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# CANADIAN FORESTRY

13,000  
NATIONAL  
CIRCULATION

## MAGAZINE

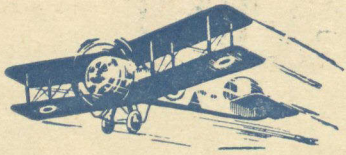
Vol. XVIII

OTTAWA, CANADA, JULY, 1922

No. 7.



On Forest Patrol



# DISASTROUS FOREST FIRES



Have demonstrated the necessity of limit-owners and protective associations increasing their available supply of fire-fighting apparatus and introducing more efficient methods of operation.

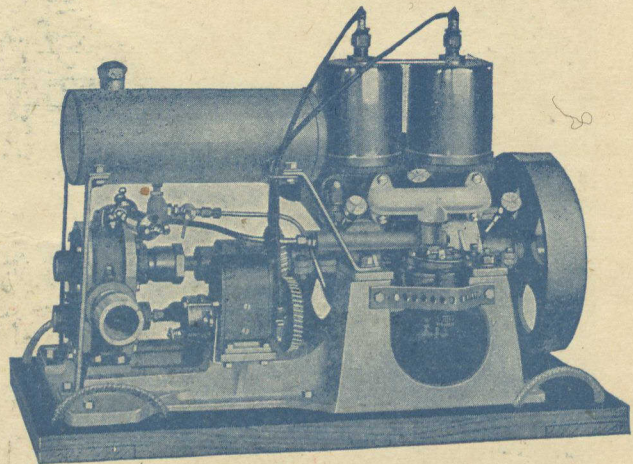
## FAIRBANKS-MORSE FOREST FIRE PUMPS

have been used with good results by many Companies and Associations—their extreme portability in Aeroplane, Canoe, Boat, Car, or by two men over a trail, fitting them particularly for this class of work, where rapid movement from place to place is essential.

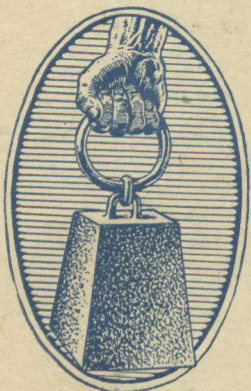
Aeroplanes with any reasonable carrying capacity can transport several FAIRBANKS-MORSE FOREST FIRE PUMPS together with crews to operate them, with the least possible loss of time.

Fore-sighted Forestry Executives are profitting by recent experiences to largely augment their emergency supply of Fire Pumps.

Fairbanks-Morse Forest Fire Pumps are effective anywhere within reach of a lake or stream, and provide a means whereby one or two men can put out the fires when they start.



Fairbanks-Morse Forest Fire Pump.  
A Rotary Pump with 4-5 H.P. Engine. Total weight 128lbs



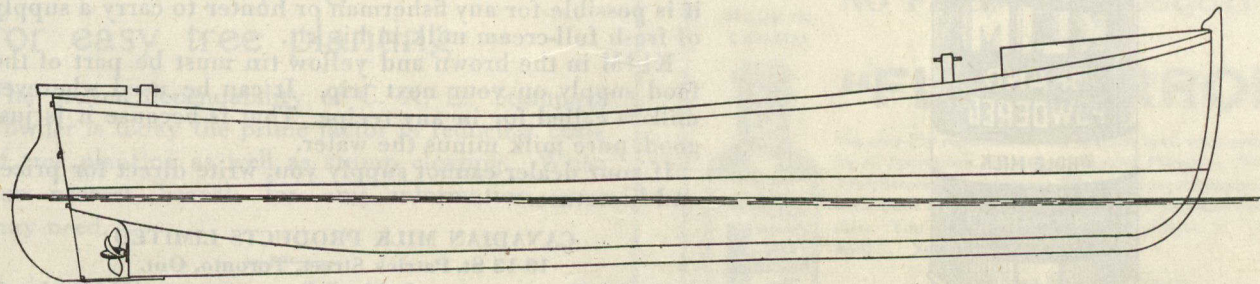
# The CANADIAN FAIRBANKS-MORSE Co. LIMITED

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*AUG 24<sup>th</sup> 1922*

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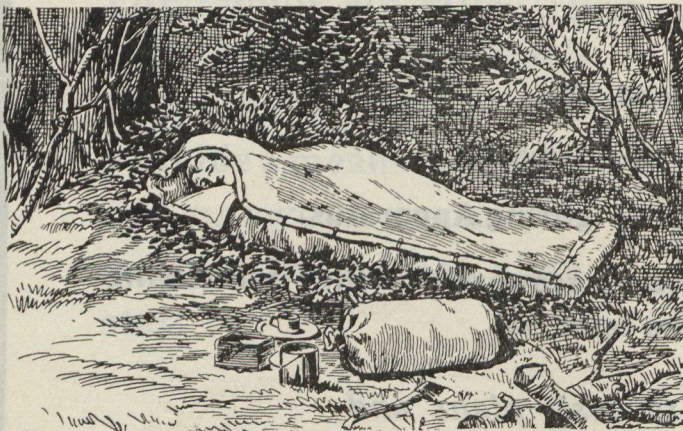
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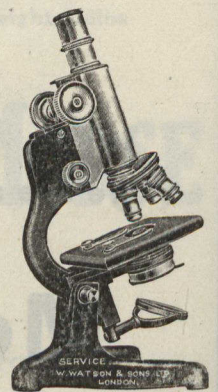
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Description,

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OTTAWA, ONT.

# FIRE INSURANCE ON STANDING TIMBER

Policy issued to protect your investment in standing timber against loss or damage by fire or lightning

*Rates and all informations given on application*

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The proven dependability of C. X. L. Stumping Powder is today the prime factor in reducing costs of tree planting as well as stump clearing. Write our nearest branch for any information you may need.

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**307 ST. JAMES ST., MONTREAL**

Where we can furnish fire-fighting equipment on short notice.

We have supplied several Forest Protective Associations, and can give excellent service.

Among our products are:—

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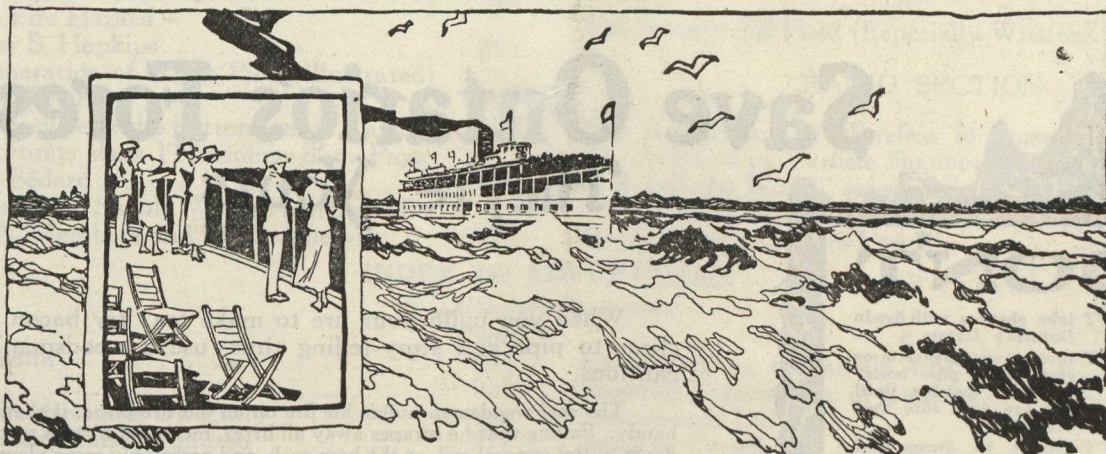


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A luxurious steamer will carry you from Toronto through the Thousand Islands, shooting the wonderful St. Lawrence River Rapids to Montreal and Old Quebec City. From here on, down the River to the picturesque Saguenay with its towering cliffs, higher than the Rock of Gibraltar.

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## CANADA STEAMSHIP LINES LIMITED

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MONTREAL



# CAMPERS

ONTARIO'S forest wealth is dwindling. Every year forest fires take disastrous toll. Careless campers cause eleven per cent. of Ontario's forest fires. Last summer 112 cases of neglected camp fires were reported. This summer be careful.

## Be Sure You Put Them Dead Out

Carelessness with matches, cigarette butts, cigar ends, pipe ashes, camp fires, fly smudges, railway locomotives, slash-burning operations—human carelessness of some kind accounts for 97 per cent. of the forest fires which every year add further devastation to the northern areas of this province.

Here are typical cases picked at random from last year's Fire Rangers' Reports:

A camp fire left on a portage caused a fire 10 miles long by 4 miles wide on the Ombabika to Fort Hope route, July 4th.

A prospector on the Montreal River on July 6th burned over 4,800 acres, destroying 1,000,

000 feet of pine and 9,000 cords of pulpwood.

A party of fishermen camped on Porcupine Lake, Burton Township, Parry Sound, on July 10th, burned over 25,000 acres and 2,000,000 feet of timber.

The best way to fight forest fires is to prevent them.

## Save Ontario's Forests They're Yours

### DON'T

DON'T take chances with fire in Ontario's forests.

DON'T throw away cigarette or cigar butts, pipe "heels" or burnt matches until you are dead sure they are out.

DON'T neglect to drown out your fire with lots of water.

DON'T build your camp fire against a rotten log or stump—nor on windy points; nor near moss patches; nor at the base of a tree.

Build it in a former fire-place, or on a flat rock, or on a spot cleared down to the true soil below, or by the edge of the water.

DON'T forget that the upper layer of ground in the forest consists of partially rotted wood which will burn.

When you build your fire to make tea, fry bacon or add cheer to pipe and story-telling time, use a woodsman's precautions.

The real woodsman builds his fire on an old fire-place, if there be one handy. Failing that he scrapes away all litter, moss and fibrous rotted wood down to the mineral soil, or the bare rock, and preferably some place close to the water. He knows that if fire gets into the moss or the upper woody layer of forest soil, or in a half-rotted log or stump, it "holds over," burns away unnoticed underneath, and unless followed up and carefully put out, is liable to break into a flame later. He knows how hard it is to put such deep-smouldering fire out. So he makes his cooking fire surprisingly small and compact, and chooses a spot that is absolutely safe.

It is a mark of his finished woodsmanship how thoroughly he drowns his fire out with plenty of water when he is through with it. Save the forest. You may want to camp again.

Ontario Forestry Branch

Parliament Buildings

Toronto



# THE ILLUSTRATED CANADIAN FORESTRY MAGAZINE



*A Monthly Publication, National in Scope and Circulation, Devoted to the Conservation and Development of Canada's Forest Resources.*

VOL. XVIII

OTTAWA, CANADA, JULY, 1922

No. 7

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# THE LINN LOGGING TRACTOR



Hauling Approximately 9000 ft. of Hardwood—Doyle's Rule

The best Hardwood is each year becoming further distant from mill or railroad and is consequently greatly increasing in cost. In many cases very valuable wood cannot be touched, because horses cannot haul it the necessary distance.

The Linn Logging Tractor, pictured above, was designed exclusively for Winter Log Hauling in the North Country. It was developed and perfected in actual logging operations in the North Woods.

At best, and under very easy conditions, a good team cannot haul more than 1,000 ft. —and a good team will seldom walk faster than two miles an hour.

## The Linn Logging Tractor solves this difficulty

Travelling, as it does, at six miles an hour—operating without difficulty down steep sandhills and up stiff grades—and over river and lake ice—hauling such loads as above pictured.

**By its use the operator is enabled to place his logs at the Mill for very low cost.**

—Logging Department—

# MUSSENS LIMITED

DUBRULE BUILDING

MONTREAL

# Selling Scenery--A Quick Road to the Town of Good Times

Foreign Tourist Traffic as an Asset in the Dominion's Annual Business--Will Recreation become our Chief Forest Product?

By ROBSON BLACK, Manager of the Canadian Forestry Association

**Y**OU recall the story told by many a preacher and lecturer of the ambitious man who in a vain search for wealth travelled the wide world over only to return home to find a diamond mine in his back yard.

Canada, as a business trail-blazer gives the impression at times of a man hiking off to sell rolling pins to Roumania or balbriggan to Bolivia while all the time the back yard waits to be dug up for diamonds.

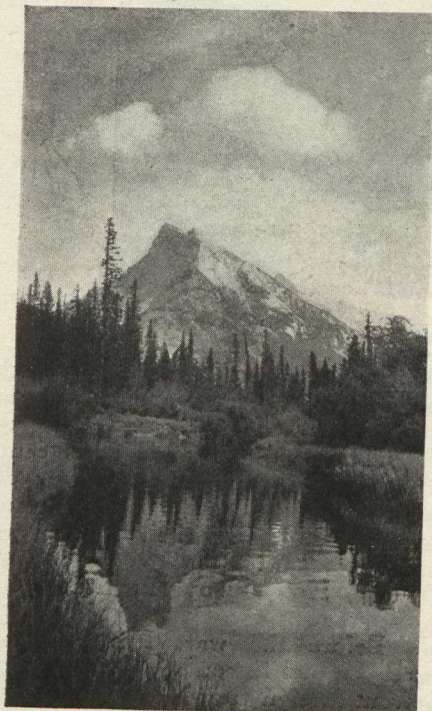
This Dominion is the owner of a considerable Back Yard. Our diamonds shimmer through the grain fields and sparkle from the tops of the spruce forests and signal in radio

Depressionville and the Town of Good Times. Many Canadians are frankly asking why a country with great natural riches should have to endure periodical unemployment for scores of thousands of its citizens, why we should meekly accept burdensome taxation to pay the costs of running our public business—if we really own—as the orators declare—a land of unscratched wealth.

Natural resources do not mean a safe deposit vault of unused family silver, but a public trust fund to be developed to the utmost by con-

forest industries, as lumber, pulp and paper, are exhibiting a mammoth development. Export of Canadian paper to Uncle Sam has leaped from 120 dollars, twenty-two years ago to over one hundred million dollars worth today. In addition we sell his mills a million cords of pulpwood a year. This is forest utilization with a vengeance. We have more than five thousand wood-using industries scattered from coast to coast, each a creature of the living forest.

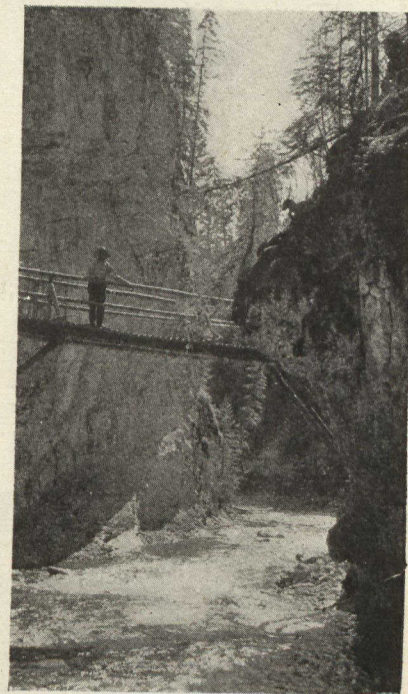
Now comes into the foreground what may prove to be the greatest forest industry of all, the organized catering to tourist travel. "Selling scenery" may some day overtop



Mt. Rundle, Banff



.. Mirror Lake in the Rockies



Johnston Canyon, Banff

servative exploitation. The meaning of 'forest resources' to Canada is that men are employed in making lumber and paper, mills are constructed, railway cars are loaded, taxes are paid to the public treasury. Conservation of forest resources is the antithesis of inaction. Conservation is maximum 'action' but with permanency fully assured. As Canadian exploiters of forest properties we are no weaklings although we have played a prodigal's part in making the forests permanent.

There are more things in a forest however, than trees and other forest products than saw logs.

Our fur trade is a definite forest product. The seven million dollar maple sugar crop is another.

The regulation of stream flow, the purity of our water supply!

Fishing and hunting! These surely are part of the dividends of the wooded areas. And then, the profitable "industry" of tourist travel.

## The Rest-Seeking Tourist.

The last named is the special consideration of this article. We have reached a point where the ordinary

selling newsprint, with this peculiar advantage that a visitor may gorge himself with Canadian forest scenery and yet leave us not one pound poorer in our timber supply.

## Travel is an Organized Business.

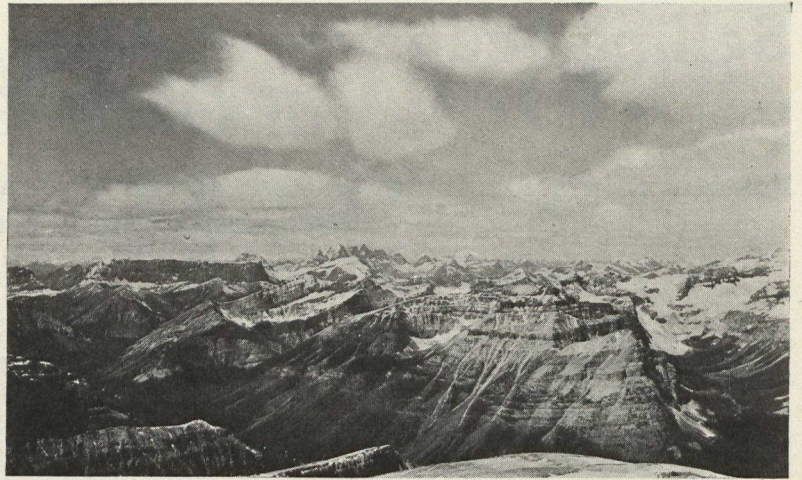
Travel is now advanced from a personal and private incident to an organized branch of commerce. It is being everywhere spelt with a capital T. It figures in the commercial market like Pig Iron and Fish.

from the crests of unmatched waterfalls.

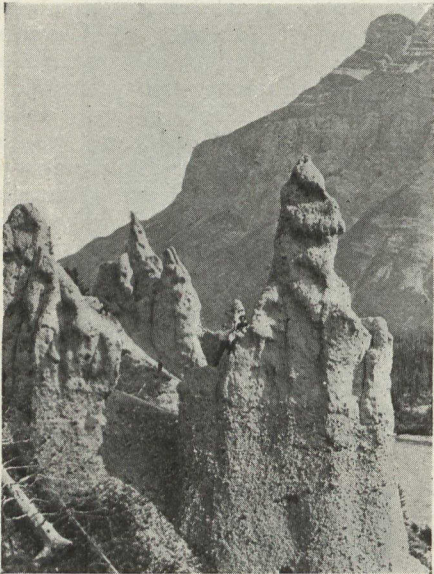
## A Mighty Inheritance

We have a mighty inheritance of field and forests and mines and fisheries and waterpowers. And we have also a mighty inheritance of public debt. With it all is an undirected hankering for new business development, for a new road map that might show the distance and mileage and sharp turns between

Great corporations "sell Travel," as a grocer sells Soap. But at the same time, it has a human and cultural basis. It expresses a physical craving for relaxation, an appetite for self improvement. The fast and luxurious train, the palatial steamer, the motor car that scoots the family a thousand miles over bumpless highways—these things have replaced the old-time dread of travel with a universal itch to be 'up and away.' This, in turn,



Typical View of Rockies from a High Peak



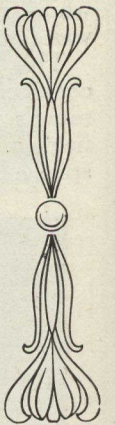
Hoodoos near Banff

has been prodded into further activity by the emotional appeals of skilled advertising. Propaganda in tourist travel plays for high stakes. It draws fifty thousand trippers to Hawaiian Islands, it puts a thousand on the steamer for Japan, it lures boat loads to Alaska and sends the snow-tired Saskatoon to San Diego.

America reacts instantly to clever advertising like no other land on



Upper Kananaskis Lake, Alberta



earth. The National Parks of the United States by propaganda in newspapers and magazines and

through brilliantly executed booklets increased the procession of Parks visitors from 356,000 in 1916 to over a million in 1920, and 65 per cent of them came by private motor cars. This tourist army brought over \$100,000,000 into the American west.

**How Europe Profited.**

Before the war, France enjoyed an annual income of \$600,000,000 from foreign travellers. In Italy the nation's heavily adverse balance of trade was righted by the cash left by tourists and the remittances sent home by her emigrants. Belgium, like France is training every effort to restore her prestige in the world of travel, and the British Isles through various associations, particularly the motor clubs, recently completed arrangements for the reception of foreign motorists on an organized scale.

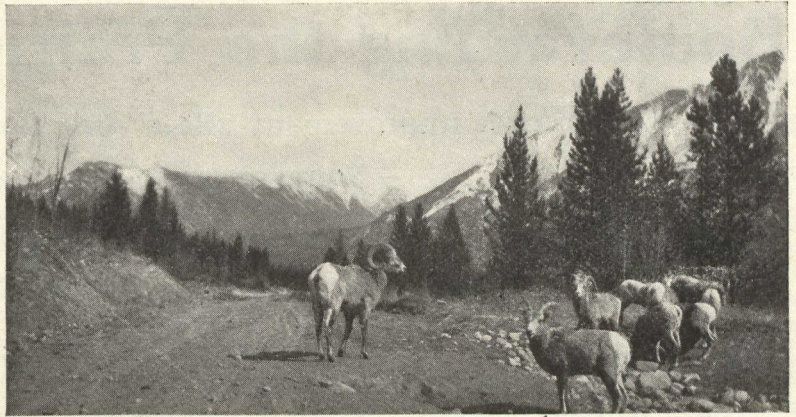
The great target of all this overseas effort that reached its climax when France created a Ministry of Tourist Travel is, of course, the United



Watching Avalanche at Lake Louise



Rocky Mountain Goat



Bighorn sheep along the Motor Highway

States 'tripper.' He is a 700 million dollar customer. He has furnished forth that sum year after year for pleasure travel. Some of his travel he likes to take at home, but his keenness for 'foreign parts' is immense. To the United States citizen looking about for a novel "place to go" Canada stands high in the repute of worth-while things. He likes Canada, he thinks the people must be real stuff, he knows they worked wonders in the War, he admires our banking system and our Mounted Police, and believes the pine uplands would cure his hay fever. Anyway, there's a feeling of having made a substantial journey when he enters a foreign country, that flies the British flag. And so he comes with happy anticipations and a well-provided pocketbook.

If you are inclined to question that the nephews of Uncle Sam enjoy coming to Canada, note this:

As between the years 1920 and 1921, the movement of United States motor cars into Canada increased from 93,300 to 615,000. The growth of traffic at first sight appears impossible in a single twelve month, but the figures are official Customs returns. Last year more than 535,000 motor car entries were given at Ontario border points. Even allowing for repeaters, it argues an immense increase in United States motor travel into Canada. There are eight million motor cars in the United States and two millions of them are within one or two days' run from Toronto and Montreal. If only 100,000 of these spent one day in the Dominion and left \$25 each (said to be the average of a motor party's expenditures) the sum would mount to \$2,500,000.

**Canada's Parks Drew 160,000.**

Last summer, as noted in last month's editorial column of this



Black Bear in the Zoo, Banff

magazine, there were 160,000 visitors to Canada's National Parks, about 60,000 of whom were from foreign parts. The Dominion Parks Branch estimates that the foreigners, chiefly our United States friends, left \$18,000,000 in the Dominion as a consequence of their journey. In 1915, a rather auspicious year for travel from the Republic to Canada, 65,000 non-Canadians took all or part of their vacations at Banff Park. It is the confident belief of Mr. J. B. Harkin, Commissioner of Dominion Parks, that by turning on the dynamo of advertising through special annual appropriations Canada might easily draw \$100,000,000 a year from foreign tourists. Indeed, Mr. Harkin's estimate of the value of tourist traffic into Canada in 1920 by all modes of travel and to all sections of the country is placed at \$75,000,000.

It takes a lot of manufacture, it takes a lot of grain elevators to show a public gain of \$75,000,000 during a few summer months.

Let it be noted that the lodestone of the American or other non-Canadian visitor to this Dominion is not the shoe factories, or the city buildings, or historic ruins, but the healthful associations of the Canadian Forest. True, indeed, there is magic in the country highways of Quebec and delightful hours in the by-paths of Quebec City, and happy times in the Land of Evangeline or in the developed beauties of Victoria. But the vast majority of United States tourists come to Canada to get clear of the cities and the roar of traffic. We have little to show them in superior bulk and noise. But we have great forest retreats where happy times beckon across thousands of unblazed pathways. We have such crowd-proof play places as Temagami, Algonquin Park, Laurentides Park, the Mountain parks, and the scores of other famed districts, each one reached with the rapidity and comfort universally demanded. **Stripped of forests,** Canada's claims as a summering place or as a haven for the fisherman or the hunter would seek the level of the Thibetan desert.



The End—of a climb

# Boulevarding the Prairie Town Streets

Tree planting and civic improvement "Bees" bring attractive results in Western centres  
—Some errors to guard against.

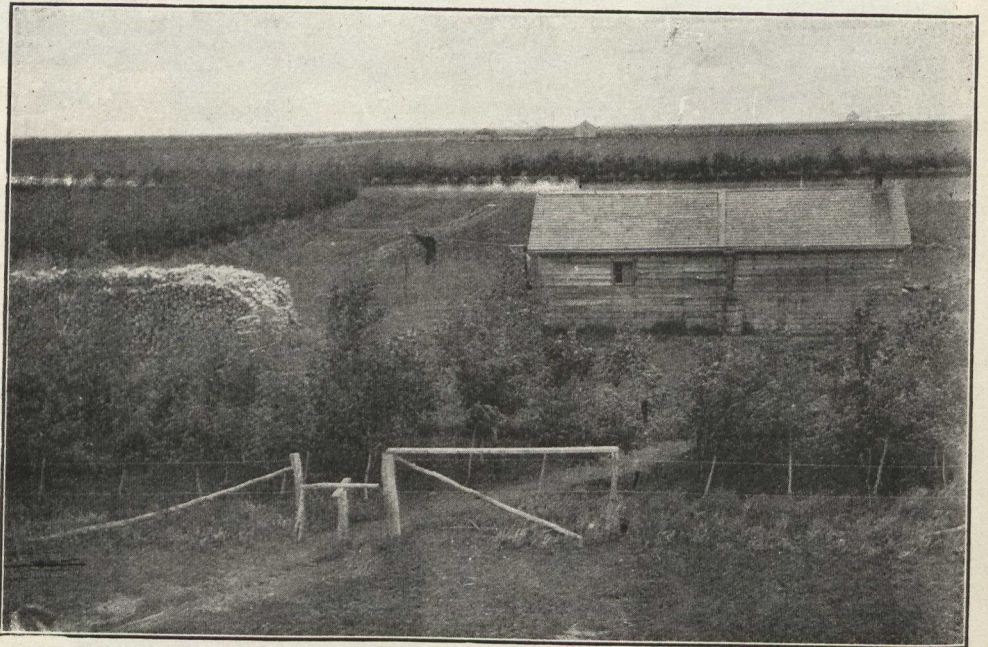
By ARCHIBALD MITCHELL,  
Western Lecturer of the Canadian Forestry Association

**O**NE of the most interesting improvements noted this spring has been the boulevarding of so many of the little country towns throughout the Prairie West.

Pride has been responsible for many improvements but when it is that form of civic pride which prompts people to plant trees along their streets in a bare country, it is most significant and points to something beyond the mere dollars and cents of existence.

The community spirit alone that is engendered in such a movement is worth a great deal, and is an eloquent reflex of the spirit of the people undertaking it.

In a city, the civic authorities attend to such things. It is their business and the citizen of course takes a certain amount of pride in his city-constructed boulevards. But when a small town of two or three hundred, or one or two thousand inhabitants takes such a matter in hand it is a different thing altogether. The citizen himself has to do it or it



What the Prairie West can do with trees. A plantation on the farm of Thomas Peat, near Asquith, Saskatchewan

can never be done, and it becomes a personal matter with him. The

trees he plants become personal objects of interest, and he cannot help a feeling of genuine personal pride as he contemplates the work of his own hands. Sometimes we find the work undertaken just by the people living on a particular street. Sometimes we find a "Bee" has been the occasion of the planting, and sometimes we find the town has broken the ground and purchased the trees out of the public funds, the people doing the actual planting. Sometimes the town has prepared the ground while the people have purchased and planted the trees. No matter how it has been done, it is done, and it is good to see.

One of the best examples of this little town boulevarding we have seen is that at Tugaske, Sask. There the entire work has been done by the town authorities and has been well done.

Another little town with a most ambitious boulevarding programme is at Cupar, Sask. There the town broke and prepared the ground and purchased the trees, the citizens planting them, each planting opposite his own house. They are keeping the ground cultivated, too, and to help



He had only to wait six years for a twenty feet high plantation about his farm buildings and gardens. The homestead of D. J. Whitney, Lethbridge, Alberta

that out they are growing vegetable gardens, yes and flower gardens between the trees along the boulevards. They had a "bee", both for planting and pruning their trees and everybody is enthusiastic. There is a lot of civic pride in these Cuparites.

But while there is much to commend in these little town boulevards, there is also room for a word of warning, for several of the towns had made no preparation of the ground previous to planting and the trees are just planted in a hole about two feet in diameter dug out of the prairie sod.

are devoted to preparing the ground it will be all the better. Elm and ash are the best boulevard trees for the prairie. They are long lived but slow growing at first, and it is well to plant between them with a faster growing poplar, like the Russian (*Populus Petrowskiana*) the Cottonwood or the Balm of Gilead. These grow rapidly but are generally short lived and when they have outlived their usefulness, can be removed leaving the Elm or Ash which will now be of substantial size to become the permanent shade tree. Where water

the tree and the stake; it should never go completely round the tree.

#### Attend to the Watering

The watering of these boulevard trees is a very important matter and in dry seasons demands a lot of attention, but here is where the previous preparation of the ground and especially the sub-soiling will be found worth while. The deep preparation provides a larger reservoir for the natural moisture and if the surface is kept well stirred during the summer, artificial watering will rarely be necessary. If it has to be done, one good watering once a week is the best. A shallow hollow is raked back round the tree, from four to six feet in diameter, and filled with water. Let this drain away and fill it again and after it too has drained away and the surface is dry, throw back the loose dirt and fill the hollow up again.

The boulevarding of the little town streets is receiving more and more attention and is a notable good sign in these hard and difficult years. It is very important the work should be done wisely and well.



What five growing seasons will do in making a prairie windbreak of willow

This kind of treatment is fatal, for while the tree might grow and sometimes even grow well for a year or two, in time the battle for the moisture which is at once set between the tree and the grassy ground surrounding it, can have only one ending and the trees will die. We saw several places this year with just such conditions and it is very unfortunate, for not only will the enthusiasm of the people in the village end in disappointment in course of time, but the whole tree planting movement will suffer in proportion. When a thing is difficult, discouragement is easy and there are already far too many people who believe that tree growing is impracticable and will only be too ready to point to the result of this mismanagement as just so much further proof.

#### How to make a Boulevard

The proper way to establish a boulevard is to break, backset and thoroughly prepare a strip eight to ten feet wide alongside the sidewalk, and between it and the open street. Sub-soiling will be found a great benefit in heavy clay soils and indeed, anywhere. And if two years is plentiful, the Cottonwood and

Balm of Gilead may be the permanent ones. These are excellent shade trees and long lived, but when artificial watering is not possible they rarely live over twelve to fifteen years.

The Manitoba Maple should not be used for street planting in the little towns. It attracts insects and requires a lot of spraying, pruning and other attention to make it a really good tree. The Elm and Ash are far superior.

Boulevard trees may be about six to eight feet high and they should be supported for a few years by a stout stake driven into the ground four or five inches from them. Sometimes two or three stakes are used. They should be about four feet out of the ground. The string tying the tree to the stake should not be too tight as it has a tendency to cut into the growing wood and the top may break some day in a wind. It is a good plan to have a piece of old garden hose to go round the tree to protect it, or even a band of burlap. This prevents the string from cutting into the bark. In any case the tree bands should be overhauled every June, July and August, slackened and retied where necessary. The string should always be recrossed between

#### BIGGAR'S PROGRESSIVE STEP.

THE Biggar Agricultural Society of Biggar, Sask. has shown most commendable enterprise in inaugurating a tree growing competition with substantial cash prizes, silver cups and medals. The contest extends over a period of five years. Writing to the Secretary of the Biggar Agricultural Society, Mr. Norman M. Ross, Chief of the Tree Planting Division at Indian Head, Sask., made the following interesting statement:

"Tree planting is one of the best investments a farmer can make, providing the tree belts are properly arranged, composed of suitable varieties and given reasonable care and protection. Such belts will increase the actual value of the farm from \$500.00 to \$2000.00 with an outlay of but little cash and not more than three or four days' labor annually. A tree plantation increases in value from the day it is planted; buildings, fences and other improvements depreciate in value and require periodical expenditure for upkeep in the way of repairs, painting, etc.

"The Biggar Agricultural Society is showing considerable enterprise in encouraging a competition of this kind. I know of no other organization which is conducting tree planting propaganda along such practical lines. If the Association is able to keep up interest in these competitions it will undoubtedly result in a very great improvement in general farm values in the Biggar district."

## 80,000 Persons Reached in B.C. by the Exhibit Car.

The "Forest Protection School on Wheels" did Valuable Educational Service on Western Tour---14,000 at Lectures.

BY G. GERALD BLYTH.

**T**HE tour of the Canadian Forestry Association's Exhibit Car in British Columbia commenced at Victoria on Wednesday, April 12th, and ended at Malakwa, a small village in the "railway belt" on Thursday June 8th. During this period the car was visited by 80,000 people, a goodly percentage being school children between the ages of ten and eighteen. Forty-one towns and cities were visited and forty-one public meetings held, at which addresses were delivered on forest fire protection illustrated by moving pictures. The total mileage covered by our Exhibit Car during the 74 days was 7,645.7 miles or a daily average run of 103 miles.

The Exhibit Car formerly was a passenger coach which has been converted into a "Forest Protection School on Wheels." The car was specially equipped at Ottawa for the tour through the province of British Columbia and contained exhibits representing the various wood-using industries together with statistics concerning same. Terse and pointed appeals to sportsmen, campers, hunters, and the general public to protect British Columbia's greatest natural resource, the timber, were everywhere in evidence throughout the car. An electrically operated Fire Illusion Model attracted considerable attention and consisted of two scenes "Before" and "After" a forest fire. The contrast was so marked as to leave a definite impression.

Among the many other models and exhibits perhaps the Erosion Model and the exhibit of wood fibresilk wear drew forth the greatest amount of comment. The former demonstrated the advisability of preserving water-shed forests to regulate stream flow, prevent evaporation and especially to prevent the washing away of the soil. On the right-hand side of this model a heavy watershed forest has been preserved with consequent regulation of the water supply for the district. A prosperous farming community lies adjacent to the timbered area. On the left-hand side a picture of desolation appears with no signs of habitation. Erosion has set in and the fertility of the surrounding districts has gone.

Advance advertising of the coming of the car to each community was sent out and, on arrival, the officer

in charge arranged for the school children to visit it by classes, a timetable being drawn up with the school authorities so that there would be no congestion at the car. It was aimed to hold at least one public meeting in each town together with moving pictures. As a rule the local theatre was obtained for this purpose which was in almost every case donated free of charge by the management. Short addresses on the urgency of greater care with fire in the woods were delivered both by the local forest officers of the Provincial and Dominion Governments together with a brief talk on the aims and objects of the Canadian Forestry Association.

The diary of the car contains the following items:

**Mission, B. C.:** Attendance at car, 400 school children, 300 adults.

**Ashcroft:** 700 at car.

**Kamloops:** May 5th, 300 people; May 6th, 2,800 people.

**Chase:** 500 people present.

**Salmon Arm:** 650 present, secured theatre which was crowded to fullest capacity. Mayor acted as chairman.

**Enderby:** 800 visited car, 400 at evening lecture in theatre. Mayor acted as chairman.

**Armstrong:** 1,100 visited car, 450 at forest protection lecture, 600 school children at car in morning.

**Vernon:** 2,100 visited car, 600 at motion picture demonstration in evening. Mayor acted as chairman. Speakers: Mayor Cowan and Mr. Clyde Leavitt.

**Vernon:** May 19th, 900 visited car during second day.

**Kelowna:** Attendance 900, also big meeting at Entrance theatre; Speakers: President, Board of Trade; Colonel Allan and G. G. Blyth. More than 3,500 people visited Exhibits Car on second day at Kelowna.

**Penticton:** Arrived with exhibit car on barge, 300 school children at wharf to meet us; 1,100 persons went through car in evening. Following day at Penticton over 4,000 persons visited Exhibits Car. Mass meeting at theatre attended by 450 school children

**Grand Forks:** Total attendance at car 2,000; 300 persons at motion picture demonstration.

**Castlegar:** 900 persons visited car and 475 at motion picture lecture in evening.

On several occasions two, and sometimes three, meetings had to be held to accommodate the crowds. The total attendance for the province at these meetings was 14,650 persons, or an average of 357 persons for the 41 meetings held. A remarkably enthusiastic reception was accorded the car at every town it visited and the interest displayed both in the car and at the meetings, on the part of the school children especially, was most encouraging and indicative of the importance of the subject of Forest Fire Protection and an appreciation of the efforts of the Canadian Forestry Association. The car made a hurried tour of Vancouver Island being transported across to Nanaimo by barge. The tour on the mainland was a combination rail and water trip and included Chilliwack, points in the railway belt, the Okanagan and Kootenay Districts and Crows Nest Pass country. Through the courtesy of the following railway companies the car was hauled free over their lines:—Canadian Pacific Railway, Esquimalt & Nanaimo Railway, Kettle Valley Railway, British Columbia Electric Railway, Great Northern Railway.

About twenty thousand small, yellow tags bearing a "snappy" fire warning notice on one side and the words "Junior Forest Guard" on the other were distributed to school children in addition to large quantities of fire protection literature, rulers and whet-stones, both of the latter bearing a Fire Protection slogan.

The excellent reception accorded the car at all points visited, together with the unmistakable interest displayed by young and old in the utilization and protection of British Columbia's forest resources, not overlooking a full appreciation of the forest administration, leads the writer to believe that the tour was decidedly successful and it is hoped that the campaign started with this, the initial visit of the Association's Exhibit Car to British Columbia, may be productive of much good and become an annual event.

The British Columbia visit of the Forest Exhibits Car outranks in daily attendance anything within the experience of the Canadian Forestry Association. The Exhibits Car will move shortly to Ontario, Quebec, New Brunswick and Nova Scotia.

# A Woodland Sanctuary for Human and Animal Life

Algonquin Provincial Park, with an area of nearly two million acres, furnishes variety of sport, recreation and exploration possibilities.

By FRANK YEIGH

CANADA is a land of woodland sanctuaries; of virgin stretches of territory, awaiting exploration and study.

Each province can boast of these generous playgrounds and Ontario especially, where successive governments have been wise enough, amid the struggle for party supremacy, to set apart far-flung regions for the use and enjoyment of the people in perpetuity. The difficulty is to have its citizens realize that these play-places of the wild belong to them and not to any passing government. So Ontario has Algonquin and Timigami and Quetico and other provincial parks and forest reserves, each as large as many a country or state, and each possessing charms that no one has yet fully discovered.

And of all the garden spots in Ontario, it involves no invidious comparison to place the Algonquin Provincial Park first, in area, accessibility and wealth of attractions. Imagine a block of virgin territory of nearly two million acres, or 2,700 square miles. It is difficult to visualize such an ample region, for a million acre area is large enough to roam in, even large enough to get lost in, without a guide, especially where there is such a maze of waterways as to create a Hampton Court puzzle on an enormously increased scale.

It requires an immense stock of adjectives to adequately describe Algonquin Park and there is little danger of exaggeration. It would seem as if the Creator had here shown His handiwork in a variety of forms nowhere else duplicated and to leave for all the generations of men a garden of rare delight.

Up in the Yellowhead Pass country, on the way to Mount Robson, the

King of the Rockies, is the Valley of a Thousand Falls, and here, in Algonquin, is a Land of a Thousand Lakes, water gems studding the landscape in myriad forms, linked by clear-hearted and deep water channels of exquisite charm. As a rule, portages must be sought for, if a bit of land exercise is desired by way of variety, for Nature has opened up a way and ways, even



Off for an Outing on Cache Lake.

Photo by courtesy of G.T.R. Publicity Dept.

though tortuous, to the very remotest corners of the lake-dotted landscape.

Utilizing the western entrance to the Park, after a brief night run, tucked away in a berth, or enjoying the scenic panorama of the daylight hours, the visitor reaches Cache Lake station, the centre of the Park in several senses, for on one side are the buildings of the Government headquarters staff and on the other the Highland Inn, its bright front and wide porches and open doors welcoming the stranger, followed by an equally hearty human welcome from the staff.

## The Fun of Exploring

It is great fun exploring a new Summerland, a new playground; even a new city. The world looks different and that first glimpse of a bit of the world becomes never-to-be-forgotten memories. Such as the first view of the Rockies from Calgary or beyond Edmonton, the first view of Florence or Rome, the first night at sea, or in camp, or on a train journey. So this first sight of the heart of Algonquin, from your hotel window, is at once added to your gallery of memories. There lies Cache Lake, bathed in the morning sunlight, looking as fresh as if just from the hands of the Great Architect, its waters rippling back to the caresses of the wind with sparkling brightness and its breath filling lungs and heart with the very elixir of life.

If Algonquin held nothing but this one gem of a lake, it would be worth coming near or far to see and yet it is only a sample of hundreds of others in which, as has been said, there are no duplicates. A bevy of islands make a cluster of green gems that melt into harmony with the dark,

brown of the waters and the bright blue of a cloud-flecked sky. The color-scheme is perfect, the picture a finished creation. One could be happy for many a day just here and hereabouts, with canoe or skiff at command, a fishing rod and some bait, a rain coat for wet emergencies and an old discarded umbrella to hold the sun off if he becomes too familiar. And where there's company, one—or even more on occasion, it simply means that the pleasure of it all is being spread over a larger number without any diminution of the supply.



A strange sight may be seen in these wonderful days of the world's history. Far overhead an airman is sailing like a giant bird at a hundred-mile-an-hour rate, heading farther Northward as if a spirit of the air. One envies him his bird's eye view chances—to see this world of forest and stream, of lake and beach, of winding channels and sleeping tarns in their entirety. It must be a thrilling sight. But there is a lookout spot on terra firma, for Cache Lake may be viewed from Skymount which is sufficiently elevated to reveal the whole setting of the lake at a glance. It also reveals other alluring realms in every direction, and who does not feel the pull of the unknown, the desire to see what is on the other side of a hilltop, the grim determination to explore the wilderness beyond—some day?

I would advise, based on experience, that the some day be a soon day, that it be a part of your daily programme, after the first few loafing, dreaming, lazy days, to become an amateur Champlain or Mackenzie by penetrating farther and yet farther afield, preferably, indeed advisedly, with a guide. In fact the guide is part of the fun. The companionship of these men of the open, to whom Nature is a revealed book, is something to be sought and won, and splendid fellows they are, whether hitting the trail ahead of you in the mountains or guiding your canoe through the labyrinth of Algonquin's water chain. Then when the dark hours come and the camp fire enters into the spirit of the hour and the company, you'll discover this guide of yours is a many-sided chap, one with whom it is fun to go a-fishing, and that is the highest compliment one human can pay to another.

### Fishing and Hunting

I mentioned fishing. That subject demands a paragraph by itself, especially in Algonquin Park. A real truly true Isaac Walton gives it as his opinion that in the variety of species of game fish, in their abundance as well as size, no fishing area of the continent affords better sport than Algonquin Park and this is his testimony after several years of experience in casting the fly or dropping the bait in this great lake world. As an amateur fisherman myself I'm willing to believe the expert based on the evidence of my own eyes of the brook trout—square-tailed, red-spotted, speckled and every other variety of these tasty beauties, of black bass with little and big mouths to trout, salmon and gray. The fish are there. It's up to

the angler to do the rest. What I can affirm without fear of successful contradiction, is that a serving of Algonquin fish, at a camp fire meal, is a dish fit for the most epicurean of kings as well as the most common of commoners. I care not who catches them; only let me eat them.

Hunting? Surely, for the two go together in a sense. Again I'm no hunter or the son of a hunter. No that's a mistake; I had forgotten Dad's stories of little and big game hunting even in old Ontario when he was a boy, but his liking for a gun did not descend to his offspring. Gun-hunting is not allowed within the Provincial Park, but all the hunter has to do is to roam the forest, in the game season, contiguous to the Park to get his legal quota of antlered beauties.

But there is a type of hunting allowable within the Park boundaries—with a camera, and many there be who indulge in the harmless but intensely interesting sport. Nowhere else may one get in closer touch with the animal and fur life in their natural haunts. The four-footed creation as well as the feathery tribes have long since learned that here is an ideal sanctuary. A vast city of refuge it is, for the creatures of the wild and under the protection of well-enforced game laws their increase has been remarkable. This is specially true of our truly Canadian friend, the beaver. I verily believe these flat-tailed little animals think this is the real Beaver Heaven judging by the way they have taken possession of it; so much so that the Park authorities are compelled, every once in a while, to reduce the number by a few hundreds and thousands, selling the furs by auction for which there is keen competition.

### The Busy Beavers

Beaver houses and dams are on every hand and in dam-building they overdo the business. No eight-hour law is recognized in their industrial order nor do they know what the word fail means. Broken dams fail to discourage them in their engineering plans as they attempt to repair them. There is no prettier sight than a glimpse of wild life of any kind. Those who are fortunate and quick-eyed enough to catch the members of the beaver family at work, and capturing the scene with a true camera, are to be congratulated on their luck and skill although many do so succeed. But any visitor to the Park is almost sure, during the canoeing trips, to catch unawares a graceful deer or fawn, coming down to a lily-pad bay for lunch. On such occasions I am always too excited to

shoot the camera. But many a glimpse I have had of the hurrying-scurrying folk of the forest, in otter and mink, martin and coon, not to mention the members of the squirrel family who claim full possession of the wild domain. Cruising quietly over a rippleless stream I have also been fascinated with the insect life—not only fascinated but pestered with the myriad forms of creation whose wings are their means of aerial transportation and who seem to enjoy their brief existence as they fill the air in the sunshine time.

There are wolves, too, in Algonquin, though they are kept well in hand by the park rangers. Is there any sound quite so haunting and weird as the howl of a wolf? Seated around our camp fire one summer night, the almost unearthly stillness of all the world around and above was suddenly broken by the howling far off of a timber wolf.

"He old one" remarked my guide.

"And how do you know he's an old one?" I asked.

"No teeth," came the equally terse reply, displaying a knowledge of Nature that was denied the city dweller. What a heap of things we town-folks don't know.

Another of the innumerable attractions of this Algonquin playground is the tameness of the deer life. Becoming unafraid of the animals on two legs they once dreaded, the beautiful creatures cross one's path in swimming across a lake or using the trail or portage. The sight never fails to thrill the lucky beholder.

### The Nights at Camp

But then the Park is full of sights other than those already mentioned. I'll never forget the nights at camp, when stealing away from tent and fire one finds himself alone in a great big quiet world. At such a time even the most indifferent of mortals feels he is a little closer to Nature and Mother Earth and that if he will but listen she will reveal some of her secrets. The stars seem to hang so low in the dome of sky as to be touched from the tallest tree. Who ever dreamed there are so many, just as in the daytime if the eye is cast on the floor of the earth, to take notice of flower and fern, the infinite variety of creative skill, in this one little corner of the globe, impresses one anew with the Big Things of life and the world, and the exceeding pettiness of some of the little things we put in the first place. It is a good corrective of certain forms of human conceit to be alone in the woods, by day or night, to



Photo by courtesy, G.T.R. Publicity Dept.

#### Exploring Algonquin Waterways in Early Algonquin Fashion

correct one's perspective and to have one's pride reduced to liveable proportions.

#### The Summer Camps

The Grand Trunk Railway Company has served the public in another and practical way, in setting up a series of permanent camps, for summer use, Nominigan and Minnesing Camps—are not their very names attractive? These log cabin retreats are in the heart of the woods and by lovely lakesides, where one can live singly or en famille as close to Nature as it is possible without getting your feet wet and yet in a plain and simple comfort that is not to be despised.

Besides the Highland Inn and the log cabin camps, besides the scores if not hundreds of tents that now dot the shores of the lakes, there is the Hotel Algonquin, at the Joe Lake station and Mowat Lodge, named after Sir Oliver Mowat, under whose provincial premiership the Park was set apart as a government park.

Another feature of recent years is the setting up of large camps, for

boys and girls, and grown ups too, where scores of participants have the time of their lives as a beneficial holiday and during which they get practical training in swimming, canoeing, camping and all kinds of wood lore and craft under competent teachers. Here folks learn the great lesson of how to take care of themselves in the woods and this knowledge will sometimes save a life. So there are the Pathfinder Camp, Camp Winne-Wawa, Camp Waubone, Camp Ahmik and many another, accommodating hundreds in the aggregate and benefitting for life as many as it accommodates. No more ideal vacation for a growing boy or girl can be imagined.

#### Many Leagues Untravelled

All this time the writer has only covered a wee area of the two-million acre total of Algonquin's immense area. He has not spoken directly of the far-flung stretches of wood and lake land to the north of the railway and the Inn where one may cruise for days and not cover his tracks, where there are water-

courses, the beauty of which cannot be described, where Nature is even wilder than in the more discovered parts and where each visitor may become an explorer on his own account. The original Indian, the native Algonquin, may have covered many of the water courses or opened up many a portage and trail, but his successors of the pale face race have many leagues yet to travel before they learn to know Algonquin Park. The rangers probably do and here I would suggest that you get close to these gentlemen, draw them out in wood-day talk, and, if possible, penetrate the wilderness of woods and streams with them if you would learn your A.B. C's of the open.

So you see there's heaps to do and see in this wonderful playground in Ontario—one that belongs to you and me, where we are on an equality with the largest landowners the world has produced, where for the nonce we are monarchs of all we survey and a law unto ourselves—outside of the law of the Park of course.

Have you discovered this Eldorado for yourself?

# Some Lumbering Problems

The Diameter Limit System has its advantages and disadvantages in practical application

By W. M. ROBERTSON, Forester, Dominion Forest Service

**A** S A means of regulating the cut, the diameter limit system is about the simplest of application, but while it is undoubtedly an improvement over unrestricted cutting, yet from the point-of-view of lumbermen and foresters, it is far from being satisfactory.

## Removes Healthy Stock

Logging to a diameter limit usually results in removing all the healthy, rapid growing stock, the desirable seed trees necessary for a subsequent, thrifty crop, leaving a stand of deformed and scrubby growth, as old and often much older, than the dominant trees removed, as mother trees for the stand to follow. A study of areas logged over frequently has shown that with each subsequent cut, the diameter of the average stump was smaller, yet the age of the small trees was not less than that of the large ones. In other words, at each return for logs it was necessary to take smaller and more suppressed trees, leaving decreasing prospects for a future crop since always poorer seed trees were being left.

An analysis of growth studies made in Quebec and New Brunswick tend to prove that trees suppressed until they have attained a diameter of four inches will never become merchantable, and very rarely recover if suppressed until they become three inches in diameter. Hence, many of the small trees left on repeatedly cut over areas cannot be counted upon to form the next cut.

While there are many stands of timber large enough to warrant a logging operation with a 12-inch diameter limit, there are many other areas, notably even-aged spruce, old and slow growing, which have not reached the 12-inch limit. These may not be cut and yet their rate of growth is not profitable, nor will it improve until the stock be reduced.

## Reducing the Limit

If the limit be changed to ten inches or eight inches, it will, in all probability, make sufficient stock available for a profitable logging operation. At the same time, however, the stand may be so thinned and opened as to be almost certain to be wind-thrown.

The limit may be reduced to six



Give the forest a reasonable chance against its arch enemy, Fire, and it will come back. A photograph from Northern Alberta, showing a burned-off ridge where the timber is regaining supremacy

inches, which is as low as is economically possible, and practically amounts to clean cutting. This would not leave any stock to be wind-thrown, but at the same time, it would probably make no provision for a future crop. Should the cutting occur during a seed year, it is possible that sufficient seed would then be scattered or a sufficient young advance growth may have germinated previous to the cutting. However, should the seeding problem be solved, there is still the danger by thus opening the stand, of drying out the soil and exposing new growth to wind and weather to such a degree as to destroy it.

Cutting to a diameter limit does not regulate the amount of the cut, nor the amount of stock left after lumbering. For example, stand "A" may contain 95 per cent. of thrifty trees, just over the given limit and growing at a profitable rate. After cutting, this stand would be nearly clean cut without any provision for a second crop. Stand "B" may have only five per cent. of its timber over the diameter limit, although the entire stand may be over-mature and growing at an unprofitable rate. Yet the cutting regulation makes no provision for the thinning of this

area, and hence with stand "B" there is also no provision made for a future cut. Under certain conditions, where it is impossible to apply a more intelligent system, a diameter limit system may work satisfactorily. Such a system is, however, too rigid to be applicable to forest conditions generally. The requirements of a desirable cutting regulation seem to be, simplicity of application, elasticity.

## The Results Desired

Cutting should be regulated to suit the local conditions, with the object in view of securing the following results:—

- (1) Improvement of composition by removal of undesirable species to encourage reproduction of more valuable ones.
- (2) Sanitation. Removal of diseased, deformed or suppressed trees.
- (3) Protection. Sufficient trees should be left to afford protection from wind-fall, drying out of the soil, and establishment of weeds, grass, shrubs, etc.
- (4) Reproduction. Sufficient desirable seed trees to ensure reproduction should be left. This may in some cases call for clean cutting, or in others, leaving a considerable proportion of merchantable timber.

# The Growth of Forests for Fuel

Potential Value of Local Wood-lots to Economical Supply of Rural Communities

By PROF. W. N. MILLAR

**T**HE intimate relationship that exists between the rural community and the forest and the poorly organized basis of this relationship in Ontario has lately been forced on the writer's attention in a most striking way. After some ten years of almost continuous residence in large cities, broken only by a period of overseas service, the writer recently took up residence once more in a rural community. Five years previous experience of rural life in a pioneer community, dependent largely on the forest for its existence, and drawing almost wholly on the forest for its fuel supply, had engendered in him a conception of the place of the forest in the life of a rural community that was doomed to receive a rude shock when brought into direct personal contact with the reality of forest conditions in rural Ontario.

## Fuel Supply Problem

The importance of the fuel supply in the economics of country life needs little elaboration. The maintenance of life itself on a civilized basis in any community dwelling in a rigorous climate is almost as dependent on fuel as on food. When the problem of heating detached farm houses or the widely spaced houses of villages and small towns is studied we find that under existing conditions in rural Ontario, fuel supply looms almost as large as an element in the family budget as does food. But when we examine into the question of what is being done either by public or by private enterprise to provide fuel to rural communities in the most efficient way we find a striking neglect of what appears to the writer to be the really essential factor in the problem.

The means of producing heat for household purposes accessible to urban dwellers include gas, coal, wood, kerosene and electricity. The rural

dweller has no such choice. Gas is unavailable and probably will remain so indefinitely. Electricity is almost as inaccessible and is generally recognized as by no means an economic

## The Possible Solution

Were this an inevitable and irremediable condition it might be viewed with philosophic resignation but as we will endeavor to point out



An Ontario farmer's self-perpetuating fuel supply right at his back door. Note how excellently the new growth has sprung up on the side of the fence from which cattle have been debarred

source of heat. Coal and kerosene are available as in the cities, but owing to the scattered nature of the population served, are available generally at slightly higher prices than in neighboring cities. Furthermore so far as Ontario is concerned, both coal and kerosene are derived from a foreign country, are brought over foreign railway lines from great distances and every user of them of necessity devotes a large part of his annual labor to the maintenance of mines and railroad and other agents of production and distribution at a vast distance from his own community, and in this case, in a foreign land.

such is very far from being true and the condition exists largely through lack of intelligent use of obvious resources, neglected simply because of lack of knowledge of the possibilities which they possess.

As contrasts to the situation which the writer now faces, let us consider two previous experiences with the problem of rural fuel supply. For five years prior to 1913 he resided in a small town in the Cœur d'Alene Mountains of Northern Idaho. As with most western towns, the first step in the establishment of this one had been to cut down all the trees and burn over a good deal of the surrounding timberlands. How-

ever, there was still an abundant wood supply within two or three miles and from these forests of fir and tamarac the entire village drew its fuel for all domestic purposes. Although wages for wood choppers were \$2.50 to \$3.50 per day, timber itself was cheap and the price of fuel delivered to the householder was \$3.50 a cord. Coal in the same village cost \$16.00 a ton and was quite beyond the reach of even the local magnates. Wood fuel was universal and not only were we supplied with a satisfactory fuel at reasonable cost but a profitable local industry was maintained, an essential industry supplying an essential need and yet of such a character that it could be organized on a seasonal basis and resorted to when other industries were compelled to close. Producer and consumer were in direct touch with each other, the market was always fully supplied but never over-supplied, and not only was intermediate handling and profit taking avoided but there was no huge transportation charge to be met. This, however, was a pioneer community, in a heavily forested region.

#### Logging in Brittany

Turn now to another and far different locality. For nearly a year the author was located in the ancient French province of Brittany in a region whose forest industries antedate the appearance of the Roman legions under Cæsar. His work was the logging and milling of wood products of all kinds from piles and dock timbers to duck boards and fagots for military use. He was in constant daily touch not alone with the military and official side of wood utilization but also with the local civil population and its problems of fuel supply. Here was a community, a purely rural community to be sure, but one of great density of population and possessing a forest history 2,000 years old, a community as far removed as can well be imagined from the pioneer settlements of the Cœur d'Alenes and yet solving its problem of domestic fuel supply in exactly the same simple, direct, economic and thoroughly efficient manner in which it is solved in the Cœur d'Alenes; that is, by drawing on the inexhaustible source of fuel residing in the forest producing capacity of its soils. It is true that here resort is had to materials and parts of trees not considered at all in regions of more abundant wood supply. Dead and defective materials of all kinds, branches and twigs, even stumps and roots are used. Also trees are produced in places unthought of in

other regions. Roadsides, the tops of earthen walls forming field boundaries, all the unnoticed and neglected corners of fields and orchards that here in Ontario when summed up are found to constitute no insignificant portion of our farm areas.

But what is even more significant than this utilization of lands which we ignore is the use of lands for forest production which could just as readily be employed for pasture or for other crops. The notion that the only lands economically adapted to forest production are those which have no value for any other purpose needs very careful limitation. In France alternation of lands from forest to agriculture or vice versa is by no means an uncommon procedure. And even in the Touraine, the garden spot of France, trees and forests are abundantly present. Two factors of great importance, but often ignored, enter into this problem. One is the small labor and other investment required for the production of wood crops. The other is the high cost of transporting so bulky a material as wood over great distances. Both of these contribute directly to make wood a profitable crop on lands which in many cases might also be profitably employed either for agriculture or for grazing.

#### Wood Fuel Employed

In France coal is available in the North, from Germany and from Britain. In Brittany, indeed, coal in normal times comes in very cheaply by sea from Wales and as no part of the ancient province is far removed from salt water, it may be said to be very favorably situated as regards coal supplies. But in all parts of the country wood fuel is commonly employed and this industry of supplying the essential need for fuel is as widely diffused as is agriculture itself and has all of agriculture's stabilizing social and economic characteristics.

Without wishing to minimize in the least the legitimate claims that may be made for the use of the most suitable fuel materials, for production in regions where production can be carried on most efficiently, for interchange of products on a most generous and far-reaching scale, nevertheless the writer believes that all too often the tremendous cost of carrying products over vast distances and of maintaining great distributing organizations is largely overlooked and that the more local and smaller scale production is really the more efficient in the long run.

Observe now the immediate situation which the writer faces. He

resides in the rural community of Trafalgar, Halton County, Ontario. His home is equipped with four fuel-consuming elements, a furnace, a water heater, a cook stove and an open fire-place beside sundry small electrical apparatus. His choice of fuel is limited to coal, wood and oil, electricity, though available, being prohibitive in price. Coal costs \$16.50 a ton delivered. It is brought 500 miles by rail, from Pennsylvania, and the bulk of the \$16.50 goes to support industry and industrial workers in a foreign country. A few years back it is said this same coal could be had for \$7.00 a ton. In the meantime, however, a railway award here, a miners' agreement there, a freight rate decision somewhere else, all by foreign boards or officers entirely beyond the control and entirely oblivious to the problems of the rural dweller in Halton County, Ontario, have so increased the cost of placing coal in Halton County coal bins that now the Halton County worker finds it necessary to give more than twice as much of his productive energy as once he did to satisfying his primary need for fuel.

If he turns to kerosene as a solution the situation is the same. Oil from a foreign source, produced by foreign workers, carried over foreign railroads, has responded to foreign economic and labor conditions and been affected by foreign rate and wage decisions just as has coal. Nothing is to be gained except in a minor way by the employment of oil in place of coal.

#### Wood vs. Coal

The only other alternative is wood. Wood, be it noted, is a local product. It can be produced in local wood lots, harvested by local labor, distributed with a minimum of effort by local means of transport. Admittedly it lacks the concentrated heat-producing capacity of coal or oil but it has certain advantages of its own, among them cleanliness, quick ignition and low ash product. It is not claimed by the writer that wood is a complete substitute for coal but as a partial substitute for purposes for which it is specially suited he believes it could be much more extensively employed than at present. In his own case he believes that he could advantageously replace at least three tons of coal with five or six cords of wood if he could get wood at the same price on a basis of heating values as he does coal and would gladly do so. Such uses would include employment for all cooking operations requiring a quick hot fire as well as for use as a supplementary heating agent in open fire places. And in the use of wood in

place of coal in the furnace he believes lies the solution of the difficult problem of house heating during the uncertain weather of at least three months in Spring and Fall.

#### Local Production Necessary

Now observe the actual situation as regards the securing of wood fuel. Instead of there being a local production of wood fuel, it is brought in from Muskoka and similar distant regions. The freight charge of seven to nine dollars a cord at once places this wood out of consideration as a substitute for coal. With only about

half the heating value of coal weight for weight, and with a very much greater bulk per ton and many times as great a cost for handling to and from cars, wood can never compete with coal if both are hauled equal distances. Wood can only become a successful competitor of more concentrated, more easily handled fuel by being produced in the immediate vicinity of the consumer and delivered to him without a high charge for transportation and intermediate hauling. It is therefore utterly impractical to talk of producing wood fuel in regions not suitable for agriculture and conveying it from such regions

where necessarily the population will be sparse and the demand small, to distant agricultural regions where population is dense and demand for fuel great. The only practical solution to this problem is the production of wood fuel **in the immediate vicinity of the consumer.** This is the solution arrived at in European countries after centuries of experience and is the inevitable result of the special characteristics of wood as compared to other fuels. How the question of local wood fuel production appears to a resident of Halton County, Ontario, will be discussed in a later article.

## The Effect of Forests on Water-Powers

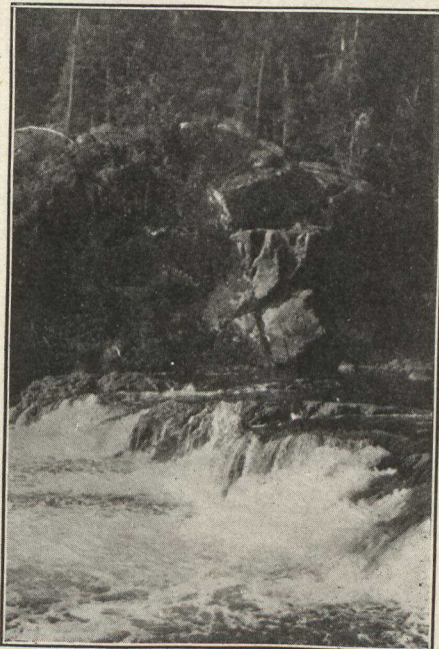
Some Further Evidence that Destruction of Forest Cover Injures the Commercial Value of Streams

By E. SCOTT RIVETT

**S**INCE THE publication of my article on this subject in the April issue of the "Illustrated Canadian Forestry Magazine" I have come into possession of further evidence, which bears out my main contention, viz., that deforestation has an injurious effect upon the regularization of stream-flow.

Mr. John Cowie, Harbour Engineer to the Port of Montreal, recently read a paper on the subject of "One hundred years' progress in the port of Montreal," in which he makes the following general statement: "One hundred years ago the waters of the St. Lawrence, during the normal summer season, were very much higher than they are today. The forests were then in their natural state, farms undrained, and swamps held water which did not reach the river until midsummer. Today, due to the improved drainage system, this water reaches the St. Lawrence during the early Spring, leaving dry ditches and resulting in low water mid-summer conditions on the St. Lawrence."

More precise still is the evidence set forth in a recent article in the "Revue générale d'électricité" (Paris, France.) "Investigations have been made in France since 1904 on the influence which the condensation of clouds by trees has upon the flow of streams. It is now clear that this influence is considerable. Thus in the



Water Fall "Island Rapids, Steel River"

basin of Luchon, the valley of the Pique, which is wooded to 40 per cent, produces annually 1,732,000 cubic metres of water per square kilometre (4,485,000 tons per square mile), while the basin of the One, wooded to five per cent. only, supplies only 693,000 cubic metres per square kilometre, (1,800,000 tons per square mile.) Other experiments made in the basin of the Ubaye, Lower Alps, have shown that wooded lands give 21,686 cubic metres per hectare

annually, (8,750 tons per acre), while de-wooded lands give only 5,616 cubic metres per hectare (2,270 tons per acre.) In the Furens basin, on the same river system, the discharge of the wooded right bank is double that of the left bank which is partially de-wooded."

From the above figures it would appear that in some cases reforestation would allow of the doubling of the power utilized by hydro-electric plants and in some instances, also, might render unnecessary the construction of large dams and reservoirs. So far, the evidence I have given has been all on one side—that reforestation tends toward the increase of hydraulic powers. There is one point, however, on which I should be glad of the assistance of readers of the "Forestry Magazine," viz., the effect of the transpiration of trees upon the humidity of the soil and upon rain-fall. I understand that an acre of mature deciduous trees will give off up to 350 tons of water during the growing season. The transpiration of coniferous trees is, I imagine, less than this, but it is still enough to have a drying effect upon the soil. In some of the marshy districts of France and Italy tree-planting has had the effect of drying up the marshes. I should therefore be glad to have the views of practical Canadian foresters on this point.

# By Canoe Through Canada's Virgin North

A Description of Scenic Beauties, Fishing Possibilities and Wild Life met with on Steel River Canoe Trip.

A sportsman who recently made a very novel and interesting one hundred and seventy-five mile canoe trip in virgin country north of Lake Superior has compiled some notes on his trip—known as the Steel River Canoe Trip—which are made available to this Magazine by the General Tourist Department of the Canadian Pacific Railway. Our readers will understand that this article was not prepared as a magazine story but a perusal of the facts related, together with a study of the photographs obtained from the same source, may suggest to some of those seeking new trails, an outing of more than ordinary interest. The starting and terminating point for this cruise is Jack Fish, 840 miles west of Montreal and 660 miles north west of Toronto. It leads through a chain of lakes to the headwaters of the Steel River and then down this stream to Lake Superior.—EDITOR.

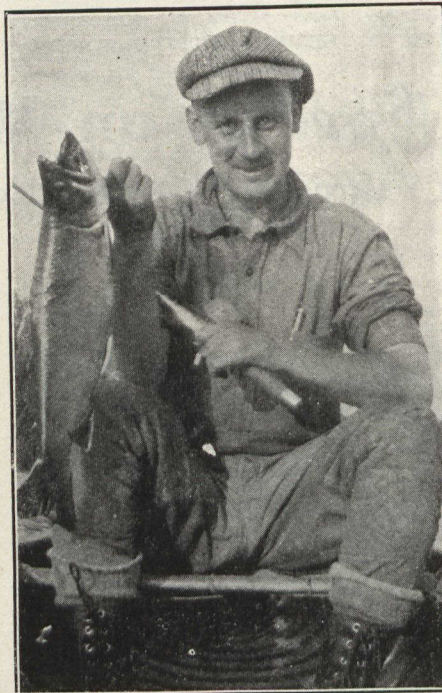
**C**LEARWATER Lake suddenly glinted through the trees ahead and in a few minutes the first and longest portage of the trip was behind us. Set like a crescent between heavily wooded hills, this lake is perhaps a mile and a half long, with shore line covered by a heavy growth of hardwood, dotted here and there with pine. Examining it more closely we discovered a young bull moose standing motionless on the far side of the lake looking steadily in our direction. After a few minutes he became suspicious and, shifting uneasily once or twice, turned and trotted into the bush. Joe, my Indian guide, said that some very large pike had been taken out of this lake, and I could not resist the temptation to try out some likely looking weed beds while crossing over to the portage at the other end, and a few minutes casting yielded three pike, the largest being about six pounds.

## The 20 Pounder Got Away

"Trout Lake is twelve miles long and except for a deep bay at its northern end I don't think it is a half mile wide at any place. Its shores are high, rocky, and attractive. Paddling steadily up this lake and enjoying the changing scene which opened up before us at each turn, all the more so as the sun began to set, Joe said that there were some nice lake trout here and a Pearl Wobbler was dropped astern to find out. Twice something nibbled at my lure and then a five-pounder was hooked and landed.

"As I remember, a few minutes later, I was pointing to a gaunt, dead, pine on the top of a far-away mountain when a big one struck with a savage jerk and then began a succession of heavy tugs which would have gladdened the heart of any fisherman. I had worked with him for quite a few minutes and he was within fifty feet of the canoe when, with a sickening "snip" the line parted. It is of course useless to estimate the weight of that fish but

## "WHO WOULDN'T SMILE?"



The "smiler" in this instance is Mr. Douglas Hains to whom we are indebted for the main facts contained in this article

judging from the fight put up by later catches, the one I lost ran at least twenty pounds.

"Rounding a point we came upon a cow moose feeding in four feet of water, and we got within twenty feet before she became alarmed and churned the water to foam in a desperate effort to reach safety. Then, as moose often do, she turned at the edge of the bush for one indignant look as much as to say 'Ain't there no privacy left in this here lake,' and trotted off into the shadows.

## The Down-Stream Trip

"I don't think I will ever forget that glorious downstream trip. The character of the country began to change. Hills that stood far away drew close together as if to bar further passage, and the waters of

lakes we had been crossing now woke up to wrestle their way down narrow valleys between frowning mountains. No long easy reaches or wide slow curves, but sharp quick turns from one rocky ledge to another. It was a pleasant relief to feel the canoe shoot forward almost eagerly at the urge of the current, and care had to be exercised in guiding it, for the Steel River, as yet newly born from its mountain source, had not grown in volume sufficiently to float us in safety over rocks and other obstacles. From side to side down that wild avenue of the forest we hurried, many times guessing at the best channels down the long dancing rapids with the sprinkle of foam in our faces. Once we struck a moss covered rock and in a second the canoe half filled, but, by jumping out waist deep into a gravel bar a few feet downstream we averted any unpleasant results. There were long fast stretches where the river flowed over a gravel bed, and once, just above Makwa Lake, coming quietly around a bend I was surprised to see a bear on some stones in mid-stream. What he was doing there I am not prepared to say. It is not likely that he was after fish as blueberries were ripe and abundant, but his head was downstream and the wind was in our favor. Without paddling the current carried us swiftly and silently—we were not an inch more than 18 feet away—but he turned his head and with a thunder-struck expression he grunted, slipped off the rock and started for the mountains with a clumsy shambling trot. It was the nearest I had ever been to a bear in the bush.

## Great Game County

"The next day gliding swiftly downstream about sunset, Joe suddenly said "Look quick—caribou," and sure enough, on a point a couple of hundred yards ahead a beautiful brownish-gray bull, its antlers still in velvet, lifted a dripping muzzle and after one startled look trotted quickly into the bush. We were in a wonderful game country and Joe said it was the

best bear district he knew. Several times we passed bear skulls bleached white by long exposure, hung up in the branches of a tree, after an old Indian custom. At one deserted trapper's camp we counted no less than eleven. The days were long and packed full of interest with good fishing, exploring unknown brooks and streams, photographing wild life and other things to take up the time.

"Then we came to Rainbow Falls where exceptional trout fishing had been reported. A hurried portage around that foaming, thundering fall whose wild roar could be heard long before it was reached, and my long-looked for moment had arrived. And trout—heavens, such trout—leaping for flies in the oil-smooth water of some of the dark, deep circular pools, full of strange darting shadows. I could not keep my hand from shaking while setting up my rod, but I dropped a brown Hackle and a Coachman on to that pool in record time. The challenge was quickly answered by two swift golden flashes that darted from the depths. Unfortunately, or fortunately one was only lightly hooked and while playing that double, they pulled against each other and the larger one was freed. The other gave me an exhibition of vigorous, stubborn, thoroughbred fighting pluck that I have never seen equalled. And the colors—a gleaming riot of orange, blue and crimson—were the richest I have ever seen.

### Back to Mountain Lake

"After a day of great fishing my feelings can well be imagined when I had to leave such sport behind. Dropping farther down the Steel our progress interrupted by two portages, we had good fishing, particularly where small brooks and streams flowed in. Moose were very numerous, and my Indian took me up a winding little creek just above Mountain Lake, to another lake where he had counted thirty-five at one time in fly season the previous summer. There were four feeding when we arrived. We soon reached Mountain Lake again, thus completing the circuit and paddled down to where the Lower Steel rushes over foaming ledges to Lake Superior. I could now see the wisdom of my guide's suggestion, when we started the trip, to portage from Jack Fish to Clearwater Lake and on into Mountain Lake, instead of tracking and portaging the fifteen miles of fast water on the Lower Steel. We found the trout on this stretch of the river very temperamental, sometimes rising freely to any fly offered, at others, taking nothing but grasshoppers, and

sometimes they would not rise at all. But when they did rise—oh, boy—what sport.

### Exceptional Sport

"One evening I had whipped the river for hours till my arm ached and every combination of flies in my book had been wetted and Joe suggested live bait, so ashore we went to try and get a few minnows. It was while turning over stones and wading around the shores looking for live bait that I got my hunch. Nobody had ever suggested it to me, nor had I ever heard of it being tried out on trout, but I thought it worth a

### THREE OF A KIND BEAT—



Speckled Beauties from Rainbow Falls

chance. I set up my short casting rod and shamelessly attached a pork rind bait and proceeded to try out all the pockets within reach, but twenty minutes of careful work brought no results. For the first time on the trip I was disappointed. The trout were there all right—lots of them—but they meant to stay there. Paddling back to camp, Joe was telling me of all the big ones he had

seen caught on that stretch of the river. He even pointed out a long dark pool behind a gravel bar where he had often got a strike. Hopelessly I cast into the darkest corner and to my surprise there was a swirl and something took hold with a vicious jerk. The next instant a whopping big trout broke water and started off on a heart-breaking dash which took more line than I realized for when I started to recover he broke water again so far away that I was sure I had lost him. I could hear Joe saying "Dam big fish" and "Go slow" and a dozen other unnecessary remarks. That old he-devil fought me for more than twenty minutes, and several times I had him within a few feet of the landing net, and each time he darted off apparently as fresh as ever and every time I snubbed I held my breath. Inch by inch he came in with a desperate steady resistance—no more rushes. He was tiring but so was I. 25 feet—15 feet—10 feet—I could see him now and I gasped at his size. With a fervent "For the luvamike, Joe, be careful with that net," I drew my trout alongside. There was a swish of the net, a lather of foam, and my trout hit the side of the canoe. Joe made a swipe at him with his bare hand and he tumbled into the canoe—**unhooked**.—Spring scales showed him to be an even five pounds.

### RESTORING BURNED FORESTS

(Colchester Sun)

If fire had been kept out of Canada's forests for the past century we might have cut all the timber that has been cut in that time and still have as much timber standing as when Confederation was consummated. That is to say, the annual growth would have been as great as the annual cut. But, because the annual growth has not been so great as the annual cut plus the losses through fire, our forests have been deteriorating. The first thing to do is to stop the ravages of fire, and the next thing is to get new forests growing on non-agricultural lands. Canadian forests have wonderful recuperative powers, and, if these powers were assisted by natural and artificial seeding, and by planting, the tide would soon be turned, and the annual growth increased to a point where it would exceed the annual cut. The need for prompt action is not because Canada is in the midst of a timber famine now, but because it takes a tree half a century or more to reach a merchantable size, and, if famine is to be avoided, Canadians must exercise forethought.



# Reducing the Fire Hazard

Some Statistics from Adirondack and Catskill Regions Applicable to Canada

By ARTHUR S. HOPKINS, Conservation Commission, State of New York

AT THE present time, when the question of what measures to adopt to insure the productivity of our forest lands is receiving such a large amount of consideration, any definite facts, relating to the basic element of the fire risk, are very timely and should be of great interest and value. While the statements in this article relate only to the Adirondack and Catskill regions of New York State, they indicate the results of the actual operation of fire protective measures and serve as an example of what may be accomplished in other regions. This study is simply an attempt to put into usable form the statistical information relating to forest fires which has been collected by the New York State Conservation Commission since 1903. Prior to that date, the statistics are so fragmentary and incomplete that no deductions of value can be drawn from them.

## Protecting Large Area

The area protected from fire by the Conservation Commission in the Adirondacks and Catskills embraces about 7,270,000 acres and covers all the forested area within these regions. Two-sevenths of the area is State land upon which no lumbering has been carried on but which is open to unrestricted recreational use. Upon a large part of the privately-owned lands extensive lumbering operations, resulting in heavy slash, have been general during the period under consideration. Fire losses for any single year do not furnish a true index of the average risk, as they are subject to many influences which vary them tremendously from year to year. Therefore some method of grouping into periods had to be adopted. As the years of extreme fire hazard and severe loss have come at about five year intervals, five year periods have been adopted going back to 1903 from 1921, the first three being full periods, the last one (1903-1906) of four years only. By this grouping, the bad fire years of 1903, 1908, 1913 and 1921 each fall into a separate group.

The Top Lopping Law, oil burning on the railroads during the summer months, and the present fire protective system of observers, rangers and district rangers were placed into operation in 1909 but of course did

not function fully till some years later. Little had been done in public education regarding care with fire, prior to this time.

## Some Encouraging Information

The statistics relating to the number and size of the fires and the per cent. of the protected area burnt over, have been combined by the periods outlined and are here presented in tabular form. An examination of this table reveals much valuable and encouraging information which may be summarized as follows:

	PERIODS			
	1903-06	1907-11	1912-1	1921
Number of fires....	1,012	1,983	2,088	2,002
Total Area burnt... (acres).....	484,111	463,073	110,822	62,129
Average per fire (acres).....	478	233	53	31
Per cent. of protected area burnt:				
During period..	6.6%	6.3%	1.5%	0.85%
Yearly average during period..	1.6%	1.2%	0.3%	0.17%

## Number of Fires

Since 1907 there has been no appreciable increase in the number of fires per period despite the fact that the number of persons using this area has increased steadily every year until today on account of good roads—with the general use of motor cars and the increased public interest in the great out-doors the number of recreationists visiting these areas annually, is a great many times that of fifteen years ago. This indicates that while the public is becoming increasingly careful with the use of fire, there is still need of continued educational work. The fact that since 1903, fishermen, hunters, campers and smokers combined have been the reported cause of over 40 per cent. of the total number of fires only emphasizes this need.

The increase in the number of fires for the period ending 1911 over the preceding one is accounted for by the fact that the first period covers only four years and also that during it, fires of small area were not reported. Since that time all known fires have been reported however small.

## Area Burnt

The compilation shows in a striking way the result of the present fire protection system of observation stations, telephone lines and rangers, of the use of oil on the railroads and of the operation of the Top Lopping Law. These measures were put into operation in 1909 and the great decrease in both the average size of the fires and the total area burnt, during the next subsequent period (1912-1916) must be directly attributed to them and the continued decrease during the next five years to their increased efficiency. Of course the results of top lopping are secondary to those of the fire fighting system but have played an important part in reducing the duration of the fire hazard following lumbering and also the difficulty of fighting fires on lumbered areas. The area burnt over during the last period is only 13 per cent. of that burnt from 1907 to 1911 and the average annual risk has been reduced from 1.2 per cent. in the period 1907 to 1911 to 0.17 per cent. in the five years ending in 1921. A combination of the figures for the average annual per cent. of the protected area burnt shows that the average annual risk from fire has been 55-100 of one per cent. for the last fifteen years, 23-100 of one per cent. for the last ten years and 17-100 of one per cent. for the last five years. It seems safe therefore to assume that the maximum average annual risk for the future will not exceed 15-100 of one per cent.

The reduction of the fire risk to this per cent. has been accomplished by the Conservation Commission without cost to the individual owner. It means a maximum fire risk of six per cent. on a 40 year rotation, which is not too great a risk to prevent reforestation or other forestry measures. The expenditure of a small amount by the owner of a particular forest area will further decrease this risk upon his land. And the further reduction of the risk over the entire Adirondacks and Catskills will depend in a large degree upon the co-operation and efforts of the private owners of timber land and the general public. The State will do all in its power to further increase the efficiency of its system, but the owner of woodlands cannot expect that the fire risk can be reduced to a minimum without some effort on his part.

# Natural Regeneration of White Pine

## Some Results of Investigations at Petawawa Forest Experiment Station

By W. G. WRIGHT, Dominion Forestry Branch.

WHEN a fire has swept over a tract of forest land we may have one of several different conditions as a result. If fire has followed fire, as is, unfortunately, too often the case, the chances of getting a satisfactory young growth of desirable forest species are small. If repeated fires occur over the same area, these chances may be reduced to zero. One common condition following a forest fire in Canada may consist of a strong growth of poplar, birch, jackpine or lodgepole pine. The species varies with regional and other factors, but the species are similar in being able to reproduce themselves readily after fire, and in being of rapid growth in youth. These species may follow a fire that has overrun a fine pinery or spruce forest. The original pine or spruce may enter only very sparingly into the immediate composition of the subsequent growth, but, in the white pine region of the east, we frequently find a good growth of pine coming in under the poplar, birch or jackpine. In some cases conditions following the fire

Branch at the Petawawa Forest Experiment Station, and experiments are being carried on to determine the economic possibility of releasing pine and other softwood reproduction, that has established itself, from the suppressing effect of poplar, birch or jackpine, and attempts are being made to find a practical method of establishing a young growth of pine or spruce where none at present exists, without having to resort to artificial seeding or planting.

For one experiment, a small area was chosen, averaging 17 cords of poplar and white birch per acre. This growth was accompanied by some small beech and maple, and was, of course, very thick, and even though a number of pine and spruce seed trees were scattered over the area, only a very few small softwoods had succeeded in securing a foothold, and a very precarious foothold at that. There were about 25 little white pine, 50 spruce and 150 balsam per acre; all the pine and the majority of the others were less than three feet high, and, from close examination of



White and Red Pine coming up under Jack Pine.

large pine to act as seed trees, and leaving the small birch, poplar, beech and maple to provide a certain amount of shade. The main object of having this shade would be to prevent the too rapid drying out of the soil, to check the growth of poplar and birch sprouts following the cutting and to act as shelter for the young



This thick stand of Poplar and Birch was cut over to secure pine reproduction from the pine seed trees shown.



White pine coming up under poplar at Petawawa Forest Experiment Station.

may favour the pine, and it can keep up with the other species, but a general condition is for the pine to establish itself after the quicker growing species, and eventually outgrow them. In certain cases the poplar and birch may be an advantage as a nurse crop, but there is no doubt that these species do delay the growth of pine and may, in certain extreme cases, even prevent the establishment of the pine or other soft woods, until the poplar or birch has opened up with age and allows the softwoods to come in.

These different conditions are being investigated by the Dominion Forestry

about 75 of these little trees, it appears that many of them are over 20 years old. Other similar areas have been examined with the same results. It seems clear, therefore, that under these conditions we cannot be certain of satisfactory growth of white pine or other softwoods, and, if we want to get the softwood growth, it may be necessary to take some steps to assist nature.

The method followed in this experiment to secure the establishment of pine or spruce consisted in opening up the forest by removing all the larger birch and poplar, leaving the

pine and spruce we hope to secure. The intention would be to remove these small trees, left now, as soon as the new growth of softwoods is able to take care of itself.

It is not expected that anything like a pure stand of white pine will be the final result of this experiment. It is, however, hoped that after the small material left now has been removed there will be the foundation of a stand in which white pine and other conifers will play a very much larger part than they did in the one upon which we have conducted this experiment.

# The Forest's Service in the Betterment of Canada

A mighty inspirational and economic factor counting high in the Dominion's forward march.

*Translated from the booklet in French.*

By AVILA BEDARD, B.A., M.F., Assistant Provincial Forester of Quebec.

## In Two Parts--Part One.

IN his "Nouvelles G n voises" (Geneva News), Topffer relates a very wittily his meeting with a certain party of tourists which he accidentally came across, in the Trient Valley.

"This caravan," he writes, "comprised three gentlemen on foot and one mule laden with stones. These gentlemen were geologists. Geologists are charming to meet, especially for other geologists. The manner in which they go along is to stop at every boulder and to prognosticate on every layer of the soil. They are not devoid of imagination, but this imagination operates on the bottom of the seas and in the entrails of the earth; it dies out as soon as it reaches the surface. Show them a high crest; they will tell you that it is a swelling of the earth. Show them a ravine full of ice; they will say that this is caused by fire. But show them a forest and they will answer that it does not concern them."

If Topffer had lived with us, he would have met, as characters to depict, besides a few geologists, a great number of otherwise earnest persons who, while not letting their imaginations roam on the bottom of the seas and sink to the inner parts of the earth, are not able to fully appreciate the great importance of the forest before their eyes. Indeed, it could have been said of a great many, not very long ago, that the forest did not concern them. The mentality of the Quebec people has, on this point, considerably changed. The sending of young people to forestry schools abroad; the establishment of a large forest nursery; the foundation of a forestry science school; the creation of a forestry service; the organization of an educational campaign all over the province, all this has contributed to the bringing forward of the forestry question into its true status, as regards our economic interests and our daily pursuit.

Wood is a substance which can be produced with but little cost. As Bernard Palissy wrote, "it is an income that comes to us while sleeping." It is a substance of such com-



MR. AVILA BEDARD

Head of Laval Forestry School, Quebec

position and texture that it can be used in very many ways and can be made into most dissimilar and varied products, viz: the rigid railway tie and the flexible silk; the massive structure and the flimsy paper; the mine props and wood charcoal; the cask and its contents; the child's toy and the ship's mast; the hub which grinds and the piano that sings; the acid and the sugar; the wooden shoe and the pavement block; the furniture and the floor, in short, it is a substance the various uses of which constitute, as it were, the gauge by which is measured the civilization of the nations of the world.

But the usefulness of the forest in connection with the economic condition of a country is not only calculated according to the quantity of wood which it supplies to industry and trade. Indeed, not only does the forest supply a great variety of useful products, but it is a source of inspiration to man; it beautifies a country; it has its moral influence; it assures the conservation of fish and game; it purifies and tempers the climates; it gives a proper distribution of rain water; it has its

influence on the birth and vitality of streams; it regulates the flow of the rivers and renders them useful to industry.

### The Inspiration of Forests

The forest has on man a mysterious influence which but few have been able to resist. As a French poet said "Objets inanim s, avez-vous donc une  me

Qui s'attache   mon  me et la force d'aimer?"

(Have things inanimate a soul That clings to mine compelling it to love?)

All the poets, those of ancient as well as those of modern times, have sung the forest's praises, and the contemporary prose-writers certainly owe some of their most beautiful pages to the impressions that the forest had wrought in their souls. The musicians themselves, especially those who have composed descriptive music, have sought their inspirations in nooks resounding with the murmur of the forest. Was it not Beethoven who wrote: "I love a tree more than I love a man"? And the landscape painters have succeeded to give life to their works, to make their canvas more attractive and more real when, ceasing to consider, as did the painters of the middle ages, the forest as the abode of evil spirits, they have set themselves to representing it in its reality, with its dainty foliage hanging in the air.

There is no doubt that the forest has been a source of inspiration to the poets, the prose-writers, the musicians and the painters. It is indeed proper that it should have been so and that it should be so now, for the forest is a work of art and beauty, a beauty which is imperishable however changeable it may be; a beauty made up of all the colours of the bark of its stems, of the graceful bearing of its lofty trees, of the capricious curves of its boughs, of the infinite diversity of its green foliage projected against the blue sky, of its mosses of many colours which lie like a soft carpet of velvet underneath it, of its pyramidal or arched crests, of the fragile lichens which armour its barks or crown its

*Continued on page (90)*

# Le rôle des forêts dans l'économie d'un pays

Comment les forêts contribuent à l'enrichissement de la vie humaine ainsi qu'à la prospérité et au confort du peuple.

PAR AVILA BÉDARD, B.A., M.F., Directeur de l'école d'arpentage et de génie forestier.

DANS ses "Nouvelles Gênévoises" Topffer raconte de spirituelle façon la rencontre d'un certain groupe de touristes qu'il fit, par hasard, dans la vallée de Trient.

"Cette caravane, écrit-il, se composait de trois messieurs à pied et d'un mulet chargé de pierres. Ces messieurs étaient des géologues. C'est une charmante compagnie que les géologues, mais pour les géologues surtout. Leur manière est de s'arrêter à tout caillou, de pronostiquer sur chaque couche de terre. Ils ne sont pas sans imagination, mais cette imagination a pour domaine le fond des mers, les entrailles de la terre; elle s'éteint dès qu'elle arrive à la surface. Montrez-leur une cime superbe: c'est une soufflure; un ravin rempli de glaces: ils y voient l'action du feu; une forêt: ce n'est plus leur affaire."

Si Topffer eût pu vivre chez nous, il y a quelque vingt ans, et s'il eût été en mal d'écrire des "Nouvelles Québécoises," il eût rencontré, comme types à dépeindre à part quelques géologues, un très grand nombre de ces gens sérieux qui, ne laissant leur imagination ni errer au fond des mers ni s'enliser dans les entrailles de la terre, sont incapables d'attacher à la forêt toute proche une grande importance. Oui, d'un grand nombre, on eût pu dire, il n'y a pas de cela très longtemps, que la forêt n'était pas leur affaire. La mentalité québécoise aura sur ce point considérablement changé. L'envoi de jeunes gens aux écoles forestières de l'étranger, l'établissement d'une grande pépinière, la fondation d'une école de génie forestier, la création d'un service des forêts, une campagne d'éducation menée par toute la province, tout cela aura contribué à assigner à la question forestière la place qu'elle doit occuper dans nos préoccupations économiques et parmi nos soucis quotidiens.

Le bois est une substance qui ne coûte presque rien à produire, puisque, comme l'écrivait Bernard Palissy, "c'est un revenu qui vient en dormant"; une substance d'une composition et d'une texture telles qu'elle se prête à des emplois multiples et donne les produits les plus disparates: la traverse de chemin de fer rigide, la soie flexible; la charpente massive, le papier ténu; les étais de mine, le charbon de bois; le tonneau et son contenu; le joujou de l'enfant, le mât

du navire; le moyeu qui grince, le piano qui chante; l'acide, le sucre; le sabot, le bloc de pavage; le meuble, le parquet; une substance dont la variété des emplois est comme l'indice du degré de civilisation des peuples.

Mais l'utilité de la forêt dans l'économie d'un pays ne se mesure pas uniquement à la quantité de bois qu'elle procure à l'industrie et au commerce. Si, en effet, la forêt fournit des produits aussi variés qu'utiles, n'est-elle pas capable d'être pour l'homme une grande inspiratrice, d'embellir un pays, de faire œuvre morale, d'assurer la conservation du gibier et du poisson, d'assainir et de tempérer les climats, d'exercer sur la distribution des eaux pluviales, sur la naissance et la vitalité des sources, sur la régularité d'écoulement des rivières et sur leur puissance de travail, une décisive action?

## La forêt est une grande inspiratrice et une oeuvre de beauté

La forêt exerce sur l'homme un attrait mystérieux qu'il est difficile d'analyser, mais auquel bien peu ont pu et peuvent résister.

Objets inanimés, avez-vous donc une âme

Qui s'attache à mon âme et la force d'aimer?

Tous les poètes, et les anciens et les modernes, ont chanté la forêt; et les prosateurs contemporains doivent certainement quelques-unes de leurs plus belles pages aux impressions qu'elle a fait naître en eux. Les musiciens eux-mêmes, surtout ceux qui ont fait de la musique descriptive, sont allés, sous les voûtes pleines de murmures de la forêt, chercher l'inspiration. N'est-ce pas Beethoven qui écrivait: "J'aime un arbre plus qu'un homme"? Et les peintres paysagistes n'ont-ils pas réussi à vivifier leurs œuvres, à rendre leurs toiles plus attrayantes et plus réalistes, le jour où, cessant de considérer, à l'instar des peintres du moyen-âge, la forêt comme la demeure des mauvais esprits, ils se sont mis à la représenter avec "ses feuillages fins dissous dans l'air léger"?

Que la forêt ait été pour les poètes, les prosateurs, les musiciens et les peintres une grande inspiratrice, cela ne fait aucun doute. Il est du reste

convenable qu'il en ait été et qu'il en soit ainsi, car la forêt est une œuvre de beauté, beauté qui, pour être muable, ne périt jamais; beauté faite de toutes les nuances de l'écorce de ses tiges, des élancements gracieux de ses fûts, des courbes capricieuses de ses rameaux, de l'infinie variété de son feuillage vert projeté contre l'immensité bleue, opale ou grise du ciel, de ses mousses polychromes, qui, moelleuses et de velours, s'étendent comme un tapis au-dessous d'elle, des formes pyramidales ou cintrées de ses cimes, des lichens fragiles qui cuirassent ses écorces ou panachent ses rameaux; beauté faite de toute la vie qui s'y développe mystérieuse, de toutes les ondes qui y bruissent, de toutes les couleurs voyantes ou humbles dont s'ornent, au printemps, ses fleurs multiples; beauté faite, l'automne, de l'or brouillé, du jaune mirabelle, du rouge écarlate dont se parent ses feuilles avant de mourir; beauté faite, l'hiver, de l'hermine dont ses rameaux sont vêtus et ses cimes coiffées, et qui la font se mieux détacher contre l'opale infinie du ciel et l'orange sanguine des horizons qu'elle découpe. Restant toujours belle à travers ses multiples variations, elle fait presque à elle seule le pittoresque d'un pays, ou, si l'on aime mieux, elle est ce par quoi les paysages, "que Dieu, suivant le mot de l'abbé Thellier de Poncheville, a dessinés pour notre joie," sont des paysages d'harmonie.

Qu'elle forme des massifs considérables, qu'elle se morcelle en petits bosquets, qu'elle se développe dans la plaine, au bout des labours bruns, à l'extrémité des prairies verdoyantes, qu'elle escalade les collines, précédant les pâturages, qu'elle coure sur les crêtes, ondulant comme celles-ci contre l'horizon, elle est toujours ce par quoi vivent les paysages. Elle ajoute à la beauté de ceux-ci comme font, au firmament, les étoiles et quelques nuages frangés d'or.

Capable de se rajeunir sans cesse, elle met dans un paysage une note de gaieté, une note d'espoir, comme font les oasis dans l'immensité jaune et plate des déserts. Que seraient nos montagnes laurentiennes aux cimes développées comme des dômes, nos Alléghanys aux arêtes brisées comme des voûtes gothiques, si la forêt ne les paraît? Croit-on que le plateau de la Gaspésie, avec ses vastes échancrures

sur la mer, serait un pays de poésie s'il n'y avait aucune végétation forestière? Et cette belle vallée de la Chaudière, aux contours si doux et d'une telle mollesse qu'on croirait les voir onduler comme ondulent au vent les épis qui les recouvrent, serait-elle aussi attrayante, si elle ne mêlait au vert de mer de ses prairies, au jaune champagne de ses épis, le vert sombre de ses hautes ramures

Où, selon les saisons, le vent prend mille voix?

Et cette plaine grasse et fertile du Richelieu, sillonnée de champs qui courent parallèles jusqu'à l'horizon lointain, entre les clôtures de cèdre, s'imagine-t-on qu'elle serait aussi plaisante à voir si d'elle ne surgissait tout-à-coup, paré d'un manteau de végétation forestière, le mont Saint-Hilaire, au gracieux profil?

Si, pour une Maria Chapdelaine, le bois est une masse sombre, "impénétrable, hostile, pleine de secrets sinistres, fermée sur la vie comme une poigne cruelle qu'il faudra desserrer peu à peu," il n'en reste pas moins pour tous, plus particulièrement à l'époque des "sucres" ou à la saison des "bluets," un lieu très attrayant, un de ces objets inanimés qui s'attachent à notre âme et la forcent d'aimer.

#### La forêt est éducatrice et moralisatrice

La forêt ne fait pas uniquement œuvre de magicienne. Elle fut, chacun le sait, chez les peuples anciens, — grecs, romains ou celtes, — comme un temple aux colonnes innombrables, aux voûtes frémissantes s'ouvrant sur le ciel. "*Hæc fuere numinum templa*" (Pline). Des dieux en sont sortis pour peupler les mythologies païennes; les déesses y ont vécu "dessous la dure écorce"; sous les hautes ramures, les oracles ont parlé. Aussi le poète, s'adressant à la forêt, pourra-t-il s'écrier:

Première cathédrale où les orgues mugirent!

Piliers que vivifiait une robuste moelle!

Rosaces où la lune et l'astre s'inscrivirent!

Chandeliers où l'on vit se poser les étoiles!

Vitraux, profondes nefs, fiers arceaux déliés,

Panthéon qu'ébranlait le pas pesant des dieux!

Temple idéal par l'homme un jour pétrifié,

Quand il osa prier sans regarder les cieux!

(L. Souguenet).

Quand les bois sacrés se sont dépeuplés, la forêt, par ses fûts lisses ou striés, par ses ramilles gracieusement ou audacieusement courbées, a voulu

servir de modèle aux colonnes unies ou cannelées, aux voûtes cintrées ou ogivales de nos temples. Les prières et les cultes ont changé; la forme des voûtes n'a pas varié. C'est là, certes, une influence de bonne qualité; mais il y a plus. Il semble qu'au sein des silencieuses forêts, l'homme, tenu comme éloigné de tous les soucis de la vie matérielle, puisse, pour la faire mieux s'élever, libérer sa pensée de tout ce qui circonscrit et limite son action au milieu des agglomérations humaines. La forêt peut alors donner à ceux qui veulent la bien considérer de hautes leçons de philosophie morale.

Mieux que les générations humaines, les forêts, en se repeuplant sans cesse quand elles sont laissées à elles-mêmes, et en vivant, si l'on peut dire, de leurs morts, symbolisent la continuité de la vie sur la terre. Elles nous montrent que la vie, bien qu'en son commencement la même pour tous, ne saurait avoir chez tous les individus, à tous les âges et dans tous les milieux, des manifestations identiques; que l'égalité absolue n'est pas normale, qu'elle n'a jamais existé ailleurs que dans les cerveaux où elle est née, et dans les déclarations de 1789 d'où elle n'est jamais sortie; que de la lutte pour l'existence ne sauraient sortir vainqueurs que les plus forts et les plus aptes; que l'union est source de force, que la société est un agent puissant d'éducation et un instrument de perfectionnement; qu'au contraire, l'isolement ne saurait produire que des sujets mi-perfectionnés; que la liberté, au sein des agglomérations, a besoin d'être circonscrite et comme limitée, pour être favorable à l'épanouissement de toutes les qualités, et que, trop pleine et trop entière, elle est créatrice et nourricière d'imperfections.

N'est-ce pas en contact avec la forêt que les audacieux coureurs de bois et les hardis pionniers, nos ancêtres, ont acquis ces vertus de droiture, de courage qui commandent l'admiration même chez l'ennemi? N'est-ce pas à lui disputer le sol qu'elle tenait entre ses racines puissantes, qu'ils ont mesuré leurs forces et trempé leurs énergies?

Mais la forêt ne se borne pas à accomplir, pour le plus grand bien de l'homme, des œuvres de poésie, d'embellissement et d'éducation. A l'agréable, elle sait joindre l'utile, à l'immatériel juxtaposer le matériel, à l'impalpable opposer le palpable.

#### La forêt est gardienne du gibier et du poisson

Et d'abord la forêt est gardienne du poisson et du gibier. Elle fournit au premier une eau pure, fraîche et active, capable d'entretenir la vie et

de favoriser ses manifestations. Ouverte partout, pleine de fraîcheur et d'obscures retraites, spacieuse, fournissant une litière abondante, un feuillage succulent, des herbes et des fruits variés, protégeant par l'ensemble de ses tiges contre les froides bises et par son couvert continu contre l'ardeur solaire, la forêt, avec son parterre recouvert de mousses souples où le sabot ne se meurtrit pas, est pour le gibier, suivant la naïve expression d'un chroniqueur bourguignon, "une stable sans pareille." Elle est si nécessaire au gibier qu'il fuit dès qu'elle n'est plus et qu'il reparait dès qu'elle renaît.

Ce rôle de la forêt, au point de vue de la conservation du gibier, est mis en pleine lumière par les nombreuses ordonnances que publièrent, à différentes reprises, les rois tant en Angleterre qu'en France et en Germanie, pour soustraire à l'exploitation certains massifs forestiers qu'ils réservaient pour leurs chasses.

La chasse ne tient pas dans nos préoccupations quotidiennes une place aussi importante qu'elle avait jadis, au temps où les coureurs de bois conquéraient des empires; elle n'est plus uniquement un plaisir royal et elle a, depuis longtemps, cessé d'être un moyen par lequel on se fait un nom glorieux et on agrandit la patrie. Devenue industrie, elle est pour un pays une source précieuse de richesses et pour un petit nombre d'aventuriers une occupation lucrative. Elle n'est cela toutefois que si subsiste la forêt où elle trouve à s'exercer.

Même si la forêt ne devait rester, comme au temps de Ronsard, que la "haute maison des oiseaux" qui y trouvent d'abondantes becquées et de multiples rameaux où nicher, elle ne devrait pas être démolie, puisque d'elle nous viennent tous ces "faisers de musique" qui mettent dans notre vie quelques notes de gaieté.

#### Rôle hygiénique de la forêt

Les pêcheurs, les chasseurs, les oiseleurs ne sont pas les seuls à bénéficier des largesses de la forêt. Capable de purifier l'air, d'assainir les eaux d'alimentation, de provoquer les précipitations atmosphériques et de les faire servir à l'agriculture et à l'industrie, de régulariser le régime des rivières à l'avantage du commerce, de l'agriculture et de l'industrie, la forêt n'est-elle pas véritablement, pour parler le langage d'André Theuriet, la "magnifique souveraine qui en tout temps prodigue à mains pleines ses largesses au monde entier"?

Au commencement des temps, nous disent les hommes de science, la végétation, très luxuriante, se montrait très active. Les feuilles de toutes

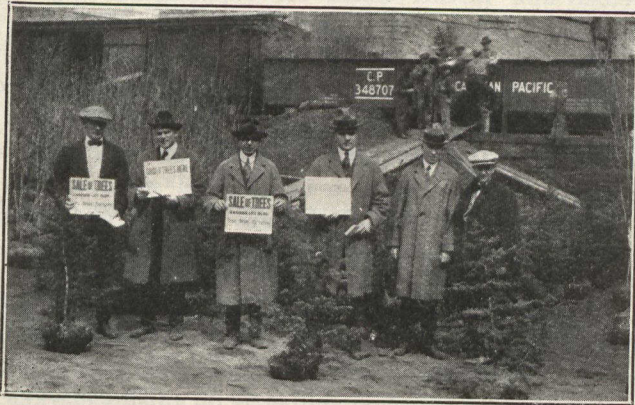
(Suite à la page 915)

# Some Pictures which should warm the Hearts of all Canadian Forestry Association Members and Well-wishers

Educational propaganda is considered the most effective means of extending this Great National Work of Forest Conservation and Development.

The Illustrated Canadian Forestry Magazine has as its main object in life, the extension of this work. Help the Cause by supporting the Association through its Official Organ.

## TREE PLANTING CAMPAIGN AT CALGARY.



Picture shows some of the big shipment of trees being unloaded for "Tree-Planting Week" observed by this progressive city in May last

## REFORESTATION IN SIMCOE COUNTY



Warden Banting of Simcoe Co., Ontario, planting the first tree at Anten Mills, the site of the County's Reforestation Tract.

## Reforestation Work Starts In Huron County



Photo reproduced by courtesy of The Clinton News-Record.

The above cut shows a start being made at reforestation in Colborne township, Ontario. A cemetery on Goderich-Benmiller road was found not to be suitable for the purposes for which it had been set apart and the wide awake farmers in that vicinity conceived the idea of re-planting it. The above shows the men at work. A furrow is ploughed every six yards and the young trees set in it. At the right of the picture, directing the work is seen Mr. Andrew of the Agricultural office, who has had some experience in this work. This is the first bit of reforestation undertaken in Huron county.

# E D I T O R I A L

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## Taxing Our Children's Children!

**T**HE woeful destruction of Canada's forest wealth through the annual plague of forest fires represents one of the most discouraging factors facing the future of this country. While the increase of taxation to pay the country's debt represents at worst a temporary burden which will be quickly forgotten with the return of good times, the unseen tax represented by the forest fire compounds its ill effect for from fifty to one hundred years to come.

It is a curious fact that while economic conditions affecting the value of the forests have totally changed during the past seventy-five years, the mental attitude of most Canadians toward the forest resources, remains approximately as it was in 1850. There is still a widespread belief, due partly to jingoistic teaching as to the natural wealth of Canada, that Canada's forests are inexhaustible, that there is not and never can be any nation-wide menace through forest destruction, that forests grow as quickly as they are cut down, and that somewhere in the far north there are enormous reserves of timber on which the nation can rely when the near-at-hand stock has been removed.

Each of these beliefs flies in the face of ascertained truth. The forests of Canada, far from being inexhaustible, are just about one-third as rich as they were two or three generations ago. Our forests are not growing up one-tenth as fast as fire, destructive insects, and the axe of the logger are taking them away. In the far North,

### Flies in Face of Truth

by which is usually meant Ungava, and the sweep of barren territory from the foot of Hudson Bay, north-westerly to the mouth of the Mackenzie river, the total forest resources would probably be insufficient to maintain in perpetuity the pulpwood supply of even one large Canadian newspaper.

The history of the lumber industry east of the Rocky Mountains has been a continuous story of searching farther and farther afield for supplies of wood with constantly increasing costs and steady degrading of quality. Smaller and smaller logs are coming down the streams and scores of mills that at one time depended wholly upon white pine have been forced to turn to spruce of relatively small dimensions and mediocre quality. White pine as a commercial wood is now so scarce as to threaten the existence of many of the larger mills beyond 1925 or at the latest 1930.

Faced with such proven facts as to the rapid degeneration of the forest resources, we are at the same time compelled to face another fact that standing timber is on a rising market the world over and that every square mile of timber in this Dominion represents, either now or at no very distant date, new employment, the founding of new towns, new freight for our railways, a new means of easing our tax bills, and a magnet to the investment of new capital.

### Facing the Facts

The old-fashioned point of view (so hard to dislodge) as to the forests of Canada is a direct invitation to wanton carelessness with fire. The revised and intelligent view however, makes the firing of forests appear as wilful a crime as to set a torch to the town hall.

Forest fires cannot travel in double harness with industrial advancement and increased employment. The people of Canada must make their choice for one or the other.

### GOOD WORK, QUEBEC!

**A**LL members of the Canadian Forestry Association will hail with great satisfaction the courageous step taken by the Government of Quebec recently in establishing a permit system for all who enter the forest lands of the province. No doubt this new regulation will be exercised with reasonableness and courtesy so that the ordinary tourist will not be incommoded in any way. However, it was the bounden duty of the provincial government to take firm measures to combat the orgy of forest fire outbreaks due in most cases to campers, smokers and other types to whom the wooded areas should represent a sacred trust. There is abroad so much vandalism and such a deal of shocking carelessness in the handling of fire in wooded zones that the issuing of permits and holding responsible the permittee for fires occurring in his vicinity, holds out a main hope of forest fire control. The Canadian Forestry Association congratulates the Government of Quebec on its prompt application of a promising remedy.

### CASH VALUE OF PRAIRIE TREES

**M**OST interesting results have come from a questionnaire sent by the Dominion Forestry Branch, Ottawa, to scores of prairie province farmers who have been successful in establishing tree plantations with the help of the Dominion Nursery at Indian Head, Sask. One point in the questionnaire related to the increased money value of the farm properties as a result of tree planting. Some of the replies are as follows:—

"I think the trees have added \$1,000 to the value of this property."

"I consider a bluff like mine would add at least \$2,000 to the value of any farm. In fact I would not live anywhere without planting trees out."

"I consider it adds \$5 an acre in value to a farm where you have protection of trees."

"They have added to the money value of my property to the extent of at least \$2,000."

### Ten Years From To-day!

**I**N the public-owned forests of Canada lies a development opportunity out-matching in immediate results all other fields of Canadian enterprise, with the one exception of agriculture.

The steel industry, the fur trade, fisheries, textile and other ordinary manufactures are no match collectively for the power of the Canadian forest as a national money maker. The gold and silver, copper and coal mines are in turn outrun by the forest, not alone as a source of employment and a factor in export trade, but in their capacity to match the Forest in "sustained" production of wealth. Cobalt's silver fields rise to a great peak and as rapidly slip into the valley of exhaustion. The Forest however, under proper management rehabilitates itself by annual growth, repeats and repeats its crop of precious timbers and affords that stability to working population and investment so commonly absent from the mining field.

The forest wealth of Canada, taken with the water powers, represents this Dominion's supreme attraction to further industrial investment, and our foremost hope of securing permanent population in non-agricultural sections. Within the next ten years there are incredibly great probabilities bound up in the forests and the water powers, considered as complementary resources.

Do Canadian business men, do Canadian voters in any adequate degree grasp the meaning of the serious embarrassment of Eastern States pulp and paper mills for want of pulpwood, for want of cheap water powers?

Do Canadian business men know, and does the knowledge sink deep, that the continued possession of timbered areas automatically draws into Canada new industries, new population, new traffic for the railways, new sources of taxes to ease our burdens?

It is as inevitable as the trend of migration to cheap and fertile lands.

## The Editor's Mail-Box

### SAVED THE SPRUCE

Canadian Forestry Association:—  
Ottawa.

Gentlemen:—It is with pleasure that I enclose cheque (\$5.00) to assist in furthering your work.

When Mr. Mitchell visited this town in connection with Better Farming train, without a doubt he saved all the spruce trees in the local gardens by discovering two pests at work and explaining the means used in exterminating them.

We are indebted to him and your association.

Yours truly,

A. S. PETERSON.

Birch Hills, Sask., May 26, 1922.

### AN APPRECIATION

JAMES RICHARDSON & SONS, LIMITED

Winnipeg, June 8, 1922

Robson Black, Esq.,  
Canadian Forestry Association,  
Jackson Building, Ottawa.

Dear Sir:—

"I do appreciate the good work that you are doing. I really feel that it is one of the very best works that I know of, and I am glad to enclose you our cheque for \$500.00 to help you push it along.

Yours sincerely,

JAMES A. RICHARDSON.

### FRENCH LANGUAGE PROPAGANDA BY THE CANADIAN FORESTRY ASSOCIATION.

**T**HE Canadian Forestry Association is continually extending bi-lingual forest protection propaganda in Quebec province and now exerts an unquestioned influence on public opinion on most sections of population.

Some of the Quebec enterprises are as follows:

Our Forest Exhibits Car, greatly improved this year, reaches scores of thousands. Daily motion picture demonstrations and French and English lectures are given.

Special weekly articles popularizing forest protection are circulated to all Quebec publications.

A unique and very popular weekly feature "Questions and Answers on Forestry" is taken by the chief newspapers of the province.

A weekly publication in French and English "The Editor's Scissors" gives every Quebec newspaper a steady supply of forestry news and information.

The Canadian Forestry Magazine now carries French language articles.

Other forms of propaganda are employed to reach large numbers of people through the clergy and the schools.

A new motion picture film with bi-lingual captions is in course of preparation.



## TO AROUSE PUBLIC OPINION

Editor, "Canadian Forestry Magazine":—

**M**UCH has been said recently in articles for the popular newspapers on the subject of the great damage caused our forests by the spruce budworm; by consequent secondary attacks on the remaining green trees by bark beetles and by forest fires—perhaps the greatest menace of all. This has been said, presumably, in an effort to inform and arouse public opinion and to force action for the better preservation of our forest assets.

Various estimates of the damage done by the budworm in the Province of Quebec have appeared varying from that given by the Chief of the Provincial Forest Service of 75,000,000 cords, to the estimate by the Entomological Branch of the Federal Government of 150,000,000 cords, representing a loss in raw material of from \$750,000,000 to \$1,500,000,000.

The attack of this insect pest has ceased for the present, but it is certain that a further loss, of less magnitude, will ensue as a result of the primary attack of the budworm, through the weakening of the forest crop, which renders it more prone to damage by other insects, particularly by bark beetles. This loss is current and in many cases may continue for some time according as the local conditions of the forest form suitable breeding and feeding grounds for these insects and the measures—if any—that may be taken to combat their ravages. Add to this the enormous losses caused by forest fires, with the consequent increase of the less valuable hardwood species, which, experience teaches us, replace the more valuable conifers after forest fires, it may then be realized that the annual losses from these causes very greatly exceed the amount of timber annually cut and, more serious still, that the capital stock of our forests is being rapidly depleted. In other words, the annual cut plus losses from insects, fires and other causes, which may be classified as largely preventable, greatly exceed the annual growth of the forests.

This state of affairs should not be allowed to continue and the sooner public opinion becomes articulate on the subject, the sooner some action, calculated to preserve the forests, will be taken. Generally the public are inclined to blame the wood-using industries for this situation and this without reason.

In the earlier days of the lumber industry in the province, the lumberman cut only the finest trees of the most valuable species. This was not the best policy, but it must be said that no other course was open to him. Economic considerations demanded that if he were to make a living—indeed if he were to sell timber at all at the competitive prices that then held—he had to have the best timber he could find. Nor was this method of lumbering very harmful to the forests. Only the larger mature trees were removed, an excessive amount of slash and debris was avoided and the remaining stand was left in good condition, self-protected against wind and climatic exposure, and sufficiently open, by the removal of the mature trees, to stimulate the growth of the remainder. Later, as the timber markets improved and as better saw mill and operational methods were evolved, the lumberman was able to cut the more inferior and smaller wood, until, finally, paper mills and pulpwood came into being. The Government trailed along behind this course of events, instead of leading with a constructive forest policy, ever allowing a lower diameter limit without the knowledge of and data on the local forest conditions which governed reproduction, until the present time,

when the Government felling regulations are those best calculated to ruin our forests with the utmost speed.

The effect of these regulations is to have the timber stand so open that it cannot support itself against the wind, with the consequence that the timber, which the logger is not allowed to cut, is blown down and lost both to the industry and to the forest—they leave the floor of the forest too exposed and they help to form breeding grounds for harmful insects. And this state of affairs is laid at the door of the logger, who is but carrying out the felling regulations of the Government!

Let us examine the attitude of the lumber and pulp and paper industries today! . . . Many of the firms have a qualified staff of foresters, who continuously work in the forests, collecting forest data and advising how best to work these forests in order to obtain the best financial results and to insure their continuance in perpetuity.

In some cases the services of entomologists and pathologists have been obtained and valuable research work carried out, in an endeavor to identify the insects and diseases which most endanger our forests and thus to formulate preventative measures.

The forest industries have urged the Government to adopt a more constructive policy; to allow clean fellings under conditions which necessitate it and in cases when reproduction will be assured; to allow the institution of the correct rotation without regard to diameter and to employ the necessary experts in the various branches of forestry for further study and research work in the forests.

For instance, records in the State of Maine over the past hundred years tend to show that the attack of the budworm is periodic and is governed by the physical rotation of the balsam tree. In other words, as soon as the present immature stands of balsam become mature in forests, when this is the predominating species, another attack of the spruce bark beetle can be expected. And the next attack, it is calculated, will be more severe than the present one, owing to the tendency of the species to predominate, due to the stimulus given to its reproduction during the last attack.

In this work of combatting insect attacks the forest industries have so far led the way and borne the expense.

Further, for the preservation of the forests, a defined policy in forest reserves is necessary. At present, loss to the forest is caused by areas being wrongfully cleaned for agriculture, for which purpose the ground is totally unsuited. Forest Reserves in perpetuity should be established. Areas already deforested by fire should, where practicable, be re-seeded and managed on a basis which will ensure reforestation with the desired species of tree. Education of the public is required; teaching in the schools and by the church, and the recognition of Arbour Day. The people already realize the economic value of forests—teach them it is their duty to preserve those forests—that they are the country's greatest assets.

It may be objected that the cost of such schemes will be too heavy. The revenue derived from forests of Quebec is approximately \$3,000,000.00 per annum. What proportion of that sum goes back to the forests for their maintenance and protection? Is there any country in the world, which derives great revenues from its forests, which devotes so small a proportion of that revenue to the upkeep and improvement of those forests as this Province? I venture to think not. And in these circumstances how is constructive forestry possible?

—N. H. R.



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### The Forest's Service in the Betterment of Canada

(Continued from page 892)

branches; a beauty made up of all the mysterious life which is developed therein, of all its babbling streams, of all the bright or pale tints which adorn, in the Spring, its many flowers, a beauty made up, in the Fall, of mottled gold, of yellow and scarlet which its leaves reflect before they die, a beauty made up, in Winter, of the ermine which clothes its boughs and covers its summits and which causes it to stand out more magnificently against the infinite opal of the sky, and the orange tint of the horizon behind it.

Ever beautiful throughout its many variations, it constitutes in itself the attractive features of a country or, if we prefer, it forms the harmonious features of the landscape which God, in the words of Thelie de Poncheville, "has sketched for our happiness."

Whether as tracts of wooded land, whether as little groves, whether it springs from the meadow or near the ploughed fields, whether it stands at the confines of the green prairies, whether it climbs the hills following the pastures, whether it creeps on the mountain tops, undulating against the horizon, it ever constitutes the most attractive features of the land. It adds to the beauty of the earth as the stars and clouds fringed with gold beautify the skies.

Unceasingly rejuvenating itself, it throws a gay note into the land-

scape, a glimpse of hope, as does the oasis in the dreary immensity of the desert. What would be our Laurentian Mountains with their dome-shaped crests, our Alleghany with their summits curved as gothic arches, if the forests did not embellish them? Would Gaspé Plateau, with its long irregular shores, be a land of poetry, if it had not its forests? And would this beautiful valley of the Chaudière, with its peaceful surroundings and fertile fields, be as charming, if it did not intermingle the dark green of its lofty trees with the pale green of its open fields and the yellow of its golden harvests?

#### Maria Chapdelaine's Attitude

And this fertile and prosperous Richelieu plain, divided into fields stretching between parallel cedar fences to the distant horizon! Can we imagine that it would be as pleasing to the eye if the St. Hilaire Mount, with its imposing figure, did not suddenly emerge from it, be-decked with a mantle of green trees?

If, to Maria Chapdelaine, the forest appears to be a shadowy clump, "impenetrable, hostile, alive with sinister secrets, fastening itself unto life as with a overwhelming embrace from which one must gradually disengage himself." it remains nevertheless for us all, especially in the maple sugar and blueberry seasons, a most attractive spot, one of those things inanimate that clings to the soul compelling it to love.

The forest is not only a magician.

It was, we all know, for the peoples of old,—Greeks, Romans or Celts,—a temple with countless columns and rustling arches opening on the heavens. It has given birth to the Gods who have populated pagan Mythology; it was the abode of Goddesses, they having lived "under the thick barks." Beneath its high trees, oracles have spoken. The poet, saluting the forest, could say:

Première cathédrale où les orgues  
mugirent!

Piliers que vivifiait une robuste  
moelle!

Rosaces où la lune et l'astre s'ins-  
crivirent!

Chandeliers où l'on vit se poser les  
étoiles!

Vitraux, profondes nefs, fiers ar-  
ceaux déliés,

Panthéon, qu'ébranlait le pas pe-  
sant des dieux!

Temple idéal par l'homme un jour  
pétrifié,

Quand il osa prier sans regarder les  
cieux! (L. Souguenet).

(The first cathedral in which organs  
pealed,

High pillars thriving on a robust  
sap,

A rosette in which the moon and  
sun are set,

Candlesticks to which the stars are  
hung,

Windows, nave majestic, slender  
arches,

A Pantheon which shook under the  
resounding steps of Gods,

Fitting shrine for him who was,  
one day, petrified,

Because he dared to pray without  
his eyes toward the sky!)

After the sacred woods have been depopulated, the forest, because of its smooth or streaked stems, its twigs gracefully or boldly bent, has chosen to serve as models for the smooth or channeled pillar, for the arched or ogive ceilings of our temples. Prayers and cults have changed, but the form of the arched vault has not varied. Indeed, it thus has a moral influence, but there is more than that about it. It seems as though man, in the silent seclusion of the forest, far from the worries of life, can lift his mind above all that burdens it, in the midst of the busy mass of humanity. The forest can impart to all those who wish to abide by it, salutary lessons of moral philosophy.

#### The Symbol of Human Life

Unlike human generations, the forests, in their continual reproduction, when left to themselves, and by living through their dead, as it were, symbolize a continuity of life upon earth. They prove to us that

life, although beginning the same way for us all, could not have with the individuals, at all ages and in all surroundings, identical manifestations; that absolute equality is an anomaly, that it has never existed elsewhere than in the mind that gave it birth, and in the doctrines of 1789 beyond which it has never reached; that, in the struggle for existence, none but the fittest and ablest can succeed; that unity is strength, that Society is a powerful educational factor and a medium of achievement and welfare; that, on the contrary, isolation could not produce but half-perfected subjects; that Liberty, amidst the throngs, needs to be circumscribed and restrained, so as to be favourable to the expansion of all the qualities, and that, too free and unchecked, it creates and nurses imperfections.

Was it not when in contact with the forest, that the courageous "coureurs des bois" and fearless pioneers, our ancestors, have acquired these virtues of righteousness and courage which was admired even by the enemy? Was it not in striving to take possession of the soil which the forest held underneath its powerful roots, that our forefathers have tested their strength and given new vigor to their energies?

But the forest does not confine itself to accomplish, for the greatest welfare of man, works of poetry, betterment and education. It combines usefulness with pleasure, unites the supernatural to the material and brings together the real and things unseen.

### Guarding Our Game and Fish

First of all, the forest is the guardian of fish and game. It supplies to the former pure, fresh and running water, necessary to maintain life and favour its manifestations. Spacious and open everywhere; filled with freshness, provided with dark and quiet haunts; offering an abundant litter, succulent leaves, grass and various fruits; affording protection through the general arrangement of its trees, against the cold winds and the burning rays of the sun, the forest, with its soil of downy moss on which the hoof never wearies, is to game, according to the simple expression of a writer of Burgundy "an unequalled stable." It is so essential to the existence of game, that the latter disappears when the forest is gone and comes back when it has grown up again.

The part the forest plays in the conservation of game is evidenced



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Department of Colonization and Development

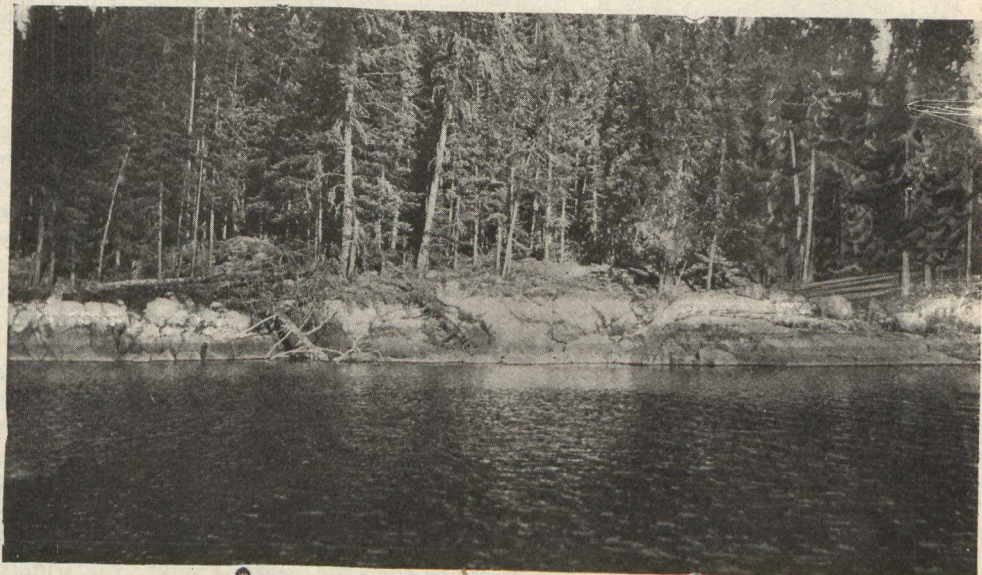
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by the numerous ordinances issued on various occasions by the kings of England, France and Germania, with the object of prohibiting industrial operations in certain wooded territories which they reserved as hunting grounds.

Hunting does not enter our daily task as much as it did in those days when the "coureurs des bois" conquered whole empires; it is not merely a sport of kings and it has ceased to be the means by which glory is won and the expansion of one's country is attained. Having developed into

an industry, it constitutes, for a country, a valuable source of wealth, and, for a small number of speculators, a profitable occupation. But it can only be so inasmuch as the forest exists in the district where such operations are carried on.

Even if the forests were, as in the days of Ronsard, nothing else but "a vast dwelling for the birds" which find therein abundant food and comfortable shelter, it should not be laid waste, because from its precincts come those singers which add to our life moments of joy and happiness.



Manitoba is not all prairie, by any means, although the Easterner is often apt to think of it as such. Seventy-five per cent. of Manitoba's area is tree covered. This view shows jackpine and black spruce on the East side of Lake Winnipeg.

# The Forests of Southeastern Labrador\*

Some Information Concerning the People and Customs of Canada's Eastern Neighbor

By E. M. KINDLE, Geological Survey, Ottawa.

In two parts—Part two

THE shores of Lake Melville are bordered by a considerable area of relatively flat or slightly rolling land on which the best timber is found. This extends up the Grand River to Muskrat Falls 25 miles above the mouth and beyond. On the mountain slopes much smaller trees occur.

Grand Lake which lies northwest of Lake Melville and empties its waters into it, is without any lowland border, the mountain sides descending precipitately on the west and by gentle slopes on the east. This lake, which is about 30 miles long, was transversed in rainy weather when a constant fine mist caused the great forest clad hills to appear and disappear like huge grey ghosts through the fog-like canopy which hung over the lake. At Cape Blanc, which is a steep-sided mountain rising abruptly from the lake, the scars of old avalanches are plainly visible. In some of these the timber and soil have both been stripped completely from the mountain face. In others a belt of birch in the midst of a black spruce forest, bounded sharply by perfectly straight lines, tells the story of an old avalanche.

On the Nascaupée river and the Red river the broad sand and clay terraces support a better forest growth than the Grand Lake basin. My own observations in this valley extended up to its junction with the Red river and a day's journey up the Red. Mrs. Hubbard, who traversed the entire length of the Nascaupée, reports one of the trees seen to have a circumference of nine feet. She states that "the valley is mostly well wooded with spruce and balsam as far as Mabelle Island and here the spruce reaches splendid size."

Bryant and Turner have explored parts of the region south of the Lake Melville basin which my expedition did not enter. Some of the comments of these explorers on the forests seen by them follow. The rivers traversed by them enter the Gulf of St. Lawrence between the Mingan Islands and the Strait of Belle Isle. Townsend writes of the timber along the Natashquan valley, nearly opposite the east end of Anticosti Islands, as follows:—

"The forest trees gradually increase in size from the coast where in places, as on the plateau back of the little village of Natashquan, they are nearly prostrate, to this point where they appear to have reached about their maximum, and attain a height of 50 or 60 feet. Black spruce and balsam fir are the predominating trees, but white spruce are not uncommon. White birches are scattered here and there and often form pale green patches in a sea of dark spruces and show where a fire has swept through. Mountain ashes are few and far between as well as aspens, but, on the borders of the river, alders and dwarf willows are common. Of larches only a few remnants are left of this once abundant tree. Some years ago a devastating worm—the larva of a sawfly—swept through the country and the larches were nearly exterminated. At Rigolet, on Hamilton Inlet, I had seen in 1906 the larches covered with these worms. Fortunately in this region of the Natashquan, at least, there are enough scattered veteran larches left to perpetuate the race, and vigorous seedlings are growing up, and I saw nothing of the worm.

"The largest balsam fir I measured at this place close to the 5th Falls was 64 inches in circumference three feet from the ground. A black spruce was 43 inches, a white birch was 72 inches. The white birches are rough and lichen-stained,—gray and green and black—and the bark peels off in great rolls and hangs all over the trunk in rags."

The observation of Townsend that the trees on the Gulf coast can survive only as prostrate dwarfs corresponds with the conditions which may be observed further east and north.

The St. Augustine river which enters the Gulf of St. Lawrence 150 miles east of the Natashquan river was ascended to the Height of Land in 1912 by Henry G. Bryant. Concerning the forests observed on this expedition Bryant writes as follows:—

"Referring to the timber resources of the region traversed, it may be of interest to mention that for the first twenty-five miles above the mouth, the hills rising from the broad valley of the river are covered with a thick mantle of firs and spruces of small size and growing in the close formation so characteristic of the Laurentide landscape. These growths of the lower valley are suitable for pulp manufacture; but aside from this, possess little commercial value. For the next twenty-five miles to the vicinity of the first falls, the size of the two varieties mentioned improves and many scattered groves of birches are observed. Beyond this for about twenty miles, a noticeable increase in size and quality of the spruces is apparent, while the first have become a less important element in the forestation. While the best timber is not continuous here, many tracts may be seen containing trees which measure three feet from the ground, something over two feet in diameter.

"In the neighborhood of the Height of Land, the country is more open, while the tops of the ridges are often quite bare. Some of the finest spruce timber encountered on the journey was found in small groves in sheltered localities within a few miles of the lake sources of the river."

Examination of the map of the distribution of North American forests will show the very important role which Labrador will probably play in supplying forest products for the world market of the future. The Lake Melville waterways are of peculiar importance in this connection because they afford about 200 miles of navigable waters which are usable by sea-going vessels. These waterways include Lake Melville, Grand Lake, the Double Mere and the Back Way. This penetration of the heart of the best of the Labrador forests by deep waterways must become an important element in keeping transportation costs at a low figure.

Canada is destined by its geological and geographical features to remain permanently the great forest country of North America. Compared with the area of the great forest belt extending from the Labrador coast to the Pacific, the widely scattered forest areas to the south of it appear insignificant in size. Lake Melville may reasonably be expected to become in the future one of the important eastern outlets for the forest products of the eastern portion of this vast forest zone.

\*Published with the permission of the Director of the Geological Survey, Ottawa

**Forest By-Products**

The forests of the Lake Melville region remain practically untouched. Lumber and other ordinary forest products except as already noted are not at present produced in the Lake Melville region. The single portable mill now in operation supplies lumber only for local use and much of this is still cut with the old hand whipsaws. Until the boundary question is settled and it is known whether Newfoundland or Canada has authority to grant timber concessions, it is not likely that any large attempt at timber or pulpwood production will be undertaken.

At present the forests supply only by-products in the shape of fur bearing animals. In one sense the annual fur catch may be regarded as a forest by-product. The heavy forests produce what is said to be finest grade of fur known in the north. The fur-bearing animals and the people of the region are both, strictly speaking, forest products, since neither could exist in the region without the forests.

Minks, weasels and martins, are the more common fur-producing animals. Red, cross, silver and white foxes are trapped, the last generally being found only near the coast. The otter, lynx and beaver are also present. This region is near the southern limit of the range of the polar bear which is sometimes taken on the sea coast but it, like the seal, belongs to the sea rather than to the forests.

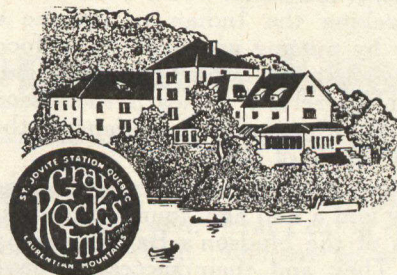
Originally the region was divided between the Indian and the Esquimo. The latter is nearly extinct in the Hamilton Inlet region and southward. The Esquimo held the narrow sea coast strip,—approximately the same narrow shore zone now occupied by the Newfoundland fisherman while all the vast interior river and lake region belonged to the Indian. When either race overstepped the time hallowed boundary between them in the old days, savage reprisals resulted. Battle Harbour is one of the names which has survived from the days when the Indian and Esquimo tried to revise the Labrador boundary with the tomahawk and the spear. From the region south of Hamilton Inlet the Esquimo has disappeared and the Newfoundland fisherman has taken his place. The Indian still survives but lives as his ancestors did, except that canvas canoes and tents have supplanted the birch bark canoe and the skin-covered tepee.

**Evolution of the "Liveyere"**

In Labrador, as elsewhere on the northern frontier, natural selection is producing a type of man well adapted to a changing environment. This new type will in time supplant the Indian.

In a country where elemental conditions prevail as they do in Labrador natural selection is not an academic term but a stern reality. Nature undertakes to make of every man who claims a home in Labrador either a hunter or a fisherman. For the failures starvation awaits just round the corner. The man who is a product of an environment where these two arts are not important or essential, must when he comes to Labrador, speedily acquire them unless he is able to maintain his connections with his old environment and its resources. Failure to do so means elimination by starvation. The tragic death of Leonidas Hubbard illustrates the remorseless way in which this fundamental law works in this region.

Labrador affords interesting sidelights on human relationships under the very simple elemental conditions which replace the complex web of civilization in which we live. There are no socialists and no capitalists to "grind the poor man down." Stern old Mother Nature does the grinding every few years by making the caribou



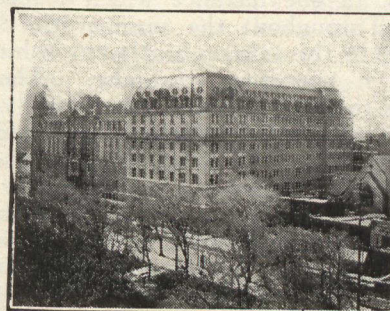
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scarce or the fishing poor; when she puts on the screws the Indians often starve by the score. This I take it, is Nature's method of teaching the Indian to become a capitalist in a small way by putting up a little more food in the seasons of plenty than he actually needs. But simple as it seems poor Lo refuses to learn the lesson although his ancestors have probably experienced the famine demonstration hundreds of times.

The hardy French and English fishermen who came into the region a century and a half ago, found it to their liking as did the agents of the Hudson's Bay Company who succeeded them. They and their successors have left as descendants a brown-skinned race of Indian or Esquimo extraction on the maternal side. These are the "Liveyeres," as they are called to distinguish them from the Newfoundland fishermen who do not "live here," but come and go with each fishing season. Unlike the Indian who is willing to starve but not to work when game is scarce or the caribou fails, the "Liveyere" is apt to have the industrious habits of his paternal ancestry. Many of them have comfortable cabins which are always well stocked with rifles and supplied sometimes with a few books and, in one instance which I recall, with a small organ. Throughout the summer the "Liveyere" devotes himself to the salmon and trout fishing in Lake Melville, and in winter to trapping. These brown-skinned sons of the forest are apparently oblivious to the existence of the insect pests which drive an ordinary man to strong words. Cabot tells of a case where they drove a strong man to tears. A man new to the country frequently finds his eyes swollen almost to blindness for the first three or four days, but the swelling passes away after a few days, and the initiate is then more or less immune as regards swollen features for the remainder of the season. I can claim a fairly intimate acquaintance with the mosquitoes of both the Yukon and Mackenzie valleys but am prepared to take off my hat to the quiet efficiency of the Labrador blackfly.

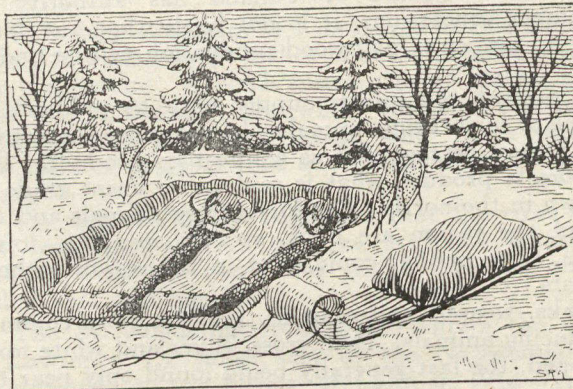
It is reported that the failure of one of the sawmills was due in part to the refusal of a shipload of laborers imported from Europe to labor after their arrival in the land of the black-fly. It does not require much imagination on the part of anyone having a speaking acquaintance with this little insect to guess why these foreigners developed an intense longing for their homeland shortly after their arrival in Labrador. If the management of this mill had relied more on the French Canadian timber cruiser and lumber jack and the "Liveyere," there might have been a different sequel to record concerning the venture.

The black flies and mosquitoes on which my cook exhausted a new set of adjectives every day, were treated merely with silent contempt by my native guide. He never deigned to use either head-net, tar dope or adjectives against the flies which my deep sea cook declared to be immeasurably more disturbing to his peace and happiness than any of the shipwrecks which had fallen to his lot in happier days. The Labrador native is in many cases a fine type of man, patient beyond belief, not only with the black fly but the 60 per cent. import duty assessed by Newfoundland on all of his food and clothing not taken from the forest or the sea. At the approach of Winter he goes into the forest for the trapping season, sometimes with a companion or with dogs, but frequently entirely alone and from 50 to 200 miles from any settlement. The solitary trapper ordinarily knows no other companionship for three or four months except that of the trees, the stars and the aurora. If the trap line is a long one, 4 a.m. will find a good trapper on the trail. These men appear to be as perfectly adjusted to and satisfied with their environment as the foxes and the otters whose pelts they seek.

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is prepared under Government Inspection At the Condensery of

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LIMITED

BROCKVILLE, ONTARIO.

## Briefs About People and Events

### AN IMMENSE LOSS

**H**ON. C. W. ROBINSON, Minister of Lands and Mines, estimates that the spruce bud worm had ruined standing timber on which New Brunswick's stumpage dues would have been \$19,750,000.

### TREE PLANTING IN OTTAWA

**A**RRANGEMENTS are being made by a committee under Mr. E. S. Archibald for the planting of about 5,000 trees and 6,000 willow cuttings on the Ottawa Hunt and Motor Club property. In a few years these trees are expected greatly to enhance the value of the property and add materially to the charm of what is rapidly becoming a beauty spot.

### RE-AFFORESTATION IN BRITAIN

**G**REAT BRITAIN is making a big effort to repair the damage done to her forests by the Canadian forestry troops. The work of re-afforestation is making steady headway, under the auspices of the Forestry Commission, which was established in 1919. In the first year of work, 1,600 acres were planted; in the following year 6,000 acres were added, whilst the present year will probably see the total brought to 16,000 acres. The commission intends to plant 150,000 acres of state land in ten years and to assist local authorities and private landowners to plant a further 110,000 acres. This will put Britain once again into its pre-war position with regard to timber. It has been estimated that \$1,000,000,000 might have been saved during the war had this policy been adopted during the previous half century.

### N. B. FOREST POLICY

**T**HE province of New Brunswick has taken a foremost place in the foundation of a modern forest policy and is said to have given in some respects, a lead to the whole continent. Its forest survey, inaugurated in 1916, has, through its staff of technical foresters, been making a very comprehensive classification of the forest lands. Already over 4,000,000 acres have been examined and classified. The data developed by the survey have been embodied in timber maps, showing all

timber types and permanent features with respect to water sheds and regions; and also in soil maps, which show the different types of soil and their suitability or otherwise for settlement. Estimates are also given of the standing timber, six inches and over on the stump, by species and unit of area based on a four per cent. caliper tally, considered by experts as intensive.

### GROWING FUEL IN SIX YEARS

**M**ANY of the species which can be used on the prairies are very rapid growers, for example, cottonwood, willow, Russian poplar, and Manitoba maple. It is safe to say, that wood large enough for fuel can be grown from any of these trees within six years. After that time a plantation will increase in value and productiveness year by year and will prove one of the best investments on the farm. On the Nursery Station at Indian Head, Sask, a plot three-quarters of an acre in extent was planted out to Russian poplar in 1906, trees spaced four feet apart each way. In 1913 the average height of these trees, was twenty-three feet. In the fall of 1913 half the plot was cut down and yielded six and three quarter cords of quite fair fuel. This is at the rate of about eighteen cords per acre in eight years. The soil was a medium clay loam. The labor cost of planting was \$5.86 per acre and cultivation for two years about \$6 per acre.

### DECLINE IN LUMBER CUT

**T**HE lumber cut in the Province of Ontario fell off greatly during 1921. According to the statistical edition of "The Canada Lumberman" there was produced 485,253,651 feet in Northern Ontario and the Georgian Bay district, a decrease of 104,403,865 feet from the corresponding period of 1920, which was a year of prosperity. The lath output also showed a drop of over 45,000,000 pieces. In the Ottawa Valley the total lumber production in 1921 was 236,660,764 feet, as compared with 273,825,631 feet in 1920 and 297,950,350 feet in 1919. Lath showed a decrease of 1,710,789 pieces, while the shingle output fell off by over 4,000,000. Lumber prices decreased during the past year on the average from 30 per cent. to 60 per cent., and many

operators have considerable of last year's cut in their yards. The general opinion of manufacturers, however, is that there will be a steady and gradual improvement in the lumber industry during the coming season. In the larger cities housebuilding is particularly active.

### DRIVEN TO CANADA

**D**ESPITE the fact that Pennsylvania's forest areas have been stripped of their forests until the hills of Central Pennsylvania are one of America's most desolate regions, the paper industry, which is dependent absolutely on the forests for its raw material, is still strong in Pennsylvania," said Dr. Hugh P. Baker, Executive Secretary of the American Paper and Pulp Association, to the students of the forestry department of Penn State College in an address. It was a home coming for Dr. Baker, for he was formerly in charge of the forestry department, before going to New York State State's College of Forestry, which he later left because of the realization by the paper industry that it must devote its attention to the forestry problem. "Pennsylvania," said Dr. Baker, "now ranks fourth in importance in the list of states converting wood into pulp, but its mills have gone into the making of fine papers and specialties, as the disappearance of the forests has driven the newsprint mills north and into Canada. Its importations of foreign spruce alone totaled 12,000 cords in 1920, or more than one-fourth of its entire wood consumption. It will not be difficult to demonstrate to the paper manufacturer that he can afford to grow trees for pulp wood when he is paying from \$15 to \$20 per cord for peeled wood. It is my belief that we are passing out of the sentimental stage in forestry, and in the next five years we are going to see the beginning of a real economic development in forestry. That is, the time has come when it is going to pay in dollars and cents to grow trees. When foresters can demonstrate to the paper manufacturer that he can afford to grow pulp wood, we are going to see the same sensible turning to forestry that we have seen in their turn to better banking methods and better methods of manufacture."





## BUSINESS AND PROFESSIONAL DIRECTORY



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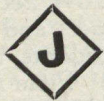
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tective Associations for  
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### Ontario Paper Company

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ONT.

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of

NEWSPRINT

PAPER

## A FIRE ALARM

The prosperity of the Pulp and Paper Industry and of many other industries depends on the maintenance of

### OUR FORESTS

Fires annually destroy more timber than is used by all the industries depending on it. A moment's carelessness may cause an irreparable and national loss. This space devoted to the cause of forest conservation



by  
**CANADA PAPER CO.**

Windsor Mills, P.Q.

## FOREST FIRES

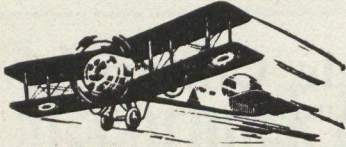
TAKE AWAY JOBS!

Size up Every Timber Fire as Your Personal Enemy and get After Him; Put Out Your Camp Fires. Never Toss Away a Lighted Cigarette. There are hundreds of jobs in a live forest. Dead forests drive out population.

This advertisement inserted in the interests of forest protection by

The Spanish River Pulp & Paper Mills, Limited.

# AERONAUTICAL SECTION



A department devoted particularly to the application of aerial methods in forest conservation and generally to the promotion of sane civil aviation in Canada.

## Aeroplanes Prove Worth as Fire-Fighting Auxiliary

Operating Over Flame-Swept Areas in Quebec Forests, They Showed Real Efficiency.

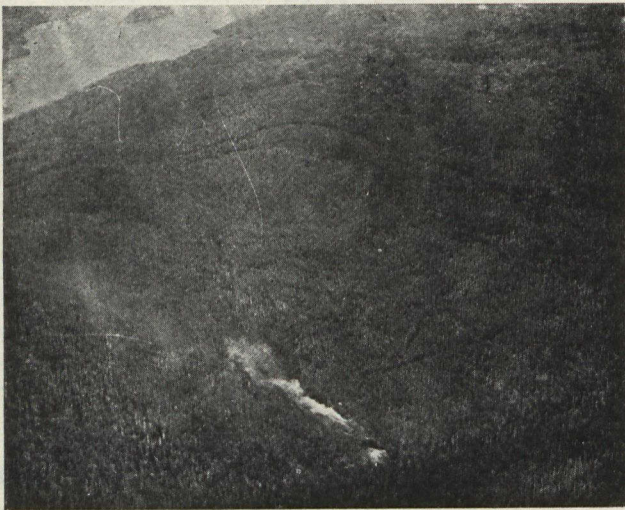
By GEORGE A. MACKIE

THE recent very serious forest fires in the province of Quebec have served as a means of demonstrating the value of the aeroplane as an auxiliary to fire-fighting forces and, incidentally, this demonstration may be said to have converted several of the men high up in the councils of Forestry enterprises—including several who were heretofore inclined to be antagonistic to aerial patrols—into firm and outspoken protagonists on behalf of aeronautics as a necessary adjunct to this very important Canadian industry. No statistics are at present

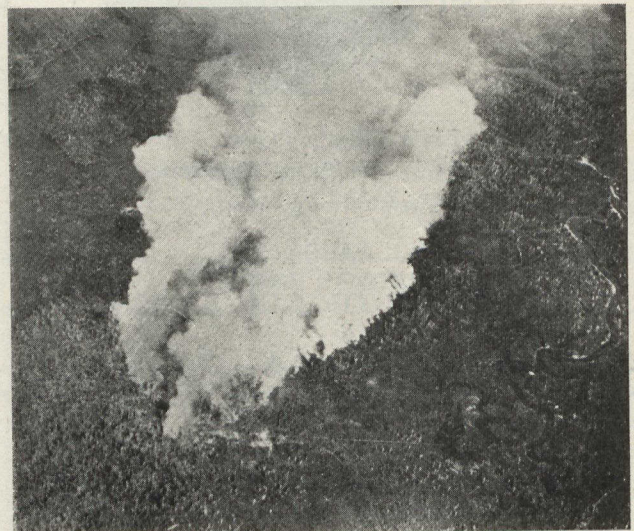
effort. As a matter of fact the Air Station at Lac a la Tortue was all set to conduct extensive operations along the line of aerial photography when on twenty minutes notice, the entire staff and equipment was switched to a fire-fighting force. The photographic machine in its first flight, as a matter of service, reported to headquarters a number of fires, one of which had been burning for three days unknown to rangers or owners. The information thus given proved of such value to the latter that they immediately virtually commandeered the staff

### Two Photos of a Forest Fire Viewed from the Air

Reproduced by courtesy Price Bros. Aviation Dept.



The Initial Stage



Well Under Way

forthcoming with regard to the monetary saving effected by aeroplane auxiliaries in the recent operations but some general idea of this may be obtained from a brief account of the work done in the period from May 15th to June 15th by the equipment and personnel of Laurentide Air Services Limited, a company recently organized to specialize in aerial work for lumber and pulp and paper companies.

At the outset it may be stated that the work of fire-fighting by aeroplane as recently carried out by this company, was undertaken in an emergency without any real preparation for this particular branch of aeronautical

of the Air Station who subsequently put in about the busiest month of their existence in co-operating with the previously organized land fire-fighting forces.

During the period above mentioned the aviators flew for a total of more than 80 hours over the limits of the Laurentide Company and the St. Maurice Valley Protective Association. The operations were in charge of Pilot H. D. Wilshire and among the forestry executives who accompanied him on his flights were Messrs. Ellwood Wilson and C. R. Townsend of the Laurentide Company, Henry Sorgius of the St. Maurice Association and Ritchie of the Wayagamack Company. The machines also

carried inspectors over the fires to get a bird's-eye view of the fires. The inspectors, with the information thus obtained, dropped written instructions to the land forces as to the disposal of men and equipment to most effectively combat the flames. The aeroplanes were also used to transport men and fire-fighting pumps to the places where they would be most effective and they served as well to transport supplies and act as lines of communication. In one case, supplies for 53 men in one particularly "hot-spot" were provided by these aerial carriers. Pilot Wilshire flew his machine for seven successive days on one job, his flying time for one day running as high as six hours and averaging for the month above mentioned 3 hours per day. This flying was done in all sorts of weather, wind, rain, fog, hail and smoke proving no deterrents to this persistent patrol. The work was all done without the slightest mechanical trouble and operations were never suspended through unfavorable weather conditions.

The results accomplished seem to justify certain claims on behalf of this aerial enterprise. Inspection from the air can be carried out in a fraction of the time required by ground forces. Fewer inspectors may thus be used and only the most capable of these need be selected by reason of the reduced number. These inspectors may view a given area three times a week while a ground organization may cover its entire territory only once a month. Thus a fire may start a day or so after a ranger has made his rounds so that in the natural course of events it will not be detected by him for a number of days—if not weeks. Then again, after detection, the aeroplanes can bring in the skilled men first and they, after viewing the fire from above, can better make their plans for fighting it after they have been landed at the best strategical point. Every man thus transported is an "effective" as none of them is needed for transportation of supplies or keeping up lines of communication.

The question of costs may not be discussed here. Admittedly it is not a cheap operation. Big problems however, require effective solutions. So far as capital outlay is concerned, it is probably cheaper to buy aeroplanes than to build proper roads through forest areas. The facts above related may cause some of those skeptically inclined to think again. That is what is needed.

#### BIPLANE FOR SPANISH RIVER.

**A** NEW biplane, purchased from the Dayton-Wright Company of Dayton, Ohio, by the Spanish River Pulp and Paper Mills, Ltd. for forest survey work, is now on duty at Sault Ste Marie, Ont.

The machine, which is of the Float type, with dual engines, can carry ten passengers, and has a flying range of 400 miles. It can develop a speed of 118 miles per hour at 2,000 feet altitude, and its normal cruising speed is from 90 to 95 miles per hour. An important feature is that it will maintain its altitude with only one motor running.

The machine will proceed from the Sault to Michipocoten River, which will be its base for the Summer's operations. It is planned to make an aerial survey of 1,000 square miles northwest of Michipocoten.

M. S. Beal, who was two years ago assistant to Captain Geo. Simpson, who flew the previous plane operated by the paper company, and was afterwards killed when a machine he was flying fell into the Mississippi River, will be photographer and executive officer.

The other members of the crew are: W. E. Lees, pilot and captain; A. K. Horton, mechanic; W. F. Whitman, rigger; J. E. Doty, assistant photographer.

## Actions Speak Louder---

### During the Month of June:---

- One flying boat in one flight spotted over 20 fires; getting location, approximate area, direction of spread and other details about each.
- One flying boat in one day carried three executives over fires on their limits; travelling in all over 400 miles and enabling each to make intelligent plans for protection of his limits.
- One flying boat transported supplies and equipment for fifty-three fire fighters and continued this service for several days. Every man was an "effective," and the fire was checked.
- One flying boat flew on seven consecutive days in all kinds of weather; proving again that the aeroplane is not a fair weather toy.
- One flying boat flew from Montreal to Toronto in three hours, forty-three minutes, carrying over a ton of useful load.
- Scores of forest fires—many of which could have been checked or limited by prompt detection and quick transportation—cost you—as a Canadian—many times more than the provision and operation of an efficient aerial patrol with modern fire fighting equipment.
- Many men, who previously had honest doubts as to the usefulness of the aeroplane became converted and are now among its strongest boosters.

Aircraft service is the cheapest form of limit insurance available to day, but is cheap only when the proper types of machines are properly operated. This is a business by itself, and takes years to learn.

**Laurentide Air Service, Limited**, carried out all of the operations detailed above—and many others which to mention would take more space than our advertising budget permits.

We can help in protecting your limits, and welcome inquiries.

Head Office:

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Air Stations:

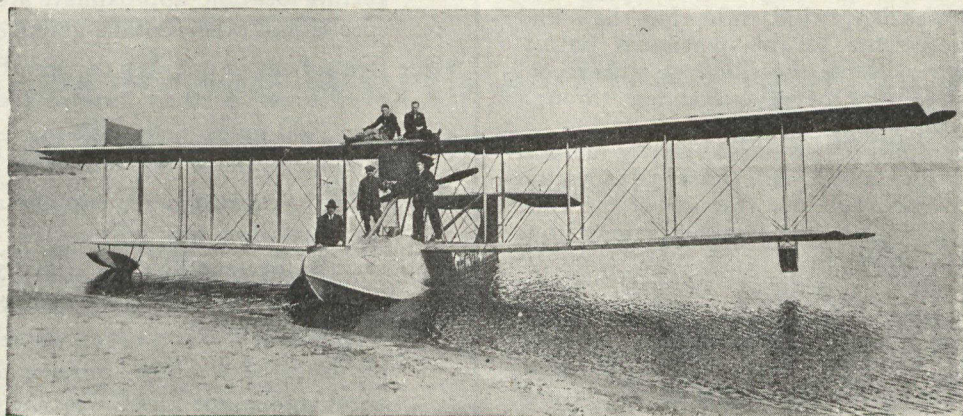
**Lac à La Tortue,  
P. Q.**

**Remi Lake,  
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These machines are eminently suitable for  
Business, Pleasure, Sport and Exploring.

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We carry the largest stock of Aeroplane supplies in the Dominion; and the largest stock of "CANUCK", J.N. and O.X. 5 parts in the World.

# Vickers' "Viking" Makes Splendid Start in Canada

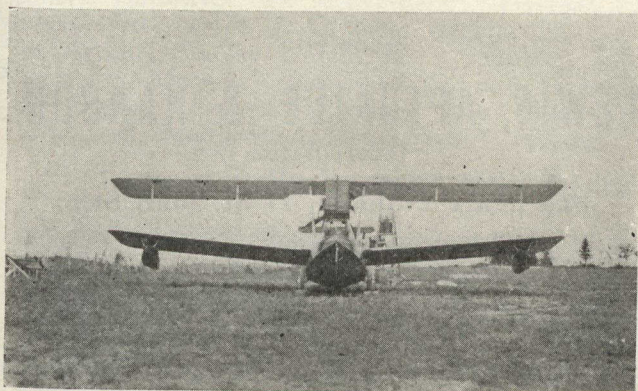
Flew More than One Thousand Miles at Average of 83.5 M. P. H.

By GEORGE A. MACKIE

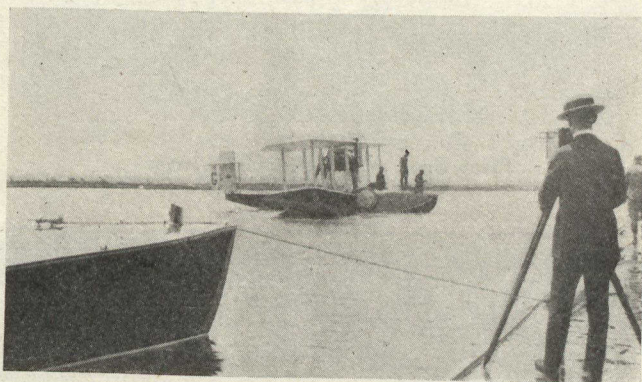
AS forecasted in the June issue of this magazine, there has recently arrived in Canada one of the justly famed Vickers' "Viking" amphibian aeroplanes, the specifications and performances of which were detailed in our previous article. The machine's record since its arrival on this side of the Atlantic would seem to justify all the splendid things which have been said and written about it in the land of its construction. An interesting feature about the machine, related to the writer by Mr. R. S. Griffith, special Vickers representative who was instrumental in supplying it to the order

The machine was taxied right into the landing wharf of the Montreal Boat Builders Limited, and after refueling left for Summerstown, a distance of some 50 miles, which was covered slightly under 50 minutes against a strong head wind. At Summerstown the party stopped at the home of Mr. Thomas Hall, remaining there for nearly two days, and then proceeding to Toronto in a fog which completely obscured the City of Toronto. The remainder of the trip from Toronto to Remi Lake via North Bay and Cochrane, a distance of 630 miles, was made in six hours' flying time.

The Vickers "Viking," a Land and Water Machine



Photographed at Lac a La Tortue



On the River at Lachine, Quebec

of the Laurentide Air Service Ltd., is that it is an exact counterpart of the machine in which the late Sir Ross Smith was to have attempted his Round-the-World Flight.

## MADE EXCELLENT TIME.

The machine is at present engaged in work on behalf of the Ontario Government over the forest areas of that province, operating from Remi Lake in Northern Ontario. Its record of speed and accomplishment to date is that it flew from Lac à la Tortue, Quebec, to Remi Lake, Ont. via Montreal, Toronto and Cochrane, a distance of 1,055 miles in actual flying time of 12 hrs. and 25 mins. an average of 83.5 miles per hour for the entire journey.

The machine was received in Montreal aboard the Steamer Verentia, and trans-shipped by C. P. R. freight to La Tortue, where erection took place. From the time of arrival at La Tortue until the machine was taxied into the water for tests was a period of slightly under five days—an unusually short period for the complete erection of a machine of this size. The machine was tested by Captain Maxwell on the 7th of June and after minor adjustments and tuning up left La Tortue on the morning of June 8th, proceeding to Montreal via Three Rivers—a distance of 140 miles over road, in 1 hr. 10 mins. The personnel aboard were Thos. Hall, President of Laurentide Air Service, Ltd., Mr. Davis, Air Engineer of Messrs. Vickers Limited, England, Pilot W. R. Maxwell in charge of machine and Air Engineers I. Vachon and J. F. Hyde. At Lachine Mr. Davis left the boat, he having to return to England by an early steamer.

The important part about the entire trip was that although over 1,000 miles in length over country, a great part of which has never even been accurately mapped, only three stops were made for fuel and not a single stretch was missed from any mechanical reason. A week before, Mr. Maxwell had flown to Remi from La Tortue in an HS2L, but in that case proceeded via a route following roughly the N. T. R. through the North. In this case also the machine was forced to encounter very rough weather conditions, but these did not interfere with the trip, which was made to schedule, and, as a matter of fact, considerably ahead of the schedule of a railway train, which was also the case in the latter trip.

The Viking has already set out a number of ground parties, and, as a matter of fact, upon the second day after its arrival at the station went to Moose Factory, a flight to which by Capt. Maxwell under Winter conditions, was also described in a previous issue of this magazine.

## IMPRESSIONS OF TRIP.

C. A. M. Vining, a staff reporter of the Toronto Star who made the trip from Toronto to Remi with the Vickers Amphibian party, gave some rather breezy impressions of the journey in an article recently published in that newspaper. Describing the descent of the machine at North Bay, he writes as follows: "It was a monster toboggan slide down an air chute a mile long at two miles a minute. We scudded toward the lake parallel with a wooded hill which slipped by in a second's dark streak. It was tremendously exhilarating and made

one feel exactly like standing up and yelling "attaboy" though none of us did. When we slid gently on to the water there was a silence more deafening than anything that had gone before and from a dim distance I heard Mr. Hall's voice pronounce "Well done." The possibilities of aviation as a commercial instrument were easily discernible. One could appreciate the ease with which these huge areas of unexplored country could be mapped from the air, the burnt sections defined and the class of trees, according to their color, outlined and estimated."



Price Bros. Air Station in Winter

## Air Force News

The following officers have completed a tour of duty at Camp Borden, during the months of March, April and May, 1922:—

**J.** M. STEVENSON, Bradalbane, P. E. I.; O. St. C. Harris, Prince George, B.C.; H. T. Kempton, Weyburn, Sask.; P. R. Beare, Regina, Sask.; L. B. Rochester, Ottawa; F. G. Burlsem, St. Vital, Man.; H. E. Wilson, Langdon, Alta.; F. J. Russell, Winnipeg; H. L. Turner, Victoria; E. R. Corneil, Omemee, Ont.; E. G. Hamilton, Detroit; G. D. Gosnell, Alameda, Cal.; F. C. Marwood, Regina; A. E. Magee, Kemnay, Man.; L. W. Wilson, Berwick, N. S.; J. C. Douglas, Wardsville; F. L. J. Cook, Brantford; B. Foster, North Battleford, Sask.; W. F. Hiam, Niagara-on-the-Lake; W. E. Jackson, Peterboro; Rutherford, Victoria; C. R. Johnson, Saskatoon; D. R. Fick, Simcoe, Ont.; C. D. Fairweather, W. Toronto; L. S. Breadner, Ottawa; G. G. Wakeman, Calgary; G. K. Trim, Vancouver; E. A. Dixon, Edmonton; V. Sveinson, Wynyard, Sask.; L. F. Stevenson, Roblin, Man.; P. V. Holder, Lunenburg, N. S.; K. W. Cumming, Montreal; C. H. Fitzherbert, Vancouver; J. A. M. Watson, W. Calgary; A. L. Corson, Welland; L. J. Scott, Whitby; R. M. Smith, Ottawa; F. J. MacKie, Winnipeg; L. S. Dowswell, Regina; A. N. Vose, Winnipeg; J. G. G. Layton, Shelburne; J. W. Bell, Charlottetown, P. E. I.; E. F. Nivin, Rosedale, Toronto; G. A. Mercer, Toronto; S. M. Arnold, New York City; H. R. Stewart, Charlottetown, P. E. I.; Mostyn Lewis, Montreal; F. O. Woodman, Winnipeg; T. H. Spence, Regina; C. H. Dickens, Edmonton; G. M. Dean, Vancouver; F. V. Robinson, Winnipeg; L. A. Smith, Estevan, Sask.; A. H. Hull, Nanaimo, B.C.; B. W. Broatch, Athabasca, Alta.; F. W. Dogherty, Montreal; J. A. Glen, D. S. C., London, Eng.

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- (2) Damage to Aircraft, Full Cover, including Burglary and Theft.
- (3) Public Liability and damage to property of others.

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With EDDY'S there is no danger of accident, no flying heads, no misfires, no after-glow. Just matches as good as can be made—safe, sure, dependable always.

The name does make a difference. Look for the name "EDDY" on every box you buy.

## THE E. B. EDDY CO.,

Limited

Hull, Canada

## Air Board Statistics

The Air Board announces Civil Aviation Statistics for the months of April and May as follows:—

### Private Air Pilots' Certificates

Issued:—E. O. W. Hall, Toronto; David Simpson Bondurant, Cairo, Ill.

Lapsed:—M. Thornton, Lachine; A. Lawrence, Winnipeg; Brian O'Day, Winipeg; C. J. Beeching, Calgary; Jasper Tate, Victoria; R. H. B. Ker, Victoria; C. M. Holbrook, Hanna; R. A. De l'Haye, Regina; James Stanley Scott, Ottawa.

Renewed:—F. G. Pinder, Ottawa.

### Commercial Air Pilots' Certificates

Issued:—Cyril James Green, New York.

Lapsed:—E. G. MacPherson, Moose Jaw; N. G. Fraser, Toronto; W. S. Lighthall, Westmount; H. J. Palmer, Vancouver; D. Carruthers, Kingston; J. B. Mulvey, Ottawa; R. J. Groome, Regina; H. F. Cole, Port Arthur; Stanley Harold Kerr, Franklin; Herbert Wm. Aslin, Montreal; Jos. Earle Jellison, Foam Lake; Leigh Forbes Stevenson, Winnipeg; J. A. Glen, Ottawa; G. M. Croil, Summerland; A. B. Shearer, Halifax.

Renewed:—A. A. Leitch, Norwood Grove; G. G. Wakeman, Teeswater; J. E. Drummond, Ottawa; W. R. May, Edmonton; W. M. Emery, Ottawa; B. D. Hobbs, Vancouver; W. R. Kenny, Ottawa; T. A. Lawrence, Cookstown; Clarence MacLaurin, Vancouver; Geo. A. Thompson, Winnipeg; P. M. Wallace, Yorkton; Wm. Roy Maxwell, Hamilton; C. C. Caldwell, Fort Rouge; H. D. Wilshire, Montreal; R. B. J. Daville, Montreal; L. R. Charron, Montreal.

Reinstated:—G. K. Trim, Vancouver; F. J. Stevenson, Burketon.

Cancelled:—H. L. Holland, Ottawa. (Killed in flying accident.)

### Air Engineers' Certificates

Issued:—C. H. Dickins, Edmonton.

Cancelled:—H. L. Holland, Ottawa. (Killed in flying accident.)

### Certificates of Registration of Aircraft

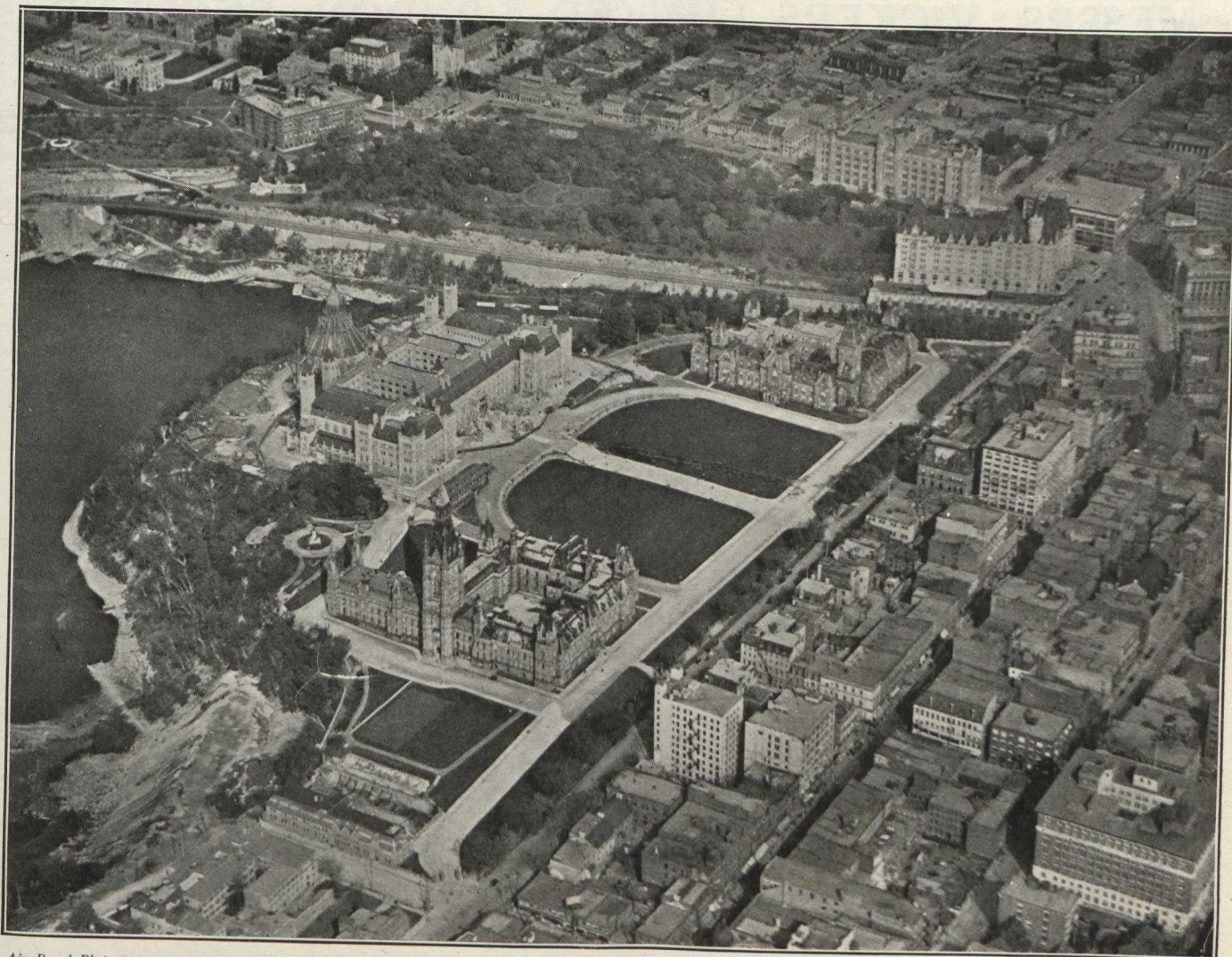
Issued:—Neilson Bros., Edmonton; United Railway Employees' Investment and Industrial Association, Edmonton; The Air Board, Ottawa; Commercial Aviation School, Victoria.

Cancelled:—Vancouver Island Aerial Transport, Victoria; The Air Board, Ottawa; May-Gorman Aero, Limited, Edmonton; Imperial Oil Co., Limited, Edmonton.

### Air Harbour Licenses

Issued:—Plumper Bay, Esquimalt, Harbour, B. C.

## Parliament Hill, Ottawa, Photographed from the Air



Air Board Photo.

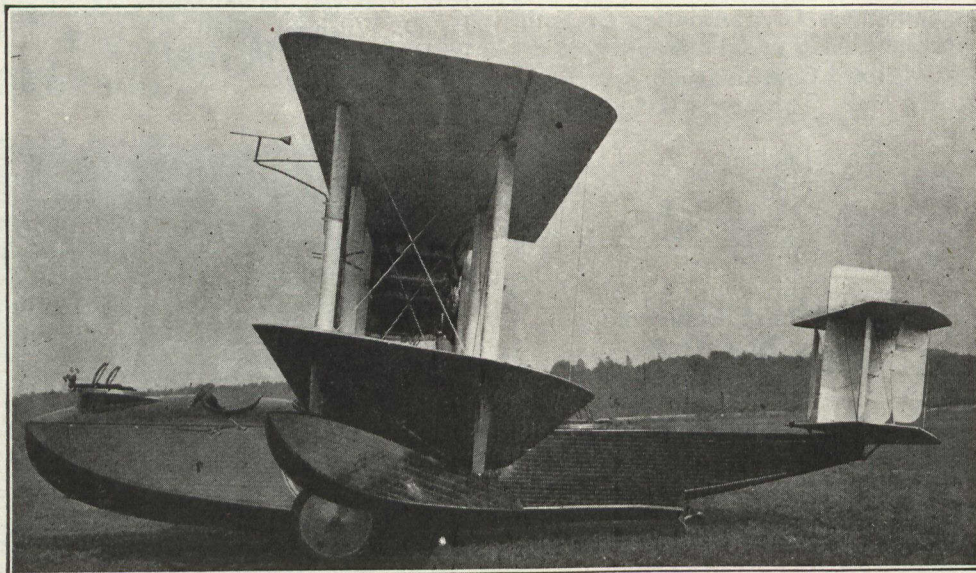
This picture taken several months ago does not show the central Tower in its present state of partial completion. The Interprovincial Bridge is immediately above the Parliament Buildings, the Ottawa River to the left of the picture and the Chateau Laurier in the upper right hand corner.



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## Le rôle des forêts dans l'économie d'un pays

(Suite de la page 894)

les plantes, même de celles que nous classons aujourd'hui parmi les humbles, comme les fougères, étaient alors démesurément grandes. Il s'agissait de purifier l'air pour le rendre respirable aux animaux et à l'homme, de réduire au minimum la quantité d'acide carbonique dont les couches atmosphériques étaient, pour ainsi parler, saturées. C'est à quoi s'employa, avec ses feuilles innombrables et larges, la végétation arborescente. Elle y a réussi et la forêt contemporaine continue l'œuvre de la forêt préhistorique, en empêchant que l'acide carbonique restitué à l'atmosphère par la vie animale, ne s'augmente dans de trop grandes proportions, comparativement à l'oxygène. Elle contribue à maintenir entre les éléments constitutifs de l'air un juste équilibre et se montre ainsi à l'endroit de tous les vivants véritablement bienfaisante. Il va de soi que l'air de la forêt est le premier à bénéficier de l'œuvre épurative des arbres.

Grâce à la présence de notables quantités d'ozone, à un approvisionnement sans cesse renouvelé d'oxygène, l'air de la forêt, appauvri en acide carbonique de tout ce que lui prennent les arbres par assimilation, soustrait l'autre part à toutes les exhalations de gaz, à toutes les émanations nocives qui caractérisent les milieux d'activité humaine intense, contient très peu de bactéries. Des expériences faites par le Dr Miquel, simultanément au centre de Paris et dans le parc de Montsouris, l'ont du reste établi. L'air de la forêt se trouve donc plus apte à entretenir la vie, à maintenir la santé. Aussi jouit-il auprès des médecins préconisant les cures d'air, d'une faveur toute spéciale. En 1905, dans une revue médicale, le Dr Gaulejac, après avoir fait voir que l'alcoolisme, la surpopulation et l'absence d'hygiène avaient en France contribué à rendre plus nombreux les décès dus à la tuberculose, affirmait que le développement de celle-ci était, dans une large mesure, proportionné au progrès du déboisement. Voici d'ailleurs comment il exprime ses vues sur cette importante question: "La pureté de l'air, dit-il, la rapidité avec laquelle les déchets organiques y sont détruits par les fonctions multiples épuratives des arbres, les propriétés des essences exhalées par certains bois, tels les pins, les sapins, sont des facteurs d'autant plus importants pour l'organisme dans sa lutte contre la tuber-

culose, que l'habitant des bois ou des villes avoisinantes a une vie plus naturelle dans son activité que celui des milieux urbains." Pline l'Ancien, qui n'avait pas les moyens de se renseigner dont disposait le Dr Gaulejac, en était arrivé à une conclusion identique. "L'air des forêts, écrivait-il, dont on fait la poix et où l'on cueille la résine, est meilleur aux phtisiques, aux convalescents, que n'est l'air d'Egypte, et leur profite plus que d'aller boire du lait frais dans les cabanes des montagnes." Il me semble bien, d'ailleurs, que les statistiques régionales publiées lors du congrès de la tuberculose, tenu ici même en 1910, montraient clairement que la peste blanche faisait surtout des victimes dans les campagnes déforestées. Après cela, ne réalisait-on pas combien il est sage d'établir, ainsi qu'on l'a fait dans presque tous les pays où on lutte contre les progrès de la tuberculose, les sanatoria dans la forêt ou près d'elle? L'influence sanitaire qu'exerce la forêt en purifiant l'air ne se fait bien sentir, toutefois, que dans son voisinage immédiat, alors que celle qui aboutit à l'épuration des eaux alimentaires, se peut manifester à de grandes distances. Les eaux de pluie, dont la forêt provoque la chute, dont elle empêche le ruissellement et favorise l'infiltration, s'épurent et s'aseptisent dans leur trajet sous terre.

Ainsi qu'il ressort des laborieuses recherches faites par plusieurs savants français, anglais et allemands, cela tient au fait que les sols forestiers, toujours plus ou moins acides, modérément humides, plus froids que les sols agricoles et moins riches qu'eux en substances organiques capables d'entretenir la vie des bactéries pathogènes, sont des milieux peu propices au développement de celles-ci.

Puisque les eaux sont si pures, qui ont circulé à travers un sol sur lequel s'est développée la végétation forestière, on comprend aisément que les grandes villes veuillent qu'aux sources de leurs eaux alimentaires la forêt préside en permanence.

Pour montrer jusqu'où va le rôle hygiénique de la forêt, on pourrait, à la vérité, faire l'histoire d'une région de France, désignée sous le nom de Landes, et où l'on a fait des plantations forestières très importantes. Au début du siècle dernier, les Landes avaient la réputation, non sans raison du reste, d'être la plus insalubre région de France. La durée de la vie en ce pays couvert de bruyères et de marais était en moyenne de trois ans plus courte qu'ailleurs; la fièvre paraissait y avoir élu domicile. Sous un ciel d'une très grande pureté, les paysans, montés sur des échasses

au milieu de troupeaux de moutons maigrelets, vivaient très misérablement. Les travaux de canalisation et de reboisement qu'on exécuta de 1857 à 1892 débarrassèrent cette région des eaux qui y croupissaient pleines de miasmes, et mirent obstacle à la marche envahissante des sables. Ce fut comme le point de départ d'une prospérité jusque-là inconnue.

Le sol perd sa stérilité; le paysan prenant, si l'on peut dire, contact avec lui recouvre sa vigueur, comme le faisait l'Antée de la Fable chaque fois qu'il touchait terre; la durée moyenne de vie s'accroît de cinq ans, et la mortalité diminue de 26 pour cent.

D'autre part, à plusieurs reprises, en Europe, aux Indes, et aux Etats-Unis, on a observé que les forêts avaient été comme des barrières naturelles opposées à la propagation du choléra et de la fièvre jaune, et que les habitants qui s'y étaient réfugiés ou y avaient élu domicile, avaient échappé aux atteintes de ces maladies terribles. D'où l'on est en droit de conclure que les bacilles qui causent le choléra et la fièvre jaune, ne sauraient trouver au sein des forêts des conditions favorables à leur développement.

(A suivre)



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# THE INVESTMENT FIELD

Specially Written for the Illustrated Canadian Forestry Magazine

*In line with our policy of broadening the scope of The Illustrated Canadian Forestry Magazine, we publish each month a Financial Section in which various phases of the Investment field are reviewed. This Section is written by a thoroughly competent and entirely reliable financial authority who will each month prepare an article of special interest to our readers. Needless to say, the department will be conducted along purely informative and educative lines, without any attempt to influence our readers unduly in their financial undertakings.—EDITOR.*

**T**HE relation of the "stock market" to investment is frequently misunderstood. Many associate the stock market with violent fluctuations, according as it is being manipulated up by a professional, "inside" "group of optimistic "bulls", or staged in an opposite direction by a professional and determined—and merciless—group of "bears", out to "smash" somebody, or everybody unlucky enough to "stay in too long."

Those who feel this way of the stock market are perfectly certain that "whatever goes up is sure to come down," and that over a defined period, of a comparatively short space, there is no net gain in the price of a security; an advance of ten points being followed inevitably—as under "the laws of the Medes and Persians"—by an equal decline. Hence the theory that no man can win on the stock market without inflicting a loss either in bulk on one individual, or all of it distributed at least.

## Has Constructive Functions

Such a view disregards, in the main, the real constructive function of a stock exchange, and narrows it down to a medium for speculative investment. It is quite true that there are well recognized cycles of advance and decline in securities—stocks as well as bonds—just as there are cycles in commodity prices, in interest rates, in cost of labor, and so forth. Hence it follows that as interest rates went up during the latter portion of the War and the inflated period following the Armistice, bond prices declined in order to maintain an equilibrium of yield. It necessarily followed that stocks—common and preferred—went the way of the bond market, where it was felt they were stabilized as to yield: went down first, as did bonds, and later on, but following afar off, began a gradual upward movement which has been in process for a few months now and should continue for several years, until interest rates begin to reverse and start up on a new cycle.

## Stocks and Bonds Compared

There is an essential difference, however, between the movement of bonds and stocks, and one that is too little appreciated by intending investors: in a bond the unit of valuation is more or less a fixed, unchanging quantity, whereas in a stock it is apt to fluctuate widely. That is, the element of the interest rate in a bond remains unchanged during the entire period of its life: if it begins at six per cent. it continues at six per cent. and at maturity is redeemed at par, or 105 or at whatever premium was pre-determined when the issue was made originally. In a good class bond the maintenance of the interest payments and the final redemption may be regarded as reasonably assured. In a word, a safe investment, with a minimum of risk, and—as in commercial enterprises as a rule,—for that very reason offering not as much inducement in profits from increasing value. Risk much? Win—or lose—much.

The preferred stock holds an intermediate position, and, usually, ranks much higher as an investment than the common stock. It resembles the bond in having a fixed rate of interest, termed, however, a dividend. As its name implies a preferred dividend has a prior claim for payment out of earnings, and far fewer preferred dividends have been passed in the past 18 months, than common. Usually a reserve is created behind the preferred dividend as a fair guarantee of its being maintained, before a common dividend is begun. In many cases, even if a preferred dividend is passed temporarily, there is a provision, whereby it accumulates, and eventually is paid; hence the term "cumulative preferred stock." If a common dividend fails to be met it is rarely that the shareholder ever receives what he feels like considering as "arrear" in dividends. In this respect, again, the return from a preferred stock is much more assured than that on the common.

Under these considerations the price of a first class preferred stock paying 7 per cent. runs around par or even more unless interest rates stand high, and the better

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preferred stocks to-day are working towards this mark and some have even passed it, as the table in last issue indicated.

All this may appear to leave little to a common stock to recommend it as an investment. And, indeed, this is true for the most part. There are few common stocks listed on the Canadian Exchanges that can be considered as other than "speculative" investments, wherein, "trust" funds and those of investors who "cannot afford to lose" should not be hazarded.

### Speculation Has Attraction

It is this speculative element, on the other hand, that is the real attraction for most investors in "common" stocks. They may lose, yes; but they may also gain, and the hope of this is eternal. Where the early dividends are small, or where none has been declared, the price naturally is far below par and a purchase holds out the hope of a big margin of profit—an increase in "capital" account rather than a return in interest. It is in these speculative stocks, of course, that the real "profits" on the stock exchanges are made; here, too, where the big losses are registered.

With the maximum of safety and of assured, stabilized return, the minimum of "profit,"—and the minimum of loss. And the speculative stock works out in a converse manner.

The anticipation of capital profits from the common stock transaction is based on the probability of increasing earnings which, in turn, will warrant high dividend declarations. Thus a preferred stock may start far ahead of a common in dividend payments but end far behind it. In the list in last month's issue Dominion Textile common a few years ago sold far below the preferred: to-day its market price is 60 points higher, and its dividend is 12 per cent. where the preferred is 7 per cent. per annum. In the case of Ogilvie Flour Mills the common stock is the highest of any on the Canadian exchanges, over \$260 a share, or 150 points above the preferred. And why? Because it not only pays a regular dividend of 12 per cent. that is looked upon as thoroughly safe, but has paid bonuses of 15 per cent. in a single year, and has reached a point where it is regarded as a high class investment. Even in this, however, there have been heavy fluctuations, and investors on comparatively small "margins" have in many cases been wiped out.

### Danger of Short Margins

This, indeed, constitutes the chief danger in investing in a field outside of good bonds and high grade preferred stocks. So many purchase to the limit of the broker's schedule. If it is a low priced stock on which "ten points" is asked, and they have \$500 to invest, they will promptly give an order for the purchase of 50 shares. If a weakness overtakes the market and this particular stock declines 4 or 5 points, and they have no more money to "protect" it, they are usually "sold out" at a loss of \$200 to \$250. In a sudden drop of 9 to 10 points their loss would equal the whole \$500. This is the unfortunate experience of an astonishingly large number of dabblers in the stock market who are operating "on a shoe string."

Had they been content to "purchase" 25 shares with the margin of \$500, and a decline of 10 points took place there would still be a balance to "cover" their account. If at this point they sold out their total loss would be

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only \$250 instead of \$500, while if the market turned, this would gradually be recovered. Playing with small margins is a dangerous game, and is as near an approach to a gamble as one could imagine.

That is why those who have confidence in common stocks and believe that behind each security lies a legitimate background of successful industrial operation should avoid mere temporary movements that may be the result of manipulation, and carry on their investments with a view to a fairly long hold, and protect them by an ample margin. Buying on the "instalment" plan is worthy of consideration and will be touched on next month.

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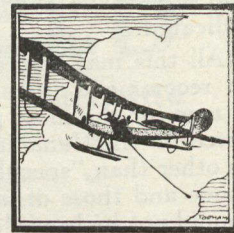
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## Application of Wireless to Forestry and Aviation

Useful for reporting results of Aerial patrols and speeding up communication with out-lying districts.

By CARLISLE SHANNON

WITH the opening of so many large and powerful radio broadcasting stations throughout the country, it is quite natural that a general interest is being taken in radio by the public at large, resulting in the present stupendous boom in the radio industry.

Radio broadcasting has placed within the reach of thousands of people, a highly valuable service, which, to many, has been hitherto inaccessible. The world's greatest living singers and musicians are brought to your home nightly. Bedtime stories for the kiddies, church services, baseball scores and even plays are also entered in the list of radio entertainment. But aside from its entertaining qualities, radio has an educational field as well. Various government stations scattered throughout the United States broadcast information highly valuable to farmers, ranchers, business men and people in all walks of life. The government observatory weather forecasts and standard time signals, market crop conditions, stock market reports, storm warnings, talks on farming and gardening and on civic improvement, items of special interest to all classes of people and the latest news of the world are all sent out daily through the invisible ether.

### Possibilities for Forestry

That radio has wonderful possibilities in Canada cannot be denied. It provides a rapid and reliable means of communication between widely separated cities and towns, and in isolated places brightens many otherwise dull hours. In conjunction with aviation, radio has already proven its value in the maintenance of forests. Radio equipped planes patrolling the forest areas are able in a few minutes to give warning of an outbreak, and by means of charts, may give the exact location of the fire to a receiving station on the ground. This has resulted in the checking of many fires before much serious damage was done. Another application of radio to forestry is that it provides constant and almost instantaneous communication between a lumber camp and a remote central station, where otherwise only the slowest communication would be possible. This will prove of inestimable value in case of accident, shortage of supplies, etc., and makes reports on the progress of the work easily available.

### The Direction-Finder

The radio direction finder has been a great help to ships at sea and aeroplanes which have lost their way. When a ship's master wants to know his position, he simply calls up a direction finding station, which, working with another similarly equipped station, is able in a few minutes to give the exact location of the vessel, even though it be out of sight. These direction finding or "gonio" stations, as they are called, are used in guiding

the passenger planes which fly between France and England.

Unfortunately there are at present but few good broadcasting stations in Canada. However, there are many large stations in the United States which are close enough or have sufficient range to be heard plainly here.

### Advice to Beginners

A few words of advice to the would-be radio enthusiast may not be amiss here. The first two questions which the uninitiated usually ask are, "What do I need to hear these broadcasts?" and "How much will it cost to install a set?" The answers to these questions differ widely with existing conditions. Let us suppose you are located within fifteen miles of a powerful broadcasting station. In this case the apparatus required will be fairly simple and inexpensive. But if you want to hear the broadcasts from distant cities or fill a room with the signals, the apparatus becomes more complex and expensive.

It might be well to mention here that a government license is necessary for the operation of a receiving set. This may be obtained at any of the post offices in the larger cities or on application to the Deputy Minister of Marine at Ottawa. A fee of one dollar a year is charged for this license. For receiving there is no restriction on nationality but for transmitting, the applicant must be a British subject.

With many of the departmental, hardware and music stores entering the radio supply field, many people are misled in buying a set. This is due simply to the ignorance of the clerk, many of whom know nothing about radio. The writer has heard a salesman telling a prospective customer that a simple crystal set would receive the concerts from a station nearly 600 miles away. This is, of course, out of the question. It may happen on certain "freak" occasions, but cannot be expected to occur regularly.

Before buying a receiving outfit, the prospective purchaser would do well to look into the situation carefully. If you are located more than 15 miles from a broadcasting station it is useless to invest in one of the simple crystal sets. Under good conditions the signals might be heard at greater distances but could not be relied upon to come through regularly. To cover greater distances a "valve" set is required. This type of set employs vacuum tubes in place of the crystal and is capable of getting signals over a much greater range than the crystal set. By the addition of more valves to the set, music and speech may be amplified enough to operate a loud speaker, so that the whole family may enjoy it.

*Continued on page following.*

**Programmes Are Free**

Another question often asked is, "Do we have to pay for these broadcasts?" The answer is "No". Broadcasting is done entirely at the expense of the transmitting station. However, a large number of these stations are operated by manufacturers of radio apparatus and the sale of sets to the public has more than compensated for the expense involved in operating them.

In general, my advice to the would-be enthusiast is as follows:—(1) Ascertain the distance to the farthest station you wish to hear and make your purchases accordingly. (2) Seek your advice from someone who actually "knows the game." (3) Buy your apparatus from a responsible dealer. You would not buy a piano from a furniture house if you wanted the best, so why buy a radio set from a hardware dealer. (4) When buying an outfit, remember that you do not have to have it all at once. A receiving set with one valve will detect signals from a great distance when properly installed and operated. Amplifiers and other accessories may be added later. (5) Learn the function of the different parts of the set so that you will know how to get the most out of it and in case of necessity make repairs to it.

**CONGRATULATIONS**

Editor "Illustrated Canadian Forestry Magazine,"  
Ottawa.

May I offer congratulations on the recent improvements in the "Magazine"? The "Magazine" now has a wider appeal than formerly, and I hope you find a corresponding increase in circulation.

Yours very truly,

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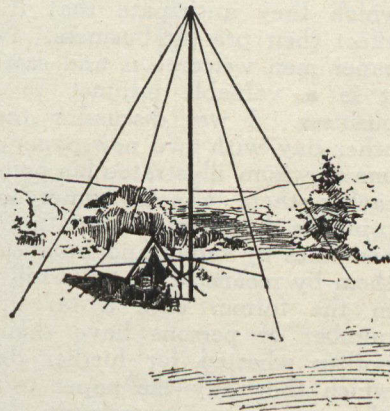
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# "I'll Tell the World" Says Radio

Canada has contributed more to Radio History and will benefit more from it than any other country.

By A. H. MORSE

Managing Director The Marconi Wireless Telegraph Company of Canada Limited

**T**HE subject of this article—were I a parson writing to a text—might very well be "I'll tell the world." This slogan probably had no real meaning when it was originated but now it beautifully epitomizes the function of the radio broadcasting station.

At the outset, I may state, without fear of successful contradiction, my belief that more radio history has been made in Canada than in any other country of the world. As part evidence of this, it may be cited that the Marconi Company established and regularly operated the first radio-telephone broadcasting station in North America, which means that it was the first in the whole world. This station was and is still established in Montreal.

One sometimes wonders what was the reason that radio-telephonic broadcasting and all its potentialities lay pigeon-holed for some two years. It appears that it had to await the appreciation of its potentialities by the Press; they in turn, focused upon it the attention of the public and, unfortunately perhaps for Canada, this first took place in the United States.

## Importance To Canada

Needless to say, the development of radio broadcasting has a greater significance for Canada than for perhaps any other country in the world and one of the most important results will be that within a few months at least half a million square miles of territory now regarded as isolated, will become an attractive territory to prospective settlers, to whom life would be impossible if they were entirely out of touch with the culture of civilization, which to so many is expressed in terms of news and music.

One needs no imagination to appreciate what the radio broadcast will mean to the farmer and to persons in isolated locations. A case came to my notice only recently where a surveyor left for the Northwest of Canada equipped with a wireless receiver for taking the broadcasted time signals to check his chronometer. He incidentally arranged with a friend having control



A. H. Morse

of a broadcasting station, to listen in each night at a stated time for the news headlines and a little music. One can picture this lonely surveyor doing a two-step before his wireless receiver in the presence of a lonely landscape, brightened only by the fire kindled to cook his pork and beans.

## The Hall Air-Jet Relay

There has recently been invented an instrument, which was largely developed in Canada, called the Hall Air-Jet Relay. By means of this instrument, in conjunction with the standard Marconi equipment, it is possible to secure a tape record of any telegraph signals which are of sufficient strength to be even indistinctly audible on a telephone receiver. It is capable of recording wireless telegraph messages at a speed much above that at which the messages can be read by ear and I have no doubt that some day it will come to be used in connection with a commercial broadcasting service of which the procedure will probably be as follows:—

At a given time each day, market reports, for instance, will be broadcasted at high speed, and the broadcasting company will lease to subscribers the necessary equipment to enable them to take advantage of the

service. Suppose the broadcast is due at 6.00 p.m. daily. At a minute or two to six, some person at each receiving station will check all the predetermined adjustments and start the tape running. Alternatively, it will be an easy matter to arrange for the automatic starting and stopping of the tape by the transmitting station. The result will be that there will be a visual record of the broadcasted information, which information will be available only to persons equipped with the necessary recorder and can be read at leisure.

Take the case of a farmer; he might be out around his farm when the message was received. For the first few days, he would decipher the message by the aid of his Morse Code Card, but any person may learn to read the Morse Code in about an hour, and consequently the farmer would not need his card after the first few days; moreover, he would be able to file away his tape record for future reference.

## Attitude of Public

It is interesting to contemplate the attitude which people in different spheres of activity adopt toward the radio broadcast. They are disposed to regard it with very different feelings according to the way in which they anticipate that it will affect their present business. Newspaper men welcome it and say that it is a valuable adjunct to their business. I was discussing this the other day with two newspaper men, one of whom illustrated his point by saying there was no difference in principle, between broadcasting news headlines by radio, and broadcasting them by means of contents bills, but in the former case a far greater number of persons have their appetites whetted for further details, which they buy the paper to read. Naming a very prominent English politician, he said "supposing tomorrow we broadcasted that so-and-so was assassinated today," when his friend interpolated "and a very nice day for it too."

Telephone companies likewise are not alarmed at the possible effect of the development of the radio-telephone, nor in a general way are the

churches. In connection with the matter, however, it is interesting to note that many churches have conceived an obvious enthusiasm for broadcasting their services by radio and then suddenly lost their enthusiasm. It may be that the obvious advantages of broadcasting to sick members of the church are inclined to be outweighed by the prospect of other members, not sick, being content to stay in bed and hear the service. It is no longer always possible to prove that your boy went to church by asking him what was the text, because he may have "listened-in" to the text in some barn, in the intervals of an exciting rat-hunt. The time may come when the small village church will borrow its music from the city church some hundred miles away. For that matter, it may also borrow its sermon, and rely for its "local colour" on the collection.

Bernard Shaw claims that honesty varies with the strain that is put upon it. This is no doubt true—therefore, if we assume as we may, that the racing bookmakers of the future will receive instantaneously by radio broadcast, direct from the course, the results of every race, dishonest persons such as wire-tappers, will no longer be disposed to place bets

after a race is run. If this application of the radio broadcast had been applied when it was first available, many an enterprising man now in jail would no doubt be enjoying his freedom.

One of the most attractive uses of the radio broadcast is obviously the entertainment of bed-ridden persons. Even today, they have considerable facilities of this sort available, and in at least one case they were made use of over a year ago.

### The Utilitarian Aspect

The present novelty and consequent enthusiasm will of course diminish somewhat; but as it diminishes the utilitarian aspect of broadcasting will surely come more and more to the fore. One important point must always be borne in mind, and that is that, power for power, radio-telephony has only about half the range of radio-telegraphy, and that, as compared with telegraphy, telephony is a slower and less positive means of conveying intelligence. Another point to be borne in mind is that the radio-telephone message does not make a visual record possible, and does not lend itself very readily to an aural record; whereas it is now very simple to record a wireless telegraph message and the apparatus is

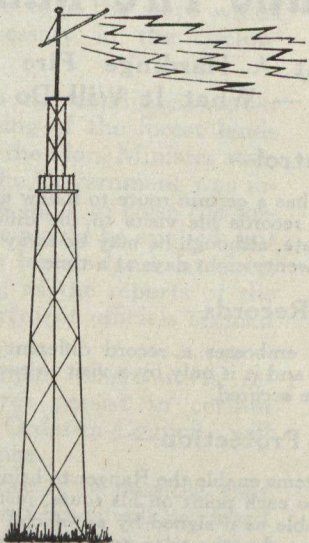
neither costly to instal nor difficult to operate. By the same means and at no excessive cost, the wireless telegraph message may now be automatically printed in Roman characters. When these various points are considered, it will I think, be evident that, the mechanism being available, there is a great field for the commercial broadcasting of useful information to subscribers only, and the mechanism is available.

I do not consider that radio broadcasting should be any source of alarm to manufacturers and dealers in phonographs, etc., because their business organizations can be so readily adapted or extended to embrace the radio field, and gramophone manufacturers will no doubt do a considerable business in radiophone receivers fitted into cabinets.

I have no definite information about broadcasting in France, but I understand that it is being extensively practised there. In England, there are not yet any regular broadcasting stations, as we know them, but a considerable number of amateurs spread over England take advantage of the operation of an excellent broadcasting station in Holland.

The proposal in the United Kingdom is to license a limited number of

(Continued over page)



MULTIGRAPHING  
ADDRESSING  
MAILING

JOB PRINTERS

## S · O · S MESSAGE

Mr. Reader:—

Like the **Radio**, the **S. O. S. Direct-by-mail advertising** reaches the **prospect** direct. Send your message by the new, quick and economical system that commands the same attention as a **personally** written letter. Our **Multigraph Service** is continually getting **results** for our many customers—**why not be one of them?** We supply mailing lists.

Write us

**SAMPSON OFFICE SERVICE**

Limited

317 LISGAR STREET

OTTAWA, ONT.



broadcasting stations to operate between 5.00 and 11.00 each day, Sundays excepted, but I believe no such licenses have yet been issued. Fortunately, in Canada the Government adopts a very broadminded attitude to radio broadcasting; being governed by the idea that it is best to start with as few restrictions as possible and apply them only as experience suggests.

The relation of broadcasting to merchandising and advertising is still very much open to restriction or adjustment. In this connection I have secured from Commander C. P. Edwards, the Director of the Radio Service of Canada, a statement as to the attitude of the Service in this regard. This statement is of sufficient general interest, I believe, for reproduction here:—

#### Comm. Edwards' Statement

"Radio broadcasting is in its infancy and the question of direct advertising is one which will have to be dealt with in the near future.

"Canada has, so far, taken no direct action in regard to advertising and, up to the present, has not forbidden it. Should however, the majority of the public installing

"receiving" sets indicate to the Department that they do not want to listen to advertising, then, having regard to the fact that the number of wave lengths available for broadcasting services is so distinctly limited, the Government will undoubtedly pass regulations forbidding the use of this new medium for straight advertising purposes.

"In view of this contingency, licensees who are taking out broadcasting licenses at the present time, are being warned that if they instal their sets for no other purpose than to advertise their wares, they must not be surprised if such a regulation is passed at any time.

"There is every indication from experience so far gained, that the public do not want to listen to advertising, they want to be amused, and it is worthy of note that the big commercial companies in the United States who are operating broadcasting stations have eliminated all advertising from their programmes.

"It is possible that the 'toll' broadcasting station may provide a useful means for limited indirect advertising. To make such a service successful it would be nec-

essary to place them on a wavelength all by themselves, so that if the public did not want to listen to what they had to say, they could shift over to another wavelength and cut them out.

"The United States Committee appointed to advise the Secretary of Commerce in regard to radio matters and representing all classes of radio interests, made the following recommendation in regard to advertising:—

'It is recommended that direct advertising in radio broadcasting service be absolutely prohibited, and that indirect advertising be limited to a statement of the call letters of the station and of the name of the concern responsible for the matter broadcasted, subject to such regulations as the Secretary of Commerce may impose.'

"The British manufacturers and wireless interests appear to be of the same opinion."

This official attitude, as expressed by Commander Edwards, is I submit, thoroughly broadminded and logically sound.

You must be nourished in  
**SUMMER** as well  
as in **WINTER**

The less food you take the more nourishing it should be. The lighter the meal, the more you need Bovril. Bovril is not only extraordinarily nourishing in itself, but enables you to extract more nourishment from other foods.

Try Bovril Consommé Iced, Bovril Sandwiches, and add Bovril to Cooked Dishes.

# BOVRIL

## Systematic Fire Ranging

This Is What A Hardinge Fire Ranger's System Does — What It Will Do For You

### Systematic Patrol—

Each Ranger has a certain route to follow and the Hardinge system records his visits to the different points along that route, although he may be away from Headquarters for twenty-eight days at a time.

### Indisputable Records—

Each Station embosses a record different from every other station, and it is only by a visit to each that these records can be secured.

### The Ranger's Protection—

Hardinge systems enable the Ranger to bring in a record of his visits to each point on his route, just as indelible and indisputable as if signed by an official of the Company—showing also the time each visit was made and the time elapsed between stations.

### Results Speak—

One Quebec Association tested six systems in 1921. This season forty-two of their Rangers are using Hardinge systems.

**Hardinge Bros. of Canada, Ltd.**

50 Front Street East, Toronto, Ont.

# Quebec Curbs the Fire Vandal

THE Government of Quebec on June 7th passed an Order-in-Council closing the forest lands of the province to all save those in possession of a permit. The Minister of Lands and Forests, Honorable Honoré Mercier, stated that the principal reason actuating the members of the Cabinet was the fear that unless some drastic step were taken the fires this year would repeat the terrible record of destruction caused last year. "The fact is" said Mr. Mercier, "that it will take a century of time for the forests of Quebec to recover from the frightful fire losses of last year. That was bad enough and this year so far conditions have not been much better. As a matter of fact, in some sections conditions are actually worse despite the valiant efforts of all the forces arrayed on the side of protection. In one very valuable and important section the burned area comprises no less than one-third of the entire surface. The fire losses represent something like ten million dollars in cash and if you want the equivalent in timber acres it can be set at 800,000. These are simply colossal figures. People do not seem to grasp the significance of this annual orgy of destruction of provincial resources. If they did it would not be necessary to take the steps which we found necessary in the circumstances.

Order-in-Council passed recently, close the entire forest lands of the Province until such time as conditions improve."

Reverting to a discussion of the causes that led up to the passing of the Order-in-Council, Mr. Mercier stated that during 1921 the number of fires that occurred reached the grand total of 1,124. The department had been making an exhaustive inquiry

into the causes of these fires, and the result showed that only a small percentage of them could be accounted for, the balance being divided among settlers, visitors, campers, sportsmen. The report tabulates the various causes as follows:

Settlers' clearance, 260; railway causes, 199; travellers, 620; divided as follows: drivers 36, explorers 1, guards 2, hunters and fishermen 51, berry pickers 33, vagrants 93, forest employees 23, campers 18, unknown persons 281, divers causes 45.

Referring to the conditions under which the closing of the forest lands will be applied the Hon. Minister stated that, now the Government was invested with the right to close the forests, the closure would be applied, not over the whole forests lands at once, but in sections, as the reports of the Forestry Department officials seemed to warrant.

"For example, where it is reported that fires persist in certain sections, the Order-in-Council will be applied at once.

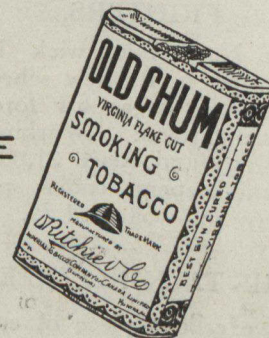
"In this way it is possible that much of the forest lands will be closed at an early date, but on the other hand, the Order-in-Council may be regarded as a Government measure of reprisal as well as prevention, and that in sections where it is reported that care is being exercised and good fire conditions prevail, the closing order will be held in abeyance. Of course, it must be understood that should the circumstances warrant the procedure that the Government can and no doubt will by virtue of the



Everybody Smokes

**OLD CHUM**

CANADA'S FAVORITE  
PIPE TOBACCO



## Plant McDonald's Irises and Peonies



THEY are perfectly hardy, and produce an abundance of sweetly scented bloom, in May and June, year after year. They demand practically no attention, are almost disease proof, and rapidly increase in size and value.

Here is a selection we have made, of really good sorts, covering a wide range of fine colors:

### Peonies

White - - - Festiva Maxima  
 Light Pink - Albert Crousse  
 Dark Pink - Mons. Jules Elie  
 Deep Red - Felix Crousse

The (4) four sent post-paid for **\$3**

White - - - Innocenza  
 Rich Yellow - Mrs. Neubronner  
 Rosy Red - Caprice  
 Rich Blue - *Violacea Grandiflora*

### Iris

This fine Collection postpaid for **\$1**

Our collection includes practically all the "Top Notchers".  
 List ready August 1. Ask for copy.

## Kenneth McDonald & Sons

Seeds, Plants and Bulbs

LIMITED

Ottawa

Canada

### A CORRECTION.

NOTE:—*Betula lenta* should be deleted from the list of Labrador forest trees on p. 831 of the June issued of that publication, and *Betula pendula* should read *B. Alba* var. *papyrifera*.

### HUNTERS WARNED!

UNDER a co-operative arrangement between the Canadian Forestry Association and the Provincial Police Department of British Columbia, 4,000 fire warnings have been supplied to Superintendent McMynn at Victoria and will be issued to all applicants for game licenses.

### NEW WAGE RATE FOR FIRE FIGHTERS.

THE New Brunswick Forest Service, in its new schedule of rates of wages for forest fire fighters, mentions: "Workmen per calendar day and board \$1.00; foremen, time-keepers, cooks, per calendar day and board \$1.75.

### "THE TALKING TREES."

AN excellent piece of educative and propagandist literature has been issued by the Dominion

Forestry Branch under the title "The Talking Trees and Canadian Forest Trees." The first section is devoted to "The Talking Trees" by Mr. James Lawler, B.A., Editor of Publications of the Forestry Branch whose gift of invention and vivid description are well portrayed in the conversations of the trees. Mr. Lawler's story will give thousands of Canadian youths a new and concerned point of view as to the meaning of Canada's black record in forest destruction.

The second portion of the book describes the more important broad-leaved trees and conifers. It is well done throughout, brightly illustrated, and does full credit to the Dominion Forestry Branch.

### MR. BARNJUM'S APPROVAL.

UPON hearing of the decision of the Quebec Government to close the forest to all travellers except on permit, Mr. Frank J. D. Barnjum of Annapolis Royal, N.S. and Montreal, sent the following telegram to Premier Taschereau:

"Accept sincere congratulations on passage of Order-in-Council closing

the forests of Quebec to the public except by special permit. Our forest situation is so critical we must stop at nothing that will conserve our small remaining wood supply, and I thank God that we have a Prime Minister in Quebec who does not hesitate to do his duty."

### A BOON IN WOODS TRAVEL

THAT a good service may be rendered to forest protection while at the same time booming a commercial product is shown by the unique literature put out by the Fly Terror Manufacturing Reg'd., 7 Notre Dame Square, Quebec, manufacturers of a well-tried product called "Fly Terror." To any reader venturing into the bush for recreation or work this preparation can be strongly recommended as a repellent to mosquitoes and flies. It is a distinctive preparation without the unpleasant characteristics of so many of the repellents now on the market. Each bottle is wrapped in a bi-lingual circular containing some very sensible advice on the prevention of forest fires.