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April

1917

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# Canadian Forestry Journal

Vol. XIII

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## THE CANADIAN FORESTRY JOURNAL

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# The Great Forests of Russia

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**Republican Government will Administer the World's Greatest Timber Supply—Siberia can Supply Whole of Europe.**

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The political overthrow of the "dark forces" in Russia and the promise of a more vigorous development of the national resources under republican rule, draws attention to the advantageous position of the Russian Empire in supplying the future timber needs of Europe.

Russia possesses the world's greatest supply of forest wealth. The value and quality of fully two-thirds of it, however, are but meagrely known. The total area of the Empire is about one seventh of the land surface of the globe and 39 per cent. of it is under forests. Those in European Russia cover an area of 474,000,000 acres; in Finland, 50,500,000 acres; in Poland, 6,700,000 acres; and in the Caucasus, 18,600,000 acres; a total of 549,800,000 acres, exclusive of Siberia. It is estimated that in western Siberia alone there are 465,000,000 acres of virgin forest, and that Eastern Siberia, while not so richly endowed, has sufficient timber to supply the world's demand for years to come.

Approximately twenty-three per cent of the forest land belongs to the aristocracy and 9 per cent to the peasantry.

The Russian Government owns the bulk of the forest assets and has received about \$30,000,000 a year, four-fifths of which was net profit.

As in nearly every other country where 'old fashioned' lumbering has its way, Central Russia now sees the timber wealth pretty well stripped, so that lumbermen are turning their attention to northern Russia where more primitive timber conditions prevail.

While Russia founded her Department of Forestry and the Imperial Forest Institute at Petrograd 110 years ago, no comprehensive scheme of national forest management has yet been applied. Facilities for the training of foresters have been provided at the capital where 54 professors and instructors are employed, with 648 students, and an annual government appropriation of about \$120,000. The Forest Institute contains 23 buildings, 13 laboratories and museums and a splendidly equipped dendrological garden in addition to several hundred acres of ground surrounding the buildings.

There has been in possession of the Government at Petrograd for some years a plan for the cutting of timber on a large scale worked out by the Russian Committee for Colonization, but like other reforms in the management of the public estate this had been shelved for 'further consideration'.

Foreign capitalists have taken up immense tracts of timber in Siberia. "With correct exploitation", writes a French investigator, the timber of Siberia will suffice for the requirements of western Europe for generations to come." The Forestry Department places the Siberian timber lands at 810,000,000 acres, and with the present population this is 43 acres per capita, which the Russian foresters believe can safely be reduced to three acres per capita.

What this immense resource really means is shown in the estimate of the Forestry Department that Siberia can spare 115,200,000 trees per annum, under proper reforestation methods without diminishing the capital stock of timber. One hundred



#### BALKAN LUMBERING METHODS

Serbian lumberjacks drawing out logs. Modern methods of woods operating have made little impression on the Balkan countries, but the reorganization following the war is expected to introduce economical systems of utilization.

years is accepted in this calculation for the maturing of a tree.

As to the Government's method of collecting dues, the Amur province of Siberia affords an illustration. Here the management is in the hands of a local Government office of the Department of Domain. The tax is collected on the cubic contents of the logs sold, ranging from one-half to 7 cents per cubic foot, according to the importance of the forest, size, kind, and form of timber, distance from the market and means of transportation.

British writers have frequently pointed out, as mentioned in a recent article in the Canadian Forestry Journal, that with Great Britain and Belgium and to some extent, France, seeking timber in enormous quantities after the war, there is a danger of the Allies bidding against one another and so running the prices to extreme

levels. It has been suggested that Russia be called into council on this point so that her great forest resources shall be placed at the disposal of the Allies under favorable terms. Germany and Austria have large amounts of timber, owing to their highly-developed systems of scientific forestry, and with such wood-exporting neutrals as Sweden, might have the timber markets of Europe at their mercy. British writers as a rule do not look to Canada to solve this riddle, owing to the great cost of ocean freightage, and owing quite as much to the destruction of the most easily-logged timber in Eastern Canada which, had the method of exploitation been radically different, might today have supplied the United Kingdom to the great benefit of buyer and seller.

R.B.

## *Conditions In The Lumber Industry*

*Excerpts from the U.S. Government Report by William B. Greeley of the U.S. Forest Service*

The industry seems to have been built up beyond the needs of its market, for at least a third of its saws are idle. It is carrying an installed mill capacity of approximately 117 billion feet as against an estimated cut in 1914 of 40.5 billion.

The interest and taxes paid out on timberlands held over long periods may mortgage liberal advances in future worth.

Market values of stumpage have stood still for eight or nine years and even declined. Western timberlands have been overcapitalized more or less and can hardly earn in the long run the profits expected of them. The large speculative gains in buying stumpage which have tided lumbermen over many tight places are mostly over.

The industry is approaching the point where its early stumpage costs will equal the market or operating value of the timber. It becomes doubtful whether the interest rates upon which much of its capital has been borrowed and its financial structure built up can, as economic conditions are now crystallizing, be returned by forest lands during long periods. Future returns must be realized from efficient lumber manufacturing and merchandising.

Unsuited by nature to this form of wealth, it (the general property tax) tends toward heavier taxes than a sound forest industry can bear. Uncertainty as to the future extent of this burden is a menace to the stability of timber ownership. Moderate, and particularly stable, taxes will aid powerfully in securing the right kind of forest ownership.

There are two ways of carrying the surplus timber. A more stable type of private ownership may grow out of present conditions. A second solution is the enlargement of the public forest holdings. Stable forest ownership might be secured also by administering public and private lands as a single holding, publicly controlled as to rate and methods of cutting.

Broadly viewed, the returns in lumber distribution appear to average higher and be more stable than those in lumber manufacture.

A fifth or more of the cost of lumber to consumers is eaten up in railroad freights, retailers take about the same amount, and manufacturers, on the average, little more than one-half.

The rise in lumber prices, though very marked during the 10 years before 1908, has not been greatly different from that of most commodities; since 1907 lumber has fallen behind.

Lumbermen have frequently overcut their markets. Less than living prices and waste of raw material are the evidence.

With local exceptions, lumber production is competitive. Added difficulties in the way of a general lumber trust are the competition of substitute

materials, the limited inroads of foreign timber, and the check furnished by public forests.

Too great a burden of timberland investments is thus the first cause of instability in the lumber business. Excessive mill capacity, poor financing, and low average efficiency in manufacture and merchandising add to its weakness. The combined result is an ill-adjustment of lumber production to the requirements of its market. Competition in manufacture is not only keen but often destructive.

In the Northwest the "heavy load" of stumpage is at the bottom of the situation. Mills have been constructed solely because timber owners can no longer pay taxes and interest on their stumpage without income. In other words, for one of the underlying causes of weakness we must go back to the public land policy of the United States.

Lumbering is perhaps the most "American" of our manufacturing industries. In its individualism, its encouragement of small independent business units, its hearty competition, and the rugged, forceful qualities it has derived—it expresses many National economic and social ideals. Its failings are those which go with this type of enterprise.

One of the fundamental causes of the periodic overproduction of lumber is lack of common understanding of the situation and of a general conception of the effective way to meet it.

## *No Standard Practice For Slash*

Mr. R. D. Prettie, Superintendent of Forestry for the Canadian Pacific Railway, Calgary, Alberta, speaking of the problems of slash disposal in a recent paper, said that the questions that would come to the mind of any one reading a description of a slash disposal operation would be as follows:—

1. Are our conditions the same as the writer's?
2. Where is he logging?
3. What is the extent of the operation?
4. What is the nature of the country?
5. Is that country subject to great fire risk?
6. What about the rain fall?
7. What are species of trees?
8. Is the amount of slash excessive?
9. Is there need of burning after logging?

10. What burning has been done to date?

11. What is the cost and against what account is it charged?

12. How does burning compare with contract logging?

13. Is broadcast burning recommended?

14. Is a universal law practicable?

The C.P.R. logging operations are on the Bull River in British Columbia, the country is rough and the logging is expensive. The fire risk in the Crows' Nest and Boundary country is probably as high as anywhere on the continent. The rain fall is very light, most of the precipitation being in the form of snow. There are periods of hot, dry winds that blow continuously for days at a time.

Fir, spruce, jack-pine, tamarack and bull-pine occur in about the order given.

The amount of slash is not excessive, except in spruce bottoms and along draws on some benches, yet there is enough slash to cause grave concern in case of a fire. The only burning done to date is along tote roads, around the camp and in one bad pocket at the forks of a stream. It was at this spot that a fire was recently stopped.

Specific cost data cannot be given, but will be from \$4 to \$8 per acre, depending on topography, relation of roads to waterways and stand per acre. If this is charged against logging it may make the cost of this operation excessive, especially where the stand is poor and logging difficult.

Some lopping of tops has been done and on some contracts, props were taken from the tops. This was not done for profit, but to eliminate waste.

Broadcast burning is feasible and desirable on land suited to agriculture, otherwise it usually is not to be recommended. This method can be employed in small pockets scattered over an operation and if these pockets are selected according to the fire risk and the second growth, a great menace will be removed.

A universal law requiring the disposal of all slash is not practicable now.

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## What Wild Life Means To Canada

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### A Splendid National Asset Threatened with Quick Depletion— Forest Destruction a Main Contribution.

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Dr. C. Gordon Hewitt, Dominion Entomologist and Secretary of the recently appointed Advisory Board on Wild Life Protection, delivered an illustrated address on the "Conservation of Wild Life in Canada," before the Ottawa Field Naturalists Club on March 6th. In the course of his lecture Dr. Hewitt clearly emphasized the important interdependence of the conservation of our forests and of our wild life. The destruction of our forests is one of the principle factors related to the diminution of the wild life resources of the country. Further, he pointed out how forest and non-agricultural areas might be made additionally productive by the conservation of such animals as deer which might be used to provide a native meat supply.

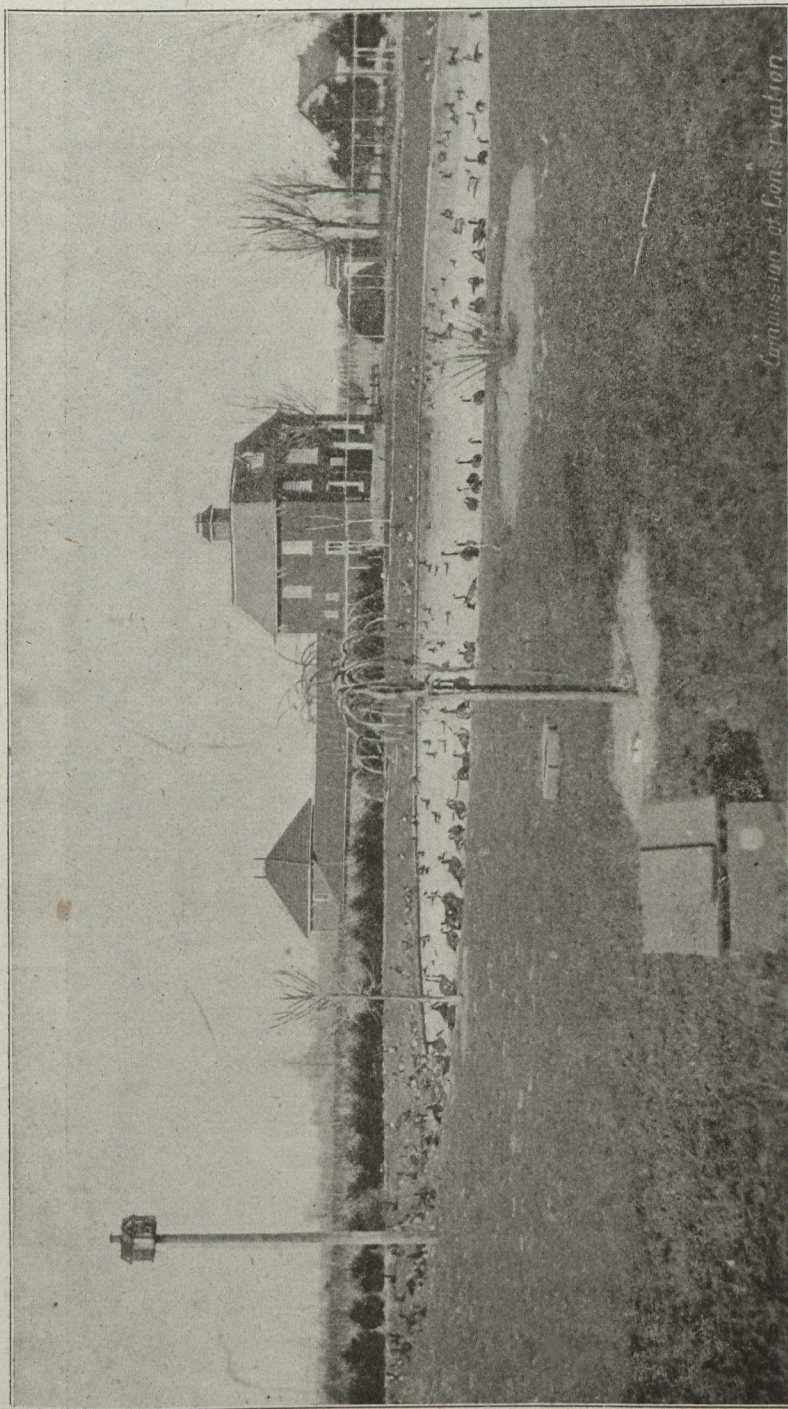
The wild life, including the furbearing and other mammals, and bird life, constitutes a national resource that cannot be replaced once it is lost. This point was strongly emphasized as a reason for taking steps to prevent the extinction of any species.

Canada is the last stronghold of the larger game animals of North America and therefore a special responsibility lies on Canadians to conserve these animals. Wild life is a trust and it is the duty of Canadians to conserve it in such a way as to insure its unimpaired enjoyment by posterity. Conservation does not mean the hoarding up of, but the use of our resources without abuse.

#### *Antelope and Buffalo*

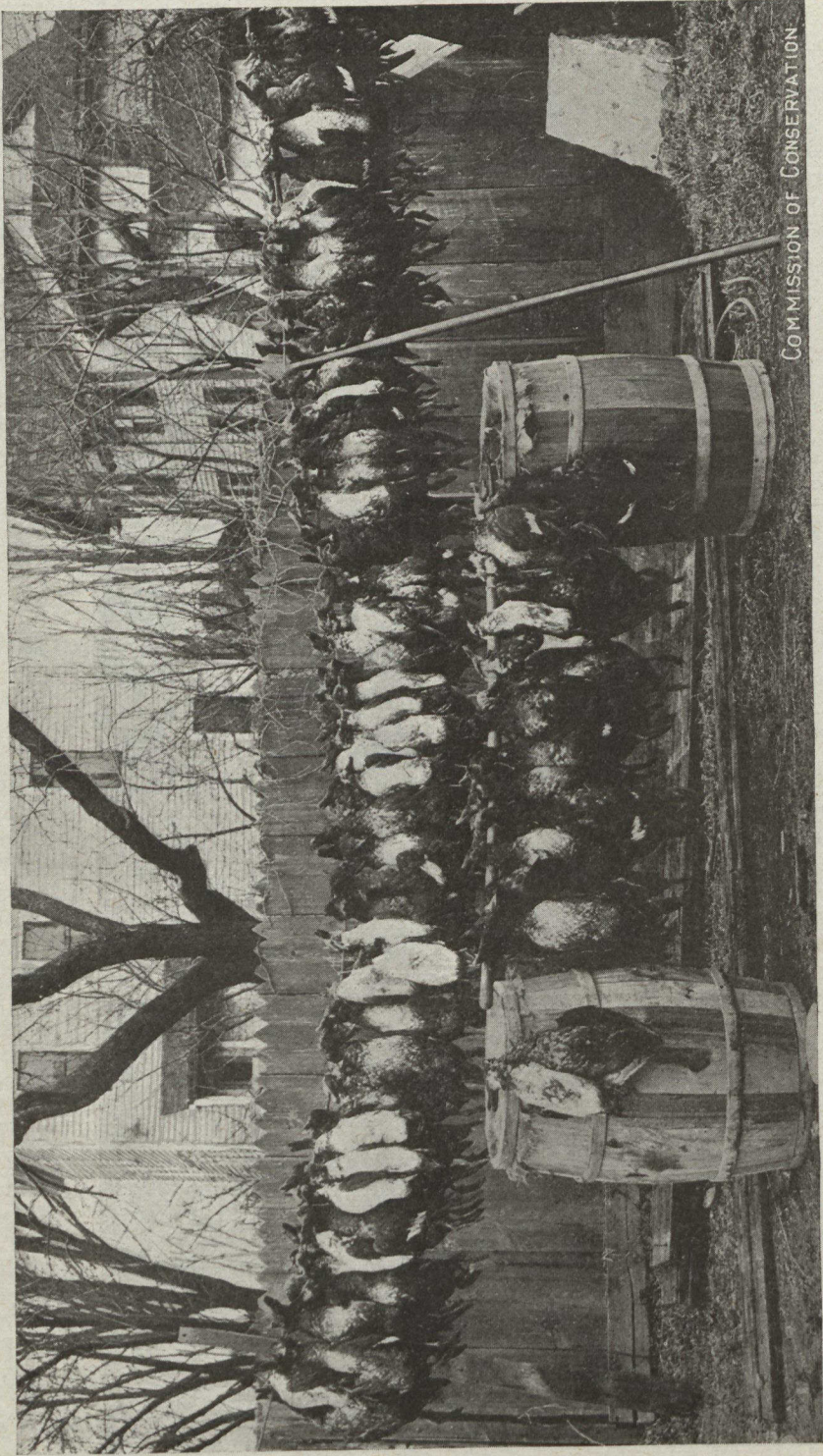
It was further pointed out that there was an inevitable reduction in the existing numbers of wild life following the settlement of the country. Dr. Hewitt divided the causes of reduction into two groups, avoidable and unavoidable. The disappearance of the buffalo, of which he gave a historical description, was inevitable and due to the settlement of the country, and the same is true of the antelope. They have been driven from their familiar haunts by the development of agriculture in the west. Among the animals that have been





*Commission of Conservation*

CONSERVATION OF WILD LIFE: WILD GEESE ATTRACTED TO THE UNIQUE BIRD SANCTUARY OF JOHN MINER, NEAR KINGSVILLE, ONT.



COMMISSION OF CONSERVATION

CONSERVATION OF WILD LIFE: DUCKS ILLEGALLY NETTED IN LAKE ONTARIO.

reduced in numbers by causes that were unavoidable the following species were mentioned, and their habits and status and the cause for reduction described; the elk, deer, caribou, musk-ox and sheep. The great reduction in our wild fowl due to the absence of adequate restrictions and the limiting of spring shooting were discussed.

### *Why Preserve Wild Life*

Cogent reasons were advanced as to why we should conserve our wild life. The value of these resources to the nation was dealt with under three heads, namely, recreative, economic and educative. The recreative value of wild life is important in as much as it increases human efficiency. It takes men from their offices to the forest at least once a year and thereby increases their resourcefulness and self-reliance. The value of wild life as an attraction to the sportsman should not be affected by any reasons of sentiment as the ethics of a good sportsman consist in recreation and not in securing the bag limit. Canada was favored above all countries in the world in having its big game areas so nearly accessible to its centres of population.

### *A Source of Food*

The economic value of our wild life should appeal to all, especially in view of the increased cost of living. Dr. Hewitt pointed out that in our wild life we have a potential food supply of very great value. The immense non-agricultural and forest areas could be made productive, he suggested, by the careful conservation of our deer which would constitute a native-food supply, and the state of Vermont was quoted as an example in this respect. He further stated that the barren ground caribou are not only essential to the natives in Northern Canada but that they constitute a resource of the greatest value from the point of view of a potential food supply and a source of skins for manufacturing purposes. On a smaller scale this has been demonstrated in the case of the domesticated reindeer of Alaska. In his opinion there

is no reason why, at some future date, the caribou herds should not be so utilized as to provide an important part of our meat supply under Government control, or supervision, and provided the principles of wild life conservation are correctly and adequately applied.

### *Danger to Fur Bearers*

It was pointed out that the fur-bearing animals of North America contributed a most important addition to the revenue of the Dominion. They constitute an important section of the national wealth and should be carefully protected from undue exploitation, of which there is great danger at present.

He referred to the example of Greenland in which the fur-trade is the monopoly of the Danish Government.

Big game hunting was not to be despised, for in some parts of Canada the inhabitants subsisted entirely in the money thus brought into the country; this is particularly true in certain sections of British Columbia, which is our greatest big game region.

Reference was made to the economic value of our insectivorous birds; a subject with which the lecturer has dealt with on previous occasions. The great importance of our insectivorous birds as destroyers of and a natural check on insects affecting agriculture cannot be too strongly emphasized and is becoming more and more realized.

### *In the Breeding Season*

In discussing the principles of wild life conservation, Dr. Hewitt pointed out that the great necessity was protection during the breeding season to all classes of game mammals and birds. The protection of the females and the young was necessary in the case of most animals and the wisdom of insuring such protection has been demonstrated by the manner in which the moose have increased in New Brunswick and Nova Scotia.

The most important step, however, that has yet been taken to insure conservation of wild life is the establishment of refuges or reserves.

In such refuges or reserves animals may live undisturbed and increase in sufficient numbers to form a constant supply for the unprotected areas outside the reserves. They constitute nuclei, as it were, for the supply of animals and the animals soon learn to know where they can secure sanctuary, and seek such refuges for that purpose. Dr. Hewitt called attention to the fact that sportsmen usually select, in the case of deer, the animals with the largest heads as these are usually the most virile, and that the continued destruction of the best males would result in a degeneration of the race. Such protection in reserves would provide a corrective to this tendency and would also provide an excess of males.

#### *Enforcement Often Weak*

Good laws have been made by the Provincial Governments and laws should be especially provided for the protection of the females. Proper open seasons, and a bag limit in the case of wild fowl are restrictions that are especially necessary. But, good game laws are useless unless properly enforced, and the great lack in Canada at the present time is the proper enforcement of the laws already on the statute books. The different Provinces have good game laws, but in many cases there is room for improvement.

#### *Guarding Migratory Birds*

The importance of the International Treaty for the protection of migratory birds in United States and Canada, which has been recently passed, was emphasized and the provisions of the Treaty outlined. The main points of this Treaty, which pertains to the protection of our migratory birds passing between the United States and Canada are first, the prohibition of the destruction, at any time of the year, of any insect destroying birds important to agriculture or forestry and secondly, the prohibition of spring shooting of wild fowl such as ducks, geese, etc., and the restricting of the open season to three and one-half months. It was stated that this was the most important single measure ever taken with a view to the protection of wild life. The excellent

work of the Commission of Conservation in the direction of protecting wild life, particularly the endeavor that the Commission is making to have the bird rocks in the Gulf of St. Lawrence made into a bird sanctuary, and the recent appointment of an Advisory Board on Wild Life Protection by the Government are indications that the Dominion Government is alive to the necessity of taking steps to conserve our wild life and to secure a proper utilization and enjoyment by the people.

#### *How Each Can Help*

Finally, the lecturer dealt with the means by which the individual might help in the carrying out of the principles of wild life conservation. He laid particular emphasis on the necessity of education and co-operation of interested individuals who should form game protective associations with a view not only to educating the people, but also in order to assist legislatures in game protective legislation and to secure the proper enforcement. The main points to be remembered are that wild life cannot be replaced if it is once destroyed; it is a trust, and the enjoyment of every citizen, but unless we take steps to impress upon people the necessity of conservation it is a resource which will disappear; and lastly, that of our many resources, it is one that we cannot afford to lose.

The white pine berth 1F, in the Mississaga Reserve was sold recently by the Ontario Government to Mr. Robert McKay, who was the highest tenderer, the price paid being \$7.50 per thousand feet, in addition to the dues. It is understood that Mr. McKay was representing other parties in making this purchase.

Newsprint manufacturers in Ontario are of the opinion that a statement recently made by Sir Adam Beck in an address before the Hydro-Electric Union of Municipalities means that a large newsprint mill is likely to be established in connection with the Hydro-Electric Power Commission of Ontario, some time in the near future.

# Lecture Campaign In Western Canada

## Mr. Black's Meetings in Western Cities and Investigations of Provincial Problems Gain Hearty Public Response.

This number of the Canadian Forestry Journal is issued in the absence of the editor, Mr. Robson Black, who as Secretary of the Canadian Forestry Association is on a lecture tour through Western Canada in the interests of forest conservation.

Mr. Black has delivered addresses before several of the Canadian Clubs, Boards of Trade, the larger church organizations, etc. and by the generous co-operation of Western editors in the use of interviews, reports, and editorial comment, the sentiment of the prairie provinces would seem to have been stirred along progressive lines.

One of the most successful meetings was the luncheon of the Board of Trade of Edmonton where not only was an excellent audience present but the members authorized the Council to appoint a special committee to deal with the problems of forest conservation in Alberta.

Of the address, the Edmonton Bulletin said:

A picture of the desolation in the forests of Canada wrought by fires, was sketched most strikingly and effectively before the Board of Trade luncheon today by Robson Black, of the Canadian Forestry Association. Above all it was made clear how national caution and foresight can curtail and eventually wipe out this huge devastation to the enrichment of the nation.

### *Board Will Co-operate*

A largely attended meeting of the board listened to the excellent address and, through the president, J. E. Brown, the assistance of the members was pledged to a campaign of first aid in the work of conservation. Not only was a committee of the board provided to deal with the question of forest

fire prevention, but another committee will likewise be named by the president to report on the matter of municipal fire losses, a topic which was ably presented by Mr. White, of the Conservation Com., Ottawa, one week ago. Mr. Black said in part:

"In these times no subject is worth discussing that has not its main root in public service. No apologies need be made, therefore, for talking over with you the case of forest conservation as related to this province and the rest of the Dominion. Conservation of any sort is just 'good citizenship', but the question of perpetuating the forest resources past the day of our own immediate need makes particular demands upon an unselfish point of view.

"The title to more than ninety-seven per cent. of the forest lands of Canada rests in the name of the Canadian people. By that I mean the Governments of Canada while leasing a very large part of the timber to support industries and spread wealth, have kept control of the land on which the timber grows. The object of this has been to secure for the state its share of the increment and to enforce such conservation laws as the situation might demand. The State, therefore, is the steward of the forest lands, and their management and protection from fire constitute one of the biggest issues before the people of Canada.

### *The Poor Relation*

"Eliminate for the moment the front-row brethren of grain growing and stock raising in your family of activities and look over this Forest Giant. He has been the poor relation of all public issues. One would think that he constituted a liability on the land, that he did not answer to cultivation, like a cow or a cornstalk,

for it is safe to say that ninety-five per cent. of the vast forest values of the three prairie provinces has been ruined and forfeited in the last hundred years. This continuous chain of forest fires has done no good service for prairie agriculture but has bound it to depleted areas of thousands of square miles that for the life of at least this generation must be carried as a general liability.

"The immigrant from the United States and overseas sends, as it were, an advance program of his expectations. He wants his wooden house, wooden barn, wooden fence posts, wooden fuel, wooden furniture and half wooden farm implements. Doubtless he does not want trees cluttering his homestead more than necessary, but he does want the product of trees laid down at his door without stint and at a fair price. If Alberta cannot complete the contract, if Alberta can supply only the land, you have left a chunk out of the newcomer's rainbow. He will seek elsewhere for a more likeable combination of conditions.

#### *Seventeen Million Acres*

"We have in this province nearly seventeen million acres in forest reserves, out of a total land area of 161 million acres. You may think that is enough to keep the wood pile going for all the people coming this way. But measuring forest possessions by acres is slovenly reckoning, much like going down town to pick a diamond with a foot rule. What lies upon those millions of acres is a meagre legacy of past fires. It is the wreckage of a hundred years of maltreatment. The timber today within the prairie provinces is by no means sufficient to meet the needs of the population and must be increased by modern forestry methods. The insufficiency of our timber to keep pace with the demand of the future is true of every province and part from this side of British Columbia to the other side of Newfoundland. Timberlands are on the toboggan. We have only one-quarter the timber owned by the United States and yet their day of approximate wood exhaustion cannot be far distant. All that we have left

would supply the United States demand just twelve years.

#### *Fire Waste*

"A new flow of millions of wood-using settlers is the daily prayer of western people and yet our preparedness program gives them a quickly deteriorating forest where fire, so easily preventible, is striking down ten trees to the lumberman's one, and where in the north of these provinces are patches of wantonly ruined forest land, as big as Belgium, preparing for you relentlessly desert areas as hopeless as Sahara. Talk of the 'inexhaustible' forest resources of Canada! There never has been a more mischievous phrase, cooing us along like the soothsayers about the Russian Czar. For even while the spellbinding Colossus weaves his tale of content, he is interrupted by 10,000 forest fires, big and small, every year, illuminating his words in black and red.

#### *Provincial Control*

"Does not the panacea for the ills of the western forests lie in provincial control and administration? The conservationist does not argue the political rights and wrongs of this question. He is concerned only in promoting complete unanimity as to the wisdom of guarding and developing to the utmost the forest asset, itself. He is interested in supporting such excellent steps as the Manitoba and Saskatchewan governments took at their last sessions in passing new Acts to enforce supervision of the dangerous settlers' clearing fires in heavily wooded districts. He is interested in anticipating the same advanced action on the part of the Government of Alberta in the near future. Only by provincial co-operation in eliminating fire hazards can any rebuilding of this resource be attempted.

#### *Does Ownership Pay?*

"Whatever the past has held, whatever the future promises in the transfer of the title to the forest resource, the loser by today's neglect and the winner by today's care is the citizen of Alberta. Take over the forests and what do you take? The Dominion

Government is spending \$100,000 on the fire protection and development in Manitoba's forest reserves and they get in return a revenue of \$6,000, a straight outlay for many years to come, an investment for future settlers, of \$94,000 a year; \$151,000 is spent on Saskatchewan and \$75,000 comes back; Alberta's protection costs the Dominion Forestry Branch \$215,000, and a similar fraction is returned as revenue. All the revenues from all sources connected with the Dominion Government's forest possessions do not come within \$200,000 of the annual outlay for the present degree of fire protection and forestry practice. Quite possibly the provinces may secure the administration of their timbered areas, but let there be no misapprehension. These forests, while today giving immense service to your settlers, coal mines, irrigation projects, etc., are over great areas like sick and crippled children and must be carried as a liability and nursed back to productiveness. On 100,000 square miles across the top of the three provinces, surveyed by the Dominion Forestry Branch only 13 per cent. had timber of eight inches or over. Fifty-five per cent. had very good young growth which, with exclusion of fire, will re-establish something like the original values.

"For long years Germany toiled at building forests on land not as well adapted for forests as the rough lands in Alberta; for years the costs of cultivation ran into dollars per acre, whereas we are not spending three cents per acre. But the more you put into a forest, the more science the more money, the greater the dividends. Germany has been extracting from \$1.85 to \$5.32 per acre in annual crops of wood, while at the same time adding greatly to timber capital. France has been getting \$2.00 net revenue from state-managed forests. Our prairie provinces have never exceeded more than a few cents per acre for the public treasury. Why the remarkable difference? Why should Sweden draw in \$100,000,000 a year from wood crops while with as good forest land and a lower latitude we lamely imitate with one or two per cent.? These nations put the blanket

on fire waste fifty to a hundred years ago. We are still dreaming of doing likewise. These nations hitched up science with timber perpetuation. We are still in the dream stage on that too.

#### *75 Per Cent. for Timber*

"Probably more than seventy-five per cent. of the tree covered areas of the prairie provinces will produce one crop and one alone, timber. That is your fortune, not your misfortune. In Ontario quite 60 per cent. of the whole provincial map is fit for forests alone. In Quebec out of 210 million acres, only eight millions are under farm crops. Good business management, which is conservation, demands that those non-agricultural areas be utilized to their last penny of productiveness.

"Gentlemen, this is a year of thrift. Every prosperous European state prizing trees as the great balance wheel of agriculture and industry looks across to the perpetual bonfire of Canada's north with amazement. We are the only member of the belligerent group who since war commenced have had enough surplus life and financial strength to give up in one year 270 precious lives and, nearly every twelve months about six million dollars worth of property.

#### *Take Personal Interest*

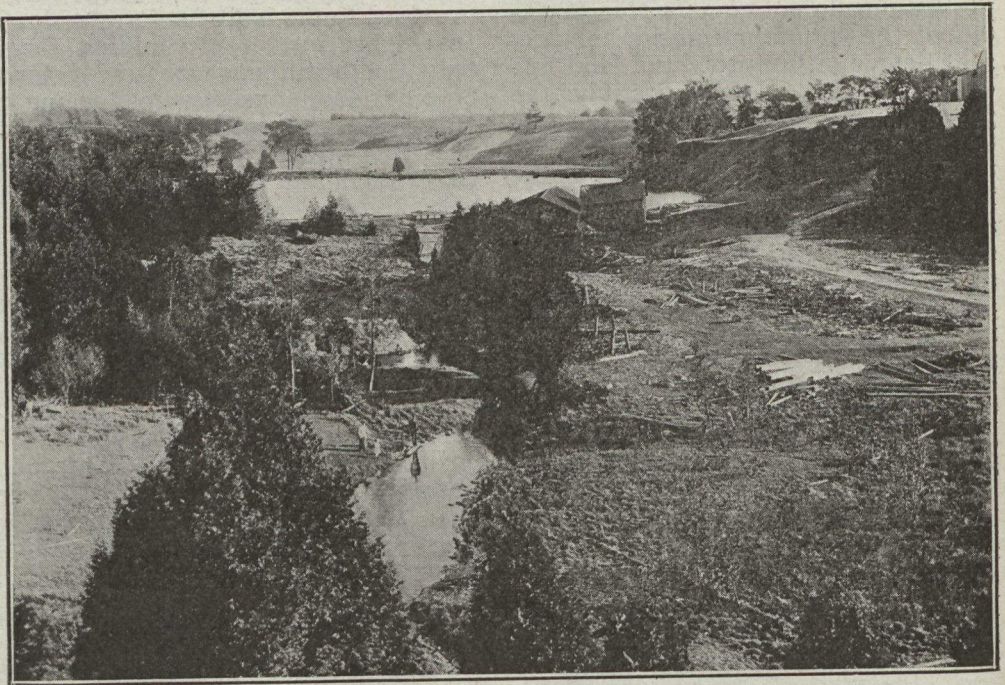
"This is first and foremost a government proposition, for we have the lease system almost entirely. Don't look to the lumberman for he is usually as far along in conservation as is public sentiment. Moreover, the lumber firm has usually a life expectancy of just so many years. But the state knows no quitting. It never gets bankrupt. It takes on the job for 1998 as for 1917. And because forest growing is a long time proposition and needs the providential hand of governments one may feel more satisfied that in these awakening days as to the duties of governments and the value of foresight, the people of Alberta will give to these imperative problems of the timber supply that personal concern without which public policies of conservation both here

and at Ottawa cannot be expected to make headway."

Mr. Black is also holding public meetings in British Columbia for two

weeks and will address a joint luncheon of the Calgary Board of Trade and Canadian Club, another evening meeting and two high school lectures in Calgary.

## *Succeeding With A Tree Plantation*



SILOAM TROUT PRESERVE—VIEW OF THE BROOK AND TROUT PONDS.

One of the most interesting spots in Ontario is near Uxbridge, Ontario, at the Siloam Trout Preserve and Plantation owned by Mr. T. B. Frankish, 33 Prince Arthur Ave., Toronto.

Mr. Frankish has a property of 75 acres of which 25 acres are under water, constituting one of the best speckled trout preserves in the Dominion. The township lot of which it forms a part was patented in 1790 and the following year a saw-mill was erected which was run on the water power developed until 1914. In the Spring of 1912 Mr. Frankish

began reforesting a portion of the land and there are now well on to fifteen thousand trees growing. They consist of Scotch, Red, White and Bull Pine besides Black Walnut, Butternut, Red and White Cedar, Red and White Oak, and White Ash.

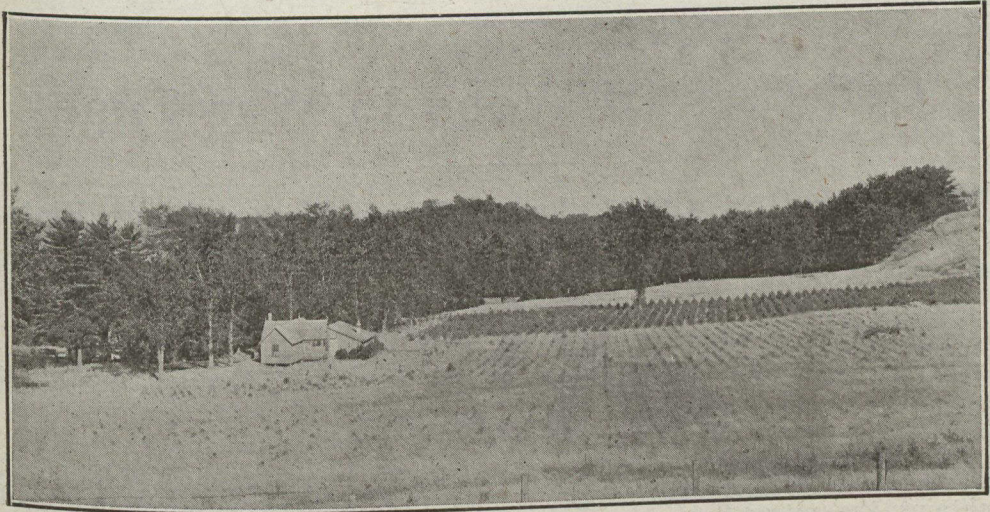
The first year's planting consisted of 2500 Scotch pine out of which less than six failed. A better picture of vigorous growth could not be found; some of the trees have reached a height of ten feet.

Mr. Frankish spends most of his summer months at this delightful spot directing the work on the



plantation and in the capture of the speckled beauties. Brook trout have frequently been caught in this preserve weighing four-and-one-half

pounds, the average being one to two and one half pounds. Mr. Frankish has been associated with this charming spot for the last 60 years.



SILOAM TROUT PRESERVE AND PLANTATION—VIEW OF SOME OF THE PLANTATION.

## Common Sense on Xmas Trees

In connection with the waste resulting from the annual cutting of small evergreens in the Christmas tree trade, as discussed in the January Forestry Journal, the sentimentally dressed but practical remarks of Bristow Adams are noteworthy. With reference to Canadian conditions it may be said that the loss caused in this way is but a small drop in the bucket compared with the annual preventable fire loss. Wasteful logging methods also account for a greater loss than that due to Christmas tree cutting.

In response to the Journal's call for further expression, the following might be suggested. It has been observed frequently that a large number of trees reaching the Christmas market both in Canada and the United States, are black spruce. In-

sofar as these trees were cut from bog lands the loss of future timber value is insignificant. Canada has many millions of acres of muskeg covered by black spruce that will never make anything else but Christmas trees. Such, in suitable form and size, are readily obtainable in unlimited numbers. Large areas of muskeg are now contiguous to railroads. Being frozen at the time of the Christmas tree harvest, they are easily accessible. Far from the necessity of suppressing this trade, it might thus be developed into a profitable industry.

The procedure is simple. Let forest officers direct the cutting of Christmas trees. In general, let this be confined to the muskeg. In some cases valuable young stands elsewhere might be thinned to advantage. In pulpwood operations, many tops of the smaller trees cut might be

made to serve. As has been pointed out, many trees growing out of place can be cut with profit instead of loss. All that is needed to minimize waste

without sacrificing revenue is a little intelligent direction.

J. C. Blumer,  
Commission of Conservation.

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## Odd Uses Of Wood In War Time

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### High Explosives, Gunstocks, Artificial Limbs, Paper Vests, Turpentine and Resin, a Few Products of the Tree.

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By A. W. Schorger

Chemist in Forest Products, Forest Products Laboratory, Madison, Wisconsin.

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One of the mysteries of the present war is the source from which Germany obtains the nitrocellulose necessary in the manufacture of smokeless powder and ordinarily made from cotton. A well-defined belief exists in England that at least part of the nitrocellulose needed by German powder factories is being made from wood; and if this is true it furnishes another instance of the surprising dependence upon wood, in one form or another, on the part of the fighting nations. The actual extent to which forest products are put to use in time of war, both for military purposes and for supplying the nation with some of the things it needs to carry on its daily life, is not generally recognized. Conditions, of course, have changed vastly since the day when Pepys offered up thanks in his diary for "the very good news of four New England ships come home safe to Falmouth with masts for the King; which is a blessing mighty unexpected, and without which we must have failed the next year. But God be praised for this much good fortune, and send us the continuance of His favor in other things.

Wood has ceased to be a large factor in ship building. Sea battles of to-day are fought by all-steel dreadnoughts; even the wooden backing of the armor plate is giving way to other materials. Wooden decks alone

remain to link the old fighting ship with the new. But warfare on land has developed in a way to give timber an importance in field operations it never had before, while the vast number of accessories needed for the smooth running of the modern fighting machine, from ammunition to absorbent cotton, have led to an extraordinary demand for certain forest products, and have even brought about new uses for wood born of necessity and unheard of a few years ago.

#### *The Uses of Powder.*

For one thing, there is the matter of explosives. Ordinary black powders contain 75 parts saltpeter, 10 parts sulphur, and 15 parts charcoal. The charcoal employed must possess special properties, and is made largely from dogwood, willow and alder. In spite of the advent of smokeless powders, enormous quantities of black powder are still used. It is employed in shrapnel, for which only a moderately powerful explosive is required to drive the bullets. Besides, the smoke produced when the shell explodes is an actual advantage in enabling the gunners to determine the correct range. Black powder is also used to fill the rings of the time fuses with which shrapnel shells are equipped, for which purpose no satisfactory substitute has yet been found. Furthermore, it is used in most armor-

piercing shells, which should attain great penetration before they go off, and for which the majority of high explosives would be unsuitable because of their explosiveness on contact. Another product of the forests, resin, is employed for filling the spaces between bullets in shrapnel, so that on explosion the missiles will be evenly distributed in all directions. Its brittleness and at the same time, its hardness, together with its low melting point, fit it admirably for the purpose.

The period since the beginning of the war has witnessed a great amount of discussion in England as to whether Germany is actually employing wood from which to make the nitrocellulose for her smokeless explosives. When, after a long delay, England declared cotton contraband of war, it was maintained by many that this would not inconvenience Germany greatly, since she was already making explosives from wood cellulose. During the discussions that followed, it was proposed to destroy the forests of Germany by a giant fleet of aeroplanes armed with bombs; however, as one English editor naively remarks: "This would scarcely be feasible, since about one-third of Germany is forested."

#### *The First Smokeless*

In this connection, it is an interesting fact that the first successful smokeless powder was made from wood about 1865. This powder, invented by Schultze, consists of a mixture of saltpeter and nitrated purified wood. While inferior to gun cotton in ballistic powder, it still retains high favor among sportsmen. Various other explosives, known as "white powder," "yellow shooting powder" and "Bautzen blasting powder," contain nitrated lignocellulose.

Aside from munitions wood is serving many useful purposes in the war. Millions of gunstocks are made from American walnut, which is the best wood yet found for the part. A new rifle, it has been estimated, is required monthly for every man at the front. In the modern infantry weapon the wooden stock is prolonged to the end of the barrel, which means

just so much more wood needed in its manufacture. So great, in fact, has been the demand by gun makers for seasoned walnut that it has often been necessary to use birch and other woods as substitutes.

With characteristic foresight, the Germans brought portable sawmills with them into France, and have utilized their enemy's forests to supply their need for timber at the front, while reserving their own forests for home demand. The development of trench warfare, when vast armies of men dig themselves in on fronts hundreds of miles long, calls for an amount of timber for trench walls, floors, and braces that is difficult to estimate. Millions of feet of lumber are required also for temporary buildings behind the fighting line and for housing non-combatants made homeless by the fortunes of war. Still more goes into bridges, wharves, and the like. High explosives have made it possible for a retreating army to destroy stone and steel structures behind them in short order, and such structures the pursuing army must have the means of quickly replacing. Wood is, in most cases, the only material that will answer the purpose, and it served the German army in good stead during the pursuit of the Russian army through Poland.

Turning from the materials needed for actual fighting to the no less important ones required for proper care of the wounded, we find Germany, fully prepared for England's embargo, making a soft, absorbent surgical cotton from wood cellulose. Two factories in Sweden also are making this substitute. Slings are made from tough crepe paper, and splints from fiber boards.

#### *Paper Shirts*

Wood is also contributing to the personal comfort of the men at the front. Russian soldiers are wearing paper shirts made in Japan, where such clothing has been in use for many years. The chief raw material for the manufacture of paper is, of course, wood pulp. Paper clothing is warm and cheap, and special waterproofing processes are overcoming its tendency to tear when wet. It may

be discarded when soiled, an advantage to the soldier from the standpoint of hygiene. The Germans and Austrians, mainly the poorer classes of the civilian population, use paper vests, socks, and handkerchiefs. Blankets and coats are padded with cellulose wadding. So many paper articles, in fact, are produced for the comfort of the people of Germany and Austria as to lead the Socialist organ, *Vorwaerts*, to declare, "To be without wood is almost as bad as being without bread."

To insure the presence of every factor that tends to eventual success, a country at war needs to maintain its economic conditions as nearly as possible at their normal level. Products of the forest play an important part in many peaceful industries which must be kept going in war time.

Methyl alcohol, the other product besides acetic acid obtained from the destructive distillation of hardwoods, has a multitude of uses. For one thing, it is essential in the manufacture of many medical preparations. For another, it is employed in the making of aniline dyes, the scarcity of which is being felt throughout the world. It is the source, also, of formaldehyde, one of the safest and most efficient antiseptics known, for the manufacture of which large quantities of wood alcohol are exported to Europe.

#### *Making Turpentine*

The longleaf pine forests of the South furnish 90 per cent. of the world's supply of turpentine and resin. In normal times turpentine is used mainly as a solvent in the arts. It is entirely possible, however, should the need arise, to make from turpentine a synthetic camphor as good for practical purposes as the natural product. In the event of the blockade of the Pacific Coast, this should be the means of preserving our celluloid industry, which now consumes the greater part of the 5,000,000 pounds of Japanese camphor imported annually.

Resin, the use of which in shrapnel has already been mentioned, is employed mainly in the manufacture of

cheap soaps and as a size for paper. So acute has become the scarcity of resin in Germany that the Prussian Minister of Agriculture has suggested such measures for increasing the supply within the empire as distilling resinous wood and collecting the oleoresin which exudes from trees peeled by deer. Prices being paid for resin by the Central Powers are almost fabulous. Curiously enough, a substitute for paper size, recently proposed by a German scientist, has wood tar as its base.

#### *Casualties in Papers*

In connection with the use of resin for paper should be mentioned the fact that in time of war the demand on the forests for print papers deserves serious consideration. Of the 6,000 newspapers and periodicals in Germany and the 3,000 in Austria at the beginning of the war, it is estimated that some 1,100 of the German and 900 of the Austrian have since suspended publication either through inability to obtain paper or because of its prohibitive price. Germany has always imported large quantities of pulp wood from Sweden and Russia, so that cessation of importation of Russian pulp wood and American resin is a partial cause of the trouble. On the other hand, German war literature has been augmented by the 7,000 books and pamphlets since beginning of hostilities; and it is the invariable rule in all countries that the demand for newspapers and periodicals of all kinds increases enormously in a time of national crisis. The total daily circulation of French newspapers before the war, for example, amounted to approximately 7,000,000 copies. Their circulation has now increased to 15,000,000 daily, in spite of the suspension of a number of journals. The bulk of print papers is made from spruce and balsam fir. Experiments at the Madison Laboratory of the Forest Service have shown, however, that satisfactory newsprint paper can be made from some seven or eight other American woods, which places the United States in a position of preparedness, at least so far as the production of paper is concerned.

*A New Binder Twine*

The binder twine, used everywhere in the United States in connection with harvesting our crops, is at present made from sisal imported from Central America and Mexico. As a result of the disturbed conditions in Mexico, American twine manufacturers are seriously embarrassed for raw material. A substitute has been sought in paper twine, and experiments in this direction are still under way.

Strong cordage, ropes, burlap, and similar articles can be made from paper, and, in fact, are being made

from it. Our common burlap and course bags are ordinarily made from imported jute. Shortly after war was declared the price of burlap bags increased so greatly that one large grain dealer seriously considered taking the profit to be derived from the sale of his reserve stock of bags and going out of business. In the case of a war of our own, the United States should be in a position, through its enormous supplies of wood fiber, to meet all, or at least the great part of, its needs for the twine necessary to harvest its crops and for substitutes for burlap bags and hemp ropes.

### *Contributing Members of the Canadian Forestry Association for 1917.*

Dr. Frank D. Adams.  
 Sir James Aikins.  
 F. H. Anson.  
 W. E. Bigwood.  
 Walter A. Black.  
 A. W. Boswell.  
 Geo. Boulter.  
 Reginald R. Bradley.  
 Mark Bredin.  
 E. R. Bremner.  
 Bronson Company.  
 W. R. Brown.  
 F. J. Campbell.  
 R. H. Campbell.  
 Thos. Cantley.  
 H. S. Cane.  
 R. S. Cassels, K.C.  
 R. J. Christie.  
 A. E. Cross.  
 M. L. Davies.  
 J. S. Dennis.  
 E. N. Dechene.  
 W. M. Dobell.  
 Edward L. Drewry.  
 G. Durnford.  
 Chas. E. Edmonds.  
 T. H. Estabrooks.  
 Thos. Flynn.  
 J. D. Flavelle.  
 Mrs. R. C. Fisher.  
 C. E. Friend.  
 W. I. Gear.  
 Geo. H. Gooderham.  
 J. L. Goodhue & Co., Ltd.  
 J. R. Gareau.

Hope Lumber Company.  
 Lt. Co. J. W. Harkom.  
 Claude C. Hockley.  
 Peleg Howland.  
 A. Jephcott.  
 R. M. Kenny.  
 Keenan Bros., Ltd.  
 James Kynock  
 Herbert Langlois.  
 Clyde Leavitt.  
 La Compagnie de Pulpe de Chicoutimi.  
 Montgomery & Sons Co., Ltd.  
 Miss McLennan.  
 Pearce Company.  
 Robt. E. Perry.  
 Wm. Pearce.  
 W. Gerard Power.  
 Powell River Lumber Company.  
 Capt. Wm. Robinson.  
 R. W. Reford.  
 Wm. Russell.  
 P. D. Ross.  
 Shives Lumber Company.  
 Chas. E. Spragge.  
 A. J. L. Trigge.  
 H. H. Wicksteed.

### *Life Members of the Canadian Forestry Association in 1917.*

Robert Dollar.  
 David Gillies.  
 J. S. Gillies.  
 Godbout Lumber Company.  
 R. A. Snowball.



# Ridding "Slash" From Western Lands

Experience Proves that Lumber Operator Should Pile and Burn Debris at Time of Cutting.

By R. H. Campbell, Dominion Director of Forestry

In dealing with the protection from fire of the forests in the western provinces one of the things that forced itself on the attention of the Forestry Branch was the great quantity of dead material lying on the ground, partly as a result of fire and partly as a result of lumbering operations. This debris formed a serious menace and the conclusion was finally come to that an effort must be made to try and have all the debris of lumbering operations disposed of in some way to prevent this danger and to bring about the conditions of safety which are found in the European forests generally. Having obtained all the information possible from other places where brush disposal had been carried on as to cost and feasibility, a start was made on some of the forest reserves in Saskatchewan in the disposal of the brush from logging of jack pine timber. This was on small tracts in somewhat open and even aged stands without very heavy brush and on sandy land where the fire would not run very easily. The brush was piled as the operations went on and was burned later, and the results in clearing the land and removing the fire danger have been very satisfactory.

## *Tried Out on Spruce Lands*

Having found that this plan would work satisfactorily on jack pine lands it was decided to make a trial on spruce lands. A trial was therefore made on several small operations on the Riding and Duck Mountains in Manitoba and elsewhere. Spruce presents more difficulties than jack-pine inasmuch as the brush is heavier and the condition of the forest soil is not so satisfactory for burning. The

covering of leaves, moss and other material on the forest floor under spruce is a dangerous carrier of fire and there is always a possibility of trouble arising from fire getting away in such a soil condition. However, the experiment was made on several operations in spruce with the result that it was found that both the piling and the burning of the brush could be carried on satisfactorily. *In the first place the operators were required to pile the brush while the burning was done by the forest rangers, but further experiment has demonstrated that the whole of the work can be done by the operator and, moreover, experimenting with the burning of brush immediately after the trees have been cut down has proved that the work can be done most satisfactorily and safely in this way.* This system is therefore being adopted in all operations in the future. By this system a small fire is started and the brush is thrown on it as it is lopped from the fallen tree, and is consumed immediately. No serious difficulty in the burning of brush in this way has been experienced although it has been tried under almost all possible conditions of cold and snow.

## *25 to 75 Cents Cost*

The cost of the brush disposal, so far as it has been possible to arrive at a figure, varies from twenty-five to seventy-five cents per thousand feet, board measure. The variation is not due mainly to the character of the forest but more to the experience and efficiency of the men who are handling the work. Where the operator has gone at the work with the intention of getting it done immediately and thoroughly the cost has, as his

men become experienced, come down to the smaller figure. Where the operator has gone at it with the idea of showing that it could not be done, the costs have been fairly high and have not been reduced later, with corresponding loss to the operator, as a result. On the whole the operators are satisfied that the burning of brush is a proper measure of protection to require and some of them have gone so far as to state that the disposal of the brush immediately as operations are going on has made the cost of disposal to them practically nothing as it has greatly facilitated the logging operations by having the brush out of the way.

The experience which we have had satisfies us that the brush can be disposed of satisfactorily and at a reasonable cost and that its disposal greatly reduces the fire hazard, and it is the intention to continue to develop that policy. It must be admitted however that our experience so far is on comparatively small areas and with small operations, and that it does not settle the question as to what methods should be followed in all cases. It is clear however that the system of brush disposal is a feasible one and that experimental work should be carried out without delay wherever lumbering operations are being carried on.

### COST OF SLASH DISPOSAL

By W. T. Cox, State Forester of Minnesota.

The cost of slash disposal work to the timber operators of the state averages about ten cents per thousand feet of timber cut. Considering that there are about three billion feet of timber taken from the woods of Minnesota each year, slash disposal costs about \$300,000.00. This explains the fact that some of the more shortsighted lumbermen oppose the work of the Forest Service, but to the credit of the lumbermen in general it must be said that many of them are good enough citizens and good enough business men to see that this investment of theirs in fire prevention is well worth while in more than one

way. The lumber companies pay not only the cost of slash disposal, but when fires occur, they furnish, on the ranger's request, big crews of men to fight the fires free of cost. This expense also runs into a great many thousand dollars a year.

### IDEAS!

"Ideas do not take hold in proportion to their goodness," said the Editor of the Saturday Evening Post lately; "They take hold in proportion to the steam behind them."

Has the reason for the existence of independent means of campaigning for forest conservation been better expressed? Some share of knowledge of Canada's shortcomings in forest protection and scientific management of timber crops is possessed by most members of provincial and federal governments. The 'idea' in itself is commended with enthusiasm. In the abstract it forms a common meeting place. But in practice, it seldom gets anywhere without the tireless aid of the private propagandist. Until all Governments possess advisory boards and put statesmanship above 'practical' politics the quickest and most effective way to get an idea adopted is to commence at the outside of the ring and construct a band of public opinion that sooner or later will prove politically irresistible.

One must not apply this formula in Canada too severely. Examples are by no means lacking where provincial and federal ministers have given effect to progressive ideas in forest conservation on the basis of personal judgment of their value. Such institutions as the Forest Products Laboratories at Montreal were not constructed because of political pressure but as an act of wise statesmanship. Many instances in the provincial fields illustrate the same point. It remains generally true, however, that in the United States and Canada ideas take hold, not in proportion to their goodness, but in proportion to the steam behind them.



## The Dawn of Forestry in China

How the Chinese people are slowly realizing the practical benefits of forestry practice in a land so grossly denuded is apparent in the following excerpts of a letter written by Mr. Joseph Bailie of the College of Agriculture and Forestry, Nanking, China to Prof. J. W. Toumey, Director of the Yale Forest School, under date of Dec. 28, 1916:

Since my return from the United States in the end of September, I have been trying to gather the threads of the work into my hands. The most gratifying feature is the manner in which the Chinese themselves are developing what is in their hands. As you are aware, the Colonization Association is so organized that, although we foreigners may give advice, the whole authority and responsibility is in the hands of the Chinese.

The second day after our return, my wife and myself paid a visit to Purple Mountain, and to my delight I found that not only had all the trees that had been planted before I left Nanking for the United States been protected, but that tens of thousands more had been planted, some on part of the old estate and some on places that heretofore we were not allowed to take charge.

### *A Good Beginning*

You may remember that when H. E. Chang Chien was Minister of Agriculture and Commerce, he granted our Nanking Branch of the Colonization Association the whole of Purple Mountain. Though this grant had been made in Peking, it was with difficulty that we gradually took in piece by piece, owing to the chaotic state of land laws and land tenure in this district. However, during my absence of the past year, the Committee has extended its control over the greater part of the mountain. Nor has this control been an empty name; the volunteer trees that would spring up and make forests in at least

one-third of the vacant lands of this province, if protected, have been actually protected on the whole of Purple Mountain. This means that millions of these sprouts are now left standing. The usual thing is to cut these young sprouts along with the grass every year and carry all off when dried as fuel. Thus we have several sections of the mountain beginning to show signs of forest growth. Not only so, but the neighbors bordering on our mountain, seeing the common sense of what we are doing are also leaving young saplings to grow into trees, in places where heretofore all were cut off every year along with the grass, so that for miles beyond our mountain other mountains are now beginning to show that hundreds of the surrounding farmers are learning from us. This is perhaps one of the most encouraging features of our work, namely, that in so short a time so many are following in our footsteps.

But the progress made is not only in trees. More poor families have been given land to break up on the parts of Purple Mountain that have been taken charge of by our Committee.

### *Eighty Families Prospering*

At Lai An Hsien where there is another Branch Colony, the work has gone steadily on, until now there are over eighty families, numbering over 400 individuals, now settled among the mountains which less than three years ago were a wilderness and the only use to which they had been put was to cut a small quantity of the grass and brush for fuel, the great bulk of the mountains being burned over every year. These eighty odd families are nearly all on their own feet now. This wet year, while drowning out the crops of a great many farmers on the level lands, was just the thing for these people on the mountains, and the result was that their crops were on the average better

than those on the plains, and indeed equal to a good average year's crop on the plains. It is because of this that most of these industrious colonists are now safe beyond where famine or want looks them in the face, and most of them will be able to begin to pay back what was lent them to provide them with food while they broke up their little farms.

The discouraging feature for us in the University at present is that we haven't a single forestry professor yet, and our forestry students are rapidly approaching their third year.

Our school work is getting along

nicely. Our Department has fallen heir to the greater part of the scientific outfit of the School of Medicine, which has moved from here to Tsinanfu, under this Rockefeller arrangement, so that now we are well equipped for biology, chemistry and physics. We are also giving the students pretty good training in practical nursery work, and they are having some forestry in classroom by our professors in Agriculture. But the time has come when we must have them in the hands of actual foresters.

JOSEPH BAILIE.

### *Paper Industry no Stronger than Forest Foundation*

*From "Financial Post."*

"The war—and attendant conditions—has given to the Canadian pulp and paper trade that impetus which was required to put this country in a very strong position in world markets. This impetus, resulting in a great development of output, should carry the industry through many of the adjustments which will take place with the end of the war.

It remains to be seen what part Europe may again be able to play in the world market when normal shipping conditions return. There are reports that Sweden and Norway have vast accumulations of pulp wood products awaiting a chance to market them in a normal manner. At the same time these countries are increasing their shipping facilities in a manner which indicates that they will become aggressive competitors in water borne commerce and will be in a position to market their own products to advantage. Then there is another potential competitor—Russia. The future alone can reveal what the development of the resources of that little-known country may mean, but it is safe to assume that there will be development after a war which has served to arouse a nation, fabulously rich, in respect to natural resources. Significant is an

article which recently appeared in the Russian section of the London Times regarding progress on the construction of the new Murman Railway. In connection with the project, the vice-minister of agriculture, makes a statement respecting the resources of the region to be opened up in which special reference is made to wood pulp:—

#### *What of Russia?*

The vast timber areas (yew and pine) stretch for hundreds of square versts. These forest resources have been utilized to an insignificant extent. The northern governments abound in mountain streams, which, with their considerable incline, provide a multitude of waterfalls to be utilized for power for sawmills and wood-working factories. There are sawmills at Keret and some other settlements, but their number is very small. The extensive system of rivers and streams also affords opportunity to adopt the cheapest method of transporting timber—rafting it along these waterways. There is projected the construction of other more improved means of communication, which will also be of service to the timber industry. The Department of Agriculture proposes to afford the

widest access to the exploitation of the timber resources for the production of both lumber and wood pulp.

#### *Burning our Storehouse.*

Looking to the future then we see the possibility of the development of a great European competitor. That development may not be rapid but Canada's pulp wood resources are not inexhaustible. To insure our supply of raw material demands a policy which will protect standing timber against the ravages of such fires as have been experienced in

Northern Ontario and the replanting of the vast areas which have been cut or burned over. These lands have small value from an agricultural standpoint and to use them to conserve our pulp wood supply would represent but little in the way of overhead. Some of the private companies are following a far-sighted policy in this connection in reforesting cut-over areas but to insure the future of our most important national industries demands a broad practical program on the part of provincial and Dominion governments.

## How Forest Reserves Help the Settler

### Saw Mills Located in Colonized Districts Supply Lumber at Minimum Cost.—A Successful Experiment.

The objects for which the Dominion forest reserves of the West are established are mainly to preserve the timber and make it available for the use of the people in the vicinity of the reserves, and for the development of the country generally. One of the most important uses of the reserves is to supply building material of all kinds for the settlers, logs, rails, poles, posts, etc., and in order to provide that the settlers may get the timber as directly as possible from the reserves a system of timber permits is provided by which a homesteader may get a permit for a considerable allowance of timber free of dues, and may thereafter obtain permits from year to year for such timber as he may require on payment of dues at a moderate rate.

#### *Service to the Settler*

The quantity of timber granted under permit amounts already to a considerable quantity each year, being in 1915 about 5,000,000 feet board measure of saw timber; 1,245,000 lineal feet of building logs; 393,000 fence posts; 598,000 fence rails. The

settler can of course cut the timber required in the form of posts, rails or cordwood with the axe or with the small saw but when it comes to obtaining lumber he must either buy the lumber from one of the sawmills or he must take the logs cut by him under permit on the reserve to a sawmill and have the lumber sawn out. If he buys the lumber from the sawmill he must pay whatever the price is in the open market. If he takes his logs to the mill to be sawn he has to pay whatever the millman wishes to charge for the work of cutting the logs into lumber.

#### *Reducing the Middle Profit*

In order to assist the settler a stage further beyond the mere granting of the permit for the cutting of sawlogs the Department of the Interior has been experimenting in the last year or two with a policy of granting owners of mills the right to locate within a forest reserve and saw timber for settlers on the payment of a fee for the location of the mill and agreeing to saw up the logs at a reasonable rate. The method followed to ensure

the best possible arrangement to help out the settler is as follows:

#### *Lowest Price Assured*

A tract where there is a stand of timber sufficient to meet the requirements of the permits generally asked for in the district which is tributary to the portion of the reserve where the timber is located is examined by the forest officers, and is designated as a location for the cutting of timber under permits for the next season or two seasons as the case may be. The right to locate a mill at this point and to saw the timber for settlers who may obtain permits in the regular way is put up for tender, the notice being given by advertising in a newspaper and by putting up notices in the post offices in the district. Tenders are asked on the basis of the lowest figure at which the millmen will log and saw the timber for the settlers. Tenders are received up to a fixed date and on the date fixed the tenders are opened and the person who has agreed to log and saw the timber at the lowest figure is awarded the right to locate the mill. In order that the settlers may have full information on the rates which have been so fixed by tender, a statement of them is required to be posted

up in a conspicuous place at the mill so that it can be read by any settler who is going in with his permit to obtain the timber he requires.

#### *No Hauling of Logs*

A number of mills have been operating on the reserves under this system, particularly on the Riding and Duck Mountain Forest Reserves in the province of Manitoba, and on the whole the experiment is proving satisfactory all round. The locating of the mills in the reserve close to the timber is a great convenience to the settlers who instead of having to haul their logs out are able to haul them out in the form of the lumber that they require. The settler also gets his logging and sawing done at the lowest figure that can be got, as the right is put up to tender to the lowest bidder. The timber operations have been carried out very satisfactorily on the whole and the tracts lumbered over in this way are being left in good condition for the reproduction of the forest. The brush and debris resulting from the operations is required to be burned and thus a very serious fire danger which usually follows lumbering operations is removed, while a good seed bed for the starting of the new forest is provided.

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## Forward Steps In Forest Thrift

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### Manitoba and Saskatchewan put Through New Laws and Promise Good Enforcement. Alberta Next?

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Advanced steps were taken by the provincial governments of Saskatchewan and Manitoba at the last sessions of the legislatures in meeting the need for provincial cooperation in forest fire prevention. From the first suggestion of a revised Act respecting prairie and forest fires, the officials and Cabinet Ministers of the two provinces gave hearty reception to the representations submitted by the Canadian Forestry Association and made all efforts to secure an Act

compatible with the aims of forest conservation. Manitoba's Bill, for which the Provincial Treasurer, Hon. Edward Brown stood sponsor, was the last to be dealt with at the session and received the committee's sanction practically with their final breath. Objections were raised by one of the northern members to the clause placing the onus of proof upon the settler and his objection was allowed. One or two other concessions were made before the Bill got through.

A penalty for carelessness with matches, lighted tobacco, etc. was included in the measure.

#### *One Dollar Reward*

Saskatchewan's Bill is in some respects a more tightly woven piece of legislation than Manitoba's. In the former province, a most valuable incentive is provided to ensure the prompt reporting of forest and prairie fires by the organized municipalities. For every fire so reported, the Secretary Treasurer gets one dollar. Saskatchewan has been paying fifty cents hitherto for building and other fires reported by the municipal clerk and the reward resulted in prompt and thorough local service. The increased pay will doubtless solve the question of getting a fire reporting service from officials not on salary.

Mr. A. E. Ham, Fire Commissioner of Manitoba, and his assistant Mr. Mulloy, and Mr. Arthur Fisher, who has charge of the insurance and fire work in Saskatchewan have exhibited a most praiseworthy progressive attitude in their relations to the Act revisions. Much was left to the judgment of these officers and their prompt assumption of responsibility for up-to-date legislation respecting forest fire prevention has rendered real service to their respective provinces.

#### *Tune up Municipalities*

Mr. Ham and Mr. Mulloy are now mapping out the Province and organizing their preventive plans. Mr. Mulloy will have supervision of the municipal fire guardians through their councils, and assurance is given that failure to deal with careless settlers in wooded districts will bring prompt action by the Fire Commissioner's office.

In both provinces, the new laws require settlers in forested areas to take out written permits before setting out fires. This is devised to secure supervision and safety. In organized municipalities, authority rests with the municipal councils to appoint fire guardians and such appointment is mandatory. In unorganized districts, the Lieutenant Governor in Council may appoint special guardians, and it is under this

clause that the rangers of the Dominion Forestry Branch now on the ground will be given provincial powers over settlers. Lacking such authority they have hitherto been helpless to guard Dominion Crown lands against a most serious menace.

Alberta has thus far taken no action on the Association's suggestions for provincial co-operation. One proposal has been that the Dominion Forestry Branch define "wooded districts" in such general terms as would make their rangers responsible for prairie fires many miles from the edge of timber. This method is obviously unfair and cannot be the final basis. Sentiment in Alberta is heartily in support of better forest protection and an Alberta Government measure would be generally welcomed.

#### **SPINACH FOR PAPER**

A French horticulturist, Mons. R. de Noyer has discovered that Spinach stems contain 46 per cent. of cellulose and make a paper equal to the Japanese product.



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# BRITAIN— CALLS TO CANADA—

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#### You Can—

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# Hitching Up With Public Sentiment

## How Pacific States Developed a Triple Alliance Between Timber Owners, Governments, and People for Conservation.

Address by E. T. Allen, Western Forestry and Conservation Association, Portland, Oregon, at the Forest Conservation Conference, Montreal.

We ought to feel a great deal of interest in the Protective Associations here because the movement really commenced with us. In 1906 in Idaho the Co-operative Timber Owners' Association started, and soon grew to four in northern Idaho, and spread from there to the State of Washington, and in Idaho and Washington, we fairly had only begun, when it was decided that the movement should be combined in the various States, interested at that time, and a sort of alliance was formed of which I was placed in charge. We have tried to bring the same results into Oregon, California and Montana.

### *The "Triple Alliance"*

We have not done much in California, except in the northern part, but there are now, I think, between twenty and twenty-four Co-operative Timber Owners' Associations in these five northwestern states, and we have a sort of a Grand Lodge in our Western Forestry and Conservation As-

sociation. It is a sort of a clearing house for these two dozen private patrol associations. That work began in 1909, and we immediately conceived the idea that we would not go very far if it was regarded as a timber owners' game only, and we realized that it must be a sort of a triple alliance, i. e., timber owners, Governments, (Federal and State) must work together in harmony, and then as far as possible better the scheme to avoid duplications.

### *Public Opinion Supports*

It soon turned out also that this association had a tremendously greater public opinion than any private patrol unit, because when a firm like the railroads or a timber company sent for their employees and told them to be careful of fires, they were not very much impressed, but when an organization representing altogether over a million acres of land, and on good terms with the State, with a strong public position, and a



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good deal of influence, when they set at this thing, it took a sort of a semi-public status, and helped tremendously.

#### *Co-operation Ousts Fire*

We keep up the work through this large organization and the progress we are making in the technique of fire protective work is such that we have found it to be much better. We have found that much better work can be done by cooperation than anyone could do alone. After some little time we reached the position where we had 13,000,000 acres of timber land that were being patrolled by the association, and a little over 20,000,000—between 20,000,000 and 25,000,000 acres of timber land that was beginning to think seriously of coming into line, and our local association worked with the State and the Government, not only in general harmony, but very often in a cooperative scheme in which we split the territory; we contributed so much to this scheme, so did the State, and so did the Federal Government. If our man happened to be the best man he would get the appointment as Warden and by putting on these men and by chipping in we are getting an organization together so that we have very little fire. We found we could control things in a normal year, but there come situations in an abnormal year that are very hard to cope with, and our efforts have been for four or five years to form our organization, not for a normal year, but for an abnormal year, and putting the three agencies

together and combining the interests of all of them, we have been able to better meet the situation.

#### *What Publicity Does*

In publicity work dealing with the general education of the people, we have tried to make progress. We have had posters generally circulated and slides in moving picture houses, and I made arrangements with a

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film exchange, and they put in each film package a slide which we had prepared, and the moving picture owners were very obliging and agreed to show this slide during intermission between pictures, or at the most favorable opportunity, so as to give the people who were waiting an opportunity to think over this great question of fire protection.

We took the matter up with the superintendents of education, and got them to O.K. the plan and we tried to get cards or other matter into the North-western schools, and by so doing reached 400,000 children and their parents. We found that the only way of reaching the parents was through the children who, when this educational plan was given to them, would undoubtedly take the matter up and talk it over with their parents at home.

#### *Winning the Limit Holder*

With that little outline of our general methods, I will take up the question as to how to get timber owners into this patrol organization.

There are three ways to do it; one is simply voluntary joining, in which you persuade them it is a good thing, and that it is cheaper and better. That does not get all of them, as there are a great many selfish people who are willing to sit back and let you patrol their lands, as you have to do, in order to take care of each owner who is associated with us. We found after a few years that we had patrolled twice as much land as we could get money from, and had to do it just as well as our own, and consequently that was not very satisfactory.

#### *Putting on the Screws*

The next group of joiners came after we got our public opinion in our favor, and when people saw that we were getting to be a public or semi-public institution, and could get legislation, we got quite a number more, because the people got afraid and they thought they had better be on the band wagon than beside it, and a good many came in for that reason. But even that did not get all of them, so we tried an experiment in Oregon, and I believe it was the

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### MECHANICAL PROPERTIES OF WOOD

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### THE PRINCIPLES OF HANDLING WOODLANDS

By Henry Solon Graves, The Forester, U.S. Department of Agriculture.

Contains chapters on The Selection System, The Coppice Systems, Improvement of the Forest.

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### THE THEORY AND PRACTICE OF WORKING PLANS (Forest Organization)

By Professor A. B. Recknagel, Cornell University.

In preparing this book the author has constantly kept in mind the experience which he gained while doing active work for the Forest Service in various parts of the United States.

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## CANADIAN FORESTRY JOURNAL,

119 Booth Building, Ottawa

first time it has ever been done in this way on this continent. We passed a law in Oregon which is the State law, in which we simply said that every owner of timber land must patrol his land during the season of fire danger, and if he did not do it, the State would do it for him and spend an amount not to exceed five cents per acre in any one year, and that this additional expense would be put on the tax roll for the man to pay, and if he did not pay the State would take the land away from him. In that way we worked this problem out. It took money for the State to take over a man's land and patrol it, and we had to have money to do it. We did not ask for an appropriation large enough to do that, but we simply allowed the State to provide this, and did not say exactly how the State was to meet the expense of this work, and the State immediately contracted with the existing patrol association to patrol this land. That is, the Patrol Association has to hold the sack, as it were, and has to pay for it that year, and then it puts in its bill to the State in the fall, and the next spring the State puts that man's land on the tax roll for that sum, with the penalty clause, for collection. We have to have money to do that, and we may have to borrow this money from the bank in order to do it, but the owner has to pay for it, and while it comes a year late sometimes, still it comes, and then the State pays under its contract.

Now, that law is very popular; there is very little objections to it, because it is a safeguard. It says that a man must patrol his lands—absolutely must—and if he does not, the State will do it for him, and it says that the land shall be patrolled adequately. The law says the patrol shall be adequate for the country to be patrolled.

#### *How Slash is Handled*

Nobody can ever complain of anything that this association does, because the association would be punishing itself if it asked anything unreasonable. We have in mind trying in Washington this year something new in the slash burning section. We have considered a great deal out there

what is required for slash burning. We tried it by making it compulsory and some years this was a failure. Our system now is to allow that to be within the discretion of the State. We put in the law that the owner must remove any dangerous debris covering forest lands,—that any dangerous debris covering forest lands is a public nuisance, and the owner of it has got to abate that nuisance and if he does not do it the State can come in and the cost of the abatement is a lien against the property. So this and other sections in that bill I think, is going to be the correct way of carrying out what we are intending to carry out.

Our troubles are pretty well smoothed out, and I think it bears witness when I say that we have 13,000,000 acres patrolled by the association out in the west, and you can do it here if you get the cooperation of the State, the Government and the timber owners working together for the common good, and I do not believe that you can work this matter out in any other way.

#### TO GIVE 2,000,000 TREES

After planting seedlings on the State forests, the Pennsylvania State Forester will have 2,000,000 trees left for distribution for private reforestation. More than half this number is white pine.

#### EXPERIMENTAL MILL

The Forest Products Laboratories of Canada, Montreal, are drawing plans for the erection of an experimental pulp mill. Researches are to be carried on in the making of sulphite and sulphate pulp, and the mill is expected to be of considerable benefit to the industry. A government appropriation has already been made for the purpose. C. B. Thorne, of the Riordon Pulp and Paper Company, and H. Helin, of the Wayagamack Pulp and Paper Company, are assisting the laboratory in planning the mill and the companies they represent are giving the services of draftsmen and engineers.

## Logged-Off Lands For Community Use

The Legislature of Washington will have before it a bill, the aim of which is the utilization of logged-off lands through community development. The measure is one of the results of the Logged-Off Land Conference held at the University of Washington, Seattle, December 8.

In this instance, a board of agricultural development commissioners is to be created in each county. Land suitable for such development is to be sold by the present owners to the board, which shall clear it and then re-sell it to the original owners at a price agreed upon when the first transfer was made or to new settlers, installment payments being provided in each case.

Many practical men have held that logged-off lands could be developed without attempting to follow the methods used for reclamation by irrigation. Water can be supplied

to arid soil only by co-operative effort of a community, but in every timber state there is proof at hand that the clearing of land and growing of good crops on such land is not dependent upon community effort.

### Use Family Labor.

One of the pre-essentials towards development of logged-off lands is

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the encouragement of men, with families, who can find work in the logging camps or mills for a certain period in each year. Good crops can be raised by cultivating between the stumps, which can be removed as conditions permit, but success will be impossible if the settler is burdened with a purchase price in which heavy overhead expenses and promotion costs have been included, as the settler's capital usually consists of a big family and his bare hands.

#### *Survey Comes First.*

The first step toward the utilization of a tract of logged-off land seems naturally to be a survey and then its sub-division into plots so arranged that each settler will have access, if possible, to any stream flowing through the area and to the roads, which have been located prior to the purchase by the settler.

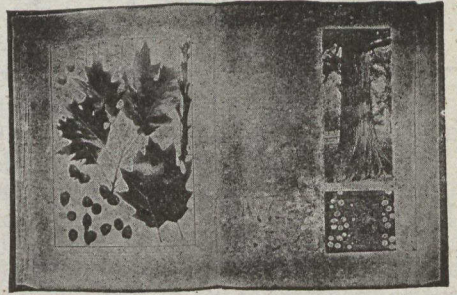
#### REPLANTING SAND DUNES

The famous Sandbanks in Prince Edward county may be converted into a big reforestation plot. The drifting sand has covered several hundred acres of farm lands adjoining, rendering the property useless. A deputation waited upon Hon. G. H. Ferguson, Minister of Lands, Forests and Mines, Toronto, with the request that the Ontario government establish a reforestation scheme upon this barren waste. The Minister seemed favorably impressed with the suggestion and promised consideration.

#### SERMONS IN TREES

*Exchange*

A good colored man once said in a class meeting—"Bredren, when I was a boy I took a hatchet and went into de woods. When I found a tree dat was straight, big, and solid, I didn't touch dat tree; but when I found one leaning a little, and hollow inside, I soon had him down. So, when dem debils gets after Christians he don't touch dem dat's straight and true, but dem dat lean a little and are hollow inside."



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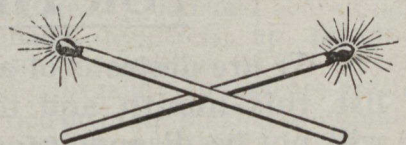
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## Making a Profit In Trees

Pennsylvania's million acres, which cost \$2,275,000, are now valued at over \$6,000,000. This increase is due to rising timber values, permanent improvement made by the Department of Forestry, and to tardy recognition of the fact that little trees grow into big trees and have an actual money value which is steadily increasing. Surely money put into an established business of this kind is an investment and not an expenditure.

## New and Interesting Publications Sent Free of Charge to Any Member of the Association

### "MON PREMIER LIVRE SUR LA FORET"

32 pages, 25 photographic illustrations. An attractive booklet for French-speaking senior boys and girls. This edition will be distributed in many of the schools of Quebec, in parts of Ontario, New Brunswick and Manitoba. (Printed in French only).

### "THE WHITE PINE OF CANADA THREATENED WITH EXTER- MINATION"

An eight-page pamphlet, well illustrated, by H. T. Gussow, Dominion Botanist giving the most thorough discussion of White Pine Blister disease yet published.

The Forestry Association is carefully distributing large editions of all of the above throughout Canada, through the channels of branch banks, railroads, forest services, the clergy, etc.

If you believe you can assist this distribution, the Secretary will be glad to hear from you.

Lumber, pulp, paper and other wood-using industries can secure whatever quantity desired for local distribution at the bare cost of printing.

By a recent ruling of the Association, our many 1917 special publications can be sent only to members who have paid their fees for the current year.

### "YOUR ENEMY'S PHOTOGRAPH"

A six-page folder with graphic fire picture in four colors. Published in French and English. Text deals with fire prevention.

### "WHO LOSES?"

A four page pamphlet, illustrated, containing Question and Answer on a score of points commonly raised regarding the forest resources of Manitoba, Saskatchewan and Alberta.

### "FIRE!"

A racy eight-page pamphlet, with cover picture of an approaching conflagration in red and blue. Contents include a sketchy talk on forest protection, and complete directions on "How To Build A Camp Fire." This booklet of special interest to guides, campers, sportsmen, etc.

**CANADIAN FORESTRY ASSOCIATION**  
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## A Modern Ranger System at Work

The excellent work of the Lower Ottawa Forest Protective Association during 1916, and the two previous seasons, was described in a paper by the manager, Mr. Arthur H. Graham, at the Forest Conservation Conference at Montreal, Feb. 1 and 2.

The patrol staff consisted of 57 rangers and 4 chief rangers. Experience had proved conclusively that the co-operative system of fire-fighting was the strongest and most efficient when the drought period came and men had to be gathered and hurried to fires with equipment. During three seasons' operations 457 fires had been extinguished, 560 miles of trail cleared, and the mileage travelled by rangers was 311,868 miles. About 300 miles of telephone lines had been constructed, five large towers erected, three of which were equipped with local and long distance telephone connections. During the first two seasons settlers were accountable for 50 per cent. of all the fires, but this had been reduced to less than 15 per cent. *The opposition to the permit system had almost vanished.* They had more success in controlling fires and confining them within a certain area than in completely extinguishing them.

In 1914 the number of fires extinguished was 154; in 1915, 155; and in 1916, 148. The total area burned over, including private lands, was: 1914, 297,996 acres; 1915, 20,715 acres; and 1916, 8,637. The merchantable timber scorched was: 1914, 16,624,325 b.m. feet; 1915, 6,607,450 feet; and 1916, 858,620 feet. The cost of operation for patrol, including all accounts except for fire fighting, had not exceeded \$1.50 per square mile, or less than  $\frac{1}{4}$ c per acre. No fires had come to their territory from the St. Maurice territory, which adjoined, but this could not be said regarding the Upper Ottawa area (which included licensed crown lands to the extent of 16,000 square miles), where fire ranging was done by the

private system of patrol. A number of the companies were doing a great deal to prevent fires, and were spending two or three times more money patrolling and fire fighting than they should have to spend because of their neighbors' carelessness and lack of proper patrol of their limits by competent rangers. Mr. Graham's remarks were backed up by a licensee who owned extensive areas in the Upper Ottawa district. *Thirty-five million feet of merchantable timber scorched was the estimate of damage done by two fires that reached his limits in an uncontrollable state, notwithstanding the fact that he spent \$3.80 per square mile patrolling, and an additional \$2 per square mile was spent for fire fighting.*

### THE ANCIENT POPLAR TREE

When white men settled in America, the Indians were making canoes of the yellow poplar. This was really the beginning of the last chapter in its life. Earlier chapters have been dug out of rocks and clays where its leaves and flowers have lain buried during thousands and millions of years. This tree appeared after the coal beds were formed, but before the ice age.

There were sixteen species of the tree then, extending to Greenland as the climate was warm. At that remote time yellow poplar grew in Europe where it no longer exists. Fifteen species perished in this long winter known as the ice age. The species that survived was probably then growing south of the region of extreme cold and when the ice finally melted, it worked its way north as far as Canada.

The scarcity of paper? As long ago as the reign of Tiberius the dearth of papyrus was so alarming that the Roman Government took over the distribution of the available supply.—Boston Herald.



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## Forest Policies Demand Revision

In the annual report of the Committee on Forests of the Commission of Conservation, reference is made to the forest protection situation in Ontario, Quebec, New Brunswick and Nova Scotia and the prairie provinces and certain recommendations are made. Forest protection

in Quebec, the report states, has received the hearty sympathy of the provincial authorities. It is believed however, that the importance of this work fully justifies, and in fact urgently requires, a greater degree of financial support from the provincial treasury than it has thus far received. Under the present system, the attention paid to the protection of unlicensed lands is inadequate. The situation urgently demands the assignment of a much larger force of inspectors for licensed lands, the employment of an adequate staff for the protection of large areas of unlicensed lands, in order that they may remain or become productive and provision for a sufficient head-office staff to maintain proper control over the entire organization.

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### Nova Scotia.

It is suggested that eventually, the province should embark upon

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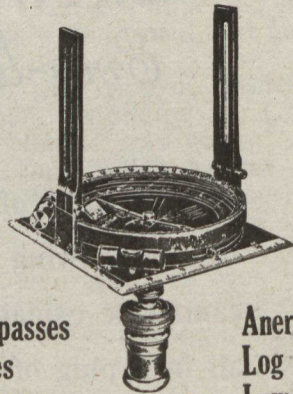
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a policy of reacquiring cut-over and burned-over non-agricultural timber lands, to supplement small areas of Crown lands. In this way, and at relatively small expense, the province can gradually re-establish the basis for a comprehensive policy of forestry practice on Crown lands. The necessary legislation already exists; only the required appropriations are lacking.

*British Columbia.*

The need for men trained in the theory and practice of forestry has become so urgent in the west that the University of British Columbia has decided to establish a forest school at Vancouver. This action is to be commended, and it is to be hoped that it may be made effective at an early date.

The Forest Branch has, through its own organization, made a remarkable showing in the development of new markets, both foreign and domestic, for British Columbia timber.

*Dominion Lands.*

Progress has been made in the matter of brush disposal in connection with timber sales in forest re-

**R. O. SWEEZEY**

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serves. This policy is becoming well established and the beneficial results are apparent in the form of decreased fire hazard.

On the other hand, there is no progress to report in connection with the enforcement of the technical forestry regulations on licensed timber berths, these not being under the jurisdiction of the Forestry Branch. A large percentage of the merchantable timber on Dominion Crown Lands is included within these licensed timber berths, and the fact that there is no provision for a technical administration of cutting regulations on these lands is a complete anomaly. Under the present plan of administration, the forestry experts of the Dominion Government are completely cut-off from any direct administrative contact with cutting operations on lands which contain the great bulk of merchantable timber on Dominion Crown Lands.

"The French Government during March, 1915, estimated the approximate destruction of farmhouse property with more than 1,200,000 houses without, however, giving a value.

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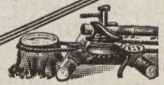
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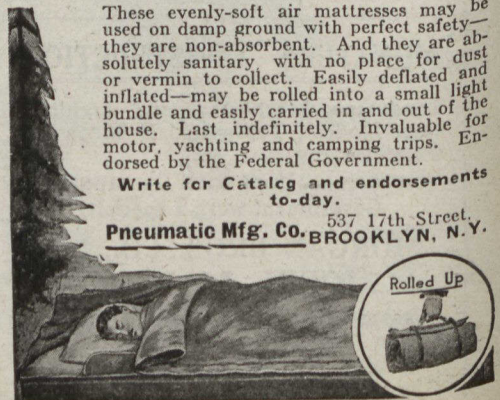
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## Going Camping?

It was early morning on Lake Golden. The teapot sputtered over the coals, and bacon flavors filtered gratefully to the nostrils. The Old Veteran squatted himself comfortably on a granite boulder and nodded toward the fire. "Boys," he said, "there don't look to be anything dangerous in a little bunch of coals, does there?"

"Not this side of a powder factory," chipped in the Youngster.

The Old Veteran tapped his pipe bowl significantly: "Some day we're going to have an argument about which is the trickiest spot to trifle with fire—a powder factory or a forest, and I think the forest will come first. One advantage about the powder factory is that you know the worst right off. But in the forest you may walk away for days and have the fire of your own making overtake you."

"That doesn't sound reasonable," the Youngster broke in.

"And it won't," agreed the Veteran, "until some time you start a camp fire in a bog or on pine needles and after a week's absence come face to face with your own fire in the shape of a blackened township. There's lots of surprises in store for you, my lad. I have known camp fires to burrow into a boggy soil, although doused with many pails of water, and remain there for two weeks, travelling underground until they came in contact with the dry duff of a fine old pinery, then to dart upward and turn hundreds of acres into a roaring furnace. The only safe way is never to take chances with a camp fire, never build one except on rocks or gravel and never go away until it is *dead out*. I have followed that rule now for twenty years."

"You certainly make the camp fire responsible for a lot of damage."

"Can't exaggerate it, because I have seen the proofs with my own eyes. I have crossed Canada with parties of geologists and civil engineers and forest engineers and seen so many thousands of acres lying charred and useless, so many rivers and streams dried up from lack of a tree life, so many beautiful camping and fishing spots spoiled for all time, that I said to myself, 'Never you become responsible for this sort of crime.' And I believe I have lived up to it."

"But *smoking!*" said the Youngster "Suppose that I"——

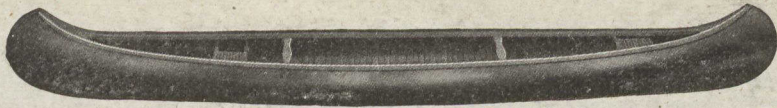
"Suppose that you threw down a lighted cigarette or a burning match alongside the trail, or emptied hot pipe ashes, I should feel like giving you a very good licking. Lighted tobacco and matches are just campfires in concentrated form. They all have the possibilities of another 'Porcupine fire horror,' and for a man to carelessly toss away the beginnings of a conflagration is to brand himself an amateur woodsman and an enemy to society."

By this time we had made away with the bacon and were glorying in the nectar of campfire tea. The Youngster, of course, had finished first, and was lending a hand at striking camp.

Up from the shore came the guide, lugging two pails of water. He emptied them on the small bed of coals and returned for a further supply. Not until the fourth pail had immersed the blackened remnants of the fire did he look contented.

"I see you take no chances," remarked the Veteran.

"I too learned my lesson," answered the guide. "If the forests are not kept *green*, there's no hunting and fishing, and no tourists—and the guide's job disappears. This is only self-defence."—(Reprinted from "A Matter of Opinion," published by Canadian Forestry Association.)



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