

"These are the Gardens of the Desert,
these

The unshorn fields, boundless and beautiful,
For which the speech of England has no
name—

The Prairies. I behold them for the first,
And my heart swells, while the dilated sight
Takes in the encircling vastness. Lo! they
stretch

In airy undulations, far away,
As if the ocean in his gentlest swell
Stood still with all his rounded billows
fixed,

And motionless forever—Motionless?—
No—they are unchained again. The clouds
Sweep over with their shadows, and, be-
neath

The surface rolls and fluctuates to the eye;
Dark hollows seem to glide along and chase
The sunny ridges."

So far as I am aware, the question of why the Canadian prairies are generally treeless has not been given exhaustive scientific investigation. Theories have been put forward incidentally from time to time by different men from the viewpoint of special conditions they had in mind at the time, but these seem to be more in the nature of flashes struck off at high pressure in the consideration of some special condition instead of the statement of and the result of careful conclusions resulting from long and attentive study and balancing of all possible influences. For indication of the various theories on the subject therefore it is necessary to refer to studies made and publications issued in the United States of America.

Reference to such studies and publications shows that the following theories as to the causes have been supported by various authorities.

Is the Soil Responsible?

One theory is that put forth by Professor J. D. Whitney in his book "Plain, Prairie and Forest," who pointed out that the forests as a rule occupy gravelly or open soils and avoid the fine deep sediments, and from that argued that the prairies are treeless because their soil is too fine and close to properly nourish the roots. This theory is not however thoroughly well based. As a matter of fact, there are all varieties of soil throughout the prairies, and trees have been grown successfully on the Canadian prairies in practically all conditions of soil.

Another theory proposed by J. W. Redway is that the prairies occupy an ancient inland sea and never were forested, but this theory is uncertain and is insufficient considered alone, to allow for the present existence of bluffs of trees and of fringes along streams throughout most of the prairie region.

It is also suggested that the trees were driven out during the last glacial period, but this is also rendered untenable by the fact of trees being scattered here and there on the prairies as indicated in the last paragraph, and by the extensive forested areas to the north of the prairies.

The claim was also made that the close prairie sod is a barrier to the establishment of tree growth and this claim is to a large extent true. Thorough cultivation of the soil is generally found to be a necessary preliminary to the establishment of a tree plantation. This however does not seem a sufficient explanation of the vast extent of treeless prairie as in favorable seasons and conditions the trees begin to creep out on the prairie.

Insufficient Rain?

The theory has also been advanced from several directions that the treelessness of the prairies is the result of insufficient rainfall. While this is undoubtedly true of the arid plains in the south western states it is not in itself a sufficient cause for the lack of trees on the Canadian prairies. The precipitation is certainly lighter than in the forested districts but is generally sufficient to support tree growth where it exists on the prairies.

"Chinook" winds have also been suggested as a reason for the treelessness of the prairies but this cause by itself does not seem to be sufficient. The warm chinook winds in winter often cause the formation of ice on the ground and, if long enough continued may, especially towards spring, start growth which will be destroyed by the inevitable return of winter weather. Some species of trees that succeed well in Manitoba and Saskatchewan cannot stand the effect of the Chinook winds in Alberta where their influence is more marked than farther east.