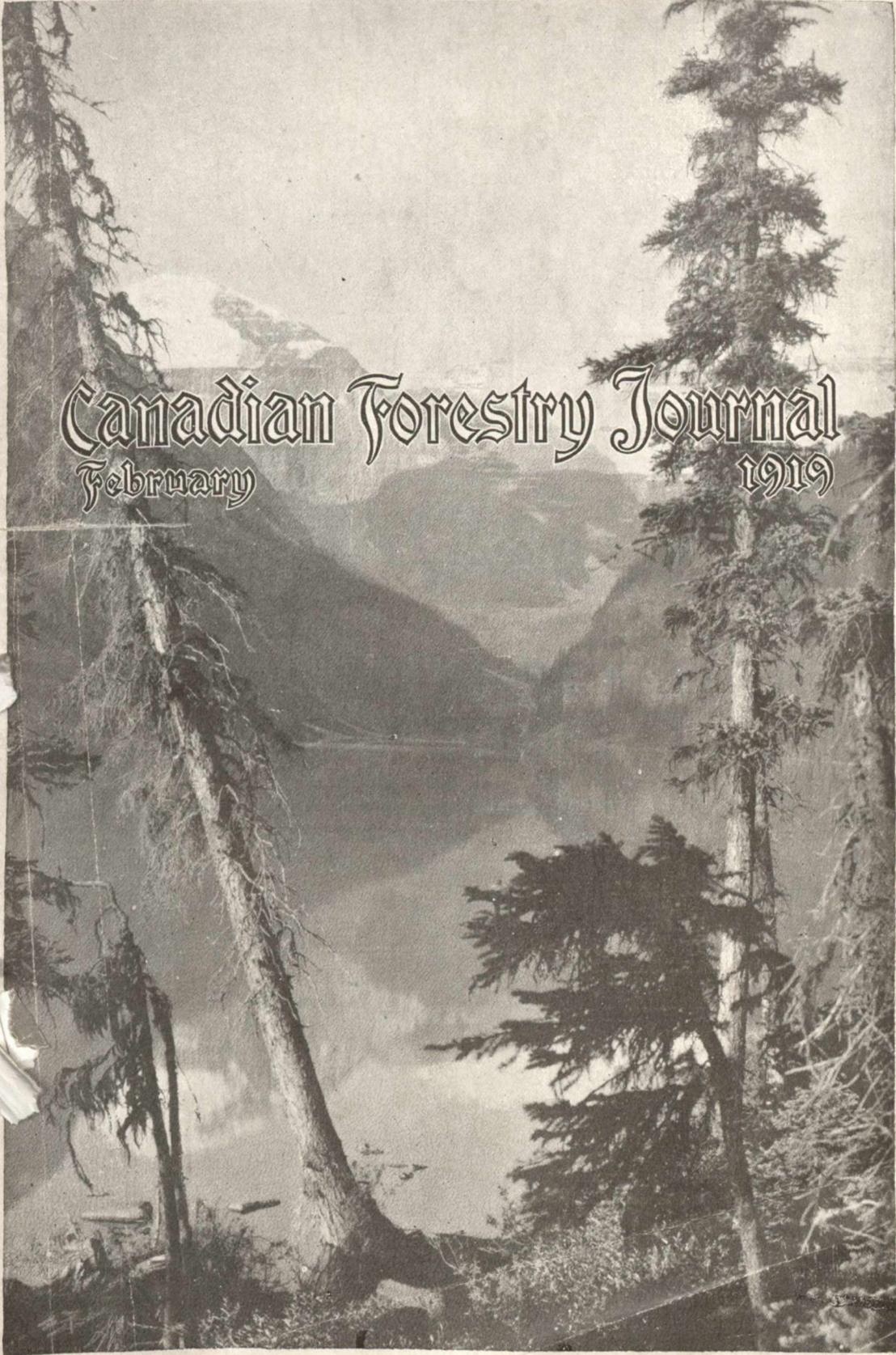


PAGES

MISSING



Canadian Forestry Journal
February 1919



THE PROFIT GOES TO THE NATION.

This magazine has no shareholders and pays no dividends. The total income from subscriptions, after paying for cost of publication, is applied to our national educational campaigns in forest conservation. Most facts are dry, but these are drier than usual: The bill for raw paper each issue exceeds \$200. A year's publication costs \$4,500, without counting a dollar for editorial expense, office rent, etc. The magazine belong absolutely to the membership.

The money must come from membership fees. When a member postpones payment of his dollar, he unconsciously deducts ten cents from its value, for each set of 'repeat' accounts sent out means an added and really needless expense. Cooperation is the spirit of the day.



Canadian Forestry Journal

VOL. XIV.

OTTAWA, CANADA, FEBRUARY, 1919.

No. 2



Logging karri in Western Australia. This timber occasionally produces 300,000 feet b.m. per acre.

AUSTRALIA STEALS A MARCH ON CANADA

By H. R. MacMillan, Assistant to Director of Aeronautical Supplies, Vancouver;
Former Timber Trade Commissioner for Canada.



Remarkable New Legislation Gives the State
Thorough Mastery of Forest Properties—
Public Interest Triumphs.



A few Canadians may have observed the strenuous propaganda that has been conducted during the past four years in Australia for the improvement of state forest administration.

The programme, which was initiated by Messrs. Jolly, then state forester for Queensland, who had had the benefit of Oxford training, Hoy, the chairman of the New South Wales Forest Commission, and McKay, State Forester of Victoria, has received great impetus from the efforts of the West Australia Conservator of Forests, Lane Poole, who brought to West Australia in 1916, the benefits of training at Nancy, followed by ten years administrative experience in South Africa and Sierra Leone.

Canadians who are interested in forestry would find much of profit and interest in the

publications now issuing from the forest departments and forest associations of the Australian States.

Virgin Forests Fire-Killed.

It may astonish some of us in this country to realize that the timber industry of the State of Western Australia has been of greater relative importance to the inhabitants of that state than is the case in any Canadian province. One generation of development and settlement, accompanied by fire, has produced the same forest effect in Australia as in Canada. The forests of this State, the population of which is 300,000, which since settlement have produced timber to the estimated value of \$127,000,000, are now stated by the president of the newly-formed forest league to be good for only twenty years.

The forest area is small, permeated and surrounded by settlement, and but little opportunity exists to under-estimate the area or quantity of timber.

Such forest legislation as has existed in Western Australia has, as in Canada, been written by and for the most conspicuously and actively interested partner, the lumbermen or saw-millers, as they are known in that part of the world, the settlers, and the timber hewers unions. We in Canada know the former but not the latter.

The most important woods of West Australia have long been a staple article of export as railroad sleepers, particularly to Africa, and India, because of their resistance to decay and white ants. The hewing of these sleepers has at all times been a ready meal ticket for the Australian bushman, or timber hewer, and jealously guarded by his union.

Cheap Stumpage Here.

In a land where the settler could homestead at will, where 653,000 acres of the best timber was leased to operators at a total rental of \$3,500 annually, and where hewers could hew ties at will through the remaining public timber, on payment of nominal royalty only, there appears need of a new forest act.

Such an act, framed by Lane Poole, after three years study of the problem, has now been passed by the Legislature.

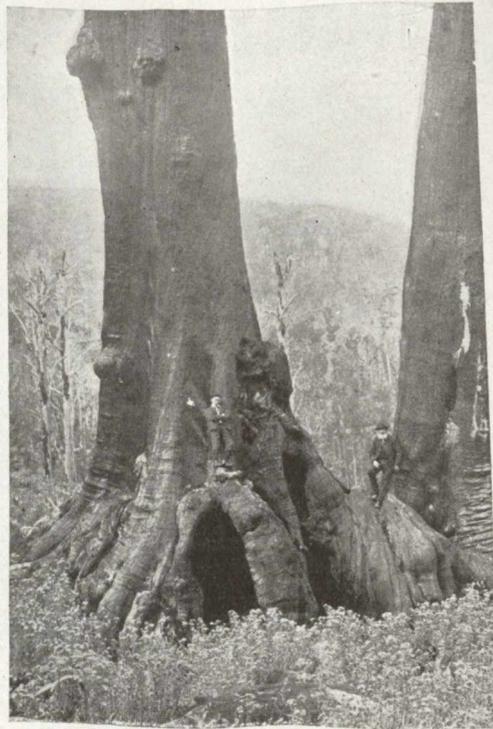
The West Australia Forest Act presents several striking features.

The Forest Department is removed from the Department of Lands to the Department of Mines, on the theory that the Minister in charge of lands will be under constant temptation to make lands available and will shirk from creating permanent forest reserves, whereas the Minister of Mines, having no specific interest in land administration, will act unrestrainedly on the advice of the Conservator of Forests.

Conservator's Power Absolute.

The Conservator of Forests is placed in office for seven years, removable only by a vote only of both the lower and upper chambers of the legislature. He is given all powers of a commissioner over all West Australia forests, now estimated at 3,000,000 acres, of which 1,300,000 acres have been cut over and 1,500,000 acres are under lease.

The Conservator is furnished with a definite source of revenue, without the necessity of each year going before the legislature, in that one half the forest revenue is each year set aside for



Blue Gum Forest in Australia ruined by fires occasioned chiefly by settlers.

forest work under his direction. This will amount to about \$135,000 annually, as compared with about \$60,000 expended in 1914-15.

As the programme develops, it is anticipated that additional funds will be provided. The principle adopted in Western Australia is worthy of consideration in certain Canadian provinces.

Working Plans for Reserves.

It is further provided in the Forest Act that the Conservator shall examine the forest lands of the State and set aside as permanent reserves those lands most fitted for this purpose. It appears to be the intention of the Act to extinguish or control any prior leases over such areas. The Act requires that working plans are to be prepared for the reserves, the working plans, after acceptance by the Cabinet, to have the force of law for ten years.

The sleeper hewers are to be abolished from the state forests on account of their wasteful operating methods.

An important part of the contemplated work specified in the Act is the regeneration by protection and silvicultural operations, of the damaged forest areas. It is further enacted that soft

wood plantations shall be established with the object of growing at home the \$400,000 worth of coniferous timbers imported into West Australia annually.

The Conservator is given power to build the necessary trained organization to carry out the provisions of the Act, and to establish a scheme, if necessary, to develop the field employees.

Remarkable Planting Profits.

In this connection certain coniferous plantations in Australia have shown phenomenal results. *Pinus insignis* in particular at 25 to 30 years of age has reached an average annual growth of 2,400 to 2,800 feet board measure per acre. This in a country where common box lumber is in great demand in normal times at \$30.00 per thousand, allows an ample return from forest planting.

The efforts of Mr. Lane Poole will be watched with interest throughout Australia. He has succeeded in developing a more active public support and entrenching himself in a stronger position than has yet been reached by any Forest Service in Canada. He has also accepted heavier responsibilities. He has the advantage of working in very close contact with his public, as is possible in a small community.

CEDAR FOR PAPER MAKING.

Editor Forestry Journal:—

Is it true that cedar is being used in pulp manufacture in Canada?

One large British Columbia pulp and paper company now uses a large proportion of western cedar in their kraft pulp. The product is said to be highly satisfactory from every point of view.

THE "PEPTIMIST."

An Optimist is one who hopes; a pessimist one who doubts, and a "peptimist" one who gets. That is what a recent shingle conference was told during a talk on "pepticism" by the sales manager of a raisin company—which suggests the desirability of unfolding outside talent occasionally at a lumber convention. The new word is sufficiently valuable to be retained, especially in the lumber industry, which always had a good deal of the quality which it stands for.—"American Lumbermen."



The famous Canadian "pointers" with their lumberjack crews on an upstream trip.

THE OWNERSHIP OF OVERHANGING TREES.

A man has no right to any portion of a tree or the fruit thereof that may overhang his property, while growing on a neighbor's land.

Such is the interesting verdict reported by the Royal English Arboricultural Society as follows:

"A case dealing with this point came before His Honour Judge Parry, at Maidstone on November 13 last. The plaintiff had several apple trees growing on his land about 8 feet from the boundary. The branches of these trees overhung the land of the defendant. The defendant picked the apples off the branches and sold them. The plaintiff brought an action for wrongful conversion, and was awarded £10

damages. The contention on the part of the defendant was that, as he had the right to lop the branches of the trees which overhung his land, he had the right to pick the apples.

His Honour said (*inter alia*) the defendant's right to lop could not be contested, assuming that it was done in a reasonable way, in accordance with the custom of fruit farmers, at a proper season, and without unnecessary injury to the tree. When the branches were severed, however, that did not give the defendant any property in them or in the fruit on them. In law the branches or fruit, which formerly savoured of real property, had then by severance become personal property, but the property remained in the owner of the tree."

EFFECT OF TREES ON RAINFALL

Those who read Dr. Fernow's interesting statement in the December Forestry Journal on "Do Forests Affect Rainfall?" will peruse the following opinion issued by the New South Wales Forestry Commission in a recent bulletin:

The effect which forests have upon the total annual rainfall is much disputed. For the present it is sufficient to state that, though careful French investigations extending over many years appear to indicate that forests cause a considerable increase in the rainfall, irrespective of the direction from which the rain-bearing winds may come, the principle has not yet been proved to the satisfaction of all concerned, while in Australia the question has not received adequate attention. If there be any effect of this nature, it does not necessarily follow that the quantity of rain reaching the soil of a forest is greater than would have been received if the soil had remained bare, for a considerable percentage of the rainfall is intercepted by the crowns of the trees, and, being spread over a very large surface, is evaporated before it can reach the ground; consequently, for the present no importance need be attached to this question from the point of view of the welfare of the forest itself.

The total annual rainfall is, however, of less importance to a forest than the distribution of rain throughout the year; but, unfortunately, in this connection also Australia lacks accurate data showing the effect of the forest. French observations show that forests cause a more

equable distribution, and it may be stated for what it is worth that popular opinion in the Atherton district of North Queensland, where comparatively large clearings of dense forests have been made during the last twenty years, is that the gentle "scrub" drizzle is now far less frequent than formerly. Such an alteration must undoubtedly be unfavourable from the standpoint of the forest, for young seedling growth, which benefits greatly from light showery and cloudy weather, is adversely affected by periods of hot sunny weather following upon storms.

Although the effect of the forest on rainfall is uncertain, accurate observations made have shown conclusively that forests have a local influence on the temperature of the soil and on the temperature and moisture contents of the atmosphere adjoining. The forest moderates the extremes of heat, in that the temperature of the forest soil and air is lower during the day and higher during the night than that of grass land adjoining. Also the humidity of the air in and over a forest is greater than that of air over open country, thus reducing slightly the evaporation of moisture, though neither this nor the former influence can be considered of very great importance. Of far greater moment are the screening effect of the forest cover in lessening radiation of heat and thus reducing frost danger, and in protecting the soil from the heat of the sun and the drying influence of strong winds, thus greatly reducing the loss by evaporation of moisture in the surface soil.



CLOTHING THE PRAIRIE WITH TREE LIFE.
A photograph taken in 1918 by H. C. Weaver, near Atlas, Saskatchewan. The first trees were planted along the roadway in 1909.

THE RURAL SCHOOL PLANTATION

By H. C. Weaver, Atlas, Sask.

The Rural School is first and foremost of all institutions, entitled to be the one spot where good cheer and social betterment reign supreme. If we just wander back in thought to the years of our childhood, we will remember the stately elm or maple, greeting us along our pathway to and from the rural school, and usually on the school-ground also, of the old district back east.

Let us be inspired to beautify our homes, our school grounds, and our public highways here in these prolific prairie provinces, and by the help of Nature, make use of the several hardy varieties of forest trees which are a proven success for planting in these none too humid western communities.

By hardy varieties, I refer, under average prairie conditions, to Red Willow, Manitoba Maple, Green Ash, and for a hedge, Caragana. These varieties, in the order in which they are named, make an ideal four-row plantation, for, I should say, three sides of the rural school grounds, having the Caragana planted next the building, one foot apart in the row, the other varieties four or five feet apart in the row, and all rows four feet apart.

This will permit of easy cultivation, it being assumed that no trees are planted until the land has been carefully worked for at least two years previous to planting and worked up so thoroughly that not a vestige of grass or perennial growth is alive. Experience has shown that no trees should be planted closer than ten or fifteen feet from the native sod. This strip between the trees and sod kept so cultivated as not to allow any growth whatever, and particularly, always keeping a deep furrow next the grass and thrown in toward the trees. This prevents the grass from working into the trees, as trees and grass will not thrive together on the prairies.

If not larger than two or three foot specimens of the above-mentioned varieties are planted not too soon before the rainy season begins in the spring, by tramping the soil down solid around the roots, and leaving a loose and level mulch on top, there is no reason why our efforts should not be crowned with success.

Of course there are occasional insect pests, but these need hardly be mentioned here, for if we will plant trees on these bald prairies, and thereby encourage the birds to make their homes among us, the insect pests will, by these "police-men of the air," be reduced to a minimum.

1919 OFFICERS, CANADIAN FORESTRY ASSOCIATION.

At the annual meeting of the Canadian Forestry Association in Montreal on Wednesday, January 29th, Mr. J. S. Gillies, of Gillies Bros., Braeside, Ontario, was elected President for 1919; Mr. Clyde Leavitt, Vice-President; Mr. Percy B. Wilson, of the Spanish River Pulp & Paper Mills, Sault Ste. Marie, a new director, and Hon. E. A. Smith, territorial Vice-President for New Brunswick.

OFFICERS, WOODLANDS SECTION.

At the annual meeting in Montreal, Thursday, January 30th, of the Woodlands Section of the Canadian Pulp and Paper Association, the following officers were elected: Chairman, Robert P. Kernan, Quebec; vice-chairman, Marshall P. Small, Grand'mere; councillors, R. F. Kenny, Buckingham; A. J. Price, Quebec, and Ellwood Wilson, Grand'mere.

AN IMPERIAL FOREST POLICY

By Sir John Stirling Maxwell,
Glasgow, Scotland.



Give Canadian Woods an Equal Chance by Taxing Baltic Imports—British Financial Aid for Forest Protection?



Foresight is not the strong point of democracy. Few statesmen look beyond their own generation, many not beyond the next election. Those who do have to face the enmity of the party machine, which in the Old Country and no doubt also in Canada is a machine devoted to the capture of votes. Forestry, which demands long views and offers no immediate benefit to the electors, has thus suffered in every democratic country except France where it was placed on a sound footing more than a century before the revolution by the celebrated ordinance drawn up by Colbert for Louis XIV.

Britain is still waiting for its Colbert. For many years before the war forestry had been neglected by successive British Governments and our timber supplies completely left to chance in the belief that cheap transport would bring so much as was required from overseas. The question of timber as an element in national defence had not been considered at all. The war brought a rude awakening. A Committee which has enquired into the matter reports that

£37,000,000 sterling was wasted during the first two years of war in increased freight and insurance and lost cargoes of imported timber—a sum which could have been saved if means had been devised earlier to utilise the woodland resources of the British Isles—a sum more than sufficient to have reconstituted the woods after the war and increased them to the extent that national safety demands. The home reserves of growing timber, though small indeed when judged by Canadian standards, were large compared to the area under wood. Felling had been discouraged since neglect and lack of organisation had rendered British woods unprofitable. The proportion of mature timber was thus much larger than is usual in European forests, which, except in Russia, are worked on a regular rotation and contain timber of all ages. When, under compulsion of the German submarine, the British woods began to be seriously attacked in the third year of the war, want of labour was the main difficulty and the needs of the war could not have been met without the



Photo by H. C. Weaver, Atlas, Sask.

PLANTING TREES ON THE PRAIRIE.

This shows what commendable results were secured by a young Saskatchewan farmer. Note the heavy growth of trees surrounding the school building in the background.

assistance of the Forestry Battalions and mills sent from Canada and Newfoundland. These mills, with their large and rapid output, were able to save a situation with which the small forest mills of the Old Country could not cope. Never in the whole of her history has Britain received assistance more timely or more generous.

Prepare for Emergency.

The woods have held out though the toll taken from them has been heavy. The British Government, alive at last to the vital importance of timber as an element of national defence, has taken steps to encourage replanting and to increase the area of woodland to a point which will ultimately enable the United Kingdom to dispense with imports of timber for a few years of emergency. Even when this programme is complete, the country will be far from self-supporting. The Government has now to turn its attention to the larger problem of safeguarding its supplies in time of peace. It is in view of this problem that our eyes turn to the Dominion.

Russia a Doubtful Source.

The United Kingdom imported in 1913, approximately 10,500,000 loads* of timber, of which nine-tenths were coniferous, at a cost of £25,500,000, besides pulp and wood manufactures to the value of £14,000,000. For several years the imports had been increasing at the rate of 100,000 loads a year. Russia furnished us with no less than half of the total imports. By increasing her supplies, she had since 1899, not only made good the reduction in our imports from other sources, but had kept pace with our growing consumption. Is it safe to depend on Russia? The forest area contained in the Russian empire as it existed before the war was enormous—probably as large as the forest areas of Canada and the United States added together. Little information is available as to the proportion of merchantable timber or the probable cost of extraction, though the great rivers flowing north undoubtedly offer fine opportunities for transport. France, Belgium, Italy, Denmark, the Netherlands and Germany are all importers of timber and will have to draw on Russian reserves for their increasing consumption. Though the future of Russia looks black just now, it is almost certain that the changed regime will ultimately lead to development. If so, its own vast population will make heavy demands on the forests. The timber imported to Britain has for many years been steadily rising

*One load equal to 50 cubic feet or 600 feet board measure. The figures include mining timber as well as sawn timber and logs.

in price and falling in quality. In the northern forests, from which the bulk of it comes, the growth of the trees is slow and even under good management it would take many generations to replace what is now being cut. All over the world consumption increases by leaps and bounds, except in the United States, where it has for many years been extravagantly high and is now coming under the control of a rising price. It would be folly to suppose that our grandchildren will be able to obtain from Russia the supplies they require. The question is whether they will obtain supplies at all unless we make timely preparation.

What ought to be done? The key to the situation appears to lie in Canada. Its forests contain the only great reserve of coniferous timber within the Empire. It is in the interest of Canada and of the Empire and most of all of the United Kingdom, that the forests should be conserved, exploited and regenerated with the utmost care and every facility provided for the distribution of their produce within the Empire and especially for its transport to Great Britain. Few will dissent from this ideal, but agreement about the means for reaching it is another matter. The subject bristles with difficulties and points of controversy. Fire protection alone is a hard enough nut to crack. A striking lesson has recently come to us from the United States. The terrible fire in Minnesota, accompanied by the loss of 1000 lives, following on a reduction of the annual appropriation for the forest service when expert opinion had demanded a large increase, is a warning to be taken to heart. It may well be impossible to prevent fires altogether just as it is impossible to stamp out disease. But it is certainly possible to detect and nip many fires in the bud and expenditure wisely directed to this object can certainly reduce, though it cannot eliminate the risk of great disasters. The Minnesota forest service established in 1909 had already reduced the annual property loss from a million to sixty-one thousand dollars. Nowhere has the subject of fire protection been more carefully studied than in Canada. The forest service has already good results to shew. Its work has passed the experimental stage and the time seems opportune for a great extension of its activities.

The transport problem also presents great difficulties due to the bulky character of timber and the fact that the eastward traffic of goods across the Atlantic already largely exceeds the westward. Possibly a solution may be found in some development of rafts.

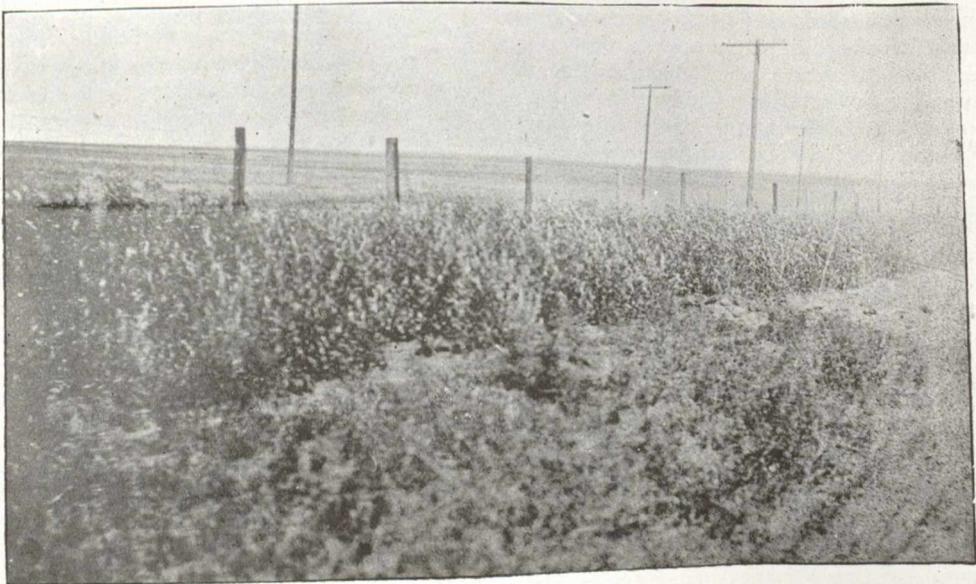
Canada's Sales to the U. K.

Over this great imperial question the statesmen of the Empire should lay their heads together. It is a disquieting fact that the timber exports of Canada have for obvious geographical and economic reasons been steadily diverted in recent years from the Mother Country to the United States. The present present time when the United States is curtailing its consumption of timber and increasing its exports is favourable for stemming this tendency by friendly arrangement with that country. It is the policy of Newfoundland not to export unmanufactured timber. That policy appears to be well justified by the conditions of the island and will no doubt be continued, though it was generously waived during the war. In Canada the conditions and the policy are wholly different. Yet the export of timber to the United Kingdom declined in volume by nearly a half between 1899 and 1913. In the latter year it represented less than an eleventh part of the British consumption. **This state of things ought not to be allowed to continue. It cannot be remedied without some modification of British policy. Besides making every effort to cheapen and hasten transport, this country would, in the writer's judgment, be justified in making a substantial contribution towards the development of fire protection in Canada and in levying such duties on imports from Russia and Scandinavia as may be necessary to place Canadian imports on an equal footing. Inci-**

dentally these duties would smooth the path of afforestation in the British Isles. The writer, though a free trader in principle, holds that the question of the country's future timber supplies is sufficiently important to transcend this or any other doctrine. To lose the chance of putting future supplies on a sure basis through reluctance to forego the cheap but uncertain supply from Northern Europe would, in his opinion, be an act of short-sighted folly.

The suggestion here made from the British point of view is commended to the consideration of readers. It is assumed that the Dominion would on its side spare no effort to further this trade with the Mother Country. The facilitation of transport within the Dominion might well form part of the bargain. The return flow of British goods to Canada would also have to be considered.

An arrangement under which the United Kingdom came to depend on Canadian timber would reach far beyond the immediate objects aimed at. It would form a real bond of mutual interest and bring the Dominion nearer to the British Isles. For these isles the only sane alternative is afforestation up to the hilt and afforestation carried beyond its economic limits, whether it encroaches on land fit for agriculture or is driven to barren and stormy heights, means a heavy drain on the Treasury without adequate return.

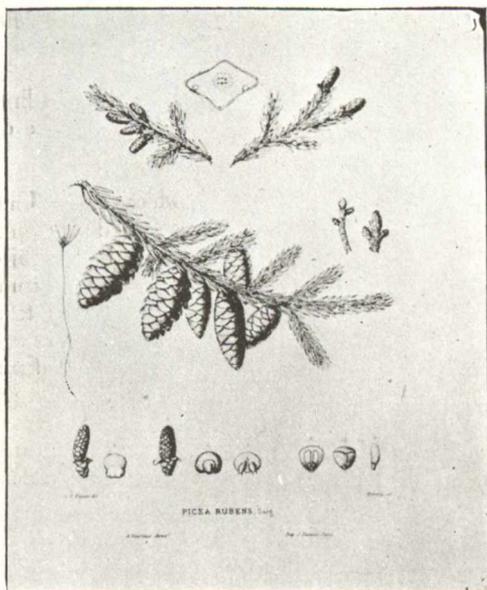


THE MAKING OF A SPRUCE TREE

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

(FIRST ARTICLE)

EDITOR'S NOTE.—Readers of *The Canadian Forestry Journal* will welcome this series of twelve articles by Dr. Howe. Each is popularly written and so brief that none may well plead lack of time.



In the centre, a fructing branch of red spruce.

Above it, at the left, a branch with male flowers; at the right, a branch with female flowers. Note that the latter are at the tips of the branch.

Lower left-hand corner, a single male flower and beside it at the right the sac which contains the yellow powder.

The third figure from left to right is a female flower. The next two figures to the right show the little cases in which the female cell is borne, one in each case.

The three figures in the lower right-hand corner represent the seeds which developed from the little cases indicated in the paragraph above. Two winged seeds are borne on each scale.

A seedling is shown at the left of the centre and some winter buds at the right.

The figure at the top centre represents a cross section of a leaf. At the middle are conducting strands and at the margins resin ducts.

The figures represent the objects about one-fourth their natural size.

It is my purpose to tell you how a tree is made, to trace its life history from the very beginnings through its infancy, youth, maturity, old age and decay, until it is finally absorbed into the body of all-mother earth from which it sprung.

In the first place it should be held clearly in mind that trees and the higher plants are separated into sexes in the essential respects as clearly distinguishable as in the higher animals. The distinctive organs, however, are very often borne on the same body, as is the case with all our narrow-leaved evergreen trees, such as the spruce, pine, hemlock, cedar and balsam. They are borne on separate individuals in the poplars and willows, but there is no sex modification of body, the male and female trees being indistinguishable except when in flower, since the flowers contain the sex organs.

The Female Flowers.

On the tips of small twigs, usually at the very top of a spruce tree, one might find by looking sharply in May or June little upright knobs about a half inch long and as thick as a pencil. They may be green like the leaves or purple, or pale red according to the kind of spruce that bears them and they are composed of 25 to 50 soft overlapping parts called scales. At the base of each scale rest two little flesh-colored bodies about the size of a pinhead; each of these contains the essential female cell and each has the power, under certain conditions, of developing into a seed. Carrying out the idea of sex distinction in trees, then, we may call these various colored knobs on the top branches the female flowers. Later in life they become the cones. The reader may be more familiar with a pine cone. A spruce cone is built on the same plan as a pine cone, but it is smaller and not so noticeable, especially when it has fallen to the ground.

In another portion of the tree, usually at the outer tips of the lower branches, one might also find other little knobs very much like those in the highest branches. Instead of being upright

in position they hang head downwards; they occur in much greater numbers and are often conspicuous because of their bright yellow color when ripe. The color is due to masses of yellow powder contained in two little sacs at the base of each scale. When the branches are jarred by striking the tree with an axe or when they are swayed by the wind, the powder is shed in sulphur colored showers. Each grain of powder is capable of developing within itself the essential male cell, so we may call the structures producing the powder-like substance, the male flowers.

The Miracle of Tree Creation.

Nature abhors inbreeding and she makes it difficult for the male and female cells of the same tree to meet; in this case by placing them twenty feet or more from each other in a vertical direction. The yellow powder of a tree higher up the slope, however, or that from another tree some distance away on the same level, is borne by the wind to the topmost branches bearing the female flowers. They are dusted with the powder and it works its way in between the scales which stand slightly apart at this time. Each little grain of powder, so small that it would have to be magnified fifteen or twenty times to be seen with our eyes, now develops a minute tube which grows along between two scales. When it reaches the little flesh-colored body at the base of a scale, the tube has developed within itself a male cell which finally meets the female cell; the contents of the two are mixed together and the miracle of creation is performed; a new spruce tree begins its life. At this stage several of these little trees, perhaps a dozen or more, could rest comfortably on the head of a pin, but each contains an impulse and a power which, if conditions are favorable, will lead it on, and force it on, until it has developed a body 100 feet tall, two feet in thickness near the ground, and weighing several tons! Surely this is a miracle.

If you are sufficiently interested to read certain articles in the following numbers of the "Journal" you will learn how this miracle is performed; how an invisible, microscopic cell develops into a giant forest tree.

(Next article in March issue).

WANTED: FOUR FRIENDS!

We have some extra copies of the January and February issues to send free of charge to your friends.

Will you give us four or five names?
Possibly you may prefer a 'short cut.'
By that we mean pinning a dollar bill to
a friend's name. We will notify him of
your thoughtfulness.

CANADIAN FORESTRY JOURNAL,
206-207 Booth Bldg., Ottawa.

BOLSHEVIKI SEIZE TIMBER.

The timber trade of Russia—what remained of it outside of the White Sea district—has been dealt a death blow by the recent Bolshevik decree that exports of Russian woods are forbidden and that private lumbering must stop. The decree, which affects all district of Russia under Bolshevik control, declares that "all work in connection with forests and trade in timber and all wood manufacturing will be taken over by the local Soviets, and all export is forbidden." It is stated that this decree relates to the nationalization of all property in land, one of the main planks of the Bolshevik platform.

No one, of course, takes the edicts of the Reds very seriously, doubting the permanence of them and their makers; but they complicate the industrial and economic situation in Russia greatly and have caused certain interests substantial losses. The Norwegian newspaper in Petrograd, *Nording Kommune*, states that this decree hits Norwegian interests particularly hard, as much of their properties, representing millions of crowns, lies in Bolshevik territory.

It will, however, not affect the timber trade of the White Sea district, as it does not recognize Bolshevik authority, and the manufacture there of a certain quantity of saw wood is expected during the winter, as is a continuation of exportation during the next shipping season, even though on a considerably reduced scale.

LUMBER STUDY BY MAIL.

Moscow, Idaho, Feb. 1.—The correspondence course in lumber and its uses announced some time ago by the school of forestry, University of Idaho at Moscow has met with ready acceptance, the enrollment exceeding expectations. The course was offered in response to a demand for information, in convenient form, regarding the properties of wood and the adaptability of different wood to different uses, standard grades and sizes, structural timbers, seasoning and preservation of wood, lumber prices, lumber production, and the war time uses of wood.



His Majesty, King George, congratulates a Canadian lumberjack on his uncommon skill in felling a tree.

THE MIRACLE OF GASCONY'S PINE

By Brigadier-General J. B. White, D.S.O.,
in Command Canadian Forestry Corps
in France.



How Pine Planting Converted an Out-at-Elbows
Desert into the Richest French Department.



Note: One hectare=2.47 acres.

The history of the planting of the pine in the Landes of Gascony is a very interesting and wonderful object lesson, due to the fact that in about 70 years this great area of over 2½ million acres was changed from practically a barren waste of no value, into a huge forest which at the present time is valued at from 10 dollars per acre on recently cut over land to 500 dollars per acre for timber almost mature in 50 years. **In the same length of time the population increased from 70,000 to 300,000, and the department of Landes was changed from being the poorest department in France to the richest.**

Human Conditions Changed.

About the end of the eighteenth century the Landes consisted of a vast sand waste, supporting only a scanty vegetation of small plants, with here and there at distant intervals, small islands of short, brushy Maritime Pine. In the winter, the season of greatest rainfall, the country was a series of lakes and marshes, while in the summer the hot sun dried up the scanty vegetation and left the place practically a desert. In this country the social conditions were pitiable. Living in crude shelters with no transportation, little food, and no medical attendance,

fever and other diseases played havoc with the scattered population. A scanty livelihood was made by raising sheep on the sand plains, but due to the lack of food this was a difficulty. Cattle and horses could not be raised at all.

The first attempt to colonize the country was in 1610 when Henry IV welcomes 45,000 Moors, expelled from Spain, and induced them to settle in the country, but since they could not make a living they departed to Northern Africa soon after.

The first real sowing was done in 1801, following a well formulated plan. This sowing took place with a grand ceremony at the mouth of the Gironde River, and soon after at several points along the coast further south. This planting was under the direction of the Department of Gironde; but in 1808 a commission was formed in the Department of Landes and the two Departments co-operated throughout. The planting of the dunes was finished about 1860, 102,000 hectares having cost about 10,000,000 francs, or about 100 francs per hectare.

Napoleon's Purchase.

As an example to proprietors to plant up their waste lands Napoleon III bought up in 1860 a block of 7,400 hectares at 80 francs per hectare, which was higher considerably than the prevailing price at that time. In six years this was drained, 7,000 hectares were sown with pine seed, 400 hectares were placed under cultivation to raise food for the labourers, the necessary buildings constructed to house them and two nurseries for young trees started. This work included 218 kilometres of ditches, 95 kilometres of roads, and 89 kilometres of wind breaks and shelter belts. The sowing of the pine alone

cost 21 francs per hectare. The total expense including the cost of the land was 1,745,000 fr. or 235 fr. per hectare. Immediately after being finished, the property, without counting the buildings, was valued at 3,529,000 francs.

Since the finishing of the reclaiming of the sand lands in 1870 the regeneration of new forests has all been by natural means, except in odd cases on an old pasture or mill site or land under cultivation, in which cases pine seed was sown or young trees planted. The only precautions taken to insure natural regeneration are that about ten years before the final cutting the gathering of cones is prohibited, and after cutting the brush is cut to give the young trees a start, and pasturing on the area is prohibited.

Method of Planting.

The usual method employed in planting in the Landes was to sow the pine seed broadcast mixed with either genet seed or that of gourse, after the brush had been burned which would smother the young seedlings.

To secure the pine seed the cones are gathered from October to March, placed in heaps and covered with brush. In June, July and August, when the sun is warmest, they are placed in the sand standing on end, so the seed do not drop out.

Occasionally when it was desired to plant seedlings, an open space fairly moist would be selected in the timber and pine seeds sown there broadcast, so as to form a dense stand of seedlings. One hectare sown in this manner would furnish sufficient seedlings for from ten to fifteen hectares.

WHERE DO THE SEEDS COME FROM?

Readers of the Forestry Journal will be much interested in the investigations of Mr. J. V. Hofman, Forest Examiner in charge of the Wind River Experimental Station, Idaho, into the origin of the seed from which certain types of forests rehabilitate themselves on many burned and cut over areas. Mr. Hofman is referring, of course, to a district in which Douglas fir, western white pine, noble fir, western red cedar and western hemlock predominate.

Says Mr. Hofman, in his first words of introduction:

"On many burns and cut-over areas in the Douglas fir and western white-pine region of northwestern Idaho, Washington, and Oregon

there are found dense and irregular stands of young growth, the origin of which can not be traced in any way to the seed trees left after cutting or burning. The effort to find the true source of seed of these stands began with a study to determine the efficiency of seed trees in restocking the ground and the distance to which seed is disseminated."

The investigator goes on to present the results of his experiments and then says:

"The foregoing facts first cast a doubt upon the long-accepted theory of the restocking of large forest burns by the process of wind migration and finally proved it untenable. As the study progressed and this fact grew steadily

more convincing, there arose naturally the question, 'What was the source of seed for all this reproduction?' The answer to this question also developed naturally enough the accumulation of evidence throughout the burn. It was found that the reproduction most often occurred, not in a solid unbroken cover, but in various-sized patches with very irregular and ramifying boundaries. Where the reproduction was lacking, the ground was covered with grasses, herbaceous plants, and shrubs, evidencing an uninterrupted growth since the burn was formed. The occurrence of these two types of cover made an interlaced pattern resembling mosaic over the entire burn, although each type often expanded solidly over a slope or basin many acres in extent. Everywhere the feature that was most striking was the sharp line of demarcation between the reproduction and the grass areas. For all its tortuous windings the boundary was always distinct. Obviously such a condition could not have resulted from any process of overhead seeding, but must rather have been produced by some action on the surface of the ground itself. The idea of ground fire suggested itself. One who has seen ground fire burning in forest duff will remember that it burns very irregularly, here leaving an island and there forming a deep bay between two points of unburned ground. When at length the smoldering fire is stopped, the result is just such a mosaic of burned and unburned territory as has been described for the reproduction and grass territory.

"The likelihood that any part of the forest floor will burn depends on a number of varying factors, such as the quantity and kind of humus soil and its moisture content. Most severe ground fires occur on dry sites, provided those sites have a sufficient quantity of duff to carry fire at all. Accordingly the reproduction occurs most densely in the moist sites and is open or lacking on exposed dry sites, although this may be partly due to the fact that these dry sites are very unfavorable to the establishment of seedlings even though germination may take place. Furthermore, irregularity in the areas of young growth occurred on all sorts of sites. This could lead to but one conclusion: wherever ground fire occurred no reproduction appeared, except close to seed trees where seed could be cast upon the burned ground after the fire.

"From this it was but a step to the complete explanation: wherever the duff and litter were burned out of the forest floor, there developed an area barren of reproduction; wherever the duff

and litter were not burned out of the forest floor, there developed an area of more or less dense reproduction. Therefore, the duff must be the controlling element: the duff must be the storage medium of the seed, and that seed must have been produced and stored in the forest floor before the fire and have retained its vitality through the fire.

"Before this conclusion is accepted, however, another possible source of seed must be considered. Is it not possible that cones carried through the fire on the crowns of trees severely burned or killed furnished the seed from which the young growth originated? After the fire these cones may possibly have opened and dispersed their seed, becoming in that way an overhead source for the restocking of the burn. In fact, a very small percentage of germination of white-pine, noble-fir, and cedar seed has been secured from seed which passed through a crown fire. But even though this source does contribute some seed, it does not explain the great mass of reproduction, which, by its mosaic occurrence, demonstrates conclusively the impossibility of its having come from overhead seed distribution subsequent to the fire. The principal factor in reproduction after fire must be the seed stored in the duff.

LAMINATED GUN STOCKS.

The U.S. Forest Products Laboratory at Madison, Wis., has developed a method of making laminated gunstocks which would, without reducing the strength, permit the use of the small pieces of walnut not suitable for single piece stocks. This would facilitate production and result in appreciable saving in costs and material.

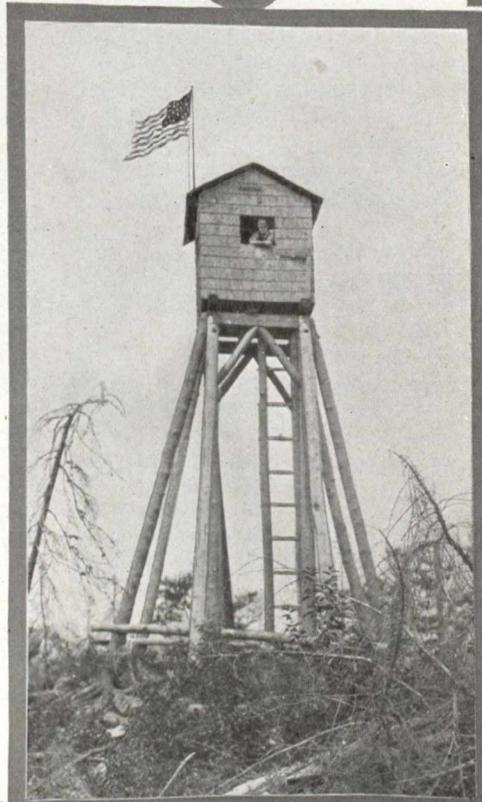
The application of laminated construction to many articles of trade is a development worthy of close study. Shoe lasts, bowling pins, saddle trees, oars and paddles, tanks, barrels and kegs, and various parts of vehicles and agricultural instruments may possibly be constructed with laminated wood.

The laboratory is working on the drying of willow for artificial limbs. There is a shortage of material and the demand for artificial limbs will increase. It takes from three to five years to air-season the stock, but indications are that it can be done in kilns in from sixty to seventy days.



EVOLUTION OF THE
MOUNTAIN
LOOKOUT STATION.

At the top is the old style crib, or log fort type. At the side we have the wooden tower of later date. On the opposite page is shown the modern steel tower or observatory.



Pictures by courtesy of Forrest
H. Colby, Forest Commis-
sioner of Maine.



THE STATE'S DUTY IN MANAGING FORESTS

By Hon. E. A. Smith, Minister of Lands and Mines,
New Brunswick.



Present Employment and Revenues From Forest
Industries Must be Maintained for
All Time to Come.



At no time has the obligation of a government to prepare for the future been so conscientiously realised as during the present period of Canadian history. Public opinion and administrative policies are recognising with startling frankness the duty of the state in managing the natural resources of a country on the most scientific, far-sighted, permanent basis in the best interests of all concerned.

What, then, is the chief natural endowment of the people of New Brunswick? Certainly the forests. Over seven million acres still remain in the right of the Crown, and from which each and every citizen of the Province is equally entitled to receive his share of prosperity represented by the timber revenues spent in the development of the country, construction and maintenance of schools, roads and bridges.

The Future of Employment.

It would appear, therefore, that forest conservation is emphatically public business. The Government, as the trustee and steward of this, the people's heritage, must manage and regulate it, not for this generation alone, but for all future generations as well. Not from the material standpoint of Government revenue alone must this be done, but it is also important that the future be considered in all forest policies, in order that the annual distribution by the lumber industries of over fifteen millions of dollars for wages, supplies, etc., to the people of New Brunswick may be continued for all time.

How, then, may the forests be kept permanently productive? Briefly, this comes under two great divisions. First, by adequate fire protection. It is estimated that if the timber destroyed by forest fires in New Brunswick during the last forty or fifty years had been manufactured into lumber, the vast sum of fifty millions of dollars would have been circulated in the province. The First Law, passed at last session, has been



HON. E. A. SMITH,
Minister of Lands and Mines, New Brunswick.

designed to assist in preventing a recurrence of so great a national disaster. That is why the farmers of New Brunswick are asked to secure a fire permit before setting their slashings on fire, in order to protect their own prosperity. Secondly, and also equally important, by the observance of all reasonable logging regulations by the operators, the elimination of all unnecessary waste and the leaving of under-sized trees standing to grow and provide the future crop of timber.

Private assets are never managed in ignorance of their extent, character and condition. Why, then, should a Province attempt to administer its

forests without a full knowledge of this great resource? The New Brunswick Forest Survey and reclassification of Crown Lands was designed to provide just this information. Almost one quarter of the Provincial Forests have already been examined, and the results so far obtained have fully justified the cost.

Politics on the Scrap Pile.

It was recognized that without a permanent, properly-disciplined and efficient field staff of forest rangers, unhampered by the influence of politics, very little of the above objects could be accomplished. Consequently the 1918 Forest Act was passed, providing for a Forestry Advisory Commission of five members, two members of which are practical lumbermen and represent the lumber industries of the Province. This Commission controls all permanent appointments to the Forest Service. Applicants must pass a searching examination and give six months' satisfactory service before receiving a permanent appointment. The actual selection and appointment of our Forest Rangers and Inspectors on this basis of merit alone, which is just being completed, is considered one of the most vital and important steps in the organization of any Forest Service, and in the permanent progress of forestry in New Brunswick. The Commissioners feel that through the appointment by competitive examination they have secured a splendid staff of Rangers, and they look for a reasonable and just treatment of all the various matters coming under a Ranger's duties.

New Way of Selling Timber.

A most important departure was the recent adoption of a short term timber sale policy in regard to some hundreds of miles of expired timber licenses. The price obtained for this timber by open competitive bidding varied from \$5.50 to \$7.75 per thousand feet, and had the effect of fully justifying this unusual procedure, which is unprecedented in New Brunswick's forest policy.

Looking to the Future.

New Brunswick has won world-wide fame as the "Land of Comfortable Homes." It has been said, and truly so, that the success of the home-makers depends in the long run on the wisdom with which a nation takes care of its forests. It is therefore our duty as statesmen to so direct the utilization of our forests that we shall conserve this greatest natural resource of our land, and in our turn hand down to posterity unexhausted that noble heritage so freely bestowed by Nature.

FOR STANDARDIZATION.

A new branch of the Canadian Forestry Association, to be known as the Standardization Committee, was authorized at the Annual Meeting at Montreal, with the following as members:

- G. H. Prince, Chief of Forest Service,
Fredericton, N.B.
- L. S. Webb, Forester, Forest Service,
Fredericton, N.B.
- J. H. White, Asst. Provincial Forester,
Forestry Branch, Toronto.
- L. E. Bliss, General Supt. Forestry Branch,
Sudbury, Ont.
- T. W. Dwight, Asst. Director, Dominion
Forestry Branch, Ottawa.
- J. B. Harkin, Commissioner, Dominion
Parks, Ottawa, Ont.
- Henry Sorgius, Manager,
St. Maurice Forest Protection Assn., Ltd.,
Three Rivers, P.Q.
- B. Guerin, Manager, Western Div.,
- J. D. Brule, Manager, Eastern Div.,
The Southern St. Lawrence Forest Protect-
ive Assn., Ltd., Quebec, P.Q.
- Arthur H. Graham, Manager, The Ottawa
River, Forest Protective Assn., Ltd.,
Ottawa, Ont.
- R. L. Seaborne, Manager, The Laurentian
Forest Protective Association, Ltd.,
Quebec, P.Q.
- A. Bedard, Fire Inspector, Provincial Forest
Service, Quebec, P.Q.
- H. C. Johnson, Fire Inspector,
Board of Railway Commissioners,
Ottawa, Ont.

It is proposed to add representatives of the British Columbia Forest Service; The Canadian Pacific Railway Forestry Branch; The Canadian National Railways Fire Inspection Department, and others who are now engaged in forest fire protection work in Canada.

Primarily the Committee's work is to endeavour to standardize fire laws and regulations, forms and reports, fire warning posters, publicity literature, etc., tools, equipment and supplies, mechanical equipment and accessories; also, to seek, encourage, experiment with and develop new ideas, methods, and apparatus, all in connection and allied with the profession of forest fire protection. Wherever standardization can be arrived at, it is suggested that one of the benefits protective organizations can secure, is a reduction in the cost of such items as posters, publicity literature, tools, mechanical apparatus and accessories, by combining their orders for such items with those of other organizations.

THE TREE-SOLDIERS OF FRANCE

By Major Barrington Moore, Second in Command
U. S. Forestry Corps.



Drastic Drain of Military Needs Amply Provided for by French National Foresight.



My subject is the part played by the French forests in the war, and the work of the Canadian Forestry Corps and American Forestry Section in utilizing these forests. I shall speak only of the broader aspects of these operations.

After the first two years of the war, the tonnage shortage made it impossible to ship wood to France, except aeroplane stock and the like, for wood is very bulky and the necessary shipping would have been enormous, more than could possibly have been spared with safety. Yet wood is a military necessity.

The ports of France were not built with a view to the landing of large armies, and were wholly inadequate; yet the speedy debarkation of the troops, with their munitions and supplies had to be assured at all cost. The submarines forced the ships to come in convoys of ten or fifteen at once, requiring several times the docking space the same number of ships would have needed singly. Wharves, miles of wharves, were of immediate necessity. For this we must have piling and wharf timbers.

But, once the troops and supplies were landed our difficulties did not end. It was necessary to find shelter for them. Sacks of flour cannot be left out in the rain. Warehouses became necessary, warehouses of gigantic size and capacity. Railroads had to be laid in the warehouses, one depot alone requiring 85 miles. Lumber for these warehouses had to be furnished immediately.

Wherever possible we billeted our troops in houses to save barracks. But the crowded condition of the country, owing to the refugees from Belgium and the invaded parts of France, made this inadequate. Our men were dying of pneumonia. We simply had to have barracks. Every suitable building that could be found anywhere in France was turned into a hospital, but yet there were not enough. We required large quantities of lumber for hospitals.

After the army was landed, its supplies cared for, and the men were in billets or barracks—in all of which wood plays the leading role—the army must be moved forward. As a matter of fact, it had to be moved forward even before the preparations for landing were completed. Everything was done under the utmost tension, and still not rapidly enough.

Ties Before Guns.

The transportation of men and guns, with munitions and supplies, required the construction of new railroad lines and the double tracking of others. Ties became more important than guns, because without the railroads the guns could not be brought to the front. When the Germans broke through in March and got within close range of Amiens, they paralyzed the main artery between the French and British armies. Another railroad had to be built, and built quickly. Fortunately the Canadians had ties ready cut for an emergency.

In order to permit one organization to communicate quickly with another, it was necessary to construct telephone and telegraph lines. This called for thousands and thousands of poles.

Cooking the food and keeping the men warm meant tons and tons of fuelwood.

At the front, trenches and other defensive works called for large numbers of props, barbed wire pickets, and other round material.

To bring up the artillery quickly over the shell-torn ground it was necessary to build hasty roads with five inch plank. The amount of lumber consumed as road plank was enormous.

Add to the foregoing an insistent demand for lumber to make packing cases and for countless smaller uses, and you will have some slight conception of wood as a military necessity.

Forestry Troops Urgent.

We had not been in France long before this necessity for lumber faced us in terrible earnestness. Our army engineers had always found at hand whatever materials they needed, and they drew up elaborate plans accordingly. The Chief

of Engineers of the A.E.F. called in Colonel Graves and made him responsible for furnishing the lumber to carry out these plans. Accordingly Col. Graves and I went to work to procure it. We knew that the tonnage shortage prevented our importing it, but we understood that the French would fill our first requirements.

What was our dismay to learn that by furnishing us lumber the French had simply meant they would furnish us the trees standing in the forests! They had no piles, and they had not enough lumber or ties for themselves. Even worse, they had no labor. What were we to do? The situation was critical. Our troops were on their way over, and we had nothing built to receive them, nor any materials with which to build. We must have forestry troops and sawmills at once. Mr. Claveille, the Chief of the French transportation system, told us with vivid emphasis that failure to send forestry troops promptly would spell disaster. Gen. Pershing was so anxious about the situation that he personally dictated an urgent cable asking the War Department to stop sending fighting men until they had first sent forestry troops.

But, what will be the use of sending forestry troops and sawmills unless there is enough standing timber? The vital question then was, did France possess enough standing timber to fill the indispensable requirements not only of their own army and civil population, but of the British army and the American army as well? The construction program of the American engineers called for lumber in quantities which staggered the French.

The Foresight of Forestry.

Fortunately, France did have the forests. The situation was saved, the war shortened by many long months. And why did she have them? Because she had practised forestry for generations.

We must not imagine that she always practised forestry. Like other countries, she began by destroying her forests. Eventually, however, she saw the disastrous effects of her recklessness, and gradually turned from destroying to restoring, and then to building up. For example, 100 years ago the southwestern corner of France, extending from Bordeaux to the Pyrennees Mountains was almost as treeless as the prairie, and was fringed by sand dunes which were constantly in movement, burying fields and houses and even whole villages. Napoleon called in engineers and foresters. These men succeeded in holding the dunes in place by planting with maritime pine; and then they planted up the



BRIGADIER-GENERAL J. B. WHITE, D.S.O.,
in command of Canadian Forestry Corps operations
in France; a Director of the Canadian
Forestry Association.

whole interior of the region with the same tree. During the war this region was the largest source of lumber not only for the French army but for the British and American armies as well.

A National Enthusiasm.

The French forests were, therefore, not simply nature's gift, but the fruit of conscious effort, applied with painstaking care and industry through long years.

Forestry to a Frenchman is the accepted way of handling forests. He cannot conceive of handling woodlands in any other way. In France everybody, even those who are not foresters or lumbermen, understands what forestry means. When you say you are a forester you don't have to stop and explain as you do in America. It is just as clear as if you said you were a lawyer or a doctor. This universal understanding of the aims of forestry is the most potent factor in the upbuilding of the forest resources of any country. The Canadian Forestry Association can render no more valuable service than by disseminating this idea. It is to the interest of the lumberman to have a perpetual supply of timber to cut; it is to the interest of the wood using industries to have a

permanent source of raw material; and it is to the interest of the country as a whole to be independent of outside sources of supply.

No wonder then that the French valued their forests, and were unwilling to have them needlessly destroyed. They did not forget the years of toil they had spent in creating them. They were willing to give up all the timber that was ready to cut, and even to sacrifice that which they would not normally have cut for ten or fifteen years. But they were firm against annihilating any forest, or cutting it in such a way that it could not recover with reasonable care. They, therefore, maintained absolute control over the methods of cutting. On the Government owned forests, they were particularly strict, marking every tree to be cut and prescribing in detail the methods of brush disposal, etc. On private lands the owner marked or designated in the contract those trees which he would sell. He also laid down the manner of brush disposal and other operations. Ultimate control was vested in a committee composed of representatives selected by the Minister of Agriculture, the Minister of Munitions, as well as all other interested members of the cabinet, and representatives of the lumber industry. Under these conditions we had little choice as to methods of cutting.

You are doubtless wondering how the Canadian and American lumbermen got along when they had carefully-managed forests to cut.

Overseas Men Careful.

The operations were uniformly well carried out. The stumps were cut so low you could hardly see them; the tops were chopped into cordwood, and the slash thoroughly cleaned up. The cutting areas of the Canadians and Americans were generally better than those of the French wood merchants themselves. This goes to show that the lumberman can cut under forestry methods when he has to. He can do it even when subjected to the greatest imaginable pressure for quick production; and what is more, he does it well.

The organization of the American forestry section was patterned largely after that of the Canadian Forestry Corps. When Col. Graves and I landed in France in June 1917, we went first of all to the British Forestry Directorate at La Touquet. General Lord Lovatt received us with the greatest friendliness, and gave us complete data which he had prepared in advance, covering his entire organization and equipment. Then, after a trip to the Canadian operations under Col. Johnson on the Government forest of La Joux in Eastern France, and after working

over the information collected, we drew up a cable outlining the organization of the forestry troops required by the A.E.F. We based our requirements on an army of two million men, and asked for 18,000 forestry troops, of which 7,500 were to be skilled lumbermen, about 4,500 engineer troops for road and camp construction, and about 6,000 unskilled labour. At the same time we requested twelve officers to come over at once for our overhead organization. These officers we asked for by name. They arrived in about two months, in time to be of great service in acquiring standing timber and other preparatory work. The unit of the Canadian Forestry Corps is the company. We made ours the battalion on account of our army regulations; it was hard at first to make our superiors see the need for elasticity. Forestry troops were an entirely new venture. The number of men in the actual operations depended entirely upon the needs of the case. Sometimes only 50 men would work together and then again, we would have a thousand or more.

Fighting Speculators.

The standing timber was all bought through an interallied committee composed of French, British and Americans; later the Belgians were represented. We ourselves selected each forest, in company with a French officer, and then laid it before the committee. The negotiations with the owner, and purchaser, were done by the French. The French possessed the right of requisition, and used it effectively, saving millions of dollars and defeating the swarms of speculators which buzzed around us like flies around the honey pot. By persistent efforts we managed to acquire timber enough to keep ahead of the operations. But toward the end it was becoming more and more difficult to find reasonably accessible tracts. Accessibility was of prime importance in selecting timber because of the need for rapid production. If the war had lasted we would have been in a difficult position. When it ended, we were planning to do railroad logging in the mountains.

Logging conditions varied greatly. The southwestern pineries are as level as a table, except for the dunes along the edge, and resemble our southern long leaf pine country. Central France is level or rolling, the chief obstacle being the heavy sticky clay. Here the forests were mostly oak, which we cut into ties, wharf timbers, and road plank. The silver fir forests of Eastern France were in the mountains. Our chief trouble there was the narrow gauge railroads

which never had enough cars or engines. The same kind of narrow gauge railroads bothered us in other regions as well.

Prepared for 42,000 Woodsmen.

Last autumn, before the armistice was signed, our War Department planned to have four and a half million men in France by July 1919. This meant an enormous increase in the lumber requirement. To meet it we planned to bring over 24,000 additional forestry troops, or a total of 42,000 men, two thousand of which were to cut for the French and British. The men were already being recruited when hostilities ceased. Whether or not France could have furnished the timber for this force, as well as for the British and French armies is difficult to say. Certainly we would have been hard put to it, and been compelled to operate some very difficult tracts.

We had to get ready cut lumber, ties, and piles for immediate needs pending the arrival of the forestry troops. We had to continue getting this class of material even after the arrival of the forestry troops because the War Department increased the numbers of fighting men beyond what we had anticipated when we drew up the organization of the Forestry Section. The British and French helped us in this with wonderful generosity, giving us material from stocks sorely needed for their own armies. We developed to their utmost all European sources, Switzerland, Portugal, and even Spain. This last was the work with which I personally was most concerned after the arrival of the forestry troops.

When we consider that the modern army is helpless without wood, I think it is safe to say that the French forests were one of the big factors in winning the war.

Timber a Vital Need.

Had not the standing timber been in France to cut, it would have been useless to send forestry troops, and we would have been compelled to use precious tonnage in bringing the wood to our armies. We all know how critical the situation was during the German drives from March to July. Every man and every gun was needed. The drive in March was checked by a handful of men who had never fought before, laborers, camp cooks, anyone who could hold a rifle. The need of men and guns was so great that England cut down her importations of food to get tonnage to bring men over. The people went without sugar, they went without butter and other fats, they had almost no meat and a miserly slice of

bread each day. They reduced themselves to the verge of starvation just to get a few more ships to bring soldiers to France. Had it not been for the forests of France, these ships, yes and even more ships, would have had to bring lumber instead of men.

We have seen then, that wood is a military necessity and that, owing to the shortage of ships we could not have brought the necessary men and guns to France if there had not been the French forests to supply wood. We have also seen that these forests are due to the efforts and industry of skilled foresters backed by the people.

In concluding, I wish to take this opportunity of expressing my profound admiration of the Canadian Forestry Corps, and deep appreciation of their generous and unfailing assistance. A finer lot of men I never hope to meet. When Col. Graves and I landed in Bordeaux in June 1917, wholly ignorant of what lay before us, Col. Miller in charge of the Canadians in the region, called upon us and not only extended to us every courtesy, but gave us much valuable information. I have already spoken of the assistance we received in drawing up our organization. Gen. White was particularly helpful with friendly counsel. When our forestry troops had arrived but were unable to commence sawing because our mills had not yet come, Gen. McDougal lent us five Canadian sawmills, three of 20,000 foot and two of 10,000 foot capacity, with full equipment. I feel that I speak for all the American lumbermen and foresters in France when I say that we can never adequately repay our debt of gratitude to the Canadians.

NORWAY TO HELP FRANCE.

Norway intends to help out the restoration of the devastated part of France, in the front zone, by planting a belt of Norwegian forest trees. Much enthusiasm has developed for the scheme, and it is intended to begin this spring. It comprises the planting of 250 acres annually, for five years, and the money is streaming into Consul Heiberg, at Christiania. The idea is to send a forestry party of about fifty Norwegians, fully equipped with trees, tools, tents and stores, so as not to impose the slightest burden on France. The tentative zone for planting the belt of trees is from Adrennes towards the Belgian frontier, behind Arras, where there formerly was fine forest, but action will be taken in accordance with the desires of the French.

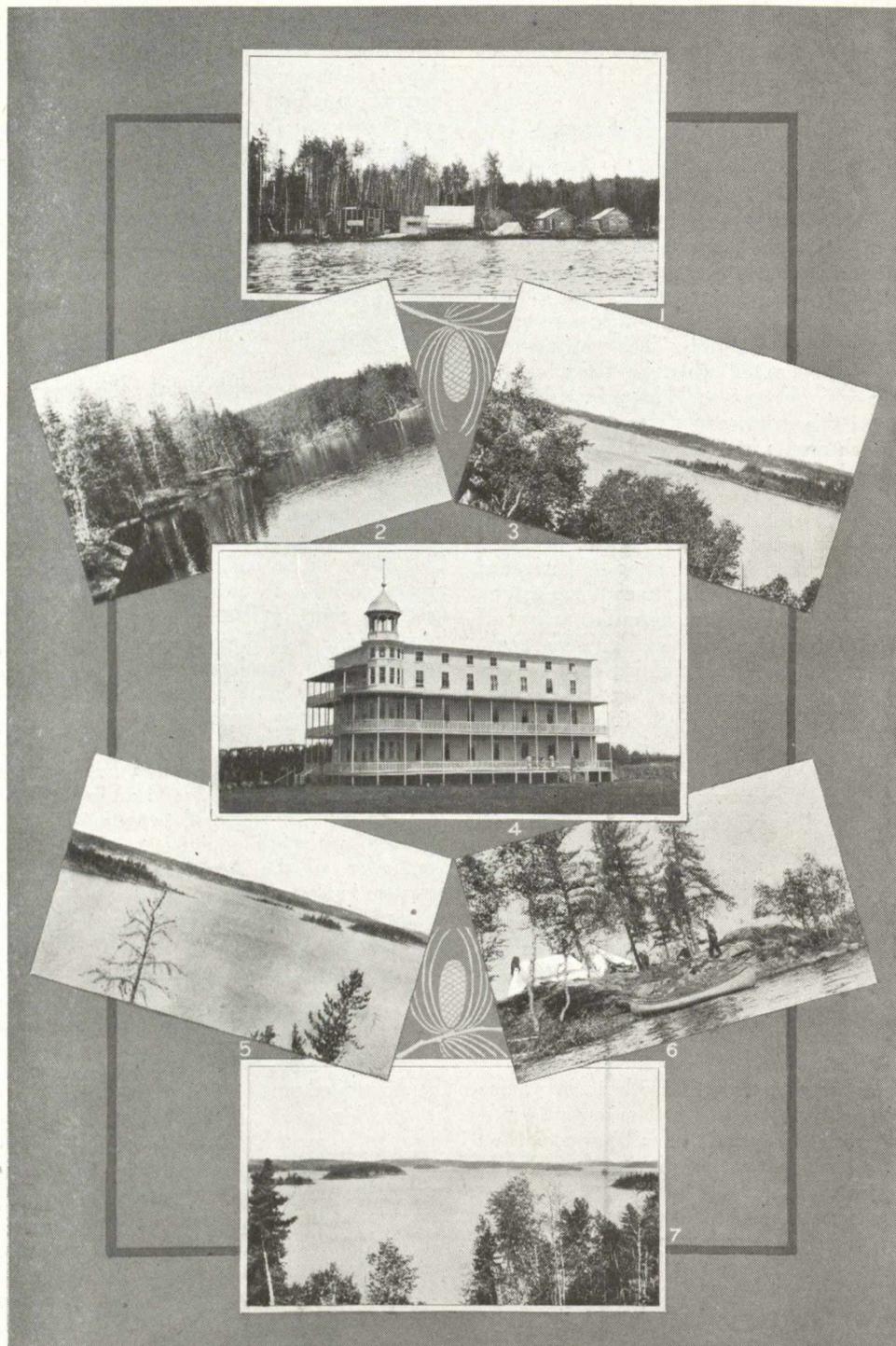


Photo by F. H. Kitto, D.L.S., Natural Resources Intelligence Branch, Dept. Interior.

OUT-OF-DOORS IN MANITOBA.

- | | |
|------------------------------------|--|
| 1. The original Flin-Flon camp. | 4. Roman Catholic Hospital at The Pas. |
| 2. Flin-Flon Lake. | 5. View from high bank of Amisk Lake. |
| 3. Amisk Lake from Copper Portage. | 6. A choice camping spot. |
| | 7. Northeasterly part of Amisk Lake. |

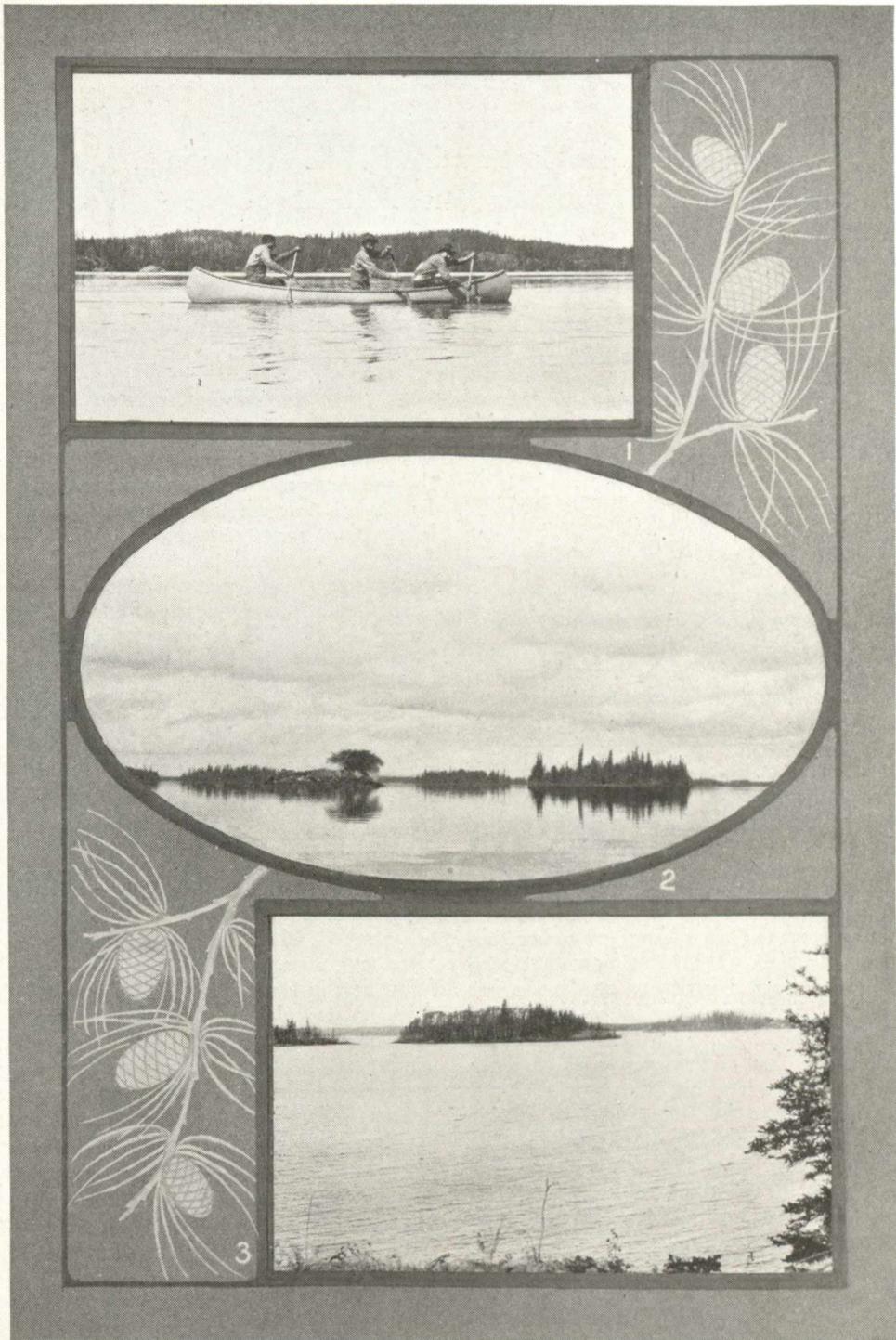


Photo by F. H. Kitto, D.L.S., Natural Resources Intelligence Branch, Dept. Interior.

OUT-OF-DOORS IN MANITOBA.

1. Indian Canoeman.

2. A Summer Day on Reed Lake.

3. Island Lake.

THE DAY AFTER TOMORROW

By Robson Black in "The Monetary Times", Toronto.



A Plea for Constructive Public Action in Establishing Wise Methods of Handling Forests.



Of all the family of natural resources, the forest is the shyest advertiser. This has been damaging enough in a land where public policies go to the pushful. We cannot realise the national seriousness of it however, until we thoroughly grasp the fact that the perpetuation of forests in Ontario, for example, is primarily state business and that timber conservation is more the concern of the Niagara school teacher and the Cobourg grocer than of the 'lumber baron.'

Canada's forests owe perhaps their greatest grudge to those who posed as their special pleaders. "Exhaustless forest," "forest resources scarcely scratched," have passed current even in this day as intelligent patriotism and what the sales-manager calls 'ginger talk.' Moonbeams make insecure bracing for any Reconstruction platform and the moonbeams of reckless estimates of Canada's tree farm have been not only intrinsically foolish but have acted as a standing invitation to nation-wide vandalism.

Happily the orator has been supplanted by the bookkeeper and his adding (or rather subtracting) machine. We know now that two-thirds of the forest inheritance of Canada has been swept away by fire, that in the province of British Columbia, holding half the timber of all Canada, more than twenty-two times as much timber has been given into the maw of forest conflagrations than has been used in all the British Columbia mills. Through fairly precise surveys we know now that when the prairie provinces ask for the return of their forest resources from Dominion control they are really asking for a property which, while thickly laden with excellent timber in earlier years, is now so badly wrecked by fire as to cost any government more than \$700,000 outlay annually for fire protection, with only about \$500,000 coming back in revenues. For long years to come, the prairie province forests, growing mostly on non-agricultural soils, cannot turn in a dollar of net

revenue, but must patiently be nursed back to productive condition.

What of the Workmen?

Only when a detailed survey is made of Ontario forest lands will we know approximately the enormous robberies of timber from the public domain through the agency of forest fires. White pine, our most precious Eastern wood, is far along the road to exhaustion, showing a progressively smaller cut from year to year. This is one of the dividends of our amazing disregard for the foundations of national wealth. Here are hundreds of mills with dependent towns and populations, cut off from future sustenance by the suicidal thrust that severs a province from its vast legacy of white pine. The destructive fires continue. The old-fashioned methods of cutting with no effort to secure new growth—*butchering without breeding*—have shortened the span of life of some of the largest Ontario mills, as far as white pine is concerned, to 1921 or at most 1925. In face of these alarming facts, the first step has yet to be taken to ascertain methods of rehabilitating the white pine on areas cut over. Fortunately the carnival of forest fires in Ontario has likely seen its wildest days. A strongly organized Forest Service with over 1000 rangers and inspectors, generous expenditures on equipment and modern ideas of management, has been brought into being during the past four years. No action more creditable has been done by any Canadian government in such short time, and while it may cost half a million dollars a year it is cheap insurance. Fire protection, however, is but the first step in state supervision of public-owned forests. The interests of the province and of the lumber industry now call for a re-examination of present "regulations" in the light of modern experience, and the employment of technically trained woods managers in all cutting operations on the public domain. This may sound new; it is five hundred years old. It may sound like a fresh dose of

state interference, but only this form of state 'interference' can possibly rescue private industry from obliteration.

In Quebec, out of sheer necessity, the limit-holders have banded together to form fire protective associations. Their range of holdings now extends over 75,000 square miles, most of which may be said to be guarded by the best methods yet developed. A hydro-aeroplane may be added to Central Quebec's fire-detecting machinery next spring; the device is experimental, but great possibilities are before it.

Nova Scotia Still Waiting.

New Brunswick's acceptance of state responsibility in care of its forests has resulted in an excellent organization freed from political control, with a technical forester at its head. Nova Scotia has yet to create a Provincial Forest Service, although the present condition of its timber supply and the disastrous consequences of further delay in methods of rehabilitation, render such a public department even more essential than in New Brunswick.

Because much government machinery has been brought into being for the mastery of the forest fire menace, one must not conclude that the plague is subdued. It will not be until the economic and moral senses of the population are considerably honed up by aggressive education. Fire protection, however, is merely a rudiment of forest management, corresponding to the purchase of a sprinkler system in the art of making motor cars. Each is fundamental, like good health and macadam roads. But fire protection is not sufficient to reconstitute the values in the denuded white pine or spruce forests of Ontario and Quebec. It is not alone sufficient to extend the life of the paper mills beyond the doleful "fifty years" guessed at by so many manufacturers during the recent paper inquiry. It will not arrest the persistent crowding out of the white spruce by the quickly rotting balsam, nor will it maintain the supremacy of the coniferous trees over the less important hardwoods.

This is the field of Practical Forestry. Once we have insured our forests against loss by fire, and that day is not far distance in some parts of Canada, the urgent duty of Government Forestry Departments is to proceed to constructive forestry.

The Ramrod Method.

For an illustration: the Ontario lumberman in white pine tracts, usually cuts clean; in Quebec he cuts to a diameter limit. In the first instance, the areas too often grow up in valueless hard-

woods; in the second instance, the diameter restriction fails in its purpose of retaining seed trees and leaves a scattering of young trunks to be wasted by windfalls. This clearly indicates the futility of any fixed method blanketing a whole province. Nature defies ramrod regulations, for local conditions must be separately considered. In other words, logging to be carried out with respect for a future growth is a matter of constant technical supervision and can best be done by forest engineers working for the perpetual custodian, viz.: the Government.

It is supreme national folly to refrain longer from applying state authority to the utilization of the public forest possessions. If there is any other method of shielding the nation from the consequences of timber denudation, five centuries and a dozen nations have not discovered it. New Brunswick, once growing pine like wheat stalks, has now so little of the stock that lumbermen cut six logs of other species to one of pine. Is this stupid acceptance of what constitutes a commercial blow, a slashing of export trade, a closing of mills, to be allowed to run parallel to all sort of expensive national schemes for reconstruction and readjustment. A basic resource out at elbows, the foundations of our greatest industrial enterprise being kicked out stone by stone, and as yet no hand lifted to provide the obvious remedy. White pine and spruce forests can be so operated as to maintain the capital stock for all time to come. Probably no man alive can write out a formula for it like a cure for toothache. What might be an excellent method in France or New England may be altogether fantastic for the Coulonge river in Quebec. Market conditions are in themselves a prime factor in practical forestry. Each region must be considered in its special details; the best method of handling each tree species is a proper subject of experimental plots given varied treatment. This has been instituted for the purpose of spruce reproduction studies in parts of Quebec and New Brunswick by the Commission of Conservation working with the Provincial Government and commercial companies. One of the surprises brought out in the preliminary reports is that a spruce tree under present conditions does not reach twelve inches diameter inside of 175 to 200 years. Such facts only go to show the gross short-sightedness of destroying by careless cutting operations the reproductive capacity of this truly wonderful but slow-acting forest organism. What is being

done for a better knowledge of spruce reproduction does not apply to pine except for an experiment station started on the Petawawa Military Reserve by the Dominion Forestry Branch.

Public Still Believe It.

The greatest single stumbling block in the way of forest conservation in Canada is the inherited notion of our great grandfathers that the forest is a transient, a sort of way-station between the primeval wilderness and the ultimate farm. This is fundamentally vicious. Pioneer times are over. There is very little forest, except in the Ontario and Quebec clay belts, that should be cleared for farms, for two-thirds of the whole Dominion is unfitted for agriculture. At the

same time, we have enormous areas of lands, cleared by fire or axe, that must be returned to forest. The emphasis, therefore, has shifted to the opposite scale. Restoring the forest lands, guarding existing timber from fire, regulating the axe so as to keep the forest paying rich dividends for all time to come.

Sylviculture—the art of growing repeated crops of timber on non-agricultural soils—is not an exotic in Canada. It is long-headed business sense that first came to light in the wake of exhausted virgin forests. It is frugality and caution after a night of prodigal waste. It is keen business foresight, it is love of national freedom, it is reverence for past and respect for future. But above all it is business.

RESOLUTIONS AT THE ANNUAL MEETING C.F.A.

The following resolution urging upon the Dominion Government the placing of the Canadian National Railways under jurisdiction of the Board of Railway Commissioners so as to secure uniform fire protective methods on all railway lines of Canada was proposed by Mr. W. E. Golding, managing-director of the New Brunswick Railway Co., St. John, and carried:

"Whereas the Board of Railway Commissioners of Canada has jurisdiction over nearly all privately-owned railways in Canada, and the efficiency of the fire protective measures of such railways has been largely increased by reason thereof;

"And whereas the roads formerly known as Government Railways have not been brought under the jurisdiction of the aforesaid board, it is advisable that all such railways should be subject to the jurisdiction of such board in all matters having to do with the safety of our forests, and should be subject to the same rules and regulations regarding the fighting of forest fire hazard as may be considered necessary by the said Board of Railway Commissioners.

"That this convention places itself strongly on record in favor of having all the lines of the Canadian National Railways under control of the Board of Railway Commissioners, and of taking the necessary measures to bring this resolution to the attention of the Government, and to urge that the necessary legislation be prepared and be brought before the next session of Parliament to make the same effective."

Survey of Timber.

Another resolution was passed at the instance

of W. Gerard Power, President, Canadian Lumbermen's Association that:

"Whereas an accurate survey of all standing timber in Canada, showing the various kinds of lumber, the quality, location and accessibility, together with available means of transporting same to the nearest market, also a report of all cut-over lands which are suitable only for forest growth, with the extent and location of same, would be most valuable information, not only to lumber operators, but to the various Dominion and provincial governments, enabling them to develop to the full extent a permanent forest policy which would have the effect of conserving the great natural resources contained in Canada's forests;

"Be it resolved that the Canadian Forestry Association urge upon the proper governmental authorities to provide adequate financial assistance, and clothe the Commission of Conservation with the necessary authority for the purpose of accomplishing the end in view;

"Further, that the lumbermen of Canada pledge their assistance to the Commission of Conservation to this end."

Reference to the development of a national aerial service in forest fire detection and forest mapping was made in the following resolution, which was carried:

"Resolved that the various interested departments of the Federal Government be urged to use or donate the aeroplanes and flying boats now in their hands for forest fire protection and for the estimation of the forest resources of the Dominion, and that a committee be appointed to wait upon the Militia and Marine departments to this end."



THE HOTEL "SHANTY"

Yep, I have stayed at the fancy hotels,
 Et off the silver an' fed off the plate,
 Loafed in the lobby with all of the swells,
 Rose at eleven an' hung around late.
 Just for an outin' it maybe will do—
 Never for me for a regular thing.
 I belong up where the weather is blue.
 I belong up where the little birds sing.

I've got a shanty—I'll tell you of that:
 You may not think it much of a dump.
 Under a pine tree it sits on a flat,
 For the foundation one corner a stump.
 Made it myself out of No. 2 boards,
 Covered with paper, the tar-paper kind,
 But not a house of the ladies or lords
 Halfway as homelike you ever will find.

And there's a river just twenty yards down—
 See it by day an' you hear it by night—
 Never a fountain that plays in the town
 Makes you in summer a prettier sight.
 Haven't got much in the way of a lawn,
 But there's a carpet that autumntime weaves,
 Bright red and yellow when summer is gone,
 Made out of needles an' grasses an' leaves.

That's the hotel that I'm hankerin' for—
 Just a board cabin up there on the crick,
 Settin' beside of a silvery shore
 Up where the tamarack timber is thick.
 You take your marble an' you take your glass,
 You take your brass an' your copper that shine—
 I'll take the river, the tre's an' the grass,
 I'll take my shanty up yonder for mine!

By DOUGLAS MALLOCH,
The Lumberman Poet.

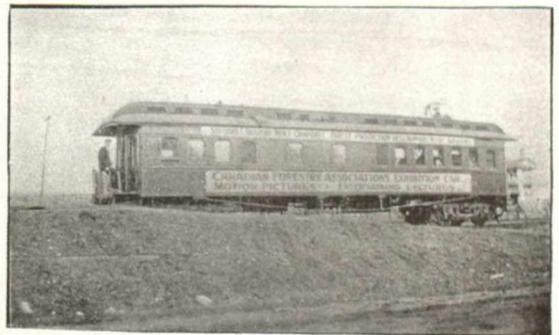
REFORESTING OLD ONTARIO.

(Brockville Times).

The question of reforestation in Ontario is a paramount subject and one that should not be left in abeyance. We have always advocated a definite plan and vigorous action in the premises. The matter has of late received very small attention on the part of those charged with provincial business. It is true that the war so occupied the time of Parliament that other subjects, no matter how pressing, were made in a way subsidiary. Of that no person can seriously complain. Now that the war is over, reforestation should occupy its prime position.

The Belleville Ontario in the subjoined article states the case for Hastings County and the reasoning enunciated applies with equal force to Leeds and Grenville. Says it:—

"There is pressing need of renewing the forests of Ontario in the older portions. Although it is some forty years since the first Ontario forestry official was appointed, the work has only been carried on intermittently and the startling statement is made that if older Ontario were cut off from outside sources of fuel supply the people living in these parts would be faced by two alternatives, a wholesale exodus or freezing to death. This may be confirmed by personal observation in this part of Ontario. There are various reasons why an energetic forestry policy should be entered upon. Amongst these are protection against the blasting winds, conservation of the water supply, and fuel needs. There are many waste places in Hastings County which have been cleared and are unprofitable for the growth of anything but trees and this would be a favourable time for entering upon an energetic policy of reforestation. The return of the soldiers would at least make this a very favorable time for engaging in most vigorous reforestry work.



The Canadian Forestry Association's Coach which toured four provinces in 1918. A larger and more fully equipped coach will be sent out early in the present year. A stop is made at all communities in the neighborhood of timber. By liberal advertising in advance, large crowds visited the coach. In the evening, a motion picture lecture was usually given at a local hall. This enterprise was conducted by the Association under an arrangement by which the railways furnished free haulage.

A HIGHER STANDARD FOR FIRE RANGERS.

Prince Albert, January 20.

In order that the Dominion of Canada may recover from the financial strain, which the burden of war has imposed, it will be necessary to develop the latent resources of the Dominion much more rapidly than would otherwise have been found necessary.

Canada is faced with a debt of approximately one and a half billion dollars, and an annual budget of three hundred and fifty millions, to be met with increased taxation. It is therefore evident that we must guard and protect our natural resources from devastation if we are going to meet our liabilities and reap the full harvest in revenue from this source of our income. The development of our timber resources will play a prominent part in assisting to settle our indebtedness. The revenue, however, derived from this natural product will depend to a considerable extent on fire protection. It has been estimated that the amount of timber destroyed by fire in Canada, is ten times that which has been taken out by lumbermen. It is with particular reference to the protection of our timber from destruction by fire that I wish to deal. The colossal devastation of the past is now a matter of history, which indicates that in those days we did not fully appreciate our heritage, and it is questionable today whether we have benefited from this experience, and are fully prepared to meet this demon of the forest in such a manner that forest fires will become a thing of the past.

The Temporary Ranger.

The policy followed during this war was "conservation of our resources," if we were to meet with ultimate success; wanton waste was considered a criminal offense. Therefore it is no longer necessary to adopt the apologetic attitude in asking for the recognition of fire protection, and such legislation that will bring the careless setting out of clearing fires under the same category as Arson. The enactment of suitable laws however, will not furnish the desired protection, unless provision is made for the necessary machinery to administer the law. In these days of reconstruction and evolution, would it not be wise policy to take stock and overhaul our fire protection organization to meet the future developments and the advance of more modern methods? The average fire ranger is a temporary employee, engaged for the summer months, with few opportunities of advancement,

and discarded in the fall. Employment under the above conditions naturally does not attract men of a progressive mind, or encourage these men to take the desired interest in the work, which is so essential to the success of any organization. The average area allotted to each fire ranger is large enough to warrant retaining his services permanently, figured on the basis of fire insurance, according to the value of the stand of timber he is protecting. The modern Fire Ranger is a member of a new profession, demanding practical experience and technical knowledge of many engineering sciences, ability to command men and to enforce the law and enlist public co-operation. Men with the above necessary qualifications will not accept employment of a temporary nature. The engaging of Fire Rangers during the summer months or for the danger period, is not a progressive policy. The very foundation of fire prevention can be better established during the winter, when climatic condition allow him the necessary time to devote his attention to the educational part of the work. He should be capable of giving illustrated lectures on fire protection at the various schools adjacent to his district. He should visit each individual settler, impress upon him the importance of fire protection and where a settler intends clearing a portion of his land in the spring, he should draw up a plan of action whereby fire will not escape from such burning. Therefore our policy in future should be the engaging of intelligent Fire Rangers on a permanent basis.

THOS. McNAUGHTON,
Divisional Fire Inspector, B.R.C.

Two-thirds of the entire area of Canada is non-agricultural.

Seventy per cent. of Nova Scotia and New Brunswick is natural forest-growing land and will not pay a profit to the farmer.

The forests of France, so carefully protected and cultivated for centuries, saved the cause for the Allies. More than 40,000 trees a day were cut during four years to meet the demands of the military leaders.

The Dominion Government's Forestry Branch has planted more than 40,000,000 trees on the prairies and 85 per cent. of them are thriving to-day.

WORLD DEMAND SHORTENS LIFE OF OUR FORESTS

By F. J. Campbell, President, Canadian Pulp and Paper Association,
in an Address at Annual Meeting Canadian Forestry
Association, Montreal, January 29th.

Has Quebec Enough Pulpwood to Last Longer Than 22 Years? A Vital Industrial Problem.

The question of the relationship of our industry to the maintenance of forest material is of such very great importance that I appreciate it a privilege to put a few figures before you and leave you to do your own thinking about them.

It is estimated that the standing pulpwood in the Province of Quebec at the present time amounts to 300,000,000 cords, but the best authorities agree that this is little better than an average of guesses and until such time as we have a comprehensive stock-taking our estimates are of questionable value.

Eliminating what is being burned and otherwise destroyed, what is being opened up to settlement and cut for lumber and deducting what is absolutely inaccessible and what is commercially inaccessible, my own guess is that the available supply of pulpwood is about one half of the amount mentioned, or 150,000,000 cords. This is borne out by a review of the estimate made in 1904 by Mr. J. C. Langelier, Inspector of Forest Rangers for the Province of Quebec. At that time Mr. Langelier estimated the available supply of pulpwood as 176,783,966 cords and the consumption at that time as 526,865 cords per annum and he estimated that at the then prevailing rate of consumption, our forest supply in the Province of Quebec would last over 334 years. This was just fifteen years ago.

The consumption of pulpwood cut in this province in the year 1916, the latest complete figures available, amount to 1,711,151 cords, which is $3\frac{1}{4}$ times that of 1904.

During those twelve years we had cut approximately $13\frac{1}{2}$ million cords, reducing the available supply based on Mr. Langelier's figures to approximately 163 million cords. Thus three years ago Mr. Langelier's figures came within 13 million cords of my present guess.

Basing an estimate in the same manner as that employed by Mr. Langelier and dividing our current consumption in 1916 of 1,711,000 cords

into available supply of 163,000,000 cords, we find that instead of having 334 years' supply, less twelve that have passed, or 322 years ahead of us, and making no allowances for further increase, our supply based on consumption in 1916 would last just 95 years; a wonderful difference in the course of twelve years.

We have seen that in twelve years our cut has increased $3\frac{1}{4}\%$, and we might perhaps base the future consumption as increasing at the same ratio but so as to be on the safe side let us consider that the increase during the next twelve years will be in direct ratio to that of the previous twelve years, in which case our consumption in 1928 will be at the rate of three million cords and we shall have used by that time 28 million cords, bringing down our available supply to 135 million cords.

Again basing the future supply on the consumption of three million cords per annum, which we shall then have reached, the available supply will be sufficient for 45 years more, providing the consumption shows no further increase.

When we consider that in the space of 24 years, owing to increased consumption, our expectancy of supply has dwindled from 334 years to 45 years, the figures appear almost incredible.

Even if we take the figures of our available supply as entirely hypothetical the extraordinary growth of our consumption still gives us ground for serious thought. Whatever the supply, we know that it is not increasing, while the consumption is growing rapidly, not steadily but with astounding rapidity.

The fact remains that with a given supply, whether right or wrong, 24 from 334 leaves, not 310 but 45—a startling difference.

It may be questioned as to whether we are justified in looking for the increase in consumption on which these figures are based. As a matter of fact, I think we may count that they are under the mark.

Prior to the establishment of the Dominion Forestry Branch, figures as to the cutting of pulpwood are indefinite but a glance at the growth of the pulp and paper industry in Canada will be illuminative.

It is only a comparatively few years since nearly the whole of the pulp and paper industry on this continent was South of the Great Lakes. It then developed in this province to the south of the St. Lawrence. Since then it has been extended on a much larger scale to the north of the St. Lawrence, and already very large plants have been erected far to the north; as the supply of wood in the United States disappears the mills dependent on it are being replaced by mills in this country.

We must therefore count not only on the natural increase in the consumption of paper but also on the rapid centering of the pulp and paper industry in this country and largely in this province (Quebec), owing to our present supply of wood and ample water-power.

In the year 1890 the value of the output of the pulp and paper industry in Canada was \$3,633,257; in the year 1915 this output had grown to \$40,348,021; in 25 years it has become 11 times greater than it was. The figures I have mentioned regarding our wood supply allow for an increased consumption that in 24 years or in the year 1928, only 9 years ahead, will be $5\frac{1}{2}$ times greater than in 1904, but it is probable that at the prevailing rate of development the consumption will be at least $3\frac{1}{4}$ times that of 1916, ten times greater than in 1904, or $5\frac{1}{2}$ million cords per annum. At that rate the remaining supply would be about 121 million cords or, without allowing for further increase, sufficient only for 22 years more.

Dr. Howe tells us our cut over forests are changing from coniferous to deciduous trees.

It is to be hoped that the Government, without loss of time, will provide means to amplify this study, as well as to seek a remedy for the loss from insects and fungi.

Large areas are still being burned, though improved methods of fire fighting and the awakened interest of the public are beginning to be effective in the reduction of this waste.

The need of re-growth and re-forestation is plainly apparent. In this respect it does seem as though returned soldiers might be employed to advantage in the planting of trees. We all know the difficulty the soldier finds in readjusting himself to the routine of civil life, but this work could be carried out under conditions not dissimilar to those of the army life. The men

would be usefully employed and their work would some day be splendidly profitable.

BARGAINS IN NATURE BOOKS..

By a special arrangement with the publishers, the Canadian Forestry Journal is able to offer its readers the following standard books at advantageous prices:

The Tree Guide. (Trees East of the Rockies), by Julia Ellen Rogers. Published by Doubleday, Page and Co. Made to fit the pocket, 265 pages, photogravures on every page, 32 pictures in full color. A beautiful and authoritative work certain to please you. In leatherette binding; gold lettering. Price \$1.10 postpaid.

The Animal Guide, covering all North American wild animals. 250 pages, with sixty species of animals in natural colors; pocket size. Entertaining in text and illustrations. Written by a noted authority, Chas. K. Reed. Genuine leather, \$1.00 postpaid.

North American Game Birds, by Chas. A. Reed. 65 pages, each containing a splendidly life-like illustration in four colors. Board covers. Price 50 cents postpaid.

Remit by stamps, money order or cheque, adding ten cents to latter for collection, to Canadian Forestry Journal, 206-7 Booth Building, Ottawa.

CAMPBELL'S POLL AXE.

Lumbermen often find it difficult to get steel poll axes which stand hard usage in driving saw or tree wedges. Messrs. Campbell Bros., St. John, N.B., have invented an axe which, as will be seen by their advertisement in this issue, is under a specific guarantee to be "the best tool made for driving wedges, bolts, etc." The Poll Axe is made with a piece of $1\frac{3}{4}$ " best cast steel fitted and welded solidly into the poll of the axe. It cannot come apart or break as it is properly welded and tempered, and will not flatten out, as is generally the case with the old style of axe having a thin piece of inferior steel welded on the poll. This axe contains the durability and cutting qualities that have made "XXX" Tools famous. It has a thin keen edge and will balance perfectly on the handle and will chop easier than a light poll axe.

FOR SALE—CHOICE TIMBER TRACTS

One or both; located on Columbia River and Tributaries north of Revelstoke, British Columbia; twice cruised by Marwick, Mitchell, Peat & Co., New York; surveyed by Christie, Hayward & Dawson, Vancouver, B.C.; near interior market; saving in freight over coast shipments two dollars thousand. Do you want high class timber property, if so write

S. A. HOLBROOK, Bradford, Pa., "Owner."

TIMBER IN M. FEET

TRACT	CEDAR	SPRUCE	FIR	PINE	HEMLOCK	TOTAL	CEDAR POLES
Downie Creek.....	204,143,000	47,228,000	18,186,000	7,473,000	79,748,000	356,778,000	60,612
16 mile	54,002,000	30,687,000	2,433,000	1,758,000	21,012,000	109,892,000	21,625
25 mile	67,468,000	39,908,000	28,799,000	5,068,000	47,086,000	188,332,000	27,642
Goldstream	33,649,000	16,406,000	478,000	200,000	7,577,000	58,310,000	8,857
50 mile	45,890,000	34,395,000	6,050,000	1,155,000	20,095,000	107,585,000	35,360
Schoonmaker	2,785,000	10,851,000	1,348,000		4,108,000	19,090,000	2,116
(83 miles)	407,936,000	179,475,000	57,294,000	15,654,000	179,629,000	839,988,000	156,212
					Dead and down cedar.....	25,217,000	
						865,205,000	

S. A. HOLBROOK (Trustee) TRACTS.

TRACT	CEDAR	SPRUCE	FIR	PINE	HEMLOCK	TOTAL	CEDAR POLES
Gaffney	57,433,000	35,534,000	15,653,000	3,409,000	10,168,000	122,197,000	34,062
22 mile	60,880,000	67,425,000	28,951,000	8,233,000	74,131,000	239,622,000	32,569
(34 miles)	112,313,000	102,959,000	44,604,000	11,642,000	84,299,000	361,619,000	116,631

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HAMILTON WINNIPEG

A YEAR OF PROPAGANDA

The Canadian Forestry Association's Enterprises During 1918 Passed in Brief Review.

Editor's Note: The following constitutes the report of the Directors of the Canadian Forestry Association regarding the work of the past year.

In the following report it will be seen that whereas in 1917 many new ventures were entered upon the extension of services in 1918 has been marked. There has been a constant endeavor to hold the Association in the part of practical utility, and as in previous years so in 1918 the bulk of effort has been given to the promotion of forest fire prevention. While this is no more than a rudiment of the forestry programme to which the Association has been committed, it is of such importance as to justify our maximum effort for many years to come. We have been occupied during the past twelve months with two main forms of propaganda, direct campaigns with governments for changes in laws or organization and educational work directed towards those districts and classes of population most requiring our services. After some months of delay, owing to difficulties with the Canadian Railway War Board, a railway coach was loaned to the Association by the kindness of the Canadian Pacific Railway Company for the purpose of providing a travelling demonstration of the importance of modern forest protection. The car was outfitted at Ottawa about the end of August with models of lookout towers, an aeroplane, forest telephones, a Marconi wireless set, a miniature nursery, sets of industrial exhibits, showing the process of paper and other manufacture, and samples of Canadian woods. This was supplemented by a large quantity of educative literature in English and French, as well as souvenirs reinforcing the fire prevention idea. The Secretary took the car from Ottawa through a section of Ontario and Quebec as far as Smooth Rock Falls in the Ontario Claybelt. Through the kindness of the Quebec Forest Service we were permitted the services of Mr. Victor Baillaigé, who held a series of meetings from Cochrane to Edmundston, N.B. The car was covered with large banners asking the public to take precautions in preventing timber destruction. So popular did the coach prove that bodies of visitors sometimes reaching 600 in a single day, came aboard, inspected the exhibits, heard the explanations

as to the methods of fire prevention, the importance of the forest industries and their raw materials and as much other information as could be given them in the brief time allowed. Usually a motion picture lecture was given in the evening so that occasionally we reached as many as 700 to 800 people in the 24 hours. At the New Brunswick border the car was met by a representative of the New Brunswick Forest Service and taken to those points where educational work was believed to be most necessary. At the Nova Scotia border the Secretary of the Canadian Forestry Association again met the car and took it to eastern and western Nova Scotia. Two or three of the Nova Scotia engagements had to be postponed on account of the prevalence of influenza, but at the eight points where public meetings were held the attendance was remarkably good. On the western trip from Nova Scotia to Quebec the exhibition car was wrecked at Springhill Junction and had to be taken to Moncton. There a new car was secured from the Canadian Government Railways but could not be employed to finish our schedule in the Lake St. John region because of the ban on all public meetings caused by the epidemic. The Association hopes to secure a larger and better car for the 1919 season and to multiply the exhibits. It is not too much to say that the use of the car proved one of the most effective steps yet taken in forest protection propaganda. The response on the part of the public amply justifies proceeding with the scheme along more extensive lines in 1919.

Reaching the Children.

Early in the year a series of school teachers' announcements was prepared and sent to the Governments of British Columbia, Ontario, Quebec, New Brunswick and Nova Scotia. By co-operation of these governments a great multitude of school children was warned as to the danger of forest fires and given instruction as to how to prevent them. In most cases the department of education joined with the minister in charge of forests in circularizing all school teachers and sending them copies of the Forestry Association's literature to be read to the children. These



FOREST TELEPHONES

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RESERVES FOR FUTURE POPULATION.

Note how the chief nations of Europe have retained as timber reserves percentages of their total area far in excess of any of the Prairie Provinces of Canada.

IN THE FOREST RESERVES OF WESTERN CANADA.

	Percentage of total area.	Population per square mile	Percentage of total area in permanent forest.
Alberta ----- 16,711,776 acres	14.00		
Saskatchewan_ 6,197,707 acres	3.97	Belgium ----- 652.	18.3
Manitoba ----- 2,606,400 acres	1.75	France ----- 189.5	18.7
		Germany ----- 310.4	25.9
		Switzerland ----- 234.8	22.7
		Sweden ----- 32.4	47.8
		Russia in Europe ---- 64.6	31.0

The reader will keep in view that two-thirds of the whole area of Canada is totally unfit for agriculture and that the percentage of non-agricultural land now in forest reserves in the prairie provinces is a very small fraction of what is adapted by nature for timber growing purposes.

With exception of a few localities such as the Ontario Claybelt, the pioneer's problem of reclaiming land from the forest has become a new problem of reclaiming land for the forest.

There is much more land stripped of forest that should be reforested than there is land under forest that should be cleared for agriculture.

periodic warnings and talks to school children on forest fires have become a regular part of the Association's campaign.

To head off the forest fire season by winning public co-operation, an effort was made to develop an interest in a national advertising plan, with the result that the Governments of Quebec, Ontario and New Brunswick consented to subscribe \$2,000, 1,000, and \$600 respectively, to be supplemented by \$6,400 from the Dominion treasury. With the assistance of Messrs. A. McKim of Montreal, a very complete plan was built up whereby the newspaper-reading public from coast to coast would be appealed to month after month with graphic messages along the lines of fire prevention. We were unable to secure the final endorsement of the Dominion Government in this matter, but the ground work has been already done, and there are reasonably good prospects of achieving our end in the early part of 1919.

Preparing Propaganda.

In no year has the Association prepared and issued such a quantity of educative literature. To assist the work of the rangers in the three prairie provinces, 15,000 booklets with colored illustrations were prepared, each province being treated separately. 20,000 copies of "A Partnership Offer" which demonstrated to the reader the identity of interest between the ordinary citizen and the Forests, were given circulation in New Brunswick and Nova Scotia. 10,000 copies of "Petit Catechisme de la Foret," which took up the rudimentary questions commonly asked by children as to the work of rangers, the ownership of the forest resources, etc., were sent out through the Forest Protective Association and other agencies in Quebec. A duplicate edition of 10,000 copies entitled "The Child's Book of the Forest" was prepared for special issue in Ontario. Three issues of the Bulletin de Foret and the Forest Bulletin were sent out in English and French to thousands of rangers, clergymen and others through Ontario and Quebec. 12,000 copies of "The Forests of Canada in Peace and War," which related the cause of conservation in the Dominion to the interests of the British Empire, were given careful circulation throughout Canada. 3,000 copies of "The Case for Nova Scotia's Forests" were distributed in the Province of Nova Scotia, and have proved a valuable basis for our campaign in this province. The foregoing illustrate some of the leading pieces of publicity which have been used in 1918.

Five Lecturers at Work.

Unable through the limitation of its own finances to engage lecturers for special work, the Association was fortunate in securing the co-operation of the Quebec Forest Service and of the Dominion Forestry Branch in providing excellent propagandists for services in the French speaking districts of Quebec and New Brunswick. Mr. J. A. Doucet of the Dominion Forestry Branch was allowed by the Director of Forestry to proceed to New Brunswick where, in the month of May, he delivered 15 lectures, usually before large audiences. This was the first educational work yet accomplished in the French speaking communities of Northern New Brunswick along lines of forest protection and the cause of forestry. Newspaper and other reports of Mr. Doucet's work plainly show that such services were very much needed, and when tactfully carried out were much welcomed by the French-speaking communities. The Association engaged Mr. A. H. Beaubien for three weeks' work in the territory of the Ottawa River Forest Protective Association. He managed to cover very thoroughly the outlying parishes on the northern part of the Mont Laurier division in Quebec and the section of worst fire hazard along the Maniwaki division. The response to Mr. Beaubien's efforts is worthy of more than passing notice, inasmuch as at several places audiences of 300 and 400 persons, many of whom had travelled long distances, listened with close attention to the story of forest protection and, without doubt, have today a more intelligent realization of their personal responsibility. About the first of June Mr. Piché permitted two of his technical staff, Messrs. Baillargé and Tessier, to engage in lecture work in the Lake St. John region and through the territory of the St. Maurice Forest Protective Association. In all of this work the Forestry Association supplied plenty of advertising matter, entered into arrangements with local authorities, and was responsible for the provision of the lecture equipment. The fact that both of these lecturers were given favorable receptions in all the parishes visited and at the same time were obliged to antidote a great deal of misconception and prejudice in regard to the work of the fire rangers and the public value of the forest industries emphasizes the necessity for intensifying the educational effort through these and other sections of Quebec. During the year 1918, therefore, five lecturers conducted series of public meetings under the auspices of the Canadian

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Forestry Association, although the greater part of the financial maintenance of three of them was borne by the Quebec Forest Service and the Dominion Forestry Branch.

A total of 150 public meetings were held between Spring and Fall on the subject of forest protection. This is about three times the average number in previous years.

Use of Lantern Slides.

Audiences at motion picture theatres are susceptible to appeals on forest protection matters and this avenue has been utilized by obtaining the co-operation of theatres in most of the forested districts across the Dominion. A weekly service of lantern-slide cartoons and printed appeals were set in operation last Spring and continued until the Fall months. Local reports declare that the slides were well emences. Most theatre managers have agreed to ployed and were happily received by the audi-carry out the plan in 1919 as well.

Motion pictures are now a regular part of the Association's lecture equipment and some of our films have been made use of in circuits of motion picture theatres.

Tobacco Company's Help.

Of several pieces of educational work of a like nature, we might mention particularly the arrangement made with the Imperial Tobacco Company, Montreal, through the courtesy of Sir Mortimer Davis, to place in the cigarette packages sold through Canada a series of printed slips, asking the smoker to extinguish match and cigarette before throwing away.

Our school lecture sets, which now number five, were in active employment during the first part of the year. The closing of schools and

the need of crowding the curriculum to make up for lost time made it necessary for us to withdraw the service partly during the fall months. These sets are again in operation and with their fifty colored lantern slides and lecturer's manuscript have proved a popular plan of reaching schools and churches.

In the spring months forty school boards or private citizens used these sets in their localities, often employing the equipment night after night as in Hamilton and London, to reach all the local teachers and children.

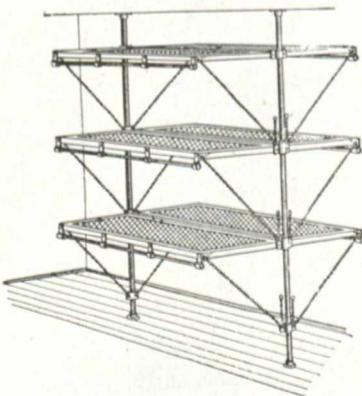
Western Lectures.

Owing to the distance from Ottawa the travelling sets have not been available to the prairie provinces or British Columbia. This has now been overcome by stationing at the Western offices of the Dominion Forestry Branch and at Vancouver, special travelling outfits so that applications from local speakers can be filled with minimum of delay and cost for expressage.

It is well realised that the Association's efforts to develop educative enterprises in combatting forest fires cannot be fully effective unless co-ordinated with the proper machinery of law and administration. This has rendered necessary two chief campaigns of more or less intensive nature, one in Alberta to secure a Forest Protection Act, the other in Nova Scotia to have a Provincial Forester appointed.

Campaign in Alberta.

Through our members in Alberta, with the aid of the newspapers, Boards of Trade and other public bodies, we brought forcibly to the attention of the Government the inconsistency and danger of the present freedom in setting fires in



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aid of the Director of Forestry were able to lay and near forest covered lands, and with the before the Government a draft Act. This was temporarily edged out by a mass of other legislation. We persisted in our efforts through the press and otherwise and are now informed that at the time of writing this report the Alberta Government has the Act under discussion. If the new Act passes the Alberta Legislature, the three prairie provinces will then have similar measures aimed at lessening forest losses. In each province the Association labored continuously to secure these laws.

A Nova Scotia Enterprise.

The Nova Scotia situation called for a great deal of 'spade work' and indeed will yet require much constructive educational effort before the Government is ready to agree with us that a Provincial Forester is an unpostponable necessity. In October, following a newspaper campaign, the Secretary held eight public meetings

at Nova Scotia points, reaching large audiences and distributing everywhere the Association's literature on provincial forest problems. Three special publications were issued: "A Partnership Offer," "Nova Scotia's Stake in Forest Protection," and "The Case for Nova Scotia's Forests," and these were circulated carefully. Every Board of Trade in the Province was communicated with and many of the more important ones responded heartily, asking the Government to put through the appointment of the Forester and organize fire prevention work on a modern basis. All provincial newspapers and weeklies were covered repeatedly and gave us generous aid. A provincial conference on forest problems was held at Halifax on December 10th, at which forty persons representative of industries and as private citizens were present. A detailed discussion of the serious situation in forest depletion now facing the province took place and the Commissioner of Lands, Hon. O. T. Daniels,

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who was present, was requested to apply the only reasonable remedy by the engagement of a Forester with a free hand to bring up the provincial forest service to a more efficient standard. The Commissioner offered a counter proposition that the conference should show him where new revenues could be obtained to support the new office. The financial aspect of the proposed appointment constituted a temporary impasse, which failed, however, to discourage the conference or abate its determination. Mr. F. C. Whitman, former president of the Association, who acted as chairman, was authorized to proceed with the organization of public opinion through forming a provincial committee. This body will endeavor to find a solution for the financial problem involved, and as soon as possible the Forestry Association and its Nova Scotia members and friends will renew its appeal to the Government.

In the important question of Civil Service Reform, particularly as it affected the field staff of the Dominion Forestry Branch, the Association took an active part. A series of newspaper articles was supplemented by a score of letters to members of Parliament, many of which evoked promises of support. After many years of attack upon the political patronage system in public appointments, it was a satisfaction to witness its final downfall and the institution of a merit system.

Advancing the Journal.

Although the Forestry Journal was one of the Association's first weapons in developing public sentiment, it is felt that the influence of this modest publication throughout Canada can again bear emphasis. It acts as a clearing house of information respecting the progress of forestry and forest protection. It has attempted to bring the layman into intelligent touch with the national aspects of conservation, the public significance of experimental and research work, the forestry movements in other lands and particularly as affects the interests of the British Empire. Monthly circulation is now over 8,000.

Commencing with the January, 1919 issue, the Journal takes another step forward in that it will be printed on heavy coated paper throughout, with illustrations much improved and a new standard of contents involving special articles on subjects of popular interest by writers of special qualification.

While the improved Journal will demand more time for editorial preparation and greater expense in production, it is believed that these

advances offer our only hope for making the magazine self-sustaining through advertising patronage, and more effective as a means of developing membership.

8,000 Members Now.

The year 1918 was peculiarly adverse for membership growth. The earlier months were filled with menacing war news, and this gave way at midsummer to a changed tide of events which quite as markedly diverted public attention from purely national and civil matters such as the upbuilding of a Forestry Association. The influenza epidemic, in the fall months, again dampened the hope of lifting the membership strength to the goal of expectation. The later months of the year proved more responsive, so that which much of the earlier work on membership was neutralized, we end the year with a clear increase of two thousand members. This gives us a total of 8,000 on our strength, as compared with 2,900 at the commencement of the war.

The finances of the Association are in good shape, with a surplus of \$919.91. Total receipts for the year were \$15,270.56, with expenditures of \$14,350.65. The common difficulties of obtaining money during war time were constantly encountered. Private subscribers, chiefly pulp and paper and lumber companies, who had been given plenty of opportunity to investigate the Association's work came to our aid to the extent of \$3,750. We have had the satisfaction of seeing many firms doubling or otherwise increasing their previous subscriptions. It is but fitting that the thanks of the Association to these loyal supporters should be expressed at this meeting.

Fortified by the expressions of confidence on the part of the limit holders, the Secretary approached the Ontario Government and by the aid of a small deputation secured from the Minister of Lands, Forests and Mines, an undertaking to increase the Association's grant from \$300 to \$1,000 in future. Similarly the Dominion Government was asked to advance our 1918 grant of \$3,000 to \$4,000, and this was done. New Brunswick also granted us \$200 this year.

The Association had occasion to realize at many junctures the deep concern and helpful attitude of the President, Col. J. S. Dennis. Exacting war duties in the United States and later in Siberia prevented the personal contact which otherwise would have been afforded, but this did not interfere with such positive forms of assistance as was involved in obtaining the Railway Exhibition Car from the Canadian Pacific Railway free of all charges.

A Western Secretary.

Under the realization that the needs of the Forestry Association's educational work in the prairie provinces and British Columbia is quite as pronounced as in Eastern Canada, efforts were made by the Secretary to sound out British Columbia opinion on the question of appointing a resident secretary of the Association in that province. The advice of several of the western directors was sought in this matter and the project received hearty approval. With only one executive officer for the Dominion, the geographical difficulties alone have been sufficient to prevent his carrying out any intensive educational effort west of Ontario. An appeal was made to the Government of British Columbia for financial assistance and we are yet to receive a definite reply. Inasmuch as several of the larger British Columbia wood-using industries have consented to contribute an annual amount for the up-keep of a resident secretary, we feel we are justified in continuing our efforts so as to secure the sum of four or five thousand dollars

yearly to put our educational work in British Columbia and Alberta on a proper footing.

New Tasks in Ontario.

In addition to the several uncompleted projects carried over from 1918, the Association may well consider the advisability of initiating a campaign to secure the extension of authority of the Ontario Forest Service so as to provide for technical supervision of cutting operations on licensed lands.

A similar opportunity to perform a public service is to be found in the present anomaly by which the cutting operations on the licensed timber berths in the prairie provinces and on the railway belt of British Columbia, outside the Reserves, have no technical forestry supervision whatever. This fault may be remedied very effectively and simply by extending the jurisdiction of the Dominion Forestry Branch to For many years this step has been urged by this Association and by the Commission of Conservation.

THE FOREST CONFERENCE AT MONTREAL.

A Forest Conference, under the auspices of the Canadian Forestry Association, the Quebec Forest Protective Association, and the Woodlands Section of the Canadian Pulp and Paper Association, was held at the Windsor Hotel, Montreal, Wednesday and Thursday, January 29th and 30th. The attendance surpassed that of former years, the meeting hall being well filled during the greater part of the conference.

As has been noted in the conferences of previous years, the effect of these annual gatherings, with their stimulating personal contact and the threshing out of progressive ideas, cannot be compressed into cold statistics. One requires no better comment than that of two 'hard-headed' lumber company presidents that they were going to pay the expenses of their woods foremen to the Montreal meetings of 1920. Several executive officers of large companies who had not attended previous conferences were on hand this year, at the request of their managements. From these indications, one may judge that the annual Forest Conference at Montreal is having a pronounced effect upon those seriously concerned with forests and forestry in Eastern Canada.

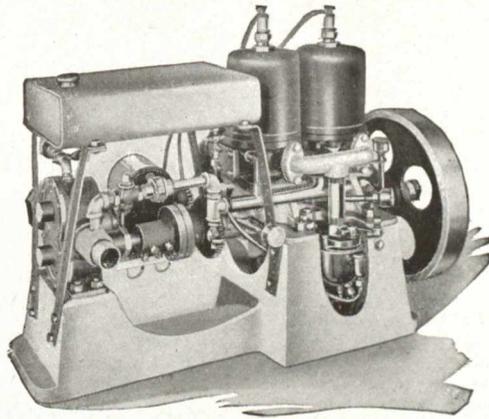
The first day's events, under the auspices of the Canadian Forestry Association, included the annual business meeting on Wednesday morning

and the public session on Wednesday afternoon. In the absence of the President, Col. Dennis, and the Vice-President, Mr. J. S. Gillies, the chair was taken by Hon. Sydney Fisher. The Directors' report of the work during 1918, (reproduced elsewhere in this issue), was adopted. The election of officers, noted under another heading, gives the Association the valued guidance of Mr. J. S. Gillies, of Braeside, Ontario, in the office of President for 1919. Mr. Clyde Leavitt, who has not spared himself in the Association's interest, was elected Vice-President, and Mr. Percy B. Wilson of Sault Ste. Marie a new director.

The Directors recommended that the salary of the Secretary for 1919 should be \$3,300. This was carried.

A Varied Programme.

The afternoon meeting, at which Hon. Mr. Fisher presided, commenced with an address by Major Barrington Moore, second in command of United States forestry operations in France. Major Moore's interesting paper is reproduced in the present issue of the Journal. Mr. F. J. Campbell, President of the Canadian Pulp and Paper Association, and Mr. W. Gerard Power, President of the Canadian Lumbermen's Asso-



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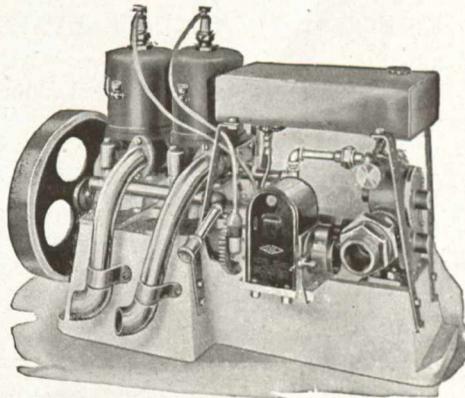
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ciation, gave excellent addresses on the future of their respective industries in relation to the supply of forest materials. Mr. Campbell's paper is reproduced in these pages, in part, and Mr. Powers' address will be contained in the March issue. In the absence of Hon. W. R. Brown, his chief forester Mr. L. S. Linn read a paper on "Results of Clear Cutting and Selective Cutting."

The Quebec Forest Protective Association.

On Thursday morning the Quebec Forest Protective Association and the Woodlands Section opened their meeting under the chairmanship of Mr. Ellwood Wilson. Hon. Jules Allard, Minister of Lands and Forests of Quebec, addressed the meeting and was followed by Brig. Gen. J. B. White, D.S.O., in charge of Canadian Forestry Operations in France. Mr. J. M. Swaine, Entomologist, in charge of forest insect investigations, read an excellent paper on insect injuries to forests, emphasizing the importance of slash disposal if insect enemies were to be efficiently combatted. An address on slash disposal, prepared by Mr. Ellwood Wilson, was read by Mr. Clyde Leavitt, Chief Forester of the Commission of Conservation. Mr. T. W. Dwight, Assistant to the Director of Forestry, Ottawa, gave a resume of slash disposal operations conducted by the Dominion Forestry Branch in Saskatchewan. Dr. Lyman Fisk of

Life Extension Institute, New York, spoke on "Is Health Good Business?" The Forestry Journal will endeavor to give portions of these papers in future issues.

The afternoon was devoted to a very effective address on aerial photography by Lt. Lewis of the Royal Air Force, illustrated by excellent views taken over European and Canadian positions. Upon Mr. W. Gerard Power assuming the chair and inaugurating the session of the Woodlands Section of the Canadian Pulp and Paper Association, the report of the committee on "Improvements in Logging Operations" was brought in and after much discussion the meeting decided to refer back the report to the committee for further consideration. A report on hardwood utilization was read by Mr. Volkmar, Forester of the Riordon Pulp and Paper Company.

The Annual Meeting of the Canadian Society of Forest Engineers on Wednesday evening proved to be one of the most enjoyable and helpful gatherings of the society since its formation. The attendance was especially gratifying and from the reading of Dr. Howe's fine paper to the concluding ceremonies of the evening, the interest of those in attendance was remarkably keen. Mr. Ellwood Wilson presided. The Annual Meeting of the Quebec Forest Protective Association was held on Thursday evening.

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