguely under the term "prairie," was formed under the same conditions; for to the west of the Cascades are also prairies of some extent, due to totally different causes. These West of the Cascade "Prairies" may be shortly enumerated under three heads:—

(1.) "Tide lands" overflowed by the tide only at its highest periods, and of excellent soil. These are almost invariably found at the mouth of rivers, and the absence of trees upon them is due to the overflow by salt water, or the coldness of the mountain flood, which must sap the roots of deeply growing plants like trees.

(2.) Other small prairies are found along the sources of rivers, particularly mountains always marshy from springs, and

* J. S. Newberry, "On the Origin of Prairies," 'Transactions of the American Scientific Association,' 1866 (Buffalo Meeting), and Foster's 'Mississippi Valley.'