The Forest as a Perpetual Wood Factory

Nature, without Human Guidance, is as Incapable of "Running" a Forest on an Economic Basis as "Running" a Farm.

By Dr. C. D. Howe, Dean, Faculty of Forestry, University of Toronto

"Ninety-five per cent of the trees in a forest sacrifice themselves that others may live."

"I have seen Western hemlock seedlings at the rate of 3,000,000 to the acre; yet, when these trees reach maturity, scarcely a hundred will be left upon an acre."

"Nature has no economic sense. The function of foresters is to improve upon nature as expressed in the forest and guide her into economic channels, just as the farmer has improved upon nature in his work and compelled her to serve his economic purposes. Where would we be to-day if the farmer had allowed nature to have her own way?"

THE FOREST.

As I understand it, the primary object of forestry is the production of wood of a certain quantity and of a certain quality under certain given climatic and soil conditions. The material which we call wood is a certain chemical substance produced in large quantities only by certain types of plants which we call trees. If the chief object of a forester is the production of wood, then it goes without saying, that he must understand how wood is produced in nature, that is, he must understand the physiological relationships of trees: how they manufacture their food, how they digest their food, how they assimilate the digested food and transform it into wood. Now, we know that certain things external to the tree influence its wood production. These are particularly the climate and the soil. In order to produce the largest quantity of the most desirable quality of wood, the forester must understand how trees are influenced in their growth by the climatic and soil factors, that is, he must understand the biological relationship of trees.

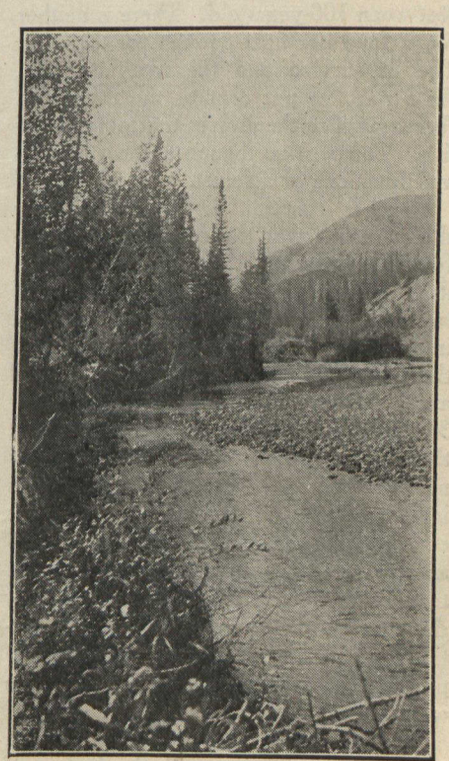
While a forester must understand the life relationships of individual trees, I believe that in order to be successful in his work of producing wood, he must acquire a broader conception of forest life. He deals not with single trees alone, but with tree aggregates, with tree communities. These tree communities, like communities of humans, have their mutual relationships, their dependencies, and their interdependencies. And like other living communities, they have their stratifications, their laws of reproduction, development and decay; their laws of progression and of retrogression. By this I mean to say that in order to do his best work, a forester must have the broader vision which regards the forest as an entity, an organism with its own peculiar structures and its peculiar functions; an organism which has its period of birth, of infancy; its juvenile period, its adolescent period, its period of maturity and decay.

A beautiful glimpse of the forest ranger's cabins on the Clearwater Forest Reserve, Alberta.

"It takes all kinds of people to make a world," and it takes all kinds of plants to make a forest. The reformer or the politician will fail, if he recognizes only one class in human society, so the forester will fail who sees only and thinks only about the pines and spruces, or whatever the commercial class may be in his woodlands.

The Forest's "Middle Class."

In the forest the differentiation of the social structure is just as pronounced as in the city of Toronto. There are the meek and the lowly in the forest; even those who live in the dark places beneath the soil cover. There is the great middle class of ordinary every day trees. They make up the bulk of the forest and give it stability and character. And then then there are the few dominions, the aristocrats, who stand head and shoulders above their associates. They indicate what might be accomplished in the forest world if living conditions were equally good for all. To state the case more specifically there is a greater or less number of vertical layers of vegetation in every forest: a moss layer, an herbaceous layer, a layer of shrubs or seedlings, a layer of saplings, a layer of suppressed trees, of co-dominant and of dominant trees. This is called vertical zonation, and it results from the fact that there is a difference in life conditions at the ground and at various heights above the ground in a forest. This leads to a differentiation in structure of the forest, just as there is a differentiation in the structure of a tree itself. The conditions in a forest also vary in a lateral direction. The soil may vary from place to place; here sand



Looking along Brown Creek on the Clearwater Forest Reserve, Alberta.