

Canadian Forestry Association.

At the late meeting of the association at Ottawa, many interesting papers were read.

"Forestry in British Columbia," was the subject of a paper by J. B. Anderson, deputy minister of agriculture for that province. The forests of British Columbia are of great extent and immense value. The most important tree is the Douglas Fir, *Pseudotsuga douglasii*, which extends practically over the whole of the province, except Queen Charlotte Island, up to an altitude of 8,000 feet. On the coast this tree frequently surpasses eight feet in diameter, and reaches a height of 200 to 300 feet, forming prodigious and dark forests. As much as 508,000 feet of good lumber have been cut off one acre in the Comox district. The other important timber trees are Red Cedar, Spruce, Yellow Cedar, Hemlock, Western White or Balsam Fir, Western White Pine, Western Yellow Pine or Bull Pine, Scrub Pine, Black Pine, Larch or Western Tamarac.

The principal deciduous trees are the Maple, the broad leaved species being a magnificent tree which frequently attains a diameter of three or four feet and has been known to cover an area eighty feet in diameter, the Alder, the Poplar, the Oak, the Birch, the Arbutus, the Dogwood, the Buckthorn, the Crab.

The average cut of lumber is easily 50,000 feet per acre. The acreage in the timber limits occupied, according to the figures of 1893, was 400,000, and at an average of 30,000 feet to the acre, this would give 12,000,000,000 feet. At an average yearly cut of 100,000,000 feet, the present limits would last 120 years. It is estimated that fire destroys fully fifty per cent. of the timber. This would reduce the time to 60 years. If, as is probable, the output is trebled, the time would be still further reduced to 20 years. If one-third of the limits of the province are taken up, the total area would be 1,200,000 acres, giving 60 years for cutting. Natural growth would increase the amount, but fires will be a chief element of destruction. The appointment of forest rangers seems to be the only possible means of controlling fire, but in an immense and undeveloped province like British Columbia would be very expensive to operate.

A paper on "Forestry on Dominion Lands" was read by E. Stewart, Dominion superintendent of forestry. Mr. Stewart pointed out that the area of land controlled by the Dominion is about three times the total area of the older provinces and comprises a large area of wooded country as well as the barren land of the north and the prairie region. The most important tree in the forest districts is the Spruce.

The first step taken by the forestry branch was the organization of a fire protection service. Forest fire rangers are selected from men residing in or near the district where they are to be employed. They are under the direction of some permanent officer in the land agency, and when this officer considers their services are required he notifies them to commence work, furnishes them with a copy of the Fire Act, a copy of general instructions and notices for posting up warning the public against the careless use of fire. By this system the ranger is employed only when his services are considered necessary, and in case it is very wet he may not be employed during the whole season.

The other special line of work, which is being arranged for, is tree planting on the plains. Efforts have been made in the past by the government to encourage tree planting, but not much success has been achieved owing (1) to bad planting; (2) to trees being planted in land not sufficiently prepared; (3) to lack of cultivation. The system now proposed for dealing with the matter is to supply seed and cuttings to the settlers, as far as possible, and to give government supervision in tree planting and cultivation. The supervisor will examine the land and furnish a sketch to the settler showing the best position for wood lot or shelter belts, with directions as to the proper trees to be set out and the best methods of doing so. An agreement to this effect will be made between those applying to take advantage of the proposal and the government.

Mr. William Pearce read a paper which had been prepared by Mrs.

Zina Y. Card, of Cardston, Alberta, on "Forestry on the Prairies." Mrs. Card has had experience with tree planting in Utah and pointed out that in that state, where every city, town and village is a wilderness of trees, it is not difficult to produce them, for the irrigation canals which are so generally constructed supply the necessary moisture to make the task an easy one. At Cardston the native trees have been found most successful, and no trouble has been experienced in transplanting in the lower locations, if the necessary moisture is given at the proper time. The conclusions reached are in the main those of Mr. Wm. Pearce, that native trees should be planted first and should be obtained from a place where the conditions as to exposure, wind, elevation, etc., are as nearly as possible the same. Evergreens have not so far been found successful, but the Manitoba Maple has succeeded when hedged and also the Black Willow and Basket Willow to a limited extent.

Mrs. Card suggests that the establishment of a tree farm on a small scale in the district would be of great advantage in advancing the work of tree planting there, and also mentions the opinions of some of the members of the association that an agricultural magazine would fill the requirements of their district better than the present official organ.

Mr. J. C. Langeller, superintendent of Forest Rangers for Quebec, gave a paper on "The Pulp Industry in Relation to our Forests." The increase in the value of the products of the pulp industry, as shown by the figures of the census of 1891 compared with those of 1881, being from \$63,300 to \$1,047,810, or 157 per cent., raised the question in many minds as to whether this new industry was not destined in a short time to ruin our spruce forests. Mr. Langeller wished to take up the question as to whether these fears are well founded.

By the census of 1891 the quantity of spruce consumed for all purposes in the four older provinces of the Dominion was 5,146,236,287 feet, including 57,475,000 feet of pulp wood in Ontario, 65,599,500 feet in Quebec, 5,655,500 feet in New Brunswick, 1,667,000 feet in Nova Scotia, or a total of 131,403,000 feet for all. Taking ten times this quantity as the extreme limit of consumption, the sum of 1,304,000,000 feet would be given, which would manufacture 1,500,000 tons of pulp. This is very nearly the total actual production of the United States, the country in all the world which manufactures the most pulp and paper. With this quantity of wood the four older provinces could supply home consumption, ship a couple of hundred tons to the American paper manufacturers and a million tons to Great Britain, France, and other European countries. At an estimate of 5,000 feet of pulp wood to the acre this would take the product of 260,818 acres.

The present area of the forest may be estimated at 219,259,958 acres, so that the time required to exhaust the present supply would average about 1,000 years.

But the other demands on the spruce forests would require 11,318,844,574 feet yearly, requiring the product of 2,264,342 acres, which would reduce the period of exhaustion to 60 years for Ontario, 173 for Quebec, 41 for New Brunswick, and 38 for Nova Scotia. It is a well known fact that where operations are carried on in a wise and provident manner a spruce forest renews itself in fifteen or twenty years, so that spruce forests are practically inexhaustible, inasmuch as the needs for home consumption of the lumber trade and the pulp industry are below the capacity of production and reproduction of the forests.

The dangers to the forest are: first, fire; second, the abuses committed under pretext of colonization; third, wastefulness in lumbering operations. An idea of the destruction by fire may be obtained by the statement that the value of timber destroyed by this cause in forests of Lake St. John, St. Maurice and the Ottawa could pay the whole debt of the province of Quebec and still leave several millions to spend in developing its resources.

Under the pretext of colonization, lands which are only fit for timber are taken up for agricultural purposes and the timber destroyed by wasteful methods of cutting and by fires started for the purpose of making clearings. Large areas are thus taken up which do not yield enough for agricul-

tural purposes to make it possible to exist upon them.

The revenue from 545,953 acres of land under cultivation in Quebec timber counties is \$4,076,773, and at the permanent yield of 2,500 feet of merchantable timber the revenue would be \$6,824,140. Converted into pulp the result would be 33,439,383. The amount paid in wages for the manufacture would be \$1,060,020, which, at \$1.25 per diem would represent 18,560 men, and 156,000 souls who would be supported. The value of the farm produce from these land would be \$7.36 per acre, and of pulp would be \$61.25 per acre. The danger from lumbering operations is the cutting of trees down to a small diameter, as low as three inches, principally for export. This

destroys the forest and leaves no means for its reproduction.

A great advantage of the pulp industry is the fact that it permits of the use of a great deal of small and poor timber which was formerly altogether refuse matter, thus increasing the productive value of the forests by twenty per cent.

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