

FOREST INFLUENCES.

Professor J. B. Reynolds, Ontario Agricultural College.

At the present time much is being said and written concerning the forest. Forestry problems include a consideration of forest management, of the forest as a resource, and of the forest as a condition. The last question, the forest as a condition, comprises the subject of this paper, and upon this subject I shall try to present the best information available.

Dr. Fernow states this question topically, as follows:

The forest exerts an influence

I. Upon the climatic condition within its own limits and beyond.

II. Upon the distribution and character of the waterflow.

III. Upon the mechanical condition and erosion of the soil under its cover.

I. The climatic influence of the forest is, conjecturally, four-fold: (1) Upon the temperature of the air and of the soil; (2) upon winds and storms; (3) upon evaporation and the humidity of the air; (4) upon the precipitation—rain and snow. I say conjecturally, for the influence of the forest upon precipitation is by no means established, or generally admitted.

Control of Temperature by the Forest.

The forest exerts its influence upon temperature by reason, principally, of the tree-crowns. These shade the ground and prevent the heat of the mid-day sun from having its full effect; conversely, the same crowns check the radiation of heat from the forest soil and air at night and in winter. Thus, the maximum temperatures within the forest are lower than those in the open, while the minimum temperatures are somewhat higher. In summer, the lowering of the maximum is much greater than the raising of the minimum. In winter the extremes are about equally reduced. Hence, the net effect of the forest in summer is, to lower the mean temperature of the forest air; and in winter, this cooling effect almost or entirely disappears. The net annual result is to cool the air—the mean annual temperature within the forest being lower than that in the open; and to moderate it, the extremes of high and low, both daily and annual, being reduced. The moderating effect of the forest is much greater than its cool-