

The Illustrated
**CANADIAN
FORESTRY
MAGAZINE**

Special Features
in this Issue:--

*Save Our Wild
Life*

By John A. Hope

*One Way to Block
the Exodus of
Population*

By Robson Black

*Fast Growing
Trees*

By A. H. Richardson

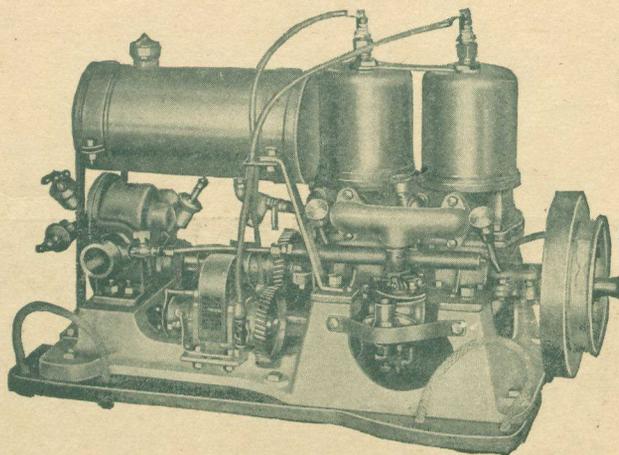
*How Willow
Trees Save
Washed-Out
Banks*

*Aeroplanes Used
to Survey
Labrador Gold
Fields*

Also Inaugurating a
New Department

*"Young Canada
Out-of-Doors"*





The New Fairbanks-Morse Forest Fire Pump

delivers a greater volume of water---during recent tests it delivered 55 U.S.G.P.M. It has drop forged connecting rods and crank shaft, a smaller fly-wheel which lowers the centre of gravity and eliminates the tendency to tilt when being transported. It has a rope starter, rigidly installed fuel tank. etc., etc.

It is believed that this new model is the most efficient and satisfactory fire pump that has yet been placed on the market.

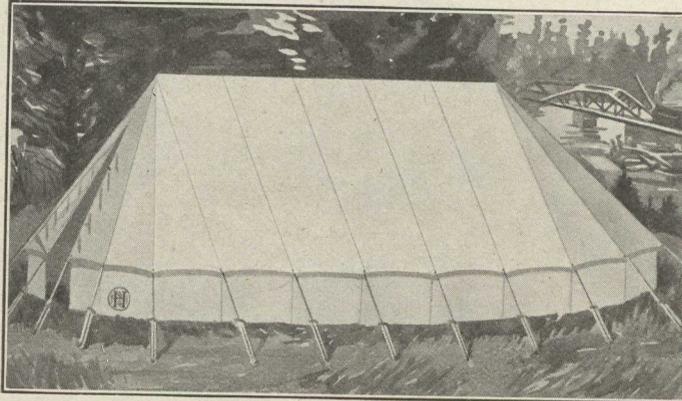
**THE CANADIAN FAIRBANKS - MORSE CO.,
LIMITED**

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

G-H-G TENTS

Are Made in Canada
and the Best Made

We can supply
Your Complete Requirements, not Only
in Tents, But in All Camp Supplies



BLANKETS
TARPAULINS
PACK SACKS
WATERPROOF BAGS

Mackinaw Shirts
" Jumpers
" Knickers
and Pants
" Coats

CAPS
GLOVES
UNDERWEAR
MOCCASINS
PANTS & BREECHES
WATERPROOF
CLOTHING

Write for Catalogue
and Prices

GRANT - HOLDEN - GRAHAM, Limited

Head Office and Factory: OTTAWA, ONT.

BRANCH
FACTORIES Vancouver, B.C., Hull, Que.

Peterborough

Since 1879

Reliable Motor Craft

When you buy a "Peterborough" Motor Boat, you are getting a thoroughly tested and dependable craft. Whether it be for pleasure or commercial purposes, your "Peterborough" will give you the utmost in appearance and service. We stock motor boats of various types complete in sizes from 16 ft. to 24 ft.

Canoes, Skiffs, Dinghys

The famous "Peterborough" Canoe has been the standard in grace and sturdiness since 1879. We put the same high quality materials and workmanship into our skiffs, sailing dinghys, and accessories. You don't buy a boat often. When you do, buy one that will last.

Write today for illustrated catalogue giving 1923 prices

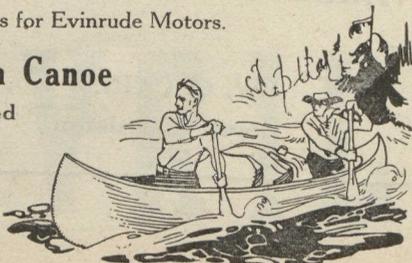
Ontario Distributors for Evinrude Motors.

Peterborough Canoe

Co., Limited

288 Water St.

Peterborough, Ont.



MOOSE HEAD BRAND

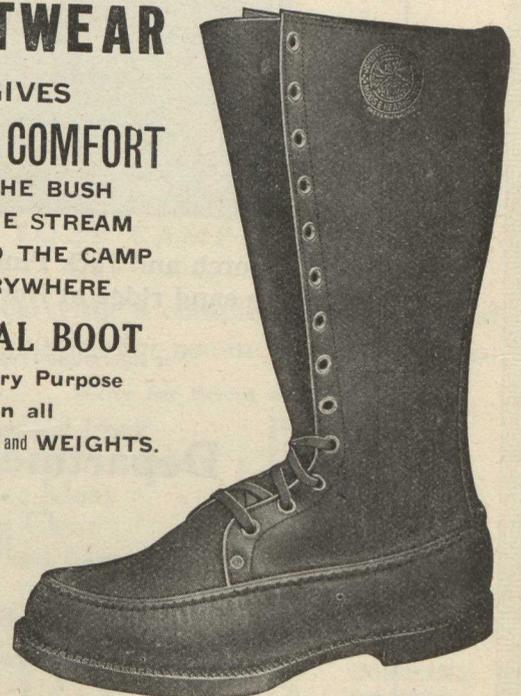
FOOTWEAR

GIVES
SOLID COMFORT
IN THE BUSH
ON THE STREAM
AROUND THE CAMP
EVERYWHERE

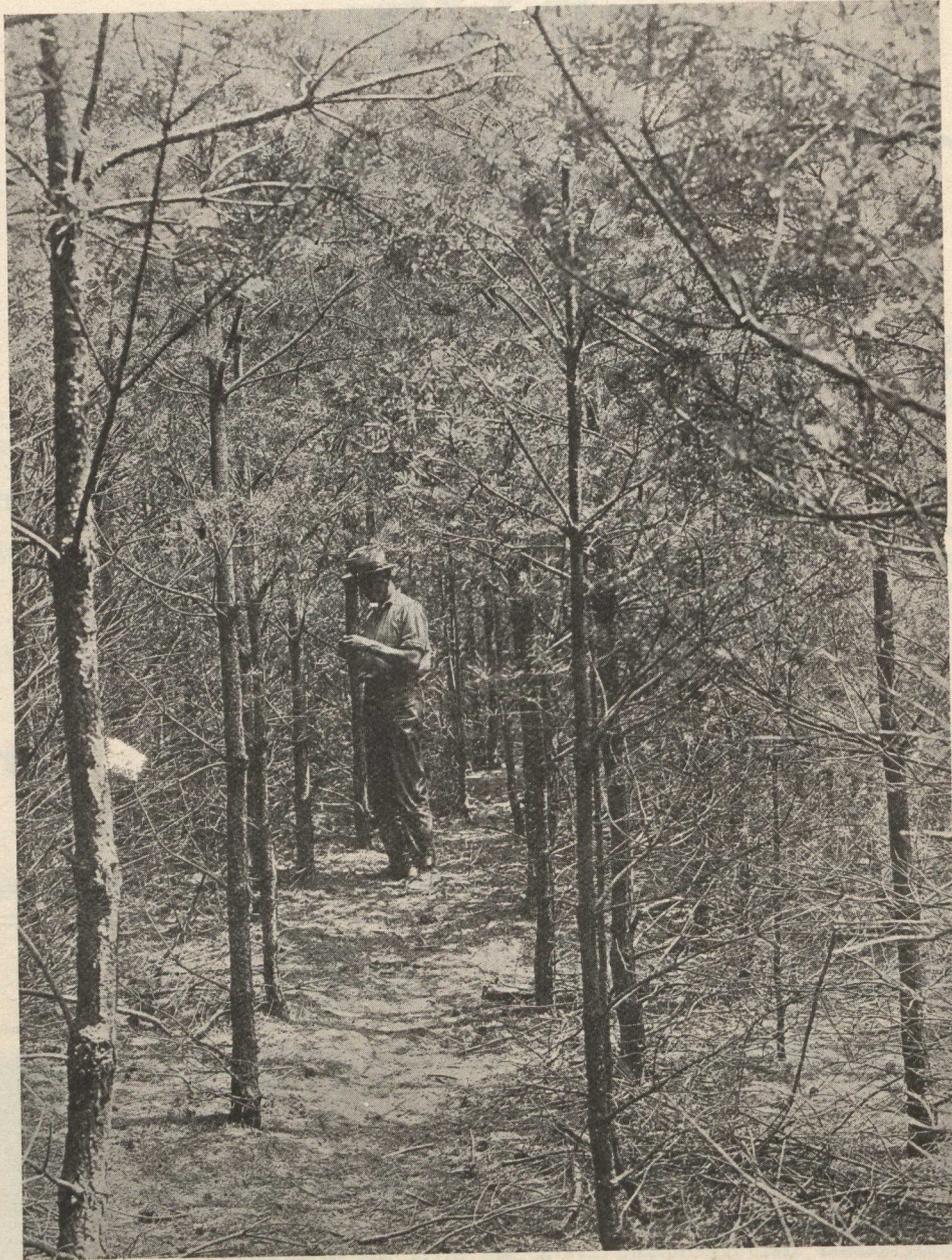
A REAL BOOT

for Every Purpose
in all
HEIGHTS and WEIGHTS.

Catalogue
"F"
mailed on
request.



JOHN PALMER CO., Limited
FREDERICTON, N.B., CANADA



Scotch and Jack Pine plantation, made by Ontario Forestry Branch on sand ridge at Norfolk Forest Station in 1909 (Fourteen years old).

For information regarding reforestation in Ontario, write "Forestry Branch, Parliament Buildings, Toronto.

Department of Lands and Forests
TORONTO, ONTARIO

Hon. BENIAH BOWMAN,
Minister

W. C. CAIN,
Deputy Minister



Be Sure to Include a Supply of Klim

KLIM is powdered full cream milk with only the water taken out, and no preservatives added. You simply restore the water, drink it, cook with it, or put it to any use you would good, fresh liquid milk. Mix just what you want and the rest will keep for months, if desired, in its original tin. It's easy to carry—a pound of Klim makes nearly a gallon of milk.

Ask your grocer or write us direct.



CANADIAN MILK PRODUCTS, LIMITED

347 WEST ADELAIDE STREET, TORONTO

366 St. Paul Street, West
Montreal, Que.

428 Main Street
Winnipeg, Man.

British Columbia Distributors:
Kirkland & Rose, 130 Water St., Vancouver, B.C.

Every savoury dish can be improved by a little Bovril. Just a spoonful in a soup, a gravy, casserole, or an entree will add greatly to its richness in flavour and food value.

A bottle of Bovril kept handy on the shelf where you keep the other things you use every day for cooking will always prove a boon.

When you add BOVRIL
to any dish you add all
that is best in beef.

BOVRIL

LUMBERMEN

we offer

BEEF

FRESH OR FROZEN
ALL GRADES
for
YOUR CAMP TABLE

We are carrying a complete stock of food supplies suitable for use in your mess room.

Write for Prices on

Barrelled Pork	Pure Lard
Peerless Shortening	Pickles
Mince Meat	Sausage
Long Clear	S. P. Meats
Smoked Meats	Beef

Write or Wire Us, (Collect)

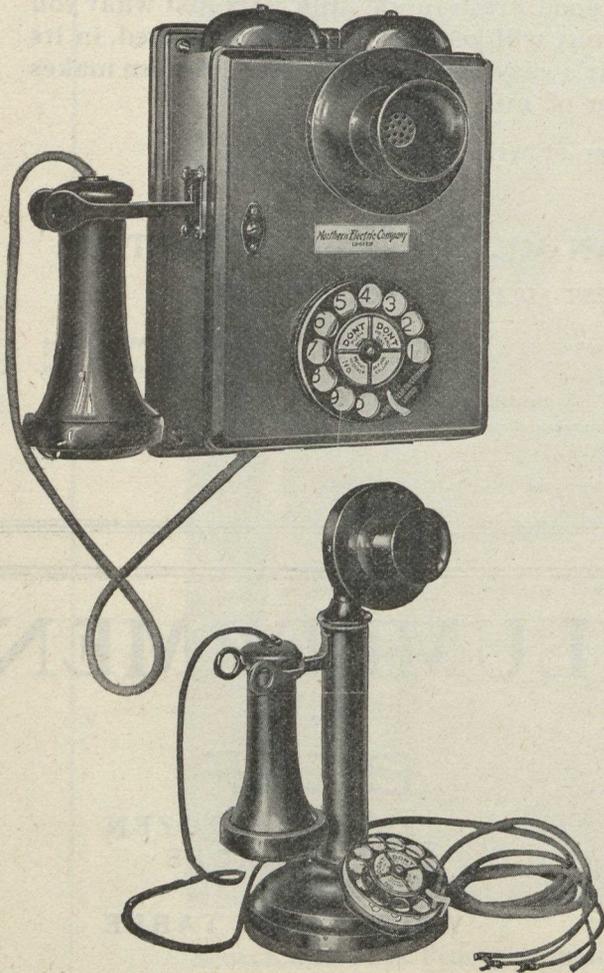
THE WILLIAM DAVIES COMPANY LIMITED

Head Office: Toronto, Ont.

Branches at SYDNEY HAMILTON MONTREAL

P · A · X

Private Automatic Exchange



ECONOMICAL

The Automatic Telephone

The P.A.X. is a time saver—a trouble saver and is built to last. Pays for itself in any plant.

The P.A.X. is the only rapid, easy and economical means of intercommunication between widely separated departmental heads of a business.

Business needs action. The turn of the dial gives action any time—all the time.

“A Pair of Wires and a Dial,” telling of P. A. X. in operation is yours for the asking. Write our nearest House.

Northern Electric Company
LIMITED

MONTREAL TORONTO WINDSOR CALGARY
HALIFAX HAMILTON WINNIPEG EDMONTON
QUEBEC LONDON REGINA VANCOUVER

“Makers of the Nation's Telephones”

MANUFACTURING

Manual Telephones
Automatic Telephones
Wires & Cables
Fire Alarm Systems
Radio Sending and
receiving Equipment

DISTRIBUTING

Construction Material
Illuminating Material
Power Apparatus
Household Appliances
Electrical Supplies
Power & Light Plants
Marine Fittings



The

MARCONI WIRELESS

TELEGRAPH COMPANY OF CANADA LIMITED



Our new twenty page booklet is now in thousands of Canadian Homes—may we mail you a copy?

TRANS-ATLANTIC AND SHORE TO SHIP TELEGRAPHS.

CONTRACTORS FOR THE SUPPLY, ERECTION AND OPERATION OF WIRELESS APPARATUS FOR MARINE, DIRECTION-FINDING, FORESTRY, RAILROAD, AIRCRAFT AND BROADCASTING REQUIREMENTS.

MANUFACTURERS OF HIGH GRADE BROADCAST RECEIVERS.

Head Office and Factory: MONTREAL

Dominion Building
VANCOUVER

93 King Street
TORONTO

Arcade Building
HALIFAX

240 Water Street
ST. JOHNS, Nfld.

RICE LAKE CANOES

SINCE EIGHTEEN SIXTY TWO

We Specialize in High Grade Canvas Covered Canoes—in Both Freight and Pleasure Types



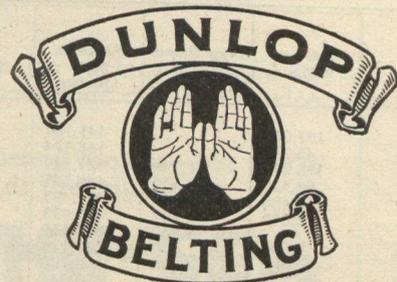
Also, Cedar strip and Basswood Canoes. Skiffs—square stern and double end.

Our "Herald Patent" 13 ft. and 16 ft. Double Skin Cedar Canoes are the best in the world.

Catalogue sent on request

**The Rice Lake Canoe Company
Limited**

COBOURG, - ONTARIO



Dunlop Belting and Hose

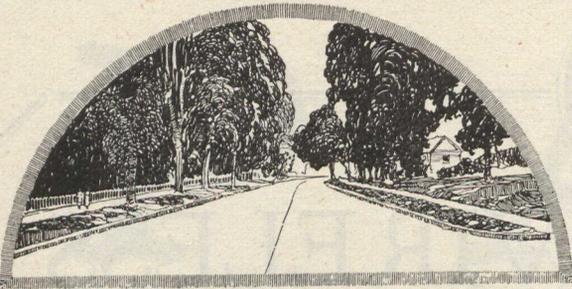
for the Lumbering Industry

"GIBRALTAR RED SPECIAL"—the high-grade Transmission Belting for all Drives.

"FIRE HOSE"—a necessity where the Fire risk is high. "DUNLOP" Brands afford adequate and efficient protection.

DUNLOP

Belting Hose Packing
and General Mechanical Rubber Products
for every purpose



Each Year Sees an Increase in Canada's Concrete Paving Yardage

The revolution in road traffic, due to the automobile and the heavily laden truck has created a positive use for permanent, skid-proof, fuel saving highways of Concrete. Governments, Municipal and Provincial, have come to the realization that economy in road building lies in building for permanence.

Permanent highways of Concrete pay for themselves. They lessen the taxpayer's burden by reducing upkeep to a minimum. They lower haulage costs, attract tourists and promote the comfort and well-being of every community they serve.

Evidence of the increasing popularity of Concrete is found in the figures of total yardage year by year in Canada. The table below gives this illuminating information.

CONCRETE PAVING COMPLETED IN CANADA

Square Yards Laid Each Year and Total Yardage Year by Year

Year	Western Provinces	New Brunswick and Nova Scotia	Ontario and Quebec	Total
Prior to 1912	197,083		145,101	342,184
During 1912	45,794		168,374	214,168
" 1913	146,421	1,190	321,389	469,000
" 1914	90,520	10,670	449,125	550,315
" 1915	37,480	17,439	627,495	682,414
" 1916	52,010	9,742	446,998	508,750
" 1917		16,740	432,530	449,270
" 1918			131,118	131,118
" 1919	10,560	4,500	608,180	623,240
" 1920	-95,624	8,000	660,044	763,668
" 1921	55,711	11,734	1,237,878	1,305,323
" 1922	74,465		1,549,468	1,623,933
Total end of 1922	805,668	80,015	6,777,700	7,663,383

There is every encouragement in the fact that Canada is using Concrete on a rapidly increasing scale in order to carry adequately the motor driven traffic which is becoming such a factor in modern transportation.

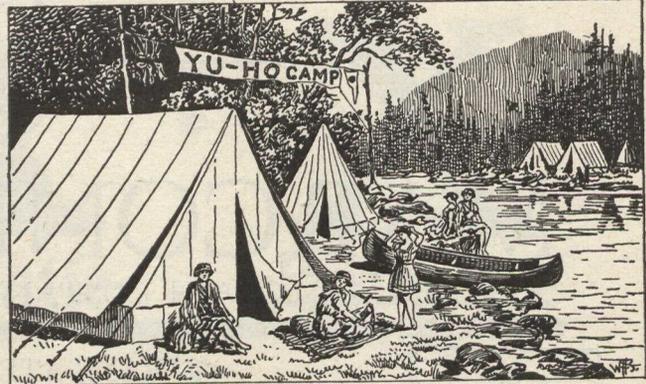
"It's the little they cost to maintain that makes Concrete Pavements Economical."

CANADA CEMENT COMPANY, LTD.

Canada Cement Company Building
Phillips Square Montreal

Sales Offices at:

Montreal Toronto Winnipeg Calgary



Goin' to the Wilds

Be Sure Your Equipment Is Of The Best

If the party be **W**OODS catalogue tells one—two or a **W** of dozens of different dozen, comfort styles of comfy tents—just the counts. thing for small or large parties.

Write, telling us your expectations—we'll advise—that's our business.

WOODS Manufacturing Co., Ltd.
OTTAWA - CANADA

UNION

UNSURPASSED

QUALITY

AND

SERVICE

THE UNION SULPHUR COMPANY

Main office:

Frasch Building, 33 Rector St., New York

Mines: Calcasieu Parish, Louisiana

SULPHUR



A Canyon-like River with Stupendous Capes

WOULD you enjoy a new type of scenery—something entirely different to the shore-line you've scanned on other boat trips?

Then see the Saguenay!

Here is a mysterious, awe-inspiring river. On its surface, painted in nature's richest tints, lie the reflections of stupendous capes that rise higher than Gibraltar, seeming to touch the sky.

You'll get a real thrill from this trip up the Saguenay canyon—but you'll get equal satisfaction out of every other feature of the trip.

NIAGARA-TO-THE-SEA

From Toronto you travel the broad expanse of Lake Ontario, then comes the beautiful scenery of the Upper St. Lawrence River, with its magnificent 1000 Islands. The same day you have the exhilarating descent of the Rapids—soon to arrive at Montreal.

Quebec—that city of quaint old-world charm, is another feature of the trip—and from Quebec you can take the short ride to Ste. Anne de Beaupre, where, for 250 years, the townsfolk and the pilgrims have bowed together before wayside altars. As a fitting climax you sail up the famous Saguenay River, where giant cloud-wrapped cliffs tower so high above you that the whirling eagle is a speck against the blue.

For complete information apply at the address below, or send 2c postage for illustrated book, map, guide, and our new and interesting booklet, "Phantoms of The Past."

JOHN F. PIERCE, PASSENGER TRAFFIC MANAGER

Canada Steamship Lines Limited 9 Victoria Square Montreal

CANADA STEAMSHIP LINES LIMITED



Fish that are Fish in Ontario

All day long — through unsurpassed forest scenery — you can traverse rivers and sparkling lakes teeming with game fish. Think of the glorious hours with rod and line!

Have you smelt wood smoke at twilight when your day's catch is sizzling in the pan over glowing coals? Do YOU remember the keen appetite — the hearty meal—the luxurious pipe—and the lazy hours around the campfire while the moon makes magic in the clearing? Come and preserve your youth this year. You can fish, swim, canoe from a bungalow camp.

New Bungalow Camps Easy to Reach

Three new bungalow camps are being constructed for use this summer at Lake of the Woods, Nipigon Bay and French River. Each camp consists of rustic bungalows grouped around a central club house where you dine or enjoy social hours. The camps are situated in the midst of good fishing country, yet they are **ALL EASY TO REACH BY THE CANADIAN PACIFIC**. And this ideal vacation close to Nature actually costs less than an outing at an ordinary summer resort.

Let the nearest Canadian Pacific Agent give you full information:

Or write

A. D. Seymour—General Tourist Agent, Montreal, Que:

CANADIAN PACIFIC

IT SPANS THE WORLD



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. XIX

OTTAWA, CANADA, JUNE, 1923

No. 6

Published and Owned by The Canadian Forestry Association

Editorial and Business Offices

STANDARD BANK BUILDING, 51 SPARKS STREET, OTTAWA, CANADA

Official Organ of The Ontario Sportsmen's Game and Fish Protective Association

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

TABLE OF CONTENTS

<p>One Way to Block the Exodus of Population. By Robson Black..... 353</p> <p>Empire Forestry Conference..... 353</p> <p>Save Our Wild Life (Illustrated) By John A. Hope..... 354</p> <p>National Figures With a Vital Message (Illustrated)..... 357</p> <p>Big Game and Common Sense (Illustrated) By Percy E. Nobbs..... 358</p> <p>Fast Growing Trees (Illustrated) By A. H. Richardson..... 360</p> <p>An Ontario Farmer's Result by Tree-Planting (Illustrated)..... 362</p> <p>John Hupka's Way of Transforming Prairies (Illustrated)..... 363</p> <p>Sportmen's Creed re Forest and Game Conservation..... 364</p> <p>Mr. R. H. Campbell's Retirement as Director of Forestry..... 365</p> <p>Checking Up 25,000,000 Acres of N. W. Canada (Illustrated) By T. A. McElhanney..... 366</p> <p>How Willow Tree Save Washed-out Banks (Illustrated)..... 368</p> <p>Wild Life in Canadian West (Illustrated) By Benjamin Lawton..... 371</p> <p>Interest Charges on Growing Timber. By Percy B. Wilson and Gustave C. Piche..... 372</p> <p>New Brunswick Checks the Flame-Throwers..... 373</p> <p>Timber for a \$10,000 House..... 373</p> <p>Editorial..... 374-5</p> <p style="text-align: center; margin-top: 10px;">YOUNG CANADA OUT-OF-DOORS.</p> <p>How to Build a Camp Fire..... 376</p> <p>Archery for Boys..... 377</p>	<p>My Little Friend the Partridge (Illustrated) By E. L. Chicanot..... 378</p> <p>Prize-Winning Essays..... 380</p> <p>What Was Your Greatest Woods Adventure? (Short Story Contest)..... 382</p> <p>The Runaway Train (Fiction) (Illustrated) By Lovell Coombs..... 383</p> <p>Vickers Ltd., Build Cargo Steamer..... 390</p> <p>Examples of Canada's Scenic Resources..... 391</p> <p>Acorns 10,000 years old..... 392</p> <p>Autobiography of Prof. J. Macoun..... 393</p> <p>Placing The Blame In Verse..... 394</p> <p>Motion Picture Bureau, A Busy Government Publicity Agent..... 395</p> <p>As Others See It..... 397</p> <p>Questions and Answers on Forestry..... 397</p> <p style="text-align: center; margin-top: 10px;">AERONAUTICAL SECTION.</p> <p>Aeroplanes Used to Survey Labrador Gold Fields..... 386</p> <p>Recent Developments In Canadian Aviation..... 386</p> <p>Air Force Statistics..... 388</p> <p>Aerial Photo of Plant of Laurentide Co. Ltd..... 389</p> <p style="text-align: center; margin-top: 10px;">SPECIAL ILLUSTRATED FEATURES.</p> <p>Such Scenes as this Now Lure Many City Dwellers..... 356</p> <p>The Permit Dodger..... 399</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

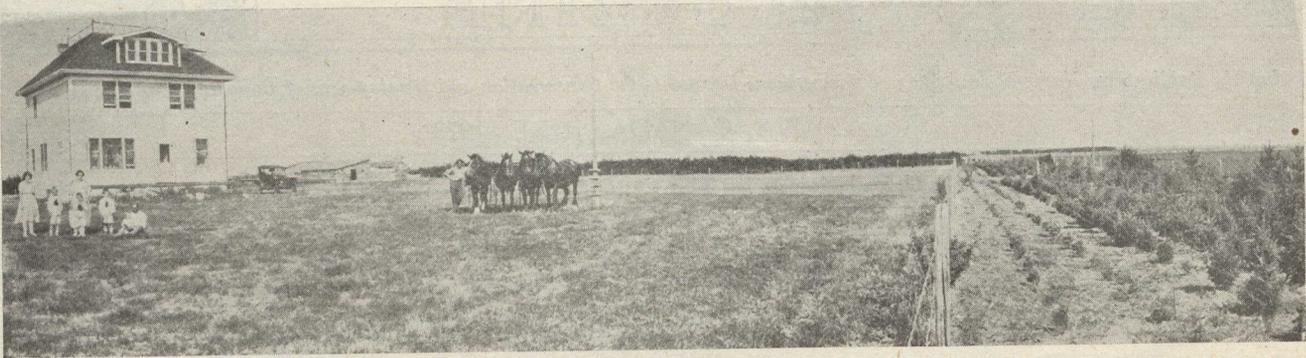
INDEX TO ADVERTISERS

(Alphabetically arranged)

<p>Bovril..... 345</p> <p>Business and Professional Directory..... 400</p> <p>The Canadian Fairbanks-Morse Co. Ltd..... Inside Front Cover</p> <p>Canada Cement Co..... 348</p> <p>Canadian Fire Hose Co., Limited..... 395</p> <p>Canadian National Carbon Co..... 394</p> <p>Canadian National Railways..... 396</p> <p>Canadian Pacific Railway..... 403</p> <p>Canadian National Railways, Dept. of Col. and Development..... 404</p> <p>Chateau Frontenac..... 405</p> <p>Canada Steamships..... 349</p> <p>C. P. R. Bungalow Camps..... 350</p> <p>Canadian Vickers Ltd..... 388</p> <p>Canadian Explosives..... 395</p> <p>The Crabtree Co. Limited..... 395</p> <p>Wm. Davies Co. Limited..... 345</p> <p>Disappearing Propeller Boat Co..... 388</p> <p>Doty Engineering Co..... 400</p> <p>Dunlop Tire & Rubber Co..... 347</p> <p>Fairchild Aerial Surveys..... 387</p> <p>Philip Foran Bird Houses..... 395</p> <p>Grant-Holden-Graham Limited..... 343</p> <p>Greenshields & Co..... 393</p> <p>Imperial Tobacco Co. of Canada..... 398</p> <p>Instruments Limited..... 392</p>	<p>Klim..... 345</p> <p>Kenneth McDonald & Sons, Ltd..... 397</p> <p>Laurentide Air Service..... Outside Back Cover</p> <p>Linn Logging Tractor (Mussens Ltd)..... 396</p> <p>Lord & Burnham Co. Ltd..... 406</p> <p>Marks Stamp Co.,..... 347</p> <p>Marconi Wireless Telegraph Co. of Canada, Ltd..... 390</p> <p>Montreal Boat Builders Limited..... 401</p> <p>H. R. McMillan Export Co..... 346</p> <p>Northern Electric Co. Limited..... 403</p> <p>Ontario Dept. of Colonization..... 343</p> <p>John Palmer Co..... 399</p> <p>Jeager Ltd..... 399</p> <p>Perfection Motor Co..... 343</p> <p>Peterboro Canoe Co. Ltd..... 392</p> <p>Photographic Stores Limited..... 344</p> <p>Province of Ontario..... 401</p> <p>Pulp and Paper Companies..... Inside Back Cover</p> <p>Thos. L. Pink & Company..... 347</p> <p>Rice Lake Canoe Co..... 393</p> <p>Royal Bank of Canada..... 385</p> <p>Sampson Office Service..... 348</p> <p>Union Sulphur Company..... Inside Back Cover</p> <p>Waterous Engine Works Co..... 348</p> <p>Woods Manufacturing Co. Ltd..... 402</p> <p>B. C. Trade Directory..... 402</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Trees Bring Joy and Profit to Prairie Farmer

Photographs reproduced by courtesy of Dominion Tree Planting Division, Indian Head, Sask



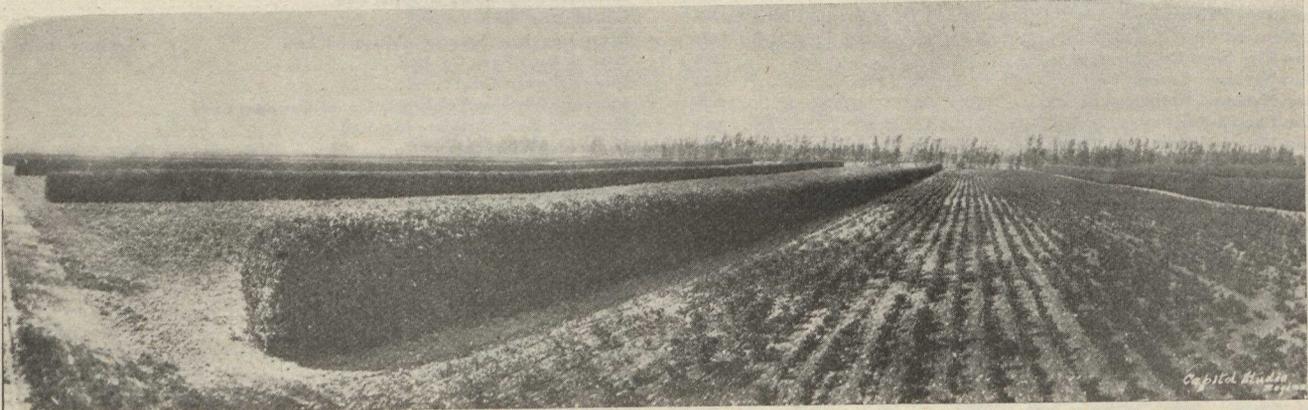
TAKING THE FIRST STEP.

An excellent illustration of the need for windbreaks of trees about a prairie farm and how the first step is undertaken. Note the rows of young trees to the right. The photograph shows the farm of B. J. Olafson, of Dafoe, Sask., in the Spring of 1923. In a very few years, Mr. Olafson and his family will enjoy benefits from the windbreak far outmatching the first investment in labor and the slight sacrifice of ground area. Such tree planting enterprises are exerting a profound effect upon the prosperity and stability of farm life in the West.



LIFE ON THE "BALD WIND-SWEPT PRAIRIE."

But after man's effort has coaxed indulgent Nature. The Forest Nursery Station at Indian Head, Sask., established by the Dominion Forestry Branch with Mr. Norman M. Ross in charge is a most beautiful spot and exerts a wide educational influence, quite apart from its great utility as a centre for the free distribution of tree stock to farmers.



CARAGANA HEDGES FOR PROTECTION.

A scene at the Forest Nursery Station, Indian Head, Sask., showing the use of caragana hedges to shield nursery plots. The Indian Head station has shipped out over sixty million seedling trees to the farmers of Western Canada.

One Way to Block the Exodus of Population

If One Settler is Worth Hundreds of Dollars, is a Forest Workman Worth Fifty cents Worth of Fire Prevention?

By Robson Black, Manager, the Canadian Forestry Association

THE exodus of population from Canada to the United States, as unpleasantly reported from official sources, represents the natural flow of workers to the points of high wages and what they conceive to be better living conditions. Artisans and farmers, urgently needed by Canada, have moved south at a rate which would be disquieting were it forgotten that sooner or later a northward trek will bring many of them back home.

In all the talk of exiled population, it seems to have been wholly overlooked that the Forests of Canada, past and present, have been steadily pulling population into the Dominion. The pulp and paper industry alone has drawn to this country, directly and indirectly, tens of thousands of home owners. The lumber industry, in turn, has established thousands of small communities, all built upon the security of the forest resources. Emigration to the United States has not been fed by the forest industries of this country. On the contrary, the army of 120,000 well-paid Canadian workmen, employed in forest manufacture, has not only held its own but has added to its numbers during the past two or three years of our national experience.

What Lies Behind a Job

The street-corner economist and not a few of the politicians see a procession of workmen in a pulp and paper town as a product of localized activities—a water power, a factory, and good financial management. They do not appreciate that every penny of wages, every dollar of capital, every carload of product, is a creation of the living forest. They do not know that the 'life expectancy' of a square mile of timber is automatically the measure of just so many jobs, so many tons of production. They do not know that the human use of the land on which the timber grows is at an end for perhaps a century once the timber growth is destroyed.

Eighty per cent of the habitable portion of Canada, said the late Dr. Fernow, is of no agricultural value.

Sixty-five per cent of New Brunswick and Nova Scotia is fitted only for growing timber.

Of Ontario and Quebec, by no means is the proportion of arable

Empire Forestry

Canada and its forests will this summer be visited by a large number of guests from all parts of the British Empire members of the second British Empire Forestry Conference. The official meetings will be held in Ottawa, and visits will be paid by the delegates to the various forest regions of the country.

The first Empire Forestry Conference convened at the Guildhall, London, England, in July 1920, and besides the sessions in the metropolis visits were paid by the delegates to the forests in various parts of the British Isles. Delegates were present from the mother country, the principal Dominions—Canada Australia, New Zealand, South Africa and Newfoundland—and India. The principal Crown colonies such as Ceylon, in Asia; Nigeria and Uganda, in Africa and Trinidad, in South America, were also represented. The forest resources of the Empire were reviewed, and matters of moment to forest administration throughout the Empire discussed.

The delegates to the 1923 Conference will comprise not only men connected with the administration and management of the forests of the various parts of the Empire, but also men prominently connected with the timber trade. The visit of the delegates will undoubtedly be of much advantage to Canada in familiarizing men from other countries with the extent and quality of the timber resources of this Dominion, and in promoting trade in forest products among the various parts of the Empire.

land thirty per cent and British Columbia shows much less than that. The prairie provinces, taken as a group, have not more than a third of their area as potential plow land.

Why Population Remains

What population is this eighty per cent of Canada to attract and hold unless it be a population associated mainly with forest industries? How shall forest industries be attracted and held unless the forest itself is

rigorously protected and maintained?

Eliminate the forest resources from New Brunswick and at once the means of livelihood of probably two thirds of New Brunswick's municipalities is shut off, with no possibility of substitution from other activities. The main source of employment is forfeited. The foremost source of provincial taxation is cancelled. Other provinces would stand the loss of forests but little better than New Brunswick.

From the standpoint of the right use of public-owned lands, the momentous consequences of our present steady deterioration of the forest resources stands in an equally unfortunate light. The one and only crop that the greater part of our national area will produce is timber. To surrender the forest crop to destruction by fire means a wait of sixty to one hundred years, during which time the Canadian people are deprived of all economic dividends from that area. It is a wholly mistaken, although widely held, notion that when forests go farms follow. The sequence was true enough—in 1850—but the common rule of 1923 is that when forests go, a barrens follows, and keeps following, far into the days of our grand children.

Keep Canadians at Home!

"Keep our present population," sounds louder and louder in current editorial comment.

The answer is not in terms of a budget speech or a roving commission. It is no more complex than a child's set of building blocks. Since the forest resources are the keystone of population in Canada, the exclusion of forest fires is an obvious and vital method of perpetuating the advantages that forests give us.

The most direct and result-giving method of "Keeping present population" is to apply public monies to outlawing the menace of forest fires.

If five hundred dollars, or two hundred, can be spent on attracting one settler to Canada's shores, surely a fifty cent piece can be spent on forms of forest fire prevention that with perfect certainty will retain for Canada a half dozen workmen whose presence depends upon a never-failing crop of timber.

ROCKY MOUNTAIN SHEEP SURPRISED BUT NOT ALTOGETHER AFRAID



“SAVE OUR WILD LIFE!”

A Plea for a Sane and Sensible National Conservation Policy

By John A. Hope

The subject which Mr. Hope has chosen for the text of his article is one upon which he is particularly qualified to write with authority. His long years of experience both in Canada and the Mother Country have provided him with a working knowledge of the methods best suited to Canada's present and urgent needs along the line of Wild Life Conservation. He has made a close study of his subject and has had the satisfaction of seeing many of his recommendations embodied in the present game laws of British Columbia, the province where he has long been recognized as an expert in this particular line. A further article, giving in greater detail the character of legislation and enforcement he recommends, is promised by Mr. Hope.

Illustrations reproduced by courtesy of General Tourist Dept. C.P.R.

THE conservation of Wild Life — and its natural home, the great forested areas — is a national problem as yet unsolved throughout the broad Dominion. But the time has arrived to either solve it, or be prepared to see some of the finest and most valuable species disappear forever within the next twenty-five years. Up to the present little thought has been given this matter by the general public, principally through lack of knowledge, based on the want of education as to its value as an economic asset — an asset in which all, from governments downwards, should be deeply interested as all reap benefits, directly or indirectly, for the following roughly outlined reasons:—

The Value of Wild Life

Because Wild Life in all its varied forms is an important source of revenue annually to the state; a means of livelihood to unknown thousands

of people in the manufacture of arms, ammunition, fishing rods, tackle, traps, canoes, camping and outdoor material innumerable; it is an enormous financial resource of railroads, hotels, outfitters, guides, storekeepers, and many others; it enhances the value of all marketable land — settled and unsettled; it is an emergency food supply that, were it non-existent, would heavily handicap mineral prospectors, explorers, and pioneers of various kinds, including land settlement in the vast hinterlands; it teaches the rising generation the art of wood craft, self reliance, and the use of arms; it provides a living for thousands of native and white trappers, the produce of whose traps totals millions of dollars annually; it is to naturalists a study as fascinating as it is puzzling, so that the life of man is not of sufficient length to become its master; it is the lure that has attracted the hardest men of our race into the undiscovered regions of the

earth and thereby blazed the trail that civilization is following today; it is, in short, the lodestone of this Dominion that has in the past, and will continue in the future on a larger scale if practically conserved, to attract countless thousands of hunters, tourists, nature-lovers, and those in search of health and recreation, not to mention the best class of settlers, from every portion of the civilized world.

The Value of Game Trophies

As sportsmen's trophies of the rifle every species of big game in the Dominion, alive in its native habitat, is worth from hundreds up to thousands of dollars per head to their several provinces. The caribou; the bull-moose; the wapiti and mule-deer stags; handsomest of the cervidæ family, — and the mountain goat; are worth at the lowest estimate, three thousand dollars each; while those two coveted prize trophies of

the sporting world — the bighorn ram, and great grizzly — kings of all large game — are worth, approximately, eight thousand dollars per head.

Both these latter, with the wapiti and mule deer, are steadily decreasing with the years, even in their last refuge in the Rocky Mountain regions, and in the near future, under the present system of protection given them, they soon will be classed as extinct fauna.

Were Wild Life to become extinct, the lifeless forests would cease to attract because of their gloomy, lifeless aspect, and so would quickly pall upon the senses and become monotonous to all who visited or lived in them. Should the forests be destroyed, these wild denizens would automatically disappear with them, the destruction of both endangering the very existence of man himself.

All Wild Life — on the earth, in the air, and under the water, have had duties allotted them by an all wise Providence: duties that are faithfully performed so long as the even balance set by Nature is not upset by Man.

Economically, the Dominion cannot do without its wealth of valuable Wild Life, which, up to the present, has been, as it must continue to be in the future, the great breeding grounds of North America.

Wild Life of Early Eighties

In the early eighties of the last century, when I first passed over the then recently completed Trans-Continental Railroad, the broad Dominion from east to west teemed with Wild Life, in the forests, on the plains and in the mountain ranges of British Columbia. Indeed one could be forgiven for supposing oneself to be passing day after day through a huge well preserved game park, unsurpassed, with the exception of Africa, by any other country on the face of the globe.

The unbroken forests of the eastern provinces were well stocked with all their native species of large fur and feathered game, including wolves in abundance. Across the great plains, myriads of wild fowl and prairie-chicken met the eye at every turn. Farther west, bands of antelope were constantly in sight between the railroad and the horizon. Deep cut trails criss-crossed the virgin prairie, marking the paths of



the departed bison, the bones of which were being gathered up and piled in great stacks at side-tracks awaiting shipment. Civilization is no friend of innocent wild life, yet for centuries to come there is room for all. In British Columbia, the same game park conditions prevailed, only on a larger and grander scale.

An Orgy of Destruction

But their doom was at hand throughout the southern zone for the mining excitement was then at fever heat, and hordes of excited prospectors were rushing from one district to another, carrying death and destruction to all kinds of game. Through the Summer months the air was suffocating with acrid smoke of forest fires that raged in solid sheets of flame up the mountain sides. Meat-hunters, pelt-hunters, head-hunters, had a free hand in the destruction of valuable game and their only home, in a manner that was appalling in its senseless stupidity.

A decade later I was to see the finest game districts so depleted that they have, though game laws have been in force now for nearly twenty years, not recovered up to the present time. Nor will they until under the management of technically skilled men.

Gone also were the large bands of antelope, with a marked decrease in wild-fowl and the true American grouse (prairie-chicken) on the plains.

Ontario showed the same marked decrease in many districts, with the exception of wolves, whose cowardly cunning keeps their skins intact. Every decade, in short, down to the present, showed a decline clear across the Dominion. Yet each province has enacted game laws. No increase over waste is possible, because the system employed for enforcing the laws is so inadequate and farcical that it defeats the object in view. Our diminishing wild life in the principle provinces for the last 35 years is proof of this contention!

Wolves Should be Destroyed

In the first decade of the present century, I was hunting in mid-winter the great gray timber-wolf in Quebec and Ontario under the auspices of the Canadian Pacific Railway, and noted, among many other things, the trek of the caribou farther north, the moose following and occupying their feeding grounds; the deer sorely harassed by hounds and wolves following in the wake of the moose, much to the astonishment of the old hunting Indians, many of whom had never seen the virginian deer, at this strange evolution in Nature. I also noted why the game laws could not be enforced.

The hounding of deer in the "rutting" season should never have been allowed, for many reasons. Nor would it under the control of practical men. Wolves should be killed in great numbers. Though the most cunning of all forest denizens they are, when the proper methods are employed, surprisingly easy to destroy in the mid-winter and Spring months. Cowardly in the extreme, even when in large packs, they prefer the doe to the game fighting buck. With so many two-legged animals preying upon the deer with all kinds of destructive weapons, there is no room for the wolf and the hound. The former should be destroyed, the latter disallowed.

Drastic Reforms Necessary

Drastic reforms are called for in the game departments of the Dominion if one of our finest assets is to be saved from destruction within the next twenty-five years. And it is mainly through our schools that this can be accomplished. We talk about citizenship, but our citizenship is good or bad, just as our schools

SUCH SCENES AS THIS NOW LURE MANY CITY DWELLERS



“ANGLERS RETREAT, TROUT CREEK” NEAR SUSSEX, NEW BRUNSWICK.

This scenic photo study reproduced by kind permission of the photographer, Mr. H. W. B. Smith, Sussex Corner, N. B., for years a loyal member of the Canadian Forestry Association, is notable not only for the beauty of the scene but for the excellence of the photo itself. Can any of our readers send in evidence of a kindred spirit and similar photographic ability?

have made it. If voters are uneducated, we must expect ignorance and corruption as leading factors in the conservation of natural resources. It should, therefore, be part of our school curriculum of the future to teach the rising generation when the mind is plastic to receive and retain, the meaning and object of conserving Wild Life and its natural home.

In the meantime our Wild Life continues to dwindle, therefore, with no time to lose, the adult population must be reached through the pages of our magazines; from the lecture platform, and sporting journals, and taught to realize that there is a vast difference between the words PROTECTION and CONSERVATION of Wild Life: In the former case it

means, taking from and adding nothing to; in the latter case it means: the exact opposite. In other words conservation is the utilization of the full breeding powers of all species of wild life, so that an increase may be assured over that of waste. Conservation and propagation have the same meaning — they go hand in hand. Hence the hopeless impossibility of expecting incompetent amateurs, taken from various assorted mechanical trades, to cope with a resource they are utterly ignorant of in all its several branches.

Nevertheless, the public generally consider that with the framing of a few insignificant game laws; the appointing of insufficient men of the

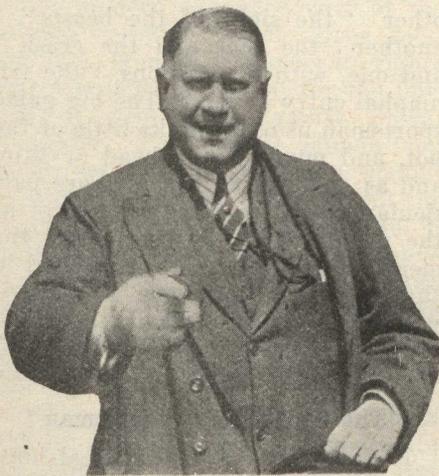
above class in all branches of the several game departments throughout the Dominion: for the term of office of the several provincial governments, is all that is necessary, a misapprehension that must be rectified by a wide spread propaganda, as far reaching as it is effective. They must be taught that conservation of Wild Life is an art: a profession, that can only be acquired by long experience and intensive study of the nature, characteristics, and breeding habits of *ferae Naturae*. It is only by the employment of such men in every province, in every branch of the game departments, that the remnant of our wild life can be saved and bred back for the use of the present and future generations.

National Figures with a Vital Message

The Canadian Forestry Association has completed the first of a series of motion picture films, entitled 'Forest Flashes'.

The picture is at once entertaining, novel, and timely. It presents to the Canadian public well-known national leaders in political and business life, each of whom courteously posed for the Canadian Forestry Association's camera-man. Interspersed between the personal 'shots' are sections showing how forest fires are started, how to prevent fires. The whole effect is to combine entertainment and palatable instruction.

We present this month three of the special 'shots': the Prime Minister of Canada, the President of the Canadian Pacific Railway Company and the President of the Canadian National Railways. The words given underneath each picture will also appear on the motion picture film as it passes through the chains of Canadian theatres:



SIR HENRY THORNTON,
President,
Canadian National Railways System

"If any man wants to add to the burdens of the Canadian National, let him start a forest fire.

"The Forest is a main pillar of our freight business and tourist travel. I appeal to every Canadian: **PROTECT THE FORESTS**".



RT. HON. W. L. MACKENZIE KING.
Premier of Canada.

"Is it reasonable that year by year we should permit 4000 forest conflagrations due, for the most part, to our own carelessness?"

I appeal to every loyal citizen to play fair with the Forest this year. Let us regard every acre of timberland as a source of national wealth, in the ownership of which unborn generations stand as equal partners with ourselves".



MR. E. W. BEATTY.
President,
Canadian Pacific Railway Company

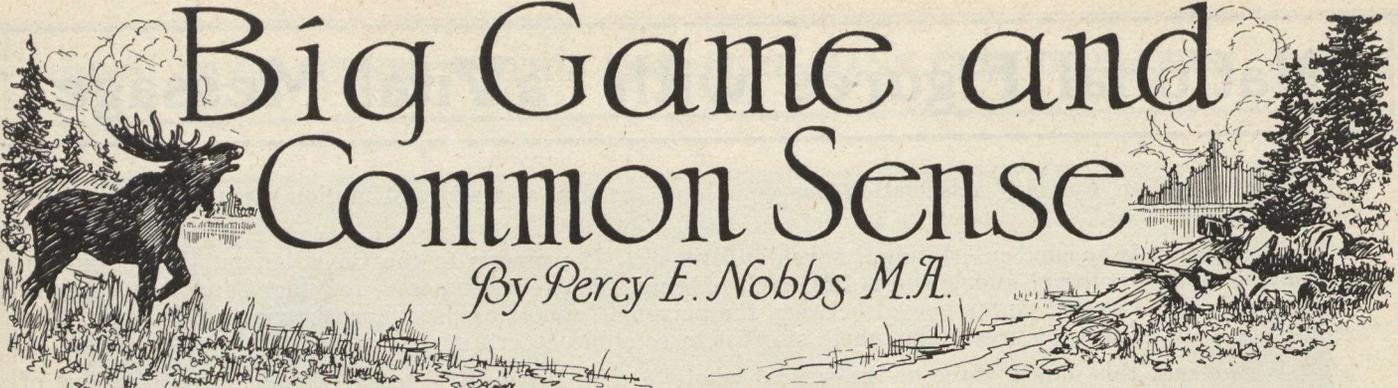
"A living forest means live jobs. Dead forests mean dead jobs. No man of us has any right to kill a forest by his careless acts. A minute's care may save a century of waiting."

NOTE.—The Canadian Forestry Association acknowledges the excellent co-operation given by the Canadian Government Motion Picture Bureau, Ottawa, and Associated Screen News, Montreal, which made 'Forest Flashes' possible to construct.

PLEASE MAIL THIS COPY TO A SCHOOL TEACHER

Scores of readers of the "Canadian Forestry Magazine" make each copy do double work by mailing it to school teachers, clergymen, and other influential citizens of their acquaintance. One man mails his copies to Wales, another to India, but what we are asking now is that you give your copy to a school teacher, if possible. Two cents will accomplish this service. You might mark any special articles that you consider more than commonly worth while.

The Forestry Magazine is a publication with a positive patriotic purpose.
Help to double its influence!



Big Game and Common Sense

By Percy E. Nobbs M.A.

THERE are few subjects on which thought is more confused and irrational than on the question of big game. The reason is that there is a great diversity of interest in the matter, quite unreconciled by the moral suasion of our game laws. These tend to encourage a certain amount of smug hypocrisy on the part of those holding at heart such different creeds as appertain to the city bred sportsman on the one hand, and the back blocks woodsman on the other. The game laws will be dealt with in another article. The present purpose is to explore the modicum of common interest and common opinion held by those with an interest of one kind or another in our big game; what we find may perhaps be dignified as **common sense**.

Indians' Game Rights

Such of the Indians who live contiguous to big game country generally feel that close seasons and restrictions as to amount of game killed only affect white men, and there are many treaties extant, some still in force, the language of which would indicate that the red man is to have the rights he had before the white man came, that is, the right to live on the game. My personal view is that the Indian is at his best living that way, and I cannot find it in my heart to deal with him when I find him infringing the regulations as I have dealt with white men on occasion. But a sporting sentiment of this kind has, I am aware, no foundation in reason and ancient Indian privileges should be made contingent on shooting with a bow and arrow, or at least a muzzle loader, and shooting for the family pot only. When an Indian adds a modern repeating rifle to his uncanny gifts of woodcraft the game perishes, and when he adds a ready market for moosemeat to the call of the family pot, there is extirpation, first of the game, and then of the Indian. Caribou, with their fatal habit of returning in massed formation to investigate a fallen member of the herd, have no chance with In-

dians, armed with rifles, though they apparently lived and died happily for milleniums with Indians armed with bows and even H. B. C. guns.

The backwoods white man differs very little from the red man in his instinct to kill, but he usually substitutes for ancient rights and privileges either a frankly sporting delight in the chase or a simple lawlessness. Backwoods white folk invariably prefer pork to venison themselves. They are usually even more alive than Indians to the possibilities of merchandising big game in or out of season.

The Sale of Big Game Meat

In the outer settlements of Quebec there is no attempt worth mentioning at interference with the sale of big game as butcher meat, summer and winter, and there is a large class of meat hunters. Of course the lumbering industry is to a certain extent game fed, but the preference for pork keeps things within limits.

Next we have to consider the guide class, consisting largely of really skilled hunters who can get game if they want to, at times when the ordinary lumberjack would have no chance. The guides are almost without exception on the side of the authorities and the law, for they see their lucrative and agreeable occupation threatened if the game fails.

"David", I said to my 'working-partner' of many a merry ramble through the woods, "you made \$200 guiding this year, and \$600 trapping, and your wife's had twins, and that makes nine, why don't you buy a farm and settle down?"

"And what kind of a fool do you take me for, that I should follow a plough, who know how to follow a caribou?" was the prompt reply.

Why is the Sportsman?

So far we have dealt with natural phenomenon. Now we come to that highly artificial product of the ages, the sportsman. He is difficult to generalize about, being a controversial creature. In a party we were

trying to tell more or less honestly why we stumbled out in the cold, wet, weary woods at dawn, to chill for hours cramped in a canoe, or belly crawling in bog. One said it was "Nature" (with a capital N), another "the sight of the beasts"; another "the shot and the crash", and one, with no illusions, "the triumphal entry home". The big game sportsman usually thinks little of the pot, and much of the head or skin, and as good heads or hides are particularly hard to come by, except at the precise times of year when the meat is worthless there is method in that madness; but one sometimes wishes big game sportsmen would not be so virtuous and self-righteous over their disinterest in fillet steaks.

"The Sport vs the Sportsman"

It does seem rather illogical however that, through the sportsman, laws should be framed which waste as far as possible the food value of big game, (with the result that these laws are not observed), and that the abominable cruelty incidental to sport leads to a chivalrous restraint in taking chances and a delight in killing clean and quick.

And there is, lastly, that deplorable product of democracy, the 'sport'—a very different thing from the sportsman. Usually he takes to the woods too late in life to attain to skill with weapons or to retain the imagination and reasoning powers of his youth. He shoots at anything, and when a wounded animal is out of sight it is out of mind. He does not follow up nor keep account of the casualties. Like the delightful Baron in 'Punch' who confided to an M. F. H. "I, too, I hunt ze fox, and have killed twenty-six; but have wounded many more." Sometimes the sport admits his manifold deficiencies, stays in his tent with his flask, and hands his rifle to his guide, so achieving the 'triumphal entry home.'

Now, it would seem, if big game is to find its way to market there would soon be none left, and if big game is to be made sacred for sacri-

rice to Diana and Nimrod, the various species may survive for the sole purpose of recreation. The present system generally is as demoralizing as the liquor laws of the U. S. A., in that it brings law into contempt. The tag permit which puts a check on transportation, would be really quite ideal, if rigidly observed, in that it allows the folk of the back blocks who do not need to transport their game, free use or at all events non-interference with killing for consumption on the premises. Of course, in a newly industrialized area the game soon recedes, even if the industry is only pulp and the forest remains hard by.

Now there is a possible view of the big game question on parallel lines to the modern advanced view of the salmon question which gives food the first claim, and to sport its rights and privileges in return for the burden of protection against illegal slaughter. For instance, salmon feed in the sea, and for food they should be killed in the sea. They ascend the rivers to spawn and deteriorate in fresh water. When inland they have many enemies, of which **poaching man** is the worst. But **sporting man** can take his toll and yet prevent **poaching man** destroying the species, and the whole thing can be coordinated economically if **netting man** will let enough fish past to maintain the stock in his own interest. But once in fresh water **sporting man** relieves **netting man** of the care of the breeding stock. Now, surely some-

thing of the kind could be worked out with regard to big game so as to keep up the numbers.

Suggestions for Protection

If the forest was divided into three classes of area, with due regard for population and its food requirements, for ease of protection and for the game's ranging needs, accessibility for sport and kindred considerations, we might arrange matters as follows:

(A) Areas in which male and female animals might be shot for food supply (of settlements, not towns) say July 1st to September 15th, i. e., date of weaning to date of rutting while flesh is at its best;

(B) Sanctuary reservation for breeding of big game stock with no shooting season (cost of guardianship partly defrayed by **summer** tourist traffic);

(C) **Sporting** reservations, where only warrantable male animals might be shot, say September 15th to November 15th (cost of guardianship wholly defrayed by licenses, rentals, etc.).

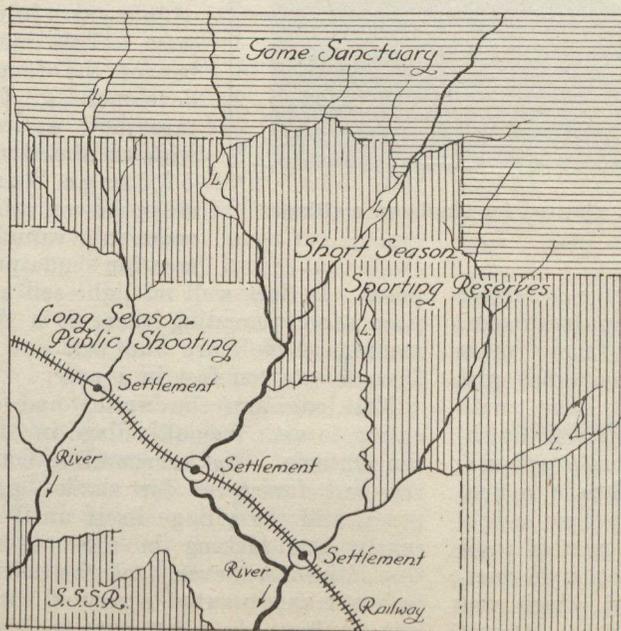
The effect of even small areas of absolute sanctuary in increasing big game throughout surrounding country is extraordinary. In a reservation of about one hundred square miles in Northern Quebec, an area of about fifteen square miles was left to itself by common consent for twelve years. When visited, the game in this area was found to be so plentiful that the main tracks were hard trodden five feet wide.

It often happens that burnt forest will provide extraordinary good forage for big game for a period of about fifteen years, say from five to twenty years after the catastrophe. Such forest is fit for nothing else but big game, and with the very little encouragement which may be defined as 'wholesome neglect' may support from twenty to thirty head per square mile. Of course sanctuary areas have to be large enough to provide for all the seasonable occupations of the game in question. In the case of moose there would be as follows: — high hills or ridges for the males to winter on, and deep wooded gullies for the females; lakes and streams of suitable character for the summer feeding, and the open bogs with alder boskoges appropriate to the rutting season; but above all things **new growth**, the "jolies petites savanes" for the winter's lunches.

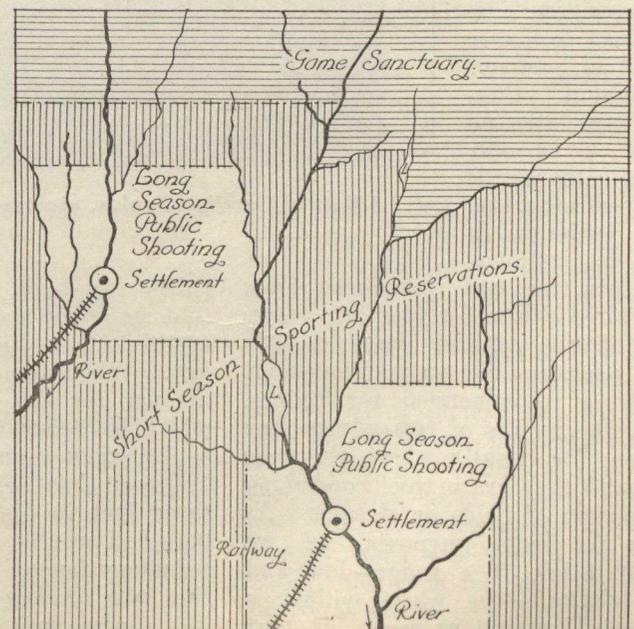
The attached maps have been prepared to illustrate the kind of treatment for a forest area as above described. They are based on actual conditions but are theoretically laid out for reasons of clearness, and by way of a recommendation in principle. They are not intended as an actual proposal for the areas concerned. It is an application to the forest of the principle of zoning, so valuable in town planning, and the forest growth policy of a district would have to be coordinated with the game law zoning.

DIAGRAMATIC MAPS ILLUSTRATING PROPOSED METHOD OF GAME PROTECTION

Especially prepared for The Illustrated Canadian Forestry Magazine by Prof. P. E. Nobbs.



Plan suggested where settlements occur along a Railway.



Plan suggested where settlements occur at terminal points of a Railway.

FAST GROWING TREES

Trees for Shade and Summer Fuel or the Cottage by the Lake

By Arthur Herbert Richardson, M.A., M.F.

NOTE:—The writer of this article will be glad to answer questions on farm forestry or forest tree planting work. Inquiries should be sent care of Canadian Forestry Association, Ottawa.

MOST folks when contemplating tree planting, shun the idea of using fast growing trees. The reason being, and rightly so, that a fast growing tree is a short lived tree. The fact that a certain rapidly growing species may hold its shape and growth for a period of man's life is overlooked and because it is popularly classed as short lived, it is not planted. Now it is not the intention of the writer to advocate the wholesale planting of fast growing trees at the sacrifice of the many splendid long lived trees which are native to our country, but there are times when a farmer, or suburbanite, or the owner of a cottage by the lake wants trees and wants them quickly. This article is intended for such planting and describes two trees which are among the fastest growing in our country.

The green or white willow (*salix alba*) is a tree which is common throughout Canada, especially on good soil and where there is plenty of moisture. Old residents in the east tell us that this tree was introduced from the United States forty or fifty years ago and the cuttings were sold in small packages like so many pencils, and were recommended for hedges. Today the results of this advice may be seen, for usually where old trees are found they are in thick rows along the borders of fields or streams. As a tree for hedge purposes, as we usually think of a hedge—low and well trimmed—the white willow is not suited as well as some of our species, especially evergreens. But for

windbreak purposes, or where a wall of trees is required very quickly it is well suited, although the roots, which travel a long way for water, may cause some inconvenience bordering tillable land.

Stories of the rapidity of growth of green willow have been told in every community. I recall the farmer who repaired his fence bordering on some low ground, with a green willow post. Today it is the steadiest one of all, as it has grown into a tree

and awkward to get at when time could best be spared. One winter they got together and settled the trouble for all time. A number of stakes 3-4 inches in diameter and 5-7 feet long were cut from green willow. Holes were cut in the ice at intervals along the fence line, and the stakes were driven home. In the spring the stakes commenced to grow and not long after the fence was strung on the living posts.

The Carolina poplar (*populus deltoides*) is a member of this often maligned family, which is not generally known by people in our country. It's home is in the southern part of Ontario where it comes over from a wide distribution in the United States. It is often called cottonwood and sometimes necklace poplar, and is similar in appearance, but not so hardy as Russian poplar which has been grown extensively of late years in the west. This member of the family develops a full tapering crown with an abundance of large dark green leaves, which make it a valuable tree for shade purposes.

It does well on light soil and poor sand providing there is a fair amount of moisture and will put on from five to ten feet in a year.

Not long ago the writer had occasion to visit a small village in eastern Ontario. The surrounding country had few trees for shade purposes, and the village itself until recently was lacking in this regard. One citizen, however, took the matter to heart and planted a row of Carolina poplars. In nine years the trees had over-topped the roofs of the



A Row of Carolina Poplar, nine years old, planted for shade on a village street.

thirty feet high. Recently a farmer told me about a man who drove some cattle to his father's farm years ago. When the job was done and his use for the willow cane with which he drove the herd was finished, he stuck it on end in the ground. Today it has developed into a tree three feet in diameter. Two neighbors had trouble with a part of their boundary fence. The section in question was on low ground which was wet a large part of the year. It was difficult to keep the fence in repair

houses and in summer gave cool and beneficial shade to the thoroughfare.

Some people might object to the presence of so many fast growing and comparatively short lived trees, but this man wanted results and took the quickest way to get them. Where quick results are demanded and where it is also desired to put such planting on a permanent basis, a good plan is to plant fast growing trees such as Carolina poplar, and space them alternately with long lived trees such as elm and maple. Then when the second species begin to attain height and crown, and the fast growing ones are showing signs of decay, or have served their purpose, these could be taken out.

Securing and Planting Seed

Before going on to describe other uses of these two trees, it might be well to point out how planting material may be procured and cared for and how the actual work of planting should be done.

The seed of poplar and willow are exceedingly small and difficult to procure. Both species, however, have the ability to sprout from cuttings made from branches or roots. Because of this, these trees are usually grown from cuttings which are planted in their permanent position at once, or allowed to grow in nursery lines for two or three years before transplanting.

A cutting is a short piece of a fast growing branch usually 8-12 inches long and made from the last season's growth. When a large tree of either of these species is cut down, the following summer, a prolific growth of shoots comes up from the stump, sometimes as many as a hundred or more with a height of 6-9 feet are not uncommon. Such fast growing stock is the very best for cuttings. The work should be done in the autumn or early winter, any time after the leaves have fallen and before growth commences in the spring. The long whips may be cut into short lengths with tree pruners or a hand saw, after which they should be stored in moist sand until planting time. Two or three days before the work is to commence, they should be soaked in water and taken therefrom and put in the ground. The planting is usually done with a spade or shovel. A slit is made and the cutting is placed in behind the blade and buried to its full depth. Care should be taken to tramp the earth firmly and avoiding any air pockets about the stem. Material of this kind will grow



Carolina Poplar Sprouts, showing growth made in one summer from two year old tree cut back to the ground.

three to five feet in one season and six to ten feet in two years.

Another kind of material used and especially where the soil is drifting badly, is limb material of either species laid horizontal in trenches and covered with 4-6 inches of soil. The best material for this purpose is limbs from young trees about the size of a man's arm, cut into four foot lengths for convenience in handling. Such material is really very large cuttings and the larger bulk of wood gives more nourishment to stems and roots and not infrequently roots from such stock will extend from 9-16 feet in one season.

Supplying Fuel Shortage

One of the most pressing questions of the householder at the present time is that of fuel, and judging from the slowness at which freight rates are being lowered, the cost of wood for summer or winter use will not be much less than at the present time. A few years ago such species as wil-

low and poplar were scoffed at for even summer fuel, but now almost everything that can be utilized is of value. This fact was brought home to the writer during the winter, when in connection with reforestation projects where these two trees are used, it was necessary to secure 150 cords of willow limb material. A few years ago it was possible to get such stuff for the cutting, many farmers being glad to get it out of the way. Now it is put on a fuel wood basis and in some cases it was valued the same as hardwood.

Both species are inferior fuel wood, but well adapted to summer usage. And where a farmer has some low wet land, or if his property borders on a pond or stream, he may with little expense, have a ready summer wood supply at his door. Moreover, if such trees are valued for their beauty, and it is felt they cannot be spared, it should be remembered that in two or three years they will have sprouted again to 10 or 15 feet.

But there is another class of land owners who are interested in trees of this kind purely from a decorative point of view. The owner of a summer resort, or a cottage by the lake often has use for just such trees as these.

It may be that the spot selected for the cottage is on a wide beach of sand which has been swept clean of tree growth. These two species should do well here, especially if limb material is used. Furthermore, if the sand is drifting badly, some added protection might be given the young trees until they become established. After they have grown to a sufficient size more valuable species could be planted beneath their protection. Not infrequently where the sand is shifting it may build up around the trees for several feet. Under such circumstances the value of these trees is realized, for, as the sand covers them up, the trees grow above it and put out a thick net work of roots which hold it in position.

Screens of trees are often required either as an artistic effect to break long lines of similar landscape, or with which to frame beauty spots of a distant shore or clump of trees. Not infrequently too, it is desired to hide entirely, some outbuildings or an offensive corner of a neighbour's property or one's own. Poplar trees are particularly adapted to this use, and



Screen of Willows, eleven years old, planted on drift sand. These have been filled up around the base at least six feet.

if planted in a thick belt of several rows, four feet apart, each way or less, an impenetrable barrier of foliage may be secured in two or three years.

When such material has grown up, the lower limbs will enlarge and the under parts thin out. If it is intended to keep the wall of trees intact to the ground, this thinning out of the base may be overcome by cutting back one or two rows to the roots.

During the following summer these stumps will shoot up 6 or 7 feet. In this way, by alternating the rows to be cut back, the barrier may be kept up indefinitely.

Most commercial nurseries stock cuttings of these species and all will have for sale, rooted trees. The provincial governments, which maintain forest nurseries, usually are prepared to supply large quantities of cuttings.

An Ontario Farmer's Result from Tree Planting

Mr. R. E. Miller, proprietor of "Cedarvale Gardens" at Jarvis, Ont., adds his testimony to that of many others.

"WHEN we took possession of our farm 'Cedarvale Gardens' near Varenny, Ont.," writes Mr. Miller, "the area had been recently burned over, and for some time afterwards was a blackberry patch. In 1909, noticing considerable native growth, I decided to reforest the area and secured that year 1400 seedlings from the Ontario Forestry Department. The varieties were White and Scotch Pine, Spruce and Black Locust, the majority being White Pine. In 1912, we made another large planting, principally Scotch Pine, some White Pine and a few Walnut and Chestnut. The nut trees did not succeed well at that time. Since then we have made several smaller plantings until 1922, of Scotch Pine with unvarying success. Later plantings of Black Walnut have been more successful than the first. Owing to the prevalence of



R. E. Miller in his protected garden.

blister rust we were unable to secure White Pine after our second planting.

Our plantation has been inspected twice by the Department and found entirely free from disease.

"As to the enhanced value of the farm, it is hard to say in what measure this has accrued. It depends on one's idea of values. To me, the value is great; their beauty as well as intrinsic worth appeal strongly. I feel that I have secured a legacy for my family that cannot be estimated in dollars and cents. I have added protection from winds and moisture for my garden which is considerable in this now wind-swept section of Ontario. Its educational value is being evidenced by an awakened interest in forestry as several new plantations will be started in this vicinity this year. Briefly, we feel that we have made a move in the right direction. It must be left to the future to accurately determine values."

John Hupka's Way of Transforming Prairies

EDITOR'S NOTE:—One of the most indefatigable and successful tree-planters in Western Canada is John Hupka of Winnifred, Alberta. Mr. Hupka is first of all a farmer and he planted trees to make his farm a greater producer of crops, as well as a more beautiful place upon which to live. But let Mr. Hupka himself tell the story:

YOUR letter in which you are asking me to write an article regarding the advantages of planting shelter belts received, and although my experience in that respect is limited I shall try, as far as I am able, to do so.

There is no doubt that if farmers could pin their faith to that piece of ground which they are cultivating for production of crops, and instead of having only a feverish desire in their minds for immediate financial returns, would try to work their lands with a view for permanency, having in their vision an "Ideal Home" as their ultimate goal, their love in that direction would give them the required perseverance to accomplish it.

I hope that my article will not be written in vain, and that it will find some readers who have a feeling of love for Nature similar to what I have, who will find in this story some helpful advice on growing shelter belts.

First of all let it be understood that the climate in this part of Southern Alberta, is about as dry as any on the Canadian Prairies, and therefore, my experience will apply only to such dry areas.

Location to Choose

The land should be quite level, so that when the snow is melting in spring the water may soak into the ground without running off. Shelter belts should be placed to stop the force of the prevailing winds. In our locality it is the south wind which causes the snow to drift more than any other, therefore, in laying out my shelter belt I planted the trees from East to West. The shelter belt is six rows wide, not too wide to act as a solid obstruction to the wind in which case the snow would drift up and break down the trees, but narrow enough to permit the snow to blow through and drift up on the north side which is used as our garden and orchard. In this way the snow that drifts through is put to excellent use the following year as additional moisture. The second consideration is the preparation of the soil before planting.

The land must be well summer-fallowed for at least two years and not in any case prairie sod.



MR. JOHN HUPKA

Preparing the Ground

The strip of ground should be well plowed in May, the year previous to planting, from ten inches to twelve inches deep, and if it is impossible on account of dryness of the soil, it should be plowed to such a depth

as is possible to do good work, and plowed deeper as soon as the ground is in good condition. After the ground is plowed, it should be kept clean by cultivating until planting time.

Before planting trees the moisture should be at least four feet deep, otherwise it is better to defer planting for another year. If the location is chosen close to the south fence the first row should be planted at least 30 feet away from it, and the strip of land between the fence and trees should be kept clean as summer-fallow, so as to store and supply the necessary moisture to the trees in dry season. The bare strip on the North side doesn't need to be that wide the first few years, therefore, the garden may be planted only sixteen feet from the last row, but after the trees get larger and they need more moisture, that strip should be widened.

The best trees which stand the most dry weather, and are the most immune from insect pests, are Caragana and Manitoba Maple. These two varieties are giving the best satisfaction and the average of annual growth is better than of any other tree under the same conditions. My plantation is only ten years old and the average height is eighteen feet. My soil is heavy clay of chocolate color.

Planting in Rows

Although, as I mentioned before, my shelter belt consists of six rows of trees, I would not advise to plant more than four rows in the following order. First row, Caragana, second row, Manitoba Maple, alternating with Caragana, the rows and trees four feet apart. Then twenty-four feet space left for cultivation while trees are small, and again two rows of trees same variety but in reversed order. After the trees grow taller, the space between will fill out with Russian Thistle, which if left will act as a mulch preventing the drying of the soil, and making cultivation unnecessary. Thus, the only thing left is to keep the outside cultivated to prevent weeds and

"I have told you about the business end of my shelter belt", says John Hupka, "but what about the beauty and fragrance of the orchard in Spring? The wealth of plum and apple blossom! I feel as if transported to dreamland, all sorrows and cares forgotten through the music of our feathered songsters and buzzing bees. Talk about the bald-headed prairie. Of course it was, but didn't we come here to adopt it, to improve it, and make it fit for our homes".

grass from robbing the moisture. If rightly planned this may be easily accomplished with wide implements like harrows, cultivators or discs running over the ground at spare moments whilst going or coming from the fields, thereby no time being lost.

Now what about the benefit of

such belts? There are many, but I shall only refer to those which probably will appeal to most readers. As I mentioned before, the North side is the ideal ground for vegetable gardens and we have plenty of vegetables every year no matter whether it rains or not. The same applies to the orchard. Although my

orchard is sheltered from three sides viz; South, West, and East. It was planted in Spring of 1915, but what joy. We had bushels of plums, wild and cultivated, and plenty of other fruit like crabapples, currants, raspberries and cherries, and I believe we soon will have some standard apples.

Sportsmen's Creed re Forest and Game Conservation

STRIKING evidence of the interest displayed by Outdoor Sportsmen in Forest and Game Conservation is furnished by the notice which has recently been issued by the Weectigo Club, in Northern Quebec for the information of Members, Guests and Employees of that Club. Through the courtesy of the Club President, Mr. Earle Spafford, we are permitted to reproduce herewith, in substance and in appearance, this Club Creed and Resolution.

"LA FORÊT EST L'ŒUVRE DE DIEU ET LES ARBRES QUI LA COMPOSENT
CHANTENT LA GLOIRE DU CRÉATEUR. SACRILÈGE EST CELUI QUI LA
DÉTRUIT SANS RAISON."

THE WEECTIGO CLUB

The members of the Weectigo Club believe in all that this Fire Sign, issued by the Department of Lands and Forests, Quebec, is intended to convey to those who travel in our Forests. We also believe in the con-



servation and maintenance of all fish and game.

We have a "Club Creed" and we ask that you make it yours, at least insofar as the territory of the Weectigo Club is concerned.

WE BELIEVE THAT

- (1) The wild life and the trees of the Forests are ours to maintain rather than destroy.
- (2) If the father today exceeds the "bag limit", or willfully "kills" for the pleasure of killing, or fails to put his camp-fire out, his sons tomorrow will be deprived of the most enjoyable and healthful of outdoor sports.
- (3) The conservation of our game supply is very much more in our hands than in the hands of the game wardens.

(OUR RESOLVE)

THEREFORE—

We will have our guides return to the water all fish not required for food.

We will not shoot at any game unless we are "hunting for meat", and in the case of moose and deer, when "hunting for a head", we will not shoot unless satisfied with the head and also that the chances of killing seem favorable.

We will not shoot Beaver or other fur-bearing animals; they are a source of great pleasure and we wish to help along their increase.

We will not disfigure any camping ground by needlessly cutting down trees, "peeling" birch bark or "picking" balsam boughs within a reasonable radius of camp.

Finally, we agree to help preserve for the rising generation its rights to our Forests and our Wild Life.

P.S.—SEE A FIRE—PUT IT OUT.

Mr. R. H. Campbell Retires as Director of Forestry After Years of Efficient Service

EVERY Canadian who is interested in forest conservation will learn with deep regret of the retirement of Mr. R. H. Campbell, Director of Forestry during the past sixteen years, in the Department of the Interior. His resignation from active service was fittingly marked on the evening of April 30th last at the Halcyon Club, Ottawa, by the members of the Forestry Branch staff, among whom were represented besides the Head Office staff those of the field offices in Manitoba, Saskatchewan, Alberta and British Columbia; the Forest Products Laboratories in Montreal and Vancouver, and the Forest Nursery Stations at Indian Head and Saskatoon.

The occasion was greatly enhanced by the hospitality of the ladies of the Head Office staff who served tea at 5 P. M. After tea Mr. Campbell was presented with a large silver presentation bowl from the entire staff of the Branch as a souvenir of their long association with him as Director of Forestry. The bowl bears the inscription, "Robert Henry Campbell, Esq., Director of Forestry, 1907-1923. From the Dominion Forest Service. A token of highest esteem and personal affection." Besides this handsome gift from the whole Canadian Forest Service, the Ottawa staff took occasion to present Mr. Campbell with a club bag.

In making these presentations on behalf of the staff, Mr. E. H. Finlayson, Acting Director of Forestry, paid high tribute to the work of the retiring chief while in charge of the Branch. He pointed out that Mr. Campbell had won the high regard of his staff, not only by the thoroughness of his work, but also by his perseverance in establishing the importance of Forestry in Canadian life. Mr. Campbell had idealized the work of forestry, and had lost no opportunity to impress his ideal upon those associated with him in the work of administration. The earnestness with which he strove to live up to his ideal was carried out into the Canadian public life, and his influence on the progress of Canadian Forestry will long be felt.

Not less interesting were Mr. Finlayson's reminiscences of field experiences with Mr. Campbell on the occasions of his yearly visits to the Canadian forests, when he entered completely into the out-door life of the foresters and rangers, and by his manliness and ever present respect for their ideas, completely won the loyalty of all. The practical out-door woodsman can be approached only on his own ground, and Mr. Campbell was big enough to recognize this. Mr. Finlayson's reminiscences were carried on by Mr. D. R. Cameron, recently transferred to Head Office from the field, and

who was chosen to represent the field staff at the presentation. Mr. Cameron dwelt upon the helpfulness of contact with Mr. Campbell in the out-door life during these periodical inspection trips, and attributed the splendid esprit de corps of the field staff to the fellowship of his visits. Mr. Cameron also read a number of telegrams received from the outside offices expressive of their regret for Mr. Campbell's retirement, and of their high personal regard for him.

It was not easy for one of Mr. Campbell's seriousness to lay down a work not yet finished, but he rose to the occasion and after acknowledging the gifts and expressions of personal regard in a most feeling manner, he recalled many interesting experiences in the work of the Branch. He regretted laying down work which had always been so pleasurable to him, not only in connection with the Canadian Forest Service, but also with that of the Canadian Forestry Association with which he had been identified before taking up the task of organizing the Government work.

For his successor he bespoke the loyalty of the personnel of the whole forestry staff, for whose individual opinions he had always had a sympathetic regard and exhorted all to remember the importance to the nation and to the world of the work in which they were engaged.

A native of Strathroy, Ontario, Mr. Campbell has resided in Ottawa since boyhood. Entering the Civil Service in the Department of the Interior in 1887, he quickly "made good" and worked his way upward to the positions of private secretary to the Deputy Minister and Minister, and later he succeeded Mr. G. M. Ryley as head of the Timber and Grazing Lands Branch. In 1907 he was appointed Di-

rector of Forestry, in which position he remained until his recent resignation.

He was among those who early recognized the importance of the problem of the protection and preservation of the forests, and gave much study to these questions, particularly in so far as they affected Canadian forests. When the Canadian Forestry Association was formed in 1900, he was one of its charter members and its first assistant secretary and treasurer. He became secretary of the Association in 1904, and in 1905, on the establishment of the Association's official organ, the Canadian Forestry Journal (now the Illustrated Canadian Forestry Magazine) he was given editorial charge.

When, in 1906, Sir Wilfrid Laurier called a great Canadian forestry convention to meet in this city, Mr.

(Continued on page 392)



MR. R. H. CAMPBELL

Checking Up 25,000,000 Acres of N. W. Canada

Work Undertaken on Behalf of Soldier Settlers Has Proven
of Great Benefit to Dominion

By *T. A. McElhanney,*
Assistant Controller of Surveys, Ottawa.

WHEN the Soldier Settlement Act was passed in 1917 making provision for the establishment of returned soldiers on the land, there arose an immediate and insistent demand for land suitable for this purpose. The Board appointed by the Dominion Government to administer this Act was immediately confronted with the fact that while much had been said in public about our vast undeveloped agricultural resources it was a very difficult matter to find out just where these resources were and what was their extent.

The western provinces offered a particularly promising field for soldier settlement and the information regarding western lands secured by surveyors of the Topographical Surveys of the Department of the Interior was examined. At the time these surveys were conducted the pressure for the survey of farm boundaries was so great that little time or money was available for comprehensive land reports. It was, therefore, found necessary to supplement existing reports by a field examination in selected districts. This constitutes the chief reason for undertaking seriously the work of land classification in the western provinces.

The work commenced in 1918 to assist soldier settlement has proved so valuable in both soldier and civilian settlements and has been so highly appreciated by the public that it has been steadily carried on each year in the western provinces for general settlement purposes until now over 25,000,000 acres of land have been examined and classified. These lands lie on the northern fringe of settlement across the three western provinces extending right up to the Peace River Block in British Columbia. They include blocks of virgin crown land as well as partly settled land. The nature and intensity of the examination depends on the value of the land from a settlement standpoint. It has been considered that the purpose of the examination is not only to indicate lands desirable for settlement at the time of the examination but also to obtain information



On the edge of a temporary forest reserve which was examined. Soil and topography are of such a nature as to call for very careful consideration before deciding to what use land of this kind should be permanently assigned.

which will be useful in the future as settlement becomes more consolidated.

Examine Soil and Forest.

The two main factors in the classification of lands thus far examined have been soil and forest cover. The climate is generally suitable for mixed farming and the rainfall quite sufficient for crops. There is not a great deal of rough land excepting where river valleys are encountered. When the work was first started, there was a very great demand for knowledge of a large extent of country. A detailed examination, was therefore, made only of areas which offered some inducement for immediate settlement. Areas supporting a heavy growth of timber received only a hurried examination even though the underlying soil was of first class agricultural value.

As the pressure for immediate results eased up, it was possible to give more attention to the question of soil which is after all in these districts by far the most important permanent factor in land classification. For the purpose of uniformity in soil classification in the different provinces a Soils Laboratory was started. This laboratory was moved in 1921

to Saskatoon with Mr. A. H. Hawkins, B.Sc., D.L.S. in charge. It is located in one of the buildings of the Saskatchewan University. The arrangement is a very satisfactory one and the laboratory has proved of great assistance in forwarding the work of land classification. Soil maps are now published of every area examined, outlining the boundaries of the main soil types. An effort has been made to make the soil classes as few in number as possible consistent with the requirements of a soil map, so that these maps can be easily read and understood by the homesteader or farmer. The names and types adopted are those which are of fairly general application.

Information Obtained.

The information which is made available by reason of the examination consists of the following:—

1.—**A land classification map.**— This is an index map showing the opinion of the man who classifies the land as to the desirability of each quarter section from a settlement standpoint. A quarter section may be suitable for immediate settlement or it may be only fair for settlement;

it may be considered that it could be economically improved or that it is too heavily wooded to justify clearing under present conditions; it may be a good quarter section for hay or may be only of use for summer grazing. Not least important is the fact that quarter sections which are not considered of any present or future value for agriculture are clearly shown. In all investigations particular attention is paid to the success

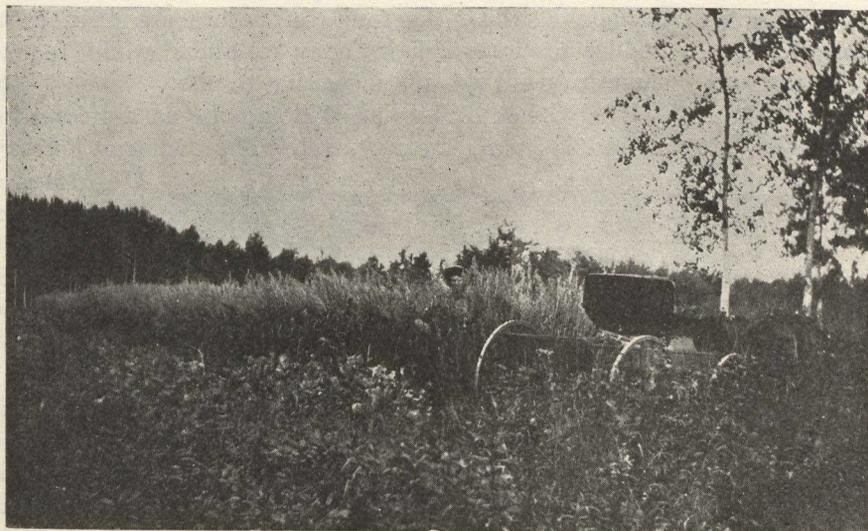
Give Complete Report.

Taken together this information constitutes a very complete and useful report of a district. The total cost of field and office work is about two cents per acre which is scarcely appreciable in view of the results obtained.

While the original purpose of land classification surveys was to locate land suitable for immediate settle-

some other cause were entirely unsuitable for their purpose. This has also been the expensive experience of civilian settlement frequently aggravated by the presence in each small town of the professional land locator interested not so much in locating the settler as in separating him from some of his available meagre funds.

In indicating lands which are unsuitable for agriculture the classification surveys have at the same time facilitated the establishment of permanent forest reserves. The chief aim of a classification survey should be to provide information whereby land may be dedicated to the use for which it is best suited. When this is done in a careful and conclusive manner land can be opened for settlement, reserved for forestry or reclamation, set aside for grazing or reserved for park or game preserve without any justification for subsequent public criticism. The increasing demand for land classification reports for a wide variety of uses indicates the usefulness of the work already completed and justifies the continuation and extension of work of this nature in the great areas of undeveloped or partially developed country concerning which there is still a lack of complete and reliable information. It is important for the success of the railroads that reliable information may be available concerning the tributary resources and for this reason attention is being concentrated on the classification of vacant lands along the railroads.



This is a first crop of oats on land recommended for soldier settlement in 1918. There is no difficulty in classifying this land as it has all the factors which promise successful development.

of settlers in or near the district examined. Specific information of this kind is most valuable to the examiner particularly if he is just commencing work in a district.

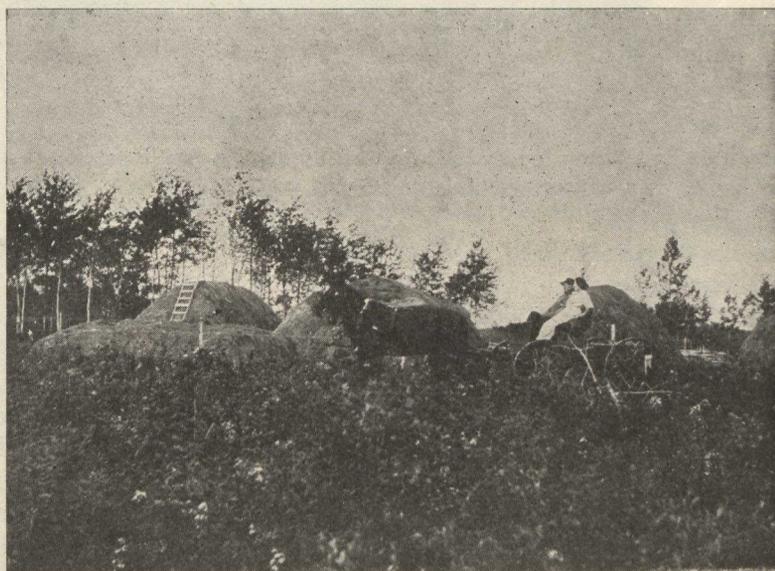
2.—Township plans on a large scale are compiled showing by colours in a comprehensive manner the information obtained by the examiner. These plans indicate heavy, medium and light bush, open areas, swamps, lakes, rivers, improved land, houses, schools, churches, etc. They are placed in the local land offices for the use of settlers. An examination of these township plans gives a prospective settler an accurate idea of what he may expect to find and they are often the means of preventing useless and expensive personal investigations.

3.—Soil maps showing the outlines of the main soil types in the areas examined each year.

4.—A report on each township examined to accompany the township plan.

5.—A general report of the district examined each year, with suitable maps and photographs to illustrate important features.

ment, it was soon realized that this was only one phase of land classification. Surveyors employed on the work encountered everywhere prospective settlers spending weeks and months travelling over areas which by reason of forest cover, poor soil, remoteness from transportation or



Making a start on land recommended as suitable for settlement. Good soil, light clearing and good hay sloughs providing immediate feed for stock are important features in land settlement.

How Willow Trees Save Washed Out Banks

TO prevent the washing out of river and lake banks with consequent loss of valuable land area and enormous damage to railway tracks and other structures, a member of the Canadian Forestry Association, Mr. O. S. Scheifele of Conestogo, Ontario, has been carrying on a scheme of submerged tree planting which has many features of great novelty and interest and a well proven engineering value. Mr. Scheifele has been undertaking large contracts for United States and Canadian railway companies to offset the annual damage caused by torrents and by the washing out of banks.

In this work Mr. Scheifele uses the native Ontario willow, known as the White Willow, or *Salix Alba*. As is well known, the Willows and Poplars regenerate themselves rapidly by a growth of shoots so that a Willow pole of any length and diameter can be completely buried in the soil at any angle and a rapid formation of new roots and shoots will take place. With this common-place knowledge as his foundation Mr. Scheifele experimented on some of the Conestogo and Waterloo County streams and quickly satisfied himself that the burying of Willow poles on water-washed banks is a rapid and satisfactory method of stopping erosion of the soil and establishing at the same time a beautiful and valuable Willow grove. Mr. Scheifele

now follows a standardized method gained from considerable experience and he recently secured a patent from the Canadian and United States Governments for the treatment of water-washed banks.

The method followed on the propositions thus far undertaken is to sink the poles into the beach any desired depth so as to avoid sliding or being undermined by further action of the water. The opposite end of the pole is sloped up the bank to a trench and covered. The root formation quickly reinforces the clay and the roots naturally run toward the water line. In order to give these young roots and the base of the bank a temporary protection from the erosion of lake or river a board wall is built from the hardpan up to any desired height by

simply nailing the planks to the poles. By careful construction no filler is required.

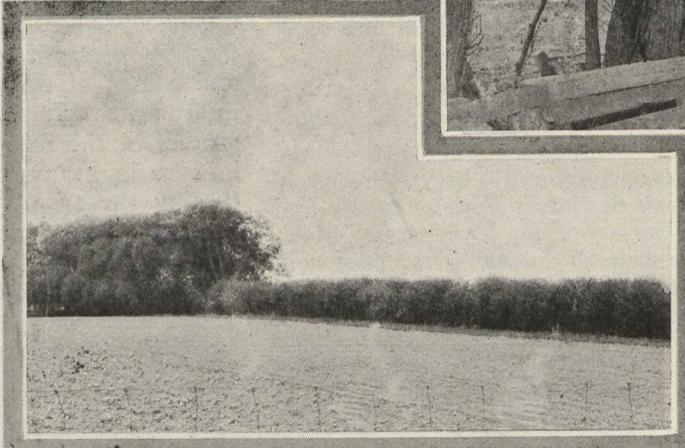
The remarkably rapid growth of the Willow shoots and the prodigious spread of roots into the soil binding it firmly together and offsetting the possibility of further erosion represents at once an economical and effective scheme by which the forces of nature are utilized to produce results which in many instances would require engineering outlays and indecisive results.

The scheme of burying Willow poles as a reforestation method is by no means novel. The Ontario Forestry

Department has done extensive planting work with Willow in Prince Edward County to offset the drifting sand which has been burying good farmland. They had great success by plowing in poles varying in length and diameter from which



A willow windbreak under forty years of age.



Willow fences and windbreaks offering an almost exhaustless source of supply as regards cuttings.

sprouts from three to four feet have already grown. Shoots have been traced for fifteen feet for the first season's growth.

Describing his work in a paper recently written by him, Mr. Scheifele pointed out that if planted in a single row about one foot apart Willow poles in a few years will make a permanent fence and if

a fence of this nature would surround a wood lot the trees would be protected from strong winds and the autumn leaves would stay within the enclosure. The cost of such a fence for cuttings or poles if the submerged system should be preferred would be less than the price of the cedar posts, not mentioning the extra cost of the wire, and last one must not forget valuable crop of wood he would realize in ten years and a repeated crop every six or seven years after, as the second growth is much faster owing to the established root system.

A wind break surrounding fruit orchards and farm buildings would also be of invaluable protection. Scientists claim buildings within close range of big Willow trees have never been known to be struck by lightning as

owing to the deep root system, they are always in contact with moisture which makes a great conductor.

For Holding a River in Its Natural Course

Conditions along most rivers are worse where the stream makes a curve and a straight bank has formed. Now by simply cutting this bank down giving it about a one to one slope it will often stop the cutting away owing to the different formation. In the Spring when the ice comes down and the water is high the curves get a double pressure and force the ice to dig into the bank. Now with a proper slope the ice is forced upwards and will often rest on said slope and turn ice following before touching bank. But for a permanent work after bank is cut down to said slope ram willow poles giving them, if possible, a good hold on bottom of river and submerge pole up slope and run back on level surface as far as desired and stake down at intervals.

I assure you that said bank will not cut away much more. The poles in themselves will turn the ice and the root formation will get stronger every year. The ice may almost shave off all the young shoots for the first few years but the growth will be stronger every year and win. Owing to a big portion of poles and roots on dry land a strong formation of roots will also

take place under water which will discontinue undermining. In real bad places cable work from pole to pole could be run and material anchored to it as a filler.

As a Re-foresting Proposition

From a commercial viewpoint the White Willow is

about the only tree where the planter can expect to get his money back with 100 per cent. dividends. Samuel B. Green in his small work Forestry in Minnesota states that one acre of White Willow on good soil will yield as much as five and a half cords of wood per year. Cutting was commenced when the plantation reached the age of ten years and a tenth of plantation was cut each year and at the end of period a second cutting was ready on part first cut.

As commercial value the choicest lumber for inside

work has been produced and will compare in quality and weight with the basswood or linden. For pulp wood the Wiarton Wood Product firm of Wiarton, Ont., got the agency for an American paper mill and are paying \$9 per cord F. O. B. any station, and to date I have supplied the Dominion Government to the extent of about 80 cords select stock for the manufacture of artificial limbs and also

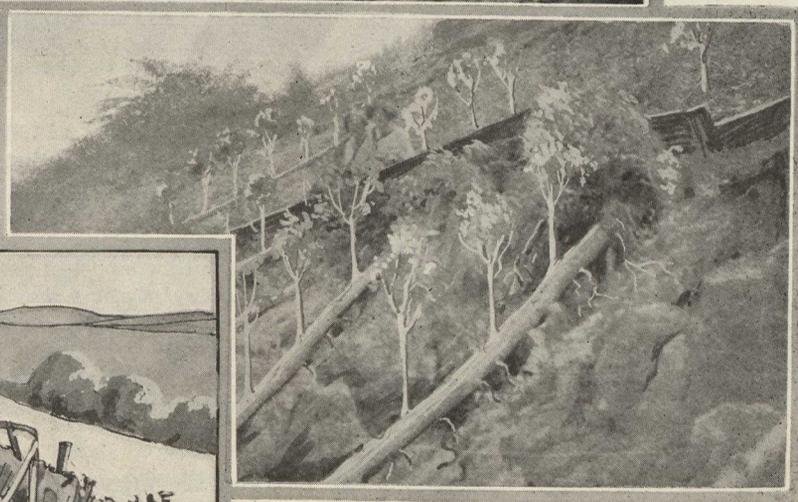
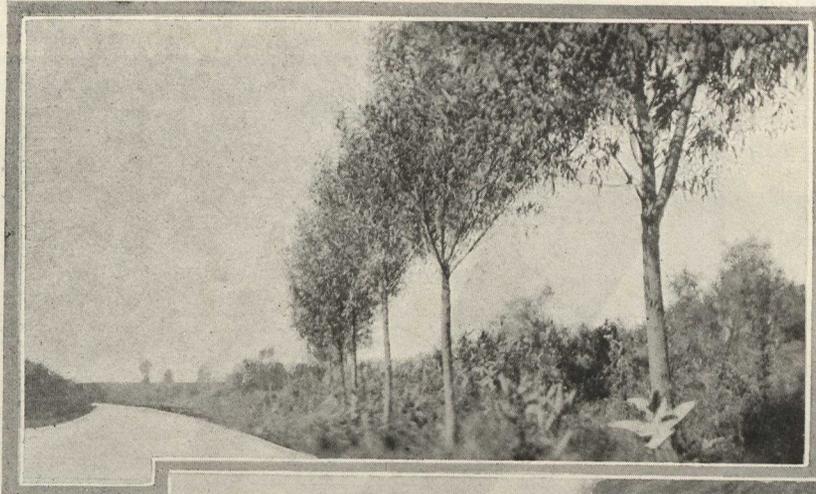
Strangers and Hangers Yonge St., Toronto, Artificial Limb Mfgs., with about 100 cords. For fence posts Mr. Green claims they last about six years. Many farmers have started to treat them with creosote and claim the Willow equal to any other posts for fencing on the Prairies

For Highways

The notation under the illustration and the explanation on Re-inforcing Railroad grades will fully explain the construction system of highways. Where highways run through lakes or sloughs the system as shown in illustration on the next page will apply.

On highway work the Poplar poles can also be used.

These fancy boulevard willow trees were produced in 3 years from 8 foot poles from 2 to 5 inches in diameter. In 10 or 15 years all the limbs could be cut and a clean healthy tree will again shoot up.



On lake shore. Experimental work showing systematic trimming of shoots on poles to make properly spaced trees.



Showing the safety value of planting submerged willow or poplar poles on high banks along highways. This would avoid washouts, be a reforestation proposition and greatly beautify the landscape and would in many cases make it unnecessary for a cement railing.

Re Lake Shore Re-inforcement Work

I constructed 2,000 feet as an experiment last spring and will continue to say it's still an experiment but feel confident of success. A very small percentage of the poles failed to grow and a remarkably strong root formation is showing and will have from five to six foot sprouts by end of growing season. You will notice on illustration that the boards nailed on poles as water breaker for temporary protection on the bank until a strong root fibre is formed have not all answered the purpose owing to not sinking the boards deep enough and the waves having worked the sand from underneath; and, second, some poles should have been set back further into the clay bank which would leave less space for the water to work between boards and bank; and to make it still better where boards do not make a smooth fit against the solid clay gunny sacks should be placed in spaces and filled with sand. This would make a solid filler and there would be no possible chance for waves to start a straight edge.

Critics and skeptics state the person that tries to obstruct a big body of water like Lake Ontario will learn to know its power. Now my system is not obstruction but the contrary. My object is to try and give

the banks about a one to one slope. If this can be kept and not let the waves lap away a straight edge at the bottom, the waves will play up and down said slope and not run straight up into the air and fall, cutting the sand brought in and carry it along back again. A big improvement is noticeable already of sand accumulation where the construction is done right. Readers may ask the question why I space my poles so far apart, about five feet. This is for a future object. Should I plant them close like you would on a levee as the trees get big they would form a solid straight front and the result would



Showing how foundations often slide from under tracks.

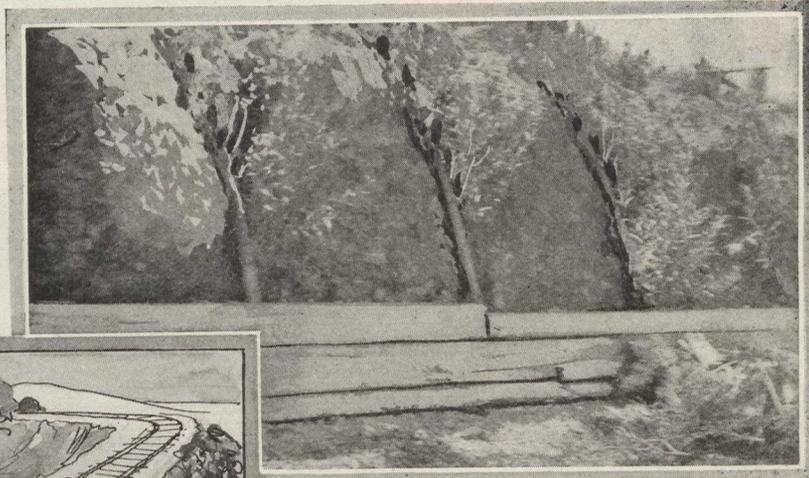


Photo showing part of 1,000 feet experimental work done this spring on an 8 foot bank on Lake Ontario. This bank was a straight vertical bank and was cut down to get the proper slope. Notice the boards nailed on poles which will protect the bank from lapping of the waves until a strong root fibre is established. This cut will also illustrate work on levees or railroad grades running through lakes or slews. Roots will run through and through.

encourage farmers to protect their wood lot. Exemption from taxation has been proposed. The discontinuing of pasturing has also been encouraged to allow new undergrowth. But in the writer's opinion the biggest harm to our wood lots is the open surroundings of today. Stump and rail fences have been replaced with wire, giving the winds a clear sweep and depriving the trees of that invaluable mulch (its leaves) Nature has provided them with.

The Fire Menace in B. C.

Last year in the forests of British Columbia there were 2,600 fires, ninety per cent. of which were caused by smokers and campers. The extinction of these outbreaks cost \$750,000. Approximately 700,000,000 feet (a third of the total cut for the province) of growing timber were destroyed and the cost to the province was enormous, the value of the lost timber being reckoned at \$23,000,000.—(Western Lumberman).

be not that I believe it would harm the bank much but it would deprive the beach of all the sand. With a fair space between rows of trees running up the bank the waves will retain a fair slope.

Suitable Places to Plant This Big Willow.

As already stated it grows on pure sand and could be planted in many sections of the country to stop drifting sand and take the place of snow and sand fences along railroad sand highways, greatly improving the scenery, making a permanent break and big dividends from the wood production.

On high and light land, I warrant the growth will not be as rapid as low marshy land. There are thousands of acres and almost every farm has a ravine, creek or pot holes most suitable for growing said Willow which would make said land a profitable wood lot in a few years which is otherwise an unproductive part of the farm.

There have been for many years suggestions through the Press and Parliaments suggesting ways to en-

Wild Life in Canadian West

Alberta Game Guardian Sounds Optimistic Note Regarding
Conditions In that Province

By Benjamin Lawton,
Chief Game Guardian, Province of Alberta

IN the Illustrated Canadian Forestry Magazine for February, 1923, there was an excellent article by Jas. Oliver Curwood, entitled "Fifteen Years of Tragedy." I consider this one of the best articles on this subject which I have had the pleasure of reading for some time. The article deals with the slaughter of wild life in North America and possibly the statements of Mr. Curwood in this



Moose Calf in Canadian West

respect are correct. His statement as to the great quantities of wild fowl may not be overdrawn, as it is conceded that during certain seasons of the year, in the early eighties, the country through which the C. P. R. was built, and in fact the whole of western Canada was a sportsman's paradise. But dealing with the supply of game at the present time, in the Province of Alberta, I may say that along the lines of railway and in the older settled districts, there has been a great decrease in numbers, but in the newly settled and unsettled districts, we still have a splendid supply of all kinds of big game and game birds.

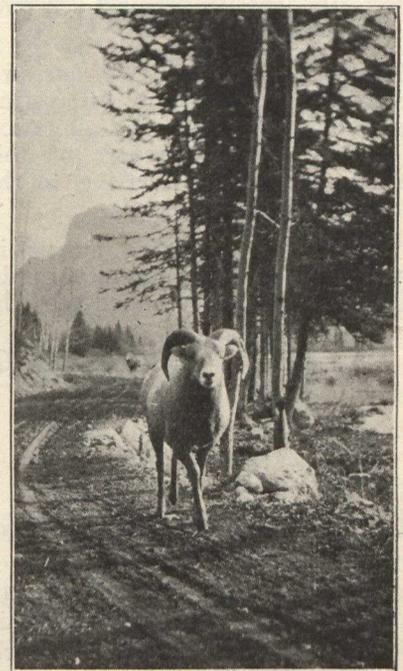
I may further state that in the

bushy and wooded areas, old settlers claim that they never saw a more plentiful supply of grouse, which embraces the birds called Partridge and Prairie Chicken. If, however, Mr. Curwood passed through our Province in the years 1906 and 1907 or about 1917, he would have had occasion to remark on the scarcity of the grouse. These were the lean years and the Alberta Legislature provided a close season whereby no shooting was allowed in the years 1907 and 1917 and there is no doubt but what in the near future, we will be confronted with the same conditions. I hope, however, that the birds will again come back in great numbers, as they have following past periods of scarcity. The reason for this, it is conceded, is due to the fact that periodically a disease known as the Grouse disease affects birds of this family, and while many birds die, the remainder change their feeding ground.

There has been a noticeable scarcity of water fowl of recent years, due to dry seasons, which has resulted in sloughs and lakes where they were formerly plentiful, going dry; also on account of the lowering of the water in the lakes it has reduced the food supply for these birds, with the result that they have not been breeding in the southern half of the Province, to the same extent as formerly; but when birds bred in the north come south, the sportsmen have discovered that they are still plentiful enough to satisfy any reasonable person.

Dealing with big game, it is true that we no longer have the buffalo roaming the plains, but in the northern part of the Province, more particularly to the north of the Peace River and west of the Slave River, there are anywhere from twelve to fifteen hundred bison, (often called Wood Buffalo). These are increasing from year to year and killing is absolutely prohibited. In addition to these, there are some six thousand in the Dominion Parks. Antelope are increasing and there are probably twelve to fifteen hundred of these animals still found on the plains in a wild state. There has been a close season on these animals for some years. Deer, moose and caribou are

still plentiful in the mountains and foothills and in the timbered areas. With the settlement of the country, big game animals are driven back, but there is no reason why, with proper protection, a splendid supply of big game animals cannot be maintained indefinitely. The Dominion Parks, the largest of which are in the mountain areas, and in which no shooting is permitted, provide an



Motorists and walking tourists are not the only ones who appreciate the Banff-Windermere highway. Here is a native taking a stroll unalarmed by the near approach of a motor car. The fearlessness of man shown by the animals in Canadian National Parks is always a source of wonder and delight to tourists.

excellent breeding ground, the overflow from which will provide shooting for all time.

It is realized that travelling through the Province by rail, will not allow the traveller properly to see the areas frequented by our big game and game birds. It is necessary to get back from the railway and in some cases back from settlements. It will then be discovered that there is still a sufficient supply to satisfy any reasonable person, with deer, moose, caribou, mountain sheep and mountain goats, ducks, geese, prairie chicken partridge and other grouse.

Interest Charges on Growing Timber

Some Further Opinions as to whether or not Governments should Handle their Planting Costs on Interest Bearing Basis

CHARGE OUTLAYS AGAINST CURRENT FOREST REVENUES

By Percy B. Wilson,

Vice-President, The Spanish River Pulp and Paper Mills Limited.

WITH reference to the cost of reforesting non-agricultural lands, I think there is no doubt whatever that the only proper practice would be for the Government engaged in reforestation to charge its outlays against current forest revenues.

It is (in fact) the policy of our own Woods' Dept. in our reforesting operations. The following quotation is taken from the report of this Department in 1920, relating to the principle of reforestation:—

"The cost of planting, but not in excess of the maximum cost established, shall be refunded to the

Company by deduction from the stumpage dues of current year."

"The stumpage dues on planted stands at cutting shall be the same as stumpage dues on virgin stands, plus one half the cost of planting the stand cut."

The Government must decide whether it will mine or farm its woodlands. In the former case, nothing is put back to make the industry continuous; in the latter some of the present income (by way of dues) is expended to insure that there will always be dues to collect. It is thus evident that the Government must sacrifice a portion of its

present income if it is to have any income at all (in the perhaps distant future) from its woodlands.

The farmer (in order to insure future crops) has to spend money and time on fertilization and it is *sine qua non* of a continuous operation. It is suggested therefore that the Government take part of its current dues and spend them on reforesting its lands, and if this principle is adopted while the immediate net income from forest products may be less, it will be continuous if the reforestation is properly carried out. No farmer charges cost of fertilizing his fields to anything but his operating expenses.

MUST PROVE THAT REFORESTATION PAYS

By G. C. Piché

Chief Forest Service, Quebec

In reply to your letter of March 3rd, on the question of reforestation, I believe the forester should not try to dodge the question. The main point of the issue is to prove that reforestation is a paying proposition, even if the capital is calculated at compound interest. Of course, the difficulty will be the rate of interest to employ, since the investment is made for a long period of years, seldom less than 40. We must admit that the rate of interest must be lower than for a short period. The French "rente perpétuelle" pays 3%. Before the war, the long term investments were rated at less than 5%. I don't believe we should now use a higher figure for plantations.

Having accepted this, we must now discuss another important point, it is that of the original cost of plantations. If the forester wants to choke the area replanted with a large number of trees, which will require thinnings within a very short time or, if he wants a clear space to set his trees, this will require the removal

of the actual growth and will increase very much the cost. I claim that the preparation of the soil should, for the present time, be as limited as possible. We should aim more to complete the stand by the introduction of first class species which would be set in the most favourable places with a number limited by the actual growth and the future date of the first thinnings. I also believe that on the recent burnt-over lands, much time could be gained and much money saved by sowing tree seeds on the snow: first, a preparatory cover such as birch, and a few years after seeds of pine, of spruce, of larch, scattered between the bushes which have sprung after the first sowing. Each forester should aim to reduce the cost as low as possible, because this is the main basis on which rest the charges which shall accumulate afterwards.

In many sections, it might be possible to sow or plant balsam which could be used as an accessory to the main plantations and of which part could be removed within the next twenty years as Christmas trees. In

the sections adjoining the railways, this proposal may become very lucrative, because Christmas trees are becoming scarce and will be paid at least 25 cents each, on the ground, in the near future. This may give the chance to reduce the cost of the plantations to almost nothing and perhaps transform the whole thing into a gain.

I am convinced that reforestation is possible and is a paying proposition, provided the plantations are made with care, after a study of the local conditions, of the requirements of the station, by employing trees which will grow rapidly and profitably in that section and, above all, provided the dangers of fire are very small. I have myself made plantations on sand dunes, on bare knolls, i.e. under adverse conditions, and I am very satisfied with the results already obtained.

Therefore, I invite all those who care for trees, who desire to do something for their country, to do a little reforestation and they will be well repaid for their efforts and disbursements.

New Brunswick to Check the "Flame Throwers"

THE Government of New Brunswick has issued a proclamation declaring that people entering the forests of the province between May 1st and November 1st must register. This brings New Brunswick into line with Quebec in a highly sensible and productive course of action. The proclamation reads:—

"No person may enter upon any forest land after May 1st, 1923, until November 1st, 1923, for the purpose of travelling, camping, fishing or picnicing or for other purposes, without first having registered with a local fire warden, Councillor, game license vendor, or other person duly authorized, giving his name, dates, and having obtained a registration certificate. Such certificate shall be produced when requested by any fire warden or other authorized person, provided that the following persons or Companies shall not be subject to the above regulations, namely: licensees or owners of forest lands entered upon, or to their employees, or to the fire wardens, fire fighters, Land Surveyors or to persons accompanied by registered Guides or to holders of hunting, fishing, guides or mining licenses. All persons shall when requested by any fire warden show their license and give the above mentioned information regarding their stay in the forest.

Penalties for non-compliance with the above, not less than \$10 and not more than \$100 or 30 days in goal.

This action is deemed necessary by the Government in a determined effort to prevent a repetition of the immense forest fire damage this year resulting from the carelessness or thoughtlessness of those entering the forest on pleasure bent. This regulation was passed last year, but was not enforced on account of the wet season. It is hoped that the registration certificate will bring to the minds of those who enter the woods a greater realization of the value of the forests and the necessity for always being careful of fire.

The adoption of the registration certificate here is not an attempt by the Government to keep people out of the woods and deprive the fisherman, the camper or the hunter of his annual vacation. It is merely a

TIMBER FOR A \$10,000 HOUSE



Plate reproduced by courtesy of The Western Lumberman

It takes about one acre of the average stand of British Columbia timber to build one \$10,000 house. Trees which have been growing for more than sixty years, have been felled, cut and manufactured into lumber, loaded on the cars, heavy freights paid, unloaded and piled in retail yards and delivered to the builder—and, then, only cost the home-owner as much as did one-fifth of one acre on which his house stands.

regulation whereby each individual will be reminded and encouraged to be careful of fire when in the forest.

It is in keeping with the extra precautions being taken by private landowners this year, several of whom are placing special patrols to see that no people enter at all. In the past the fire hazard was augmented by tops and brush from logging but today this has been increased a hundred-fold by the addition of so much dry dead material as a result of the standing timber being killed by the spruce bud worm. Forest fires which once gain headway this year cannot be expected to be controlled. The seriousness of the situation cannot be under-estimated and the owners of forest land as well as the inhabitants of settlements and towns near extensive areas of forest cannot be too careful.

The Toll of Carelessness

A review of the fire damage in previous years shows that those entering the forest, including the camper, fisherman, picnicker, have caused an average fifty per cent of the total damage, — as much as all other causes combined. In 1921, the year of such heavy fire losses, seventy-five per cent. was traced to the carelessness of those entering the woods. It is the only serious cause of forest fires which has not been restricted in the past. The settler cannot burn his slash only under regulations as prescribed by law and controlled by the fire warden. Railway companies are not allowed to operate locomotives which through defective appliances may set a forest fire. Mills and other plants operating near forest land must be equipped with proper screens before being allowed to operate. In this way forest losses from these causes have been greatly reduced, the damage from settlers' fires being reduced from 75% of the total damage in 1920 to 1.5% in 1921. But the person entering the woods has not been restricted in any way. He has come and gone as he pleased and while the majority have been careful of fire, the camp fires neglected or burning tobacco carelessly thrown away has caused an annual loss to forests amounting to hundreds of thousands of dollars—a loss which is not replaceable for a century."

E D I T O R I A L

ILLUSTRATED CANADIAN FORESTRY MAGAZINE

Published and Owned by
The Canadian Forestry Association
Standard Bank Bldg., 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.

Our Debt to the Forest Resources

IT is well, occasionally, to list the benefactions of the Canadian Forest as a reminder of the multiple services rendered by our forest possessions and the multiple menace presented by our present record of forest destruction.

In the face of scores of wood substitutes, as iron, asbestos and cement, we are using twice as much wood per capita as we did fifty years ago. Evidently there is no universal substitute for forest materials.

Our farms use three-fifths of all the lumber cut each year. Farming is not a simple arrangement of human industry plus fertile soil, but requires the constant partnership of the forest.

Our coal mines are unworkable without the service of millions of wooden pit props. Our railways draw revenues from more than twenty million tons of forest freight annually and in their own operation must have a steady supply of wooden ties, and construction timber.

Our water powers are in part the creation of forests in that the effect of forest cover on runoff of water is so well demonstrated as to make the two interests inseparable.

Our fur trade is a forest product. Fur bearing animals do not inhabit barren wastes, and the ruin of forest tracts by fire constitutes one of the aggravating problems of the great fur trading companies.

Our growing tourist traffic is to an unsuspected degree the consequence of recreational and wild life resources unmatched by the United States. Vacation seekers enter Canada not because of urban novelties but because of the freshness and beauty of the woodland areas.

Our great spruce areas are giving birth to great industrial towns, mammoth pulp and paper mills, and a multitude of well-paid contented workmen and their families.

The Forest a Prolific Producer

The forest, truly, is a prolific producer of national benefits. As the years pass, the forest-holding nation cashes in on her forest guardianship to a degree which no observer of twenty years ago would have believed possible. Forest resources are growing scarcer

the world over. Forest needs are rising higher and pinching harder. Every square mile of merchantable timber in this Dominion adds to its market valuation with every twelve month. The forest fire of 1923 is, therefore, indefinitely more damaging, than was the fire of 1893. The need for larger public expenditures and improvement in our forest services is many times more pressing today than ten or five years ago. Judged by the plain facts of the timber situation, forest protection policies should have the right-of-way in every legislature over any other consideration of the public welfare.

"Bagging" the Forest Fire

PROFITING from the example of the New York State Forestry Association, the Canadian Forestry Association this month was able to add one more to its many schemes of forest protection publicity by issuing 100,000 paper lunch bags bearing a fire warning in bold type and requesting that all who go into the woods exercise care with matches, smoking materials, and camp fires.

These lunch bags will be carefully distributed by hundreds of agents for campers' supplies and by merchants outfitting camping parties in districts where the forest fire risk is considerable. Some will be distributed to the railroad lunch rooms and to hotels catering to camping parties. The first 100,000 bags were contributed to the Canadian Forestry Association by the Woods Manufacturing Company of Ottawa, a well known business firm which has loyally supported the Canadian Forestry Magazine and the general aspect of the Association's work for many years past.

Any member of the Association or reader of the magazine who can personally place a number of these bags to good advantage during the summer will confer a favor on the Association by letting the Manager know. Please address 51 Sparks Street, Ottawa.

APPRECIATES EXPERT ADVICE

A letter from the Secretary of the High River, Alberta, Municipal Hospital, to Mr. Archibald Mitchell, Western lecturer of the Canadian Forestry Association, contained the following:—

"The Board much appreciates your help and interest and will be further in your debt if you can run down from Calgary and give further information as to location of varieties, etc. We are hoping to stand second to none in a few years as to beauty of surroundings and artistic appearance of the grounds. If such a result is obtained large praise and sincere thanks are due you for your kind and expert advice and help."

Disaster Awaits If Forests Go

Specially written by Hon. Sir Lomer Gouin.

ONE of the greatest menaces facing Canada today is the progressive destruction of the forest resources. The most expert information shows that ten trees have been wasted by human-set fires to one tree utilized for the service of the Canadian people. This spoilation of what is, in the main, a public-owned property, of great immediate utility and quite indispensable to the future of our country, cannot be permitted to proceed much longer. If we are willing to recognize the damaging consequences of forest waste, surely we are willing, as co-partners in Canada's progress, to put a stop right now to a form of public robbery that must be checked if the nation is to survive.

Public Responsibility for Forest

The forest is the most destructible of all our natural resources. Had it not been for recurrent conflagrations started by human carelessness, Canada today would undoubtedly have been the richest forest owner on the globe. Forest scarcity has bred high prices and keen demand, so that every square mile of timber in this Dominion may be said to represent potential employment, municipal development, traffic for our railways, home markets for our farmers, and other valuable commercial gains. It is useless to argue that forests are private property, for eighty-five per cent. of the forest area of Canada is owned by the people. Even were forest protection nothing more than insurance on the existence of paper and lumber companies and the newspaper industry, the claim on a Canadian citizen's co-operation would be hardly less sensible.

The plain fact of the matter is that one of the steady pillars of public revenue, railway traffic, well-paid employment, and the upkeep of hundreds of municipalities is standing timber. That pillar may continue to make a great statistical showing right to the edge of national disaster for the manufacture of forest products can proceed at high speed until the moment that the storehouse of raw materials reaches the brink of bankruptcy. If we are to avoid such disaster we must join hands as citizens today and stop the plague of camper's fires, smoker's fires, prospector's fires, and the multitude of other vicious agencies that we Canadians with our own hands are setting loose each summer to ruin a great public heritage.

DIRECTOR FOREST RANGERS' SCHOOL

Mr. Henri Roy, Forest Engineer, graduate of the Laval Forest School, has been appointed Director of the recently authorized Forest Ranger's School of Quebec Province. The object of the School, the first of its kind in Canada, is to give theoretical and practical instruction to present rangers and to a limited number of other applicants. The most modern methods will be followed. The School will be complementary to the present Laval Forest School.

Further Inquiry on Pulpwood Export

THE indefatigable educational campaign carried on by Mr. Frank J. D. Barnjum during the past two years for the prohibition of export of unmanufactured pulpwood from freehold lands came to a head in the House of Commons on May 11th when the Minister of Finance promised to appoint a committee of inquiry to hear all sides of the case and make recommendations to the government.

Forest conservation said Hon. W. Fielding, had engaged the attention of the house a great deal. Where a country had lavish supply of timber, it was expected that people would be apt to become careless of it. And those who viewed the situation with alarm had asked the government to go far as to prohibit the export of wood. Where the provinces controlled the land, they could take their own measures. There were, however, a number of private interests who owned large timber lands, and such interests felt that they were fully entitled to market their product to the best advantage anywhere in the world. It had therefore been decided to name suitable persons to inquire fully into this matter during the coming recess in order that the government might come to a well advised conclusion as to the necessary steps to be taken.

The decision of the Government was strongly criticised by Mr. Barnjum in public statements. In a letter to the Canadian Forestry Association, Mr. Barnjum said:

"I enclose my cheque for \$1000 to cover my recent subscription to the Canadian Forestry Association.

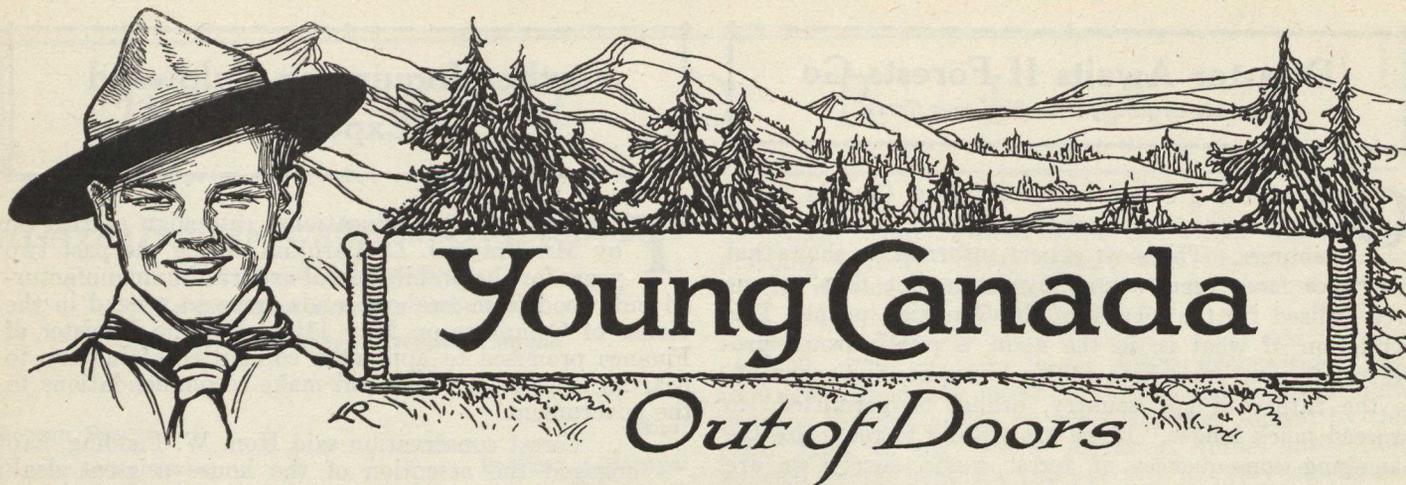
"Your good Association is now receiving the last cheque that I shall make in connection with Forest Conservation in Canada just so long as the Dominion Government allows the exportation of thirty-five million trees annually to support competing industries in another country."

THE A. B. C. OF FORESTRY

Sir William Geary, in his park at Ozone Heath, Hadlow, England, has planted an avenue of trees nearly half a mile long. The unusual thing about this long row is that each tree is different, and that all the letters of the alphabet are represented, and that all the letters of the alphabet are composed of the following saplings: aspen, beech, catalpa, dimorphantus, elm, fraxinus, gum, hornbeam, idesia, juglans, koelreutia, larch, maple, negundo, oak, poplar, quince, rowan, sycamore, tulip tree, umbrella pine, viburnum, willow, xanthoceras, yellow tree, zelcova.

From George S. Watt, Toronto.

Enclosed please find \$4.00. This will keep me in good standing for 1924. Permit me to say that it is a great pleasure to receive the Forestry Magazine and I heartily rejoice in the way it is being developed. It is a great educator in the truest sense of the word and I hope that our educational systems will soon see the wisdom of having a place for it in all our schools.



Making Fire with the "Rubbing Sticks"

A WOODCRAFT art that every boy would like to acquire is fire-making without matches—"as the Indians made it." Many boys have tried, and finally given up when unable to secure more than a weak thread of smoke after a prolonged effort. Yet it is not difficult; and if the following article is read closely, and the directions carefully followed, with attention to every small detail, the Editor of *Young Canada* guarantees success.

The fire bow set consists of a bow, a fire-board or hearth, a fire-pan, a hand-block, a "bird's nest" of tinder, and the spinner or drill.

The bow may be 20 to 36 inches long. The thong is of leather, and of such a length that when twisted once about the drill it will grip snugly, yet run freely.

The drill may be round or octagonal in shape, and should be not more than $\frac{3}{4}$ inch in diameter and nine or ten inches long. The lower end should be rounded, like the half of a marble; the other end is shaped to turn freely in the hole in the hand-block.

The hand-block should be of a size to grip firmly in the palm of the hand. The hole for the top of the drill should be kept slightly greased.

A convenient size for the fire-board is 4 by 12 inches, and 3-4 inch in thickness.

The Wood Used.

Friction fire cannot be made with every kind of wood. The best Canadian woods for the purpose are bass-



wood, red and white cedar, cotton-wood, soft maple, elm, balsam-fir, hemlock, tamarack, second growth white pine, willow root and black ash. All wood must be well seasoned, and dry. Fire-board and drill usually are made of the same wood, although some fire makers prefer different kinds.

Making the Set

To prepare the fire-board, in the side cut a notch 3-8 of an inch wide, and the same depth. At the top of the notch cut a shallow hole, or cup, of a size that will neatly take the lower end of your drill; the outer edge of the cup being a $\frac{1}{4}$ inch from the edge of the board.

The timber may be of fine dry shavings, or better, of fine dry moss, grass, or leaves rubbed up fine in the hand. Best of all, how-

ever, is cedar bark fiber, or fiber made by shredding soft pine or cedar between stones. This was the tinder preferred by the Indians.

To Operate

Twist the thong around the middle of the drill, so that the drill is on the outside of the thong. (Otherwise it may rub against the bow.) Kneel on the right knee, and place the left foot firmly on the fire-board. (It is very important that the fire-board be held immovable.) Place the fire-pan, or a flat chip, beneath the notch. Hold the hand-block so that the drill is perpendicular, and adjust yourself so that your left wrist is pressed firmly against your left knee.

(Continued on page 385)

WELCOME YOUNG CANADA!

With this number the "Canadian Forestry Magazine" welcomes to its family of readers the large number of young subscribers to "Canadian Boy" who on the discontinuance of the Boy Scout monthly expressed a wish to receive the "Forestry Magazine." Since many Scouting activities are closely allied to Forestry, it is hoped that our new readers will find many features of interest throughout the magazine, as well as in this, their own special department.

DURING the past year, as a result of the attention given lariat spinning and throwing at the Gillwell training camps for Scout leaders, Scouts throughout Canada have taken to the cowboy's rope with new interest. Another old sport which Scouts are taking up is archery, and as a result the bow and arrow probably is due for a boom in Canada during the present year.

Archery should be popular with all outdoor loving Canadian boys. It offers an ideal means of training eye, hand and judgment, and provides a most interesting form of competition between Scout troops, patrols, or individuals. Also the expense is small, if any, since the average resourceful lad can readily secure the necessary wood and fashion his own bow and arrows.

Every boy knows that the bow was the principal weapon of the North American Indians prior to the coming of the white man with his "thunder stick." Probably many boys do not know that the bow is still used by the Iroquois and Northern Ojibwa or Saukteaux Indians for small game hunting.

An Ojibwa Bow.

The Ojibwa bow may be taken as an excellent model by the boy planning to make one for himself. It is made of a sound, well seasoned, straight-grained piece of white cedar, five to six feet in length. In shaping it is trimmed to a thickness of 1 inch and a width of 1 3-4 inches at the middle, and tapered to a thickness of 3-4 inch and a width of 1 1-8 inches at the ends.

The notches to take the bowstring should be slightly rounded, to prevent the cutting of the string.

The Bowstring.

An excellent bowstring can be made of ten or twelve lengths of strong linen thread, twisted. The string is permanently secured to one end of the bow; at the other end a noose is made, of a size to slip snugly over the end into the notch.

When strung the bowstring should tighten at about five inches from the bow.

The Arrows.

The Ojibwa type of bow will take a 36-inch arrow. This may be made of maple, ash or other light hardwood; 3-8 inch in diameter.

While feathered arrows will give the best all round results, feathering is not absolutely necessary to good shooting. For small game the Indians themselves use unfeathered arrows.

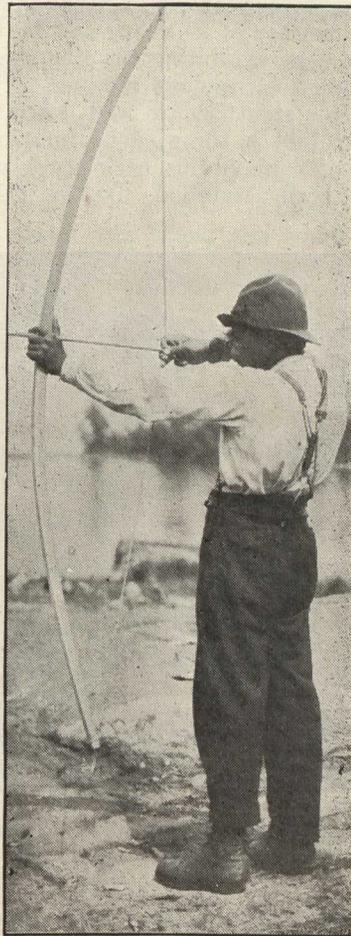
Feathering.

If you desire to feather your shafts, select soft feathers, such as those of a goose. Split carefully, and trim to a width of 1-2 inch and a length of 5 inches, with a half inch of bared quill at either end, for binding. With stout thread bind to opposite sides of the shaft an inch from the nock (or arrow notch.)

Three feathers are frequently used instead of two; in which case they are secured at an equal distance apart about the shaft.

Archery for Boys

A Fine Old-Time Sport That is Being Revived by the Boy Scouts



A correct position is most important

A favorite Iroquois arrow carried two feathers twisted to give the missile a rotary motion. This feathering was started in the usual way but the lower end of the feather was twisted a quarter turn about the shaft and then bound in place.

Correct Position.

Correct style is very important to good shooting with a bow. The position should be watched carefully at the beginning, and never varied.

Stand perfectly upright, left side toward the target, heels 12 inches apart and in exact line with the target. Grasp the bow exactly in the center, with the left hand. Catch the arrow on the string with the right, and rest

it on the left hand, on the left side of the bow. Hook the first three fingers of the right hand on the string, one above and two below the arrow. (The little finger and thumb do nothing.)

Now draw the bowstring until the head of the arrow touches the bow and the top of your thumb rests on the corner of your mouth. Sight along the arrow for direction and judge the necessary elevation. Hold for one second. Release by straightening the fingers, at the same time turning the hand back up, but keeping the thumb tip at the mouth. Do not move the left hand until the arrow has struck.

Begin by practicing at very short ranges, and slowly increase up to the standard target short range of 40 yards.

The Target.

The standard archery target is 4 feet across, circular, and made of straw covered with thin oilcloth. Its yellow bull's-eye is 9 3-5 inches in diameter; outside this is a 4 4-5 inch band of red, next is a similar band of blue, then one of black and one of white.

In scoring, the bull's-eye counts 9, the red band 7, the blue 5, the black 3 and the white 1.

A target can be improvised of a large sack stuffed with hay or straw, and given a flat surface by "quilting" stitches with a long needle. The rings would be painted; and in use the area beyond the white ring would not count.

Other Hints.

Other woods than white cedar which may be used for bows include: hemlock, hickory, elm, ironwood, ash, black locust and apple wood. In all cases the wood should be well seasoned and dry.

It is wise to wear a glove on the hand holding the bow, as the bowstring when released frequently strikes the wrist. A couple of glove fingers also may be worn to advantage on the right hand, particularly if the English method of holding and releasing the arrow is used. By this method the neck of the shaft is held lightly between the first and second fingers, while these fingers are used at the same time to draw the bowstring.

Keeping the Bow in Shape.

Bows as well as arrows require a little bending from time to time to keep them straight or in the desired shape. A rough and ready method is to bend them over the knee. The Indians used a bow straightener. This was made of a piece of flat wood seven or eight inches in length, with two holes near one end, one hole large enough to take an arrow, the other to take the bow. The straightener was passed down over the arrow or bow to the point needing bending, and used lever fashion.

The bow should always be unstrung when not in use.

Be sure to make an A 1 bow when you are at camp this summer.

My Little Friend the Partridge

The Story of a Valiant Little Mother Bird Who Reared a Large Family

By E. L. Chicanot

ALTHOUGH in the course of some years' stay in Alberta I have shot hundreds of partridges, the most poignant memory I possess of these game little birds is not of the slaughtered ones brought in at close of day to appease appetites, justifiably created, but of a little bird I never shot, one I would like to think never fell victim to the gun of sportsman or farmer but, at a ripe old age, passed serenely out of this world to another where the existence of wild creatures is not one continual succession of dangers and hazards.

The facts I will here relate occurred at a time and under circumstances when man had to make his friends of the dumb animals or do without them, and it is surprising how many of the creatures of the wild will come half way to meet man's advances.

One morning I was made aware of the certainty of spring's arrival by the loud and unmistakable tattoo of a male partridge upon a drumming log in the copse at the back of our cabin. It rolled long and insistently, imperious and commanding, brooking no refusal, and echoed widely in the still air of the wood. There could not remain in the minds of hearers any vestige of doubt but that this strenuous drummer had been left the sole and undisputed monarch of that particular domain. By the way he was advertising his presence, however, he was not so keenly desirous of remaining alone.

Prairie Partridge Courtship.

It required most cautious stalking, and I made several unsuccessful attempts, to obtain a view of him on his log. But it was worth the waiting

and trouble. A finer example of concentrated vanity and egotism it would be most difficult to find. Although he pretended not to know, he must have been aware that a shy little hen partridge was closely observing him from some place in the brush neither of us knew, and he was engaged in exhibiting his fine points in a most scrupulous manner. His pompous strutting up and down the log left not a thing to be imagined. The ruffle about his neck stuck out, symmetrically rounded, like an Eliza-

attention to some dainty he had unearthed. From behind a screen of willows I followed their progress down to the creek where they drank together.

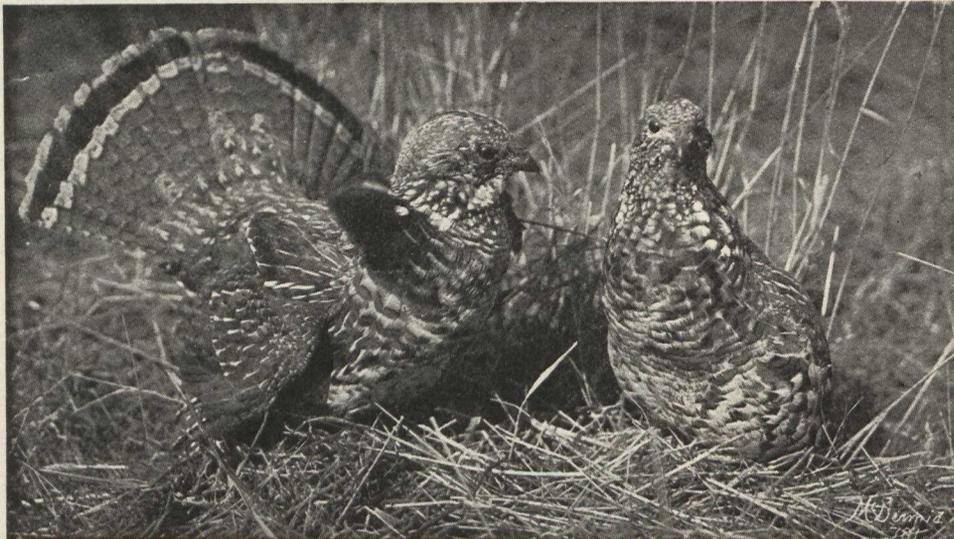
Then came a time when I suspected the male bird came to the copse alone. Every morning I heard the drumming on the log but on the one occasion I could approach sufficiently close to the locality he was unaccompanied, and, I imagined, different. He was still a bird supremely conscious of his own worth but some of the conceit seemed to have been taken out of him or his vain shallow, egotistical bachelor attitude had disappeared under the responsibilities of a pater familias.

Discovered the Nest.

I was returning to the shack one evening, partridges being positively the last thing upon my mind, when almost at my feet a bird arose so abruptly

and noisily that for the moment I was startled and unnerved. I turned my glance towards the spot whence the bird had risen and by the strangest chance my eyes fell directly upon the nest with its eggs. I walked up to it, losing some of my respect for birds, for the location seemed absolutely open and unscreened. Two large poplar trees started at an acute angle from a common root and between the two was the nest with its nine eggs. A prairie fire had come right up to the edge of the wood and denuded the ground of all verdure and shrubbery so that the nest had not a blade of grass to conceal it. In a negligent manner I marked its location by nearby trees and went away.

My respect for the instinct of the partridge went up somewhat on the



Courtship Scene of a Pair of Prairie Partridge

bethan collar. His magnificent tail with its semi-circular pin feathers was showing to the best possible advantage. He was certainly on exhibition and knew it and exerted every dandyish lure to bring the little hen to his feet.

At the next observation I managed to make I found the compelling attraction and conquering hero attitude of the male bird had overcome the modesty of the little hen and she had completely surrendered to her wonderful mate. He strutted about as magnificently as ever and she seemed quite sensible of her good fortune in having secured so splendid a matrimonial prize. He was early training himself for family affairs, however and scratched longer and more vigorously in the rotten wood, pausing occasionally to draw her

following day when I spent an hour and a half in seeking the nest. I really couldn't afford the time but it was too baffling to be defeated in that way. Never was I very far from the spot and must at times have passed within a foot or two of the sitting bird. There she was sitting, as my eye fell suddenly upon her, just as if the picture had been pushed into view, composedly watching me with one eye, and so obviously in the open that I began to distrust my own ability to find my way about and wonder how she and her eggs ever escaped the many depredators of the wood. Then I began to look into things and came to appreciate how the nest in the materials of its composition and the sombre coloring of the bird harmonized with the general surroundings and the bare coverings of Nature in the early spring.

I took a step forward, and then another. She permitted me to approach within a few feet and then rose with a disconcerting "whir-r-r." She can hardly have realized that I had already spotted the nest for she flopped on the ground a foot or two from me and struggled away with her wing dragging as if broken, moaning the while. Having had previous experience of this subterfuge I was not to be drawn away and still feigning lameness she made a complete circle of the two trees and finally retired into some saskatoon bushes from which, no doubt, she kept a careful eye on me until I was satisfied and retired.

A Ripening Friendship.

Every day afterwards I visited her nest and slowly she came to realize I intended her no harm for, little by little, I shortened the distance between us until I was permitted to approach quite close and sit watching her without her exhibiting any uneasiness save to turn an occasional beady eye upon me. Another egg was added to the nine and on the nestful she sat, solitary all day, except to adjourn at feeding time to the drumming log or to the creek to drink. During the period of incubation the warm sun and fertile rain brought forth luxuriant grasses and shrubs and soon the prairie round, which had been shorn by the fire, was a mass of young green foliage, completely burying the nest and forming a protective alcove over the sitting bird.

My periodical visits were interrupted by several days of heavy rain which discouraged excursions into the sodden and dripping timber. I



WILD DEER TAMED BY HUNGER

Mr. M. McCafferty of Loring, Ont., sends in the accompanying photo which he took last winter showing Mrs. McCafferty feeding a deer, forced through hunger, to seek human aid.

rather wondered how my little friend was getting along in the downpour and, as soon as the weather was fine enough, went back into the wood. A deserted nest greeted me. Nothing remained but a mass of empty egg shells and one whole egg which had failed of its issue. The last of my little friend, I thought, and proceeded once again to forget all about partridges.

The "Broken Wing" Ruse.

A few days later I was strolling along an old buffalo trail which ran past the discarded nest when "whir-r" and my old friend, now a mother of nine, flopped lamely at my feet and as if exhausted from wounds rolled painfully along the path, a wing dragging in the dust. Simultaneously I caught a glimpse of several brown speckled little balls which as suddenly disappeared with the rapidity and perplexity of a conjuring trick. First they were there, then they weren't. There was no sound save the pained cry of the mother bird enticing me to follow her and get away from her offspring. I had not moved and knew exactly where those brown specks ought to be though there was not the slightest stir to indicate their presence. Carefully I took one step forward and there was a frightened "tweet", the tiniest sound, barely audible, but the mother had heard it.

There was a blood-curdling cry that reminded me of a wild cat and scarce seemed possible to have issued from the throat of a tiny bird. The noise she made, too, coming through the bush was suggestive of the progress of some large, heavy animal. Straight at me she came, a pathetically tragic little bird, beak open, hissing and shrieking, the ruffle of her neck flung out aggressively. It seemed unbelievable that this could be the same timid little bird I had observed for so long. Forgotten were our frequent tete-a-tetes, every-

thing obliterated by rampant mother love.

A Mother Aroused.

She seemed in such positive agony that I moved away but again stepped near a chick for another frightened cry brought the mother bird again directly at me, completely heedless of her own safety in her frenzied anxiety for her children, flapping my very boots with her wings, hissing wickedly. Her terror for her family was so moving that I hastily backed into the thicket and sat down to wait in silence. But the mother knew I was there and her brood was obedient to her, for never a leaf stirred nor was there a sound whilst I remained. It was futile to stay longer and I retired without seeing her gather up her family.

Many times afterwards I saw the little family out in the woods. Each time the chicks had grown a little bigger and soon the mother could never have covered them with her body or shielded them from the sun with her fan-like tail. Later the family was reduced to seven, from what cause I never discovered; and finally the little brood so developed that it was impossible to tell the mother from her offspring. November blasts came along and scattered them each, no doubt, to make a home of his own in the spring.

In the following March the old drumming log by the creek again gave out its familiar tattoo and a young cock-partridge strutted in all his glory up and down the prostrate tree. He might have been one of the old wood brood—I liked to think he was—whilst somewhere else, her family raised with such difficulty and tribulation forgotten, his mother was beginning to build another nest and so continuing to carry out her destiny until one of the many fates which await the wild creatures overtakes her.

Prize-Winning Essays and Their Writers

In this and subsequent issues of "The Illustrated Canadian Forestry Magazine" there will be published prize-winning essays in the recent School Essay Competition, conducted by the Canadian Forestry Association. The prizes awarded for each Province were as follows:—1st prize \$25; 2nd prize \$15; 3rd prize \$10.

IN speaking of the importance of our forests it is hard to place too much value on our timber. So much of our daily work is connected with timber that it is hard to realize what we would do without it. In the early days here as elsewhere everything was wooden, and in clearing the land the biggest job was to get rid of the timber by fire, or any other way, and no attempt was made to prevent the fire from spreading to the bush and doing a good deal of damage by burning over great tracts of land that have since grown up with berry bushes and trash, spoiling forever the natural beauty of our forests.

My father came over here forty years ago and at that time timber of all kinds was not worth anything only in the way of building and fencing. Fine big pine trees that are nowadays looked on by anyone who may have a few as being a prize were burned in great heaps, also birch, spruce and balsam, also maple and all other kinds of timber that grow here were logged up and burnt and no attempt was made to save or preserve the standing timber. All kinds of timber are looked on as so much money. Those who are looking to the future are not wasting anything in clearing land. What will make logs, are drawn to the mill and sold. The rough wood and limbs are cut into stove and furnace wood and sold in the villages and to the dealers who ship it out to the cities. Then the lumber camps give steady work to an army of men and teams from early fall till the snow is all gone in the spring. All our neighbours for miles around here work

1st Prize—Ontario



Miss Mildred Gibbon

in the bush all winter either in camps or taking out pulp wood and stove wood. A great deal of money is brought into the homes that way and we depend entirely on wood to cook our meals and keep us warm. In the early days I have heard my father say that a real dry summer was unknown and it was because of so much green bush around that kept the air moist, but as the clearances got bigger and the bush fires were a

yearly occurrence, the ground dried up and the crops suffered for lack of moisture. I think every farm should have a wood plot left or planted. Waste or stony places should be planted with trees that will grow on that kind of soil and great care should be taken when clearing land so that fire does not get away in the bush and burn in a few days or hours what has taken hundreds of years to grow.

A great many fires are caused in this way, but not all. Tourists and campers are sometimes not as careful as they should be. Camp fires are not carefully put out and matches are thrown away by careless smokers and fires starting destroy hundreds of acres of valuable timber that in a few years grow to a thicket of berry bushes and pin cherries. Of course these give place to other and more valuable timber in a few years, but nobody, or at least not many, are living to-day that will earn much money taking out timber or wood from land that has been burnt over and has grown up with second growth.

I think that greater care should be taken by everybody and stamp out this enemy of our forests. I must say a word before I get through about one of our best paying side lines to farming, I mean the maple sugar bush. Thousands of gallons of maple syrup are made every year in this part of the country and is sent all over Canada and some is sent to foreign countries and a deal of money is made by those having a good sugar bush. And the best of it is it never wears out but is ready every spring with its crop of syrup and sugar.

2me Prix—Manitoba

LES arbres, animés d'une puissance forte et divine, possèdent une attraction toute spéciale et sont pour les humains une source de bien-être et de richesse; créés par Dieu, ils sont au service de tous: grands et petits, savants et ignorants peuvent sans exception en tirer leur profit.

L'utilité des arbres est incalculable. Au point de vue d'embellissement, ils nous sont d'un secours précieux. Quel magnifique coup d'œil



Mlle Madeleine Painchaud

que ces merveilleux boulevards avec leurs arbres bien alignés, d'un vert reposant, qui bordent des rues entières, réjouissant la vue et donnant une ombre bienfaisante aux passants harassés du poids de la chaleur! Leurs branches hospitalières donnent asile à des milliers d'oiseaux au plumage riche et varié, qui font entendre de délicieux concerts aux citadins retenus en ville pendant les mois d'été. Ces hôtes ailés, trouvant un foyer dans le feuillage de nos arbres, s'y attardent et se nourrissent d'insectes nuisibles, protégeant ainsi leurs hospitalières demeures, les par-

terres et les jardins. Que dire maintenant de ces endroits enchanteurs qu'on trouve au sein des grandes villes, forêts en miniature aux mystérieux recoins qui invitent jeunes et vieux à une douce flânerie? Quels charmantes oasis loin des rues poussiéreuses et brûlantes!

Notre pays peut s'enorgueillir de posséder les plus anciens et les plus grands arbres connus; on en voit en Colombie qui ont cinq cents et même mille ans d'existence. Le bois de ces arbres gigantesques est employé de diverses façons, depuis les constructions les plus solides jusqu'aux plus délicates décorations intérieures. Ce bois est aussi propice pour la manufacture de pulpe et de papier. De l'écorce de certains arbres on tire un acide qui sert à tanner les peaux. On trouve dans l'On-

tario le pin blanc. Ce bois sert à tous les usages connus, depuis la fabrication d'une allumette jusqu'à celle d'un mât de navire. On utilise de plus en plus notre bois d'érable, de chêne, de hêtre, etc., pour les planchers. Il est maintenant reconnu que le meilleur et le plus économique bois franc vient de l'Amérique du Nord et que l'Europe le réclame tous les jours davantage, ce qui devra établir un commerce international très prospère. Il faut faire une mention toute spéciale de l'érable, produit essentiellement canadien, qui est en même temps un emblème national et une source de revenus très appréciable par l'écoulement annuel de sa précieuse sève avec laquelle on fait le sirop et le sucre d'érable si goûtés.

Il serait donc très urgent de pren-

dre des moyens préventifs pour protéger nos forêts contre le feu dévastateur, la coupe inutile et s'occuper de la culture des arbres. Il faudrait de toute nécessité se conformer aux règlements imposés par l'"Acte des Forêts" et que chacun prenne un soin jaloux et intéressé de nos grands bois en donnant de son temps et de son énergie au besoin pour étouffer au début un commencement d'incendie. Dans les endroits boisés on devrait aussi améliorer les chemins et moyens de communication. Dans ce siècle de progrès peut-être verrons-nous les aéroplanes et le radio servir d'agents protecteurs pour les forêts que nous aimons tant.

MADELEINE PAINCHAUD,
(12e grade)

Académie St-Joseph,
St-Boniface, Man.

There is an old fairy tale of the fool of the village saving the life of the oak-Dryad, and thereby winning her undying gratitude. As a token of her favor he was given a bag of acorns, and was bidden wander over the highways and byways, sowing the seeds of the oak. This mission he fulfilled. Wherever he had passed, a lane of shady trees grew. For this all men blessed him.

Finally when all the world resounded with his praises, the feet that had walked so far, became weary; the bag, hitherto miraculously full, became empty, and the wanderer longed for his patroness' oak-tree. Willing hands carried his litter, following the oak-tree path to his home town. The procession stopped in the town square beneath the ancient leafy home of his Dryad. Rising, the old man bade the people farewell, then amid loudest lamentations, entered the tree as the beloved and accepted of the Dryad. Thenceforth he who had been the butt and fool of the village, was its most worshipped saint.

Such is the ancient legend with its burden of venerable wisdom. Such is the influence of the tree. If, in those old lands, already well-forested, that folk-tale could arise, fostered as it could only be by the need for more trees, what must be our story in this treeless Alberta? Alas! Our tale is no legend, but the truth. Let us read it in the reports of the Department of Agriculture. A few years ago, when the belief that trees could not be grown in Alberta still obtained, a successful farmer of over fourteen years standing, was observed to be selling out, preparatory to leaving for Ontario. "Why do you leave?" said his friends. "Here you

First Prize—Alberta

By Margaret I. Jackson
Calgary, Alta.

Why People of Western Canada Should Plant and Conserve Trees



Miss Margaret I. Jackson

have made your fortune, here are your home and friends, why do you leave?"

"I'm hankering for a sight of trees. For fourteen years I have looked out on a world of what? Barbed wire! Barbed wire! My children are growing up to a landscape of what? Barbed wire! Barbed wire!"

The theory that trees cannot be grown on the prairie has been disproved, but the treelessness remains. Remains in both town and country, when both aesthetic and utilitarian

motives prompt tree-planting. Our prairies are rich but bare. Just imagine the desolate expanse of land properly planted with only the necessary windbreaks (which, we are told by Professor King, saves sixty-six per cent. of the moisture hitherto lost, and which our Supreme Court assures us will add one thousand dollars to the value of any farm!) just imagine, I repeat, the beauty which would be added to our Western country; the homelikeness that would surround our bare houses in their landscape of "Barbed wire!" if only we plant trees.

Not only is the country insufficiently planted but we are too careless of the forests we already have. Every year devastating fires, caused by careless campers, sweep our forests. The government, by means of forest rangers, fire guards and air patrols, combats this menace. But the government is only the servant of the people, and if the master insists upon destroying, how can the servant preserve.

Of this the sum and substance is—yearly we neglect planting trees to protect and beautify our homes—yearly we neglect to care for those forests we have and yearly we approach one step nearer to the condition of a sandy desert where only cactus and rank plants survive. We boast of our wide West land yet year by year, losing it, deliberately losing, through carelessness and neglect.

Shall this continue? Shall we who surely value this land, cast it away, as worthless? No! It must not be! We must plant and preserve, that we may possess that which has given the old and Eastern lands a halo of grandeur—beautiful trees.

What Was Your Greatest Woods Adventure?

As announced in recent issues of The Illustrated Canadian Forestry Magazine, we are prepared to pay cash prizes for stories of actual woods adventures which have occurred in the course of hunting, fishing, fire ranging, or other outdoor pastime or pursuit. While the response has not been so great as we had anticipated, a number of good stories have come to hand and these are now being judged as to the order of their merit. One of the first selections is here-with reproduced.

TO have scoured the woods for four days without even catching a glimpse of anything in the way of game bigger than a partridge and then have a deer to run me down in the heart of the forest was the most thrilling adventure that I have experienced in the many years that I have been taking my annual outing in my favorite haunts.

In the autumn of 1922, about the middle of October, my friend Josh. Hicks and I were camped on the North Branch of the Canaan River in one of the best known big game resorts of the New Brunswick woods. On the night of the fourth day of our hunt there was a snow-fall of about six inches and early in the morning of the following day we sallied forth from camp in high hopes of being able to track the elusive deer with which we knew the country abounded. We had not gone three hundred yards from camp when we came upon the tracks of two deer and then with eye and ear alert caution and silence became the order. We had just crossed a small plain and had entered the woods, following a well beaten path that ran perfectly straight for some fifty yards, when suddenly the familiar "Woof", the danger signal of the deer, smote upon our ears. We halted in our tracks, thinking, of course, that the deer had caught a glimpse of us and had plunged farther into the woods. What was our surprise, however, a moment later to see bearing down upon us along the path a very much frightened Doe. We both stood rooted to

FIRST PRIZE STORY—JUNE

By G. W. Maddison,
Moncton, N.B.



"We hardly had time to duck our heads when, with a graceful leap, the deer sailed over us."

the spot—petrified might more fittingly express it—forgetting that we had guns and that here was our quarry rushing to what would seem to be sure destruction. It never dawned upon us that we were in dispute for the right of way, and when we did finally realize that the arrow-like flight of the deer towards us meant

somebody's move, we barely had time to duck our heads when with that graceful leap, for which the deer is noted, the animal sailed over us and without slackening its stride passed along the backward path and was soon lost to view. My companion did sufficiently recover from his stupefaction to fire two shots after the fleeing animal, but in his dumb-founded condition, the deer was as safe as if it were ten miles away instead of having just displayed its contempt for its pursuers by vaulting over their heads.

Upon recovering our speech, after the most thrilling moment and greatest surprise of our hunting career, we began to look around for a cause for the deer's evident terrible fright. As we were facing the wind in following the game and the heavy carpet of snow muffled any sound from our heavy hunting boots, we felt quite certain that we had not alarmed the animal, and besides it is well known that routed game will flee from its enemy and not towards them. As we found no tracks of any other hunters we naturally concluded that some more terrible enemy than man was the cause of the deer playing with death from a gun of the hunter in preference to braving danger in the face of a more dreaded foe. Our suspicions were confirmed in making a detour of the spot later. The tracks of a Lynx, or very large wildcat, near where the deer had taken fright was unmistakable evidence that to this lurking foe we owed the most thrilling and unique episode in our woodsmen's experience.

If you can toss a match into a clearing,
And never give a thought to put it out,
Or drop your cigarette butt without fearing
That flames may kindle in the leaves about,
If you can knock the ashes from your brier
Without a glance to see where they may fall,
And later find the forest all afire
Where you have passed—with no one near to call,

IF

Reprinted from "Fire Control."

If you can drive your auto through the working,
And cast your stogie stub into the slash,
Unmindful of the danger therein lurking,
Or homes or happiness that you may smash;
If you can leave your campfire while 'tis glowing,

Nor think of industries that it may blight,
Or of the billion saplings in the growing
Turned into charcoal ere the coming night,
If you can start a fire beneath a brush pile
When the wind is roaring like a distant gun—
You surely should be jailed without a trial
And labelled as a lunatic, my son."

A Runaway Train

The Young Telegraphers Series

By *LOVELL COOMBS*

Illustration by F. B. Master



CLOSE the door, Alex, or the lamp will blow out!"

The young night operator at the Foothills station laughingly flicked his rain-soaked cap toward the day operator, whom he had just come to relieve.

"Is it raining that hard? You look like a drowned rat for sure," observed Saunders as he reached for his hat and coat. "Why didn't you stay at home, and phone down? I would have been glad to work for you—maybe!"

"Wait until you are out in it, and you'll not laugh," declared Alex, struggling out of his dripping ulster. "It is the worst storm this spring."

"And wait until you see the fun you are going to have with the wire to-night, and you'll not indulge in an over-abundance of smiles. I haven't had a dot from the despatcher since six o'clock. Had to get clearance for Nineteen around by MQ, and now we've lost them."

"There is someone now," said Alex, as the telegraph instruments began clicking.

"It's somebody west. IC, I think. Yes; Indian Canyon," said Saunders, pausing as he turned to the door. "What is he after? He certainly can't make himself heard by X if we can't."

"X, X, X," rapidly repeated the sounder, calling Exeter, the despatching office. "X, X, X! Qk!"

Alex and Saunders looked at one another. Several times the operator at Indian Canyon repeated the call, more urgently, then as hurriedly began calling Imken, the next station east of him.

"There must be something wrong," declared Alex, stepping to the instrument table. Saunders followed him.

"IM, IM, IC, Qk! Qk!" clicked the sounder.

"IM, IM—"

"I, I, IM," came the response. The two operators at Foothills listened closely.

"A wild string of loaded ore cars just passed here," buzzed the instruments. "Were going forty miles an hour. They'll be down there in no time. If there's anything on the main line get it off. I can't raise X for orders."

The two listening operators exchanged glances of alarm, and anxiously awaited Imken's response. For a moment the sounder made a succession of inarticulate dots, then ticked excitedly. "Yes, yes! OK! OK!" and closed.

"What did he mean by that?" asked Saunders beneath his breath. "That there was something on the main track there?"

"Perhaps a switch engine cutting out ore empties. We'll know in a minute."

The wire again snapped open, and whirred, "I got it off—the yard engine! Just in time! Here they come now! Like thunder! . . . "There—they're by! Ten of them. All loaded. Going like an avalanche. Lucky thing the yard engine was—"

Sharply the operator at Indian Canyon broke in to hurriedly call Terryville, the next station east.

"But the runaways won't pass Terryville, will they?" Alex exclaimed. "Won't the grades between there and Imken pull them up?"

Saunders shook his head. "Ten loaded ore cars travelling at that rate would climb those grades."

"Then they will be down here—and in twenty or thirty minutes! And there's the Accommodation coming from the east," said Alex rapidly, "and we can't reach anyone to stop her!"

Saunders stared. "That's so; I had forgotten her. But what can we do?" he demanded helplessly.

Terryville answered, and in strained silence Alex and Saunders awaited his report. The sounder clicked. "Yes, they are coming" it spelled. "I thought it was thunder. . . Here they are now! . . . They're past!"

"They'll reach us," gasped Saunders. "What shall we do?"

Alex turned from the table, and as the Indian Canyon operator hastily called Jakes Creek, the last station intervening, began striding up and down the room, thinking rapidly.

If they only had more battery—could make the current in the wire stronger! Immediately on the thought came remembrance of the emergency battery he had made the previous year at Watson Siding. He spun about toward the office water-cooler. But only to utter an exclamation of disappointment. This cooler was of tin—of course useless for such a purpose.

Hurriedly he began casting about for a substitute. "Billy, think of something we can use to make a big battery jar!" he cried. "To strengthen the wire!"

"A battery? What would we do for bluestone? I used the last yesterday!"

Alex returned to the table, and threw himself hopelessly into the chair.

At the moment the Jakes Creek operator answered his call, and received the message of warning.

"Say," said Saunders, "perhaps some of the other fellows on the wire have bluestone and the other stuff, and could make a battery!"

Alex uttered a shout. "That's it!" he cried, and springing to the telegraph key, as soon as the wire closed, called Indian Canyon.

"Have you any extra battery material there?" he sent quickly.

"No. Why—"

Abruptly Alex cut him off and called Imken. The Imken operator also responded in the negative. But from Terryville came a prompt "Yes. Why—"

"Have you one of those big stoneware water-coolers there?"

"Yes, but wh—"

"Do you know how to make a battery?"

"No."

"Well, listen—"

The instrument suddenly failed to respond. A minute passed, and another. Five went by, and Alex sank back in the chair in despair. Undoubtedly the storm had broken the wire somewhere.

"Everything against us!" he declared bitterly. "And the runaways will be down here in fifteen minutes or twenty. What can we do?"

"I can't think of anything but throwing the west switch," said Saunders. "And loaded, and going at the speed they are,

they'll make a mess of everything on the siding. But that's the only way I can think of stopping them."

"If there was any way a fellow could get aboard the runaways—"

Alex broke off sharply. Would it not be possible to board the runaway train as he and Jack Orr had boarded the engine on the day of the forest fire? Say, from a hand-car?

He started to his feet. "Billy, get me a lantern, quick!"

"I'm going for the section-boss, to see if we can't board the runaways from the hand-car," he explained as he began struggling into his rain coat. "I did that once at Bixton—boarded an engine."

"Board it! How?"

"Run ahead of it and let it catch us."

Saunders sprang for the lantern and lit it. Alex caught it from him, sprang for the door, and was out and off across the tracks in the direction of the section foreman's cottage. He darted through the gate, ran about to the kitchen, and without ceremony flung open the door. The foreman was at the table, at his supper. He started to his feet.

"Joe, there is a wild ore train coming down from the Canyon," explained Alex breathlessly. "The wire has failed east, and we can't clear the line. Can't we get the jigger out and board the runaways by letting them catch us?"

An instant the section-boss stared. With the promptitude of the old railroader he reached for his cap and coat. "Go ahead!" he exclaimed, and together they dashed out, to the gate, and across the tracks in the direction of the tool-house.

"Where did they start from? How many cars?" asked the foreman as they ran.

"Indian Canyon. Ten, and all loaded."

The section-man whistled. "They'll be going twenty-five or thirty miles an hour. We will be taking a big chance. But if we can catch them just over the grade beyond the sand-pits I guess we can do it. That will have slackened them. Here we are."

As they halted before the section-house door the boss uttered a cry. "I haven't the key!"

Alex swung the lantern about, and discovered a pile of ties. "Smash it," he suggested, and dropped the lantern. One on either side they caught up a tie, swayed back, and hurled it against the door. There was a crash, and the door swung open.

Recovering the lantern, they dashed into the tool-house, threw from the

hand-car its collection of tools, placed the light upon it, ran it out, and swung it on to the rails.

"Do you hear them?" asked Alex as he threw off his coat. The foreman dropped to his knees and placed his ear to the rails. He listened a moment, and sprang to his feet. "Yes! Come on!"

They pushed the handcar into motion, ran it a few yards, and sprang aboard. One on either side, they began pumping up and down with all their strength. Rapidly the car gained speed.

As they neared the station, the door opened and Saunders ran to the edge of the platform. "The wire came OK and I heard Z pass Thirty-three," he shouted, "but couldn't make them hear me. He reported the superintendent's—"

They whirled by, and the rest was lost.

"Did you catch it?" shouted Alex above the roar of the car.

"I think he meant," shouted the foreman as he bobbed up and down, "superintendent's car. . . attached to the Accommodation. . . heard he was coming. . . makes it bad. . . We need every minute. . . and Old Jerry. . . the engineer. . . 'll be breaking his neck. . . to bring her. . . through on time! Do you hear. . . runaways yet?"

"No."

At increasing speed they rushed on through the darkness, bobbing up and down like jumping-jacks, the little car rumbling and screeching, and bounding as though it would leap from the rails.

The terrific strain began to tell on Alex. Perspiration broke out on his forehead, his muscles began to burn, and his breath to shorten.

"How much farther. . . to the grade?" he panted.

"Here it is now. Six hundred yards to the top."

As they left the resistance of the incline Alex began to weaken and gasp for breath. Grimly, he clenched his teeth, and fought on. At last the section-man suddenly ceased working, and announced "Here we are. Let up." With a gasp of relief Alex dropped to a sitting position on the side of the car.

"There they come," said the foreman a moment after, listening, Alex heard a sound as of distant thunder.

"How long before they'll be here?"

"Five minutes, perhaps. And now," said the section-boss, "just how are we going to work this thing?"

"Well, when we boarded the engine at Bixton," explained Alex, getting his breath, "we simply waited at the head of a grade until the train was within about two hundred yards of us, then lit out as hard as we could go. As she bumped us, we jumped for the cowcatcher."

"All right. We'll do the same."

As the foreman spoke, the rain, which had decreased to a drizzle, entirely ceased, and a moment after the moon appeared. He and Alex at once turned toward the station.

Just beyond was a long, black, snake-like object, shooting along the rails towards them.

The runaway!

On it swept over the glistening irons, the rumble quickly increasing to a roar. With an echoing crash it flashed by the station, and on.

Nearer it came, the cars leaping and writhing; roaring, pounding, screeching.

"Ready!" warned the foreman, springing to the ground behind the handcar. Alex joined him, and together, watching over their shoulder, they braced for the shove.

(continued on page 398)



They whirled by, and the rest was lost.

Making Fire with the "Rubbing Sticks"

(Continued from page 376)

Hold the bow precisely at right angles to the drill. Press down firmly, but not too strongly, on the hand-block, and with a rapid, even motion drive the bow backwards and forwards.

Continue until the watch is well filled with black wood powder, and the powder is smoking freely.

Being very careful not to move the fire-board (which might result in breaking up the little dust ember), lay aside the bow and drill. Place your right hand on the fire-board, to steady it while you remove your left foot. Carefully hold the fire-board with the left hand, and with the finger tips of the right hand give the board a light tap. This is to break the dust ember from the sides of the notch.

Now tip up and remove the fire-board. Carefully pick up the fire-pan, or chip, and drop the ember into the center of the bird's-nest.

Pick up the nest, close your fingers about it loosely, and swing your hand briskly backwards and forwards. You will feel the heat almost immediately. As soon as it is uncomfortably hot, place it on the ground, blow it into flame—and build your fire.

The fire may be brought by placing tinder over the coal on the ground, and blowing directly upon it; but the hand-coaxing method generally is surer, and the flame, when it comes, is much stronger. While the "nest" is being held in the hand, the increasing temperature of the coal further dries and heats the tinder, so that the moment the flame appears the tinder flashes into full blaze. The advantage of the hand method during wet weather is obvious.

Added Hints

If when beginning operations smoke does not come within a minute, it is useless to continue. Examine the end of your drill. You probably will find it "polished." Perhaps it has developed a point, and is only grinding the bottom of the cup. With your knife pare down the drill-end until it fits the cup snugly. If it again fails—(where the wood is known to be suitable) drop a little dry dust into the cup.

A test of the fire-making qualities of wood is the powder produced by the drill. If coarse and gritty, although smoke may show, it will not make fire. The powder must be fine and soft.

Try the "rubbing sticks" this summer. It's good fun; and some day may prove very useful to you.



**SAMPSON
OFFICE
SERVICE**
LIMITED

**JOB PRINTERS
MULTIGRAPHERS**

Dealers in
Office Supplies



296 LISGAR STREET OTTAWA.

Out of Town Orders Solicited

**Canada Holds 88 p.c. U.S.
Newsprint Market**

Final figures are now available covering the imports of newsprint into the United States for the past year. Those indicate more strongly than ever the growing hold that Canadian mills are securing on the imports into that country. The total importations amounted to 1,029,260 tons compared with 791,978 the previous year. Of this total, Canada sent 896,312 tons or 88 per cent. as compared with 656,204 or 83 per cent. the previous year. The total imports in Europe fell from 135,774

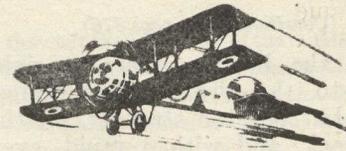
tons in 1921 to 132,954 in 1922. Out of a total consumption in 1922 of 2,446,624 tons the United States imported 42 per cent.

SETTLERS BECOME RANGERS

British Columbia settlers realizing that their homes, crops, and wood lots are annually threatened with destruction by forest fires are proving themselves willing to assist the authorities in fire control.

Many of these public spirited citizens are volunteering their services as honorary fire wardens to assist forest officers in the prevention, detection, and suppression of fires.

AERONAUTICAL SECTION



Aeroplanes Used to Survey Labrador Gold Fields

(Special correspondence to the Illustrated Canadian Forestry Magazine)

THE Aerial Survey Co. (Nfld.) Ltd. have recently sent three aeroplanes to the Labrador Gold Fields at Stag Bay: a Martinsyde piloted by Major F. S. Cotton (President of the Company); a Westland Limousine piloted by Major H. H. Kitchener; and a large Westland passenger aeroplane by Mr. T. K. Breakell. The start was made from the Company's base at Botwood, Newfoundland, and a stop made at Hawkes Bay to pick up gasoline and supplies. The return flight to Botwood has been completed and further details are now available of this notable aerial achievement. The object of the trip was to make an aerial map of all the area on which claims have been staked, and to leave a survey party there to carry on the work throughout the next two months so that when the first prospectors arrive the Company will be in a position to give them any assistance they require.

A nonstop flight was made by Major Cotton from Hawkes Bay, Newfoundland, to Rigolet, Labrador, and the Martinsyde made a landing five miles outside with only four gallons of gasoline in her tanks. A further supply was brought out by dog-teams as the ice was badly broken up in places.

The conditions on the Labrador Coast are reported by these aerial explorers as the worst experienced in the memories of the oldest inhabitants. At Cartwright the houses were completely covered by a level field of snow with only the chimneys showing. The schoolmaster at Cartwright was trapped in his house for two days and a man walking overhead on snowshoes heard him tapping the iron chimney to attract attention.

The coast was tightly packed with ice for more than sixty miles out to sea, which is as far as the eye can see from the aeroplane, and it will probably be the middle of

June before any coast operations can be undertaken. All the big rivers are opening up and bringing down hundreds of thousands of tons of ice with a deafening roar.

The return flight was a race against time as the aeroplanes are fitted with skis and the ice was rapidly breaking up in Newfoundland. A stop was made at Hawkes Bay, and the Company's base at Botwood was reached only just in time, Major Cotton landing the Martinsyde on a strip of ice beside the bank of the River of Exploits 150 yards long and sixty yards wide, the aeroplane running fifty yards before she pulled up. Floats will now be fitted to this aeroplane to enable her to carry out summer flying.

The flight to the Goldfields was completely successful, but naturally no detailed information can be given of the actual area owing to the great advantage obtained over competitors by The Aerial Survey Co. (Newfoundland) Ltd. and the associated companies, The Hawkes Bay Trading Co. and the Labrador Gold Deposits Ltd., being first on the field before the actual gold rush commences.

Motor schooners are being fitted out to take the remainder of the party to the Goldfield as soon as ice conditions permit.

The Aerial Survey Co. (Nfld.) Ltd. has been carrying out survey work and has made flights all through the last winter, notwithstanding temperatures as low as 40 degrees below zero. The winter surveys of timber limits have been a great success and show more details than summer surveys. The Companies' aeroplanes, as a result of continuous experiments in overcoming freezing troubles and difficulties of landing on various surfaces, are able to fly at all times in Arctic weather, as a result of which the preliminary survey party will be able to commence work months earlier than otherwise would have been the case.

Recent Developments in Canadian Aviation

THE month of May has brought several important developments in Canadian Aviation.

The Laurentide Air Service, Limited, whose programme was outlined in the May issue of this publication, arranged during the month of May to secure the services of Col. J. Scott Williams, M.C., A.F.C., as executive in charge of Ontario operations. Col. Williams, during the war, commanded the Gosport School of Special Flying and was the first Commandant of the Canadian Air Force. For the past three years he has been engaged in Commercial Aviation. The Company has also secured a number of other experienced pilots and air engineers with the result that considerable additional equipment can be operated, and the fleet now consists of nine flying boats and several aeroplanes.

The late Spring has delayed operations very considerably with the result that flying could not be undertaken until about May 8th. Since that time several machines have been in operation and one has accomplished the trip from Montreal to Toronto in four hours. Operations are restricted to the Southern portions of both

Ontario and Quebec owing to the fact that up to the 15th of May the lakes in the Northern regions were still full of ice.

As forecasted in the May issue of this Journal, several new Air Stations are to be opened in Ontario and Quebec. A base is to be established at Ramsay Lake near Sudbury and from this point all Ontario work will radiate; operations being carried on at Orient Bay, Remi Lake, and at least two other sub-bases not yet announced. With the establishment of these additional bases the Company's operations now cover the whole of Ontario from the Quebec to the Manitoba border and as far North as James Bay.

In view of the equipment and personnel now in the service of commercial companies, and pursuant to their stated policy, the Air Board have considerably reduced their operations in Eastern Canada, with the object of leaving a clear field for commercial companies, which should result in the very rapid development of commercial work.



Airscape of Industrial Plant

The rapidly increasing use of aircraft and air methods is the best possible proof of their soundness for commercial work.

Not only can much which is impossible by ground methods be done by air but much which is possible and sound by ground methods is easier, cheaper and produces better results from the air.

Intelligent co-operation of air and ground work achieves the greatest results. The finished survey which combines the best work of ground surveyors with the best work of air surveyors is more accurate and better than either a good ground survey or a good air survey.

A prominent forester—who is not interested in aircraft operation except as a customer—recently stated that in his opinion a high-class air survey of timber limits was equal to a good twenty-five per cent. ground cruise, but there are good and bad air surveys. The prices vary slightly, the results enormously.

In aircraft work, as in all other forestry operations—"The best is the cheapest in the long run."

Each of the companies appearing below is a specialist and the pioneer in its field in Canada. Their combined experience is at your disposal for the asking and an inquiry involves no obligation.

Laurentide Air Service, Limited
407 Lake of the Woods Bldg.,
MONTREAL, QUE.

**Fairchild Aerial Surveys Co.,
(of Canada) Limited,**
GRAND'MÈRE, P. Q.

BASES:

Lac à la Tortue,
Grand'Mère, Que.

Trout Lake,
Remi Lake, Ont.

Orient Bay,
Sudbury, Ont.

Air Force Statistics

THE headquarters of the Canadian Air Force announces Civil Aviation Certificates and Licenses issued, cancelled and renewed under the various classes as shown for the months ending March 31st, 1923, and April 30th, 1923, as follows:—

Private Air Pilots' Certificates.

Issued:—L. S. Breadner, Ottawa, Ont.; H. S. Quigley, Toronto, Ont.; Virgil Simmons, Detroit, Mich.;

Lapsed:—A. N. Vose, Winnipeg, Man.; F. J. Simpson, Kitsilano, Vancouver, B. C.; J. U. Eddy, Brantford, Ont.

Commercial Air Pilots' Certificates.

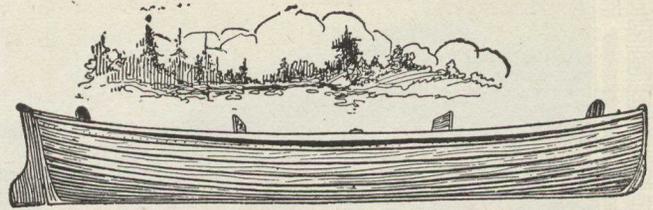
Issued:—Romeo Vachon, Ste. Marie de la Beauce, P. Q.

Renewed:—C. S. Caldwell, Lacombe, Alta; W. H. Brown, Victoria, B. C.; R. S. Grandy, Fort William, Ont.; L. S. Breadner, Ottawa, Ont.; L. R. Charron, Montreal, P. Q.; T. A. Lawrence, Cookstown, Ont.; G. A. Thompson, Hazelton, B. C.; J. R. Ross, Winnipeg, Man.; S. St. C. Guild, Musquodoboit, N. S.; H. S. Quigley, Toronto, Ont.

Lapsed:—F. W. McCarthy, Toronto, Ont.; Earl L. McLeod, Atchelitz P. O., B. C.; J. B. Home-Hay, Wadena, Sask.; A. A. Leitch, Norwood Gorve, Man.; A. Carter, Calgary, Alta; C. St. C. Guild, Musquodoboit, N. S.; W. O. Johnson, Toronto, Ont.

Certificates of Registration of Aircraft.

W. Sharpe, Windermere, B. C.



The Ideal Runabout

for Fishermen, Family, or
Commercial Purposes

Nothing to compare with it. Has patented and exclusive features including the famous Disappearing Propeller Device, giving these boats advantages over other boats. Safe, Sturdy, Reliable, Economical—20 to 25 miles to gallon. Thousands in use. Adopted by many Federal and Provincial Departments, Institutions and large camps. See new 1923 features including new type engine and device.

Write for descriptive Catalogue in colors. Prices range from Fishermen's Model \$299. to Dis. Pro. Special \$575.

DISAPPEARING PROPELLER BOATS

Made in Canada by:—

DISAPPEARING PROPELLER BOAT CO. LIMITED

Office and Showrooms:

92 King Street West, Toronto

16 Victoria Square, Montreal

Also at Port Carling, Ont., and Tonawanda, N.Y.

Forest Patrol by Air?

This can only be accomplished where you have reliable machines, that will stand up under all conditions.

THE 'VICKERS VIKING AMPHIBIAN'

has already proven adaptable to Canadian Conditions for these reasons,
we are now building six machines in Montreal
for the Canadian Government--

Full details may be obtained from

CANADIAN VICKERS LIMITED

Works and General Office:

MAISONNEUVE

Phone: Lasalle 2490

Sales Office

225 Beaver Hall Hill, Montreal

PHONE: PLATEAU 5271

BRANCH OFFICES

TORONTO

WINNIPEG

Aerial Photo of Plant of The Laurentide Company, Ltd., Grandmere, P.Q.



Airscape by Fairchild Aerial Surveys Co. (of Canada), Limited

THE Canadian citizen who does his reading while he runs is apt to interpret the national value of the great pulp and paper industries of the Dominion chiefly in terms of capitalization and mill output (not to mention the stock market.) It is too often forgotten that a pulp and paper plant in a municipality means thousands of employees and the steady outpouring of cash into pay envelopes. After all, without the Forests and without the steady log supply from thriving timberlands the pulp and paper companies, capitalization, and pay lists would be rapidly non-existent.

An excellent illustration of what the forest resources are accomplishing in the attraction of new population to districts that otherwise would remain tenantless is to be found in the case of The Laurentide Company Limited, of Grand'Mere, Quebec. The Laurentide Company may be said to be one of the oldest paper companies. It began in 1888 as a small pulp concern, hewed a townsite in the forest, developed a great water power and entered into pulp and paper production, attaining, particularly in recent years, a quite unique record of efficiency. The men who worked on the construction of the first Laurentide plant used to get

their diversion by hunting bears on the present townsite. One winter when the plant ran short of wood they cut enough on a nearby island to carry them through.

The Laurentide Company with a capitalization of \$30,000,000, has one of the most beautifully laid out and cared for townsites in the Dominion with excellent housing for the employees, recreation centers, clubs, curling rinks, tennis courts, and golf links. A school for 130 children is maintained free of charge and a Model Dairy, by the Company, has added, very substantially, to the health of the people. The unmarried employees are provided with one of the most delightful hostelries in Eastern Canada, known as the Laurentide Inn. A public hospital in beautiful surroundings, was built and equipped in the most modern fashion and there is a first aid station in the paper plant and one of the best welfare departments in the country which has fathered the course in industrial methods just started by McGill University.

The Laurentide Company early developed plans for putting the yield of its woodlands on a permanent basis. It provided a great impulse to the scheme of co-operative fire protection when it was first mooted in Quebec. The first forest tree nursery and re-

forestation work on a large scale began at Grand'Mere, which enjoys the distinction of having initiated the first forest research station for nursery and plantation work. The nursery now has an output of five million trees per annum. An illustration of Laurentide willingness to utilize modern inventions and ideas is shown by the fact that the Company pioneered the work of mapping limits by means of aerial photography and has developed this to a very interesting degree.

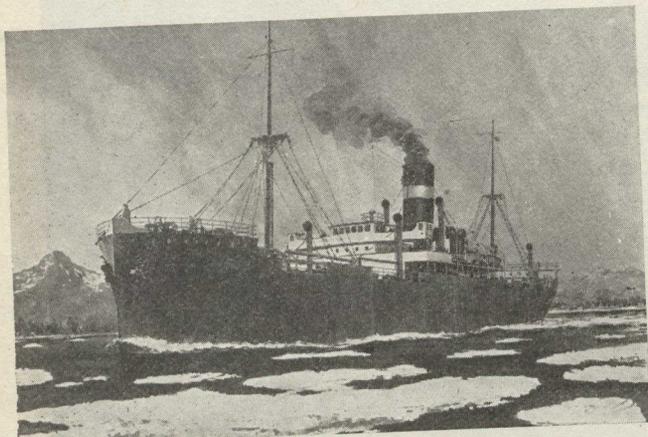
The forest resources of Central Quebec have accounted for a population of 7,600 people at Grand'Mere and many from the surrounding municipalities also get their living from the mill. The annual output is 112,500 tons of newsprint, 15,000 tons of cardboard, 45,000 tons of sulphite, 97,500 tons of ground wood pulp. The subsidiary company, the Laurentide Power Company, which is housed in a beautiful building modeled after an old French chateau, is capitalized at \$10,000,000 and produces 160,000 electric horsepower.

How excellently does the success of the Laurentide Company illustrate the slogan frequently used by the Canadian Forestry Association on its banners:

"Live Forests mean Live Jobs.
Dead Forests Employ Nobody."

Vickers Ltd. Build Cargo Steamer

THE new Cargo Steamer pictured herewith has recently been constructed for the Anglo-Newfoundland Development Co., by Messrs Vickers Limited, of the Naval Construction Works, Barrow-in-Furness and is designed for the Owners' Atlantic service, being primarily intended for the shipping from Newfoundland



to London, Manchester and Glasgow of paper for the printing of the "Daily Mail", "Daily Mirror", and "Glasgow Daily Record" etc.

The following are the leading particulars:—

Length overall.....	438'0"
Breadth.....	56'0"
Depth.....	38'6"
Tons Deadweight.....	8800
I. H. P.....	3000
Speed.....	11 knots.

Of the Shelter Deck type with fore-castle, and built to Lloyd's highest class, the vessel is rigged with two masts and one funnel after the orthodox fashion of the Merchant Service, and her fore end, below the waterline is specially shaped and stiffened for navigating in ice during the winter season. The vessel has two complete tiers of 'tween decks, and six cargo holds, all specially arranged for the stowage of paper in rolls, two of which cargo holds are readily convertible into deep tanks for ballast purposes. The cargo hatches are arranged with a view to the rapid working of cargo, this being handled by a system of steam-winch-operated derricks on masts and derrick posts.

Every consideration has been given to the arrangement and apparatus for life-saving and fire-extinguishing, which will be in full accordance with the requirements of the Board of Trade. The propelling machinery consists of one set of vertical, direct-acting, triple-expansion, surface-condensing engines having three cranks, and of 3,000 I. H. P. when working at 76 revolutions per minute, the thrust block being of the "Michell" type. Steam is supplied by four boilers of the single-ended cylindrical type, working under Howden's system of forced draught, and suitable for burning either oil fuel or coal. Boiler pressure 200 lb. per square inch. The main condenser is of the surface condensing type: the air, feed, bilge and sanitary pumps are worked off the main engines, and all the usual auxiliaries suitable for this class of vessel, will be provided and fitted. The shafting throughout is of steel: the propellers have loose cast steel blades and bosses. The whole of the machinery is constructed to Lloyd's requirements.



STANDARDIZED 34-FOOT FAMILY CRUISER

The thirty-four footer is the most comfortable and complete cruiser that can be built. It embodies the best features of previous models, and represents the highest standard obtainable in design, construction, finish and equipment. Sleeping accommodation for six people is available, there is full head room in cabin, ample galley space and a built-in refrigerator.

We shall be pleased to forward plans and specifications of standard models or draw up plans to suit your requirements involving no obligation.

Consult our brokerage department if interested in the purchase of a used boat.

**MONTREAL BOAT BUILDERS
LIMITED**

371 St. Joseph St. Lachine, Que.

Examples of Canada's Scenic Resources



Manitoba - Ontario boundary — This picture shows how the boundary has been marked by a cleared line through the forest and by concrete monuments. An idea is also given of the character of the timber.

Canada's Scenic Resources—View from motor road, Banff National Park, which here skirts the shore of lake Minnewanka. On the right is the famous Gibraltar rock, a shoulder of mount Inglismaldie. Across the lake are the peaks of the Mount Aylmer group. Scenes like this meet the traveller at every turn in the Canadian National Parks.

Growth of Vegetables and Grain in Canada's "Far" but not "Frozen" North



Plate reproduced by courtesy of Nat. Res. Int. Ser., Dept. of Interior.

Potatoes and wheat grown at Fort Providence on the MacKenzie River, north of Great Slave Lake.

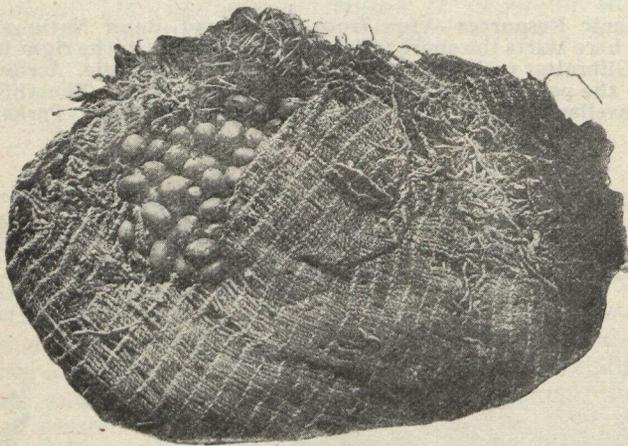
Mr. R. H. Campbell Retires as Director of Forestry

(Continued from page 365)

Campbell, as secretary of the convention, had general charge of the arrangements, and much of the credit for the success of the gathering, involving, as it did, the government forestry administrations, the lumbering and pulpwood industries, the railways and other industrial interests and the men of science, was due to his hard work and skilful guidance.

His task as Director of Forestry has not been light and the splendid results achieved show the efficiency and worth of his work. From a head-office staff of scarce half a dozen, the number has increased to fully half a hundred, and the field organization shows similar increase and strength. The organization of the forest reserves, scarcely existent at his appointment, has been brought to a high state of development, and the work of protecting the forests—both within the forest reserves and without— from fire has reached a corresponding state of efficiency. Mr. Campbell lays down his task with a realization of high ideals already well on their way to attainment, and is followed by the heartiest good wishes of his late associates.

Acorns 10,000 Years Old



(Photo by the Gilliams Service, New York)

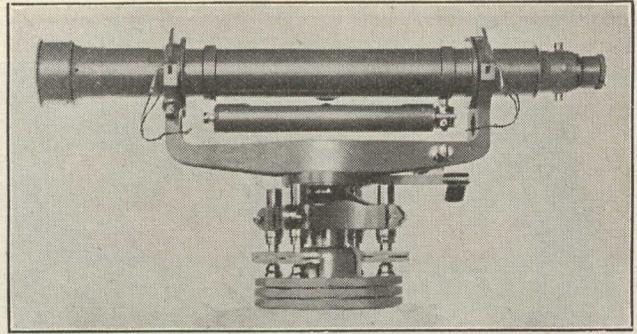
Scientists of the Harrington Expedition now in the Ozark Mountains in Arkansas investigating the remains of a pre-historic Indian people, uncovered this curious cord bag of acorns, the only one of its kind ever found. An attempt will be made this Spring to plant these acorns as a contribution to the study of plant vitality.

Mr. G. D. Johnson, President of the British Columbia Loggers Association, predicts that the day of cheap lumber has gone forever. He gives as his reason the long hauls now necessary since the commercial forest areas have become more remote, the short operating day, the high cost of labor and supplies and the great increase in effort necessary to bring logs to the mills over great distances where the ground is rougher and the timber scarcer. The increase in stumpage cost is also a factor.

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

SURVEYING INSTRUMENTS



Watts 15' C. E. Wye Level

Send your new instrument inquiries,

and

Your old instruments for repair

to

INSTRUMENTS LIMITED

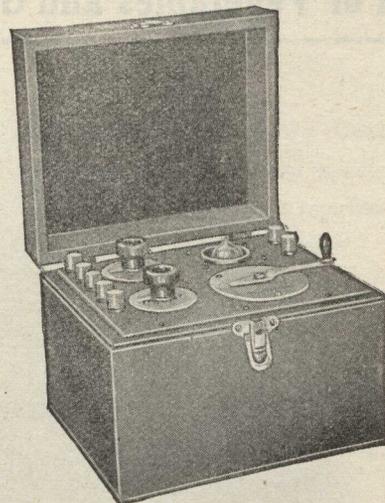
Head Office

43-45 BANK STREET, OTTAWA

Branches at

Toronto Quebec Regina Edmonton Winnipeg

WESTINGHOUSE AERIOLA SR.



One of the most satisfactory Radio Receiving Set on the market. Uses a single valve, which operates on a dry cell and 22½ volt battery.

Over forty stations, some of them over 1,500 miles distant have been received with this set. Can be installed very easily and operated successfully by anyone. Price complete with valve, dry cell and 22½ volt battery, head phone, aerial, insulators and complete operating instructions. Express prepaid \$80.00.

To responsible parties we can arrange a time payment plan on the purchase of this equipment.

RADIO DEPARTMENT

PHOTOGRAPHIC STORES, LIMITED

65 SPARKS STREET, OTTAWA, ONT.

Autobiography of Professor Joseph Macoun

THE writer of this Autobiography was a well-known Canadian Explorer and Naturalist, who died in 1920. Prof. Macoun made many explorations in Western Canada, and in his Autobiography he describes important and interesting events in connection with each of them. His knowledge of the flora of Canada was very great, and he knew the range of every species of tree, shrub, or herbaceous plant native to the Dominion. His Autobiography is full of matter of great interest to members of the Canadian Forestry Association. Following will be found an extract from his report to the Dominion Government in 1875, which he re-publishes in his Autobiography, and is a good example of what the book contains. In 1875 he had travelled from Victoria, B. C. north through British Columbia to the Peace River, down which he went to Fort Chipewyan, and then up the Athabasca and by Hudson Bay boat and canoe through lake and river and over portages to Fort Carlton, and then across the prairie to Fort Garry, now Winnipeg, reaching there on Nov. 3rd, 1875. He then went on to Ottawa, where he arrived on Nov. 13th, after having travelled at least 8,000 miles since he left home on April 14th of the same year. Writing of the West Coast of British Columbia, in his Report for 1875, he states:

"With these facts, the temperature of Sitka and Esquimalt, it is very easy to forecast the future of the whole region west of the Cascades between Victoria and the Stikeen River. The Queen Charlotte Islands, being more insular than Vancouver Island, must have a milder climate, and hence they may be set down as of equal value. A careful examination of a map of the world will show the close relationship existing between Europe and Western America in the same parallels. A warm current of water flows down the coast of the latter, while the shores of the former are bathed in the tepid waters of the Gulf Stream. Both regions have their shores indented by inlets, "Fiords" in the one case and "Canals" in the other. The oak and pine forests of the British Isles and Norway are simulated by the oak and fir forests of British Columbia. In both, the moist climate is caused in the same way—the vapor from the warm sea water is blown inland and, being condensed by the cooler air over the land, falls in rain or fog upon the slopes and valleys. The old forests of Great Britain and Ireland, including those of Norway, are a product of the Gulf Stream, while the mighty forests of our western province, including the Queen Charlotte Islands, are certainly a product of the "Kuro Sina" (Japan Current). It only remains for me to add that as years roll on this second Britain will come so vividly before our people that men will ask with astonishment how such ignorance prevailed in the past. To-day there are four hundred miles of coast line in our western possessions north, with a forest growth superior to anything else in the world at present."

This Autobiography has been recently published as a Memorial Volume by the Ottawa Field Naturalists' Club, through which it was sold by subscription. There are still some copies which can be obtained at \$3.00 each, the original price, by ordering from Mr. Arthur Gibson, Birks Building, Ottawa, Ont., who is Secretary of the Memorial Committee.

GUNS

FISHING TACKLE

Rifles, Cartridges, Shells, Marble Game Getter, Marble Hunting Knives, Compasses, Cleaning Rode and Brushes. Boots for the Bush, Tents, Pack Sacks, Canoes, Angler and Hunter's Clothing, Sleeping Bags, Ladies' Bush Togs, Duck Back Clothing, Tents, Camp Beds, Chairs, Cooking Utensils. Write for Catalogue.

ALLCOCK LAIGHT WESTWOOD CO., LIMITED
70 King Street West, Toronto, Ont.

A Business Pioneer



IN the days gone by, the dawn of progress and expansion of a new community was marked by the coming of the branch bank following hard upon the heels of the pioneers. With the bank came money for local development, and by its founding, a community was linked with the principal markets of the world.

Today, and in the years to come, the same conservative policy of enterprise, service and co-operation, will guide this Bank in serving the financial needs of Canadian communities.

THE ROYAL BANK OF CANADA

1869—A Local Institution

1923—An International Force

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

Green Shields & Co.

INVESTMENT BANKERS
Montreal: 17 St. John Street

Toronto, 14 King St. East
Ottawa, Central Chambers

Placing the Blame in Verse

Recently Mr. Robert H. Davis, a well known sportsman and editor, wrote a booklet of verse which he entitled "The Rape of the River", embodying his indignation at the ruin of a favorite stream by sawdust from a sawmill. The point was well taken but in reply Mr. Phil. H. Moore of Halifax prepared some racy verses reminding Mr. Davis and his readers that the sportsman and not the sawmill is primarily responsible for the ruin of favorite recreational grounds. Mr. Moore's poem proceeds:

The axe doth bark in deep majestic lane;
Its bite is keen, as ripe spruce giants fall
To fill a growing need perpetual,—
The fibre of a thousand tongues to gain.
The evergreens, coniferous, thus reign
Supreme above all things industrial.
Then through the slash, in vigor young and tall,
Spear saplings, thick and of a lusty strain.

Autumnal drought doth parch the painted hills:
A careless match by khakied "sport" is flung...
He flees the flames, unshriven and unhung...
A holocaust sweeps over swale and rills.

A poet weeps the rape of forest land:
In justice let him curse the hunter's brand.

What Do We Burn When We Burn Our Trees?

What do we burn when we burn our trees?
We burn the home for you and me,
We burn the carriage-house, barn and shed,
The baby's cradle, the little boy's sled,
The bookcase, the table, the rocker of ease,
We burn all these when we burn our trees.

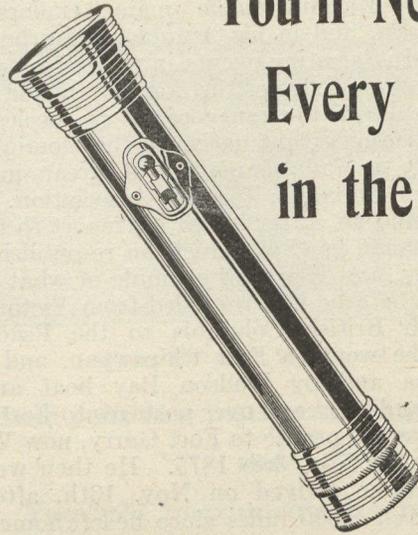
What do we burn when we burn our trees?
The daily comfort which everyone sees,
The wages of men for years to come,
In factories big where busy wheels hum—
For industries many depend on trees—
When our forests burn, we burn all these.

What do we burn when we burn our trees?
The homes of birds, and squirrels, and bees,
The homes of the brook, and the cooling spring
Where violets blossom, and bluebirds sing,
The beauties of nature, so fair to please—
We burn all these when we burn our trees.

Summer or Winter, day or night,
The woods are an ever-new delight;
They give us peace, and they make us strong,
Such wonderful balms to them belong.

—Stoddard.

You'll Need It Every Night in the Year



NOTHING can take the place of Eveready's dependable, portable light. Every night, on water and on land, you'll have innumerable uses for the searching brilliance of an Eveready Flashlight.

For all out-doors you need the Eveready Spotlight—it focuses! Throws a beam of light 300 feet—or a wide circle of light for short distances—a twist of the end cap makes the change.

Eveready Spotlights, Flashlights and Batteries are for sale at practically every electrical, hardware, sporting goods and drug store.

CANADIAN NATIONAL CARBON CO., LIMITED
Montreal Toronto Winnipeg

EVEREADY FLASHLIGHTS & BATTERIES

EVEREADY FLASHLIGHTS
AND BATTERIES



And the new Eveready Unit Cells. They fit and improve all makes of flashlights. Made in two sizes only—one or the other will fit every size and style of tubular flashlight.

**Motion Picture Bureau A Busy
Govt. Publicity Agent**

THE Canadian Government Motion Picture Bureau is the new name under which the Exhibits and Publicity Bureau of the Department of Trade and Commerce, Ottawa, Canada, is now operating. The change in name was necessary in order to more clearly define the motion picture and still photographic activities of the Bureau.



RAYMOND S. PECK

Director Canadian Government Motion Picture Bureau

Other changes have also been necessitated besides the change in name, owing to the heavy demands on the laboratories of the Bureau. Alterations are now under way for the installation of a modern plant and equipment for the production of the well known "Seeing Canada" series of motion pictures which now number well over a hundred Canadian subjects. When completed the Canadian Government Motion Picture Bureau will possess the largest and best equipped motion picture laboratory in Canada and the 1923-1924 programme calls for the production of two new "Seeing Canada" films each month, which will be shown all over the world.

A good idea of the scope of the Canadian subjects covered by these "Seeing Canada" films may be had by a glance at the titles of a few of the recent releases e. g. Leaves from a Range's Note Book; With Dog and Gun; On the Skeena River; Fresh from the Deep; Glimpses of Toronto; In the Wake of Captain Cook; Niagara the Glorious; Digging up the Past; Down North; Nipigon Trails.

The Still Photographic Division of the Canadian Government Motion Picture Bureau not only possesses the finest collection of photographs in Canada, illustrative of various phases of Canadian life, industry, resources, and history but also the best equipped laboratory for the production of enlargements, lantern slides, transparencies, etc., and these facilities are at the disposal of other Federal Government Departments with the result that the demands on this Branch of the activities of the Bureau are increasing from month to month.

THE BIRDS

**ARE NATURAL INSECT AND WEED
DESTROYERS**

They will brighten your Farm, your Ranch, or your City Lot.

Attract them with Bird Houses.

Price \$1.00 each. Special rates on Quantity Orders

PHILIP F. FORAN 147 WILBROD STREET
OTTAWA, ONT.

**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

*We announce the removal of our headquarters from
307 St. James Street, Montreal, to
72 ST. ANTOINE 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.

**BLUE PRINTS AND
PLAN REDUCTIONS**

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

The CRABTREE Co. Limited
ARTISTS-ENGRAVERS-BLUEPRINTERS-COMMERCIAL PHOTOGRAPHERS
OTTAWA - ONTARIO.



Canada

JASPER NATIONAL PARK

MT. EDEN CANAL 11,295 ft. JASPER PARK LODGE LAC BEAUVERT

IN THE ROCKY MOUNTAINS

CANADA'S NATIONAL PLAYGROUND AND GAME SANCTUARY of 4,400 square miles. Riding, Hiking, Climbing, Fishing, Camping. Mighty snow-capped mountain peaks, gleaming glaciers, great rivers, and shimmering lakes.

JASPER PARK LODGE
[On Lac Beauvert]

(Under management of Canadian National Railways)

provides excellent accommodation for 250 guests. All modern conveniences. Rates \$5.00 per day and up, American plan (meals included.)

Open June 1st to September 30th

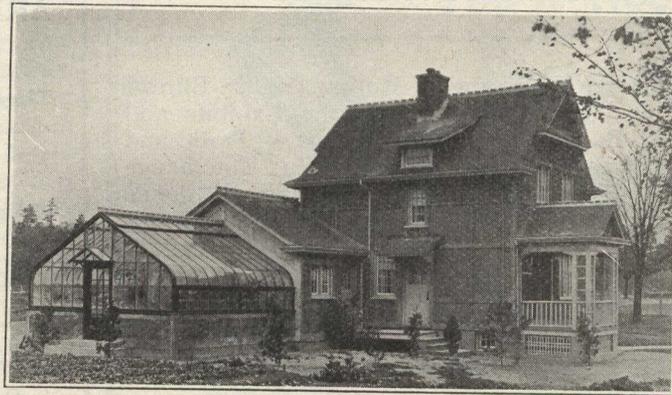
BEYOND JASPER THE TRIANGLE TOUR

Finest Rail and Ocean Trip on the Continent.

Comprising the rail journey Jasper to Prince Rupert; Side trip by boat to Hyder, Alaska, Stewart and Anyox, B. C. on the Portland Canal; from Prince Rupert by steamship through the far famed "Inside Passage" to Vancouver, thence returning by rail through the Valleys of the Fraser and Thompson to Jasper.

Full information and descriptive booklets on application to nearest Canadian National Railways Representative.

Canadian National Railways



Does't Preston Park Greenhouse Hold An Idea For You

The photo tells the story, and suggests exactly how a similar link-up could possibly be done in your park.

There is no use of our wasting words on convincing you of the need of a greenhouse.

You know that even better than we do.

Therefore, the next thing, is to prove to you that we are expert greenhouse builders.

Likewise that every cent you put in our houses is money invested for years and years to come. Glad to give you all the facts and figures you want.

To our printed matter you are most welcome. Now is the time to build a greenhouse.

Lord & Burnham Co. Limited of Canada

Builders of Greenhouses and Conservatories

Main Sale Office

HARBOR COMMISSION BLDG., TORONTO

FACTORY: ST. CATHERINES, ONT.

"BUILD YOUR CAMPFIRE SMALL
A SMALL FIRE COOKS BETTER
AND
IS EASIER PUT OUT."

CAN YOU PUT UP A SIGN
IN YOUR WOODS ?
If So Here Are a Few Suggestions

"KEEP AN EYE ON THIS
FOREST AND
YOU KEEP ALIVE AN INDUSTRY!
IF YOU KILL THE FOREST
YOU KILL YOUR PAL'S JOB."

"ALL THE BIG FIRES
BEGAN AS LITTLE ONES.
KEEP STRICT WATCH ON
YOUR CAMP FIRE!
PUT IT DEAD OUT!"

"HAVE A GOOD TIME
IN THIS WOOD BUT
DON'T SPOIL IT FOR YOUR
NEIGHBOR!
PUT OUT YOUR FIRES!
PUT THEM DEAD OUT!"

Cruising in Nova Scotia

Mr. James A. Connors of the Sewall timber cruising organization of Old Town, Maine, is in Nova Scotia on a short trip.

AS OTHERS SEE IT

Canada's Forest Wealth

(Montreal Star Editorial.)

With the passing of years the potentialities of Canada's forest wealth are becoming more and more apparent. Today the preservation of the forests is a matter of national concern. Just what this means to Canada in the future was pointed out at the recent annual meeting of the American Pulp and Paper Association of New York. Commenting on America's dwindling forests, the Executive Secretary of the Association declared:

"The forests of this country are getting to be further and further away from the mills. More and more we are becoming dependent on Canada for our supply of raw material. There is talk of Canada placing an embargo on wood from freehold lands. There is already an embargo on wood from Crown lands."

Sir Lomer Gouin, who is interested in forestry, recently declared that the pulpwood of Canada was not inexhaustible, and made a special play for tree planting. Canada's losses by forest fires are a pitiable drain on the country's natural resources, and on man's labor. Experts have shown that our fire losses could be reduced by more than one-half if greater zeal was demonstrated in the matter of preventing forest fires through carelessness, and if more satisfying re-stocking methods were in vogue.



Iris and Peonies

Know your favorites in these two beautiful flowers by name.

JUNE is the month when most of these delightful plants unfold their glorious bloom.

Why not visit your local Iris and Peony Show and jot down those sorts which please you most?

From our Maplewood Nurseries we can supply your favorites from our extensive collection of over three hundred varieties.

If you are not on our mailing list—send us your name so that you may receive our Fall catalogue which will be ready early in August

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

Questions and Answers on Forestry

(Circulated weekly by the Canadian Forestry Association to four hundred newspapers)

CANADA AND SWITZERLAND

Q.—How does Canada compare with Switzerland in the annual valuation of tourist traffic?

A.—Tourist travel to the Dominion Parks of Canada last year counted for \$18,000,000 of revenue, but it is estimated that for the whole Dominion foreign visitors are responsible for a financial expenditure in excess of \$70,000,000.00. The tourist traffic of Switzerland is worth \$150,000,000 a year, while France secures \$600,000,000. Of course it is generally recognized that the chief attraction in Canada to foreign travellers is outdoor recreation which, in the truest sense, is a forest product.

BALM OF GILEAD BY NEW METHOD.

Q.—Sometime ago I saw an article in a farm paper that his method of planting Balm of Gilead trees was in cutting poles of same up to three inch butts and plowing them under. He claimed that this method was quite successful. What is your opinion?

A.—The article you saw in the farm paper was correct, and you can grow Balm of Gilead by burying poles in moist ground or in districts where there is plenty of rainfall.

The moisture supply is important for we have seen quite good results on the dry Prairie for a year or two. The young shoots sprang up in large numbers in a wet season but by the third year they were all dead.

The instances we have seen successful were either North in the bush country or in a moist place in the foothills.

We do not think you will find this method worth trying on the dry Prairie. Under irrigation it may be successful but we have never seen it tried.

OAK TREES FROM SPROUTS.

Q.—I have an old stump of an oak tree now sprouting vigorously. How should I proceed to treat these sprouts so as to secure a new oak tree?

A.—Remove all the sprouts except three or four of the most vigorous ones. After a year or two again make a selection and in the Spring remove all but the healthiest sprout, growing closest to the root of the tree. This can be trained by pruning. Apply a brush coat of coal tar creosote to the top of the stump and follow later with a coat of paint as a preservative.

THE RAILWAYS AND FOREST FIRES.

Q.—Are not the railways chiefly to blame for some thousands of forest fires?

A.—They are not. A large proportion of the railway fires are small ones and rapidly extinguished. The worst menace of the forest comes from campers, prospectors, smokers and others travelling through the bush for work or pleasure.

(Continued from page 365)

The runaway reached the incline, and swept on upward. Anxiously the two at the handcar watched. Would the incline check the train?

"I don't believe they're slowing a bit," said Alex nervously.

"They won't until they are half way up," declared the section-man. "But, get ready. We can't wait to see!"

"Go!" he cried. They ran the car forward, leaped aboard, and again were pumping with all their might.

For a few moments the roar behind them seemed to decrease. Then suddenly it broke on them afresh as the head of the train swept over the rise.

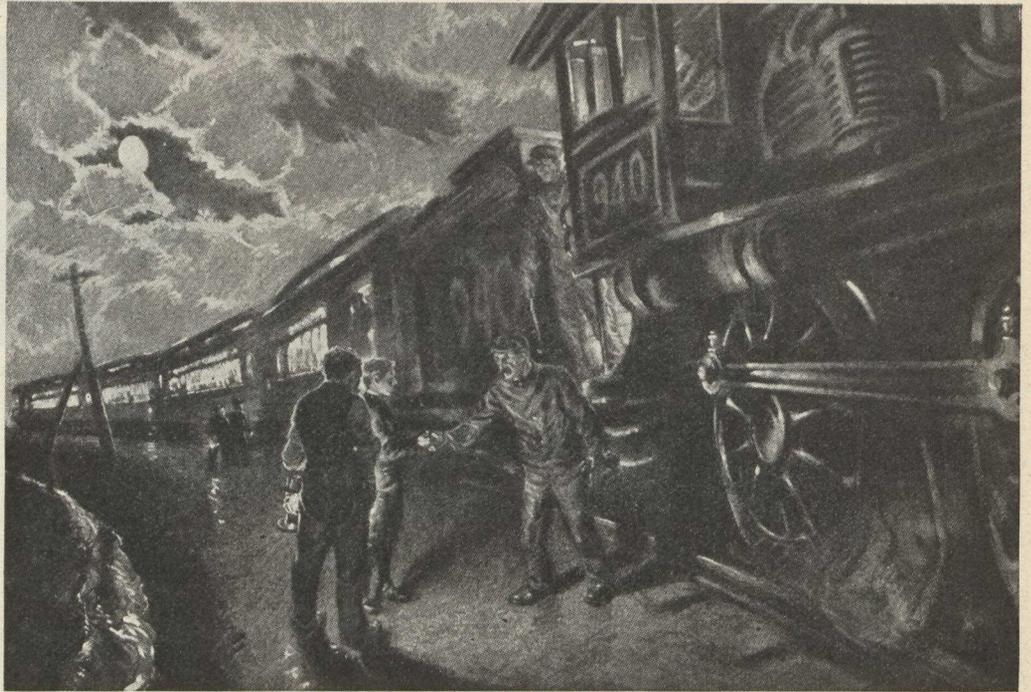
"Now pull yourself together for an extra spurt when I give the word," shouted the foreman, who manned the forward handles, and faced the rear. "Then turn about and get ready to jump."

Roaring, screaming, clanking, the runaways thundered down upon them.

"Hit it up!" cried the section-man. With every muscle tense they whirled the handles up and down like human engines.

"Let go! Turn round!"

Alex sprang back from the flying handles,



The engineer dropped down from his cab

and faced about. The foreman edged by them, and joined him.

Nearer, towering over them, rushed the leading ore car.

"Jump high and grab hard," shouted the foreman. "You take the brake-rod. I can reach the top."

"Ready! Jump!"

With a bound they went into the air, and the great car flung itself at them. Both reached their objectives, and hung on desperately. For a few moments it seemed the leaping car would shake them off. They got their feet on the brake-beam, and in another moment had tumbled headlong over the low end upon the rough surface of ore. Alex sank down in a heap, gasping. The seasoned section-man, however, was on his feet in an instant and at the nearby hand-brake. He tightened it, and scrambled back over the bounding car to the next.

Ten minutes later, screeching and groaning as though in protest, the runaways came to a final stop.

Another ten minutes, and the engineer of the Accommodation suddenly threw on his air as he rounded a curve to discover a lantern swinging across the rails ahead of him.

"Hello there, Jerry! Say, you're getting too slow for a passenger run," said the section foreman humorously as he approached the astonished engineer. "We're going to put you back pushing ore cars. There's a string here just ahead of you."

When he had explained the engineer dropped down from his cab to grasp Alex's hand. "Oh, it was more the foreman than I," Alex declared. "I couldn't have worked it alone."

A moment later the superintendent appeared. "Why, let me see," he exclaimed on seeing Alex. "Are you not the lad I helped fix up an emergency battery at Watson Siding last spring? My boy, young as you are, my name's not Cameron if I don't see that you have a try-out at the division office before the month is out," he announced decisively. "We need men there with a head like yours."

SMOKE

in $\frac{1}{2}$ lb. tins and 15¢ pkts.

OLD CHUM

The Tobacco of Quality

THE PERMIT DODGER

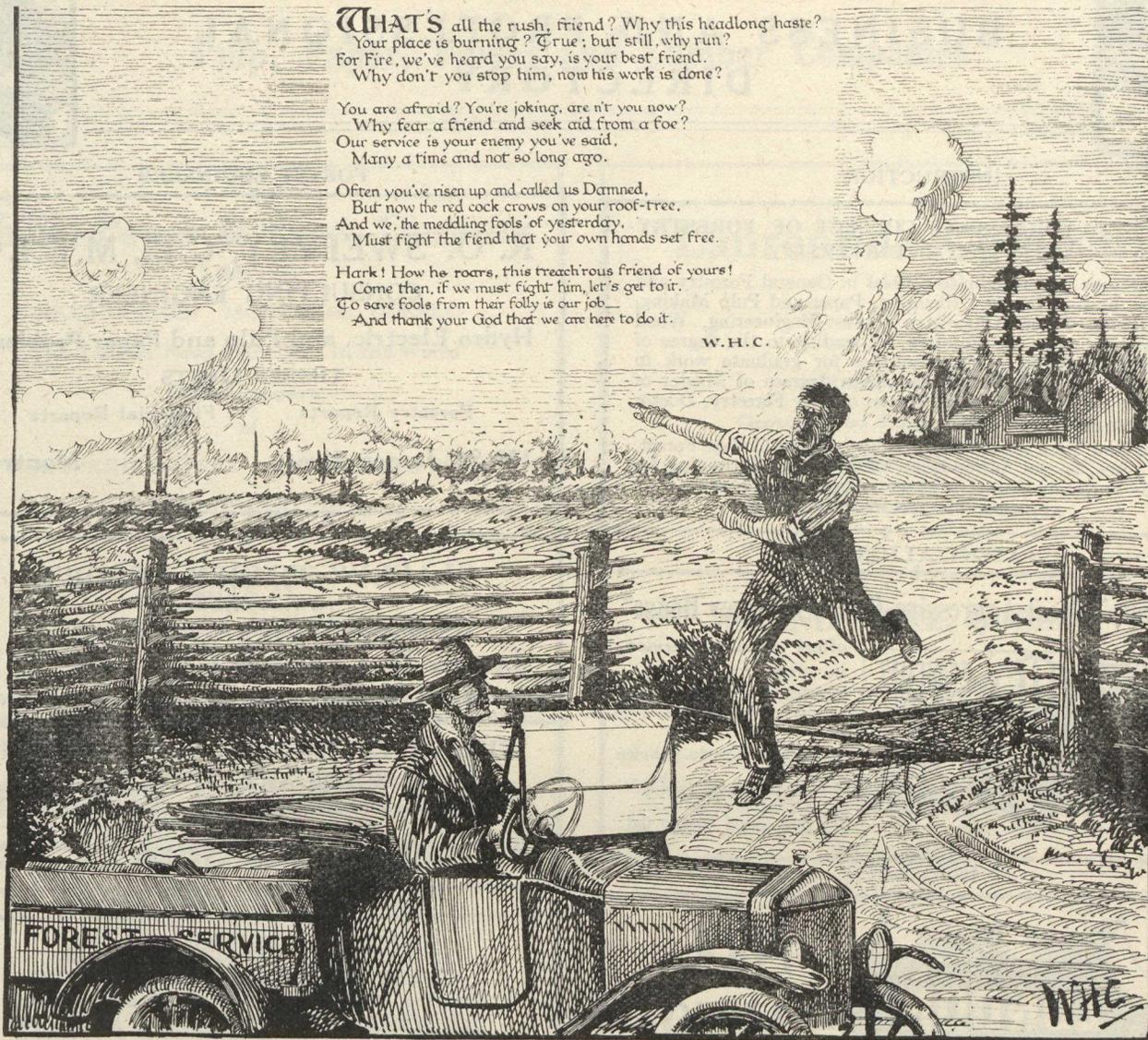
WHAT'S all the rush, friend? Why this headlong haste?
Your place is burning? True: but still, why run?
For Fire, we've heard you say, is your best friend.
Why don't you stop him, now his work is done?

You are afraid? You're joking, are n't you now?
Why fear a friend and seek aid from a foe?
Our service is your enemy you've said,
Many a time and not so long ago.

Often you've risen up and called us Damned,
But now the red cock crows on your roof-tree,
And we, the meddling fools of yesterday,
Must fight the fiend that your own hands set free.

Hark! How he roars, this treacherous friend of yours!
Come then, if we must fight him, let's get to it.
To save fools from their folly is our job—
And thank your God that we are here to do it.

W. H. C.



What

Jaeger
Is

1. "Jaeger" has been developed on the fact, known to all doctors, that Sheep's Wool, Camelhair, Cashmere, Vicuna, and other animal fibres, are the ideal clothing materials.
2. Jaeger descriptions are literal, e.g., if a Jaeger article is described as being made of "Cashmere," it is made only from the hair of the Cashmere goat.
3. Jaeger Garments are well-made and attractive.

A fully illustrated catalogue, including list of Agents, free on application.

For Sale at Jaeger Stores and Agencies throughout Canada.

Look for the Jaeger Label.

The JAEGER CO., Limited

MONTREAL TORONTO WINNIPEG

16



Change Your Rowboat Into a Launch

Clamp a Caille Liberty Drive Rowboat Motor to the stern of your boat and instantly it becomes a fleet little launch. Attaches by simply turning two thumbscrews. The Caille

Liberty Drive ROWBOAT MOTOR

develops 2 H. P. and weighs only 63 lbs. Can be furnished with battery or magneto ignition. Has weedless propeller. Goes through weeds like an eel. Will drive boat anywhere it will float. Let us show you this and other types of Caille rowboat motors. We have a motor to meet every purse.

DISTRIBUTORS:

PERFECTION MOTOR CO. 380 ST. JAMES ST. MONTREAL



BUSINESS AND PROFESSIONAL DIRECTORY

INSTRUCTION

THE NEW YORK STATE COLLEGE OF FORESTRY AT SYRACUSE UNIVERSITY

Four year undergraduate courses in General Forestry and various lines of Forest Utilization, Paper and Pulp Making, Lumbering, Forest Chemistry, Forest Engineering, Wood Technology and City Forestry, all leading to the degree of Bachelor of Science. Opportunities for graduate work in these subjects are offered, leading to degrees of Master of Forestry, Master of Science, Master of City Forestry, Doctor of Philosophy.

The New York State Ranger School, on the College Forest, 1800 acres, in the Adirondacks, offers practical training for Woods Foreman, Estate Manager, Forest Guard, etc.

ADDRESS: FRANKLIN MOON, DEAN

PATENT ATTORNEYS

"Canada's Most Aggressive Patent-Attorney House"



offers excellent service in preparing Canadian and Foreign applications for

Patents & Trade-Marks

"Correspondence Invited"

273 Bank Street, Ottawa, Ont.

INSURANCE



**FIRE:
AUTO:
RIOT**

Security
\$48,000,000

Chief Canadian Office:

14 RICHMOND STREET EAST, TORONTO

ALFRED WRIGHT, Manager A. E. BLOGG, Branch Sec.

ENGINES AND SUPPLIES

DOTY ENGINEERING COMPANY, Limited

Marine Engines and Boilers, Marine Equipment, Tugs, Passenger Steamers, Cargo Boats

York Building, Toronto, Ont.

Anchors	Centrifugal Pumps	Life Rafts and
Anchor Chains	Dredges	Folding Seats
Anchor Wind sses	Deck Machinery	Port Lights
Ash Hoists	Deplex Pumps	Pumps of all kinds
Ash Ejectors	Derricks	Propeller Wheels
Capstans	Electric Light Plants	Scows
Castings	Gasoline Engines	Steering Engines
Compasses	Gasoline Launches	Tanks
Condensers (Jet)	Hoisting Machinery	Towing Machines
Condensers (Surface)	Heaters	Yachts
Combined Air and	Life Boats	Ventilators
Circulating Pumps		

CANADIAN AGENTS MOON ELECTRIC TURBINE GENERATORS

FOREST ENGINEERS

R. O. SWEEZEY, C.E., M.E.I.C. CONSULTING ENGINEER

Hydro Electric, and Pulp and Paper Problems

TIMBER LIMITS

Forestry Reports

Financial Reports

136 St. James Street,

Montreal

"LACEY" TIMBER REPORTS

(42 Years Experience)

TIMBER ESTIMATES & LOGGING MAPS

James D. Lacey & Co.

350 Madison Ave.
New York City

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.

Safe and
Reliable

TIMBER ESTIMATES

Reports
Maps

JAMES W. SEWALL
FOREST ENGINEER

Old Town, Maine. Davidson Building, Washington, D.C.
Largest Cruising House in America

NURSERYMEN

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

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

Shippers to H. M. Government

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

PHOTOGRAPHERS

KODAKS

AERO FILMS

GLADWISH & MITCHELL

Specialists in Kodak Photography

147 Peel Street - Montreal

LANTERNS

X RAY FILMS



Pulp, Paper, Power and Lumber Companies



Abitibi Power & Paper Company

LIMITED

HEAD OFFICE: MONTREAL, QUEBEC

The Largest News Print Mill in the World

Manufacturers

of

NEWSPRINT PAPER SULPHITE PULP

GROUNDWOOD PULP

MILLS AT

IROQUOIS FALLS, ONT.

Laurentide Company

LIMITED

Manufacturers of

Groundwood Pulp, Sulphite Pulp,

Newprint 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, Sulphite Pulp,
Groundwood Pulp

AND

LUMBER OF ALL KINDS

Ontario Paper Company

THOROLD,

ONT.

Manufacturers

of

NEWSPRINT
PAPER

H. R. MacMillan Export Company

Limited

All Pacific Coast Forest Products

Vancouver, British Columbia.

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.O.

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 and Paper
Mills, Limited

Now Published: 1923 (Fifth) Edition

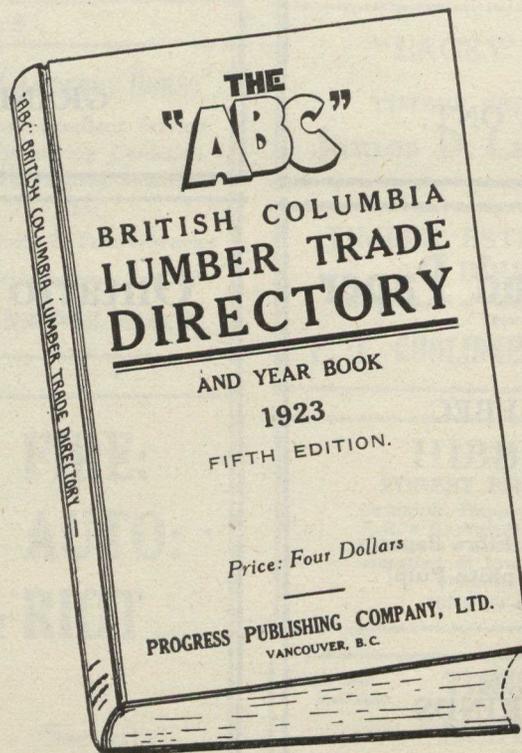
'A.B.C.' British Columbia Lumber Trade Directory

AND YEAR BOOK

A Complete Directory of the Lumber and Logging Trade

CONTENTS

- Section I.**—Official Directory of Government Forestry Branch; Directory of Associations.
- Section II.**—List of Lumber and Shingle Mills giving details of management equipment and capacity.
- Section III.**—Geographical Directory of Mills.
- Section IV.**—Manufacturers of Special Products; Boxes, Sash and Doors, Cooperage, etc.
- Section V.**—Logging Companies with details of management, capacity and equipment.
- Section VI.**—Lumber Wholesalers; Log Brokers, Timber Cruisers.
- Section VII.**—"Who's Who" in the B. C. Lumber Trade.
- Section VIII.**—Towing Companies; Tugboats: Rates.
- Section IX.**—Customs Tariffs on Lumber in Foreign Countries.
- Section X.**—Timber Laws of British Columbia; a Consolidation of all the laws dealing with timber.
- Section XI.**—Technical and Statistical information. A short description of all the commercial woods of B. C.; The B. C. Log Scale complete; Statistics relating to the trade.
- Section XII.**—Buyers' Guide—A directory of Mill Supply Houses.



A FEW TESTIMONIALS

Forest Branch Department of Lands, Victoria.—"Although it is contrary to the practice of the Department to give testimonials to the value of private publications, I can honestly say that the publication has been splendidly prepared and gives most valuable information both to the industry and general public, in fact it is invaluable."

The "Timberman," Portland.—"We find it of much value in our office in getting in touch with British Columbia firms."

B. C. Lumber and Shingle Manufacturers' Association Ltd.—"I want to compliment you on the splendid advance you have made in this year's issue. You are certainly making it of more and more value and I wish you all success."

Shingle Manufacturers' Association of B. C.—"The Directory shows very careful work and is certainly worth the price to anyone who wishes comprehensive information regarding the lumber industry in British Columbia. We have already made practical use of it."

B. C. Loggers Association.—"I notice in addition to bringing the information up-to-date you have added several new and informative sections which should prove very useful and you are to be complimented on the general excellence of the issue."

Timber Industries Council of British Columbia.—"The Directory is a useful and well gotten up publication."

Chapman Lumber Co., Winnipeg.—"We had one of your copies some time ago and found it very valuable."

C. M. McCoy, Minneapolis.—"Thanking you for your promptness in mailing same and congratulating you on the completeness of the book."

"A.B.C." Lumber Trade
Directory.

PROGRESS PUBLISHING CO., LTD.
London Bldg., Vancouver.

Please send on approval one copy of 1923 Edition, cost of which is Four Dollars.

Name

Address

APPRECIATIONS AND ENCOURAGEMENT

From a member at McMurrich, Ontario.

"I received my second copy of the Canadian Forestry Magazine. The contents just suit me to a knock-down."

From Dr. G. J. Hope, Edmonton, Alberta.

"I am very much delighted with your magazine and have been doing what I can to help it along."

From R. W. Manley, Barrister, Wetaskiwin, Alberta.

Be assured that my very best wishes go with you in your work and the magazine is one of the periodicals that I read most regularly.

From J. B. Sibbald, Jr., Jackson Point, Ontario.

"I would certainly appreciate the forwarding of the Canadian Forestry Magazine. I did not know it existed until a friend lent me a copy yesterday."

From J. H. Jenkins, North Vancouver, B.C.

"I would like to congratulate you on the great improvement in the magazine and assure you of my support in all work in connection with Forestry."

From I. C. Prescott, Albert, New Brunswick.

Herewith enclosed please find cheque for \$27.15. \$2.00 is for one year's arrears, and \$25.00 is for a life subscription."

From R. W. MacIntyre, Victoria, B.C.

Please find enclosed annual subscription. Keep the good work going with a solid "punch" back of it to wake up the dormant conscience of the nation before the substance (timber) is replaced by the shadow (smoke).

From Chas. O. Smith, Editor, The Calgary Herald.

"It is part of our policy to support the work in which you are engaged. We strongly approve of it and regard it as a work very valuable to Canada. We frequently quote from the Forestry Magazine in the Herald and find it particularly useful during such campaigns as we are now having in Calgary to arouse interest in tree planting week."

From the Annual Report, G. H. Prince, Esq., Chief Forester of New Brunswick.

"The Canadian Forestry Association made a tour of the Province during January and February lecturing and showing moving pictures. The Forest Exhibits Car made a trip through the Province in October giving lectures illustrated with pictures. In this way a large part of the population was reached with fire protection propaganda and it is felt that this means of educating the people is producing excellent results. The work of the Canadian Forestry Association is showing results in New Brunswick."

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 Chicago, New York, and Montreal 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.
Chicago

335 Windsor Station
Montreal

1270 Broadway
New York

NORTHERN ONTARIO

The Great Clay Belt of Northern Ontario lies one degree south of Winnipeg, and contains millions of acres of virgin soil fit for mixed farming which may be had by returned soldiers and sailors free; to others—18 years and over—50c. per acre.

Information required by intending settlers is found in a booklet on 'Northern Ontario' prepared by direction of the Minister of Agriculture—Honorable Manning Doherty, and may be had free on application.

Write

H. A. MACDONELL

Director of Colonization,

Parliament Buildings, Toronto, Ontario.

Canadian National Railways

DEPARTMENT OF COLONIZATION AND DEVELOPMENT

Inquiries Invited and Information Given
on

Opportunities in Canada

For investment of capital in development of industrial, mining, sylvan industries and water powers.

Opportunities for the individual in farming, business and other openings.

The lines of the Canadian National Railways serve the nine provinces of Canada, its principal towns and cities, and a vast undeveloped area containing unmeasured natural resources that offer unequalled opportunities.

*Write—Department of Colonization and Development,
Canadian National Railways*

Chicago, Ill., 316-18 Marquette Bldg.	Seattle, Wash., 902 Second Ave.
Boston, Maine, 294 Washington St.	Edmonton, Cor. Jasper & 100th St.
Winnipeg, Man., Union Station.	Montreal, Gen. Offices, M'Gill St.

B.C. PAY ROLLS MENACED

Land clearing with its subsequent slash disposal is an ever present problem with the settlers in British Columbia. It is erroneous to suppose that anyone is opposed to slash disposal for land clearing purposes. In addition to the necessity of getting the land ready for the plough, there is the fact that so long as the slash remains on the ground it constitutes a hazard, which if ignited at the wrong time may do incalculable damage. Unregulated burning has demonstrated to the settlers in British Columbia the necessity of extreme care with fire.

Settlers on lands tributary to Railroads realize that the destruction of their tie and pole timber by fire means the termination of their winter pay roll.

Year after year British Columbian settlers are reaping their crop of tie and pole timbers. If a tree only contains one tie its sale value means fifty cents. It is, therefore, obvious that the prosperity of the settler in British Columbia, depends not only on the success of his agricultural crop; but on his ability to protect his timber from fire and to give the young growth a chance. Thus will he keep his winter pay roll in perpetuity.

DEPENDENT ON CANADA

“The problem of the raw material supply is one of the big problems of the industry,” said Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp association. “Ninety-five per cent. of the 7,000,000 tons of paper made annually in the United States are made wholly or in part from wood. The forests are getting to be further and further away from the mills. More and more are we becoming dependent on Canada for our supply of raw material. There is talk of Canada placing an embargo on wood from freehold lands. There is already an embargo on wood from crown lands.

“A way must be found to protect what we have left, and to produce new forests. We have an aggressive reforestation plan. We have all the land we need necessary for a reforestation programme. If the idle land in New York state alone were covered with forests we would have between eight and nine million acres of forests, and it would make us independent of Canada.”

A Canadian Pacific Hotel ~ Atop o' Old Quebec



The Chateau Frontenac, Québec

A metropolitan hotel in the most historic city of North America. Commandingly situated on Dufferin Terrace. An ideal centre for the tourist or business man. Prior to June 1st, 1923, when additional construction which has been in progress for some time will be completed, the capacity of the Chateau Frontenac will be doubled.

Come this Summer

Make Early Reservation

**CHATEAU
FRONTENAC**

**B. C. Settlers Become
Forest Protectors**

British Columbian settlers, realizing that their homes, crops, and woodlots are annually threatened with destruction by Forest Fires, are proving themselves willing to assist the authorities in Fire control.

Many of these Public spirited citi-

zens are volunteering their services as Honorary Fire Wardens, to assist Forest Officers in the prevention, detection and suppression of Fires.

They realize that it is to the mutual benefit of all to combat a menace which threatens the destruction of the country's Forest wealth.

Previous years have demonstrated that where communities have been organized under Forest Officers, prior to the fire season, quick action is assured in attacking a fire while it is in an incipient stage.



POSTAGE STAMPS FOR COLLECTORS

SPECIAL BARGAIN SETS: BEST EVER OFFERED

All these Prices are Strictly Net. Postage 3 cents extra

No two stamps alike in any set or packet. Terms:—Cash with order. Compare our prices with other dealers, they are the cheapest in America. Everything guaranteed on a money back if you want it basis. You take no risk in buying EMCO GOODS



Main catalog table listing various countries and their postage stamp prices. Includes columns for country names and prices in dollars and cents.

GENERAL VARIETY PACKETS table listing different packet sizes and their prices.

TESTIMONIALS section containing customer feedback and quotes about the quality and value of the stamp collections.

FRENCH COLONIAL PACKETS and PORTUGUESE COLONIES table listing specific colonial stamp sets and their prices.

Others up to 20,000 varieties. Ask for prospectus. Packets 3,000 and up on a return plan. Ask about it

NEW 140 PAGE CATALOG NOW READY 10c WHOLESALE—RETAIL 10c Single Stamps—Sets—Packets—Supplies, Etc Send 10c asking for list No. 72

If you are interested in buying Stamps at Bargain Prices look over above offers carefully. We make this statement without fear of competition. Compare our prices with other dealers---They are 25 to 100% cheaper.

SEND ALL ORDERS OR LETTERS DIRECT TO MARKS STAMP Co. Dept. F., 462 Spadina Ave., Toronto, Canada ESTABLISHED 1891. OLDEST AND LARGEST STAMP FIRM IN BR-TISH NORTH AMERICA

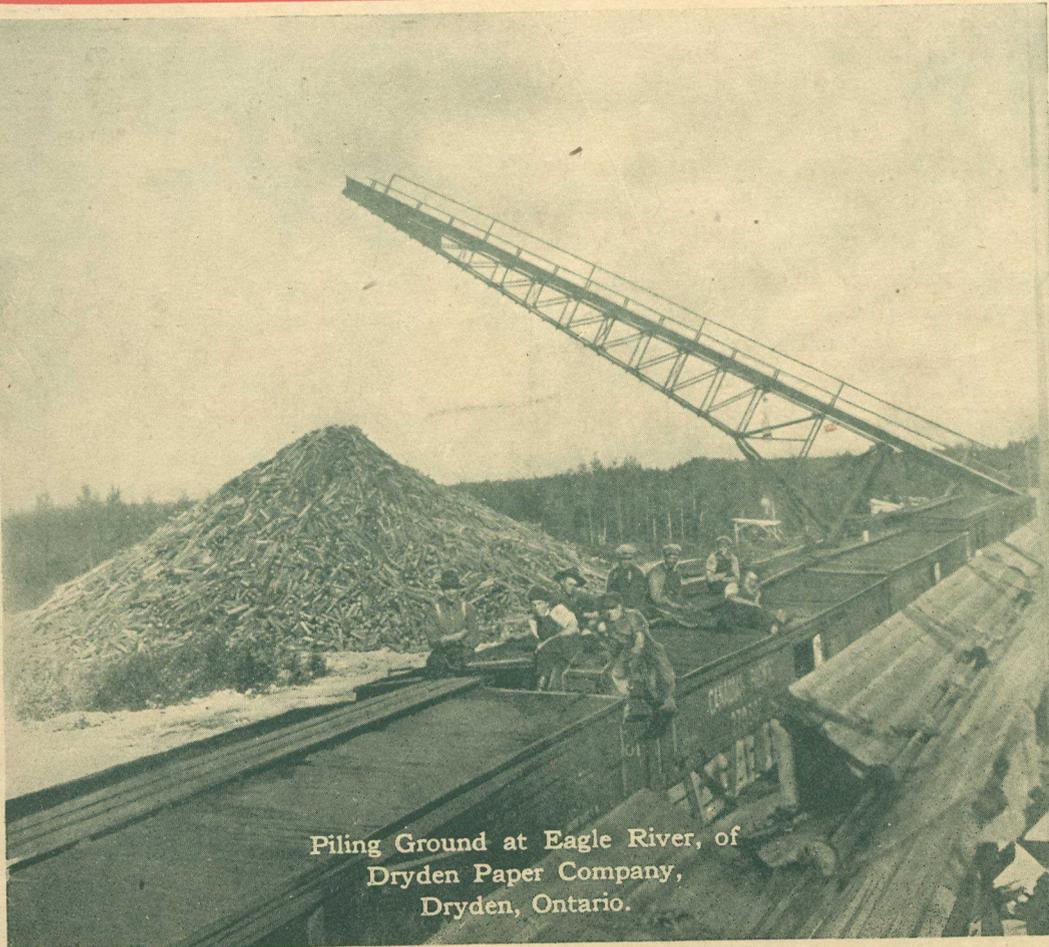
STACKERS AND CONVEYORS

Designed and built
to meet local
conditions most
economically and
efficiently

Let our engineering
department help
you with your
next stacker or
conveyor

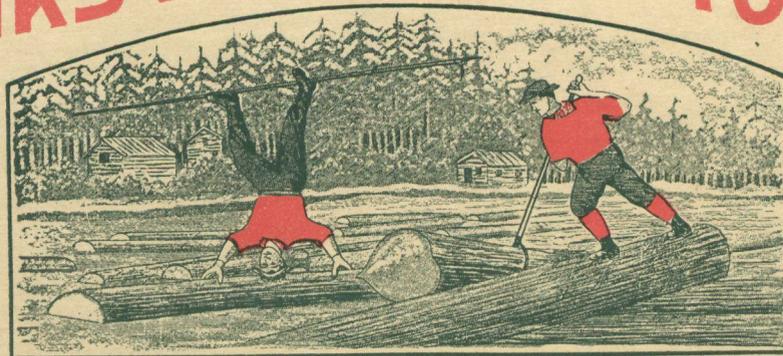
**The Waterous
Engine Works
Co., Ltd.**

BRANTFORD, CANADA



Piling Ground at Eagle River, of
Dryden Paper Company,
Dryden, Ontario.

PINK'S LUMBERING TOOLS



Boom Chains
Boat Winches
Pike Poles
Peavies
Cant Dogs

Loading Blocks
Loading Chains
Piling Hooks
Lumbermen's Boats
Hookaroons
Timber Carriers

Timber Dollies
Snow Ploughs
Horse Capstans
Whiffletrees
Neck Yokes

Sockets
Bands and Bolts
Car Starters
Marking Hammers
Saw Wedges

Manufactured by

The Thomas Pink Company, Limited.

Pembroke, Ontario

PERFORMANCES **EXCEED** EXPECTATIONS

This has been the satisfactory experience of Linn Tractor Operators during the past season.

Although thoroughly convinced of the Linn's hauling capacity under winter conditions in the Canadian woods, we have hesitated to go on record as to definite performances under varying conditions.

OUR CONFIDENCE IN THE LINN HAS BEEN ABUNDANTLY JUSTIFIED

Unsolicited testimonials from various Linn Operators are the best assurances we can offer of the Linn's efficiency.



Linn Logging Tractor on Operation of Austin and Nicholson Ltd., Esher, Ont. Hauling distance 7 miles—maximum days hauling—2885 logs equivalent to 225 cords.

With regard to the operation pictured above, Mr. George B. Nicholson, under date of March 26th states in part:—

“We have now had the Linn Logging Tractor purchased from you in operation a little over two months and we are pleased to advise that it is more than fulfilling our expectations as to its work”.

**OTHER LINN OPERATORS HAVE ATTAINED EQUALLY
GRATIFYING RESULTS**

Let us explain how the Linn will aid in solving your Log-Hauling Problems

—LOGGING DEPARTMENT—

MUSSENS LIMITED
PHILIPS PLACE BUILDING MONTREAL