



Canadian Forestry Journal

August

1917



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# Canadian Forestry Journal

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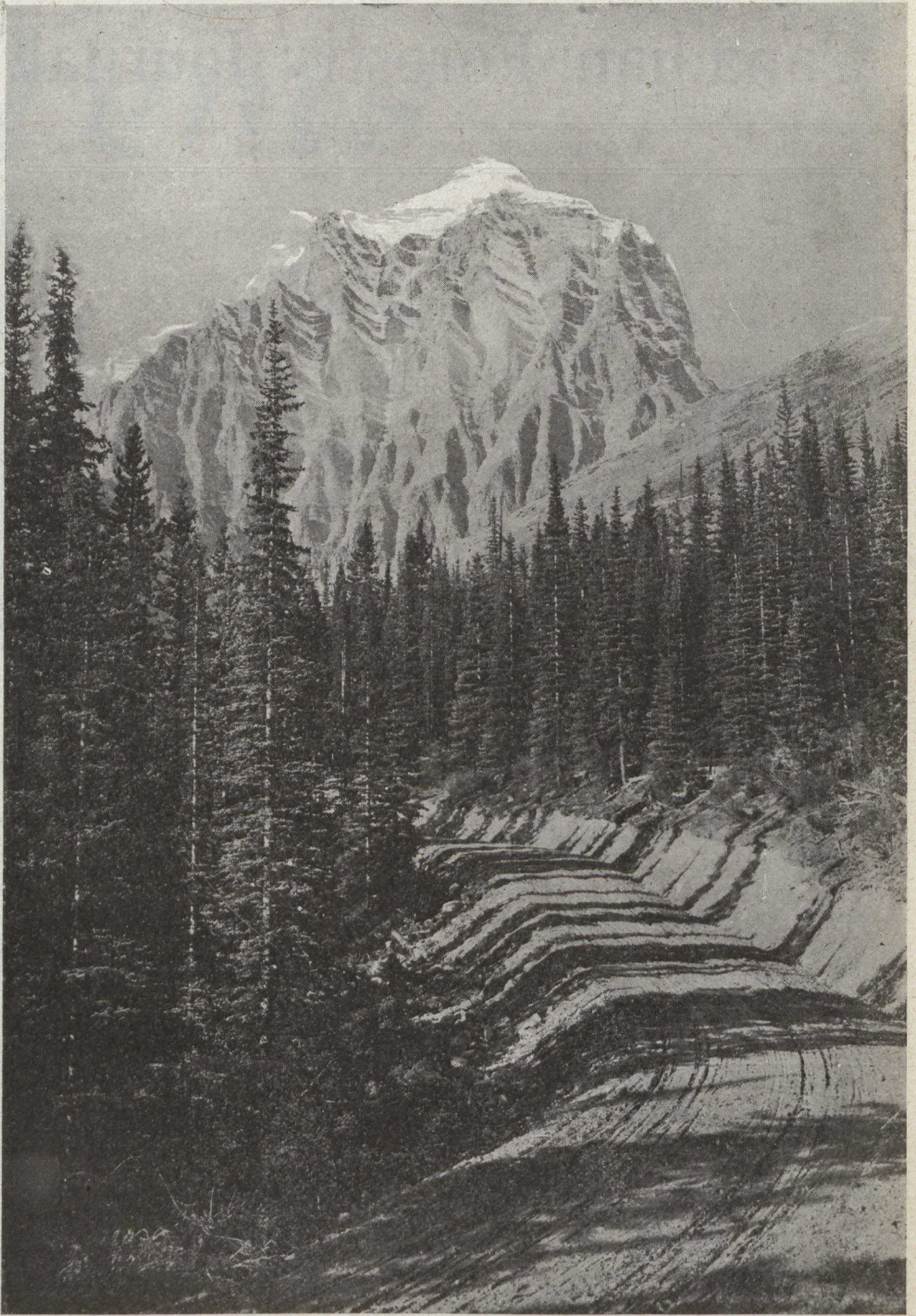
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**MOUNT SEMPER**



# The Dollar Value of our National Parks

## Telling of the Remarkable Gold Mine that Lies in Natural Scenery.

### FIFTY MILLIONS IN TOURIST TRAFFIC

W. T. Robson, Organizer of the Canadian Travel Association, (formerly General Advertising Agent of the C.P.R.), prepared a careful estimate of the amount of money spent by tourists in Canada in the year 1913. His figures were \$50,000,000.

These figures place the value of tourist traffic in the fourth position with respect to revenue from Canada's national resources.

The comparison is:—

|                  |                   |             |
|------------------|-------------------|-------------|
| Field crops,     | Canada, 1913..... | 509,437,000 |
| Forest products, | “ “ .....         | 161,093,000 |
| Minerals,        | “ “ .....         | 102,300,000 |
| Tourist traffic, | “ “ .....         | 50,000,000  |
| Fisheries,       | “ “ .....         | 43,667,000  |

In adding up our national assets there is one source of revenue which is often overlooked and that is natural scenery. Timber and agricultural lands, coal and minerals, water powers and fisheries—the value of these is easily recognized, but we are just beginning to realize that lands whose chief endowment is scenic beauty may from the purely dollars and cents point of view be as valuable as any and in the long run possibly even more valuable. Like other natural resources, natural scenery is in constant danger of spoliation by private interests and requires conservation and development to reach its highest value. National parks are a recognition of these principles. They are reservations set aside by the government in order that our finest scenic areas may be conserved and developed for public benefit and advantage for all time.

#### *Travel Now Easy and Cheap*

The value of natural scenery, however, depends chiefly upon its accessibility and it is only within comparatively recent years that it could be said to have a value at all. So long as travel was difficult and tedious, requiring an expenditure of time and money which placed it beyond the

enjoyment of all but a limited few, natural scenery was only a local possession. The developments of the last century have made travel so easy and cheap that it is now within reach of almost everyone. The desire for travel, for seeing the customs, manners and scenery of other lands than our own, springs eternal in the human breast and it is a taste that grows by what it feeds on. The consequence is that travel simply for pleasure has in recent years reached enormous proportions, involving in those countries which particularly attract it, expenditures of hundreds of millions of dollars per year.

#### *A Tourist Gold-Mine*

A glance at the tourist revenues of some of the popular European countries before the war shows how great these expenditures may be. Figures compiled by a trustworthy authority placed the tourist revenue of France in 1913—the year before the war, at \$600,000,000. Switzerland's share was estimated at \$250,000,000 and Italy's at over \$100,000,000. In these countries tourist travel is recognized by the authorities as one of their most important sources of wealth and shortly before the outbreak of the present conflict one of the prominent members of






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TAKAKKAU FALLS,  
YOHO PARK

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the Italian Chamber of Deputies advocated that a State Tourist Bureau should be created by the Government, as one of the easiest and most desirable means of increasing the national income.

The case of Switzerland is the most evident example of what the possession of exceptional natural scenery may mean. Before the development of modern travel Switzerland was a poor and struggling country, dependent chiefly on her lace and jewellery industries for a livelihood. The advent of the tourist brought a prosperity which was felt throughout the entire country and which was especially beneficial to the peasant class. Whole districts where the people had formerly with difficulty eked out a scanty living, were able to sub-

sist in comfort by catering to the needs of foreign visitors.

#### *Uncle Sam Sight-seeing*

A large share of this wealth came from this continent. The great gulf stream of tourist travel which flowed across the Atlantic in the decade preceeding 1914, is estimated to have carried between \$300,000,000 and \$500,000,000 per year to the shores of the Old World. A foreign market which was worth \$500,000,000 would receive the respectful attention of any government.

In addition it must be remembered that in the case of natural scenery the capital stock does not diminish with use. It is a veritable Fortunatus' purse. No matter how much is disposed of there is always the same wealth left. In fact, its value tends rather to increase with use,



for as in most other businesses customers who are satisfied with the wares they have purchased tend to become advertisers, and the reputation of being able to attract numbers, brings additional numbers.

Tourist travel within the United States has, in recent years, reached considerable dimensions.

#### *Profits in Pine Woods*

Figures compiled by the New England Railway lines show that about 1,400,000 guests are accommodated in the New England States during the summer season, and their expenditure is placed at not less than \$100,000,000. The pine woods of Maine, without the cutting of a stick of timber are worth \$40,000,000 per year from the tourists they attract and it is said that even if the blossoms of the orange trees of Florida never came to fruit they would still be worth more than all the other products of her soil.

Mary Roberts Rhinehart recently stated in the "Saturday Evening Post" that tourist travel to Cuba at the present time exceeds the value of the tobacco and sugar output combined, while the coral reefs of Ber-

muda produce a crop of dollars which even the famous lilies and onions cannot rival.

#### *Canada, a World Playground*

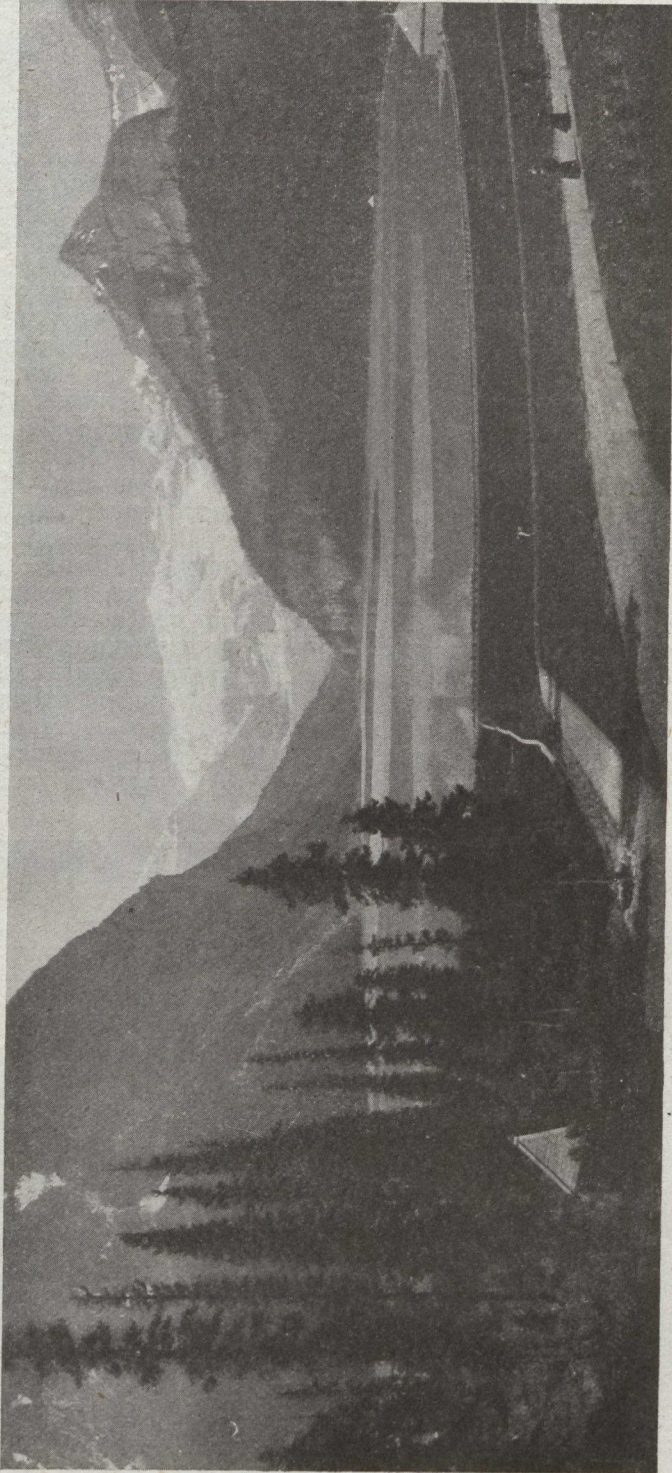
Tourist travel to this country, however, is as yet in its infancy. Canada's possibilities as a playground are only beginning to be realized by foreigners and even by Canadians themselves. But there is no doubt that in the Canadian Rockies Canada has natural scenery of sufficient attractions to draw nature lovers from all parts of the world. Dr. T. G. Langstaff, the famous English alpinist, after his visit to this country a few years ago, declared the Canadian Rockies were destined to become the playground of the world for the next century; other travellers familiar with the Alps, the Andes, and the Himalayas affirm that the Canadian mountains have a charm and attraction of their own which the higher ranges cannot supply.

The average tourist, however, as Secretary Lane recently pointed out, seeks the line of least resistance. Beautiful scenery alone is not sufficient to bring continued numbers



MALIGNE LAKE, JASPER PARK.





LAKE LOUISE  
ROCKY MOUNTAINS PARK.



of people to a district. As a rule the tourist seeks the best available but only where it is readily accessible and where there is satisfactory accommodation.

Development and organization is as necessary in the tourist business as in any other. No matter how wonderful our Rockies may be, the majority of people would not care to visit them unless assured of comfort, convenience and safety.

#### *What National Parks Mean*

National Parks provide in the best way the necessary organization. They first preserve and protect the area forever and then see that it is made as accessible as possible to all classes of people. The Dominion Parks Branch concerns itself with the quality of service of whatever kind rendered by those dealing with the tourist: Character of accommodation; avoidance of congestion; protection against extortion; provision of minor attractions to fill in between the nature trips; the construction and maintenance of roads and trails of first class character in order that the various attractions may be comfortably and safely reached; special care in the matter of the dust nuisance and the rough road nuisance; supervision over sanitary conditions; water supply, horses and vehicles, guides, drivers, charges and rates; furnishing of full and reliable information; and, generally, in not only reducing discomforts to a minimum but so administering matters that the tourist shall be as well satisfied with the treatment received while in the parks as he is with the natural beauty of the scenery.

#### *Publicity Pays*

Although comparatively little has been done in the way of organized publicity for the Canadian Parks, they attract each year an increasing volume of traffic. The total number of visitors at the two chief resorts in the Rockies—Banff and Lake Louise—during the 5 years from 1910 to 1914 inclusive, was 321,823, about half of whom were foreigners. In 1915, the year of the Pacific exhibitions, the numbers reached over 100,

000. It is difficult to estimate what this traffic is worth. The Secretary of the Interior at Washington estimates that in 1915 over \$100,000,000 of the money which formerly went to Europe was diverted to the United States National Parks. It is only within recent years that the United States government has recognized that national parks pay in mere dollars and cents, and it is now entering upon a very active and aggressive policy of publicity and development in order to reap as much as possible of the commercial benefits of its national parks.

#### *The Coming of The Motor*

Within the last two years a new factor has developed which promises to increase enormously tourist travel to the national parks of both countries. This is the automobile. Formerly almost all of the United States parks were closed to automobiles. About a year or so ago as a result of very strong representations they were all finally thrown open and the influx of travel resulting has been remarkable.

In 1915, 12,563 cars entered the various parks. In 1916 there were 19,848 cars, carrying 78,916 tourists. Mr. Stephen T. Mather, Assistant to the Secretary of the Interior, who was specially appointed by him to look after parks administration and development, says in his recent progress report: "This tremendous increase in automobile travel leads to one conclusion only, and that is, that in the early future, travel in private machines will overtake the increasing railroad travel and constitute the greater part of all park travel."

#### *New Auto Roads*

Motor travel through the Canadian parks is as yet small, compared with that in the United States parks owing to the absence of through motor roads in this country, but when once the new transmontane motor road from Calgary to Vancouver is completed, there is no doubt that thousands of people will wish to take advantage of the opportunity of seeing the mountains in this intimate and delightful way. For it





VALLEY OF THE TEN PEAKS, ROCKY MOUNTAINS PARK.  
FROM MORaine LAKE ROAD.



EMERALD LAKE, YOHO PARK.



will be difficult to find anywhere in the world a tour which can surpass the attractions which this new road will open—hundreds of miles of continuous travel through alpine scenery of unsurpassed grandeur, over a road which has an elevation of nearly a mile above sea level but never exceeds a grade of six per cent.—this will form a holiday tour which few, if any, other countries can offer. The road is already open from Calgary to the Divide and under construction in British Columbia. It is expected that a branch road will also be completed in the near future, to Lake Louise. Last autumn several hundred cars came to Banff from the prairie provinces and this is undoubtedly only a beginning of the tide of travel which the future is likely to develop. Thousands of prairie farmers now own cars and a trip to the heart of the mountains in a pleasant and inexpensive way is already within their reach. Calgary is only 70 miles from Banff; the crest of the Divide, 30 miles farther. With good roads this is a journey of only a few hours. As soon as they realize the situation, there is no doubt that increasing numbers will avail themselves of this opportunity. Last season, many motorists brought with them tents and camping paraphernalia. As a rule this class of tourist prefers to "camp out" while in the parks in preference to staying at hotels and during the past summer a permanent camp site charmingly situated at the junction of the Bow and Spray rivers, was laid out for their accommodation. This year the different Automobile Clubs of Alberta are holding an "auto week" at Banff when a programme of special attractions will be arranged for their amusement.

#### *The Rockies Next*

Motor travel has in the last decade made a playground of the White Mountains; in the next it seems likely to discover the Rockies. No estimates have yet been made as to the value of this class of travel but its sum total is no doubt large. In the Pacific Coast and Western States, it is considered so important that an

organized effort is being made to attract it. Denver recently spent \$75,000 in advertising its attractions and expects, it is said, to get \$50,000,000 in return, largely through motor travel. These figures are enormous and at first sight unbelievable but they indicate the possibilities which lie in motor travel.

#### *"People's Estates"*

The above facts indicate why the Dominion parks may be considered a sound business investment. Money spent in development will undoubtedly bring in a return many times the amount invested. But the greatest value of national parks after all cannot be reckoned in dollars and cents. Our national parks have great potentialities of wealth but they are worth more for their potentialities of pleasure and vitality. They are great playgrounds set aside forever primarily for the advantage and enjoyment of Canadians, so that the time may never come in Canada, as it has already come in many parts of the older countries, when almost all the beautiful wild places of Nature will be in preserves owned by the wealthy and into which the people are not allowed to come. The Canadian parks are in reality "people's estates" providing facilities for the best kind of recreation, that which is found in the great out-of-doors. As such they are reservoirs of pleasure, happiness and vitality the value of which it is impossible to estimate.

#### **NORWAY HOUSE LOYALTY**

Extract from monthly report, for February, 1917, from Mr. Jas. T. Blackford, Chief Fire Ranger, Norway House, Manitoba.

"In this connection it might be permissible for me to mention that during the month a patriotic concert was given here at Norway House for the entertainment of the Indians and in aid of patriotic funds. Each of us as rangers spent considerable time in planning for the success of the evening and as chairman I gave an address on the Union Jack. Proceeds were, with donations, \$120. All these things, I believe to be indirectly in line with our work."



# "Provincial Rights"—And the Western Forests

BY THE EDITOR.

## What Ownership of the Forests Would Actually Mean to Prairie Provinces.

Premier Sifton of Alberta was sponsor of a resolution at the recent Winnipeg Convention of Liberals to the effect that Manitoba, Saskatchewan and Alberta should be placed upon the same basis as the older provinces in respect to ownership of their natural resources.

With the political side of the long-standing dispute over control of natural resources in the prairie provinces the Forestry Journal has no concern. So peculiarly, however, is the question related to proper management of the Western forests that some reference to it in these pages is legitimate and desirable.

No Canadian concerned in conservation as a vital public policy has his primary interest in the name or political identity or even the location of those entrusted with the protection and development of the forest resources of the prairie provinces. What *happens to* the western forests is the main, indeed the only point of apprehension. One may retort that the western provinces are as capable of estimating their own forest problems and applying policies as is the Dominion, and to that end might be willing to institute Departments of Lands and Forests.

### *Does West Expect Revenues?*

On the other hand, it is undoubtedly true that the Western provinces, or at least the bulk of their citizens have an impression that ownership of the forests would constitute an immediate and rich source of revenue to the provincial treasury and that in demanding control of the forest resources they are asking the Dominion to enhance their cash income. That the ownership of the Western

forests is an immediate financial liability to the Dominion Government, that the total income from Western forests does not equal the total outlay for protection and improvement is a plain fact that invariably causes incredulous wonder when brought to the attention of the Westerner. In speaking to audiences in many Western cities in April last the Secretary of the Forestry Association encountered a universal impression that the Dominion Government was making a snug fortune from owning the forests of Manitoba, Saskatchewan and Alberta, and that the main motive in retaining the forests under Dominion authority was probably cupidity.

### *What Protection Costs*

The Dominion Forestry Branch spends \$100,000 annually on forest protection in Manitoba. The total revenues do not exceed \$12,000.

On the forests of Saskatchewan \$145,000 is spent by the Branch and \$9,000 is received.

On the forests of Alberta \$200,000 is spent and \$18,000 is received.

Even counting in the receipts of the Timber and Grazing Branch, the Dominion Government spends about \$200,000 a year on the prairie forests that is not covered by income.

If the forests are handed over to the western provinces, they must accept the situation as it actually is, not as political fairy tales would have it appear. Manitoba, Saskatchewan, and Alberta, instead of adding to their revenues, would then have to find at least \$200,000 from some fresh source with which to pay the



cash deficit on one year's handling of their new forest possessions.

#### *Subsidies Forfeited*

More than that, they would automatically forfeit the provincial subsidies paid by the Dominion Government amounting to:

Manitoba \$409,007.

Saskatchewan \$562,500.

Alberta \$562,500.

as a Dominion allowance in lieu of public lands.

These subsidies are paid as compensation for Dominion control of the natural resources, and would lapse with any transfer of title to the lands.

What proportion of the subsidies is represented by the forest resources is not ascertainable, but assuredly it would represent a very large sum for each province. The net result would be that Manitoba, for example, not only would lose that portion of its provincial subsidies, represented by the forests, but would have no immediate financial compensation whatever from forest management and must needs disburse a very large sum annually from general taxation to pay for forest patrol.

The Forestry Journal again emphasizes its dissociation from the political phases of the question and its sole desire to shed the light of statistical facts on a very evident misunderstanding.

#### *The Interests of the West*

If the West asks the right to improve the conservation methods as applied to its provincial forests and is willing to assume a very heavy annual outlay for that purpose, then the transfer of the forest resources from the Dominion Government takes on a rather pleasing color. But if certain Western leaders, believing they are on the trail of a gold mine, propose that one single dollar shall be spared from the necessary outlays now applied to forest protection and restoration in the prairie provinces, then no citizen of Canada can support the proposition without betraying the vital interests of the West itself.

The prairie provinces need their

forests. Their northern areas are designed by unchangeable natural conditions for tree growing and for that mainly. Seventy-five or eighty per cent. of the northern lands now tree covered will never pay profits to agriculture. To strip them of timber by means of forest fires means to strip them of the only income-producing crop they can ever give. They will become the desert lands of the West. Thousands of square miles are already in that condition.

#### *Fire Ravages*

The truth, as fixed by reconnaissance parties of the Dominion Forestry Branch, is that a survey of 100,000 square miles across the tops of the three prairie provinces showed that only thirteen acres in a hundred of lands naturally well timbered, contained trees of eight inches or more in diameter. In other words, series of disastrous forest fires, coming in cycles of, roughly, thirty years, have so gutted the prairie forest supplies as to reduce them to a fraction of their original values. Unless the prairie province forests are kept clear of fires by Government protective systems, such as are now applied by the Dominion, and built up by re-planting and by regulating cutting operations,—all of which involve heavy expense—the provincial forest resources will soon be in such hopeless condition as to be hardly worth holding by either Dominion or Province.

#### *How Forests Contribute*

The western forests, as they stand, are of immense value to the settlers in the neighborhood of the Reserves, who get practically free lumber. They support numerous lumber industries and give invaluable aid to the coal mines with pit props, and to the irrigation enterprises with watershed protection. One must bear in mind, however, that the population of the West is only in its infancy, that the future will place a value upon the forest possessions incalculably greater than does the present generation. The population of the New Canada of a few years hence will require abundant and cheap wood sup-



plies even more than the people of 1917. For every tree maturing in 1930 or 1950 there will be an important use and an eager market. The province that possesses a near-at-hand wood supply will outstrip the province in which neither care nor foresight has been exercised in its growing forests.

The forests of Alberta are primarily for Alberta's use. So with Saskatchewan and Manitoba. *Each province gets all the dividends of conservation, whether that conservation is applied and paid for by a provincial or a Dominion Government.*

#### *The Real Question*

To all informed students of the situation the question to be settled is not who shall administer the forests of the three prairie provinces,

but whether any authority, save the Dominion Government, would be willing to put up the money to do the job at all. It is not a matter of selling timber and securing nice profits for the public treasury but of *growing* the timber of overtaking the gross damage of repeated forest fires. Not of cashing in on some of the "inexhaustible" resources but of stopping the exhaustion. Not of extracting financial fillips for the present, but of laying a broad foundation for the necessities of the future. This is something of what is meant by "control of the forest resources of the prairie provinces." And it is at the same time substantially opposed to what the platform exponents of 'provincial ownership' sometimes would wish their constituents to understand.

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## Who Owns the Young Growth?

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"Does a limit holder own the young growth?"

A most interesting decision on this point was rendered recently in the courts of Quebec by Judge L. J. A. Desy, of the Superior Court, Three Rivers district. Judge Desy decided that a licensee could sue on fire damage caused not only to his timber of legal size but to what had not yet attained the dimensions on which his cutting rights were based.

The dispute arose through a suit instituted by a licensee against a railroad contractor who, in the face of warnings, had set fire to a pile of old ties and caused a serious burn in adjoining timber and young growth, but particularly to the latter. The defendant's lawyer entered the ingenious plea that as the licensee was permitted by the Government to cut only what was of a given diameter, that therefore the Government was the owner of what fell under that diameter. Licenses being renewed year by year, argued the defendant, it was preposterous to assert that a licensee holder had more than a year's cutting rights or could assert that

certain trees would become his property many years hence when they had reached maturity.

Judge Desy, however, looked upon the licensee as the proprietor of the young growth for the reason that his rights could in future increment not well be cancelled unless by violation of the Government regulations. The defendant was obliged to settle the claim, which was in the neighborhood of four thousand dollars.

#### THE COVER PICTURE

The cover picture this month shows Mount Assiniboine, British Columbia. It was taken by Mr. Herbert O. Frind, a well-known member of the Alpine Club of Canada. The July cover picture was also from one of Mr. Frind's photographs.

#### THE CANADA LUMBERMAN

The annual number of the Canada Lumberman is a particularly handsome and elaborate production, containing numbers of special articles of decided interest and value. Editor Horace Boulton is to be congratulated upon the scope and timeliness of the contents.



# How Shall Planted Lands Be Taxed?

## Redeeming Waste Areas Requires Uniform Method of Taxation.

The taxation of waste lands planted in forest trees is so closely bound up with the problem of reforestation in Canada that any great extension of forest tree planting must await a decision of the tax question.

The municipality that wishes to redeem its stripped lands and turn them to account cannot expect that any private company or individual is going to invest large sums on the prospect that when the growth reaches a twenty or thirty year size the investment is to be swept into the municipal exchequer as taxes.

### *Why A Company Acts?*

A pulp and paper company may, and often does, find a practical advantage in planting up cut over or farmed-over areas near the mill, in which case long-term tax agreements are arranged locally. But this is managed frequently by the company's undertaking to build certain roads and give employment in the nursery work to local farmers. In the case of the Laurentide Company at Grand Mere the planting up of waste lands—now in excess of 500 acres—has given employment to numerous settlers, many of whom were working on poor land nearby, and has resulted in greatly improved roads. Indeed at one point, the financial impetus of the nurseries, road building, etc. has put one community closer to real prosperity than ever could have resulted from farm work alone.

In the same section, the timberlands are taxed one tenth of one per cent. on the valuation which does not amount in any case to more than \$4.00 to \$5.00 per acre for timber lands.

### *Assessment \$40 an Acre!*

How grossly the estimates of assessors and municipal councils vary may be seen from an attempt near Saya-

bec P.Q. to assess bush lands at no less than \$40 an acre, the tax on which would have forced the owner to turn the area to immediate account whether or not it was ripe for utilization, or whether the owner's market could have absorbed the material, at the moment.

It has been suggested to the Canadian Forestry Association that one of the most pressing subjects which could be submitted to the next representative meeting of timber owners is that of taxation. As matters are to-day, it has no uniformity. Even if the available information on the subject were gathered together, and a clear argument given, why a real distinction should be made between forest and other crops in the interest of timber conservation, and the restoration of waste lands to timber bearing condition, a great service would be done.

Certainly few private individuals can be asked to undertake forest tree planting on even a small scale, unless there is a guarantee that at maturity the municipality will permit the deduction of original cost, plus interest, plus cost of protection and cultivation before arriving at present value for taxing purposes.

### *Ontario Allows Exemption*

Ontario had a happy impulse in the planting direction some years ago and passed an Act empowering municipalities to grant tax exemption on woodlands up to 25 acres. The land in question must be held for timber production solely and no grazing could be allowed within its borders. The Act defined the term "woodland" as one containing a given number of mature or semi-mature trees "or 400 trees of all sizes" which would, presumably, cover a plantation. As far as the Journal is aware, the Act has never been applied by



any Ontario municipality, probably for lack of any educational propaganda favoring better care of woodlots and the planting up of barren lands. Ontario presents an enticing opportunity in this respect, which might appeal to the Department of Lands and Forests when present reorganization of the forest protection work is running smoothly.

#### *A Scottish View*

The Royal Scottish Arboricultural Society recently submitted to the Reconstruction Committee of the British Government some truths on the taxation of planted lands. They are suggestive, at least, of similar consideration between local or central governments and private planters:

The reasons for the encouragements suggested are—

1. That every acre of land planted is a gain to the country, and that this gain can be obtained more cheaply by inducing owners to plant than by the State buying the land and doing the planting itself.

2. That an immense quantity of timber has been felled to meet national requirements during the war, without any corresponding planting having been done; and that it is necessary to stimulate replanting.

3. That many persons who would be willing to plant are not in a financial position to do so; whilst others are not prepared to incur the whole loss of an outlay for which they cannot expect any return during their lifetime.

4. That from 2½ percent. to 3 percent. is all the return that can be counted on for money invested in planting, and that for this return the planter must wait many years, whereas he can obtain an immediate return of 5 percent. if he invests his money in other ways. That, therefore, if the State desires him on national grounds to invest his money in planting, it must offer him some compensation for doing so.

#### *Money Inducements*

The following are suggested as inducements which might prove effective; and they should be given equally for the renewal of old plantations

and the creation of new ones:—

1. A bonus of 1 pound, 10 shillings per acre for every acre planted—the only condition in this case being an undertaking on the part of the owner that the trees selected shall be suitable, the planting properly done, and the young plants protected against damage by rabbits.

2. A bonus of 3 pounds for every acre planted. In this case, besides the above-mentioned conditions, the Government would have, in the event of war, the first claim to the timber, at the average price of the three preceding years.

3. An advance of the whole sum required for planting, to be repaid, capital and interest, by annual instalments spread over a considerable period. This method may be preferred by a certain number of landowners, though the number may not be great at present owing to the high rate of interest prevailing.

#### **FIRES STARTED BY QUARTZ PRISMS?**

The Journal is in receipt of the following interesting letter from Mr. R. F. Davy, Assistant Engineer, Department of Public Works, Temiskaming Station, P.Q.

Dear Sir:—

Will you kindly publish the following in your next issue as I would like to get comments and to know if others have advanced this idea re forest fires. In 1906 I was Locating Engineer on the National Transcontinental Railway in Northern Quebec—when camping on the Hurricana River I noticed a forest fire start away to the North and to the West of the river. I am practically certain that no Indians were in the vicinity and I am also certain there had been no lightning up to that time of the year. A thought occurred to me that this fire was caused by the reflection of the sun rays on some white quartz exposed on the hill side—the quartz acting as a prism or a sun glass. We know fire can be started from a prism made of ice and the reflection of the sun. The dry grass or vegetable matter lying near this exposed prism would easily light and spread.



## Damaging Fires Sweep Sections of The West

Dry Weather Created Hazardous Condition,  
Resulting in Heavy Loss.

The forest fires in Western Alberta and British Columbia during the last two weeks of July resulted in loss which, with all accounts in, will prove to be substantial. At least eleven lives were sacrificed in the Spruce River Valley fire, many camps swept clean, and much timber turned to charcoal. Estimates as to exact loss will not be available for some weeks. It will be interesting to learn how far standing timber and young growth have been affected, for in the exceedingly hot weather—some districts without a drop of rain for more than thirty days—the fighting of fires, once given a good start, was difficult in the extreme, and valuable areas of timber and of protective growth on the watersheds must have been destroyed.

Of even greater interest and importance will be the reports upon the causes of the fires. Unofficially the Spruce River Valley fire is said to have started in a tent and to have been helped greatly by the presence of logging slash. Again, in the official report on the Crows Nest Pass fires which cost a large sum on the part of the Dominion Forestry Branch for fire fighting alone the claim is made that a pile of debris on the Peter McLaren Company's mill property was the origin of the trouble. If the Western fires result in an official statement throwing some light on preventible causes, the means of forestalling a repetition of the disaster will not be wholly lacking.

### *Recalled Days of 1914*

British Columbia's experience has been the most alarming since the memorable midsummer of 1914. The following report from Victoria, B.C. under date of July 23rd indicated the grave situation existing at that time:

"From nearly every section of the

province this morning reports have reached the provincial lands department indicating that the fire situation is serious. Hot, dry weather with a considerable amount of warm breeze is making it extremely difficult for the various gangs of fire fighters to work with success.

"Previous to the beginning of July in 1914 there was very little trouble. Then, however despite the fact that more men were available for patrol duty, for two months there were a large number of outbreaks in many sections.

"Reports to hand this morning from Cranbrook state that no fewer than fifteen fires are burning in that district. Vegetation is reported to have been completely dried out while the weather is the hottest on record.

"Already this season in the Fort George district forty-two fires have been reported and the present outlook is extremely serious. A large fire out of control is raging near Rau Shuswap in the Tete Jaune Cache district. In the Windermere district of Bugaoo as well as on the Kootenay and Bu Rivers many patrol men are on duty with still a number of fires as yet not under control. The condition of the vegetation in the locality of Prince Rupert has been helpful in checking fire progress and both there and at Kamloops the damage has been of an extremely light nature.

"Hot, dry and windy is the telegraphic report from Nelson this morning, with thirty fires burning. Christianson's mill at Boundary Falls was entirely consumed by the flames on Saturday. Ninety men are fighting against difficulties at Sproule Creek; the fire is now beyond control and is sweeping with alarming rapidity up the north arm of the creek.

### *Country Over Dry*

"A large fire near Long Lake, in the



Vernon district, broke away before the gale on Saturday and became entirely unmanageable. Every effort is being made to confine the extension of its progress as much as possible. The extreme dryness of the timber and the continued heat in the Okanagan Valley is seriously increasing the speed of the fires in this locality, the hard work of the patrolmen notwithstanding.

"Six fires are reported from the Similkameen section and minor affairs at Baefaux Lake and Cherry Creek, all of which are under complete control. The situation on the Island is considerably less serious. The Cowichan Lake fire is regarded as safe now, although still smouldering.

Small fires are reported at Courtenay, Ladysmith and Shawnigan. While there has been great difficulty in securing sufficient men to counter the fires in many parts of the province, the organization of the department has done a great deal to bring the outbreaks under subjection much quicker than has been the case hitherto. The most fortunate feature of the fires this season has been the small amount of destruction of merchantable timber, a striking contrast to the terrific damage in 1910."

On the same date came this despatch from Nelson, B.C.:—

Nelson, B.C., July 23rd.—With much of the vegetation in the woods as dry as tinder, forest fires spread at an alarming rate on Saturday and Sunday. In two cases, on Sproule creek and in the Trail district, men fighting the fires were caught in tight corners, and had narrow escapes from perishing in the flames. In the Trail district the fire, which jumped the Columbia river on Sunday and menaced the city of Trail, setting some houses ablaze, ran at the rate of two miles an hour. Winds all through the district fanned the flames, and virtually every fire to-night is reported to have got out of hand. Only rain can

stop them. There has been none since June 24th.

#### *A Narrow Escape*

Doukhobors who were employed as fire fighters in the Trail district were surrounded by fire and had difficulty in getting out. At Sproule Creek a number of men were caught in much the same way and had to wait until night before they could make their way back to safety. So rapidly did the Sproule Creek fire spread that the crew had to give up any more hope of preventing the outbreak from spreading up the mountains and was compelled to direct its own whole efforts to keeping the flames from creeping downward toward Kootenay river. Great volumes of smoke appeared in the sky like clouds tinted by the red flames below.

#### *Fires in Washington*

A great fire is raging in the State of Washington. Fought by 200 men, it was out of hand Sunday and traveling toward Patterson, B.C., near the international boundary. Trail was reported to-day to be safe, the blaze having been driven back, but it is still raging around the city, according to word from there at midnight, but gradually spreading away from it. The fire on the Duncan river in the Lardo district has got out of hand and is eating into a big stand of cedar. Fires in the Arrow lakes district, which last week were reported under control, are out of hand also and spreading in the vicinity of Arrow Park, East Demars and Whatshan lake.

#### *Flathead Valley Suffers*

A despatch three days later declared that the fires in Western Alberta were then under control. No rain had fallen at any point in the south forest country. Fires between Fernie and the Kootenay Lakes were still burning without restraint, there being a great dearth of men to combat the progress of the flames. "The timbered area in the Flathead Valley" remarked the Calgary News-Telegram, "has already sustained a loss approximating hundreds of thou-



sands of dollars, say the lumbering men familiar with the area affected, and the portions already destroyed and threatened with destruction are among the best of the south British Columbia district."

On July 26th, Nelson had its first rain for 33 days. The fall was heavy but brief. Fernie reported a gradual dying down of the worst of the old fires. On July 27th, however, high winds arose, causing renewed anxiety. A new fire broke out at Ella, from locomotive sparks, and another starting in one of the camps of the Elk Lumber Company on Spruce Creek, up the Elk River, found its way into a neighboring gulley. The consequences of this outbreak is graphically summed up in the following despatch dated, Fernie, July 29:—

*56 Trapped—30 Accounted For*

Fernie, B.C., July 29.—Two more bodies so charred that recognition is impossible were taken down from the scene of the Elk Lumber company fire of Saturday and Nick Muscovich, who displayed unusual bravery following the fire, dying to-day, has now fixed the known dead at 11. The various directions taken by the

fugitives from the fire has made it difficult to check up the survivors. It is known that 56 men were trapped and 30 are accounted for, but it will be some time before the final result is known.

Fernie, B.C., July 29.—Eleven men are known to have perished and a number are missing in a fire that swept the Spruce river valley, 15 miles northeast of here Saturday afternoon. Sixty odd men and about 20 teams were trapped in camp 14 of the Elk Lumber company, which is situated in a blind valley and their flight over the mountain was most difficult.

Eleven bodies have been picked up in the rear of the fire and the terrible agony the men endured is shown in their contorted features. Nick Muscovich, a Russian, was found alive, his eyes burned sightless, and almost demented. His body was severely burned and all his clothing was gone, except his boots, but after being given first aid he recovered and urged the rescuers to leave him and help men he knew to be beyond him. With assistance he walked to the emergency hospital and was later brought to Fernie.

## *Terrible Experiences in Spruce Valley*

A vivid picture of the sudden and vicious sweep of the Spruce River Valley fire will convey to readers some idea of the terrible character of a conflagration in mountain regions. It is worth noting that the cause of the outbreak was said to be in a lumberjack's tent, possibly from a cigarette, and also that the flames received a great impetus because of the presence of quantities of slash from the lumbering operations.

This fire yesterday originated Wednesday evening about supper time when it started in one of the tents at camp No. 8, located at the lower end of the valley nearest the Elk river. Everything in the camp was wiped out then, but the 40 odd men stationed there experienced no fur-

ther serious discomfort other than the loss of their personal belongings. From this the fire spread through the slashings and up the valley to the mountain sides. The men at camp No. 8 and additional assistance furnished by J. C. Hart, district forest ranger, were continually engaged in fighting it until noon Saturday, when it was believed to have been extinguished and strict vigilance not deemed necessary any further the men were allowed to get a well deserved rest.

Within one hour, however, a terrific gale rose and fanned some hidden embers into flame with such rapidity that in no time the fire was revived and utterly beyond control. The flames soared higher and higher and huge volumes of smoke rose high



above the surrounding mountains and were visible for many miles around.

#### *Climbed over Mountains*

At camps 12 and 14 about 125 men were employed. These were in the path of the flames and with their escape down the logging railroad entirely cut off, they were obliged to seek safety by traveling over surrounding mountains and beat their retreat cross country as best they could. Many were successful, but it is feared that at least 10 were overtaken by the fire and perished.

Within a large radius from the fire the heat was unbearable and while rescue parties and medical aid were rushed from here promptly great difficulty was experienced in getting near to attempt to release the trapped men and as far as fighting the fire was concerned, it was beyond human power. Many head of live stock were used in the logging operations, some of which escaped by being cut from the vehicles by the drivers, and being liberated some raced through the flames down the valley, the harness, manes and tails aflame.

#### *Tried Flight by Engine*

George Bronson was one of the engineers on the logging railroad.

Apparently he had attempted to bring his engine down through the fire and escape in that manner, but fallen timbers obstructed the track and finding it impossible to proceed, he sought safety in the nearby creek, where he was found frightfully burned, with his head submerged.

Cavannia had been pinned down by a falling timber and burned to death. Pacquette was the most horribly burned of the bodies so far recovered.

Search parties are to-day operating through the fire swept area and a heavy shower last night has materially quenched the fire and also temporarily brought about a condition whereby the starting of fires will not be so great.

Apart from the loss of life the property loss to the Elk Lumber company will be heavy. The three camps are completely wiped out and it is said large quantities of logs and material also were destroyed. This is extremely unfortunate, as this season is the first for three years that the large sawmill of that company has operated here, and the disaster yesterday will almost certainly result in all operations being suspended for some considerable time.

## *The Fire in the Crow's Nest Valley*

On Friday afternoon, July 20th, in the early afternoon a fire started at the head of the flume of the McLaren Lumber Company on Allison Creek in the Crowsnest district in the province of Alberta, close in the vicinity of a small sawmill which was erected at that point for the purpose of sawing materials with which to construct the flume. The forest ranger for the district in the service of the Dominion forestry branch, Mr. F. B. Boulton, got word of the fire about 4 o'clock and started in to fight it. The fire was then creeping up the Crowsnest Mountain and it had to be fought on both sides from Allison Creek and McGillivray creek. Men were got out from McLaren's mill

and mills further east on the Crowsnest Valley and from the town of Coleman, and the fire was attacked from both sides, and by Sunday morning it was fairly well controlled although it had been impossible by that time to have complete fire lines constructed. Mr. R. M. Brown, the Forest Supervisor, and Mr. E. H. Finlayson, the District Inspector of Forest Reserve, also arrived and assisted in the organisation of the fire fighting. The wind began to blow very hard again and by afternoon a gale was sweeping through the pass, the result being that the fire got up into the tree tops and swept up the mountain side. In the evening the wind having dropped,



a night gang was started but could not accomplish much in the darkness, but at daylight a large shift was at work and during Monday fire lines were well under way and were completed on Tuesday, the fire being by that time well under control, and there has not been any further danger since that time. There is no definite estimate of the loss sustained in this fire as yet, but under the circumstances and with the conditions that had to be faced it was kept well under control and prevented from getting into areas of valuable timber. There were several hundred men at work and the cost of fighting the fire will be very heavy. No detailed enquiry as to the cause of the fire has been made as yet but it seems reasonably conclusive that the fire started in some way from the McLaren mill, illustrating that even among the people who are most seriously affected by fire, namely, the timber owners, there is not sufficiently effective action to prevent dangerous fires starting.

#### *Some Fire Reports Exaggerated*

Earlier reports of damaging forest fires in North Western Ontario turn out to have been somewhat exaggerated. The fires reported from Sault Ste. Marie district, May 15th, when navigation was interrupted by smoke were on the United States shore, and not in Ontario. As is the case with many newspaper accounts based on statements of excited persons, the damage ascribed to the fire near the village of Hymens was overdrawn greatly. One newspaper version mentioned the wiping out of many settlers, with a total loss of \$10,000. According to the ranger's report sent to the Department at Toronto, the private property damaged was a hen house and store, totalling \$170.00. Furthermore, the ranger states that far from Mr. George E. Hymens having cause for complaint, as quoted by the newspapers, it was he who started the fire by burning marsh grass.

#### STANDS OF RUSSIAN OAK

John Alberts, of the Allis-Chalmers Co., Seattle, who spent considerable time in Russia, says he saw the most magnificent stands of oak timber near Odessa, a port on the Black Sea. Many of the trees were six to eight feet in diameter. The timber stands in the Ural Mountains are very heavy, consisting largely of oak, with some scattering ash and other woods. Mr. Alberts visited Riga, where large quantities of Baltic pine are exported and where some large mills are operated.

#### PROHIBITION AND LOGGERS

(From "The Timberman")

Only a few short months ago the city rendezvous of the average logger in the Pacific Northwest was a short pace indeed from the corner saloon below the "line" in Portland or Seattle. A 25-cent room or even a 10-cent bed in vermin-infested lodging house served him well enough in the days gone by. His accumulated pay checks, often untouched from Christmas to the Fourth of July, melted at the bar like the proverbial dew before the rising sun. Ten days to two weeks were often ample to reduce his roll to the last farthing.

The logger was easily "rolled" or "trimmed" out of the last remnant of his once tidy little sum by the leeches of the lower levels of society, were any left after John Barleycorn finished with him. A few days of such revelry usually sufficed to send him back to his camp with a bad taste in his mouth and a feeling of disgust.

With prohibition has come a new order of things. This year on the second "dry" Fourth of July we have observed the logger in the better class hotels up town, enjoying a room with a bath. He now dresses as well as his superintendent and even follows the latest whim in white collars. It no longer surprises us to hear that he is investing in agricultural lands, city real estate and municipal bonds.

As for the prohibition question, we see nothing more to argue about.



## Insurance on Timberlands

The natural sequel of organized forest protection has arrived. A company has been formed under the name of the Timber Lands Mutual Fire Insurance Company, with head office at Portsmouth, New Hampshire, to insure against loss or damage by fire on merchantable standing timber, young standing timber and plantations. It is the first mutual of the kind in America and was formed by leading lumbermen and those experienced in the handling of fire protection in the woodlands, after careful consideration of all available data concerning the average loss over protected areas. This field has already been entered abroad by stock and mutual companies and in the United States by stock companies.

Mr. S. Laurence de Carteret, formerly local manager of the Brown Corporation at St. Raymond, P.Q. is Treasurer and Manager, and Hon. W. R. Brown of Berlin, N.H. is President. Such able guidance ought to ensure a successful development. In the company's foreword appears the following:

"Placed on a mutual basis it not only enables policy holders to receive their insurance at cost but will act as a stimulant to planting and to long time management of woodlands, and will create a demand for adequate and continuous protection. It will also make timberlands a more desirable subject for loans and so liquidate capital, and create a more definite market for cut-over lands and plantations."

"It writes insurance only on tracts which are adequately protected from fire either by Forest Protective Associations, the State or the owner, and it will not accept tracts which contain or adjoin recent slashings or which are exposed to undue hazards.

"The amount of insurance written on any tract is governed by its location and value, no line being given on any risk in excess of that warranted

by the assets of the Company. With this limitation timber may be insured for part or full value as may be desired by the owner.

"Merchantable timber is insured on the basis of its stumpage value **per thousand feet or per cord**, and young growth and plantations on an agreed value **per acre**.

"Unless a definite value for the whole tract is agreed upon, both by the Company and the insured at the time of issuing the policy, the tract or section in which fire has occurred is appraised to determine what its value was before the fire as well as determining its value after the fire, to arrive at the amount of damage.

"The compensation paid is that proportion of the damage sustained which the insurance carried bears to the total value of the tract insured.

### MANCHESTER AND TIMBER

Manchester ranks amongst the first order of ports in England for the importation of timber. Extensive accommodation is provided for handling and storage. These facilities, combined with the expeditious and economical methods of distribution, contribute to the steady expansion experienced in the imports: from 400,000 to 500,000 loads have been dealt with every year for some time past. Savings of from 3s. 6d. to 5s. 6d. per ton are effected by forwarding timber from the docks, as against the Liverpool docks, to most of the surrounding towns.

The Canadian Forestry Association is in receipt of a one dollar bill enclosed in an envelope by itself, intended evidently as a membership fee. The post mark on the envelope is indistinguishable; the address is type written in blue ink. The Secretary would like to know the name of the member to whom this amount should be credited.





HON. ADAM BROWN, Postmaster of Hamilton, Ont. standing beside a white pine tree which he planted 58 years ago—in the year 1859. At the time of planting, the tree was but a few feet high. Mr. Brown was then Chairman of the Water Commission of Hamilton and even with the lapse of time in which his tree has reached such giant size continues in vigorous health.



# What Birds are Worth to Forests

BY W. C. J. HALL, QUEBEC.

## One Hundred Million Dollars is Estimated Insect Injury Yearly to Field and Forest.

Canada has a formidable contract confronting her since the passing of the treaty signed by Great Britain (acting for us) and the United States regarding the protection of migratory birds in North America. It should not be necessary to have a treaty at all, because it is in the direct interest of every man, woman and child that bird life should be fully protected, but unfortunately legislation and treaties are necessary owing to the fact that we all have been shamefully neglectful of our own interests, and in very many cases ignorant of them.

To demonstrate the necessity of bird life, one must first of all show what would happen if we had no birds—the foremost statisticians of the United States have stated over their signatures that if we had no bird life, no forests would exist on the North American continent in twelve years—if then the forests were thus obliterated by the onslaught of insects, owing to the absence of bird life, what would become of us; naturally man also would become extinct and that very rapidly.

As things stand at present, the best informed statisticians affirm that the annual loss in the United States to field and forest crops, is one billion dollars; in the Dominion, the loss is estimated at one hundred millions annually, all owing to injurious insects.

The only agency we have to check the devastations of the insects are the birds. A man can spray his trees in an orchard, or his potato crop in the garden, but if he is confronted with the task of looking to the whole of his farm in the same way, what could he do? Nothing! The case would be one of surrendering. Then take the forests, could any Government under-

take to spray the forests? I trow not. The only way to preserve the balance of nature and let humanity survive, is to protect the birds and let them do the work. They charge nothing for it, it is their daily work, from morning to night. Some varieties of birds can and do consume their own weight of insects daily. With very few exceptions, they are all useful in one way or another and it is our direct and vital interest to see that they are not killed, captured, or even molested.

Any person versed in ornithology will admit that birds take a toll of fruit, but compare the good they do with the small amount of depredations they commit, it is about in the same proportion to the damage done to field crops by the red deer and moose; they kept a record one year in Maine and established that some fifty dollars worth of crops were damaged by these animals. That is the proper point of view to look at the matter from.

### *Each Robin Worth \$10*

Much as our existence depends upon bird life, still a large percentage of us are busily at work destroying the birds and especially, our alien population. These latter come from all parts of Europe, and finding they can carry arms without let or hindrance, they sally forth and shoot anything and everything. Massachusetts has just passed a law prohibiting aliens from carrying arms in the State—in New Jersey no one is permitted to use anything in the shape of an arm, except the double barrellled gun. They conclude that anyone so armed is sufficiently equipped for sport, and does not need pump-guns, repeaters, or automatics. But the aliens are not the only offenders, far too many of our young people destroy insecti-



vorous birds. It is estimated that each robin is worth ten dollars annually to the country, so when a young fellow goes out and kills fifty odd of these birds one can easily calculate the great work he did on that day. In the United States Dr. Hornaday, the best authority, asserts that apart from the grown up population who use arms, each twelve months sees at least 500,000 young men mature and go out shooting; will any sane person claim that under such conditions there is a fair chance of bird life surviving in sufficient quantity to hold in check the operations of injurious insects. In my opinion, it would be a good investment for the Dominion Government to buy wholesale, Dr. Hornaday's work, entitled "Our Vanishing Wild Life" and distribute it gratis to people in our towns and country places, as a preliminary educational measure to the masses.

#### *A Monument to a Bird*

It would be easy to quote many instances of the tremendous utility of insectivorous birds in America, and on the other Continents, but just one will suffice for my purpose:—In the State of Utah, near the Great Salt lake, the black crickets arrived for three years running and utterly destroyed the grain crops. The people had to buy grain in neighboring States and fortunately could do so. The black headed gull made its appearance, found the crickets to its liking, and in a short space of time freed the country of the pest. The population have erected, or are about to erect, a monument to the bird which saved them from starving.

It is in the forest that the birds are of most inestimable value, they are the great and only agency which keeps in check the gypsy-moth, the bud-worm, the larch fly, the brown-tail, etc., etc. The parasite does good work too, but cannot compare in efficiency with the birds. Disease will not exterminate injurious insects, nor will the parasite, animals cannot do it, man cannot do it, there is no force innature which can control the insect world but the birds, they are the most indispens-

able balancing force of nature.

#### *Bird Life and Forests*

It would be well for the Conservation Commission to take this subject up warmly, start a crusade for bird protection. They would find very able assistants in the women of the country. It would only be necessary to give one or two lectures in each town, city, or village, to enlist their services and start a branch Society for bird protection. This action would ensure a fair measure of protection in such places and their environs. The farmers should be interviewed and their true interests explained, they would look after that section of the country. There remains the forests—I wonder how many of our lumbermen have given any study to bird life and realize what it means; it must be a small percentage. Their efforts are confined to trying to keep fire out of their holdings, they have thought little of the insects and the birds. It is time they awakened to the true situation and lent their assistance to bird protection, thus helping themselves at an absolutely minimum outlay, for their fine rangers could placard the outskirts of their forests, and thus help to a very great extent.

#### *Fire and Insects*

As between the damage done by fire and the insects let us see what figures tell us, and for this purpose let us take the Dominion only. We are told on the best authority that one hundred millions of damage is done annually to field and forest crops—well, for the sake of argument let us at one fell swoop assume that the figures are wrong, that only 50 per cent. of it is the correct amount, viz.:—fifty million dollars, then let us assume that field crops are one half of this total, or twenty-five millions—let us proceed and cut the thing in half again and get down to  $12\frac{1}{2}$  millions. Without in the least asserting that the calculations of our exports are wrong, let us figure on the  $12\frac{1}{2}$  million basis, surely this is conservative. If we can assist in conserving such an amount, or the major



part of it, we are assisting materially in conservation of the forests. And how? Simply by leaving our feathered friends unmolested; we do not have to expend one dollar. The task should not be hard.

Jas. Buckland in concluding his pamphlet on "The Value of Birds to Man" says as follows:—"It is the nature of infamies, as well as of disease whose progress is not checked, to daily grow worse; and if the present day wasteful and depraved practice of denuding the world of one of its most valuable natural resources is not checked, then will be wrought a mischief, a universal disaster more

awful in its results than words can express."

With the great war going on and the food being one of the most serious problems confronting the whole world, each and every one can help by protecting the birds, thereby protecting the crops and forests, and thus doing a "little" bit even if they do not go to the front. There is no time to lose if we want to see birds in sufficient quantity in the near future, and the present time is very opportune to take up the duty, for no other word than "duty" can express the situation.

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## *Restoring War-Damaged Forests*

BY PROF. A. JOLYET.

*Ecole Nationale des Eaux et Forets.*

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The North East of France is a well wooded region and it is natural that numerous forests should have suffered as a result of the operations of war. However, though the damage incurred may have been great, it does not follow that the forests must necessarily be destroyed.

A forest is not merely formed by the sum of the plants living therein but also by the forest soil, or primitive soil modified by the existence of the forest, and by the sum of the plant and animal life there developed. The "etat boise" (wooded state) so produced represents a valuable capital and it would be a serious mistake not to utilise it as soon as possible, for this state or condition, though surviving the destruction of the forest population, does not last for ever.

There are two methods of regenerating a forest in these conditions: one natural and the other artificial. The former is not profitable, being too long, whereas the interest of the owner lies in obtaining commercial timber from his forest as soon as possible.

### *Mutilated Trees*

The first point then to establish in restoring a forest damaged by war is whether the injured trees are definitely broken or merely bruised. In the first case they must be cut down level with the ground and, provided the species is a deciduous one and not too old, new shoots will then emerge from the stump. On the other hand, if the tree is a conifer, no shoots will be formed, but by cutting down the tree the danger of encouraging insect parasites will be avoided. In the second case also, felling is almost always advisable, for a mutilated tree is not likely to produce healthy wood.

As a result of the felling, gaps of greater or less extent will occur. These it will be necessary to fill up by means of appropriate species: (a) encouraging the natural reconstruction of the forest with wild species, or at any rate not impeding the same by an excessive amount of cover; (b) capable of furnishing within a short period good marketable timber the sale of which will enable the pro-



prietor to put back the forest in its original state.

### Filling in Gaps

Next, the two following cases must be considered:

(1) *Gaps of large extent.*—When the removal of damaged plants leaves a very big gap, it is advisable to plant not merely a temporary but also a robust species with light shade in order to allow the reconstitution of the original species (oak, hornbeam, maple, ash, fir, etc.) The majority of pines fulfil these requirements, the Austrian pine is particularly adapted to a thin chalk soil; in sandy soil, on the other hand, Scots Pine does best; *Pinus Banksiana* Lamb, in spite of the small value of its wood is also recommended on account of its great hardiness which favours a quick recovery. As these species all require light, the plantations must be fairly thin, the trees 5 to 10 feet apart.

Clearings must then be made in succession and in this way, while obtaining an easily marketable pro-

duct, the forest will eventually be completely reconstructed and rendered capable of again yielding marketable timber in its turn.

### (2) *Gaps of very small extent.*—

When the gap left by the removal of the plants is not above twice the height of the surrounding trees in size, the use of pines, which require a particularly large clearing, is not possible. However, as the object is to plant trees capable of early utilisation, there are other species of conifers answering to this requirement, and among these the fir and spruce are preferable. Though they give a very thick shade, the pyramidal shape of their summits will give the minimum of inconvenience to the surrounding trees, especially to the deciduous species. The fir is most advisable from the cultural point of view and the spruce from the commercial standpoint. At the same time, this would be the best way to establish the fir in forests of deciduous trees and could only add to the value of the forest as a whole.

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## Forest Exhaustion a Peril to Canada

BY HON. W. C. EDWARDS,

IN AN ADDRESS IN THE SENATE.

### An Outspoken Warning Against the Illusion of Inexhaustible Timber.

“Now I am coming to a subject on which I shall not have sympathy in this Chamber and shall have comparatively few supporters in Canada. There are some men in Canada who have thought as much as I have on the climate conditions of Canada, her geographical construction, and her possibilities. You will be somewhat astonished, honourable gentlemen, at the statement I am about to make. I know of no other public man in Canada who would make such a statement. Not since Confederation has any public man made such a statement, but the reverse.

On all our public platforms, in all our legislative halls, the statement has been continually made that Canada is a country abounding in a variety of natural resources which are of enormous value and inexhaustible. In my opinion this attitude has been more or less misleading and hurtful to Canada, giving her people an exaggerated idea as to her possibilities. Not only has Canada the disabilities due to her climatic condition and her geographical conformation, but she is not a country possessed of numerous natural resources. I make the statement advisedly, and I think I



know what I am talking about, and before many years have passed my statement will be found to be true. One of my friends, in talking to me before I arose to address this honourable House, said, "Edwards, don't be pessimistic." "Well, my friend," I said, "I will not be pessimistic, but I am going to tell the truth." Canada, as I have stated, is not a country of a great variety of natural resources. She has just four, namely, agriculture, lumber, mining, and fishing; and a fifth might be added, namely, our water-powers. Occupying the northern portion of the North American continent we are naturally rich in water-powers.

*"Inexhaustible?"*

Coming to the next industry which I have named, that of lumber, I think it will be agreed that with this I am somewhat familiar. I do not hesitate to make the statement that every province in the Dominion of Canada far overestimates its resources in this respect. There are many in Canada who even to-day believe that our resources in this respect are inexhaustible and that it will only be a question of time until the United States will be exhausted of lumber and will have to turn to Canada for a supply. This idea, I assure you, is absolutely incorrect. The United States has as great a supply of lumber relatively to her wants as Canada has, and the total quantity of standing timber in Canada would not supply the wants of the United States for more than eight years. Canada was once a comparatively rich country in this resource, but bush fires and unwise administration of our timber resources on the part of the various provinces have brought about the unfortunate result I have named.

*Pulpwood in Danger*

In pulpwood we are considerably stronger than in timber for lumber manufacturing—of this there is no question; but, if our pulpwood resources are no better administered than our lumber resources have been in former years, they too will become exhausted much more rapidly than is at present anticipated.

*Bad Settlement Policy*

I would ask honourable gentlemen who travel through this country from Halifax to Ottawa, or farther west, just to observe as they pass over the various streams the logs that are being sawn to-day; for I assure you, honourable gentlemen, that the logs being sawn to-day in most of the mills in eastern Canada are such as were left in the woods twenty-five years ago, and I do warn the various provinces of this Dominion that, if we do not take care of our resources in this respect, the lumber trade of Canada, except west of the Rockies, will in a comparatively short time be a thing of the past. A stage was reached several years ago in the lumber industry, making it the continuous aim and object of every lumberman to conserve his resources in this respect; but they have not been supported by the administrators of the various provinces. Considerable portions of country are each year being sold for settlement where the object is not settlement but to obtain cheap lumber, on the part of illicit settlers and a certain class of lumbermen. To give evidence of this I could show to any one who would accompany me, say fifty miles from this city, in one single district from fifty to sixty farms once occupied by pretended settlers, but now, as all the timber is cut off, will be no settlers whatever. This condition of affairs, I assure honourable gentlemen has been most serious in so far as the timber resources of eastern Canada are concerned.

*Exaggerated Values*

In making the statements I do relative to our timber resources I do not want to pretend that we have not still timber resources of very considerable value, but I do contend that they are not nearly of the value which the average Canadian believes. With regard to the destruction of these resources, I quite admit that the provinces are not all equally guilty. In so far as fire protection is concerned, the provinces of Quebec and British Columbia have made the greatest strides in improvement in recent years."



# Conscripting Forests for Peace or War

What Canada has done in utilizing her timber endowment—New duties after the War.

BY ROBSON BLACK

*Secretary, Canadian Forestry Association.*

In these piping times of war the regiment is just one of a hundred fighting units. Every belligerent country, to a greater or less degree, "calls up" its railroads, factories, banks, farms, forests and mines and assigns them to the battlefield. Individuals and names mean less and less as the war grows old; the plan is everything.

This total concentration upon "the idea of science" in the conduct of the war is certain to extend to our national housekeeping when peace shall have returned. If the State can marshal armies and set them to work with such exactness and economy, why should not these same ends be secured in the peace-time warfare of field and forest, waterway and mine? That, at all events is the line of public think-

ing. Unless Canada is to be entirely crushed by the debts of war, the manner of operating the nation's natural resources in the interests of the greatest number of people must take its bearings by "the idea of science."

## *When Trees Were Weeds*

It is in the history of all new countries that the key of conservation is turned on an empty stable. As no new land starts business on a blue print of its future, preferring to work an elaborate cure rather than a simple preventive, it is not surprising that Canada during a hundred years should have victimized her forest resources by neglect and maltreatment. There were days when French and English settlers shook their fists at every pine tree cluttering their agri-



BRINGING OUT BRITISH COLUMBIA "BIG STUFF."



cultural soils; days when a community blessed its stars when a million feet of spruce and hemlock went roaring to the skies in flame. We of 1917 are inheritors of that early misconception of the country's trees and their relation to the age we live in. With the French governors, only the finest of the oaks were accorded any value under the law, being reserved for the royal navy. With the coming of the English some of the pines of greatest size and most accessible for water carriage were further reserved for naval and bridge-building uses. By the time of the Napoleonic wars when Baltic exports to Britain were temporarily disarranged, Britain reached out for Canadian wood supplies, and in so doing laid the foundations of our great lumbering industry.

#### *The National Thief*

In the developing days of 1825, for example, one would not expect to find any rigid regulation of individual enterprise. Canada was too loose-jointed, too eager for any form of exploitation that would give a show of immediate wealth. Accordingly, the demand for timber from the United Kingdom and the United States was fed without stint and with a full-blown optimism. Splendid forests of white pine, our finest wood, fell, never to be replaced. Thousands of square miles degenerated to permanent waste. Fire, then as now, the great national thief, took ten trees to the lumberman's one. Only the mildest suggestion for fire patrol or suppression of loss ever emanated from government or licensee. So enormously did the present fact of a super-abundant wood supply overtop the thought of future depletion that "thrif" was as unpracticed as it was unpreached.

#### *The Forest Primeval*

In the Canada primeval, forests covered probably more than 1,200 million acres. Indeed, with the exception of lakes and rivers, the great triangular wedge of the prairies, the expanses of permanent barrens and the Indian settlements, the green mantle of ree life zig-zagged from ocean to cean. Not until the lumbering indus-

try became established did any sign appear that this rich bounty of Providence was a thing worth investigating and preserving. A few gingerly measures became law, mostly in the direction of personal arrest for starting conflagrations. Forest fires pillaged the country practically without hindrance and with not a little help. The Miramichi fire of 1825 cut a swath 80 miles long and 25 miles wide through the heart of New Brunswick, wiped out six towns, killed 120 people, 1,000 head of cattle, and an uninventoried mass of standing timber. That was spectacular because concentrated. But it has been duplicated in material losses time and time again since 1825, and indeed as late as last year when the Northern Ontario fires burned across 800,000 acres and killed 264 people, with a vast sacrifice of property. In Northern Manitoba one fire within the last 30 years ran for over 450 miles. In Northern Saskatchewan is an area of about 8,000 square miles, two-thirds as big as Belgium, fireswept almost to the point of permanent extinction of timber and soil. The burden which Canada has carried as a consequence of forest fires will probably never be computed because public sentiment in the past, vitiated by that pioneer indifference to tree values, kept no account and charged the whole business to the gamble of unpreventable events.

#### *Jack Canuck's Wood Factory*

But we Canadians have of late been listening to reason. We are not pioneers or colonials any longer. The national machine is putting on extra decks. From the first forest equipment of a pair of mitts and a broad axe, we have developed 5,000 wood-using industries. We ship spruce not only as lumber, but as rolls of finished paper. Indeed we are doing that so acceptably that, in 25 years, exports have jumped from \$91 to over \$20,000,000 a year. And \$15,000,000 worth of timber goes each twelve months to John Bull. Then we make 800 million laths and three billion shingles, and our whole lumber cut annually exceeds three and quarter billion feet.



You can burn a candle at both ends, but not for long. You can strip a square mile of timber on the east side by the axe and on the west side by fire, but the axe will have short employment and the capitalist and workman and the public treasury will go light on profits. Every year we were adding to the export of forest products until timber has become one of our great trading staples in foreign markets. Every year, too, we have been exporting probably four to five million dollars worth of the living timber by the route of flame and smoke, from which no credit slip ever returns. To thinking people, the anomaly required a cure and by painfully slow degrees the same conclusion was crystallized into action by the timber-holding governments. British Columbia, Ontario, Quebec, Nova Scotia and New Brunswick and the Dominion Government (controlling all the lands of the prairies and 40-mile strip along the C.P.R. in British Columbia), formulated plans for fire prevention, and in some instances for a mild instalment of scientific forestry practice. Ontario led the way with a ranger service of some magnitude; this served well enough in its earlier days and is now undergoing reorganization. So followed the Federal forestry branch administering the extensive forests in the northern parts of the prairie provinces, and later the British Columbia forest branch, and then the rise of the four mutual protective associations of licensees in Quebec giving skilled fire patrol to 75,000 square miles of the best Provincial timber resources. As for the Maritime Provinces, well endowed with commercial timber, New Brunswick is about to adopt a modern plan of forest guarding, while in Nova Scotia, favored by a smaller fire hazard, the principles of prevention are already applied with good effect.

#### *The Victory of the Tree*

This gradual ascent to what would seem the most elementary care and foresight in forest management is a clear-cut triumph for the tree. No amount of sentiment, no flood of remorse—nothing but the prod of good

business—has put forest conservation even as far as it is. The tree stands forth as an absolute essential of the country's day-to-day existence. It furnishes the tools of the fishing industry. For every ton of coal taken from a Canadian mine it must supply six feet of timber for props. No railway can run a yard without the tree for ties, coaches, buildings, fencing. No fewer than 500,000 track ties must be taken from our forests every year as renewals on the Canadian Pacific road alone. The same line uses 50,000 telegraph poles a year and 60,000,000 feet of lumber.

#### *The Printed Page*

Consider the newspaper. The tree is the link between editor and reader, between the news of the world and the eyes of the world. Two hundred spruce trees go into one edition of a Montreal newspaper and a New York paper obliterates 15 acres of spruce and balsam forest with a single Sunday edition. Look into agriculture! Of what value is land without a farming plant—a wooden house a wooden barn, fence posts, implements, wagons furniture, fuel? And hydro-electric development! Forests are the guardians and regulators of the streams, the deep spongy masses of the "forest floor" acting as nature's reservoir for the excess waters of spring. As everyone knows who has seen a flood or felt the pinch of a drought, a river at either extreme is serving an evil and extravagant purpose, and yet an unruly river can too often be traced clearly to an unruly forest. Wreck a watershed forest and you wreck the gold mine of water power and irrigation development.

The tree gives employment to 110,000 Canadian men in more than 5,000 factories. It distributes more wages, attracts more capital and uses more human labor than any other industry we have with the single exception of agriculture. There are towns in Ontario and Quebec where the company that built the paper mill in the middle of the wilderness also created an entire municipal organization, streets, houses, picture theatre, playgrounds, town hall, police station, churches and



schools, as was indeed necessary to retain employees.

#### *What Next From the Log.*

But lumbering, as has been shown by references to fisheries, mining, agriculture and water powers, is but one department of forest utilization. Mankind is only at the commencement of new uses for the common log. Indeed in so many hundreds of ways is wood in its various forms now employed that mention of a very few will suggest the high reward for future research and experimentation.

One might, for example, step into a drug store with an armful of prescriptions and have them filled without departing from the derivatives of the tree. Barks without number, quinine, chincona, etc., turpentine, balsam products, chloroform, camphor, cough syrups, corks—the list would take the bottom out of the pharmacopœia. Wood pulp is producing not only paper, but waterproof clothing, vests, mattresses, blankets, twine and dish towels. The Germans are using a mixture of treated hemlock bark and molasses to feed their dogs, and all European countries have long employed wood wool, a fine excelsior, for surgical dressings and mattress filling. In no war in history have timbers played such a part in defensive construction, the durability of trench and dugout depending wholly upon wooden props.

#### *Good Uses for Sawdust*

The despised sawdust is an essential ingredient of blasting powders, porous bricks, metal polishes, floor sweeping compounds, inlaid linoleums, and as fuel. Hemlock and oak bark is used for tanning leather. Beechwood shavings are a necessity in vinegar factories. One might proceed after this manner narrating how prolifically the tree and its parts contribute not alone to the obvious purposes of lumber manufacture, but to hundreds of industrial processes from the making of oatmeal wallpaper to supplying solvents for high explosive fibres. In place of steel and concrete substances pushing the tree from the market our employment of wood is increasing enormously. Its marvelous

adaptation to the needs of primitive or civilized life, its ability to take a multiplicity of forms (as in the varied and unrecognizable products of pulp fibres), and the seemingly endless possibilities of wood distillation, and perhaps most important of all, the relative abundance of growing timber, its accessibility and cheapness—these have rendered the tree, were we to give the matter a moment's thought, one of the mightiest benefactions of Mother Nature. It is geared to farm and mine and factory and all the wheels of our commerce and finance. Whatever relates to the wood supply, therefore, is the immediate business of every moving item in the machine.

In India the original Moguls owned all the land, and every subject of the scores of millions accepted the Mogul's say-so and paid tribute. That system with modification, has effect to this day. In Canada, whatever blunders we have made as stewards of the natural resources, our original law-making moguls saw to it that the title to over 90 per cent. of the forested land of the country should remain perpetually in the name of the people. Of course, much of the timber growing on that land is licensed and put to sensible use in the lumber and pulp-mill, but the governments have retained the ownership of the grounds on which the timber grows and thereby possess the right to impose whatever regulations the conservation sentiment of the country may demand. That is a great power and should be jealously guarded as it should be moderately exercised. How fortunate Canada is in her public control of the timber land is appreciated perhaps better in the United States, where only about one-fourth of the public forest domain is subject to State or Federal regulation. Four-fifths were long ago alienated by thoughtless administrations.

As in the early days the dismayed farmer reviled the forest as a barrier to the plow, that sentiment maintains its strong reactionary grip on this generation. We also kill wood-peckers and robins, frogs and snakes, from the same inbred prejudice unenlightened by the shy truths of the modern investigator.



*What Conservation Means!*

Conservation of forests means that every acre of ground in the Dominion capable of growing field crops shall be delivered to the agriculturist when required. Trees cannot give as good profits as annual wheat harvests when the soil is favorable to the latter. But more than 60 per cent. of the whole of Canada will never produce farm crops. The conditions of soil, climate, topography, render that 60 or more per cent. unfit to take the plow or spade. Except in pockets it would not pay the settler his salt. Much of it is permanent barrens, as in Ungava, and in streaks of every county north or south. Conservation of these enormous non-agricultural tree-growing areas—about 500,000,000 acres—means that where a farm crop is impossible a timber crop shall be assured. Why not? Timber will grow, within climatic limitations, almost everywhere. Saskatchewan, for example, is a prairie Province except on those millions of acres where it is emphatically a forest Province. Seventy or eighty per cent. of its northern tree-covered soil will never pay dividends to agriculture for reasons that time or tide cannot alter. The rule of effi-

ciency (synonym for conservation) requires that the bulk of Saskatchewan non-agricultural soil shall be regarded as a rich Provincial inheritance and that fire shall be rigidly excluded, as a man excludes it from his houses and barns. More than that, the law of good house-keeping to which the war has seemingly committed us, means that the exact science of forest management shall be applied so as to endow the Saskatchewan of 1997 with even better forests than existed half a century ago before the carnival of fires.

*The Fire Enemy*

Forest fires have bullied and impoverished Canada for more than a century. While European nations circumvented the damage of flames by determined and successful means, 50 to 100 years ago, we remained the victim of boyish delusions about the helplessness of man against the terrors of Providence. We are learning very late but very willingly that fire damage in the precious forests can be ousted. Methods of prevention and of fire fighting have become more or less standardized the world over, and are available to any Government or individual who cares to ask questions.

*The Deadly Manzanillo*

BY FRANK COYNE  
In "American Forestry"

Literature on the tropics abounds with stories of poisonous plants and trees, and to this beautiful tree, arching many a roadway with its glossy green leaves and rose-tinted flowers, has been ascribed the deadly poisonous properties of the far-famed Upas tree of the East.

To the fruit of this tree, more than to the effect of its foliage, is due its evil name. Manzanillo in Spanish means "little apple" and in the Papiamento tongue of the blacks of Curacao, Dutch West Indies, living in their little thatched huts, the name

Manzanillo is pronounced but slightly differently from the Spanish.

It has been stated by Spanish writers that if one remains under its shade for a few hours or sleeps there death is likely to follow, or that even if the unfortunate escapes death the body will become a mass of running sores. The deleterious properties of the shade of this tree have, however, been greatly exaggerated, and as for the actual poisonous effect of the leaves and shade considerable diversity of opinion still exists, as is the case with the poison ivy of the States.



The small, apple-shaped fruits have tempted many a stranger to a much-regretted meal. As recently as the summer of 1916 an officer of a Dutch steamer had a narrow escape from serious poisoning, emetics and stomach pumps alone saving his life. Some 32 years ago 54 members of the crew of a German ship were taken to the local hospital, all very sick from having eaten the fruit of the Manzanillo. Five of this number died and the rest after serious illness for several weeks recovered.

As is the case with the question of the leaves and shade, there are many accounts of the effect of the fruit. To quote from one writer "A fish which eats the fruit becomes infected,

the gills becoming yellow and black, and one who eats the fish in this state is said to fall into a profound lethargy, with a general relaxation of all the limbs, according to the amount eaten."

The tree when cut exudes a quantity of white, milky juice, in the same manner as the common rubber-tree, and to most persons this juice has the same effect as our poison-ivy. However, if this acrid milky juice reaches the delicate membranes of the eye, temporary and often permanent blindness is sure to follow.

The Manzanillo is a native of the West Indian Islands and is usually found in moist situations.

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## "Fifty Years" or Five Hundred?

### Will Current Estimates of Forest Exhaustion in Quebec be Permitted to Come True?

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The value of Quebec's exports to the United States last year, including paper and manufactures of paper, pulpwood, lumber, lath, shingles, sulphate and sulphite pulp was \$16,264,382.

That enormous sum showed an increase of five million dollars over 1915.

The sales of Quebec to Uncle Sam last year included more than 212 million pounds of news print paper, 359,507 cords of pulpwood, rough, peeled, and rossed, over 91 million feet of lumber, rough and planed, over 37 million laths, 162 million pounds of mechanically ground wood pulp, 130 million pounds of sulphate pulp, 32 million pounds of sulphite pulp.

Such tremendous and increasing pressure upon the forest materials of Quebec cannot be withstood indefinitely unless some measure of scientific forestry is given the right of way in all woods operations. At the recent session of the news print and sulphite "probe", before Commissioner R. A. Pringle, K.C., state-

ments were entered by several witnesses, managers of pulp and paper companies, that they were reckoning upon the depletion of their limits in periods ranging up to *fifty years*. Some estimates are known to be placed at twenty-five years.

Is it conceivable that companies with millions of dollars invested in an immovable plant will publicly admit their belief that the investment is headed for the scrap pile and yet take no measures to forestall the calamity. No pulp mill, or large lumber mill, is any more permanent than its limits. It is an anchored investment. If the wood supply is insufficient or too distant, there is no recourse other than insolvency.

It is not too late to introduce into the woods operations some degree of scientific method, such as, curiously enough, most managements are glad to apply to the industrial superstructure without much thought to the foundation of the log supply.

The Quebec lumber and paper companies cannot afford to have some



of the predictions of forest depletion, heard at the Newsprint Inquiry, come true. The Government of the Province can even less afford to have 1967 witness the extinction of an industry that can sell by export to the United States alone over sixteen million dollars worth of goods, and that supplies a livelihood for scores of thousands of citizens.



## THE WORLD OVER



### TAPPING TREES FOR RESIN

The Batjan Sultanate, which is bound by contract to the Government of the Dutch Indies, includes islands situated right in the east of the Indian Archipelago. In these islands are found trees which, either by natural secretion, or after preliminary treatment, yield the "damar" resin used in Europe in the manufacture of varnish. These trees nearly always form forests of a fairly wide area and exude "damar" naturally. Sometimes even it is found buried in the soil, where it has collected from trees which have disappeared.

Only the *Agathis* is treated artificially to stimulate the secretion of resin. The natives make an incision of 30 cm. at man's height, then another 60 cm. higher, and others the same distance apart. Care is taken only to cut half of the bark, leaving the rest intact. The "damar" flows slowly from the incisions and, after some months, large balls of yellow, very clear resin form. The "damar" thus collected has a greater value than that scraped from the bark, in which are always found bits of the bark and other impurities. After the resin has been collected the wounds are cleaned and scraped, and, after 1½ months, there is a new flow.

### FOREST MANAGEMENT IN MOROCCO

From a French Government report on agricultural organization in Morocco, the following information is obtained as to the Waters and Forests Department in Morocco.

This Department, started in 1913, could only be organized in 1914, and although the staff was considerably reduced (2 superior officers and about twenty officers and French forest-guards), the result of the first working year (1914-1915) may be considered as encouraging as, the receipts have almost equalled the expenses. The magnificent forest of cork-oaks at Mamora, rapidly being destroyed by the natives, has been put under regular control. The cork from 120,000 feet has been utilized in 1914-1915, and up to the present the control of two other forests has been organized.

In addition, about 60 miles of fire lines nearly 100 feet wide have been opened out; in 1915, three groups of ranger's houses were established, and 4 others in 1916, at the price of 25,000 fr. (£988) per house, each capable of accommodating the guard's family as well as the native staff and also suitable as a store, etc.

### TREE CULTURE IN URUGUAY

The Uruguayan Government seeks to encourage tree planting, and the National Nursery has supplied trees at a very low cost. In compliance with a recent decree, the nursery will in the future donate large numbers of trees. The decree provides that proprietors possessing up to 100 hectares (247 acres) of land will be supplied gratuitously with 100 trees and that the nursery can distribute 200,000 trees every year in this way. The nursery will also donate in 1917, 100,000 and in the following years 200,000 trees to rural municipalities, schools, police farms, and other institutions.



### PULP FROM BANANAS AND PINEAPPLES

Pulp made from Blady grass, or Lalang:—In Queensland this plant grows wild and produces 4 tons to the acre on good land. Four tons will produce (according to its dryness)  $1\frac{1}{2}$  to 2 tons of pulp and this is worth £8 per ton.

Triumfetta and Urena Pulp.—The whole plant can be converted into pulp, but if the fibre is taken, the balance can be made into pulp. Three tons will make 1 ton of pulp.

*Sida retusa* Pulp.—This makes a very high class paper, suitable for bank notes and legal documents.

*Pulp from Cane Top*.—Makes excellent paper, especially blotting-paper.

*Sugar Cane Megass Pulp*.—As fuel megass is worth 5s. per ton, but for paper making it fetches about 12s. 6d. to 15s. a ton delivered.

*Banana Pulp*.—After fruit-bearing, the whole plant can be manufactured into paper pulp. The paper produced is of very high quality. It takes 5 tons of banana stems and leaves to make 1 ton of pulp which is worth £10.

*Pulp from pineapples*, (which yields  $\frac{1}{4}$  of its green weight of high-class pulp), *Hibiscus* sp., Bamboo.

(Report of International Institute of Agriculture).

### FOREST MANAGEMENT IN FORMOSA

According to a report of the British consul at Tamsui, special attention has been given of late years by the Government to the intensive management of the inland forests of the Island of Formosa.

The wood from the forests of Mount Ari has been largely utilised since 1915, when wood from the Arisan forest was first exported. About three million cubic feet are obtained annually from this forest. The most recent and improved methods are used, and the wood is sent to the Kagi timber-yard in logs.

The Kagi timber-yard is near the starting point of the Arisan railway, which runs along the mountain side for a distance of 41 miles. Aerial transport cables have been fitted up which allow a yield of from 10,008 to 14,400 cubic feet per 10 hour day to be attained.

Two new forests suitable for working have been found in other parts of the island. One of these is in the Taichu prefecture, on the slopes of Mount Hassen, the other is in the Giran prefecture, in the upper reaches of the river Daidakusuike near Mount Sansel.

Attempts are being made by the forestry department to develop the management of the Formosan forests to a still greater degree.

According to the latest estimates the area of the Hassen forest is half that of Mount Ari, whereas the forest in the Giran prefecture is  $1\frac{1}{2}$  times as big as that of Arisan.

The great transport difficulties at Arisan, where a railway had to be built, do not seem to exist for the two new forests. In this case there are water-courses down which the logs can be sent either to the coast or to the railway.

### REPLACE STEEL WITH WOOD

Advice has been sent out by the National Chamber of Commerce to manufacturers, builders, and others to substitute wood and other materials for iron and steel when it can be done. The reason assigned for this course, according to *The Hardwood Record* (Chicago, July 10), is that steel and iron are needed in such large quantities in prosecuting the war that enough to meet the ordinary needs of other business can not be depended upon, but wood is available. The paper just named goes on to say:

"It is fortunate that we have our forests. It is a resource which will serve the country well in this crisis. The need of timber is so great in some of the



countries at war that almost a clean sweep is being made of all trees. That is true particularly in England, Scotland, and parts of France. Ornamental groves, shade-trees, and private timber of all descriptions are being cut to meet the call from the front. Nothing is spared for the sake of sentiment. It is an emergency that recalls Shakespeare's question: "Who in a sea-fight ever thought of the price of the chain that beats out the brains of a pirate?" The American forests are able to meet the call. The war can not last long enough to exhaust our timber, even after using it as a substitute for steel wherever possible. There is enough iron in the ground, but it can not be mined and manufactured fast enough to supply both war and private business; but fortunately, there are timber enough and reserve saw-mill capacity sufficient to take care of the needs of the country in this emergency. It has been a subject of comment, and often with a note of discouragement, that too many sawmills had been built. If they operated to capacity, there was danger of an over-supply of lumber. Perhaps the day is at hand when it will be considered fortunate that there are so many mills, and that they are able to speed up production almost without limit."

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## *The Diplomatic Forest Ranger*

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The work of a Forest Ranger or Guard during the fire season is, of course, taken up very largely in preventing fires, writes W. G. Morison in "American Forestry." Since the greatest danger is from campers, hunters, and fishermen, who through carelessness or ignorance throw down lighted matches, cigarettes, etc., or build camp fires where they should not or go away leaving them burning, it is essential that they be warned, and it is equally important that they be warned in such a way that they will not take offence. I have known campers who have been left in a very antagonistic frame of mind by being told in a tactless way to be sure and not start a fire, and how not to start one, the law for such offence, etc., and consequently did not care much if one did start, and certainly would not

have helped fight one unless forced into service by reciting the law to them, which is worse than not having them at all.

It is very easy to get the co-operation of most of the people who come into the woods for recreation (the natives of the woods usually are as anxious as the Forest officers to prevent fires) by several little ways without even letting them know that you are trying to do so, for instance: a Ranger or Guard sees a fisherman; he goes down towards him, and when he sees that he is seen, he incidentally tells the fisherman thereby who he is, and probably has him thinking unconsciously of fire already. Having done this, he goes up and says, "Hello, had much luck?" and then engages in a conversation as to the pros and cons of fishing (no better

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way to please a man than by talking about the thing he is interested in at that particular moment). During the conversation he glances around as if looking for smoke (remember the idea is to get the fisherman's mind centred on smoke, and smoke means fire). After a while he says, "Well, I guess I will have to be getting on, pretty bad time for fire." The fisherman then probably says something such as "Had many this year?" or "Has there been much damage done around here?" This gives the Forest officer the opening he is looking for, and he says, "No, not so far. Have been mighty lucky in having 'old timers' around who realize the damage done by fires and are careful. You can spot them every time. Now, I can see you are far from a green one in the woods from the way you handle your rod and line," or anything like that to flatter him. If he is an "old timer" he will admire your powers of observation; if he is not, he will be tickled to death to think that a Ranger, who is supposed to be the best of woodsmen, could not spot him, and his chest will bulge out considerably. In either case the Ranger has pleased him, and the chances are one hundred to one he will have no trouble with that man starting a fire. On the other hand, suppose the fisherman does not give him an opening: in that case, the Ranger stops and says, "By the way, did you see any camp fires coming down the river?" The fisherman says "No." Then the Ranger, "I certainly would appreciate it if you would put out any you see burning. We have some people who come up here who are not used to the woods, and naturally do not realize the importance of putting out their fires or that a little spark from a cigarette or match is very dangerous." The Ranger has now warned the fisherman by pretending to be worried about others, and at the same time pleased him by pretending to think the chances of his being so careless are so remote that it is unnecessary to warn him. The same mode of procedure applies to hunters and campers. The Ranger can always bring

the conversation around to his work, and, by a little tact and politeness, go away resting assured of the fisherman's, hunter's, or camper's cooperation.

Suppose he has come on to some campers: he walks in, not forgetting to be looking for smoke, and after the usual day's salutation sits down. After talking about things in general, he gradually brings the conversation around to cooking in the open. Most of them will have some opinion as to the best way. Of course, he will be supposed to give his ideas on the subject. He might say something like this: "Personally, I think a stone fireplace is the best. It makes a cracking place to cook on (all the time he is showing them how to make one), and if you bring along a piece of sheet iron to lay on the stones you will have a regular stove, or should you forget the sheet iron (the chances are they have none with them this time), you can easily make the fireplace narrow enough to rest your frying pans on the stones, and then, too, a fire of this kind is not so apt to start a forest fire." Then he has the conversation started on forest fires, having told them of the fireplaces, which is important. He now has them in a good state of mind, and their attention his, and he can tell them lots which ordinarily would go in one ear and out the other. I personally have tried these ways of inciting the interest of the users of the National Forests, and found they never failed to bring good results.

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The Manager of Eastern Lands of the Canadian Northern Railway has just returned from a trip through Northern Ontario and says that he believes that there are tributary to the present railways and waterways leading to them, 250,000,000 cords of spruce pulpwood in Ontario and 350,000,000 cords in Quebec. He says that it is useless to consider timber north of the Transcontinental Railway, as the rivers run north, and only a small portion could be brought upstream by building dams which would enable the wood to be towed back.



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The silo originated in the southern part of Europe somewhat previous to 1845, and there are five or six still standing, have done constant service and are made of wood.

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# Britain's Task of Restoring Her Forests

United Kingdom Spent Forty Million Pounds  
on Imported Wood. A Home Supply Essential

Will the British Government undertake the replanting of great areas in timber after the war in order to overcome the embarrassments and dangers of almost complete dependence upon imported wood?

The Royal Scottish Arboricultural Society has sent in a report to the Reconstruction Committee of the British Government on the subject. Parts of it of special interest to readers of the Journal are as follows:—

## 1. *Need for Action by Government*

After the reports of a Royal Commission on Forestry and of more than one Departmental Committee on the subject, it would be superfluous to discuss either the need for further afforestation, or the duty of the Government to assist in the work. The simple fact that we spent more than 40 million pounds in 1913 upon imported wood, is sufficient to show, both the enormous extent to which the home-grown supply falls short of our requirements, and the impossibility of expecting private effort to make up the deficiency.

The question has attracted a good deal of attention in recent years, and all who have studied it have been struck by the great loss which the nation suffers in paying away to foreigners immense sums of money which might be retained in the country for the benefit of its own people. And since the war began we have had occasion to feel that our reliance upon foreign countries for such a large proportion of our timber requirements is not only a material loss but a source of danger.

## *Wood in Civilized Life*

How dependent we are upon wood is, perhaps, not sufficiently appreciated. It is not too much to say that civilized life could not go on without it. The amount required by railways, collieries, and other vital industries is gigantic; and to these

must now be added the enormous consumption of wood in modern warfare. To induce the Government to embark upon a policy of afforestation stress is often laid upon the fact that national forests would prove a source of revenue. Judging from the published accounts of French and German forests, and from the experience of landowners in this country whose woods have been scientifically managed, there can be little doubt that this would eventually be the case. But it is not on this ground that the decision of the Government should be based. The true justification for national afforestation is the well-being and security of the country. Wood is one of the prime necessities of life. Next to food, it is the article of which an abundant supply is most essential to the nation. It is on this ground that foreign governments have recognised their responsibility in the matter; and it is on this ground also that we hope our Government will decide to do the same.

## *Every Acre Made Efficient*

The country has been informed that it is the intention of the Government to make every available acre of land productive. This can only be done with the aid of afforestation. There are, no doubt, thousands of acres of agricultural land, now neg-





lected, which are capable of being profitably cultivated. But beyond these, there are millions of acres of waste land capable of being profitably planted. Unless the Government will assist in planting them, one of the greatest natural resources of the country must remain undeveloped.

The benefits of national afforestation may be summarised as follows:—

1. It would turn many barren wastes into profitable woodlands.

2. It would retain, in the rural districts, thousands of men who now have to seek employment in the towns.

3. It would keep in this country, for the benefit of the country, millions of pounds now paid away to foreigners.

4. It would enable a large number of small holdings to be established on economic lines.

5. It would lead to the development of many new industries.

6. It would ensure such a supply of timber as would enable British industries to be carried on, without curtailment and without anxiety, in the event of another great war.

#### *State Afforestation*

A preliminary point to settle is the extent of afforestation which would be required. It would be quite possible to make the country self-supporting in the matter of timber. The reports of the Royal Commission and Departmental Committees show that the amount of available land is more than sufficient for the purpose; while competent authorities assure us that our soil and climate will produce every variety of timber in common use, and of a quality equal to that which comes to us from abroad.

It would not be necessary, however, to make ourselves entirely self-supporting. It would probably be sufficient to make such an increase in our existing woodlands as would substantially diminish the amount which we now pay annually for imported timber, and enable us, in the event of another great war, to carry on for three years without unduly

depleting our home supplies. To ensure this our present woodlands should be increased by 2 million acres. The wooded area of the United Kingdom is estimated at 3 million acres; it should be increased to 5 million acres.

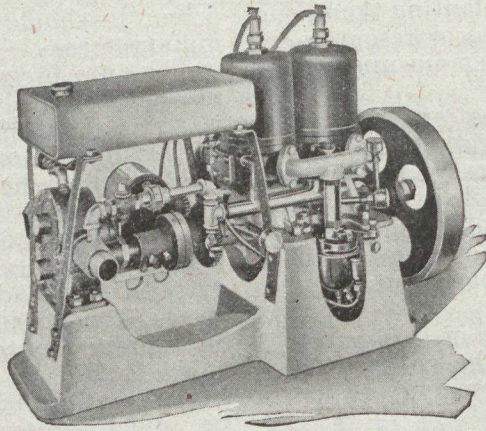
The annual consumption of timber in the United Kingdom before the war was about 650 million cubic feet. Of this amount only about one-eighth was grown at home. Under an improved system of silviculture the existing woodlands in the country would yield fully twice their present output. The additional 2 million acres, scientifically managed, could be counted on to yield 150 million cubic feet. We should thus obtain from the afforested land in this country something over 300 million cubic feet annually, or one-half the volume of present consumption instead of only one-eighth.

We do not say that an addition of 2 million acres to the area now under timber would fully meet the needs of the country, especially when we remember how the demand for timber has steadily increased; but we consider that this is the lowest figure which should be aimed at in any scheme of national afforestation.

#### *Joint Action Needed*

Afforestation should be carried out, partly by the State, and partly by private owners of land. There is no doubt that the work would be more cheaply done if landowners were encouraged to take a part in it. In the first place, where the work was done by landowners, the State would be relieved of all expense connected with the purchase or leasing of the land to be planted. And in the second place, owners already possess much experience in planting and managing woods, and they employ a large number of men trained in the arts of forestry. It would obviously, therefore, be an advantage to associate landowners, as far as possible, with any scheme of afforestation. The extent of afforestation contemplated is, of course, too large to enable them to undertake more than a limited share of it. But it would





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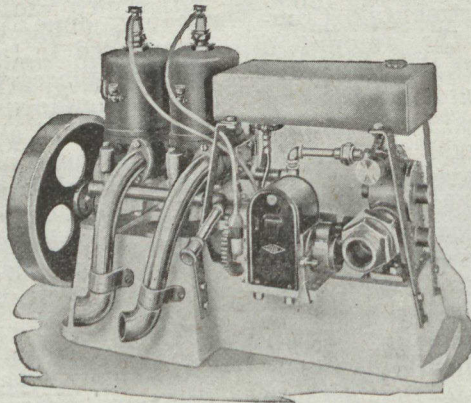
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be worth while for the State to offer inducements to them to make the share as large as possible. These inducements should take two forms— (1) the removal of discouragements to planting; and (2) the offer of substantial encouragements.

### *Some Discouragements*

The chief discouragement to planting is due to the burden of imperial and local taxation. These two combined always amount to a very large

proportion of the annual value of the land. At the present rate of taxation they often exceed 20 shillings in the pound, as can be proved by concrete instances. Such instances no doubt include super-tax; but it must be remembered that super-tax will invariably be payable on estates where planting could be done on a large scale. Unless this burden were lightened, it would not be possible for landowners to take any considerable part in the work of afforestation.

## *French Addresses at Quebec Centres*

By the kind co-operation of the Minister of Lands and Forests, Quebec, the Canadian Forestry Association was enabled to secure the services of Mr. Avila Bedard, of the Laval Forest School, (also of the Department of Lands and Forests) for a series of French lectures in the Province of Quebec. A route was arranged so that Mr. Bedard would meet the public at about twenty-five points and discuss with them the problems of forest protection, asking their co-operation in maintaining the source of raw materials for all time to come. Advance publicity was

arranged for, and the series was commenced at Grand 'Mere on Thursday, August 2nd, before an excellent audience. Mr. Bedard, who is a graceful speaker, covered his subject in popular style and held attention closely. At the close of his address, about one hundred and fifty stereopticon pictures, mostly in colors, were projected on a screen and explained. The pictures included scenes in the war zone, forest rangers at work, the forest industries, problems

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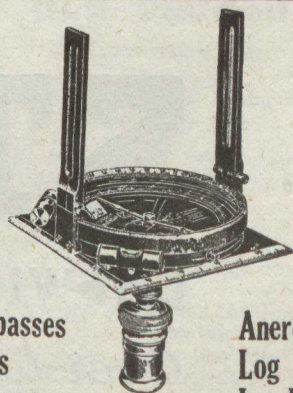
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of erosion and timber denudation in foreign lands, results of settlement on non-agricultural soils, etc. in which the audience was heartily interested.

At St. Gabriel de Brandon, the following evening, the town hall was filled with men and senior boys, who gave splendid attention and undoubtedly enjoyed and profited by the event.

Other points in the itinerary to be covered in August and September are: Shawinigan Falls, Three Rivers, Windsor Mills, Stoke Centre, St. George, St. Jovite Village, Annonciation, Ste. Agathe, four points on the St. Francis River, Chicoutimi, La Tuque, St. Raymond, and probably other points. The lectures are entirely free to the public.

**YOUNGEST MAJOR A FORESTER**

One of the most interesting personalities to be found in the long list of forest engineers and forest assistants who have gone overseas is that of Major G. Roland Barnes, M.C. who has been on furlough at his home in Hampton, New Brunswick. "Shad" Barnes, as he was shown in the sophomore 1917 class at the Forest School of the University of New Brunswick is the youngest Major in the Can-

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adian Army and won the military cross and bar, plus promotion, for intrepid conduct.

Mr. Jas. T. Blackford, the Chief Fire Ranger for the Dominion Government in Northern Manitoba, reports that on the night of July 23rd an electric storm of a very severe nature, unaccompanied by rain, passed over his district and was the cause of numerous fires starting up all over the district. The next morning Mr. Blackford saw the smoke and on going up the lookout tower could see nine fires started. It was not more than 30 minutes between the time he first saw the smoke of one fire until he could see the smoke of nine.

For the next week he was busy day and night, only taking sleep as he travelled by canoe. He was at three of the fires in person and had gangs of men at each. By the end of the month all the fires were reported out except two which were being steadily fought. None of the fires as yet reported on were started by campers. All appear to have been started by lightning.

If you see a sign of fire on or near a railway right-of-way, don't underestimate what it means. Inform the nearest fire patrolman or station agent. Lend a hand yourself. Throw away neither burning matches, pipe ashes, cigarette nor cigar ends.

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# PROVINCE OF QUEBEC

## Department of Lands and Forests

Quebec, 2nd June, 1917.

Public notice is hereby given that, in conformity with the law, on the 21st August next, at 11 o'clock a.m., at the office of the Minister of Lands & Forests Dept., Quebec, there will be offered permits to cut timber on lands belonging to the Crown in the Upper-Ottawa, Lower-Ottawa, St. Maurice, Lake St. John, East and West, Saguenay, Rimouski West and Bonaventure West agencies, comprising several large blocks in the Abitibi, Upper-Ottawa and head waters of the St. Maurice and Gatineau and on River Chamouchouan.

Permits will be adjudged to the highest bidder.

The price of adjudication is payable in 3 equal instalments.

The permit to cut will be subject to the ordinary conditions of the Law & Regulation and the grantees of any of the aforesaid territory must, within a delay of three years, manufacture, in the province of Quebec, with the timber cut in said territory, either pulp or paper in the proportion of ten tons per day, or sawn lumber in the proportion of ten thousand feet board measure per day, per hundred square miles.

Further information may be had by applying to the Department of Lands and Forests.

ELZ-MIVILLE DECHENE

Deputy-Minister, Department of Lands and Forests





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