

PAGES

MISSING

ILLUSTRATED

20c. a Copy

CANADIAN FORESTRY MAGAZINE

13,000
NATIONAL
CIRCULATION

Vol. XVIII

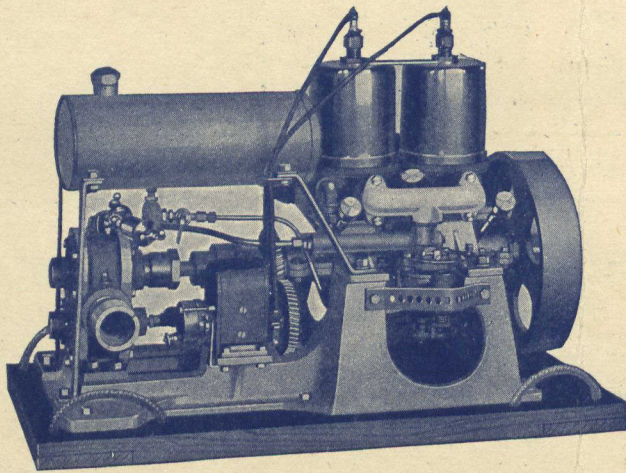
OTTAWA, CANADA, JUNE, 1922

No. 6.



Salmon Angling on the Restigouche River

Protection for Your Limits



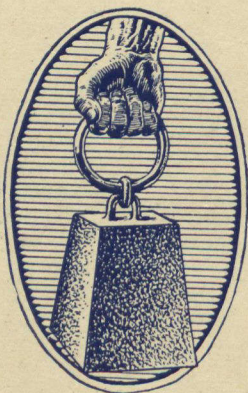
A Fairbanks-Morse Portable Fire Pump in the hands of every fire ranger will protect your timber from destruction by fire.

Fairbanks-Morse Portable 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.

Consisting of a rotary pump and 4-5 H. P. engine, and weighing only 128 pounds, it is an outfit that can be transported in canoe, boat, aeroplane or car, and can be carried over the trail by two men.

*Canada's Departmental House
for Mechanical Goods*



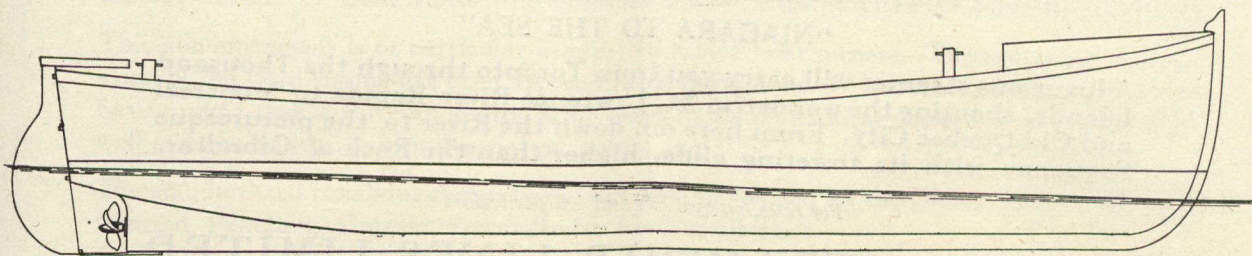
The CANADIAN FAIRBANKS-MORSE CO. LIMITED

St. John	Quebec	Montreal	Ottawa	Toronto
Hamilton	Windsor	Winnipeg	Regina	
Saskatoon	Calgary	Vancouver	Victoria	

Announcement to the
**Lumber and Pulp and Paper
Industries**

We are prepared to deliver for this season's use our new

MODEL "E" WORK BOAT



*PLAN AND PROFILE OF WORK BOAT.
LENGTH 27'-3" BEAM 7'-6"
DESIGN "E" 206
SCALE 3/4"=1 FOOT AUG 24th 1922
MONTREAL BOATBUILDERS LIMITED
LACHINE, P.Q.*

Especially designed for

Towing Lumber, Pulp Wood, Etc.

Transportation of Crews and Supplies.

Can be Equipped with Fire Fighting Apparatus.

And for any use where sturdy construction, seaworthy ability and towing capacity may be essential

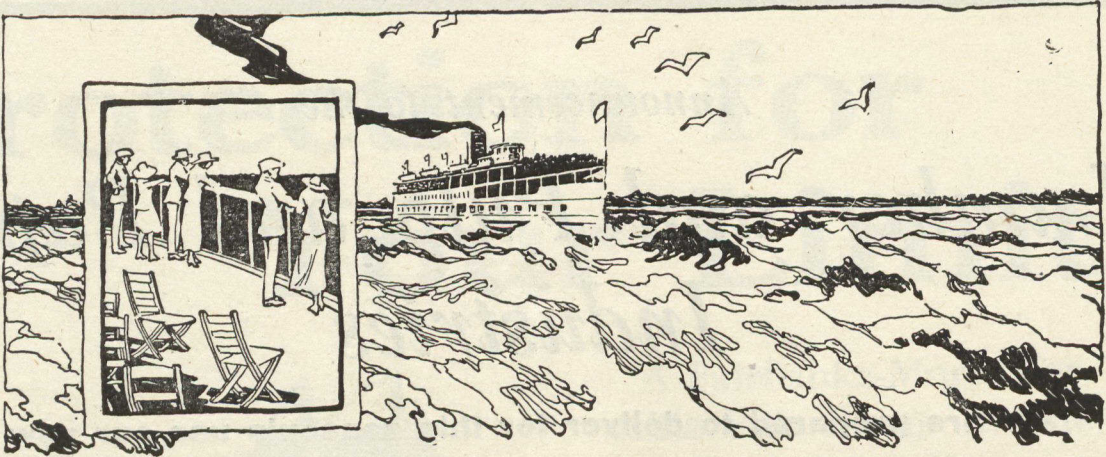
*Full information as to cost, plans and
delivery furnished on application*

We are also designers and builders of all grades of motor-driven craft.

Montreal Boat Builders

LIMITED

371 St. JOSEPH STREET, LACHINE, QUEBEC



A Vacation as the Guest of Nature!

Such is this voyage over Canada's magnificent Lakes and Rivers—a journey where beautiful scenery, thrilling experiences and historic romance follow in delightful succession.

“NIAGARA TO THE SEA”

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.

For rates, reservations and full particulars

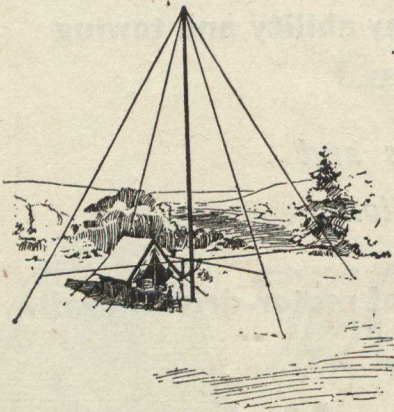
CANADA STEAMSHIP LINES LIMITED
9 VICTORIA SQUARE MONTREAL

MARCONI WIRELESS

TELEGRAPHS - TELEPHONES

For Forestry Work:

Portable and
Semi-Portable Outfits.
Aeroplane Equipment.
Motor Launch Sets, Etc.

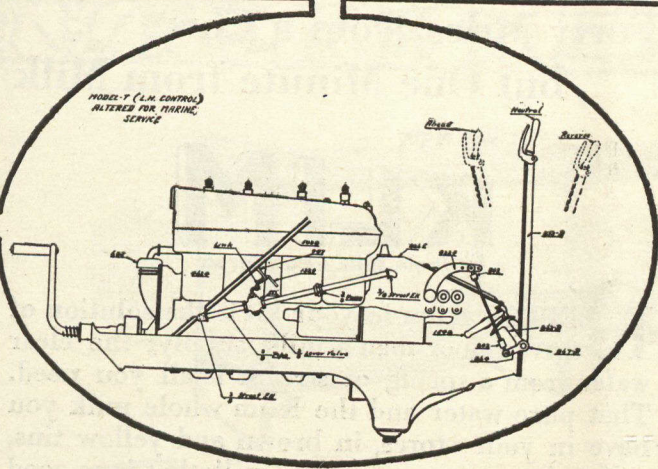


The Marconi Wireless Telegraph Co., of Canada, Ltd.

Marconi Building, Montreal

Dominion Building, Vancouver, B.C.
Arcade Building, Halifax, N.S.

93 King Street, East, Toronto
240 Water Street, St. John, Nfld.



A Ford Engine for your Motor Boat

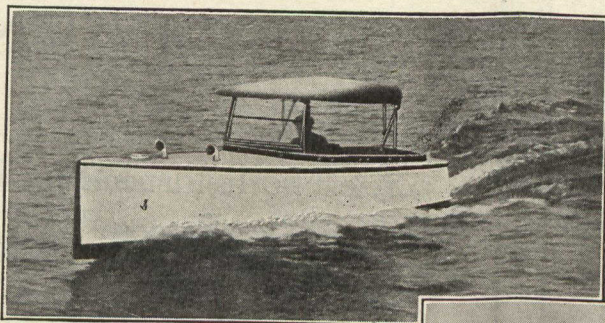
The Ford Motor Company of Canada, Limited, announces a change in policy whereby the famous Model "T" Ford Motor Unit becomes available for purchase as a power unit.

This announcement is of particular interest to motor boat owners. The economy of operation of the Ford engine has been demonstrated in millions of Ford Cars. Exhaustive tests have proved that it will provide the same dependable economical power for motor boats as well as for a multitude of industrial purposes.

The standardized runabout shown below has been developed by the Gidley Boat Company, Limited, Penetang, Ontario, especially for Ford equipment.

It has exceeded the expectations of the builders in stability, seaworthiness and economy of operation.

The standardized Ford equipment on this boat consists of:—



Ford Engine with electric lighting and starting equipment mounted on a standard Model "T" car frame to which is bolted a standard Ford steering assembly.

Standard Ford touring car one man top and side curtain assembly.

Ventilating Windshield, gasoline tank, drain cocks, etc.



"There is a Ford Dealer in every port."

THE FORD DEALER SELLS
GENUINE FORD
PARTS.

FORD MOTOR COMPANY OF CANADA, LIMITED
FORD, ONTARIO.



Forty Miles from a Cow but One Minute from Milk

THE NEW

KLIM

Whole Milk—Powdered

KEEPING Klim in your kit is the solution of the outdoor man's milk supply; the clear water from a spring or stream is all you need. That pure water and the Klim whole milk you have in your stores, in brown and yellow tins, will make a pure pasteurized milk that is as good for drinking and table use as it is for cooking. The Klim in the blue and white can is powdered skimmed milk.

Use it as you would use liquid milk, that is the only recipe needed. It will not spoil. Your grocer can supply you in various size containers—from 1 to 10 pounds.



*KLIM in the brown and yellow tin is full cream milk.
That in the blue and white striped tin is skimmed milk.*

CANADIAN MILK PRODUCTS LIMITED

10-12 St. Patrick Street, Toronto, Ont.

319 Craig St., W.
Montreal, Que.

St. John, N. B.

132 James Ave., E.
Winnipeg, Man.

British Columbia Distributors: Kirkland & Rose, 130 Water Street, Vancouver



Woods' Feather Weight Sail Silk Tents

For cruisers—rangers and hunters.
Takes a minimum of space in the pack—weighs little and provides much comfort.

Write for Samples of Silk and Prices

Woods' Manufacturing Company, Limited

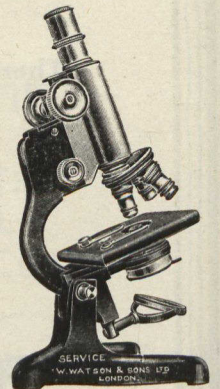
Ottawa Montreal Toronto Winnipeg

INSTRUMENTS

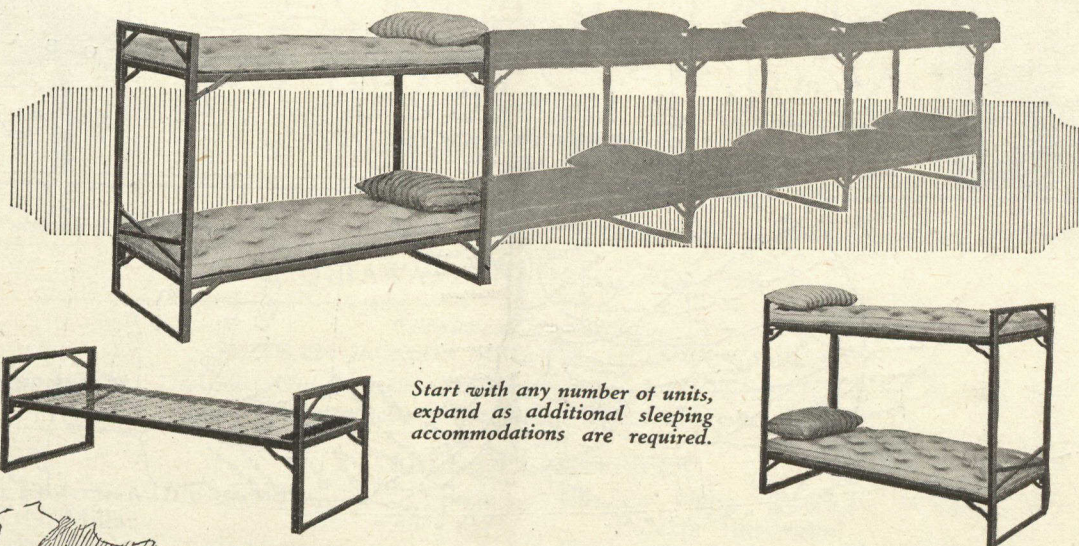
LIMITED

Scientific Instruments for Every
Purpose

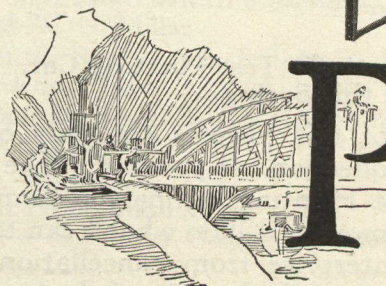
Recording Thermometers,
Pyrometers,
CO₂ Indicators and
[Recorders,
Pressure Recorders,
Thermometers of Every
Description,
Microscopes.



43-45 BANK STREET
OTTAWA, ONT.



Start with any number of units, expand as additional sleeping accommodations are required.



PUT as much time and thought into the selection of the sleeping equipment as you put into the location, arrangement and construction of the buildings themselves, and your choice of bunks will almost invariably be for the *sanitary, enduring, comfortable steel type*, as shown on this page.

Simmons Bed and Bedding Equipment

Large employers of labour will find the services of this organization of Sleep Equipment Specialists adequate to their every need.

Simmons Standardized Steel Bunk Units and Simmons Bunk Mattresses and Pillows cost but little if any more than haphazard equipment, so difficult and costly to move or renovate.

From the plain, commonsense standpoint of comfort, portability and lasting service, no other type of bunk meets the labour-housing needs of large industrial or lumber camps, so completely as STEEL Bunk UNITS. They are strong, sanitary and comfortable. They may be had in either single or double-deck units. You can start with a few or many units and be sure of getting the identical units, when expansion of operations, or as the needs of an increased working force require.

SIMMONS STANDARDIZED STEEL BUNK UNITS are built by the makers of Simmons Beds, Built for Sleep. They are specially designed to satisfy the need of comfortable beds in the sleeping quarters of industrial, lumber and construction camps.

Where clean, attractive and comfortable beds must be provided for vast armies of workers, bunks of this character become a very necessary part of the camp's equipment. Complete descriptions, specifications and prices will be promptly furnished upon request.

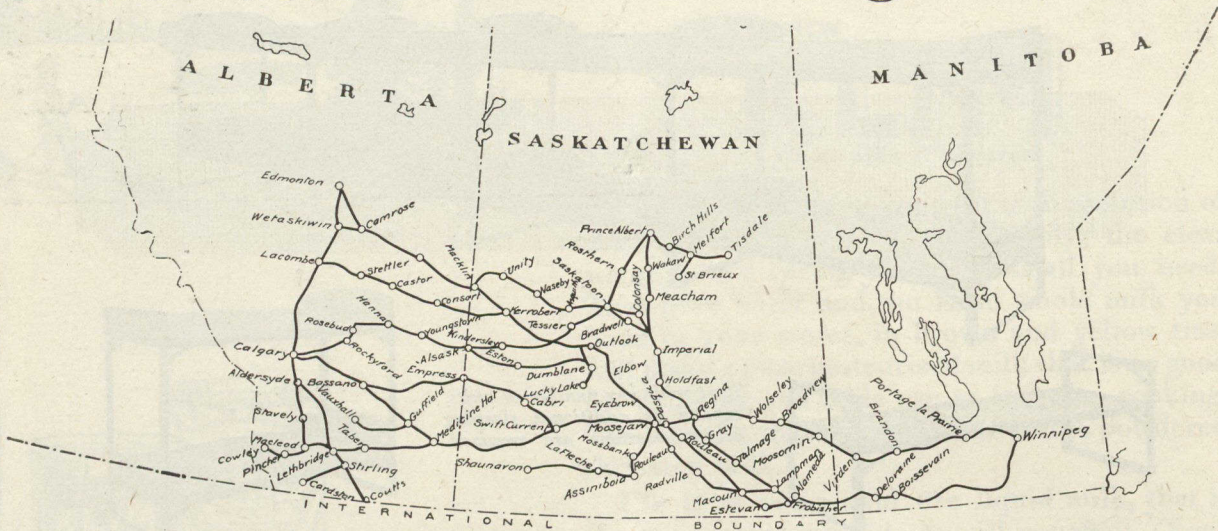
SIMMONS LIMITED

Executive Offices, Montreal

MONTREAL, TORONTO, WINNIPEG, CALGARY, VANCOUVER

SIMMONS BEDS
Built for Sleep

\$5 Carries the Tree Planting Car 5 Miles



Along last year's route of the Canadian Forestry Association's Tree Planting Car, tens of thousands of trees have been set out this Spring.

How long can the Tree Planting Campaign continue?

Eight thousand miles of prairie province territory, with over four hundred public meetings and demonstrations. Thousands of settlers given practical help with their tree planting.

Such was the record of last summer's work in the Western field. And that is merely the skeleton of the story.

Will we be forced to say to scores of communities calling for visits of the Tree Planting Car: "We have no more funds. The campaign will be cancelled before the season is half over."?

The reader of this page is the only one to answer that question. If you say: "The effect of these Tree Planting campaigns cannot be measured in money. I'll do what I can to save this great enterprise from cancellation," fill out the coupon at the bottom of the page and mail it at once.

The Canadian Forestry Association is not a Government institution, and is connected with no commercial interest. It is an association of citizens to press forward forest conservation and the extension of tree planting. No reserve funds! No endowment! With the exception of a few small government grants, every dollar has to be sought and sought hard.

TREE PLANTING ON THE BARE PRAIRIES MEANS BETTER AGRICULTURAL CONDITIONS, BETTER HOMES, PERMANENT POPULATION.

The Tree Planting idea, however, gets nowhere without steam behind it. To go right to the settler's front door, to rouse his interest, his family's interest, to show him "how", to convince him of the practical "dividends" of tree planting on his farm, to guide him during the first few years—this is the unique task of the Canadian Forestry Association in the prairie provinces as regards hundreds of farming communities.

Will this great and far-reaching public service be cut off for lack of a few thousand dollars? it is for our members to say.

Never in the history of the West has tree-planting so gripped public attention and stimulated action as at present. Thousands of prairie towns and prairie farmers have done their first real planting of trees this Spring and are planning bigger efforts for 1923.

The Canadian Forestry Association's work is unqualifiedly endorsed by the agricultural societies of the West, the railways, government branches and women's organizations.

And now what answer will you send us?

Cut off the campaign at mid-summer? Or keep it in action until the close of the year?

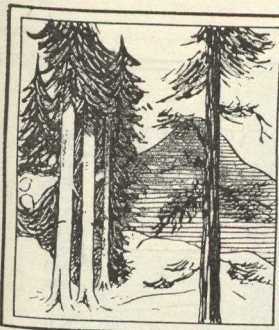
CANADIAN FORESTRY ASSOCIATION,
Jackson Building, Ottawa, Canada.

(Calculate your answer on the basis of \$5 for 5 miles)

Keep the Tree Planting Campaign going another miles in my name. I enclose my cheque for \$

NAME

ADDRESS



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, JUNE, 1922

No. 6

Editorial and Business Offices

SUITE 224 JACKSON BUILDING, OTTAWA, CANADA.

Montreal Office: 274 Union Ave.—Ontario Representative: Joseph McGoey, 18 Toronto St., Toronto, Ont.

Entered as second class matter in Post Office Department, Canada.

TABLE OF CONTENTS

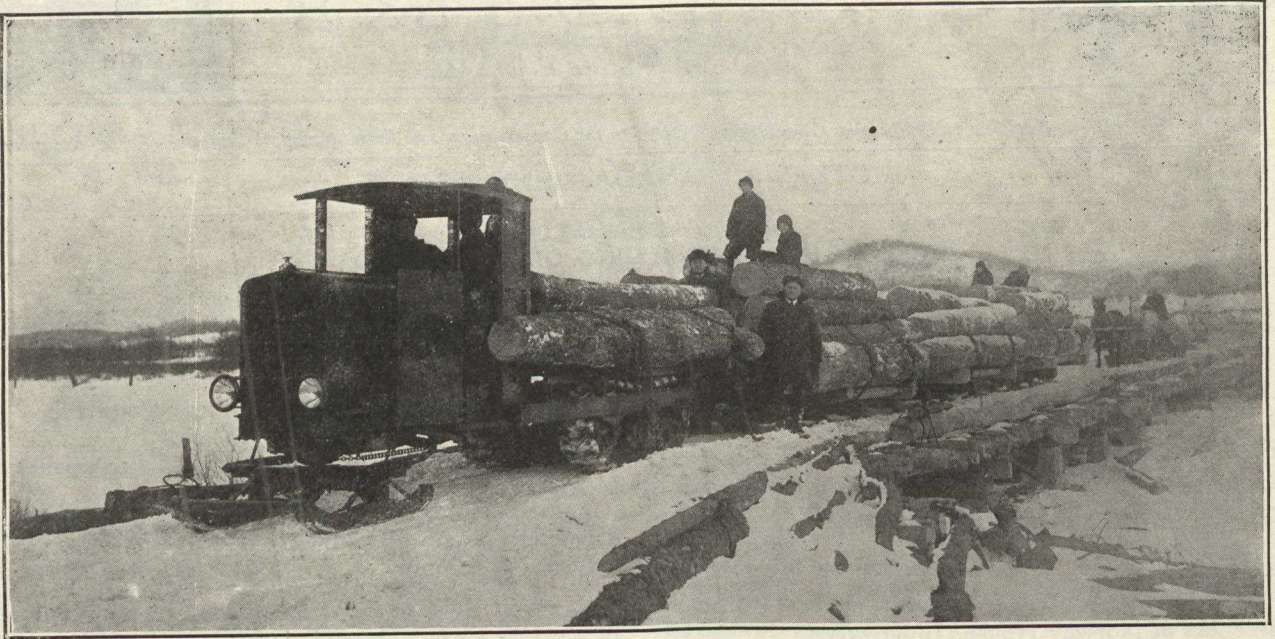
Scientific Forest Protection (Illustrated) by Prof. W. N. Millar.....	Page	Canada Helps Re-Stock Mother Country's Forests (Illustrated).....	Page
	817		838
The Lure of the Rockies (Illustrated) by Frederick Niven.....	818	Public Opinion as a Forest Fire Extinguisher by Robson Black.....	839
Fighting Bark Beetles in Balsam (Illustrated) by F. C. Craighead.....	820	Champion Wood-Cutters of the World (Illustrated) Systematized Fire Ranging.....	841 842
Association Activities.....	822-823	Forests vs. Famine by Rev. C. R. Carscallen.....	843
Briefs about People and Events.....	824	Preston to Develop a Fine Public Park.....	845
Reminiscences of Norway House (Illustrated) by James Lawler.....	825	AERONAUTICAL SECTION	
What Rate of Interest in Cost of Growing Timber? by C. H. Guise.....	826	A Vickers "Viking" Aeroplane for Canada by George A. Mackie.....	848
Where Salmon Leap (Illustrated) by Raymond S. Peck.....	827	Round-the-World Flight of British Aviators (Illustrated).....	851
The Fire That Talked (Illustrated) by Robson Black.....	828	Air Board Events (Illustrated).....	853
The Forests of South Eastern Labrador by E. M. Kindle.....	830	This Believer in Aviation Backs His Belief with Dollars by George A. Mackie.....	854
Harvesting The Wood-Crop by W. M. Robertson.....	832	FINANCIAL SECTION	
Wild Animals of Canada (Illustrated) by William MacMillan.....	833	The Investment Field.....	856
Les Forêts Suisses (Illustrated).....	834	(Especially written) The "Albacore" a Trim Craft Montreal Boat Builders Busy.....	859
Editorial.....	836-837	Personal Mention.....	864

INDEX TO ADVERTISERS

(Alphabetically arranged)

Betty Brand Milk.....	Page	Imperial Tobacco Co. of Canada.....	Page
	844		863
Bovril.....	859	Instruments Ltd.....	812
Business and Professional Directory.....	846	Johnson Detachable Motors.....	845
Canada Steamship Lines, Limited.....	810	Klim.....	812
Canadian Explosives Limited.....	843	Laurentide Air Service.....	849
The Canadian Fairbanks-Morse Co., Ltd. Inside Front Cover.....	853	Linn Logging Tractor (Mussen's Ltd).....	816
Canadian Fire Hose Co., Ltd.....	853	The Marconi Wireless Tel. Co. of Canada, Ltd.....	810
Canadian National Railways.....	861	Kenneth McDonald & Sons, Ltd.....	864
Canadian Pacific Railway.....	861	Lewis, Apedaile and Hanson, Inc.....	849
Can. Woodlands and Pulpwood Agency Reg'd.....	864	Montreal Boat Builders, Limited.....	809
The Crabtree Co., Ltd.....	842	Province of Ontario.....	858
Delco Light.....	860	Pulp & Paper Companies.....	847
The E. B. Eddy Co.....	843	Royal Bank of Canada.....	856
Ericson Aircraft Ltd.....	850	Semmelhaack-Dickson, Ltd.....	844
Ford Motor Co. of Canada, Ltd.....	811	Sampson Office Service.....	852
Globe and Rutgers Fire Ins. Co.....	843	Simmons, Ltd.....	813
Grand Trunk Railway System.....	862	Tobacco Products Co., of Canada.....	855
Grant-Holden-Graham, Ltd.....	844	Vickers, Limited.....	852
Gray Rocks Inn, St. Jovite, P.Q.....	842	Waterous Engine Works Co.....	Outside Back Cover.
Greenshields & Co.....	857	Windsor Hotel, Montreal.....	842
Hardinge Bros. of Canada, Ltd.....	855	Woods Manufacturing Co., Ltd.....	812

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



Air Board Photo from 5000 ft. altitude

by Major B. D. Hobbs and J. R. Cairns.

Forest burned off completely at Bird Lake, Manitoba, viewed from the air

Scientific Forest Protection

Some Further Hints on Organization of Fire-Fighting Forces

By PROF. W. N. MILLAR.

The duties of suppression staff officers in a Forest Protection Organization are five in number and give rise to five separate departments, but it is seldom, even in a very dangerous region, that all are separately organized.

Transport

The transportation problem becomes important only when relatively large fires must be fought at a considerable distance from a base of supplies. Its difficulties arise more from the poor quality of the lines of communication over which transportation takes place than from any other factor. Crews seldom exceed 100 men though more than 1,000 have at times been engaged in one locality. Distances are sometimes considerable, frequently 25 miles beyond the railways, sometimes more than 100 miles. Wagons, boats, or pack-horses are the usual equipment employed. Sometimes motor-cars may be used but on the other hand it is sometimes necessary to pack supplies on men's backs. When, as is nearly always the case in the western forests, pack-horses are the only feasible means of transport, the maintenance of a hundred men on a

fire-line is quite as difficult a transport problem as is the maintenance of 2,000 or 3,000 men in a country where modern motor-trucks may be employed.

The transport service in a specialized force is seldom under the direct charge of the supervisory officer having immediate charge of the smallest fire-protection district or unit of area. As a rule ten or more such districts are combined under an officer of higher rank and the transport service for the entire group is handled from a central headquarters. Where necessary a chief transport officer, generally called the "pack-master," is employed for this purpose.

A very important element of transportation is the condition of the lines of communication, such as roads and trails. It must be the constant aim of a forest-protection force to improve these lines at every possible opportunity. In the accomplishment of this an intercommunicating system is of the highest importance. Its value arises from the fact that in scarcely any forest region is the fire season continuous, but owing to rains there are periods of greater or less length when no fire is likely to occur. The efficient organization will plan to use the fire-

protection staff during such periods for the extension or improvement of lines of communication. This is accomplished by preparing in advance careful plans for necessary improvements to roads, trails, or other permanent works, distributing the work as much as possible to all districts. Immediately on the occurrence of a heavy rain, the fire-control force is swung on to improvement work through the medium of the intercommunication system and is kept employed on this work at the discretion of the supervising officer until conditions again require a return to fire-control duties. The amount of work that may be accomplished in this way depends on the seasonal conditions but it rarely happens that a fairly considerable total does not result from careful preliminary preparation and skilful use of opportunity and of the means of communication available.

Commissary

The bulk of the material handled by the transport service to fire-fighting crews is food. This is supplied in the most successfully organized forest districts through a central

(Continued on page 861)

The Lure of the Rockies

By FREDERICK NIVEN

I HAD seen great rivers flowing between wilderness mountains; eddies half-a-mile in diameter spinning slowly like strange circular mirrors under the sky; the ceaseless polished rush of waters ending in the ceaseless white scroll of rapids, with a fish-hawk overhead. Hurrying tourists in western Canada can see all that without leaving the observation car. The roar of the echoes of the wheels suddenly dies away and they are launched over a bridge (some thousands of tons of steel spanning a gorge) and see eddy and whirlpool, revolving log and reflected cloud, and pass on.

I had stolen leisure to see a little more than these tourists see, such as the high land above timber, mile after mile of heather, or of heath, where the marmot whistles plaintively and the grizzly bear strolls along with lolling head. And suddenly I was appalled by the scenic splendors that had delighted me. There came into my mind what I had read regarding the thudding of the Pacific tides on the continental shelf, with a weight of so many trillions of tons per square mile, affecting (so goes the theory) the semi-liquid part of our globe just below its solid sheath, and urging certain acids upward, to change one stone into another—Nature an alchemist. I thought also of the pronouncement of some scientists that the pulsing of these tides is ever pushing the Rocky Mountains on to the prairies—at the rate of what? I forget. An almost microscopic fraction of space in a million years. Of course these recent theories may be proved all wrong, or

only half-truth, to-morrow. Even apart from the occasional charlatan, or the savant rendered suspect by reason of his having "an axe to grind"—or, otherwise, "a bee in his bonnet"—adding confusion to the difficult, in most sciences we have a procession of men refuting pronouncements of their predecessors. Sense or nonsense, I had read all that; it persisted in my mind as a bar of music may persist, with or without high musical value, willy-nilly, and it was by reason of these wild, yet probable statements, that something in the nature of terror came to me on the monstrous slopes of the Rocky Mountains. I was like the child in Henley's poem:

"When you wake in your crib
You an inch of experience,
Vaulted about with the wonder
darkness . . ."

Surrounded by these peaks, vaulted over by the tremendous drifting arrangements of vapour, grey and grey-blue, and ghostly clouds like shreds of steam, I realized that I had lived too long in the apparent, the superficial, security of houses, walked too much in streets dusted by the scavenging department, lunched too long in soft-carpeted restaurants forgetting that the illumination over the table was but harnessed lightning, seen too long the windows of pastry-cooks and confectioners, and silk merchants, and the delightful bric-à-brac for corner cupboards, in Regent Street.

A horrific sense of insecurity rushed upon me. There was some kind of shrub grew at that place; and one

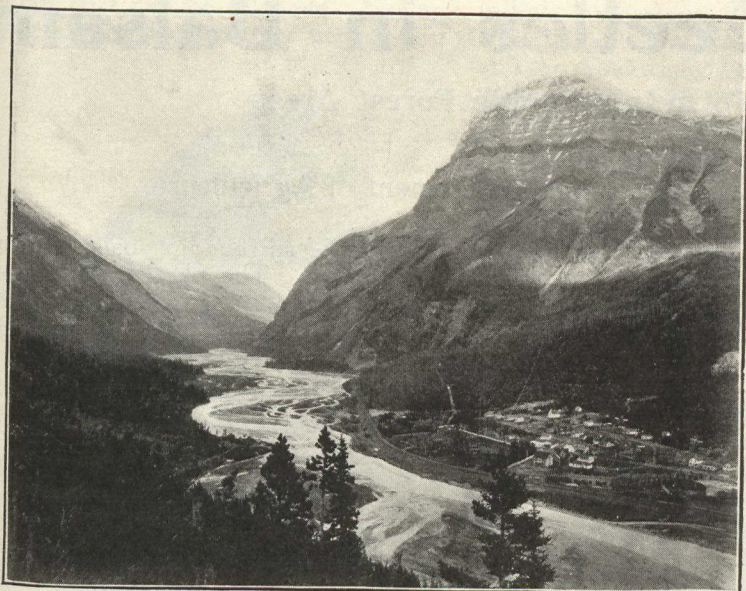
side of a stretch of it, about a mile long, was neatly cut, as though by aid of a measuring tape, making it look like a trimmed box hedge, such as one sees in Suburbia. It was no gardener in a bowler hat that had done that clipping, but an avalanche of snow, gardening away up there where hardly ever a man comes. I sat and wondered over the riddle of our days, as men must always have wondered. That enquiry (which has the impression of bafflement between the lines in Darwin and Hæckel and Bergson; a smile and a shrug in Andrew Lang; seems perturbed in Lodge; tranquil, spiritual, poetic in Myers; hopeful, almost radiant in Gustave Geley) was in me there, in all my consciousness.

Eight thousand feet below, in the dining-car of the Trans-Canada, rushing past to Vancouver, people would then be sitting down, as easily as in the Ritz, unfolding the napkins over their knees, before electro-plate covers, neatly flicked in front of them by waiters (or is it stewards on a train?) in white jackets. I envied them, for a moment, their sense of security, till I realized it is only a relative sense of security. Next moment I was glad to be there, where I was, alone with the tremendous clouds and the miles of avalanche-pollarded brush, and the wind rushing down off the glacier as the warm air rose from the valley below.

I strove to exercise that feeling of my insecurity among these vast natural monuments of boulder and rocky crest reflecting a violet light, so that I could fully enjoy the lunch-time rest up there; but as I sat on my



The Selkirks



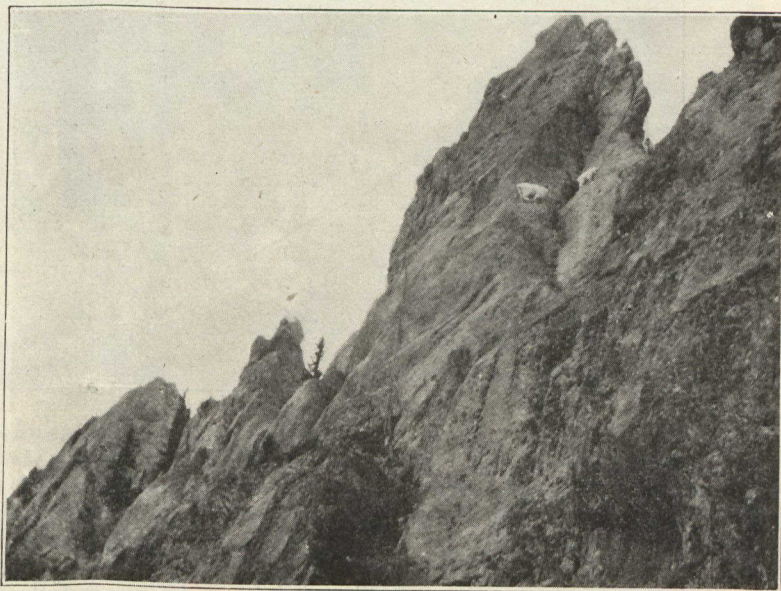
Field, British Columbia



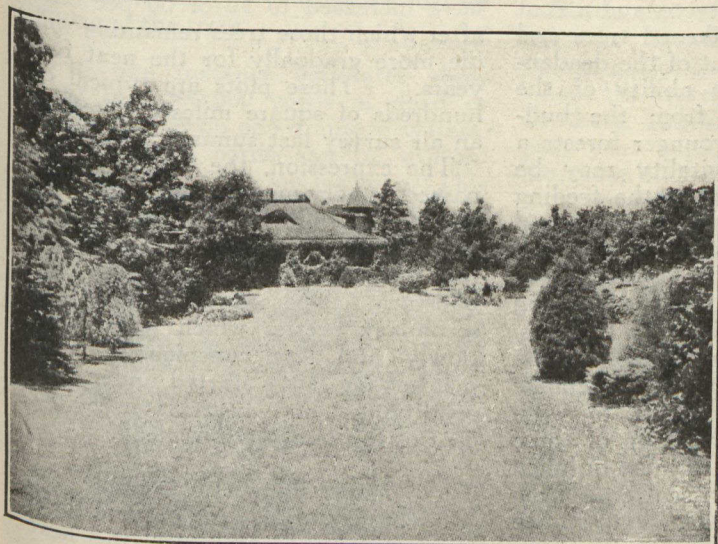
Glad to have seen it all up there yet have I to admit that I experienced a sense of relief (to my regret—for that feeling of relief was new evidence, and the measure of, my earlier awe, dread, sense of insecurity) when I was down again five thousand feet toward home, among the timber and its gentle green light, where I could console myself for man's transience, the brevity of his years here, halting to consider the fallen petals under a wild rose-bush by the side of the trail. But I cannot be thus content. **The mountains lure me back in their silent way.** I must return to those bleak high places where it seems that at any moment all might be explained.

I look forward to the day when I may sit there, dwarfed by the high cliffs, the rubble slides, and the peaks that live with the stars and the passing clouds, yet without any feeling of terror beside their serenity—trustful, at rest.

little knoll and looked down on the tossed world, range after range marching away into the edge of the sky, forest-top after forest-top below me, and what I knew to be the tips of thousands of tall trees, in distant valleys, looking like moss from that elevation, it returned. I could not rid myself of the impression that I felt the thud of the Pacific breakers five hundred miles away, beyond all these quiet ranges westward; could I not rid myself of the belief that I felt that slow drift eastward of the Rockies, and of the Selkirks. On my hillock I drifted with them! But no, the throbbing was only of my heart; the drift was optical illusion (and too quick!) from looking up at the clouds slowly passing over. One must switch off imagination in these places. I know now, by personal experience, why prospectors are often "a little queer."



Mountain Goats in the Rockies near Fort Steele



Trees are the indispensable adornment of the true Canadian home

Fighting Bark-Beetles in Balsam

Ravages of Spruce Bud-Worm in valuable Forest Areas

By Dr. F. C. CRAIGHEAD,

Entomologist, Entomological Branch, Dominion Department of Agriculture.

IN this article it is intended to present several features in respect to the general spruce budworm situation in eastern Canada and to

Has Two Phases

Briefly, the history of the dying trees has two distinct phases. First the budworm invades the country for

support of surrounding balsam often goes down. The photograph shown above presents a good conception of the devastation in what, ten years



Devastation in Balsam Grove, wrought by Beetles

describe briefly a beetle control operation conducted by Price Brothers, Limited.

The losses from the recent budworm outbreak in Quebec have been variously estimated. Accurate reports and examinations are available from too few areas to compile these losses with any degree of accuracy. Mr. Barnjum's recent statement probably comes as near representing the conditions as any. He says "The hundred and fifty million cords of pulpwood that have been destroyed by the budworm in the Province of Quebec means more than fifty years' supply for our Pulp and Paper industry at present rate of consumption. This amount of wood manufactured into paper at today's price represents a loss to Canada of seven billion dollars,—in fact, more than this figure, as one hundred and fifty million cords of wood would make more than one hundred million tons of paper which today is selling at seventy dollars per ton."

several years, stripping the foliage from the trees and greatly lowering their vitality. This feeding is the inciting cause. Coincident with it and for some years following several species of bark beetles or borers, which we call secondary insects, and a root rot attack these weakened trees and kill them. The extent of the deadening depends on the ability of the trees to recuperate from the budworm feeding. In younger forests a return to normal vitality may be established shortly after the feeding stops with only a loss of the suppressed or weaker trees. In old forests, especially on poor soils, all the balsam may finally succumb, the deadening extending over a period of 5-10 years. The combined effects of borers in the sapwood and heart rotting fungi make the trees very susceptible to wind throw. The final condition of these deadenings is a tangled mass of fallen trunks and tops with scattered birch still standing, even the living spruce under such condition losing the

ago, was a healthy green forest.

On sample plots in virgin balsam-spruce type in western Quebec, which was invaded by the budworm in 1920, already 42 per cent of the trees are dead. By next fall this number will have increased to 50 or 60 per cent after which those trees remaining will die more gradually for the next few years. These plots are typical of hundreds of square miles covered in an air survey last summer.

The expression, the budworm has passed, is very misleading. The forest may look quite green, except for isolated dead grey trees or scattered red tops, a year or two after the budworm has passed. But the host of secondary beetles which work more slowly and less conspicuously are just getting fairly started under such conditions. Five years later 90 per cent of the trees may be dead.

Must Face the Danger

No human agency can prevent these losses from increasing for the next

five years. It is obvious that only a small part can be salvaged. Facing this proposition squarely and openly

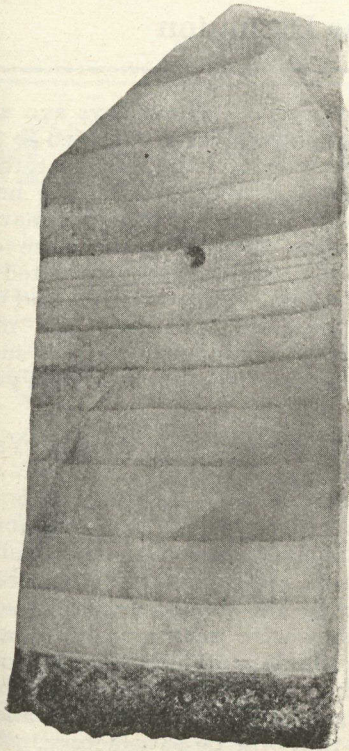


Fig. 2.

every effort should be made to utilize these dead and dying trees before it is economically impossible, and the provincial governments should make every concession possible to encourage the lessees or owners of the limits to accomplish this end. The ground is now covered with a thick stand of balsam reproduction which will insure a future crop. It is growing thriftily since the opening of the stand but mixed with this reproduction is an ever increasing tangled mass of dead tops, accumulating as the rotting trees break off. A fire under such condition will kill everything, destroy the soil and leave a barren waste. Two enormous fires in just such a region were witnessed last summer. There is no doubt that their magnitude and severity were directly due to the dead balsam. Another feature bearing on the salvage of this timber is the reduction of the secondary insects and removal of the weakened trees suitable for their breeding. Thus the more rapidly this timber is salvaged the more economical the cutting will be and the greater the number of green trees saved. The dead balsam stands only 2-4 years.

Combatting the Insects

Prevention of the continued dying of these trees consists in reducing the numbers of secondary insects in the forests. The only practical method by which this can be accomplished is by cutting the beetle infested trees, those having red foliage, during the winter and placing them in water before the balsam buds open in the spring. These trees were attacked by the beetles the previous summer. The foliage turns red and forms a very conspicuous object in the forests. If these trees are left standing new broods emerge and attack other green trees.

Beetle control is obviously possible only in situations where a small percentage of the trees are infested or where the attacks are localized. Price Brothers, Limited, have during the past year explored nearly all their limits for budworm injury and classed them according to the percentage of dead trees. On the Shipshaw limits, beetle control operations have just been completed.

These forests consist chiefly of second growth following old fires. They were invaded by the budworm in 1911 and from 10-15 per cent of the balsam destroyed. The greater part of the trees were able to recuperate from the effects of the defoliation and return to normal growth. (Fig. 2). A smaller part recovered

just sufficiently to continue growing (Fig. 3.) and resist the attack of the secondary beetles under normal conditions.

During the winter 1918-19 some seven square miles of this region were

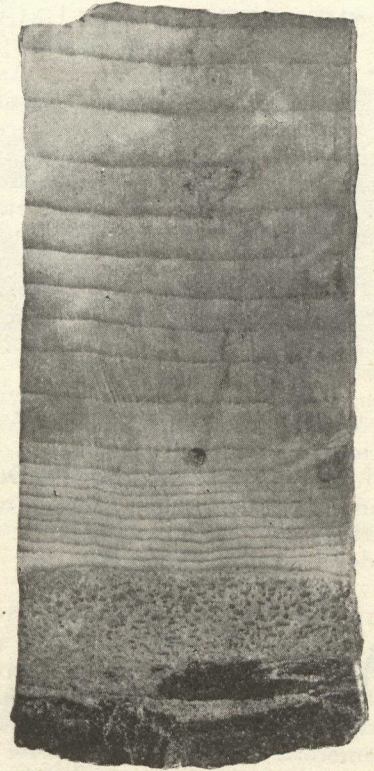


Fig. 3.

logged in a strip on each side of the river, varying in width from 1/4 to 3/4 of a mile. No further operations were conducted since. The cutting was very patchy, here and there through the area strips or islands of green timber were left standing, as well as many defective large trees and those trees under the Quebec diameter limit. These scattered trees, subjected to the weakening effects of wind and sun offered an ideal breeding place for the secondary beetles. Two species of these beetles breed only in standing green trees and can successfully attack only those of lowered vitality. A third will breed in slash or practically dead trees and follow up the attack of the others in living trees. The summer following the logging operations many of the scattered trees in this area were attacked and killed, and a large number during 1920 and 1921 so that during the past year the beetles had increased enormously and having killed out practically all the trees left under the diameter limit began invading the islands of green timber and the stand surrounding the logging area. At present this attack rarely extends further back than 300 feet into the green timber.

will help materially. Sooner or later these losses are bound to be seriously felt with consequent increased prices. Higher prices for the products of the forest will permit closer utilization, better logging methods, increased protection and ultimately tend toward alleviating the situation. The best we can hope to do at present is to utilize as much as possible of this dying and dead timber and, where feasible, retard the deadening by control of the secondary bark-beetles. The situation now confronting the lessees or owners of these lands and the governments is the most expedient means of salvaging the dead balsam and spruce and preventing the further dying of the trees.

In one instance estimates show that of 1,500,000 cords of dead or dying timber on one drainage system, only 600,000 cords can be utilized before the stand is too far gone. This is characteristic of many areas in Quebec and New Brunswick. In many localities 50 to 75 per cent of the merchantable balsam is already dead and the remainder rapidly going. These trees will only stand for a few more years. In one locality where salvage operations are being conducted and where figures are available, wood rotting fungi have so reduced the sound wood of the standing trees that 20 per cent of the logs had to be culled. From the fire hazard alone

ASSOCIATION ACTIVITIES

A Record of C.F.A. Enterprises in Various Parts of the Dominion

THE BRITISH COLUMBIA tour of the Forest Exhibits Car of the Canadian Forestry Association has proved highly successful. The maximum daily audience was reached at Vancouver where six thousand persons visited the exhibits in a single day. At scores of small places practically the whole adult and juvenile population turned out, and the attendance at the afternoon or evening motion picture demonstrations held in local picture theatres and halls and in the open air was exceedingly gratifying. Throughout the B. C. tour the Association has enjoyed the fullest co-operation of the Provincial and Dominion Forest Services and every courtesy that could possibly be extended by railway officials.

ADVERTISING AIDS

AS an example of the ready and generous reception given to the Canadian Forestry Association's plan to have hundreds of commercial companies substitute for their regular advertisement a special forest protection message, running for weeks at a time we quote a letter just received from the Schroeder Mills and Timber Company of Pakesley, Ont. It will be noticed that this company, as in the case of many others, is assuming a considerable expense as a direct contribution to the forest protection cause.

"The Canadian Forestry Association:—Re the three notices you wished published in the local papers, we have sent the whole three to the 'North Star' in Parry Sound, with instructions to renew one of them each month for five months. Trusting this meets with your approval, Schroeder Mills & Timber Company,
James Ludgate, Manager."

NEWSPAPER ADVERTISING

HUNDREDS of lumber, pulp and paper and other companies who are accustomed to use newspaper space in local dailies and weeklies have consented to adopt the Canadian Forestry Association's plan of substituting forest protection messages for the regular business copy used in their advertising space. In the aggregate, the plan as worked out represents thousands of dollars spent in a newspaper medium, the

entire burden of which is generously borne by the various companies. A sample of this form of co-operative advertising is attached as to what has been done by the J. B. Snowball Company at Chatham, N. B., in the local press.

FOREST FIRES ARE JOB KILLERS

WE CAN'T AFFORD THEM!

Ninety per cent. of all forest fires are caused by carelessness of campers, fishermen, and other travellers in or near the woods.

Therefore, build your camp fire in a safe spot. When through using it, put it OUT. PUT IT DEAD OUT! Never throw away lighted "smokes" in or near the woods.

Take a few precautions against forest fires, not just because the law says so, but because it is Right.

This advertisement inserted as a contribution to forest protection by

J. B. SNOWBALL COMPANY,
LIMITED

BOY SCOUTS CO-OPERATE

DURING April the Canadian Forestry Association addressed special appeals for forest fire prevention to all of the Boy Scout troops. Immediate and generous co-operation was given by the scout master and by the provincial command. Three of the letters received from scout masters indicate the readiness of this splendid organization to develop forestry education as a matter of good citizenship. The scout master at Revelstoke, B. C., Mr. Taylor, writes: "I have received the pamphlets 'About Camp Fires.' The quantity is just sufficient and I will distribute them to my troop at our weekly meeting tomorrow night. I will do all I can to see that the sound advice contained in the copy is carried out." To each Boy Scout in British Columbia was sent an attractive badge bearing on one side the words "Junior Forest Guard" and on the other "I will do my best to prevent forest fires from starting."

J. L. Donaldson, Scoutmaster, Fernie, B. C.

"Your letter and package of 14th

instant received a few days ago and the pamphlets were distributed to the Fernie troop of Boy Scouts at their last meeting night. While they have not had time to go into the matter thoroughly they all seem quite enthusiastic and unanimously voted to join the Junior Forest Guards and will wear any badge or tags you may forward to distinguish them as such.

With best wishes for success in your great work."

Mr. L. Warren, Scoutmaster Yale, B. C.

"Your letter and pamphlet received. I am pleased to state that the Boy Scouts received them with enthusiasm. I have spoken to the boys regarding the Junior Forest Guards and they were unanimously in favor of it. Many pamphlets were left over so I had the scouts distribute them amongst the school children and I trust that will be satisfactory. Any publications on forestry are always welcome by our troop."

AN EDUCATIONAL TOUR

Messrs. Price Brothers and Company, in co-operation with the Canadian Forestry Association, recently completed a highly effective educational tour of the Lake St. John district attracting large audiences at almost every stop. Another such tour will be organized later on.

QUESTIONS AND ANSWERS ON FORESTRY

EVERY WEEK, one hundred leading Canadian newspapers make use of a quarter column of "Questions and Answers" prepared and sent out by the Canadian Forestry Association. These readable pieces of information and propaganda have proved most popular and the list of papers is being extended.

Commenting on the series, the Editor of the "Canada Lumberman," Mr. G. B. Van Blaricom, said: "These queries are popular in style, timely, helpful and contain a fund of information with which people in general should be conversant."

"Personally we think that this form of publicity in directing attention and interest to reforestation, the worth of Canada's wooded supplies, and the urgency of more effective protection from fires is one of the best things your Association has done or is doing."

ASSOCIATION ACTIVITIES

A Record of C.F.A. Enterprises in Various Parts of the Dominion

MANY thousands of clergymen in all parts of Canada are assisting the Canadian Forestry Association this month in emphasizing to their congregations the need of personal co-operation in prevention of forest fires. Following is the letter issued to the clergy with the statement intended to be read to the congregation:

TO ALL CLERGYMEN

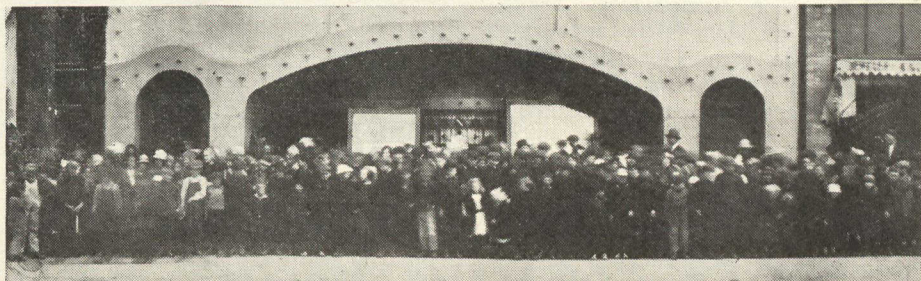
We trust that it may not be incompatible with the dignity and solemnity of a religious service to have the attached announcement read to your congregation from the pulpit. Only by emphasizing to the people through the churches and schools the enormity of forest fire waste in the province, and the closely related fact that nine-tenths of this damage to the public domain is caused by personal carelessness, can we hope to antidote the fire evil. If you can help us by any public reference to the subject the kindness will be very much appreciated.

Yours very truly,
Canadian Forestry Association

To the Congregation:—

On behalf of the Canadian Forestry Association this appeal is addressed to all who have a serious concern in the future of this province. It is a fact that bears distressingly upon the problem of employment that hundreds of forest fires destroying very large areas of our timber were set last summer by the carelessness of camping parties, fishermen, hunters and other travellers in the woods. Throughout Canada this source of fire devastation formed one of the three main causes by which Canada lost some of the most beautiful and valuable portions of her public estate. Since the forest is entirely essential to creating employment in this and other districts, one may well ask whether our familiar schemes to promote work for our citizens are not nullified in the long run by the camper and the smoker whose thoughtless acts are robbing us of one of our greatest industrial assets. The campfire is a happy and innocent feature of woods travel, but to extinguish the campfire and all other forms of fire when in or near the woods fulfills a patriotic duty and

FAST FRIENDS OF FORESTRY



Do the children of Canada want to hear about forests and forest protection? Just give them the chance.

Here is one of the daily audiences of the Canadian Forestry Association staff, when 700 school kiddies and their teachers gathered in a motion picture theatre and became fast friends with Forestry.

The effect upon Public Opinion exerted by these daily meetings is incalculable. Twenty channels of forestry propaganda are employed by the Canadian Forestry Association, of which public mass meetings is but one.

satisfies a requirement of good citizenship.

We feel that we can rely upon all within sound of this message to join hands with the fire rangers for the summer months of 1922, in cutting down the needless devastation of our forests.

TRAVELLING LECTURE SETS

THE nine Travelling Lecture Sets of the Canadian Forestry Association, have had a busy Spring. It is estimated that at least three hundred adults or juveniles are reached every week-day by the combined activities of these sets and the average at times is probably many times as high.

From Nova Scotia to British Columbia these travel-proof boxes are in action, moving from town to town on a dated itinerary.

A letter from Mr. J. W. Gibson, Director of Elementary Agricultural Education of British Columbia, states that the Association's special B. C. lecture sets will be started on a circuit of a dozen districts. "I shall also make use of them during the Summer School for B. C. teachers and probably will also send them to the Summer School in Vancouver. Let me assure you of our heartiest co-operation in this work."

TREE PLANTING MEETINGS

Through the alertness of the University of Saskatchewan which last fall engaged the services of Mr. Archibald Mitchell, Western lecturer

of the Canadian Forestry Association, tree planting meetings were held during the winter in sixty communities and an adult attendance of over 3,600 persons was secured. Considering the small population in most of the communities visited this is an excellent record.

PUBLIC OPINION A POWER

To Canadian Forestry Association:

"Received yours of April 13th with very interesting article entitled "Public Opinion as a Forest Fire Extinguisher."

"I cannot recommend it too highly as I have had a lot of experience in early days in prairie fires particularly, and know what the disastrous results are and quite agree with your opinion that the majority of cases is due to lack of knowledge on the part of those who carelessly set out fires. If they realized the results, very few fires would be set out.

A. E. CROSS, Calgary."

AIDING A GOOD WORK

AS an evidence of the fine spirit of co-operation in a purely public cause, the Howard Smith Paper Mills, Limited, have inserted in "Industrial Canada" a full page advertisement for two issues, urging personal care with all forms of fire while travelling in or near the woods. This is one of scores of instances where the propagandist advertising copy supplied by the Canadian Forestry Association has been utilized by public-spirited companies.

Briefs About People and Events

COLLEGE TREE PLANTING

The degree classes '21 and '22 of the College of Agriculture, Saskatoon, Sask., on May 4th, planted two splendid little groves of spruce and elm trees, a tree being planted for each member of these two graduating classes.

TREE-PLANTING AT CALGARY

On Monday, May 8th, there was inaugurated at Calgary, Alta., a tree-planting campaign of considerable proportions. Three carloads of trees, shrubs and bushes of various kinds were distributed at cost prices through various civic clubs and organizations which took part in the campaign.

PRIZE PORCUPINE KILLER

THE special prize of Five Hundred Dollars in cash offered by F. J. D. Barnjum for the largest number of porcupines killed in Nova Scotia during the month of April has been awarded and paid to Joseph R. Ogilvie, Greenville Station, Cumberland Co., N. S., who killed the highest number.

ONTARIO NURSERIES

The Ontario Government expects to have four nurseries in operation raising young trees for reforestation before the end of this year. The Government has quadrupled the capacity of the nursery at Norfolk and has taken options on land for another near Durham. Two more are planned, one in the eastern portion of the province. The Department of Lands and Forests has been advised by botanical experts against importing seeds from Europe owing to the danger of disease.

HELD ANNUAL MEETING

THE annual meeting of the shareholders of the Continental Woods Products Company, Limited, took place recently at Montreal, and the following were elected directors:—Philip T. Dodge, president International Paper Company, New York.; Herman Elsas, President, Continental Paper & Bag Mills, New York.; Thomas Fynes, Louis Gosselin, K.C.; C. A. L. Hibbard, Isidore Kuhe, Chester W. Lyman. At the subsequent meeting of the directors, the following executive were elected:

Louis Gosselin, K.C., President; Thos. Fynes, Vice-President and Treasurer; E. B. Sagendorf, Secretary. Mr. E. L. Bliss, who has had considerable experience in the exploitation of the forests and mill operations has been appointed manager of the company's operations in Ontario and, in particular, manager of the company's Ontario plant situated at Elsas. Under his management much is expected from this plant supplied from the company's extensive timber limits in the district of Sudbury.

AS OTHERS SEE IT

SIMCOE'S GOOD WORK (Toronto Globe)

It is impossible to overestimate the importance of the work inaugurated in Simcoe county when Warden Banting set out the first tree in the county's forestry plantation. It is no small thing to make a beginning on the task of changing a thousand acres of almost drifting sand into a youthful forest. The importance of the event becomes vastly greater when one contemplates the influence the example set must have on other counties which have not yet begun to move in a similar direction.

A VITAL MATTER (Manitoba Free Press)

Reforestation in Canada is looked upon as a simple economic matter. Trees are useful for furnishing lumber and timber, and if we allow the sources of supply to become depleted the country is going to suffer financial loss. Few may realize that a country's forests are concerned vitally with the very life of the people, that the trees hold the key to life and death. China is beginning to realize how true this is; it has become apparent that her great famines are due to the absence of trees. Forests, it is now known, affect the whole climatic conditions of a country, and China needs forests to conserve moisture and prevent drought.

Railroad Men Co-operate

Presidents of forty railroad companies in New York were invited to a

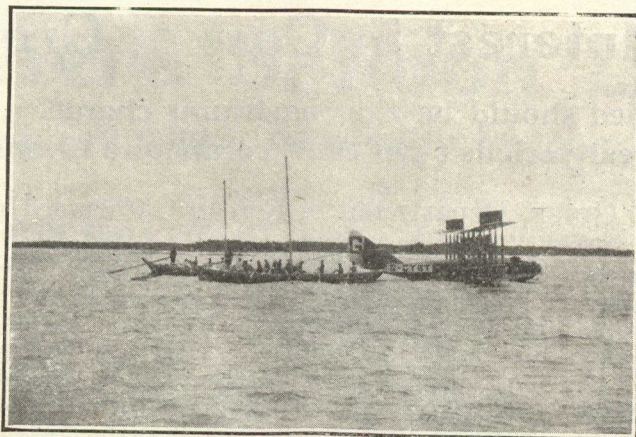
conference, on March 22, by the Pennsylvania Department of Forestry. They considered forest fire prevention methods which they can put into effect to reduce the damage to timberlands adjacent to the railroad tracks in all sections of the State. The railroad representatives discussed with the Department of Forestry plans for safety strip development along the tracks, inspection of engines to see that they are properly equipped to prevent the starting of forest fires, claims for damage caused by forest fires, and methods of publicity to impress the public with the destructive effects of forest fires.

GATHERING OF THE MACS

Scottish Settlers on C. P. R. liner all respond to same salutation

NEWCOMERS to Canada this spring included a party of thirteen stalwarts from the Hebrides which arrived in Canada on the Canadian Pacific liner "Tunisian." On the arrival of the vessel at St. John a reporter seeing a friend aboard called up "Hullo Mac," and every one of the party looked down over the rail. They were all Macs, three McLeans, three McDonalds, two McKenzies, two McTavishes, a McPherson, a McIntyre, and a McIntosh. To accentuate the Scotch flavor the priest who brought the party out from Scotland was Father McDonnell and they were all met on arrival and escorted to the dock by the Canadian Pacific's colonization agent Andrew McDuff. Ensued a meeting of the clans with the air foggy with Gaelic. They were a handsome lot, all single men, under thirty, strong and healthy and hand-picked for their qualities, all bent on tearing up more Canadian soil. They created considerable attention in the vicinity of Windsor Station on their arrival in Montreal for all are near the six foot mark and some over it and their chests and shoulders are built in proportion. Every one is a veteran of the Imperial Army and several wear decorations won in the late war. Best of all they are only the forerunners of one hundred and fifty Scottish crofters coming to Canada this summer to transfer their farming activities to Canadian soil. And every one is a Mac.

Where 1722 meets 1922. A unique photograph taken on Playgreen Lake, Manitoba. Two of the famous York boats, used for two centuries or more as the standard transport method of Canada's northern lakes are seen on their way from Norway House to Oxford House.



In midlake they have encountered an F.3 flying boat at anchor and the crews are making a careful inspection of the aerial monitor. The Air Board flying service has thoroughly established its value in Manitoba's forest protection system.

Reminiscences of Norway House

One of the greatest old-time posts of the Hudson's Bay Company is still important station

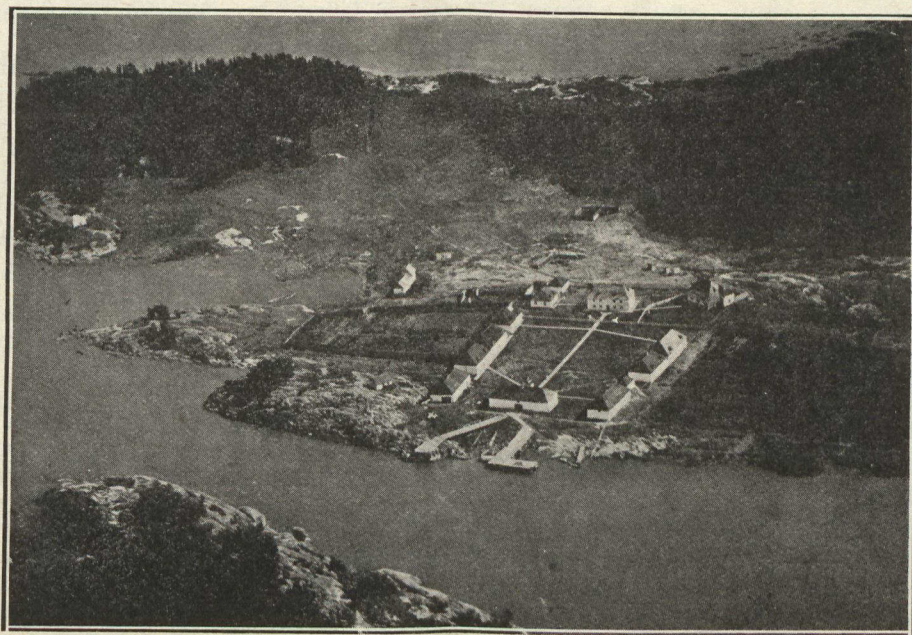
By JAMES LAWLER, Dominion Forestry Branch, Ottawa.

NORWAY HOUSE, in addition to being one of the oldest establishments of the Hudson's Bay Company, is much more than a big trading-post. It was for over a hundred years one of the great entre-pots or, transfer points of the company. Norway House is situated on the shore of Playgreen lake, a body of water formed by the expansion of the Nelson river just after it leaves lake Winnipeg on its journey to Hudson Bay. It is roughly in the centre of a long triangle of which the angles are York Factory on Hudson Bay, Winnipeg (Fort Garry) and Edmonton. It is, in round figures three hundred miles from Hudson Bay, three hundred from Fort Garry and five hundred and fifty from Edmonton.

From Norway House the Nelson and Hayes rivers stretch northeasterly to Hudson Bay, the great Saskatchewan river gives access across the northern line of the prairies to the foot-hills of the Rocky mountains, and lake Winnipeg and the Red river make a highway to Fort Garry and the Pembina country. Norway House was thus at the main crossroads of the

whole West and the wealth and commerce of half a continent annually passed through the gates. In the days when the goods for the H. B. Co's trade came in through York Factory at the mouth of the Nelson river, it was not the custom to send the brigades of York boats (big freight skiffs, forty feet long) from York Factory clear

through to Edmonton, or from Edmonton to York Factory. The brigade from the sea went as far as Norway House, where it met the brigades from Edmonton and Fort Garry. The brigades from the south and west turned over their bales of furs to the men from the sea-coast and returned to the Saskatchewan and Assiniboine trading-posts laden with manufactured goods from Great Britain. Hundreds of men met on the level shore of



An aerial photograph of the famous Norway House, Lake Winnipeg, once the administrative headquarters of the Hudson's Bay Company in the early days of Canada, now used as a district station of the Dominion Forestry Branch. See accompanying sketch.

Playgreen lake in front of the fort and the meeting of the brigades was a time of feasting, fighting, and contests of strength and endurance. The advent of railways has changed trade routes but Norway House still remains one of the important posts of the company.

What Rate of Interest in Cost of Growing Timber?

Four per cent. compounded should be the maximum charge. No business earns over 50 year periods 6 per cent. compound interest.

By C. H. GUISE, Department of Forestry, Cornell University.

EVERYONE who advocates the establishment of forest plantations is confronted, at one time or another, with problems relating to the costs involved and the returns to be secured. Problems of this character demand that we take into account four factors, first the initial and annual costs, second the yields in timber to be expected, third the stumpage values of the product when mature, and fourth a rate of compound interest with which all charges can be carried from the time at which they are incurred until the trees are ready to be cut.

We know within reasonably close limits what it costs to start forest plantations and can also tell with fair accuracy the annual costs involved. The yields in volume and the future stumpage values are not so definitely known and we frankly admit that, at the present time, we can do little more than give intelligent estimates of these. Our existing yield data are all too scanty, but if those which we have are carefully used, we can give a good estimate of the volumes of wood that can be grown. The common practice is to use average stumpage values that exist at the present time. There is very little likelihood of their going lower, and all indications point to values that in future years will be higher. Although more exact information on the above factors would be greatly welcomed, we can, for many of our prominent species, use such data as we have and not be far out of the way. And as time goes on it is reasonable to expect that we will be furnished with much additional data on costs, yields and stumpage values.

The fourth factor, the rate of interest, is one that has come in for but little comment in the past. Yet the rate chosen is of great importance and to many is a standard that an investment in timber growing must reach if it is to be classed as worth while. The principal point in this paper is not to disagree with this opinion, but to offer a few comments as to the rate of interest to be used and invite discussion on the rate which foresters can agree upon as being fair and satisfactory from every standpoint. It is needless to go into a discussion here of the problem of

simple versus compound interest. Compound interest is universally used in calculating costs in growing timber and associated with it we usually find the rate of six per cent. It is highly probable that this six per cent. rate is chosen because it is the rate that is found in most of our business transactions. But in most forms of business enterprise, simple interest is used. Outside of savings banks, insurance companies, saving and loan associations, and possibly a few other organizations, practically all of our business is carried on on an annual basis. No argument is to be advanced here for using simple interest with financial calculations in growing timber. Compound interest is always used where returns are deferred for a period of years, and timber growing should be no exception.

Table showing interest variations

Rate of Compound interest	Value of Capital and Compound interest	Compound Interest	Rate of simple Interest to be earned and saved to equal amount in Column 3.
3.	2191.95	1691.95	6.76
3.5	2792.45	2292.45	9.17
4.	3553.35	3053.35	12.21
4.5	4516.30	4016.30	16.06
5.	5733.70	5233.70	20.93
5.5	7271.00	6771.00	27.08
6.	9210.10	8710.10	34.84

Is Six Per Cent. Reasonable?

Although a rate of six per cent. simple interest is universally accepted, is it fair to use a rate of six per cent. compound interest, when one is urging that forests be planted from the investment standpoint? Unless the use of this rate is carefully qualified and explained, erroneous and undesirable impressions on the part of the causal reader or the laymen are certain to result. Usually these explanations are not made, and the average man is convinced that a forest should pay six per cent. compound interest to be the equal of the six per cent. simple interest with which he is familiar. The writer does not believe that a rate of over four per cent. should be used in computing the costs of growing timber and in support of this submits the above table and following calculations:

If we take a certain sum of money, \$500.00 (though any amount can be used and the same results secured) and invest this so that it will yield six per cent. compound interest, in a period of 50 years, this sum of \$500.00 would grow to \$9,210.10. Deducting the principal of \$500.00, \$8,710.10 would remain—a large sum of compound interest only.

What rate of simple interest would have to be earned and saved without further investment over a period of 50 years to equal this interest return of \$8,710.10 on an initial investment of \$500.00? It would be \$174.20 per year, which represents 34.84 per cent. In other words, if a man invests \$500.00 and earns 34.84 per cent. annually on it, and saves this amount for 50 years, the aggregate will be equal to the sum earned at a six per cent. compound rate. It will be argued that no man would ever allow this annual income to lie idle, and this is of course true. It will in actuality be reinvested whenever possible in order to bring in additional revenue. Everyone will agree that it is an absolute impossibility for anyone to foresee or predict even closely how the annual income would be invested, either from the standpoint of amount or of time. If any of it is successfully reinvested the increased returns will amount to a sum larger than the amount received by the six per cent. rate of simple interest. Yet unless the six per cent., or \$30.00 for the first year is upon being received, immediately reinvested at the same rate of interest, and this process kept up till the end of the 50 years, the amount earned finally will have fallen below the 34.84 per cent. spoken of previously, or the six per cent. compound interest. Economic opportunities are too limited to permit of any sums expanding at such a rate for any protracted period of time. Yet this is exactly what we demand of a forest when we use the rate of six per cent. compound interest. If we admit that it is a practical impossibility for a normal business to earn returns equal to a compound rate of six per cent., then it certainly is unfair to say that growing forests must measure up to this standard in order to be classed as a worth while investment. If we hold to this view, just what rate

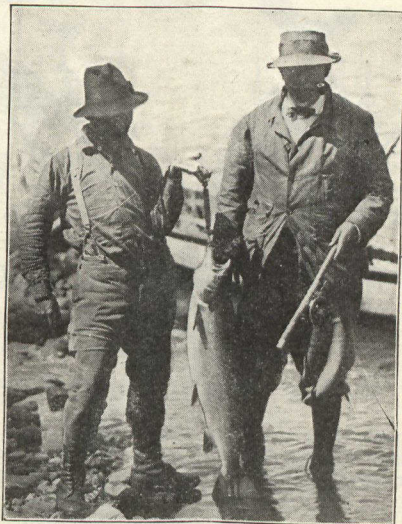
Where Salmon Leap

Some facts concerning "Million Dollar Pool" of Restigouche Salmon Club

By RAYMOND S. PECK,

Director Exhibits and Publicity Bureau, Dept. of Trade and Commerce.

FOR those real "dyed-in-the-wool" fishermen who want action and thrills and the satisfaction of being able to wet their lines with the assurance that they will be rewarded as only real fishermen can be compensated, there is no place in Eastern Canada that will afford them such opportunities for real fishing as the famous Restigouche River. As an illustration of the sport that is obtainable in this section, witness the front page photograph of this magazine and the companion picture herewith.



The sequel to our front page picture.

The Restigouche River lies in the heart of New Brunswick, and its international fame as the home of the Restigouche salmon is well known wherever real fishing experiences are discussed. These fishing grounds are particularly taken advantage of by American sportsmen, many of whom are members of the Restigouche Salmon Club.

Let it be known that the Restigouche Salmon Club is a most unique organization. It is partly composed of wealthy Americans, but draws its membership from all parts of Canada as well as the United States. The club is not wholly American; in fact, it is a Canadian organization in the first instance, but it is probable that half of the memberships in the club are held by Americans. The origin of this club dates back over fifty years, when the stock of salmon in the Restigouche was being so depleted that, through the efforts of this organization in co-operation with Government officials, the work of conserving and restoring the salmon fishing was undertaken with splendid success, so that today, by means of close co-operation from those interested in preserving the splendid fishing in these grounds, there probably is no place on the American continent where salmon fishing is more enjoyed.

Million Dollar Pool

Those who know this part of the country have heard of the "Million Dollar Pool" at Patamajaw, N. B. This famous Pool secured its name for the reason that it cannot be purchased today for any amount of money. The excellent fishing of this vicinity, including the "Million Dollar pool," is controlled by the Restigouche Salmon Club, and some wonderful fish stories have emanated from this very same pool.

All along the Restigouche River for a stretch of 100 miles are beautiful fishing lodges owned and operated by the Restigouche Salmon Club. The home of the Restigouche Salmon Club is located at Matapadia, a quaint little village situated at the junction of the Matapadia and Restigouche Rivers. From this point, the fisherman may proceed up the Restigouche River for over 100 miles, passing through hundreds of rapids,—big and small, swift and deep, with here and there deeper pools where lurk the salmon of astounding size. Mile after mile, the sportsman watches the course of the river, characteristically penned in by the beautiful mountains on both sides, the province of Quebec on one side of the river and the province of New Brunswick on the other.

Some Scenic Splendor

The whole region is mountainous and almost precipitous enough to be Alpine, but its grandeur is derived less from cliffs, chasms and peaks than from far-reaching sweeps of outline and continually rising domes that mingle with the clouds. New Brunswick is a country of great rivers. The Restigouche and Miramichi are the largest in this portion of the province. These two rivers are related to each other and also the St. John, because in many cases the head waters or their tributaries are almost in contact. The Indians, by means of these rivers, were able to reach any part of the province with their canoes, and the same possibilities exist today for those whose taste lies in that line for an enjoyable summer outing.

C.F.A. EXHIBIT CAR A CENTRE OF ATTRACTION



Win the boys and girls for forest protection and the future of the nation's forest resources will be secure. This scene is in Nanaimo, Vancouver Island, which was visited by the Canadian Forestry Association's Exhibit Car in April. On many days, as many as three to five thousand people have passed through this Car. Evening lectures with motion picture demonstrations are given either at local halls or in the open air.

The attendance at the Forest Exhibits Car in Eastern Canada last summer exceeded 135,000. This effective enterprise is not identified with any government or commercial interest but was instituted and carried through by the membership of the Association, with the aid of government and company grants.



By ROBSON BLACK, Manager of the Canadian Forestry Association
Illustrations by THURSTON TOPHAM

The purpose of this little story is to ask every boy and girl living within reach of the woods to become a junior fire-ranger during the remaining months of 1922.

Of course, there are several thousands of grown-up fire rangers watching for signs of the Forest Fire Fiend all the way from Cape Breton to Vancouver Island. They have found, however, that the vigilant eye and quick sense of the Canadian boy and girl are worth more than all the lookout-towers and "spy glasses" put together. That is why the Forest Fire Fiend feels 1922 is going to be a bad year for him.

JIM PIDGEON was at the age when Saturday afternoon was the gate-way to a big adventure. To roam by some unfamiliar route far from the town borders and hunt the rocky ridges through the upper meadows for Jacks-in-the-pulpit, was as nearly a touch of Heaven as Jim had yet experienced. One day, tired of his search, he struck off into the deep forest and there captivated by the moist coolness and the solemn whispering in the high canopy of branches, bethought himself of Indian campaigns and pouncing wild-cats.

"Surely," said Jim, "If I had my gun I could go on and on for weeks and months and never again give a thought to cutting kindling or pumping water or going to school." No one could have been more self-confident than Jim at that moment for he knew the woods and loved the trees and birds and flowers.

"I never can feel like a story-book here," thought Jim, "until I build a camp fire." So he gathered up a few dried sticks of poplar and birch and spruce and striking a match, soon satisfied himself that no runaway huntsman ever cooked a meal over a cheerier blaze.

Warned by the camp fire and tired with his roaming, Jim braced his shoulders against a spruce tree and soon was sound asleep. At his feet the branches cracked sharply. The light in the woods grew fainter and home-coming flocks of birds circled high above the tree-tops.

With a start, the boy opened his eyes and looked about. It was now so late that he could scarce reach home by dark. Without a moment's delay he must strike south and cross the old lumbering road that led into the main highway. Jim was already stalking through the trees when the sound of a voice behind him sent his heart bounding into his mouth.

[The Summons of the Camp Fire Spirit

"Come back! come back!" called the mysterious Spirit. Jim slipped behind a tree and stood quite still.

"I see you plain as day," warned the voice, "Come back here at once!"

"Who are you?" thought Jim.

"Who am I?" retorted the Spirit, "I am your Camp Fire. When I'm small I cook your food, dry your clothes, warm your body. When I'm big, I put on horns like a devil

and grow ill-tempered and snarl at people. I devour trees at a mouthful and when I get to be a giant I consume forests and towns and factories, farmers' homes and every living thing that comes within my path."

"I wish I were home," muttered Jim between his chattering teeth.

The Fire Threatens to become a Giant

"Come back!" ordered the camp fire angrily, "or I'll grow into a fiery giant at once."

"I'd better go back," Jim admitted and peeked nervously round the tree. To his amazement, the camp fire of a moment before had spread itself to fully four times its former size and was greedily burning up the dried leaves and twigs in its path. Timidly, Jim retraced his steps.

"Hurry, hurry!" commanded the voice which now seemed to come from the middle of the fire. "I grow terribly fast. In half an hour I wrap my body in flames a thousand feet in circumference."

"What can I do?" whispered Jim.

"Go get a bucket of water and a shovel," snapped the Camp Fire.

"This serves you well right. You shouldn't have set me in this dangerous place with leaves and needles and cones under me and around me. You should have built me on rocks or have scraped away the leaves down to moist earth or gravel or sand."

"I'll remember that next time sure" the boy promised.

"Don't waste time talking. Go get the water and shovel"

Jim ran as if spooks were at his heels. Five minutes took him to an old shed where men used to gather sap for maple sugar. Jim knew of several old pails and grabbing two, he filled them from a nearby brook and staggered back to the fire. When the Camp Fire next addressed him its voice had grown deeper and most terrible.

Jim is ordered to Fight the Flames

"Where's the shovel?"

"I-I couldn't find any" stammered Jim.

"Take off your coat and dip it in the water!"

Jim hastened to obey.

"Now go around and around me and beat out the flames!"

After a few minutes' hard work Jim's courage began to return. He thought he had done enough.

"I'm going home," he exclaimed boldly. "I'll follow you!" the Camp Fire shouted in defiance.

Jim's heart weakened.

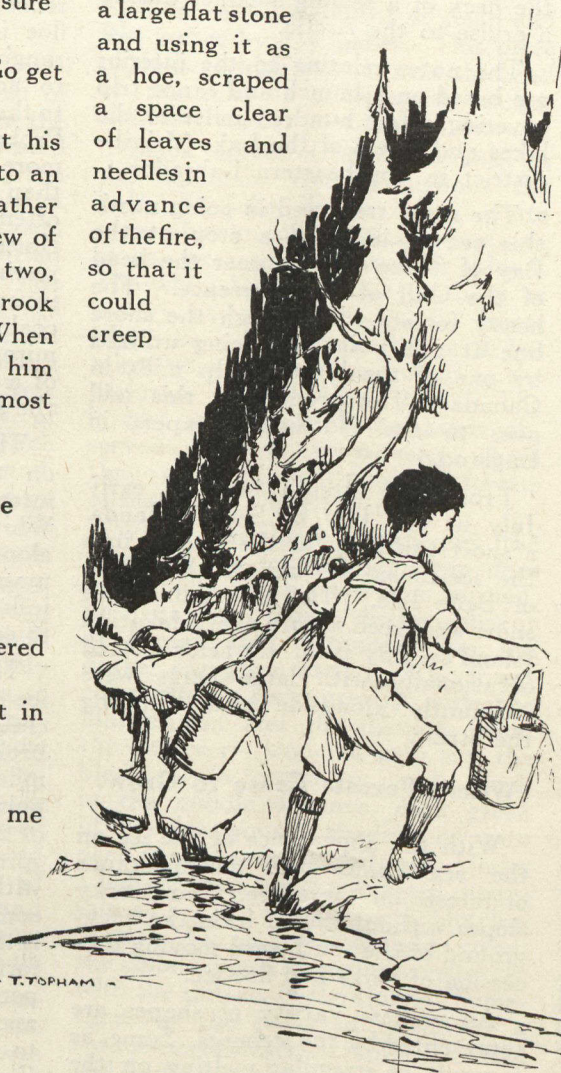
"Dare to leave me with a single coal of fire or a handful of leaves in flame and I'll pursue you with a regiment of crying Spirits."

"Mercy me," thought Jim, "I

couldn't sleep soundly for a year."

"Get to work again!" came the order.

He beat at the circle of fire with all his might, and gradually saw the jagged line of burning leaves grow smaller. He took a large flat stone and using it as a hoe, scraped a space clear of leaves and needles in advance of the fire, so that it could creep



Grabbing two pails, Jim filled them from a nearby brook and staggered to the fire.

no farther along the ground. At last there remained only a glow in the centre of the camp fire.

"One more pail of water and then I'll let you go home," said the Spirit.

Jim was not long in bringing it.

"Now Jim," remarked the Spirit in a kindlier tone. "You've kept me from becoming a devil by cutting off my fangs. Had you not acted promptly I would have turned every foot of this beautiful woodland into a charred and ugly ruin. I would have closed the sawmill over yonder. I would have driven the workmen into another part of the country. I would have chased out all the birds that guard the farmers' crops from insects. I would have dried up the brooks forever-and-a-day."

"You have a very bad disposition," challenged Jim.

The Dwarf Tells How to Defeat the Giant.

"I am the favorite son of the Fire Fiend," quoth the Spirit. "I serve you well when you keep me alone, I spring into a horrible giant. The only sensible way to manage me is to drown me with water or smother me with earth or sand and trample out every sign of fire."

"I'll not forget this experience," replied Jim, "You gave me a terrible scare, but I promise you I'll never take any chances with a camp fire as long as I live."

Jim has since grown out of boyhood but never has he forgotten that day in the woods.



The Forests of Southeastern Labrador*

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

ONE who has seen only the barren eastern coast of Labrador might expect a discussion of Labrador forests to rival in brevity the famous chapter on the snakes of Ireland.

A cruise along the Labrador coast brings before the eyes of the traveler a shore line which appears to belong to one of the most barren and treeless lands in the world. When viewing it from a distance the traveler is likely to acquiesce in old Jacques Cartier's description of Labrador as "the land that God gave Cain." A short journey up any of the rivers which reach the coast line of Southeastern Labrador however, will take the explorer into a densely wooded country which has no resemblance to the barren coast line, and convince him of the injustice of this title.

The coastal strip and the interior present surprising climatic contrasts which are most clearly reflected in the distribution of the forests.

In passing through the Strait of Belle Isle in July a stream of floating ice and bergs is met with, which increases in volume as one proceeds up the coast. Throughout most of the month of July the vast ice fields move steadily southward under the influence of the Labrador current, past a bleak, rocky coast on which no timber can be seen. The sub-Arctic climate which the southward-moving ice fields bring as far south as the Strait of Belle Isle extends but a short distance inland from the coast. In crossing the eastern threshold of the peninsula by way of Lake Melville and "the Narrows" one finds that there are two Labradors. One is a narrow coastal zone of islands and sea-facing mainland called "the Labrador" by the cod fisherman, which is chilled by ice floes and nearly or quite treeless. Inside this sea-shore strip is the heavily forested vast interior Labrador traversed by countless streams and dotted with thousands of lakes. In this interior region salmon and trout fishing takes the place of cod fishing. A summer climate replaces the ice chilled coastal climate, and forests cover both mountains and valleys.

The observations along the coast line here recorded were made chiefly from the decks of the Newfoundland steamers, which call at the numerous fishing stations on the Labrador

coast and during a cruise on the S.S. Acadia to Rigolet at the entrance to Lake Melville. My earlier impressions of the coast were obtained from the deck of a sealing steamer during a cruise to the Arctic.

The notes relating to the interior are based on a launch and canoe trip covering a few hundred miles of the lakes and rivers of the Lake Melville district in Southeastern Labrador.

The route traversed in going north this season included a stop at the Bay of Seven Islands near the head of the Gulf of St. Lawrence. The heavy forests which reach the shore line at this point are being utilized by one of the largest pulp mills in Canada. The product of this mill goes to the Northcliffe papers in England.

From the intense heat of early July at the Bay of Seven Islands, a short run brought the Acadia into the ice-cooled breezes of the Strait of Belle Isle. The first patches of snow were seen ashore near Mekatina Island on July 10th. Ice fields dotted occasionally with large bergs were constantly alongside after entering the Strait.

Where Forests Cease to Grow.

With the appearance of the ice on the sea comes the disappearance of forests on the shore. Bare rocky slopes without timber form the background of the southward-moving procession of bergs and floe ice.

An endless variety of shapes are represented by the icebergs. Some, as a result of irregular melting on the surface, show a crater-shaped top filled with fresh water; others have sharp pinnacles and mountain-like outlines; still others have a slightly modified tabular outline. Occasionally a berg shows a huge arch running through it representing probably a section of a glacier which has been carved by a subglacial stream. The general color of the bergs is the purest of white, but many show a fine delicate shade of green. A few have seams of bluish green ice running through the pure white of the main mass. Some observers are impressed by the architectural suggestion conveyed by ice-bergs. Cabot says that "Man's architecture in all its forms is hinted at, and often the forms of living creatures, natural or grotesque, but the spirit of the ice is mainly architectural: the gods of the North

had their temples, and these are their fragments."

Under a clear sky the ice floes present a striking scene. The sun is reflected from thousands of cakes of floe ice of every conceivable shape ranging in size from a few square feet to acres of surface, and extending to the sky line a dazzling field of white. Probably no other coast line shows more striking and novel mirage effects than the Labrador coast. The mirage often repeats the floe inverted. Sometimes the sharp pinnacled bergs have resting upon them their duplicates inverted, the columns and pinnacles coalescing. At the horizon the mirage often gives the appearance of a solid vertical wall of ice circling the ship.

The distorting effects of the mirage on the low rocky islands is very interesting and remarkable. The White Bear islands and many others along the coast are low, bare, rounded masses of rock. Under the magic influence of the mirage these are made to caricature all kinds of topography.

The mirage lifts up the insignificant ice-rounded hills into vertical faced cliffs presenting at times a vertical unbroken front of flat-topped cliffs for miles. At other times the low rocky points on the shore rise up as pillars of brown or gray rock, and these will spread out into gigantic mushrooms with pancake-like flat tops. The most common form produced by the mirage is the flat-topped mesa or "bad lands" form of topography. But no form persists long, one type dissolving into another or giving way temporarily to the real aspect of the shore line. Every possible, and many impossible topographic forms are rapidly sketched by the masterly magic of the mirage. As one watches lofty vertical cliffs, sharply defined rising from a low barely visible shore, then melting away at the summits, and presently vanishing altogether, it is easy to imagine some invisible magician of the Deep with age long memories of the past, showing some of the episodes in Labrador's geological history.

The bleak, time-eaten rocky shores of the islands and mainland, to which the mirage gives such a variety of aspects, continues barren of trees, with a few trifling exceptions, from the western end of the Straits of Belle Isle to the vicinity of Sandwich Bay. An island in this vicinity with a few straggling spruce near the summit

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

gave me the first hint that trees are to be found in Labrador. Other islands were seen in or near Sandwich Bay which had considerable patches of black spruce on shores which did not face the open sea. In general, however, forests are either absent on the sea coast or confined to the sides of ravines or small valleys where the topography affords some protection to timber.

At Hamilton Inlet.

Probably nowhere on the coast of Labrador can the transition from the barren outer islands to the forested interior be better seen than on Hamilton Inlet. This bay has a length of about 40 miles in an east and west direction, and is dotted with numerous rocky islands. The eastern or outermost of these are clothed only with lichens, emerald green moss and a considerable variety of flowering plants. Trees are entirely absent if we except a variety of arctic willow, and a dwarfed birch which grow prostrate upon the ground, their branches seldom rising more than two or three inches above the rock crevices that protect their roots.

At Indian Harbour which is near the extreme outer end of the broad funnel-shaped bay known as Hamilton Inlet, the small islands are entirely destitute of forest. Fifteen miles to the westward the shores of the mainland and the islands begin to show patches of black spruce of a dwarfed type. These show at a distance on the hill-slopes as blotches of dark green on the light green of the moss covered surrounding areas. The stunted spruce becomes somewhat larger and the areas covered by it more extensive as the head of the inlet is approached.

It is clear that the climatic conditions resulting from floating ice is the main factor keeping the outer shores deforested. Great fields of ice persist in the outer parts of the Inlet till the latter part of July. Scattering ice cakes were seen 18 miles west of Indian Harbour August 20th. The ice however, is seldom if ever seen in midsummer within many miles of Rigolet, which is located at the head of the Inlet. Around this ice-free part of the Inlet near the head of Hamilton bay, the forests clothe a large part of the land surface and the trees, though small, make up dense forests.

Big Tree Specimens

After becoming familiar with the dwarfed spruce forests along the shores about the head of Hamilton Inlet, with trees 15 to 35 feet high, one is hardly prepared for the great change in their character which occurs in the area around Lake Mel-

ville, which lies just west of the head of Hamilton Inlet. At Rigolet which is located near the outlet of the lake, the visitor may see squared timbers used for hauling out vessels that would be considered creditable representatives of any Canadian forest. One of these was measured by the writer; the figures are, length 59 feet; butt dimensions 1 foot 4 inches by 9 inches; dimensions at small end $9\frac{1}{2}$ inches by $6\frac{1}{2}$ inches. This piece of timber which was cut near the head of the lake is considerably larger than any timber near the sea shore.

Black spruce (*Picea mariana*) is the dominant tree throughout the Lake Melville district, but white spruce becomes increasingly common as one proceeds westward or inland. The white birch, (*Betula pendula*) is a very common tree, and in tracts which have been burned over it has taken possession of the ground to the exclusion of all other trees. The largest specimens of the birch observed however, were seen where they occurred sparingly in forests of black and white spruce.

Where the birch constitutes the whole of the forest as it often does over tracts which have been burned, its light green foliage distinguishes it at considerable distances from the darker evergreen forests. The forest color effects vary greatly with the illumination and the distance from the observer. Under a grey sky the black spruce forests are nearly black in the middle distance, dark green in the foreground, shading off into deep dark blue in the distance. Under a half-clouded sky the forested mountain slopes are marked with blotches of dark blue on a field of light green, the color scheme changing constantly with the shifting of the clouds. Sometimes at the finish of a shower a spruce-covered island, rainbow arched will furnish a picture not easily forgotten. Labrador has been described as the land of rainbows; the dozen or more daily showers, often experienced during the past summer, seem to justify the title.

The Colors of Labrador Vegetation

In many places a carpet of sphagnum moss into which one sinks to the knees, mantles the ground in a Labrador forest. When this is absent caribou moss often replaces it. Where the trees are not too closely spaced the ash grey of the caribou moss gives a color contrast to the dark green of the black spruce visible at a considerable distance. Nearly everywhere the white blossom of the Labrador tea is seen during July. As its blossoms fade the dark pink lambskill takes its places, decorating the woods with a

profusion of delicate color throughout the latter part of the summer. About the first of August the half ripe low bush cranberries begin to show rosy cheeks above the moss and a little later the rich dark purple bearberries and blueberries spread a feast of delicious fruit and ravishing color on the grey rocky summit of every hill and mountain. The wild currant, crowberry and bake apples are among the other refreshments which the forests set before their visitors. Alder and willows generally form the forest border along the streams. The fragrant leaved sweet gale is also frequently seen about the margin of the forests.

The principal trees in the approximate order of their abundance in the Lake Melville district are:—

Black Spruce (*Picea mariana* BSP)

White or canoe Birch (*Betula pendula*) Roth. var. (?)

Tamarack (*Larix laricina* Kach.)

Fir (*Abies balsamea* Mill.)

White Spruce (*Picea canadensis* BSP).

Balsam Poplar (*Populus balsamifera* L.)

Yellow or Gray Birch (*Betula lutea* Michx. f.)

Black or White Birch (*Betula lenta* L.)

Trembling Leafed Poplar (*Populus tremuloides* Michx.)

Ground Juniper (*Juniperus communis* L. var. *depressa* Pursh.)

The fir, white and black spruce are the trees which have been used for lumber in the region. Both the white and black spruce reach a large size in many localities. The following figures indicate the character of some of the larger trees in these Labrador forests. On the Mulligan river a black spruce 5' 6" in circumference 20" above the ground was measured. Another black spruce on the Kenemich river measured 9' 10" in circumference. Its fine straight trunk appeared to be 100 feet high. The black spruce here probably reaches a greater average size than in Nova Scotia. At the head of Grand lake a spruce in the driftwood had a diameter of 25". A white birch on the Kenemich measured 5' 1" in circumference. These figures represent a few of the largest trees seen, but many nearly or quite as large were observed. A large proportion of the forest trees approach these figures sufficiently close to furnish a large supply of logs suitable in size for lumber. The mountain slopes carry vast quantities of smaller timber which will no doubt be used eventually for pulp wood.

(Concluded in next issue)

Harvesting the Wood Crop

Description of Research Area Experiments Now Being Conducted at Bathurst Mines, N.B.
—Some Results Already Attained.

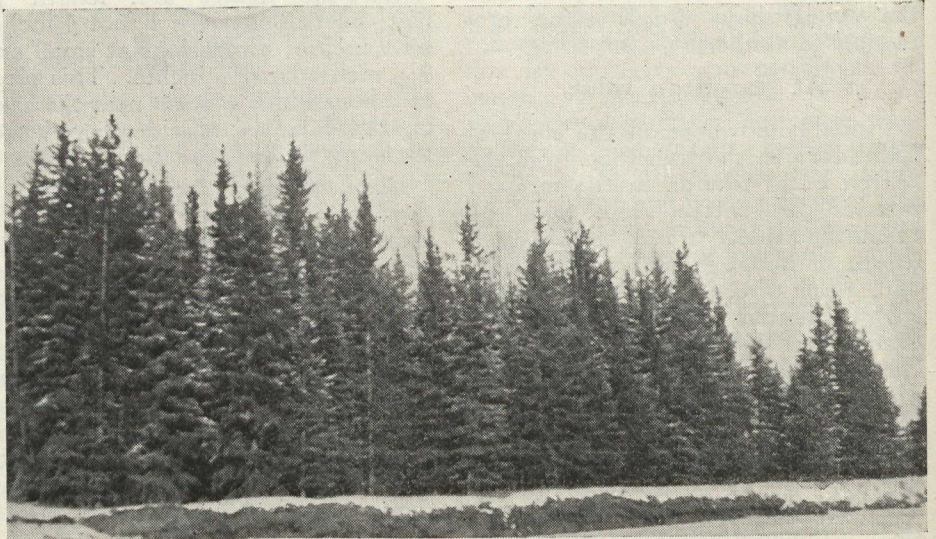
By W. M. ROBERTSON

IT IS pretty generally conceded by both operators and foresters that the diameter limit system is not a desirable cutting regulation. In some pure, dense, even-aged stands the percentage of timber that has reached the regulation size is so small that the operator is not warranted in cutting it. At the same time because of competition for light and soil requirements, growth has so nearly ceased that the probability of sufficient timber reaching merchantable size under present restrictions is far remote.

On the other hand if the diameter limit be reduced to make logging profitable, will the remaining stand be left in a condition (1) to withstand the wind? (2) to improve in growth? (3) to take care of reproduction?

Observations of areas that have been several times cut over, show that at each return for timber the diameter of trees cut, on the average, was reduced. At the same time records of growth show the average age of the small timber to be the same as the larger trees. Thus, by following a diameter system, all the thrifty, fast growing trees are removed first, leaving only suppressed culls, either naturally slow growers or having been too long suppressed ever to recover. These "runts" are the trees left to furnish the next cut, and to furnish seed from which a new crop must spring.

In an attempt to determine some method of cutting such pure, even-aged stands that will be satisfactory to the operator and at the same time assure in some measure, a future crop, the Bathurst Experimental Cutting Area was established at Bathurst Mines, New Brunswick, in 1919. The Bathurst Company logged a tract of over 500 acres on their limits under the direction of Dr. C. D. Howe, Dean of the Faculty of Forestry, University of Toronto, who was then representing the Commission of Conservation. This area has been reserved for twenty-five years for purposes of scientific research in which the Bathurst Company and the New Brunswick Forest Service are heartily co-operating with the Dominion Forest Service. The latter has assumed the co-operation entered into by the Commission of Conservation,



Spruce Reproduction in Clearwater Forest Reserve, Alberta

Photo by P. Campbell, Dom. Fire Panger.

Objects of Research

The primary objects in view when establishing the research area were to determine:

(1) Which of the following methods of cutting will result in the most desirable reproduction:

- (a) Cutting to a 12-inch, 10-inch, 8-inch or 6-inch diameter limit.
- (b) Cutting clean in strips, 1, 2 or 3 chains wide with seed trees removed for a distance of 1, 2 or 3 chains.
- (c) With slash left as it fell, slash lopped, or slash burned.

(2) What the effect of wind will be on areas cut to 12 inches, 10 inches, 8 inches, 6 inches.

(3) Under which of these methods of cutting the remaining stand will show the best increase in growth.

(4) Whether there is any relation between cutting methods and disposal of slash to fungus and insect attacks.

Finally by studying the foregoing problems collectively to determine the method of management that will probably yield the largest supply of the most valuable wood crop continuously.

One half of the reserve was divided into strips 1, 2 or 3 chains wide, running completely across the plot. Alternate strips were cut clean of all conifers. The progress of reproduction on these will be carefully observed. The other strips, all 2 chains wide, were left as control or "seeding-in" strips, and these were

cut in series to 6, 8, 10 and 12-inch diameter limit. The slash was variously handled, being either burned, lopped or left as it fell.

The other half of the plot, except for 18 1-acre clean cut circles, was cut to a 10-inch diameter limit in the ordinary lumbering method.

Method of Studies

An estimate of the cut and the standing timber on the area shows that cutting to:

- 12 inches yielded 21 per cent or about 4.0 cords per acre;
- 10 inches yielded 29 per cent or about 4.7 cords per acre;
- 8 inches yielded 70 per cent or about 13.0 cords per acre;
- 6 inches yielded 90 per cent or about 15.5 cords per acre.

Hence from the lumberman's point of view the most desirable diameter for such a stand would be 8 inches. Cutting in such a way, however, in all probability would not be in the best interests for a future crop; because—

- (1) The stand will be too open to withstand the wind.
- (2) The trees left will probably be suppressed ones unable to recover.
- (3) The suppressed trees cannot be expected to produce thrifty reproduction.

A number of 1-acre sample plots have been established on which to make studies in more detail. A complete record of these has been taken,

[Continued on page 860]

Wild Animals of Canada

By
WILLIAM MACMILLAN

Canada Lynx (*Lynx Canadensis*) Loup Cervier

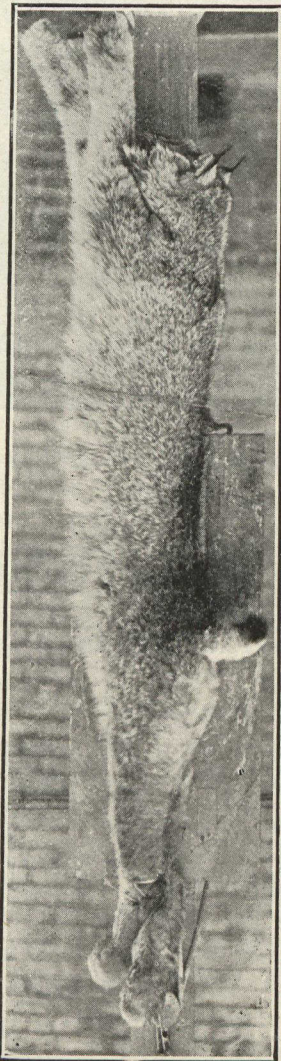
WITHOUT doubt the docile old Tabby that lies purring contentedly at your feet has its exact counterpart in the wild, graceful Lynx that roams through the forests of Eastern Canada and the United States.

The face is broad and intelligent looking while the big, all-seeing eyes are a blaze of living color. The ears are long, and tufted with odd, beautiful pencils of rich, black fur, and by reason of the longer hind-quarters the body rises at the rump and is finished off with a funny little, black tipped bob of a tail. The coat is marvellously soft, ashy grey in shade with an undercoat of soft, smoky brown.

But it is the wonderful fringe of fur along the lean flanks that gives to this big Lynx his beauty of pelt, and to a large extent, his commercial value. Not for nothing has Nature provided the Lynx with long legs and great pads, for he can travel with prodigious speed over soft snow that spells disaster to many an animal every whit as nimble and cunning as he. Truly a child of the Northland, those portions of his family who have migrated to more temperate climes have invariably deteriorated considerably. As a hunter he is possessed of extraordinary patience and it is firmly believed by some that he can resist the ravages of famine far better than can the Timber Wolf. The Lynx is a good climber and swims fairly well, and though his courage is doubtful he is said to fight well enough when cornered.

The large Hare of the northern forests is his favorite food but a tasty Duck or Partridge is thoroughly appreciated and often find their way to his table. Of course like all other wild animals who live by their teeth and wits, when the deep snows and bitter cold of the winter sweep over the land, he fares badly at times, for hunting is difficult and food is scarce.

A full grown Canada Lynx measures well over a yard in length from the point of his flat nose to the tip of that quaint tail of his and he weighs a full five and twenty pounds, his shoulders being about nineteen inches from the ground. The young, usually three in number, seem to



No, this is not a skirmishing party of the White Guards, but a group of Manitoba moose hunters dressed in white jackets prescribed as essential by the provincial game laws as a matter of personal safety. Accidents have been cut down by this precaution in dress.

be all legs and when but a few hours old will scratch and snarl with all the fervor and venom of their parents.

The average French Canadian trapper claims that the Lynx are plentiful only every second year. Whatever truth there is in the supposition, the fact remains that their numbers are visibly affected by the supply of Hares which, as we have already mentioned, constitute their chief article of diet. The fur is much sought after by furriers throughout the world and the wonderful long fur on the flanks lends itself admirably to the art of the clever dyer. A good skin is worth from twenty to thirty-five dollars.

Red Lynx (*Lynx Ruffus*) Loup Cervier Rouge

Similar in many respects to his larger and more noble kinsman, the Canada Lynx, he is often mistaken for that animal though he is not nearly so large nor has he the beauty of pelt that characterizes the Canada Lynx. The fur of this Lynx Cat is soft but short, greyish in tint and covered with faint, brownish spots lacking altogether the wonderful long, flank fur that makes the bigger Lynx so desirable.

The tail is scarcely ringed at all and ear tufts are absent. Although as a rule the Lynx prefer heavily wooded country they are not at all averse to open places.

In the manner of his living this Lynx follows the same plan as all of his kind. Sometimes, for instance, he will climb a tree and wait patiently for the passing of his prey beneath when at a suitable moment he drops on its back with a silent thud, but more often does he steal upon his dinner on soundless feet.

APPROVES OUR METHODS

From the chief executive of a large Canadian industrial concern, who for many years has been a member of the Canadian Forestry Association:

"I have observed for many years the methods by which the Canadian Forestry Association handles its business and in my opinion you get more work done with less expenditure of money than any voluntary association I have known. The Association appears to be sincerely devoted to its objects and to carry them out with maximum effectiveness and minimum waste of time or substance."



Vue d'une partie du territoire forestier bien organisé de la Suisse, montrant la résidence de l'inspecteur-forestier du district

Les Forêts Suisses

Un pays démocratique, où la sylviculture atteint un très haut degré de développement.

LA Confédération ne possède pas de forêts. Les forêts "domaniales" de France correspondent, chez nous, aux forêts "cantonales", qui occupent dans l'ensemble de la Suisse le 4 pour cent, alors que les bois communaux couvrent le 67 pour cent et ceux des particuliers le 29 pour cent seulement. Si, pour assurer le service des 22 cantons, on compte 208 agents diplômés, il y en a seulement 17 au service de la Confédération, y compris le personnel enseignant de l'Ecole Forestière et celui de la Station fédérale d'essais forestiers. Rappelons aussi que la surface forestière totale de la Suisse est de 982,000 hectares (France, 10 millions d'hectares), soit le quart de l'étendue du pays.

Avant la guerre, la Suisse importait de l'étranger pour 40 à 50 millions de francs par an, tellement la vie économique avait pris de l'extension.

Le bois pénétrait en Suisse presque exclusivement sous forme de sciage, de grumes et de bois de râperie.

Lors de la déclaration de guerre, en été 1914, la construction indigène fut automatiquement arrêtée et, par là, la plus grande partie des ventes de l'automne ne purent avoir lieu. Cette situation se prolongea pendant environ dix à douze mois, jusqu'au moment où les gouvernements alliés et l'industrie privée française et italienne demandèrent à la forêt helvétique des bois pour satisfaire aux besoins stratégiques et économiques des armées. Dans la suite, une partie de ces livraisons furent faites à titre de compensation, ce qui permit à la Suisse d'obtenir tout d'abord des produits alimentaires.

D'un bout à l'autre du pays, le commerce prit alors une extension réjouissante. La seule entrave fut, dès le début, la rareté de la main-

d'œuvre, provenant des mobilisations successives de nos unités d'armée, ainsi que de la culture agricole activement développée. Un autre obstacle a été le petit nombre et la cherté des attelages, imputable encore à la mobilisation et au manque de carburant pour les véhicules à moteurs.

Malgré cela, les quantités de bois de service lancées sur le marché et débitées en faveur de l'étranger, même dans les scieries les plus retirées du pays, ont sans cesse augmenté. En 1916, par exemple, l'excédent d'exportation de la Suisse était de 68 millions, et ce chiffre a encore été dépassé en 1917 et 1918. Par conséquent, la guerre a complètement modifié les circonstances financières de la production forestière.

Au début de l'exploitation intensive, notre public, qui connaît encore mal les choses de la forêt, a protesté

d'abord contre les prix des bois de feu—résultat inévitable de la crise du charbon.

Le consommateur, qui confond bois de feu et bois de service, a poussé les hauts cris en voyant les wagons chargés de planches dirigés sur nos lignes de l'Ouest et du Sud. Il en a immédiatement conclu qu'on dilapidait nos bois et qu'il n'était pas étonnant que les combustibles fussent si chers . . . les produits de la forêt helvétique étant drainés par l'étranger!

Nous voulons espérer qu'actuellement la lumière a été faite sur cette question des bois et que nos citoyens, ceux des villes surtout, comprennent que la Suisse ne pouvait guère offrir à ses voisins, à part les montres, les dentelles et les fromages, que des bois de sciage en matière de compensation.

Il eût été absurde d'utiliser de beaux assortiments de service en guise de combustible! Quant à nos populations rurales, elles n'ont pas tardé à concevoir—en 1915 déjà—que, du moment que la construction, tant citadine que campagnarde, était paralysée, la vente à l'étranger des charpentes et planches était une bonne fortune, d'autant plus que les prix atteignaient déjà, en automne 1916, une valeur triple de ceux de 1914.

En ce qui concerne les bois de feu, voici trois ans que leur prix a doublé. On pourrait citer bon nombre de communes qui possèdent plusieurs centaines d'hectares de sapinières ou de pessières de plaine ou de montagne, qui ont complètement rétabli leur situation financière. Elles ont réalisé des bénéfices considérables leur permettant d'assumer des dépenses imprévues et d'entreprendre des travaux d'édilité et d'extension du réseau des chemins forestiers.

La forêt helvétique a-t-elle été surexploitée? C'est la question qu'on se pose chez nous depuis deux ans.

Oui et non! si l'on envisage les forêts publiques (cantonales et communales) et suivant les régions. En 1914 et 1915, on a capitalisé l'accroissement. Par contre, en 1916 1917 et 1918, dans certains cantons,

on a anticipé sensiblement sur les possibilités; mais, en somme, l'excédent est assez faible, tellement les contingents consentis aux Etats alliés ont été contrôlés et leur livraison entravée par les difficultés de transport.

En ce qui concerne la forêt particulière, si morcelée chez nous, et en grande partie propriété des paysans, il faut bien avouer qu'elle a été surexploitée surtout dans la région montagnaise. En effet, en raison des frais d'exploitation relativement élevés et surtout des prix de vente de la période antérieure à 1915, les propriétaires avaient renoncé à abattre de vieilles réserves localisées dans des vallées reculées et sur des pentes rapides. Le prix des grumes ayant triplé, la réalisation de ces vieux bois devint une opération intéressante.

Et l'administration forestière, qui exerçait cependant un contrôle serré sur cette catégorie de forêts, concéda des coupes extraordinaires au caractère jardinatoire, celles-ci accordées à titre d'anticipation sur les possibilités futures. Cette attitude des pouvoirs publics se justifiait pleinement, et l'on n'avait aucune raison d'empêcher les propriétaires de forêts de ne pas tirer avantage de la situation.

On a pris d'ailleurs des précautions pour éviter les coupes trop claires: en 1917, un arrêté fédéral a rendu des permis obligatoires pour des coupes même inférieures à 20 mc. En outre, on a fixé une amende de 10 à 40 fr. par mc. exploité pour contravention de coupe sans autorisation préalable des agents forestiers.

Mais là ne s'arrêtent pas les mesures prises par nos autorités pour assurer, dans l'avenir, la production de nos forêts et augmenter si possible cette dernière.

Nous devons nous borner, dans cet article, à signaler l'évolution qui vient de se produire dans le canton de Vaud, mais qui n'est—nous voulons le croire—que le prélude d'un mouvement de réforme forestière plus étendu.

Chose curieuse, l'initiative d'une réforme de notre loi forestière vau-

doise a été l'œuvre non pas de l'Etat, mais de la Société Vaudoise des Forestiers, association qui groupe les agents, les préposés et les propriétaires de forêts du canton de Vaud.

En effet, cette dernière, lors de son assemblée générale du 3 février 1917, vota une résolution invitant le pouvoir législatif du canton de Vaud (grand Conseil) à porter de 11 à 20 les postes des inspecteurs d'arrondissement et à innover d'autres mesures tendant à cultiver les forêts vaudoises d'une façon plus intensive.

Nos autorités ont eu le bon sens d'écouter cette voix émanant d'un milieu compétent, et ont admis de créer de nouveaux postes d'agents.

Jusqu'ici, nos inspecteurs avaient chacun en moyenne 7,300 hectares à "inspecter"; dorénavant, ils auront 4,000 hectares à "gérer" et à aménager. La tâche sera encore suffisamment importante—surtout dans un pays aussi accidenté que le nôtre et avec le morcellement si accentué de notre domaine forestier.

Pour parer à cette nouvelle dépense, le grand Conseil vaudois a institué une collaboration financière des communes—qui accaparent la plus grande partie de l'activité des agents. Dorénavant, ces dernières participeront aux paiements des salaires des inspecteurs forestiers.

En outre, on a créé un droit de coupe qui frappe moins les communes forestières chargées d'impôts que celles qui ont un budget s'équilibrant sans impôt communal. Enfin, les rares communes qui jouissent encore de répartitions sont frappées d'un droit de coupe plus élevé.

La forêt privée a été taxée du même droit, dont le taux pourra être modifié d'année en année, suivant les variations du cours des bois.

En adoptant ces mesures de progrès, le canton de Vaud a tenu à assurer son avenir économique forestier; il sera sûrement suivi dans cette voie par d'autres cantons. Si, partout en Suisse, on voulait bien pousser à la culture intensive en créant de nouveaux arrondissements de gestion, on arriverait, suivant le calcul d'un de nos éminents sylviculteurs, M. le professeur Badoux, à produire facilement le contingent de 700,000 mc. que la Suisse demandait à l'étranger avant la guerre. Il suffirait, pour supprimer le déficit, d'augmenter la production des 600,000 hect. de forêts communales de 1,1 mc. par hect. et par an.

E D I T O R I A L

ILLUSTRATED CANADIAN FORESTRY MAGAZINE

Published and Owned by

**The Canadian Forestry Association
Jackson Building, Ottawa, Canada**

ROBSON BLACK - - - - - Editor
GEORGE A. MACKIE - - - - - Publication Manager

SUBSCRIPTION RATES

With Membership in Canadian Forestry Association.	\$2.00 a year
Contributing Membership	\$5.00 a year
Life Membership	\$25.00

SINGLE COPIES, 20 CENTS.

NOTICE TO CONTRIBUTORS

The Editor will consider for free publication articles, photographs and communications of general interest. Rejected matter can only be returned if the necessary postage is enclosed, and no responsibility is undertaken for the safe return of such matter. When payment is desired the fact should be stated. Letters and articles must be written on one side of the paper only. The views expressed by contributors writing over their own signature are not necessarily endorsed by the Editor.

The Export of Scenery

RECREATIONAL Travel is now a great world industry. That is a grubbing way of discussing Travel, but from the point of view of a hard-up Dominion with an unfavorable balance of trade, "industry" is just the word that sounds sweetest.

To sell a few tons of Canadian newsprint paper in Buenos Aires or a gross of wringers in Vladivostok sounds more like export trade, than to fetch a hundred Pullmans from Chicago to Banff or Algonquin Park. But the probability of a fat national profit is all on the side of the Pullmans.

Last year, the total number of visitors to all of Canada's National Parks, (to which must be added the great number visiting the provincial parks) was approximately 160,000, about 60,000 of whom were from foreign parts. On a low estimate of expenditure per capita, the visitors to the National Parks left in Canada over \$18,000,000. For that money we gave them a full return in healthful recreation. They left our forests and streams no poorer. We gained the eighteen million dollars and lost nothing in the transaction from our national stock.

Canada is in an ideal position to build up a national tourist business worth \$100,000,000 a year. France formerly gained \$600,000,000 a year from recreational travel and to rehabilitate this source of wealth has instituted a special portfolio of Touring under a Cabinet

Minister. Belgium is spending 16,000,000 francs to put her roads in shape for visiting motorists.

Canada must not lag behind in what is essentially a commercialized contest for tourist patronage. Keeping such facts in view, one of the acts of Honorable Charles Stewart, Minister of the Interior, was in maintaining the appropriation for the Dominion Parks Branch this year and thus making sure that the most potent public organization we have for travel development shall not be handicapped.

Canada—which passes with all too many Americans as "the wilds of Canada"—has in her glorious scenery, her game and fish, the restfulness of life in a thousand remote places, and the ease and luxury of ordinary travel by rail and boat, a magnetic asset from which enormous revenues may be drawn. Probably no remaining industrial opportunity matches the "export of scenery" in its capacity for sane development.

Mr. J. B. Harkin, Commissioner of Dominion Parks, made an interesting comparison a few years ago between the national returns from scenery in Banff Park and the value of wheat production per acre. It was proved that in 1915 when there were 90,000 visitors to the Banff Park alone, 65,000 being foreigners, the Parks' attractions represented an income (in American funds) of \$13.88 per acre, while the wheat crop of Canada represented in that banner year \$4.91 per acre of cultivated wheat land. The sales of scenery returned more than three times our income, had the Banff area been flattened out into a wheat field with every corner under crop.

The next issue of this magazine will contain a special article on "Selling Scenery—Canada's Big Opportunity", giving unusual and little known facts as to the present and potential power of national playgrounds to correct our balance of trade.

USE THIS INFORMATION BUREAU!

MONTH by month hundreds of enquiries from members of the "Canadian Forestry Association" and others are answered by the Association staff, 225 Jackson Building, Ottawa. Every reader of the "Canadian Forestry Magazine" should regard this Information Bureau as entirely at his service. Questions relating to tree planting, tree pruning, forestry, and allied subjects will receive prompt and expert treatment. The Association is in a peculiarly advantageous position to handle such enquiries owing to the courteous co-operation of the Dominion Forestry Branch and other Government departments.

THIS SPEAKS FOR ITSELF AND US

Canadian Forestry Association,
Ottawa, Can.

Dear Sirs:—

You will find enclosed five dollars as a contributing member, my only regret is that I am unable to make it one hundred times this amount. My experience in the woods for the last thirty years as fire warden, etc., in different parts of New Brunswick, has taught me that human carelessness is by far the most destructive agency in the world. And I realize that the Canadian Forestry Association is doing its best in awakening public opinion to a fixed and useful stand in the matter of forest work and forest protection and I feel that it is no undue compliment when I say there is no organization in the world that is working more earnestly or more effectively in the interests of Public good than the Canadian Forestry Association.

Yours for success,
(Signed) GEO. ALLEN.

Wapske, N. B., May 4th, 1922.

Welcome to Our Midst

"**R**OOT and Branch" is the unique name of a new publication of which the initial number has just been issued by the British Columbia Forest Service. The first issue is a highly creditable one, and is certain to prove useful in developing loyalty and mutual consideration. In the foreword, the Chief Forester, Mr. Caverhill says:—

"The Service can be likened to the trees with which it has to deal. The Head Office constitutes the Roots, bedded in departmental policy and procedure. You are the Branches. Both are essential to the growth of the tree—both are dependent on the other. Disconnected roots or severed branches can never make a tree. They require a connection—the Stem. In the Branch this connection is "esprit de corps." The Stem develops not directly, but through the joint action of Roots and Branches, and it is when all are working in harmony that we have the stately, upstanding, well-developed tree. In trying to find a name for our paper this similarity was so strongly impressed upon us that we chose the name "Root and Branch," to represent all. The paper is to assist in drawing us into one harmonious whole, to facilitate the flow of sap through. If through this effort the "esprit de corps" is increased, the Service thereby made more efficient, more upstanding, more human, our efforts will not have been in vain."

VALUES THE FRENCH ARTICLES

A LETTER to the "Canadian Forestry Magazine" from Mr. L. H. Audet, of the Morris Lumber and Coal Co., Morris Manitoba, says: "We received the April copy of the magazine and found every article very interesting as usual, but we take this opportunity to thank you for your splendid idea of publishing at least one article in French because it will enable those Canadians who have not the advantage of knowing the English language well enough to understand and read the magazine, as published before, to co-operate in this great work of forest preservation which every true Canadian should have at heart."

The Editor's Mail-Box

MORE ABOUT THE BUFFALO

To the Editor:—

In connection with the interesting letters on the disappearance of the Buffalo recently contributed by Mr. Moberly and Mr. McIntosh in your issues of February and May, it may be pertinent to add a statement made to the writer last year at Fort St. John in the Peace River district by Mr. J. Beaton, Factor of the Hudson's Bay Company at that port. Mr. Beaton, who has lived at Fort St. John for twenty-five years, states that four buffalo were taken near the fort shortly after his arrival and that the last seen in the district was some four years later. From the reports of buffalo traces brought in by Indians trading at the fort Mr. Beaton believes that at least one small herd still exists in the country north of Peace river between the headwaters of the North Pine and the Sikhanni rivers.

This is a region of wooded prairie with occasional open stretches, in which buffalo were formerly abundant. The number of hunters is now greatly reduced and little information is obtainable. It may remain for some of the forestry explorers to prove the correctness of Mr. Beaton's surmise.

Montreal, Que.

JOHN A. DRESSER.

Jack Pine Comes Back

A NUMBER of readers of the "Canadian Forestry Magazine" have asked concerning the rapid regrowth of jackpine on many parts of the area from North Bay to Lake of the Woods, as may be clearly seen from the windows of any transcontinental train. Discussing this promising phenomenon, Mr. R. O. Swezey, of Montreal, a well-known Forest Engineer.

"As you are probably aware, one of the main reasons that the section between North Bay and the Lake of the Woods has been so seriously burnt over is that the soil is nearly all gravel, and consequently contains little moisture to offset the tendency for fires to run during a dry season. The result was, of course, enormous forest fires, which passed repeatedly over the same area, after new growths had been established. Young jackpine or old jackpine burns very rapidly, and grows very quickly immediately after any fire, provided the fire has not burned it out.

"You know, of course, that jackpine provides little or no mulch, and therefore the fire does not linger in the ground, as there is nothing but gravel. I feel now that we have come to understand the seriousness of fires, and since we are observing better regulations regarding same, the vast area referred to will now have a chance to become reforested with jackpine, mixed with occasional spruce, and in a few years a very valuable forest should.

"I do not doubt for a moment but that jackpine will be just as valuable in a few years from now as spruce is today, and all the benefits dependent upon a forested section will also accrue as a result. The only well-wooded part of that northern section that lies between North Bay and Lake Nipigon, comprises an area of about 3,500 to 4,000 square miles, lying between the old C. N. R. and the C. P. R. Incidentally I may say there is just as encouraging and probably a more valuable growth of white and red pine coming up today in the Valleys of the Madawaska River and the Bonnechere."

Canada Helps Re-stock Mother Country's Forests

TO ASSIST in the replacement of the areas of United Kingdom forests destroyed for war purposes and to help carry out the afforestation programme inaugurated by the British Government, the Dominion of Canada through the Dominion Forestry Branch, Ottawa, has already shipped to the British Forestry Commission 13,140 pounds of tree seed which, (if our readers care for a more complete arithmetical meaning), represents about 2,628,000,000 individual seeds.

This total is made up of 4,700 pounds of Douglas Fir, 8,000 pounds of Sitka spruce, and 440 pounds of Western Hemlock, a total of 13,140 pounds.

Our photograph shows the station established at New Westminster by the Dominion Forestry Branch



Dominion Forestry Branch Seed Extraction Station at New Westminster, B.C.

for the extraction of seed from the cones of the species mentioned. What a great task was involved in collecting 13,000 pounds of seed will appear at a glance, for the

floor of the warehouse contains merely a few of the 7,236 sacks or 11,074 bushels of cones brought to the station for seed extraction. Of Douglas Fir there were 3,646 sacks, equalling 5,480 bushels; Sitka Spruce 3,237 sacks or 5,054 bushels; Western Hemlock 353 sacks or 540 bushels.

Some time ago the American Forestry Association which has been taking a generous interest in the collection

of tree seed, particularly that of the Douglas Fir, presented the French Ambassador at Washington for transfer to the French Forest Service, with over 500 pounds of seed.

Questions and Answers on Forestry

By CANADIAN FORESTRY ASSOCIATION

Q.—Our town is arranging to plant shade trees along several of the streets at the expense of the municipality. Is it considered good practice to plant only one variety of trees on a single street, or to mix the varieties to some extent?

A.—By all means keep to one type of tree on each street. The most beautifully shaded street in the city of Ottawa has nothing but elms for its entire length. It is easy enough to spoil the appearance of a street by mixing such trees as mountain ash, birch, elm and others. Keep to the hardy and long lived tree such as the Elm and Norway Maple.

Q.—Where can I obtain information as to the planting of hedges and the selection of material that will produce best results?

A.—Write for a very informative booklet to W. T. Macoun, Dominion Horticulturist, Central Experimental Farm, Ottawa.

Q.—As a newspaper editor how can I figure out how much wood is required to keep this paper supplied with newsprint for a year?

A.—It takes one and a half cords of spruce or balsam wood to make one ton of newsprint. The average spruce found in Eastern Canada runs about six cords to the acre. You can easily calculate from this how many acres of timber must be cut each year to provide for your local circulation.

Laurentide Air Service Progress

Extension of Business Necessitates Opening of New Air Station and Purchase of Two Flying Boats

THE LAURENTIDE AIR SERVICE, since its formation a few months ago, has made very rapid business progress. Owing to the large amount of business available the Company has organized a second Air Station at Remi Lake, about 65 miles West of Cochrane and a few miles North of the Transcontinental Railway, the nearest Station being Moonbeam, Ontario.

The main Air Station of the Company, as stated previously, is situated at Lac La Tortue, Quebec. The Laurentide Air Service has secured two extra Flying Boats, in addition to their present equipment, for the second station. The work to be carried on by these consists largely of reconnaissance, cruising, sketching and transportation of parties into the lakes and sections of the river in the North country. Laurentide Air Service, contrary to a previous statement in these pages, is entirely separate from Canadian Aerial Services, Limited, one of the pioneer Aeronautical Companies in Canada.

STEADY PROGRESS.—The Ottawa Printing Co. Ltd., which prints this publication, has a complete equipment and is capable of producing high class commercial, catalogue and magazine work.
3 and 5 Mosgrove Street Telephone Rideau 295
OTTAWA, ONT.

Public Opinion as a Forest Fire Extinguisher

Some suggestions for every owner of standing Timber who seeks a reduction of his fire losses.

By ROBSON BLACK, Manager Canadian Forestry Association, Ottawa

TO develop an intelligent and progressive view concerning the forest resources is the special business of the Canadian Forestry Association. To us, as we work in our campaigns, a well informed public is only another term for standing timber, and for permanent pulp and paper and lumber mills and thriving population. We are not theorists. We are timber dealers. The man of practical affairs shies at public sentiment. The thing looks like an eiderdown cushion and it may continue to look that way until some day it hits him in the jaw and then he realizes that the real source of horse power is not Shawinigan and Niagara Falls after all.

The special commissioner of the Canadian Pulp and Paper Association, Mr. Beck, was sent to Scandinavia and other countries a year ago to report upon forest conditions and particularly the relation of the State to the solution of forestry problems. I believe that Mr. Beck's outstanding impression from his visit was not that Scandinavian forests were superior in quality or that growing conditions differ materially from those of Quebec or Manitoba, but that the public knowledge of the national forestry problem has so permeated all classes of people that progressive and sane forest legislation had been made possible and that through this educational impulse the State, the people and the industries, were marching forward to ideal forestry conditions in perfect harmony. The first and most startling effect of this aroused public opinion in Scandinavia has been an almost complete suppression of forest fires. If an attitude, if public opinion, will stop forest fires in Sweden why not in the Clay belt or on the Miramichi?

Educational Patrol

In recent years, fire rangers, inspectors, managers of the forest protective associations, the responsible officers of the government forest protective bodies have come to the conclusion that, while mechanical equipment and ranger patrol are absolutely essential and that a strong dose of police authority here and there exerts beneficial effects, the permanent solution of the forest fire problem must come from intensive educational propaganda. These men in the field face the daily fact that nine out of ten forest fires are started by human beings and that the chief reason is not malevolence but ignorance and a general attitude of "don't care." These people who start the fires are amenable to reason. They are open to a variety of intelligent influences and wherever such educational pressure has been utilized intelligently remarkable results have followed. In a great many districts of this province the reason for the decrease of fires within recent years has been not an application of court fines and police action but in persuading the man who caused the fire to look upon forest protection as all a piece with his self-interest, and his duty to his community.

The man who leaves out the general public in his campaign for better forest protection and for intelligent forestry methods in Canada leaves out the judge and jury. He is wasting his effort on the court lawyers and the doorkeepers. In the first Victory Loan campaign 30,000 people, mostly professional investors, were persuaded to buy bonds of the Dominion Government. Recognizing that the mass of people must be persuaded

to purchase bonds the Minister of Finance began his next campaign by a hard-hitting and inspirational advertising campaign on the simplicity and profit, and patriotism of bond buying. As a result 800,000 people purchased Government bonds. A short time ago the Coca Cola Company of New York sold their goodwill for three million dollars. That three million dollars was paid for an attitude, not for anything substantial or tangible. The money was paid because an idea has been firmly implanted in the minds of millions of persons that a particular drink was worth buying. More recently, the United States private-owned railways sought a remedy for their troubles under public operation by carrying their case to the general public. As a result the private railway managements secured an almost unanimous verdict in their favour which certainly would not have been possible had they not called in the jury of public opinion.

Coca Cola and Fire Prevention

Is not fire protection as palpable and plausible as Coca Cola or a Victory Bond? Is not the Canadian citizen, with a high average of education and a keen sense of fair play, as ready to back forest protection as he is to back a telephone company or railway? Emphatically he is. During the past ten years we and other agencies have proved it so. Others have proved it so. Many lumbermen can vouch for the fact that one or two live men in a community can change over the record from a debit of annual fires to a credit of no fires at all. This has happened again and again and is only an illustration of the everyday triumph of the right idea.

Twenty-two years ago the Canadian Forestry Association came into existence with three or four basic ideas on which to found its future. First, that the forest with agricultural lands, constitutes the great pillar of Canadian prosperity. Second, that if the forests fail every other national activity goes to the wall. Third, that the fact of a constantly decreasing forest asset comes into direct and violent collision with our duty of preparing for a larger population and that the enormous advantages in export trade given to this country by virtue of forest possessions can be retained only as the raw materials are retained.

Such facts appeal to thousands of men brought within the influence of the Canadian Forestry Association; business men, who in thousands of instances have no identification whatever with the wood-using industries but who feel that public action in forest conservation was demanded as a matter of public safety, and commercial common-sense. They believe that the governments having retained the ground rights to more than 85 per cent of the forest area of Canada have retained thereby the main legal and moral responsibility for handing on the forest resources to the next generation in as good condition as when received. They believe that as time goes on exploitation must give way to regulation and that the State, as in almost every land on earth, is the inevitable forest regulator. From this, men made the simple deduction that only by putting the mass of people into possession of the forestry point of view can the State carry out its function competently. Now, the implication is this, that in a democratic land governmental action in forestry, as

in road building, does not commonly venture far in advance of what the masses of people understand or sanction. Upon these various beliefs, entirely in tune with the policies of the Canadian Pulp and Paper Association, a body of influential public opinion in Canada has been reared.

The Two Streams of Opinion

In our experience public knowledge or lack of knowledge of the country's forest problems divides into two streams. The first reflects the educational process of the Canadian Forestry Association and of other agencies in the following beliefs: First, that the interest of the State and of the lumber and paper industry are identical and that the policy that serves one well must be of advantage to the other; Second, that logging is not a way station to agriculture, but that the wood-using industries may be and should be regarded as permanent as fruit farms. Third, that fires in the forest represent wholesale devastation and that the popular remedy of tree planting is merely a matter of retail restoration; Fourth, that there are more areas that have been mistakenly stripped of trees and that must eventually be returned to forests than there are acres now under timber that can ever be profitably cleared for farms; Fifth, that from the point of view of the right use of land 60 per cent. of Ontario, and more of New Brunswick, Nova Scotia and Quebec must all be kept under timber crop or be regarded as a no-man's-land forever. But there is another branch of the river of public opinion, bigger, more influential. It reflects the prejudices of the early farmer against the forest. It cannot forget what has been carelessly printed for the last quarter century about lumber barons and timber scandals. It knows, with all the certainty of ignorance, that there is more timber than will be needed in three centuries. That misinformation and prejudice is the real fire-bug in Canada. It started probably a thousand out of Ontario's fifteen hundred forest fires last year. That misinformation costs the limit holders of Canada as well-known millions of hard cash a year. That misinformation always stands ready to impose on you by its enormous political power, unfair legislation, price control boards, and whatever novelty future emergencies may develop. Every unit of this great industry pays the shot for public prejudice and pays it by the dram, whether or not it spends a dollar in counter-acting it or in building up a sane antidote. Last year half of New Brunswick's forest fires were caused by parties of jolly fishermen. The thing that made that possible can be reduced to a general proposition: That an aggressive public having no regular diet of fact takes the next best thing and the limit holder and the government pay the piper. Give these men the honest and convincing facts, or, better, give them to their children, and four times in five you can change the tune of the entire community in a surprisingly brief time.

May I again emphasize that timber conservation, whether in the form of fire protection or in the securing of new laws and changes in administration, is a thing to be argued upon and advised upon by the limit holders and the industries, but the steam power to action is turned on only when the public gives the signal. This public is interested by its ownership of the timber lands, by its sense of authority, by its desire to promote basic industries, by its duty to future generations. Does not that public, the power vested in that public, give the solution of nearly all the major worries, except marketing, that harass the pulp and paper industry? Why not harness this power to forest protection? Why not harness it to the forestry programme of the pulp and paper industry as it has been harnessed to good roads and workmens' compensation and other things with which you agree or don't agree but which have gone through all the same?

Alberta Steps Forward

By E. H. FINLAYSON

IT IS particularly gratifying to note that Alberta, which, since its creation as a province about fifteen years ago, has operated under the very antiquated "Prairie Fires Ordinance" of the Northwest Territories, 1898, has at last taken steps to bring its fire legislation more into line with modern usages. For some years the Dominion Forestry Branch, the Canadian Forestry Association, and other organizations interested in forest fire protection have urged upon the provincial authorities the necessity of revising the fire legislation, but with little success. Although the whole Act really requires a complete revision, it was hardly to be expected that the new administration, at its first session, would put through an entirely new act. The new government, however, are to be congratulated upon the excellent amendments which they have provided as a temporary measure, for some of these amendments will go a long way in solving the difficulties under which various organizations have been working for years past.

From a forest protection standpoint, the most important features of the new legislation are as follows:—

(a) All Dominion Forest Fire Rangers, Royal Canadian Mounted Police, provincial police and councillors of municipal districts are ex-officio fire guardians. It is particularly pleasing to note that, now that patronage has been eliminated from appointments of Dominion forest and fire rangers, the provincial authorities find it possible to make this provision without attaching to it all sorts of strings which, in some other instances at least, have rendered somewhat similar provisions inoperative.

(b) The Act places upon the council of the municipal district the definite obligation of appointing a fire guardian.

(c) All fire guardians, however appointed, have authority to enforce regulations set forth in the Act.

(d) Power is given to the fire guardians to order out for fire fighting duty any male person over the age of sixteen years. Such persons may be required to go ten miles to a prairie fire, or twenty-five miles to a forest fire. Their equipment, consisting of horses, ploughs, and other appliances, may also be commandeered for fire fighting duty. The usual exceptions are, of course, made in the case of post-masters, physicians, telegraph operators, etc., whose duties prevent their attendance at fires.

(e) Provision is also made for the use of spark arresters on marine engines, with a view to preventing fires which otherwise occur on some of the northern lakes and rivers, due to careless operation of steam boats.

(f) Provision is made in the legislation for the establishment of fire districts. These are areas of particular hazard, such for instance as the timbered section lying to the east of the Rocky Mountains Forest Reserve. In such fire districts it is illegal for any person to set out a fire between April 15th and November 15th, except under regulations prescribed by the Lieutenant-Governor in Council. Something new in the legislation is provision of a maximum rate of 25 cents per hour for fire fighters or 50 cents per hour for a man, team and implements.

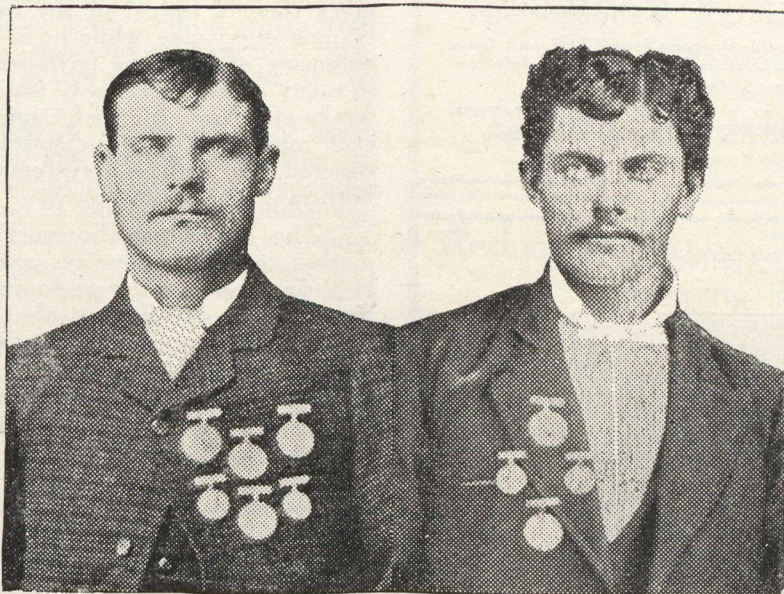
(g) The penalty scale has also been revised in such a manner as to ensure that the fire laws will in future be given considerably more respect.

Champion Wood Cutters of the World

MR. JAMES McLEAN, Superintendent of the Department of Interior's Tree Nursery Station at Sutherland Saskatchewan, under date, of April 7th, contributes the following very interesting illustrated article re wood-cutting record holders:—

"In the January number of the Illustrated Canadian Forestry Magazine there appeared the photographs of Jackson and Maclaren, of Australia, felling oaks and poplars on the estate of the Marquis of Salisbury, at Hatfield, England. 'Can Canadian Woodsmen Equal This Record?' was a question asked in this connection

"The accompanying illustration shows Mr. Stewart Happer and the late John D. McColl who for forty years held the championship of Canada for wood cutting. Their official records are considerably lower than the official records of Jackson and Maclaren who are claimed by new authorities to



STEWART HAPPER

JOHN D. McCOLL

be the champion wood choppers of the world. Mr. Happer resides at Parkhill, Ontario. Mr. McColl died about fifteen years ago. Happer and McColl won seven silver and gold medals and four silver cups. Following are some of their records, viz.:—

1882 Medals for the Championship of Ontario;

1883 Medals for the Championship of Canada;

Sawing hard maple log 17 inches in diameter, time 13½ seconds;

Sawing hard maple log 22 inches in diameter, time 26¾ seconds;

Sawing one cord of wood, without resting, from hard maple tree, time 8 (eight) minutes and 47 seconds;

Cutting down bass-wood tree, 3 feet in diameter, time 2 minutes and 17 seconds. Cutting this tree into 5 logs, time 1 minute, 1¼ seconds or 12¼ seconds per log.

"Dates and places of competitions can be furnished. The records of these Canadian woodsmen still remain unbeaten, and it is probable that they will remain unbeaten as forestry conditions have

altered greatly since the early '80's."

The Illustrated Canadian Forestry Magazine will welcome any further articles relating achievements of wood-cutting experts, past and present.—Editor.

SPORTSMEN, HELP FORESTRY!

Wood is essential to both indoor and outdoor recreational exercises

WOOD ENTERS into sports vitally. An inspection of any gymnasium would convince one of the importance of wood in the training and development of the physical man. Wood is no less important in field sports. The athletic and recreational world rests largely on a foundation of wood; every lover of sports or the out-of-doors should be a friend of the forests and an advocate of forest conservation, according to a statement by New York State College of Forestry at Syracuse University. The extent to which wood figures in sports is amazing. More than 25,000,000 board feet of thirty-two different kinds of wood are used every year in the United States in the manufacture of implements for sport and games. Dumb-bells, wands, trapezes, vaulting horses, Indian clubs, horizontal bars, reins and other pieces of apparatus are composed wholly or partially of wood.

Canoes and paddles, rowboats and oars, fish poles and baskets, croquet mallets and croquet balls are wood products. There is said to be more wood consumed for croquet outfits than in golf and tennis combined. Baseball bats, lacrosse sticks, hockey sticks, bows and arrows used in archery; snowshoes, skis, toboggans, sleds, roller skates, tenpins, bowling alleys, bowling balls and pins, billiard cues, tables and counters are made of wood. There are hundreds of diversions dependent upon wood such as pingpong, croconole, checkers, cards. Whenever the price of wood advances on account of the depletion of the forests, a process that is progressing rapidly, the

cost of these diversions that contribute so materially to the happiness of the people is increased. We should be reducing the price of these articles by planting and conserving our forests on a more intensive scale than has ever been tried in this country. Every sportsmen should boost forestry.

AN ANTEDILUVEAN STEED!



Photo from "Wide World Photos".

Wrong again. This is simply one of the freaks of Nature that we read so much about but see so seldom. It is really a tree grown into the approximate shape of a horse. It is located in the woodyard of Mr. Huntington, purchaser of the famous "Blue Boy" painting at \$480,000 and which had just arrived at the time this photo was taken.



Facing the Highest Mountain of the Oldest Range on the Globe, on the confines of the actual North Land, a Maze of Mountains, Lakes, Forests and Rivers Combines the Refined Comforts of Modern Equipment with "Old Time" Hospitality.

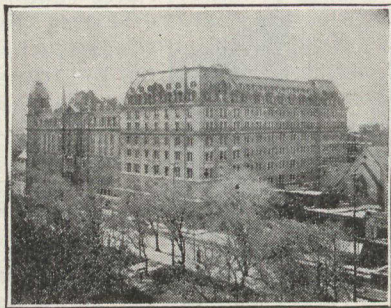
ALWAYS OPEN Every Seasonable Pastime from Rod and Gun, — Music and Dancing, — to Golf and Aviation.

Full information furnished on request. Ask for circular F.

GRAY ROCKS INN, Limited P.O. ST. JOVITE STATION
Province of Quebec

80 Miles N. W. of Montreal on the C. P. R.

CANADA'S LEADING HOTEL



Dominion Square, Montreal

750 Rooms; 500 with Bath;

EUROPEAN PLAN EXCLUSIVELY

Rates from \$3.00 per day up.

Headquarters for
Conventions, Banquets and Social Events

Operated by

The Windsor Hotel Company

D. RAYMOND,
Managing Director.

J. DAVIDSON,
Sec'y.-Treasurer.

BLUE PRINTS *and* PLAN REDUCTIONS

We offer exceptional Facilities
for the Reproduction of Plans
to Reduced Scale.

Artists
Engravers
Blue
Printers

The
CRABTREE Co.
Limited
OTTAWA, ONTARIO.

Systematized Fire Ranging

Quebec Forestry Protective Associations are
Employing Modern Method With
Good Results

TO THE Forestry Protective Associations in Quebec Province must go the credit for a new departure in Fire Ranging in the adoption of a system which gives them a record of the route covered by each Fire Ranger every day while he is out on the range. As the extensive areas to be patrolled necessitates the rangers, in many cases, being away from Headquarters for days or weeks at a time, the perfection of a system which enables each man to give an indisputable record of the territory covered, and assures a systematic patrol, is welcomed by both rangers and employers.

The Laurentian Forest Protective Association first made a test of the new system last season and the results of their experiment were so encouraging, and the records provided, so satisfactory, that a much larger number of rangers will use systems this season. Other Associations to adopt the new equipment are the St. Maurice Forest Protective Association, the Southern St. Lawrence Association and Price Bros. Limited.

The principle on which the Fire Rangers' system works is very simple. A series of stations are put up along the route laid out for the Ranger, located at the different points which it is important that he should visit. Sometimes these are at the top of look-out towers, the top of a hill which gives a view of the surrounding country, or other points of vantage. In each of these stations is a recording key, sealed in the station with metal seals which prevent its removal. The balance of the system consists of a small clock, encased in an aluminum case which keeps the weight to a minimum. This the ranger carries with him. Enclosed in the clock and not accessible to anyone but those in authority, is a paper dial or chart on which the ranger records his visits to the stations. Each time the ranger reports to Headquarters, or the Inspector visits him on the range, the paper dial on which he records is removed and a new one inserted. Only the Inspector has access to the paper dial in the clock and any interference from other sources is at once apparent.

When the ranger visits a station, he records his visit to that station in the clock with the recording key which is sealed in the station making an embossed record of the character on the key on the paper dial in his clock. As the key at each station records a different character, the ranger is enabled to present an absolutely indisputable record of his work. The records on the paper dial show the time of day, and the day of the week and month that the station was visited. The system has been so arranged that a record may be kept for one, two, three or four week periods or any portion of that time, if necessary, without an Inspector visiting the Ranger, or his reporting to Headquarters.

Much interest is being taken in the new departure in Fire Ranging by Forestry people throughout Canada and the United States, and it is generally agreed that a long-felt want has been supplied. The new equipment is a product of Hardinge Bros., Limited, the well-known manufacturers of watchman's time checking systems.

FISHERMEN AND CAMPERS—Quick Relief from the many minor accidents and bruises you receive on your vacation is afforded by **Minard's Liniment**. Put a bottle in your outfit.

Minard's Liniment Co., Ltd., Yarmouth, N.S. Branch Factory, St. John's, Newfoundland.

Forests vs. Famine

Destruction of Forests in China is largely responsible for Nation's greatest Scourge

By Rev. C. R. CARSCALLEN,

Methodist Missionary teaching in West China Union University, Chentu, West China.

ATTENTION has been called several times in recent years to China's great sorrow, Famine, resulting on some occasions from floods and on others from drought. Perhaps it is not generally known that these famines are due, to a considerable extent at least, to the lack of forests in China.

China is largely denuded of her forests. The great poverty of the people there, has led them to gather up for fuel every branch and leaf that may be found. About the only places in which trees can be found in any number are in temple grounds where there are still preserved some magnificent specimens of trees. The result has been that when the rains come, with nothing to obstruct and with no trees or other vegetation to retain the moisture in their roots, the water rushes in torrents down the barren hill sides. Mountain courses become dangerous streams carrying away much soil with them in their course. The rivers below become swollen to overflowing, dykes burst, vast areas are flooded, crops are destroyed and famine follows. Then after the floods there comes drought. The water has been precipitated upon the plains too quickly. Barren hillsides and dried up crops, in the areas below, are the inevitable result.

To prevent this succession of floods and drought certain colleges in China are urging on the Government a policy of afforestation, particularly on barren hillsides and unproductive lands, not for the sake of the timber thus produced, but because of the effect of forests in holding moisture and distributing its delivery to the plains below over a longer period of time. Professor Bailey of Nanking University is the leader in the movement. The government of his province has granted him, for nursery and experimental purposes, certain hillside areas, which he has planted with trees. Here he secures the seeds which he distributes throughout China, seeking to enlist schools, especially agricultural schools, in the planting of trees on all unproductive land in their areas. He has met with a very encouraging response on the part of various provincial authorities as well as private individuals. This is Professor Bailey's way of removing China's sorrow and of preventing those recurring famines in China which cause such widespread suffering.

The preservation of the great forests in the foothills and on the mountain sides and in addition the planting of every acre of unproductive land with trees, would probably go a long way in the solution of the problem of preserving the fertility of our dry areas.

Reader, have you a photograph?

IN almost every vicinity reached by the "Canadian Forestry Magazine" there grows one or more unusual trees. Perhaps it is an elm or oak with historical associations or it may be characterized by some unique natural feature. Will you let the 13,000 readers of the "Canadian Forestry Magazine" share the pleasure of such photographs? In mailing your pictures please include sufficient descriptive material to provide one or two paragraphs. The photograph will not be injured in the slightest degree and will be promptly returned. Please address "Canadian Forestry Magazine," 225 Jackson Building, Ottawa.

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

The Globe & Rutgers Fire Ins. Co.
17 St. John Street, Montreal

J. W. Binnie, Manager

ASSETS EXCEED \$46,000,000

Reducing Clearing Costs with C.X.L. Stumping Powder

Teams of horses and extra help are now replaced by C.X.L. Stumping Powder which removes stumps quicker and better with but a fraction of the cost.

Trees planted in holes made by C.X.L. Stumping Powder are more certain to take root and grow quicker than when planted by hand.

Write our nearest branch today for any information you may need.

CANADIAN EXPLOSIVES LIMITED

Halifax Montreal Toronto Sudbury Winnipeg Vancouver

Buy Safe Matches

Make sure that the matches you buy are safe.

Don't invite catastrophe by striking matches the heads of which fly off aflame or that leave dangerous fire inviting after glow when blown or shaken out.

Buy Eddy's

the sure, safe strikers that light when you want them to light and that go out entirely freed from fire risk. **Every Eddy Match is chemically self-extinguishing.**

Buy EDDY'S—the safest and best matches made—the most of the best for the money.

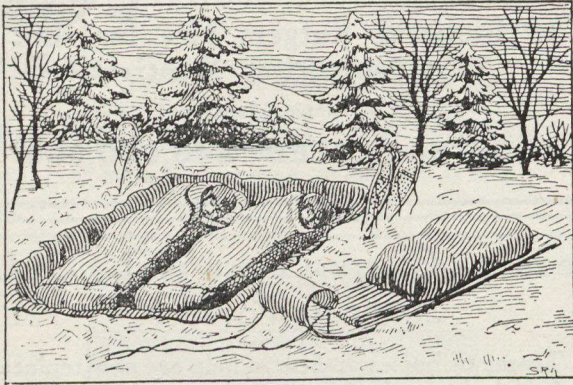
THE E. B. EDDY CO.,
Limited

Hull, Canada

GRANT-HOLDEN-GRAHAM

LIMITED

147-153 ALBERT ST., OTTAWA, ONT.



THE G. H. G. POLAR SLEEPING ROBE

Warm Light and Compact

The Ideal for Sleeping Out in all Weathers

Blankets and Lumbermen's Supplies of all descriptions
kept in stock.

TENTS, TARPAULINS, ETC.



Lumbermen, Fishermen and Campers will find in BETTY BRAND Condensed Milk a quality unexcelled.

It is not made from separated milk, but from full cream milk thus containing the whole of the original fat.

It is guaranteed to be absolutely pure. It is put up in convenient form. It will keep for a considerable time after opening.

Have you tried it?

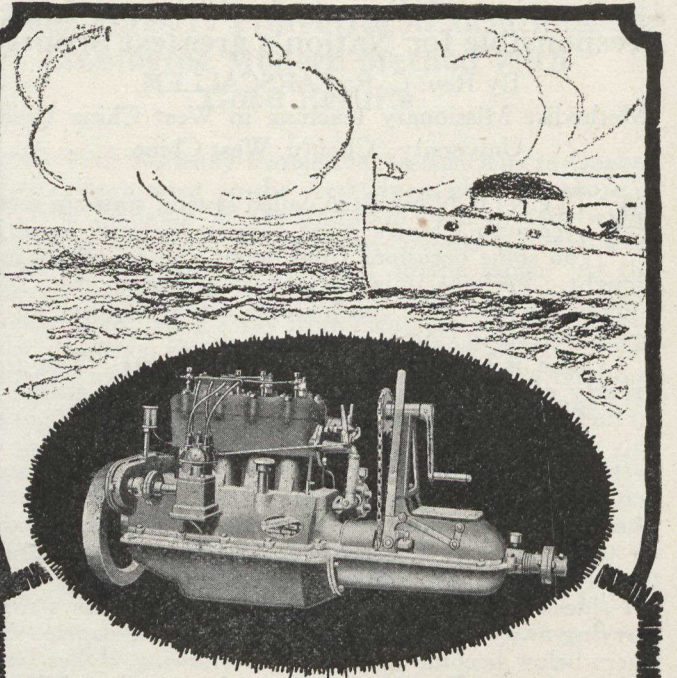
Betty Brand Condensed Milk

is prepared under Government Inspection At the Condensery of

THE LAING PRODUCE & STORAGE CO.,

LIMITED

BROCKVILLE, ONTARIO.



Power for Any Boat Any Size--Any Type

We seek the opportunity of demonstrating to Lumber, Forestry and Pulp and Paper industries our fitness to supply reliable and efficient plants for all classes of power boats.

*Marine and Commercial
Gasoline Engines*

FROM 2 TO 400 HORSE POWER

LET US KNOW YOUR REQUIREMENTS

SEMELHAACK-DICKSON, LTD.

333 St. James St., Montreal

OUR PERSONNEL IS AT YOUR SERVICE

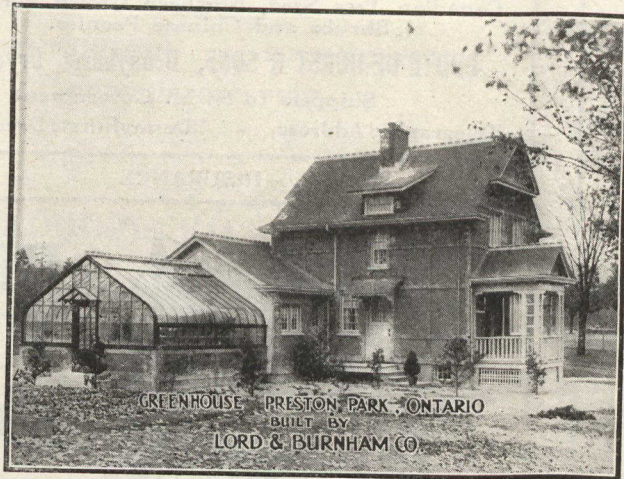
Preston to Develop a Fine Public Park

THE town of Preston, Ontario, will have one of the finest Public Parks in the Province, before many years go by, when the comprehensive plans now being carried out by the Parks Commissioners are completed. An Act of Parliament now permits an extra half mill to be made available for Public Parks purposes, and the prompt action of the Town Council, in passing the necessary by-laws, has made it possible to raise sufficient funds by debenture to commence the

Park which will provide sufficient space in front for future requirements, having in mind that large crowds of people will come here, from near-by towns on the electric cars, to take advantage of Preston Riverside Park, when it is completed.

Driveways Through the Park

The winding driveways to be constructed through the Park will be 18 feet wide, and are laid out in such a manner as to cover the entire park land, including a drive along



GREENHOUSE - PRESTON PARK, ONTARIO
BUILT BY
LORD & BURNHAM CO.

development of the splendid property now owned by the town and known as "Riverside Park."

This property was acquired about ten years ago, through the untiring efforts and foresight of the late Judge Hanning and others associated with him. It was then intended to improve some portion of the property each year, but owing to the War and lack of funds, as well as the extremely high cost of labour and material, it was practically impossible to undertake any improvements at all in the past six years. However, the time has now arrived, when a united effort will be made to develop this splendid property, admirably adapted by Nature for a Public Park. Many features are planned which can be incorporated at a minimum cost and result in the benefit and pleasure of the people of Preston and surrounding districts.

The revised plan of the Park Property clearly indicates the different permanent improvements to be made from time to time, as funds become available to finally complete them. It will also serve as a guide for definite future operations.

Gateway Entrance

The first item to be undertaken is the gateway entrance. The plan indicates a suitable entrance to the

Speed River and through the natural wooded portion of the property.

One of the features which has already been completed and is proving a very profitable acquisition to the property is the Greenhouse, constructed by the Lord and Burnham Company, Greenhouse Designers and Manufacturers.

The improvement scheme also contemplates a swimming pool, a pavilion and shelter and a Community Park development with general picnic grounds and athletic grounds.

"The Illustrated Canadian Forestry Magazine" is indebted to Mr. J. H. Mickler, architect, of Preston, for the details as given. Lack of space prevents a more extensive reference to Preston Riverside Park, at this time, but the development progress will be watched with interest and further information on the subject will be published as it becomes available.

BUSINESS IMPROVING

Mr. James W. Sewall, forest engineer and timber expert, with offices at Washington, D.C. and Old Town, Maine, reports that while business in his line is still quiet he is satisfied that conditions are very steadily improving. Activity in timberland purchases cannot as yet be said to

Weights Only
35 Pounds



Takes You

Anywhere a Boat Will Float

Attach to row boat or canoe and you have a speedy quiet running launch for pleasure or for sport.

Almost as easy to carry as a pair of oars

Weights only 35 pounds. A boy or girl can carry it. The whole family enjoy it. No batteries, real magneto, real float feed carburetor, control like auto, instant reverse, easy starter, and automatic self tilting. 2 cylinders—2 h. p. Let us show you the new

Johnson

Detachable Motor for Boats and Canoes

Sold on Trial — Free Delivery

Catalogues—new, rebuilt engines; Hyde propellers; Joe's gears; accessories; canoes; camping outfits; motor bikes, etc. Dept. an. Boat Engine Exchange, Toronto

exist, but some lands and timber are now being optioned with a view to purchase and operation. This is decidedly different from last year at this time when the market was decidedly quiescent. Mr. Sewall has recently been on quite an extended trip through the eastern states and looks forward to a reasonably busy season. His organization has over fifty men engaged in timber cruising and valuation now, and has kept its entire force intact throughout the period of general business depression.

DON'T COAST

An officer on board ship was drilling his men.

"I want every man to lie on his back, put his legs in the air, and move them as if he were riding a bicycle," he explained, "Now commence!"

After a short effort one of the men stopped.

"Why have you stopped, Murphy?" asked the officer.

"If ye please, sir," was the answer, "O'm coasting."

Some people are still "coasting" as far as their advertising is concerned. It will not get us far in these days of keen competition. It is becoming increasingly necessary for every one of us to "pedal" vigorously and constantly if we are to maintain our place in the race.

EXCEEDINGLY INTERESTING

"We take a great deal of pleasure in reading your Magazine which we consider contains very valuable information regarding the forests of Canada and their preservation, which is exceedingly interesting and instructive.

With best wishes for great success in the work you are doing."

(A large Canadian Insurance Company.)



BUSINESS AND PROFESSIONAL DIRECTORY



BARRISTERS

H. McCORMICK

F. S. DUNLEVIE

McCormick & Dunlevie

BARRISTERS, SOLICITORS, ETC.

Supreme Court and Departmental Agents

Special attention given to

Parliamentary Business for

Out of Town Clients

Trust Building, 48 Sparks Street,

Ottawa, Ont.

PULPWOOD



THE

JOST COMPANY, LTD.

*Pulpwood and Lath Purchased**Financial Assistance Given on Approved Operations*

285 BEAVER HALL HILL, - MONTREAL

FOREST ENGINEERS

TIMBER ESTIMATING AND MAPPING BOUNDARY SURVEYS

Management of Forest Properties, Supervision of Lumbering
Operations, Forest Planting.P. T. COOLIDGE, Forest Engineer 31 Central Street
BANGOR, Maine

HIBBERSON BROS.

FOREST ENGINEERS AND SURVEYORS

Cruising, Mapping, Logging Costs, Flumes, Logging
R.R.'s Appraisal on Timber Holdings for Banking
interests a Specialty. Information on B.C. Timber
supplied at low cost. Sixteen years experience
cruising British Columbia Timber

SUITE 701-5 BELMONT HOUSE, VICTORIA, B.C.

Lt.-Col. L. J. D. MARQUIS

Forest Engineer

Former Member of Quebec Forest Service. Member of the Assn. of Forest-
Engineers. Twelve Years of Experience: Forest Cruising and Mapping
Appraisal or Banking Interests, Insurance Losses. Supervision of lumbering
Operations. Management of Forest Properties. General Information and
Maps on: Quebec Limits, Freehold and Crown Lands.

GIFFARD, QUE. - PHONE 5831 R. 11.

Definite information is worth the price, and has changed
many plans based on approximate data. Send for our
sample plans which explain all details.

JAMES W. SEWALL

Old Town, Maine. Davidson Building, Washington, D.C.

PATENT ATTORNEYS

PATENTS, Searches, Applications, Etc.
TRADE MARKS Designs Registered in all Countries.
Technical and Industrial Research

HANBURY A. BUDDEN

ADVOCATE 712 Drummond Bldg., Montreal
Reg'd, U.S. Pat. Atty. No. 1088 Cable Address "Brevet"

NURSERYMEN

Canadian Tree Seed, Northern Grown Forest Trees,
Shrubs and Chinese Peonies.

EDDYE-DE-HURST & SONS, Dennyhurst, Dryden, Ont.

Shippers to H. M. Government

Telegraphic Address, - "Dennyhurst, Dryden, Ont."

INSURANCE



FIRE: AUTO: RIOT

Security
\$50,250,000

Chief Canadian Office:

14 RICHMOND STREET EAST, TORONTO

ALFRED WRIGHT, Manager

A. E. BLOGG, Secretary

SIGN PAINTERS

SIGNS

 We specialize in and give
special rates to Forest Pro-
tective Associations for
every requirement along the line of banners etc.

Ottawa's Oldest Established Sign shop

Levey Sign Co.

 234 SLATER ST.,
Ottawa, Ont.

Dent - Signs

 of Every
Description

PLUS RELIABLE SERVICE

Special quantity prices to Forestry Associations and
Lumber Companies. Out-of-Town work
undertaken on reasonable terms

93 St. Genevieve St. Near St. James' Club Montreal



Pulp, Paper and Power Companies

Abitibi Power & Paper Company

LIMITED

HEAD OFFICE : MONTREAL, QUEBEC

Manufacturers

of

NEWSPRINT PAPER SULPHITE PULP
GROUNDWOOD PULP

MILLS AT

IROQUOIS FALLS, ONT.

Laurentide Company

LIMITED

Manufacturers of

Groundwood Pulp, Sulphite Pulp,
Newsprint Paper,
Cardboard

GRAND MERE, QUEBEC

Brompton Pulp and Paper

COMPANY, LIMITED

EAST ANGUS, QUEBEC

Manufacturers of

Newsprint Paper, Kraft Paper, Fibre Paper,
Manilla Paper, Box Board, Sulphate Pulp,
Groundwood Pulp

AND

LUMBER OF ALL KINDS

Ontario Paper Company

THOROLD,

ONT.

Manufacturers

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

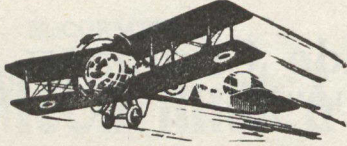
TAKE AWAY JOBS !

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.

A Vickers "Viking" Aeroplane for Canada

Laurentide Air Service Will Employ This Modern Machine in Ontario Government Forestry Work

By GEORGE A. MACKIE

A DEVELOPMENT of very great interest to Aviation and Forestry in Canada is due to occur about the time this article appears in print. This is the prospective arrival in Canada of one of the world's most famous Aeroplane types, namely the—Vickers "Viking" Amphibian Machine, which has been purchased by the Laurentide Air Service Company through Mr. R. S. Griffith, 225 Beaver Hall Hill, Montreal, representative of Messrs. Vickers Limited, London, England. This justly famed heavier-than-air machine, a picture of which appears in the Company's announcement in this issue, has a record of performance equalled by none of its type in the world; it will be remembered by Aviation enthusiasts that this type of machine won the first prize of ten thousand pounds (£10,000.) in the British Air Ministry test September 1921. The enterprise of the Laurentide Air Service in contracting for this very modern and expensive machine is worthy of the admiration of all Canadians who desire to see Aviation given a fair trial under the most favorable circumstances possible, to demonstrate what it can accomplish with respect to its relation to Forestry reconnaissance, survey and transport work. In this connection it may be noted that the Laurentide Air Service have recently announced that they purchased this machine as one of a number of this or similar types, which they propose to use in their recently organized business enterprise. The first machine, at the time of writing, was in mid-ocean, having been shipped on the S. S. Verentia about May 15th. It is expected that the machine will be in commission on or before June 15th.

Ontario Government Work

The work upon which it will be engaged is on behalf of the Ontario Department of Lands and Forests, and it will be operated from Remi Lake, Ontario Station of the Laurentide Air Service, under the supervision of Capt. W. R. Maxwell, whose recent flights into the Hudson Bay district, as previously recorded in this Magazine, furnished him with the experience necessary to undertake such an important operation as this promises to be. Capt. Maxwell has flown to James Bay on six occasions, five by flying boat and once by an Avro on skis. It is understood that the Ontario Department of Lands and Forests, which is administered by Hon. Beniah Bowman as

Minister and Walter C. Cain as Deputy Minister, contemplate making a detailed inventory of the Forest resources of the Province by means of this most modern method of Forest survey. Mr. Zavitz, the Provincial Forester has carefully studied aircraft operations and will be responsible for the work done through Mr. C. H. Johnson who has had previous experience in this new work. Mr. Griffith, the Vickers' representative in Canada, has extended every co-operation to the Laurentide Air Service, with the object of supplying the most suitable type of machine for the various functions which it is expected to fulfil.

Specifications of "Viking"

The Vickers "Viking" Amphibian is a boat seaplane of the biplane pusher type. Its amphibious character is obtained by fitting the hull with two landing wheels, which can be drawn up clear of the water line by the pilot when the machine is required to alight on the water or let down for landing on the ground. The principal dimensions and other data are as follows:—

Length overall.....	33 ft. 6 ins.
Height overall (on wheels).....	15 ft.
Wing span (both planes).....	46 ft.
Chord (both planes).....	6 ft. 2 ins.
Gap (at root).....	7 ft. 6½ ins.
Wing area (including ailerons and centre section.....)	520 ft.
Area of ailerons (each).....	23 sq. ft.
Area of tail plane.....	37 sq. ft.
Area of elevators.....	22 sq. ft.
Area of fins.....	7.15 sq. ft.
Area of rudders (including balance).....	13.95 sq. ft.
Petrol capacity.....	80½ gallons.
Oil capacity.....	7 gallons.
Water capacity.....	11 gallons.
Weight empty (but with water in radiator).....	3,628 lb
Weight full (certificate of airworthiness load).....	4,900 lb

The Machine's Performance

We may conclude our description of the machine by giving some particulars of its performance, most of which are taken from the results of the Air Ministry competition above referred to. The maximum speed is 120 miles per hour near the ground and 116.5 miles per hour at 6,000 feet while the landing speed is 50 miles per hour. The time required to climb to 5,000 feet is 4.5 minutes, and to 10,000 feet 11 minutes. The service ceiling, i.e., the height at which the rate of climb falls to 100 feet per minute, is 18,300 feet and the absolute ceiling is 19,900 feet. The range, at full speed at 6,000 feet, is 350 miles, while at a cruising speed of 90 miles per hour the machine can travel 480 miles. With its full load of 4,900 pounds, the machine can get off from the sea in 16 seconds after travelling a distance of 220 yards, while, from the land, it can rise in 10½ seconds, after travelling 135 yards. These times and distances, it should be mentioned, are those required for rising in still air; both can, of course, be materially reduced in a head wind.

The machine with its full load can now get off the surface in nine seconds, travelling a distance of about 150 yards. The reason for this change is that each "Viking" is hand made and contains improvements over the last one of its type. Particular attention is given to each machine and any advance in the theory of aeronautics is embodied in each new machine built.

Mr. Griffith will carry in Montreal, from date of arrival of this machine a very complete line of spares for both engine and machine in order to render complete service to Messrs. Laurentide Air Service.

AVIATION INSURANCE

We are prepared to place coverage on short notice with respect to Aeroplane and Aircraft Risks as follows:—

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

For particulars and application forms

apply to

LEWIS, APEDAILE & HANSON

Incorporated

809 Lewis Building, 17 St. John St.,

Telephone: Main 7077-7079

Montreal

THE SPORTSMAN'S ALLY

Canada's North country has already become a Mecca for the sportsman, and the artist, but its greatest wonders are still unknown.

Lying within one hundred miles of the railway but isolated forever from ground approach is a veritable wonderland. Hundreds of lakes teem with game fish, their shores thick with the tracks of moose, caribou and deer, roaming through thousands of miles of virgin forest whose trees have never re-echoed to the axe or the rifle. Uncounted thousands of game birds fly over areas never travelled by any but the Red Man. Nature has lavished beauty on all sides—scattered thousands of scenes for the artist and the camera, but barred approach to the artist, the hunter and the fisherman.

A few know the glories of the great rivers and their nearby lakes, but they know too the rapids, portages, treacherous currents and impassable bush—of the long trails on snowshoes, breaking a way for the dog team.

Only by air can this unknown North be reached. Only the flying boat can cross its hills, defy its rapids, avoid its portages and reach its great heart where nature holds absolute sway. It has been done and will continue to be done.

Laurentide Air Service is operating two air stations, one at Lac à La Tortue, P.Q., gateway of the St. Maurice valley and Northern Quebec, and the other at Remi Lake, Ontario, the key to Northern Ontario and James Bay. Rapid, safe, enjoyable travel is furnished in flying boats, of modern design, ample capacity and wide cruising range, operated by men who have flown for years, and to whom Canada's North country is as accessible as a City. The Air Stations offer all the facilities of a club.

Inquiries from sportsmen are invited—and involve no obligation. Arrangements may be made not only for transportation in and out, but for communication—and larger parties can secure more favourable rates. Requests for information are particularly solicited from Secretaries and members of clubs who may be interested in investigating fishing and hunting privileges.

Head Office: Montreal, P.Q.

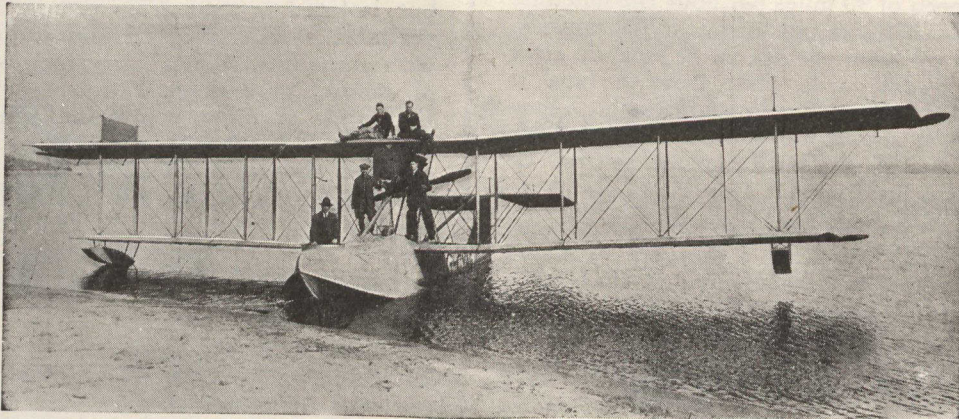
Air Stations:

Lac à La Tortue, P. Q., and Remi Lake,
Ontario.

FLYING BOATS

(2-3-6 PASSENGER TYPES)

At Most Attractive Prices



Aeromarine Navy H. S. 2 L.

Used by the Canadian Air Board, Canadian Air Force, Laurentide Company Limited, Filmcraft Industries Limited, during the past three seasons.

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

For particulars as to price and deliveries communicate with

ERICSON AIRCRAFT LIMITED

Canadian Distributors for
Aeromarine Sales and Engineering Corporation, New York Largest Sea Plane Operators in the World
General Representatives
Cox-Klemin Aircraft Corporation, College Point, Long Island, N. Y.

ERICSON AIRCRAFT LIMITED

120 KING STREET E., TORONTO, ONT.

Aeroplanes, Motors, and Aeronautical Supplies

Aerodrome and Works, LEASIDE, ONT. Tel. Belmont 1600

City Phone: Main 7180

FRITHIOF G. ERICSON, Pres. and Man. Dir.
Manufacturer and designer of the "CANUCK" (Two Seater Biplane)

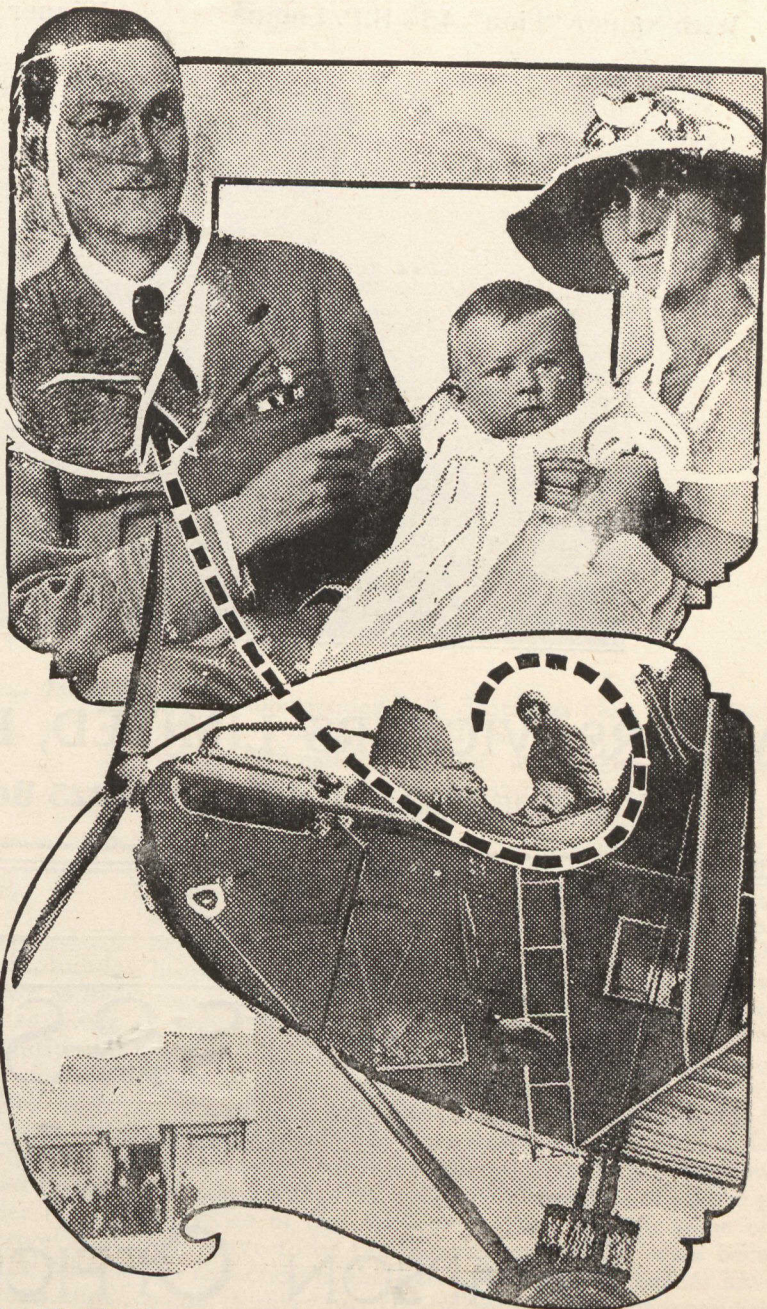
¶ We carry the largest stock of Aeroplane supplies in the Dominion; and the largest stock of "CANUCK", J.N. and O.X. 5 parts in the World.

Round-the-World Flight of British Aviators

(Photos reproduced by courtesy of the Montreal Daily Star)



Major Wilfred T. Blake



Major W. T. Blake and his wife and baby, and the DeHaviland "9" machine in which he commenced his round-the-world flight; the size of the aeroplane is indicated by comparison of the figure of Blake who has just climbed the ladder to the pilot's seat.

A WOMAN'S self sacrifice has made possible an attempt to make the first aeroplane flight around the world.

The death of Sir Ross Smith on the eve of his projected round-the-world flight decided his brother, Sir Keith Smith, who was to have been his companion, to abandon the project. British air officials called for volunteers.

Major W. T. Blake, a noted flier and newspaperman, was appealed to as the man best fitted to undertake the task.

"I have a family," said Blake. "Ask my wife. If she agrees, I'll go."

Mrs. Blake didn't hesitate. "Go!" she said. "It is for the glory of Britain. Britain before family!"

So Major Blake is on his way. He hopped off May 24, the day honored throughout British dominions as Empire Day, and expected to finish his trip in two months.

Funds Subscribed

Private funds have been subscribed for four planes he and Captain Norman MacMillan, who once flew to Morocco with Blake, will use on the round-the-world flight. A flying boat was planned at first, but Blake decided he could not afford to wait until it could be built.

"To wait would play into the hands of the Americans," he said. "I want to gain this honor for Britain."

Blake and MacMillan left London in a huge DeHaviland "9" machine, a giant ship equipped with a 230 horsepower Siddely-Puma engine. In

it they hoped to reach Calcutta, covering 7,000 miles in the first stage of the flight, via Paris, Rome, Athens, Crete, Alexandria, Bagdad, Bazra, Kurachi and Delhi.

In Calcutta a second machine, a Fairey Seaplane, will be waiting, the parts having been sent there to be assembled. The second leg will be via Rangoon, Bangkok, Saigon, along the Chinese Coast, to Japan, Yokohama, then to Petropavlovk, and via the Aleutian Islands and the Alaskan coast to Vancouver.

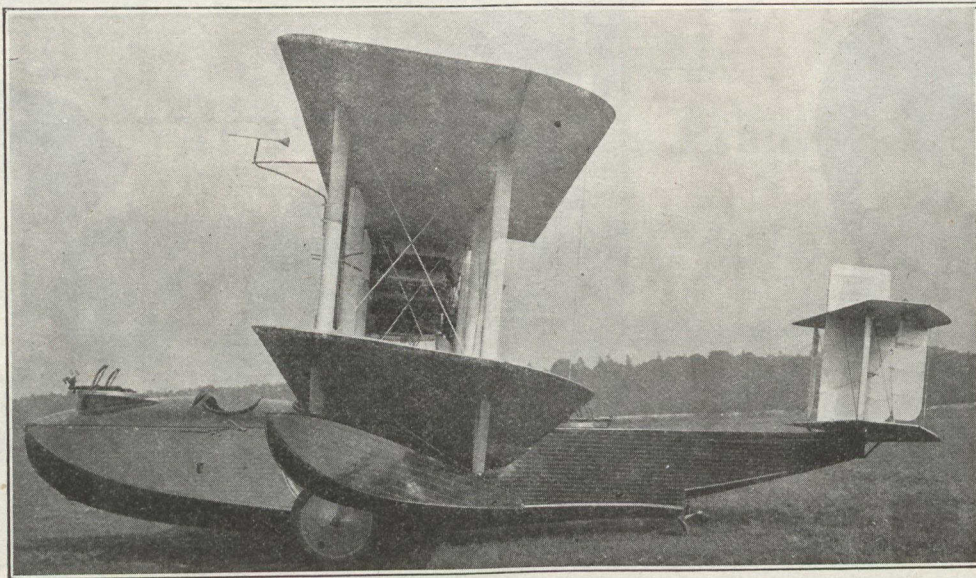
Will Cross America

A third machine, another DeHaviland "9", will be waiting for the trip across Canada, to Chicago, New York, and thence to Newfoundland, where the fourth machine, an "F" 3 flying boat, will be picked up. The journey then will be across Greenland to Iceland, to the Faroe Islands and finally to Scotland, winding up at Aberdeen. The longest sea flight will be from the Faroe Islands to Scotland, about 850 miles.

THE VICKERS "VIKING" AMPHIBIAN

With Napier "Lion" 450 H.P. Engine

Winner of the British Air Ministry Prize



Manufactured by

MESSRS. VICKERS LIMITED, LONDON, ENGLAND

For information apply R. S. Griffith, 225 Beaver Hall Hill, Montreal.



SAMPSON OFFICE SERVICE
LIMITED

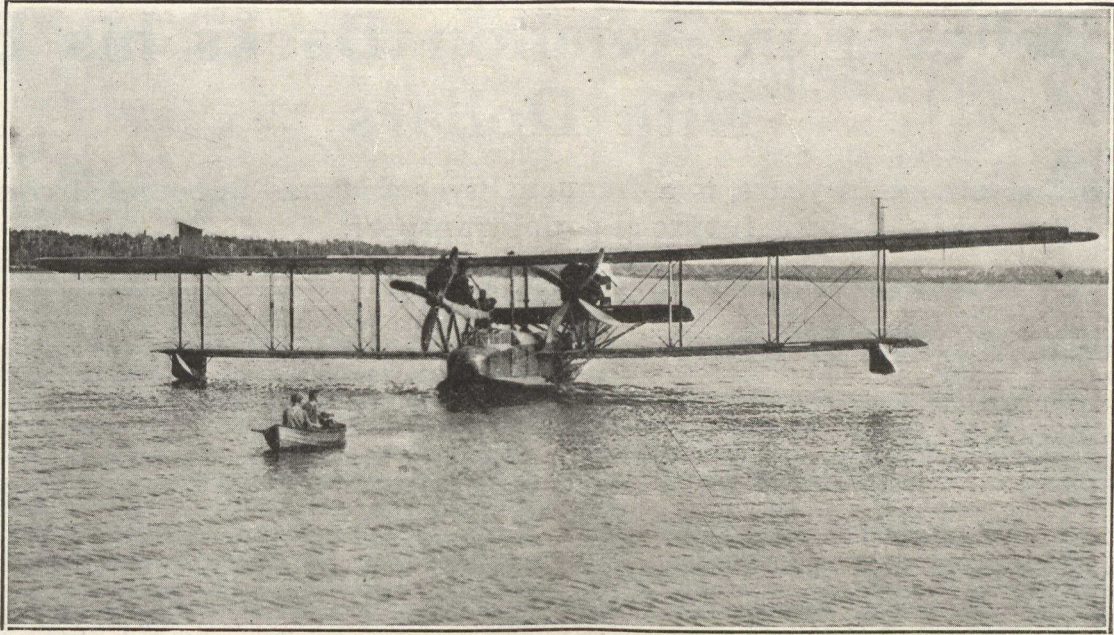
**JOB PRINTERS &
MULTIGRAPHERS**

TYPEWRITERS REPAIRS AND SUPPLIES

**OUT OF TOWN
CUSTOMERS**

May send in their orders with
full confidence of receiving
every personal attention.

**317 Lisgar Street
Ottawa**



A study in horse power. A monster F3 flying boat used on Lake Winnipeg for forest fire patrol being towed to its anchorage by a small skiff equipped with an Evinrude outboard motor.

Air Board Events

(Special Parliamentary Correspondence)

THE recent decision of the Canadian Government to consolidate the Defence Forces of Canada, Land, Sea and Air, into one department to be known as the Department of National Defence is expected to bring about several changes in the personnel and operation of the Canadian Air Board. As regards the former, several changes have already been effected. Three former R. A. F. officers who were seconded for duty with the Air Board have been permitted to return to the R. A. F. to resume their duties as permanent officers of that Force. The most prominent of these, Wing Commander (Col.) Robert Leckie, has been one of the most active and efficient members of the Air Board staff since the formation of that body about three years ago, and has contributed very materially to the success of the Operations branch, both by reason of his executive ability and his skill as an aviator. Col. Leckie's record both as a war and a peace pilot entitles him to the respect of all Canadians and his future career, which it is understood will necessitate his return to the British Isles, will be followed with interest by his scores of well-wishers in this country. Squadron Leader J. A. Glen and Flight Lieut. John Barron, the other retiring officers, also have splendid records of achievement with the Air Board, and their departure is also sincerely regretted.

Air Force Plans

The Canadian Air Force will remain, as at present, a separate service in the new Department. All aeronautical and technical functions will continue as in the past. The two flying branches, C. A. F. and Civil Operations, will, it is expected, be combined in one Service and all flying in future will be undertaken by the C. A. F.

Wing Commander J. S. Scott has been appointed to the command of the C. A. F. at Camp Borden, succeeding Squadron Leader J. A. Glen, whose term recently expired.

Under the Act of consolidation which at the time of writing was before Parliament the Minister of the Department of National Defence will exercise the powers vested in the Air Board by the Air Board Act of 1919. The purpose of the Bill is to effect economies in administrative services and to obtain greater efficiency and closer co-operation between the three services. When the Bill becomes law and the reorganization of the services is completed, the Air Board as a separate entity will cease to exist. The administrative services such as accounting, records, works, quartermasters and office supplies, libraries, etc., will be consolidated.

Until the Bill is law and the reorganization is further advanced no details are available as to the new form of organization, but it is expected that the scheme now being perfected will permit of the continuance of all the present activities of the Air Board, even though some of these may have to be temporarily reduced in scale because of the reduction in the Estimates. Arrangements have been made to carry out the full programme of work arranged for at the Civil Stations during the flying season of 1922.

We announce the removal of our headquarters from
30 St. François-Xavier St., Montreal, to

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:—

Fire Hose	Fire Department Supplies
Fire Extinguishers	General Rubber Goods

The Canadian Fire Hose Co., Ltd.

This Believer in Aviation Backs his Belief with Dollars

Thomas Hall, a veteran in years, is a frequent flyer and has unbounded confidence in future of aerial transport.

By GEORGE A. MACKIE

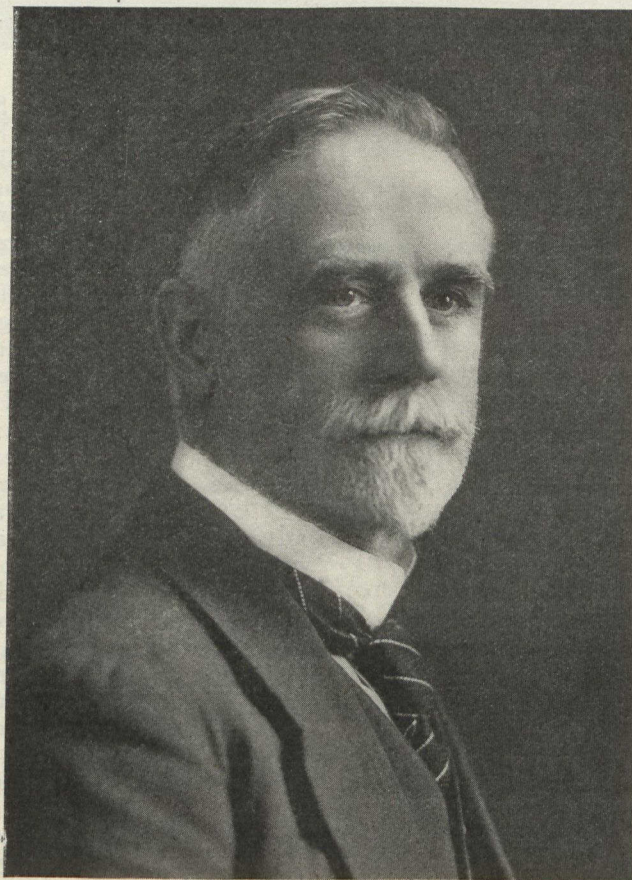
THE progress of civil and commercial aviation in Canada—and, indeed, in most other countries—depends very materially on the moral and financial support of individuals and groups, who are prepared to invest their energies and dollars in the organization of companies, equipped to undertake aeronautical work which will demonstrate the possibilities of this most modern and efficient method of observation and transportation. The returns on such investments are neither immediate nor highly remunerative, but the pioneers and patrons of the industry—for such it must now be termed—will eventually be rewarded for their far-sightedness and faith in the business and science of aviation.

In Canada, there is probably no other individual who has furnished as much practical assistance in this regard as has Mr. Thomas Hall, the subject of this article. Mr. Hall, who calls himself a veteran in years, is still several decades younger than his age in his general appearance and more particularly in his outlook upon life. While his support of aviation is largely due to his natural liking for "the game" and his firm faith in its ultimate importance to the nation, there is also a marked degree of sentiment in his attitude toward it. In this connection it will be recalled that Mr. Hall's eldest son, Lieut. Ralph Gordon Hall, one of the fine examples of young Canadian manhood who staked their all with the Royal Flying Corps, made the supreme sacrifice in January, 1918.

In June of 1919, Mr. Thomas Hall became interested in Canadian Aerial Services, Limited, Montreal, following a very quick flight from Montreal to his country home at Summerstown on the St. Lawrence. After investigating the Company, he made a considerable investment in order to allow the firm to expand its business and retain skilled personnel who had been trained in the previous two years of operations. Mr. Hall made a considerable number of flights, and in fact flew right up till last November, his last flight being made in a snow storm. During the past winter, when the organization of the Laurentide Air Service was discussed, Mr. Hall was approached with a view to gaining his interest, and he at once assumed

responsibility for the financing necessary to develop the work. During the organization period, it was decided to expand by the establishment of a very much larger station in Ontario and Mr. Hall backed up this expansion programme by furnishing the necessary additional capital. The Company is now being incorporated and Mr. Hall is to be president. Mr. Hall's faith in the future of aviation is unbounded as is shown by his large investments in these two operating companies, and he is, in addition to furnishing the capital for a great part of Canadian Civil Aviation, lending his very valuable advice and business experience in the operations of Laurentide Air Service.

Interviewed recently in Vancouver, B. C., following a flight with Mr. Norman Yarrow in the latter's hydroplane, Mr. Hall placed his views concerning aviation on record in the following breezy manner:—"People express surprise that a veteran like myself should go flying, but what will the young fellows who have the thing so much at heart do if we older men don't come to their assistance? If aviation is to succeed, those of us who have seen the automobile industry rise from its small beginning a score of years ago in the face of scoffing and skepticism must give the thing our support. I see a time not far distant when there will be more and better aeroplanes than automobiles, when the aeroplane will be cheaper and more sought after than the automobile and when the roofs of buildings in congested cities will be joined together as landing and parking places for private aeroplanes used by the class of



THOMAS HALL

people who are now commuters. Before this comes about, engineering talent will have to design aeroplanes, suitable for such purposes. Just now, machines designed for war purposes are being adapted to peace service, but commerce requires a type of plane suitable to its own ends. It must be a more substantial structure and high speed will not be so great a requisite. One hundred miles an hour is fast enough for ordinary purposes."

Apart from his aviation connections entirely, Mr. Hall's career furnishes an interesting chapter in the history of Canadian industrial achievement. Formerly proprietor of the Hall Engineering Works, Limited,

Marine Engineers and Shipbuilders, Montreal he has recently turned over this business to his employees comprised mostly of the men who grew up in the business with its founder. The latter is still Managing Director of the Montreal Dry Dock and Repairing Co., and Director of the Montreal Boat Builders Ltd., and several other companies. Thomas Malcolm Hall, the eldest son, is Managing Director of Montreal Boat-builders, Limited, whose plant is situated at Lachine, Que.

Mr. Hall was born in Scotland in 1862, his parents being Thomas and Margaret (Kidd) Hall. He was educated at Liverpool College, and came to Quebec in 1902. His business career is thus described in brief:—Apprenticed to Messrs. Geo. Forrester & Co., Vauxhall Engine Works, Liverpool (Draughtsman); went to sea as a Marine Engineer; joined the Cunard Steamship Co.; on leaving Cunard Co., joined the D. & C. MacIver Steamship Co., as Marine Engineer and became Superintendent Engineer; joined Elder Dempster Line and became Superintendent in London, England; a great number of the new steamers of this Company were built under his superintendence while with them; joined the C. P. R. Steamships, when taken over from the Elder Dempster line; Superintendent of Steamers for the Elder Dempster Line during the South African War at New Orleans, St. John, N. B., and Montreal; started the Hall Engineering Works 1902.

Mr. Hall has spent the greater part of his life on the high seas and in foreign countries and has travelled completely around the world twice. He is a Fellow of the Royal Colonial Institute, London; Member, North East Coast Institute of Engineers and Shipbuilders, England; Member, Montreal Board of Trade; Member, Manufacturers' Association; A Presbyterian in religion; A member of the A. F. and A. M.

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 the Rangers are using Hardinge systems.

Hardinge Bros. of Canada, Ltd.

50 Front Street East, Toronto, Ont.

THE MAKERS OF VIRGINIA OVAL CIGARETTES GIVE YOU THIS GUARANTEE

WALK INTO ANY TOBACCO STORE IN CANADA AND TRY VIRGINIA OVAL CIGARETTES. IF THEY DO NOT APPEAL TO YOUR TASTE, THE PROPRIETOR OR HIS CLERK WILL HAND BACK YOUR MONEY.

Packed in

**10s, 20s, 50s
and 100s.**

Cork or Plain Tips

Guaranteed by

**TOBACCO PRODUCTS CORPORATION
OF CANADA, LIMITED**

Earle Stafford
Vice-Pres.

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.

HOWEVER opinions in respect to the new Budget may run, there do not appear to be many elements in it that will militate directly against the interests of investors. In industrial circles, as was natural, there was some trepidation beforehand, lest heavy cuts should be made in the Protective tariff. Unless one excepts certain lines of agricultural machinery, the Budget contains no evidence of this. Nor has there been, in any sense, a drastic change indicated on the part of the new Government in the fiscal policy that has held sway for nearly fifty-five years. While the reductions in the tariff are not negligible from the industrial point of view, the companies concerned seem likely to be able to adapt themselves to the new basis without any injury to the territories concerned. There does exist some uncertainty, on the other hand, as to the extent to which the Canadian tariff may ultimately be influenced by a change in the attitude from the present high to a lower tariff on the part of the Republicans in power in the United States, and this uncertainty not only as to policy but as to the time in which any changes that may be forthcoming may go into effect, may to some extent work as a disturbing factor in business, and among the holders of securities.

Cheque Tax Criticized

While little objection is raised from the industrial standpoint, the same cannot be said from the more purely financial. Here the chief criticism centres in the graduated tax on cheques, 2 cents for every \$50. It is urged against this special tax over the present uniform two cents on any size of cheque, that it will tend to cause payments of large amounts to be made in currency and thus reduce the amount available for ordinary business, or cause re-indorsements, in either case defeating its purpose as a producer of additional revenue. It is even claimed in some quarters that bank accounts are likely to be reduced; that the present system of dealing in Victory loan bonds on a small scale of commission will perforce be prevented, and that in general the thoroughly convenient cheque habit will be diminished. Fortunately for a full discussion of this and a few other details the new regulations will not go into effect until the first of July, although Customs changes become law automatically once they are announced in the House unless otherwise stipulated.

On the whole, then, investors who to a great extent represent stabilized conditions as they exist in any community, should feel relieved that the new Budget did little more than skim the surface. This does not imply that existing conditions are necessarily ideal, but that revolutionary changes in the tariff would not have been welcomed at this stage in the struggle to regain an equilibrium after the general shake-up caused by our parachute drop of the past eighteen months or so.

Has Not Yet Spent Its Course

The strong upward tendency in the bond market that was noted last month has steadied down the past few

weeks, and most markets, bonds and general securities have tended to move within narrower limits. This is natural, for reactions to a short period of a forward movement are inevitable until stronger foundations are provided in the business and financial world as a basis for a sustained rise in securities. At the same time it is reasonable to believe that the rising tendency in these markets for securities has not yet spent its course, but will continue for some time. Not in a wild speculative sense, but with a steady momentum. One of the best indications of this is that industrial reports covering the past year with their tales of heavy inventory losses, decreased net profits, and frequently reserves called on to meet the usual charges against earnings, have been accepted as of water that has passed over the dam. Faith that can afford to disregard the immediate past, and rests so firmly on the tradition that "the worst" is over, is rarely blindly exercised in financial circles.

High Grade Preferred Stocks

In leaving the realm of bonds with first mortgage

A Commercial Library

In the course of your business, many questions must arise concerning shipping documents, shipping procedure, trade opportunities and general business conditions, about which you have no information readily available.

Our Foreign Trade Department at Montreal was constituted to render this service for you, and the following publications may be had on application to them or through any of your branches.

Canadian Trade Opportunities in the
Carribean;
Financing Foreign Trade:
British Empire Preferential Tariffs and
Their Relation to Canadian Trade;
Our Monthly Commercial Letter.

THE ROYAL BANK OF CANADA

Incorporated 1869

liens on a property, or those that rank one degree lower as general mortgage bonds, the investor passes from the factor of interest to dividends. The change is a radical one, and yet some of the shrewdest of investors count certain of their preferred stocks as on a par for safety with many bonds that stand well up in the list. With bonds interest usually is paid once in six months, as in the familiar "Victories"; preferred dividends are generally met quarterly. "Default" in bond interest is a much more serious affair than the "passing" of preferred or common dividends, as bondholders under certain conditions may take charge of the property that has failed to meet its obligation, whereas dividends are more or less voluntary, dependent on current earnings.

Basis of Both Is Same

Yet, in the long run, the "safety" of bond interest and the maintenance of preferred dividends essentially depend on the ability of the corporation concerned to continue a successful record of earnings. If there is a failure here bond interest must come to an end as well as dividends. Hence it is that after a corporation has been established for a number of years, it may be able to create a strong reserve and maintain or increase current earnings, to such an extent that its preferred dividends are practically guaranteed. In such a case it deserves to rank high as an investment, and the stock maintains a high price, with a comparatively moderate yield in spite of severe fluctuations among ordinary securities.

The clearest method for illustrating this is the list given herewith of ten preferred stocks. Perhaps exception may be taken to one of these, Dominion Steel preferred, as not deserving to rank with the other nine. Its yield is much higher, which suggests in itself that it is weaker in some respect. It is inserted, however, on account of the dividends being guaranteed through "income bonds" of two constituent companies, Dominion Coal, and Dominion Iron and Steel, which strengthens its position beyond that of an ordinary preferred stock. Let it stand, then, as a security in the transition stage between the rest of the list, and those of the next lower grade.

PREFERRED STOCKS AND THEIR YIELDS

	Dividend	Present Price	Yield	Jan., 1922	Yield	Jan., 1921	Yield
Canada Cement.....	7%	93	7.5%	90	7.7%	90	7.7%
Canadian Cottons....	6%	81	7.4%	78	7.7%	71	8.4%
Dominion Glass.....	7%	94	7.4%	90	7.7%	78	7.7%
Dominion Textile....	7%	109	6.4%	105	6.6%	96	7.3%
Dominion Steel.....	6%	75	8.0%	66	9.1%	64	9.4%
Lake of the Woods...	7%	109	6.4%	103	6.8%	103	6.8%
Montreal Cottons...	7%	106	6.6%	104	6.7%	98	7.1%
Ogilvie Flour Mills...	7%	111	6.3%	104	6.7%	100	7.0%
Pennmans.....	6%	91	6.6%	83	7.2%	87	6.9%
Steel Co. of Canada...	7%	98	7.1%	93	7.5%	87	8%

Low Returns—High Prices

What may surprise many investors in this list is the comparatively low returns—yields—with which the owners of these approved securities are content. During the past year a number of preferred stocks have sold to give a yield of ten per cent., but in the list above, the great majority of yields have held below 8 per cent., and a few, such as Lake of the Woods, Ogilvie, Montreal Cottons and Dominion Textile have run well below 7 per cent. at a time when municipal bonds provided a yield of 6¼, 6½ and even 6¾ per cent., a remarkable testimonial to the confidence of the shareholders. It should be pointed out that there is comparatively little

WELL SECURED BONDS FOR INVESTMENT

YIELDING
6% to 8%

We buy, in whole or in part, issues of securities for the financing of corporations, municipalities and provinces

Write for Investment List

Greenshields & Co.

INVESTMENT BANKERS
Montreal: 17 St. John Street
Toronto, 14 King St. East
Ottawa, Central Chambers

trading in the most of these; they are closely held as a rule. Even so, unless they were a high grade security they would have found lower levels even in light trading.

A study of the list will serve to show the advance in prices that has taken place even in these securities since the beginning of the year; the present yield being less than on January 1, by .2 or .3 to .6 of 1 per cent. This advance in prices,—and decline in yield—however, has been very small, less on an average than with most bonds, another remarkable tribute to the stability of these securities.

Consideration of these and other high class preferred stocks as investments is quite worth the while of the investor.

FLYING OVER FOREST FIRE

THE following most interesting comment is taken from the report of the unique expedition by air from New York to Nome, Alaska, by the U. S. Government aeroplane expedition last year. "Down the valley of the Fraser as far as Uring, we hastened at 110 miles per hour. We were going down the western slope. We had crossed the Canadian Rockies. Both sides of us, the atmosphere was filled with the smoke of forest fires. Deep growth of Douglas Fir, Spruce and Pine covered these magnificent mountains. I noticed with much surprise that the smell of the burning Spruce was plainly discernible at my altitude of 8,000 feet, fully 4,000 feet above the edge of the timber line below. I searched intently for some signs of caribou and moose on these flat mountain tops over which we made our roaring way, but not a living thing stirred."



Province of Ontario

Presents

Wonderful Opportunities

for

Lumbering,
Farming,
Ranching,
Summer Resorts, etc.

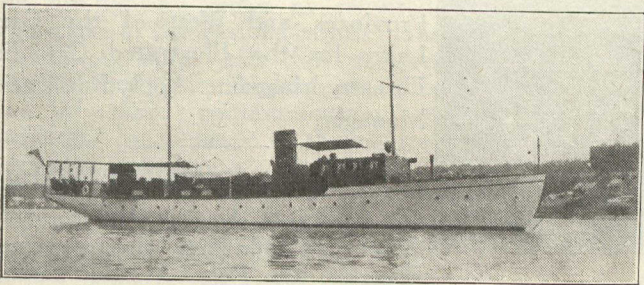
HON. BENIAH BOWMAN,
Minister of Lands and Forests,
Toronto, Ontario.

W. C. CAIN,
Dep. Min. Lands and Forests Dept.,
Toronto, Ontario.

The "Albacore" a Trim Craft

Sir William Price's Yacht combines recreation with business.

A REPRESENTATIVE of the "Illustrated Canadian Forestry Magazine" recently had the opportunity of paying an unofficial visit to the handsome yacht "Albacore" owned by Sir Wm. Price of Price Brothers, Limited, Quebec. This very trim, yet most practical craft (pictured herewith) is used both as a recreational and business adjunct to the vast enterprises of the Price Brothers' Company and it must be recognized by all who have the opportunity to visit this miniature liner, that the facilities it offers for these purposes cannot be denied.



Sir William Price's yacht "Albacore", photographed at Chicoutimi, Que.

The "Albacore" is 106 feet long, 16 feet beam and is equipped with two 250 H.P. Winton engines, developing a speed of 15 miles per hour. Capt. D. T. Horton a native of Shelburne County, Nova Scotia, is officer in charge, having occupied that position six years, the first two years of which were during the ownership of Comm. J. K. L. Ross, for whom the yacht was originally built. A crew of eight men is required to navigate and operate this very handsome little craft.

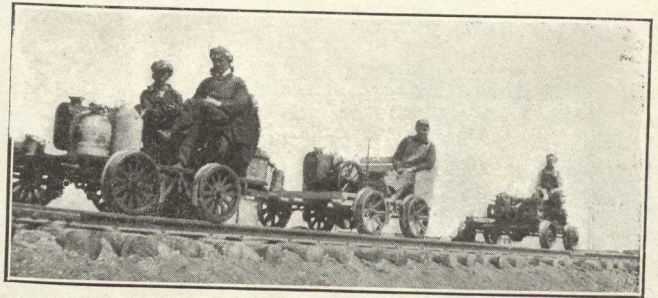
The living accommodations on the yacht are most comfortable for both passengers and crew. For the former there are four roomy staterooms and a perfectly appointed bathroom, while the saloon of the yacht, situated on the main deck and finished in white mahogany, leaves nothing to be desired in the way of comfort and restful surroundings. The "Albacore" after being stored for the winter in the plant of the Montreal Boat Builders, Limited, Lachine, Quebec, was refitted to go into commission about May 20th.

MONTREAL BOAT BUILDERS BUSY

Lachine Firm has designed special workboat for Lumber and Pulp Industries

ATENTION is directed to the announcement, in the advertising section of this issue, made by the Montreal Boat Builders Limited, in connection with their new model work boat, especially designed for the Lumber and Pulp and Paper Industries. This craft will, it is believed by its builders, prove of exceptional value to firms requiring a sturdily constructed work boat capable of both towing and carrying heavy and bulky loads. The builders have tried out various work boat types and are combining the good qualities of each in this special design. Montreal Boat Builders Limited, whose plant is situated at the entrance to the Lachine Canal are splendidly equipped to undertake marine construction, or refitting work of practically every character of craft up to eight feet draught. With three marine railways and

A NOVEL FIRE DEPARTMENT



A type of gasoline speeder frequently used in railway forest protection in Manitoba.

storage space sufficient to accommodate seventy boats of various sizes, this enterprising young firm has become a very important unit in Canada's ship-building industry. Its workshop is equipped to handle any carpentry or woodworking repairs and the staff of sail-makers, riggers and mechanics are qualified to undertake work in their various departments.

The firm specializes in original designs of speed and pleasure boats, also in the standardized production of family runabouts and cruisers. Among the most recent products of Montreal Boat Builders Limited, is the yacht, it is proposed to christen "Mademoiselle (from Armentières)" which has been constructed for an unnamed group of Royal St. Lawrence Yacht Club sportsmen, who intend challenging for the Duggan Challenge Cup, won last year from R. S. L. Y. C. by the challenger "Bootlegger" of the White Bear Yacht Club, St. Paul, Minn. This international classic will, it is expected be sailed on the Upper Great Lakes at the end of July.

BOVRIL--the Summer Nourisher

However light your food, you are sure of being well nourished if you take plenty of Bovril. Bovril contains the goodness of the beef.

Add a spoonful of Bovril to all your meat pies. It imparts to cold dishes a rich savouriness.

Use Bovril with a little gelatine dissolved in it as a savoury jelly for meat shapes, jellied salads, and "aspics."

BOVRIL



Second Growth Aspen

Continued from page 832.

showing soil and ground cover, as well as a full description of each tree.

With a view to learning the effects of the various methods of cutting upon the subsequent growth of the seedlings and saplings already established and upon reproduction, numerous small plots have been selected. On each of these the small growth has all been tagged and measured. A periodic re-measurement of these should reveal the conditions which have been most favourable. The tagging of the seedlings now in the plot will facilitate the recognition of new growth on subsequent examination.

Some 5,000 Norway spruce transplants were set out in nine selected plots and the growth of these will be compared with those planted by nature.

To further broaden the field for research about ten pounds of white spruce seed was sown under a variety of conditions and sites, on top of mineral soil, and at various distances from side shade.

Unexpected Mortality

Since these problems are mainly studies of growth, results cannot be expected for some time to come. However, an unlooked for mortality has already occurred, particularly in the area cut to 10 inches, where over 10 per cent of the stand has died during the past year. These have not been wind-thrown, but apparently they have been so badly shaken by the wind that many of the roots have been injured. At these injuries, fungi have entered and completed the destruction. At the same time the

living branches have been stripped of their bark by beetles. The three sided attack has been too severe for even the hardy black spruce to withstand. To what extent the loss is attributable to any one of these agencies is difficult to say, but certain it is that the beetles have played no small part, for in many cases over 75 per cent of the branches have been injured. There is also little doubt that this infestation is largely due to the slash left at the time of the logging operation. This factor should not be underestimated when considering the vexed question of slash disposal.

Classified Advertising

SITUATIONS VACANT

FIRST CLASS REPRESENTATIVES WANTED.—The Canadian Forestry Association is open to employ in all communities, except Ottawa, membership agents on a liberal commission basis. Applicants must have reference. Apply 224 Jackson Building, Ottawa.

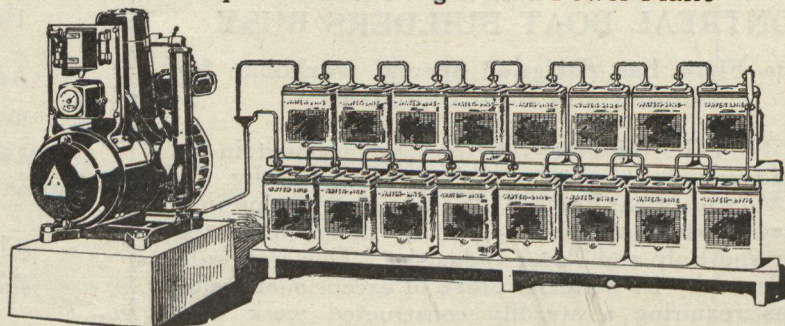
ADVERTISING REPRESENTATIVES in Quebec, the Maritime Provinces and West of the Great Lakes for the Illustrated Canadian Forestry Magazine. Apply Publication Manager.

Providing Food For Fishes

To provide natural food for trout in streams flowing through State Forests, the Pennsylvania Department of Forestry is preparing to plant along the brooks trees that will attract insects. It has been decided that shad bush, commonly called June berry, is the most desirable variety because bugs and insects will come to the white flowers which bloom in the early spring. It is expected the insects will fall into the stream and be eaten by the fish. John W. Keller, Chief of the Bureau of Silviculture, has announced the Department will collect shad bush seeds and plant them in State Forest nurseries next spring. When they are large enough, the trees will be transplanted from the nurseries to the banks of streams.

DELCO LIGHT

The Complete Electric Light and Power Plant



At a minimum of trouble and expense Delco Light gives a maximum of Service and Safety. Write for free information, mentioning this Magazine. The plant illustrated above is identical with that used on the 1921 Tour of the Canadian Forestry Association's Eastern Exhibit Car.

**ELECTRICAL SYSTEMS LIMITED
TORONTO**

**THE CHARLEBOIS COMPANY
MONTREAL**

Scientific Forest Protection

(Continued from page 817)

depot which distributes to a group of fire-control districts, generally the same group as is handled by a single transport officer.

The officer in charge of the commissary is called the "quartermaster" and, in fact, very often combines the duties of quartermaster with those of packmaster. He arranges for the delivery of the necessary food, tools, and miscellaneous camp supplies, such as tobacco, socks, etc., from the main supply points in the nearest towns to one or more base stations from which they are distributed to the fire-fighting crews as required. The cooks at the various camps make requisition upon him for supplies either directly by telephone or other line of rapid communication, or indirectly by message to the nearest telephone station. The extreme uncertainty of the extent or duration of this class of work constitutes the principal element of difficulty for the quartermaster, and this he is enabled to minimize by being in constant direct communication with each camp.

Finance and Accounting

The payment of fire-fighters must be handled promptly, especially where large crews of a floating class of labour are involved. Also, an efficient organization will want to maintain an accurate record of its expenditure and an adequate cost-accounting system. This is generally handled by a paymaster who disburses for a group of fire-control districts, often including two or more groups of the size handled by a single quartermaster or packmaster. The intercommunicating system expedites the work of the paymaster by enabling him to get advance information in regard to the men coming out and the amount of disbursement he must be prepared to make each day. This is often of great importance in regions where banking facilities are limited. On the fire-line he is represented by the timekeeper who, however, generally has other duties to perform as well.

Intercommunication and Reconnaissance

As has already been indicated it is of vital importance to the efficient operation of each of the several departments of the fire-control staff that constant communication be maintained between the fire-fighting crew and the various headquarters in the rear of the fire-line.

It is also of much importance on a large fire that the officer in charge be kept constantly informed of the



Bureau of Canadian Information

THE Canadian Pacific Railway through its Bureau of Canadian Information, will furnish you with the latest reliable information on every phase of industrial and agricultural development in Canada. In

the Reference Libraries maintained at Montreal, Chicago and New York, are complete data on natural resources, climate, labor, transportation, business openings, etc., in Canada. Additional data is constantly being added.

No charge or obligation attaches to this service. Business organizations are invited to make use of it.

Canadian Pacific Railway

Department of Colonization and Development

165 E. ONTARIO ST., 335 WINDSOR STATION, C. P. R. BUILDING,
CHICAGO MONTREAL Madison Ave., at
44th St., New York.

progress of the fire in all its parts and of the success or failure of the various control measures undertaken by the forces combating it. This, of course, assumes that a relatively large fire is being subdued. Small fires may be readily observed by the officer in charge and no special organization for securing information is needed. On large fires, however, it is frequently found desirable to employ a scout or intelligence officer. The duty of this member of the force is to keep the chief of the fire-fighting force informed of all important features of the work of fire control and of the progress of the fire itself where not yet under control. He is also, as a rule, charged with establishing and maintaining communication with the headquarters in the rear. Now, it rarely happens that a fire camp is located on a permanent telephone line. If, therefore, it is considered necessary that the camp be equipped for direct communication it becomes the duty of this officer to provide telephone connection or establish communication by some other direct means. It is desirable here only to indicate the organization by which it is effected. Naturally, such communication will be required only in exceptional cases. A camp that will be occupied for only a few days at the most and that would need to send only a very few messages would handle them by messenger. But where a large camp may be occupied for a period of weeks, perhaps and is only one of several engaged in the control of a single large fire, then it

may be extremely important to establish direct connection. It is the same problem that faces the military officer who must decide whether to send an order by messenger or have it transmitted by signal. The circumstances in each case and knowledge of the possibilities of all means available must be the guide in the action taken.

Fire Suppression Strategy

The strategy of fire-fighting as distinct from tactics has the same significance as in military operations, that is, it comprises all those broader elements of the problem such as existing conditions of fire, topography, season, forest, forces available, and other factors which taken together determine in a broad way the general method of attack. Unfortunately there is not available in fire-fighting records any body of detailed reports of fire-fighting operations with the reasons therefor and the results attained, such as exist in military history, and lacking this essential data fire-fighting strategy still remains in a condition of very rudimentary development as a practical art. In actual practice it is necessary to rely entirely upon the individual capacity of some member of the force who has himself only his own individual experience to depend upon. Non-specialized forces assume this knowledge of all their members. Specialized forces undertake to bring to bear on this important line of work a more extensive experience by making available for study by the permanent



THIS YEAR CANADA CALLS YOU!

VACATION LAND OF IDEAL SUMMER CLIMATE

Hay fever is unknown in this clear, pine-and-balsam scented air. Unlimited territory to choose from; wide valleys of woods and streams and wild flowers; turquoise lakes with sandy beaches; the restful relaxation of camp life or the luxury of the finest hotels. In Canada your Ideal Vacation is realized; Algonquin Park—Muskoka Lakes—Georgian Bay—Lake-of-Bays—Kawartha Lakes and Temagami. Fishing, boating, bathing, golf. A summer playground in the great out-of-doors.

For full information and illustrated literature, write

C. E. HORNING,
District Passenger Agent,
Toronto, Ont.

E. C. ELLIOTT,
District Passenger Agent,
Montreal, Que.

staff such detailed reports of fire-fighting strategical operations as can be secured and by relieving some of the staff officers of most of the usual details of forest protection work so that they may give special attention to this important phase.

Unlike military camps fire camps are extremely simple. It is very seldom that such camps are large enough or remain in one place long enough to require special sanitary precautions or highly specialized organization. Provision for safety in location is necessary but usually is easily secured. The same is true of provision for medical service. Injuries, sometimes fatal, are not uncommon in fighting fires and yet, on the whole, they are not sufficiently numerous to require any special organization. There is, therefore, in a specialized fire-protection staff nothing that corresponds to the medical corps or sanitary corps of an army. All responsibilities of this nature as a rule fall upon one of the officers, such as the camp foreman. The greatest advance has probably been made by those organizations which maintain at their base supply stations a number of special fire camp first-aid kits, which are distributed by the quartermaster as needed, and handled by the time-keeper or the camp foreman in the field.

The tactics of fire-fighting include all those specific measures of control that are employed in the immediate vicinity of the fire. As a specific illustration, a decision to divide the crew and begin the attack on the fire

on both flanks at once rather than to endeavour to combat the head is a strategical one, but a decision as to whether to cut a trench near the edge of the fire or to use a trail existing at some distance from the edge or to make no guard-line at all but try to beat out the fire or to extinguish it with water, is a tactical one. Fire-fighting tactics have advanced much further in organized development than has strategy. A considerable number of methods are known and much has been done toward improving these methods. Particularly is this the case in methods for using water in fighting forest fires. Theoretically water is the ideal material to use for fire extinguishment but the practical difficulties of getting the material to the point of use are very great in all but a few very limited regions. As might be anticipated, it is only those highly perfected organizations which have solved the problems of preparedness and strategy that are able to advance with real success beyond the simple fire-fighting tactics to the employment of more elaborate methods involving the use of water, particularly the employment of gasoline pumps.

The value of a highly developed system of communication lies in making possible the rapid concentration of adequate control forces on the fire-line and in their successful maintenance. It has little direct bearing on the actual conduct of the fight. Indeed, an unspecialized force with no rapid means of com-

munication may use just as efficient tactics as the most highly specialized force with the most improved system of intercommunication. Where it will fail, however, will be in the early discovery and in the rapid concentration of adequate forces in such fires as occur and in the ability to handle and maintain large forces in regions of difficult accessibility. The result is seen in comparing the records of specialized with non-specialized forces. Wherever conditions are at all comparable, a specialized staff will secure protection at a mere fraction of the cost of equal protection by an untrained non-specialized staff. Moreover, the specialized force will be able to secure adjustment of expenditure according to the character of the season from year to year, or even from period to period during any one season, which an unspecialized force cannot do with any real success. Finally, the specialized force will weather the periodical unfavourable seasons with success, both because it expands automatically according to the danger and because it strikes quickly and places fires under control without delay. It cannot be taken by surprise but detects and locates fires with certainty and precision while they are still in an easily controllable stage. Its record will show few or no large fires in a dangerous season and a low average of acreage per fire, while the record of the non-specialized force in a dangerous season will always show a break-down more or less complete and a high percentage of fires that get beyond all control and burn themselves out or until extinguished by rain. These periodic break-downs are of much greater importance in judging the efficiency of fire-protective organizations than is generally admitted, since it not infrequently happens that the destruction that occurs in a single disastrous season more than offsets the protection afforded during a very long series of favourable years. On the whole, in most timbered regions where advancing settlement, railways, lumbering operations, and various other developments have radically changed the forest fire situation for the worse, no organization for forest protection can be considered efficient unless it has made adequate provision for automatically expanding during exceptionally dangerous seasons, so that it can at all times keep the situation well in hand. *The real test of success is not control of fires during normal seasons but control during the periodic abnormal season without the necessity for keeping up at all times a large and expensive organization that serves no other useful purpose.*

would be acceptable? Since no exact statement can be made for any one form of enterprise, it certainly cannot be stated definitely for the growing of timber. However, the following table will be of some aid at least in this connection. It shows the rates of simple interest necessary to be earned and saved to equal rates of compound interest on an initial sum of \$500.00, invested for a period of 50 years.

The 6.76 per cent. of simple interest we find is equivalent of three per cent. compound, figured by the same method as that employed in arriving at the rates of six per cent. compound and the 34.84 per cent. simple interest. We have stated that we expect the man earning six per cent. annually to reinvest and make something higher than this rate. Therefore the three per cent. compound rate is too low. When we use compound interest then, the rate must be somewhere between three per cent. and six per cent. The equivalent of the latter rate seems far out of attainment for the great majority of enterprises that are based on annual returns. Even the annual equivalent of five per cent. (20.93) seems too high. To the writer it seems that a rate of four per cent. compound interest is sufficiently high when dealing with forest growing as an investment, and is a rate that in no way discriminates in its favor.

After all the point of greatest importance is the total amount that the investment will return and this can of course be figured when a plantation has been brought to maturity. But if foresters have confidence in stating that it is not necessary for such a venture to return over a rate of four per cent. compound interest in order to be the equal of an investment yielding six per cent. annually, it will unquestionably cause many to look upon timber growing in a more favorable light than heretofore.

A HAPPY REMINDER

MR. FRANK J. D. BARNJUM, who has given generously both in financial substance and his personal time to arouse Canadians to an appreciation of the forestry cause, has had prepared for a limited personal presentation a beautifully framed copy of the well-known poem by Joyce Kilmer commencing:

"I think that I shall never see
A poem lovely as a tree."

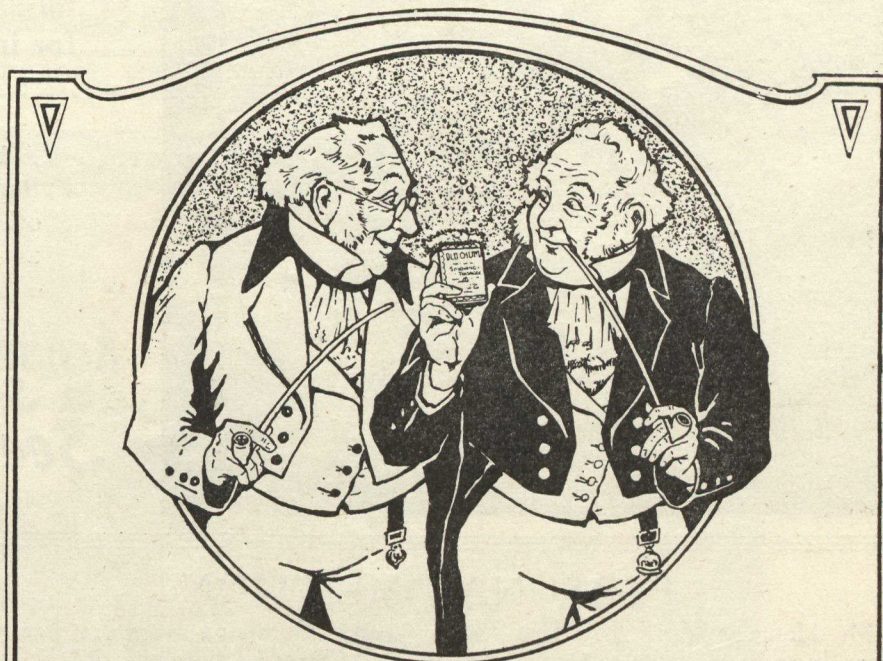
At the end of the verses appears an effective admonition signed by Mr. Barnjum, thereby giving a direct educational appeal to the poem.

The End of a Perfect Jay

By F. T. BYSHE, Dominion Forest Service.

There was a little man
And he had a little match,
And the fire was still glowing
In its head, head, head;
He dropped it in the wood,
Among the leaves just where he stood
To light his pipe before he camped
And made his bed, bed, bed.
(You must admit he didn't
Use his head, head, head.)

Soon this careless little man—
Defend him if you can—
Found the forest all about him
Blazing red, red, red,
He ran to the brook—
But he wasn't any duck,
And he floated to the bottom
Quick as lead, lead, lead.
(When the forest ranger got him
He was dead, VERY DEAD.)



Everybody Smokes

OLD CHUM

CANADA'S FAVORITE
PIPE TOBACCO





Order Now—Your Peonies for Fall Planting

PEONIES are the ideal flowers for Canada. They are hardy and will stand the severest Winter without injury. They will live for years even if totally neglected. No flower is more satisfactory for artistic landscape effect - while for cutting for indoor decoration the Peony is unsurpassed.

Ask for our Fall Catalogue—an up-to-date list of all Peonies, Iris, Phlox and other perennials, including bulbs such as Hyacinths, Tulips, Narcissus, etc.

**Kenneth M'Donald
& Sons Limited
Seeds Ottawa, Can.
66 Market Sq.**

Catalogue ready
for mailing
about
August 15th

PERSONAL MENTION

Mr. Howard Smith, Montreal, has recently returned from a business trip to the Canadian West.

Mr. W. R. Currie, Dominion Paper Company, Limited, Montreal, was married in the latter part of April at Stanley Presbyterian Church, Westmount, to Miss Reta Portway of New York.

Mr. A. M. Huestis, who has recently returned from a prolonged visit to Europe, has opened an office at 8 Colborne St., Toronto, where in addition to the goods he has previously handled, he will represent the Kalbfleisch Corporation, and several other manufacturers of paper makers' chemicals.

Mr. Robson Black, manager of the Canadian Forestry Association, has recently returned from Winnipeg where he was successful in securing some financial support for the Association's tree-planting campaign in the Prairie Provinces.

Mr. B. W. Lakin, who for the past fifteen years has been logging superintendent of the Brookston Lumber Company at Bemidji, Minn, has been given the important post of General Manager of the Shevlin

Clarke Company at Fort Frances, Ont. Mr. Lakin is one of the best-known lumbermen in Minnesota and is regarded as one of the most successful business executives in the industry. He succeeds Mr. J. A. Mathieu, who recently retired.

THE FIRE-BUG AND THE EAST WIND

"It's time to hit the trail again,"

The careless camper said,
And left his little fire ablaze
Within its leafy bed.

"I'll light another cigarette,"

The idle loafer said,
And chucked his old 'snipe' in the brush,
One end still glowing red.

"Good time to fire my slashing now,"

The thoughtless rancher said,
And touched it off without a thought
Of how far it might spread.

"I think I'll blow an hour or two,"

The restless east wind said,
Then liked it so he changed his mind
And blew a week instead.

"Millions in lives and timber lost,"

The newspapers next said,
What made those fires all start at once,
We wondered as we read.

"It wasn't us, it was that wind,"

The fools in chorus said.
So they're alive and loose this year.
—We hope the wind is dead.

—E. T. Allen.



Timber Limits

We have a complete up-to-date survey of all available properties in the Provinces of Quebec, New Brunswick, Nova Scotia and British Columbia. Before investing in timber limits consult us. Reliable surveys and estimates procured. We have in hand practical lumber and pulpwood limits.

**Canada Woodlands
AND
Pulpwood Agency
REGISTERED**

600 McGill Bldg, Montreal, Canada

CABLES: "GEFORT, MONTREAL."

TELEPHONE: MAIN 3281