

The Illustrated

CANADIAN FORESTRY

Magazine

VOL. XIX

OTTAWA, CANADA, APRIL, 1923

No 4

***This Issue
Contains: -***

—
***John R. Booth
Speaks Out***

—
***Exporting Scenery
at 2000 per cent.***
By Robson Black

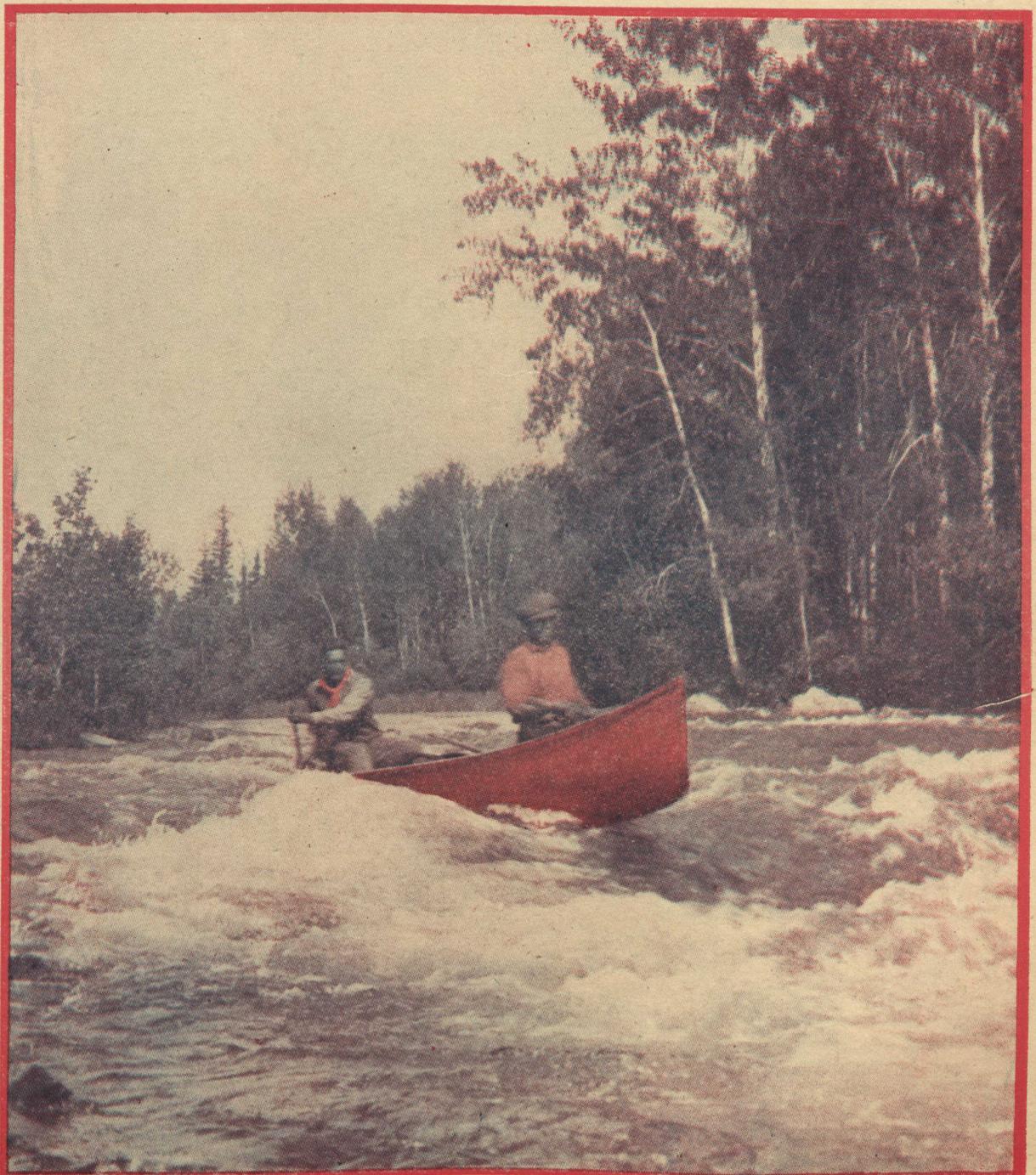
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***The Story of
F. J. D. Barnjum***

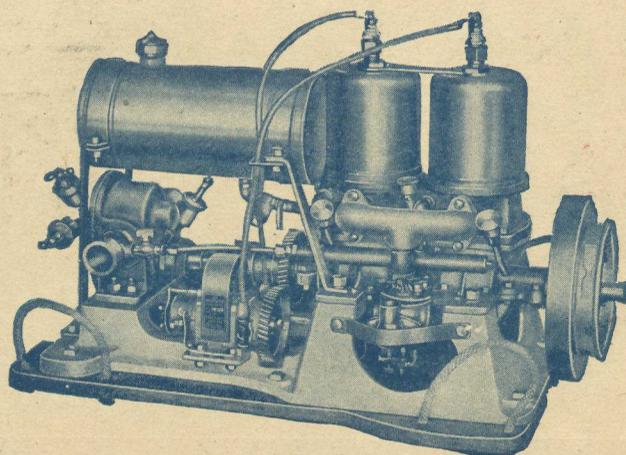
—
***Forests and Wild
Life***
By J. McArthur

—
***The Canada Gander
-- A Gallant Bird***
By P. A. Taverner

—
***Tree-Planting
Articles***
by well-known experts

—
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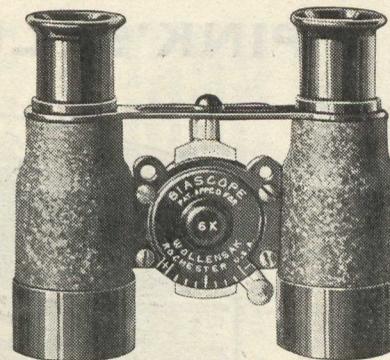
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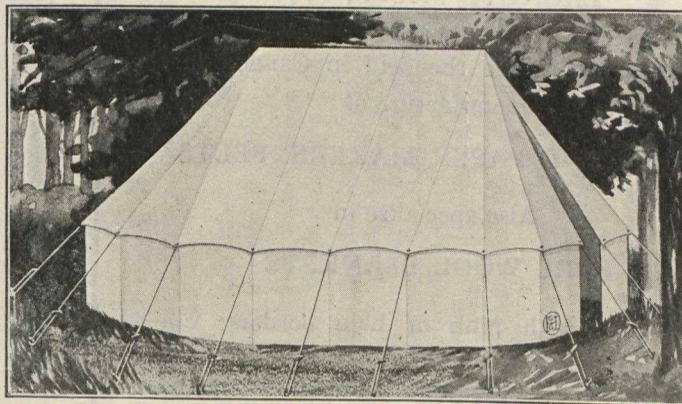
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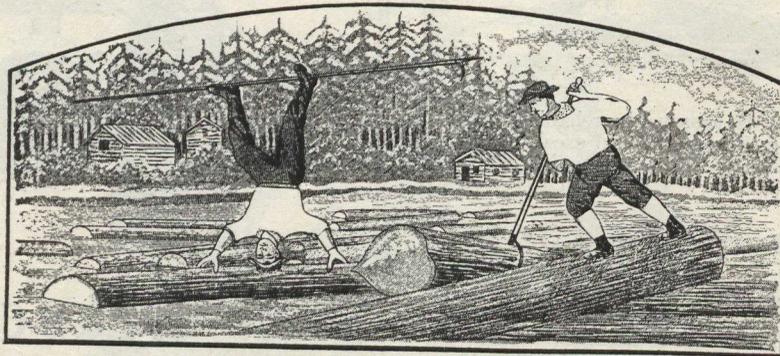
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THIRD ROW:—J. H. Schamahorn, Moose Jaw; Harry Wells, Saskatoon; Jas. Mossop, Estevan; J. Henderson, Dauphin; T. S. Riley, Winnipeg; E. A. Beach, Nokomis; R. E. Robertson, Calgary, not in photo, but attended school.
STANDING:—Instructors—Geo. Wicklow, Farms Manager; W. A. Begg, Prov. Director of Town Planning, Regina; T. A. Torgeson, Managing-Director; E. C. Hilborn, Landscape Architect, Valley City, N. Dakota; W. B. Hekhouse, Sales Manager.

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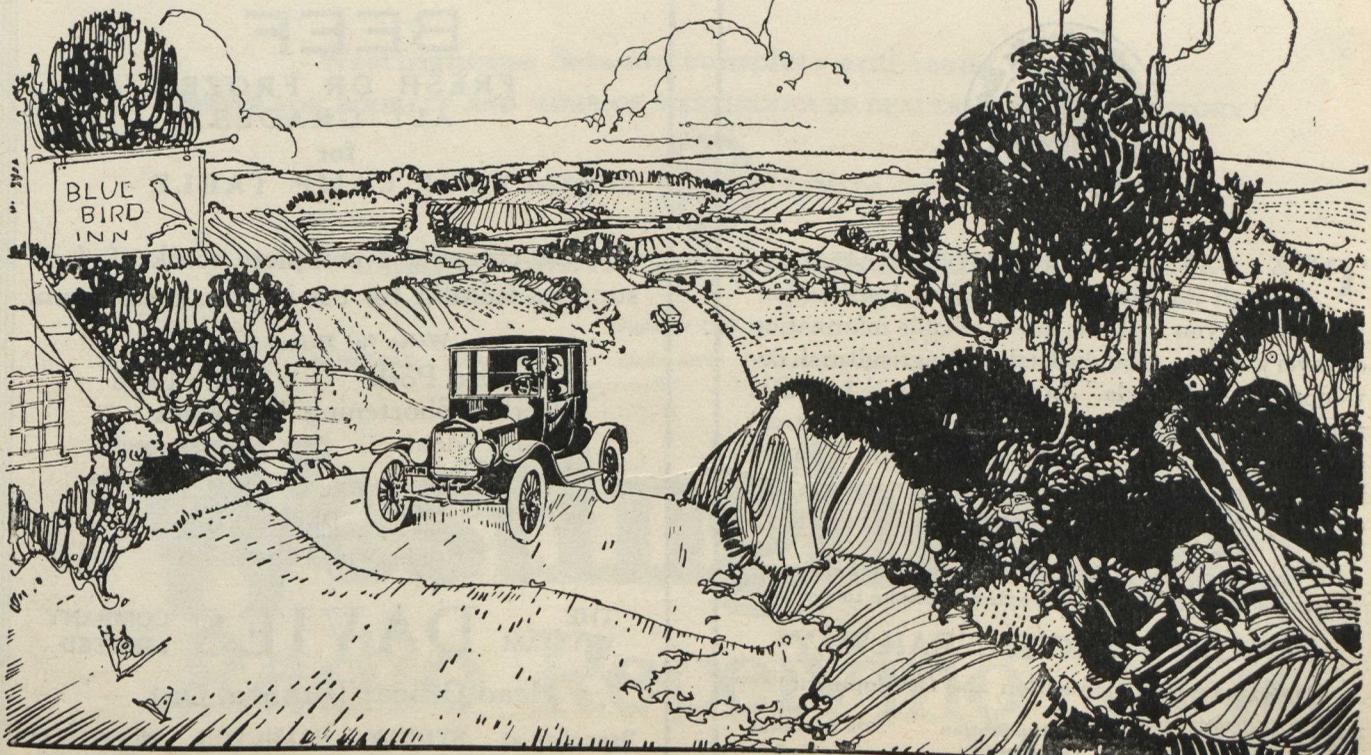
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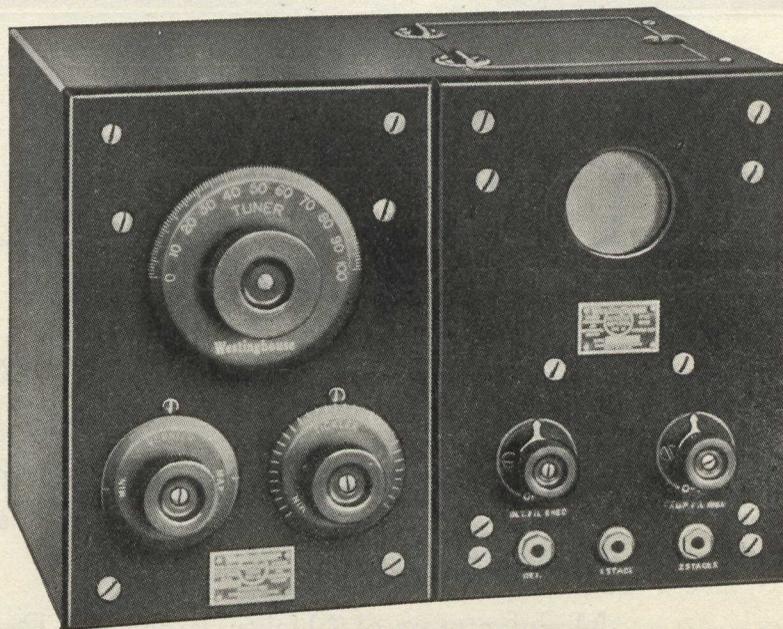
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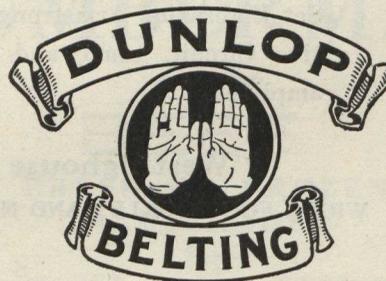
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THE ILLUSTRATED CANADIAN FORESTRY MAGAZINE



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

VOL. XIX

OTTAWA, CANADA, APRIL, 1923

No. 4

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.

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Messrs. Mussels Ltd.,
Montreal, Que.

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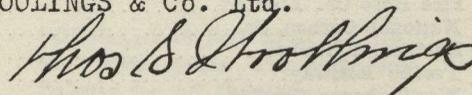
This brings the actual hauling cost to 30,4/10ths of a cent per cord. Previously, with horses, our costs on this haul were between \$1.50 and \$1.60 per cord.

Would say, further, that if we had had the necessary sleigh equipment at the start, we could have reduced these hauling charges considerably. We were delayed the first four weeks in getting the necessary sleighs into shape.

You can use this letter any way you see fit, and we shall be pleased to give you any further information.

Yours truly,

T.S. WOOLLINGS & Co. Ltd.



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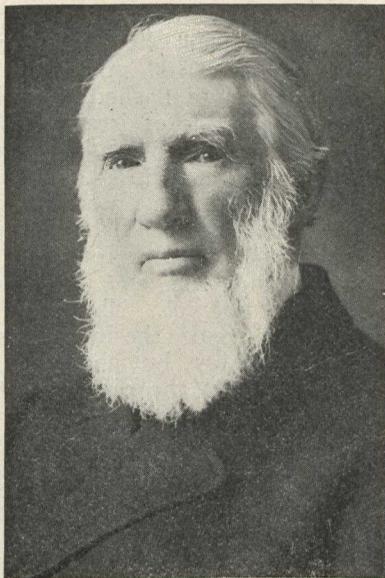
John R. Booth, Timber Veteran, Speaks Out

Canada's Tragic Loss of Forests Viewed Through the Eyes of a Noted Captain of Industry, Now in 97th year.

ON April 5th, John Rudolphus Booth, the Grand Old Man of the Lumber Industry of Canada, stepped briskly into his 97th year.

Canada has marched a long and perplexing path since 1827, twelve years after the Battle of Waterloo, when J. R. Booth first saw the light of day. A densely packed Empire of timber has dwindled to about a third of its old time dimensions. Population has increased but our guardianship of the forest against the chief plague of Fire has by no means kept pace with the expanding hazards.

To seek the view of one who has filled a long scroll of experience, the Editor of the Canadian Forestry Magazine paid a call upon Mr. Booth a few days prior to his birthday. Conversation presently drifted to some recent newspaper references



JOHN R. BOOTH

to 'lumber barons,' and Mr. Booth spoke out pointedly.

"People seem to think that the successful business man they call a 'baron' has had his wealth wished on him. They think he came into easy money by a government favor. I never secured an acre of timber from any government except in open competition and as the highest bidder. I paid the maximum price asked for it and any other man could have had it if he were willing to pay more. Favoritism played no part whatever."

A Word on Timber "Barons"

Mr. Booth was reminded that a fellow lumberman had reckoned from actual experience that 85 per cent of the so-called "barons" went into bankruptcy.

"I do not believe that even 15 per cent of operating lumbermen make

Mr. Booth believes that for every tree taken out by the woodman's axe, twenty have been destroyed by fire.



Plate reproduced by courtesy of the American Forestry Magazine.

any profit over a long period of years," he responded. "I have in mind not only the hundreds of small operators who thrived a while and went out of business 'broke' or nearly so, but the big lumbermen as well. Six out of seven in one district I know retired from the field either with no gains at all or with a loss up to a few hundred thousands.

"And yet, the public mind" continued Mr. Booth, "is stuffed with false notions that because a man is in the lumber business with a government limit, he has taken an unfair advantage of his fellow men and is a fit target for punishment. I do not think that the people are prejudiced against lumbermen, as individuals, but they do feel some bitterness toward men who are dealing in the leased property of the state. They are ready to exclaim: 'That man has established a big industry founded on public-owned timber lands,' forgetting that for every dollar the lumberman takes out for himself, the workers, the merchants, the railroads, the public treasury, all take many dollars.

"Does public ignorance of the lumberman's position account for so many of the forest fires?"

"It does account for the swarm of prospectors' fires" he replied with sudden energy: "Take for example our Montreal River limit, 1,700 square miles that we bought a few years ago for \$300,000 in open competition. That, of course is not the final payment, for ground rent, fire taxes, and cutting dues must be added. That country was absolutely green at the time we bought. Spruce stood as thick almost as corn stalks—

a beautiful country, as fine as ever I saw. I could not find traces of a single fire over the whole extent. Well, we had it only a short time when it was opened to prospectors, opened, mind you, without evidence of a solitary mineral showing on any part of it, no preliminary survey by geologists. To this day, not a mine nor a real prospect has been uncovered on that 1,700 miles, but,"

Mr. Booth's eyes flashed a world of feeling, "a horde of irresponsible men seeking non-existent mines have destroyed from one third to a half of that country. They have ruined as much timber as would have kept our Ottawa mills running for twenty-five years and the end of their devastation is not yet. The lumberman made the roads, the lumberman paid for the timber, but the government opened wide the doors to the prospector whose first incentive is to spread fire and clear off the surface of the rocks.

The Prospector to Blame

"I know the history of some of our forests for seventy-five years and I am frank to say that I believe every dollar's worth of mineral taken from forested lands has cost the country a hundred dollars in destroyed timber. Why not make a business-like calculation of the price we pay for letting loose the prospector on the country's fast-depleting stock of timber? The showing would make us rub our eyes."

"Running back over your own life as an operator, what proportion of trees of timber size have been taken

out by the axe as compared with those destroyed by fire?"

"I would say one to twenty. That's well within the mark."

"So that with fire eliminated Canada would have had a self-perpetuating forest supply for all time to come?"

"With the larger limit holders that would undoubtedly be true. The nation has been forced to the edge of a timber dilemma not by the lumberjack but by forest fire."

"And who will pay the piper in the end?"

"The consumer of forest products will pay at his lumber yard. And he will pay through his daily and weekly newspaper. Prices for all forest products must ascend. Nothing can stop them."

Mr. Booth spoke of some old documents he had been rummaging through that morning. One of them referred to lumber sales seventy-five years ago when the price of sawn white pine was just twelve and thirteen dollars a thousand feet. The price for the same grade in 1923 is close to eighty dollars a thousand feet.

"I can see no other remedy for the ever-increasing ruin of the forest resources of this country," observed Mr. Booth, "except to let the people bring themselves to such a tragic condition of scarce timber and pulpwood with extreme costs for every foot or cord they buy that some drastic cure will be sought and applied. Forest Conservation will arrive when the absence of it pinches our population hard enough."

ODD PIECES FROM CHILD ESSAYS

Herewith is published the final instalment of "sentence sermons" culled from School Child Essays in the recent Canadian Forestry Association Contest. As stated previously these are not published to hold the youthful writers up to ridicule but merely to show the naive lines along which youthful minds function.

* * *

"Trees are to a town as trimming to a dress."

* * *

"As long as there are thinking men in this world forestry cannot die."

* * *

"University students out for rangers go to sleep for a day and report no fires."

* * *

"When the forest is not on fire it is useful for Canada to pay her war debts."

"A man who plants a tree and cares for it has added at least his mite to God's creation."

* * *

"Think of the thousands of millions of men in Canada employed in the lumber industry."

* * *

"For the man or men who start forest fires should have a summons of one year to a year and a half and hard labor."

* * *

"Forest insects such as bark beetles, weevils, etc., may be killed by spraying the trees with the color of strong tea, whale oil, soap and kerosene emulsion. The borers may be destroyed by removing the tree that has them."

Exporting Scenery at 2000 per cent Profit

Cheering Facts of Canada's Investment in National Parks,
a Public Ownership 'Gusher'

By Robson Black

THERE is one great thing about the export of Scenery. The warehouse inventory never shows any outgo. At the same time, the buyer's inventory does show an acquisition. One side disposes, the other side acquires. And yet the shelves remain undepleted. That is a happy side of building up tourist business in Canada. Truly is it a Forest Product because the lures that draw foreign visitors to Canada in Summer time would look rather ineffective if the beauty and service of trees and forests were suddenly removed. Camping, fishing, hunting, tramping, motoring, sight seeing, are not for the bare veldt.

Canada's National Parks, maintained and developed at public expense, represent a source of profitable commerce as well as a recreational safeguard. One does not necessarily depreciate the ethical value of a thing by pointing to its record as a money maker. France is none the less artistically inclined because over half a billion dollars a year comes out of tourist travel to French centres of art and industry.

How Tourist Traffic Pays.

Canada's National Parks are a more and more powerful magnet for foreign travellers. In the fiscal year to April first, 1922, visitors to our National parks totalled 166,206. Approximately 112,000 of these went to the large scenic parks in the Rockies. Registrations at the various hotels showed that about 65,000 of these were from foreign countries. It is difficult to say just how much the average foreigner spends in Canada. This sum may run anywhere from \$100 (it is seldom less than that in the Rockies) to several thousands. Tourist experts say \$300 is a very low average estimate. Taking \$300

as a basis and discounting the above figures by 15,000 to eliminate possible overlapping in registrations where visitors go from one park to another, it is clear that the National parks brought at least \$18,000,000 foreign money into Canada in the last year in addition to the services they rendered Canadians themselves and the direct revenue derived from park licenses, sale of privileges, timber, etc., which in 1921-22 amounted

forming an investment on capital account which will bring in its own revenue in the near future. It is expected that in three or four years traffic over the Banff-Windermere road will reach 10,000 cars a year. If these cars stay only one day in Canada and spend \$20.00 per car, (considered a low estimate) it would mean \$200,000 brought into Canada by this road. It is probable most of them will spend from 5 to 15 days in Canada, so that we should get a revenue of anywhere from \$1,000,000 to \$2,000,000 in one year, or almost the entire cost of the road.

The Low Cost of Our Parks.

The total appropriations for Dominion parks since 1896 have been a little over \$6,000,000. That is, the whole expenditure for the maintenance and development of the parks in 26 years has been only about one-third the foreign revenue the parks brought into the country last year.

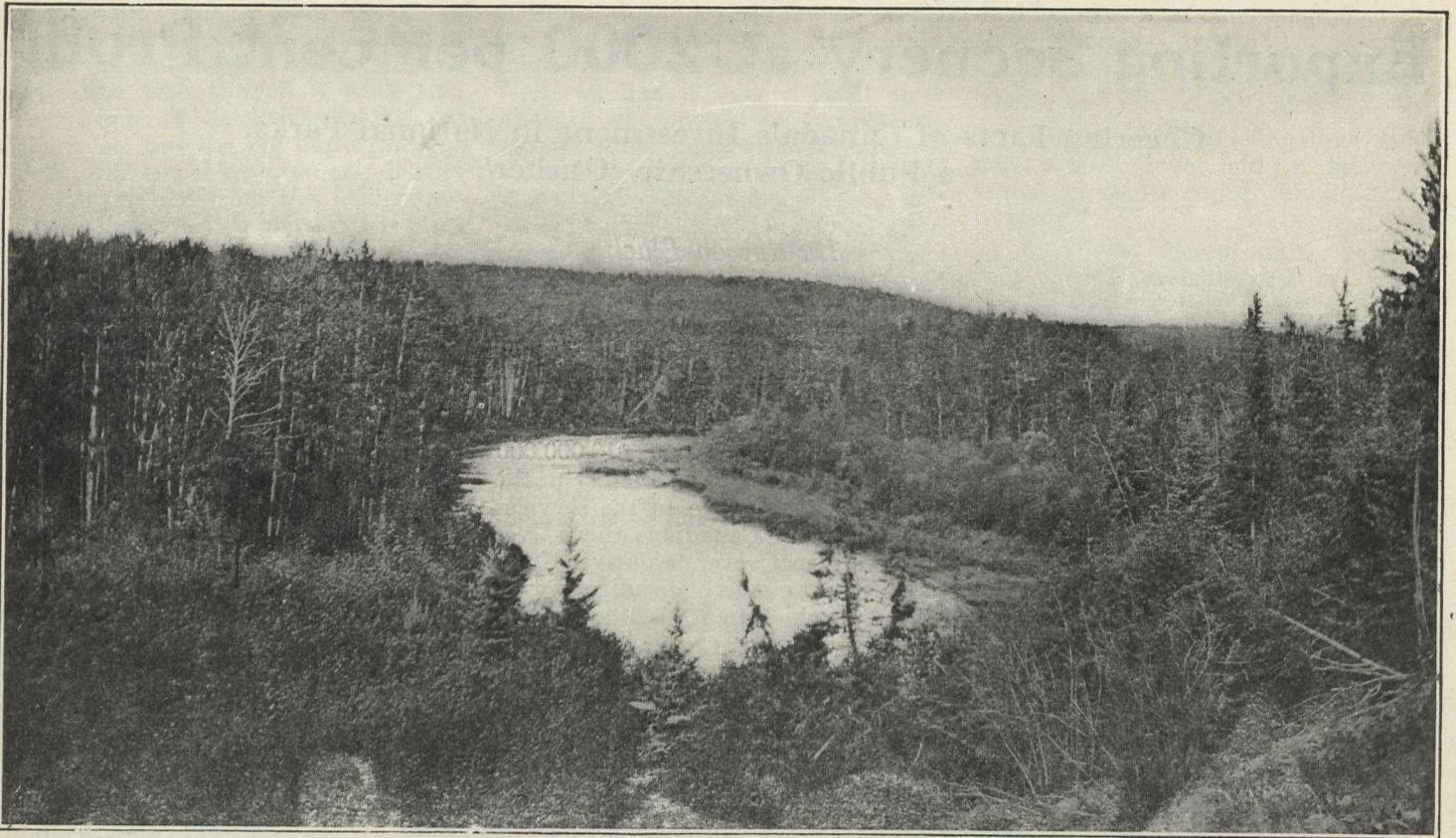
Travel to the National parks is merely in its infancy. They have only begun to be known both at home and abroad. The possibilities of development in this direction are best shown by the experience of the United States National parks. About 1916 the United States government began an active policy of development and publicity with regard to its national parks. In 1917 the appropriations for parks were \$784,566.67. They have steadily increased each year and last year totalled approximately \$1,500,000. In 1919 it is reported the Railroad Administration devoted about \$400,000 to publicity with a view to encouraging travel to the United States National parks. What was the result? Tourist travel to the United States National parks in 1916 was 356,097, in 1920 it was 919,504, in 1922, 1,044,502. The Director of the United States Parks



Photo Dominion Parks Branch

A typical scene in the Canadian Rockies. Camp in Byng Pass 4 miles east of Twin Tree Lake.

to \$72,000. Capitalized on a basis of 5% it means that the national parks are now worth \$300,000,000 to the people of Canada. The total appropriations for parks in 1921-22 were \$966,000, the indirect revenue, as I have shown, \$18,000,000 which represents a return of nearly 2,000 per cent. on the investment. It must be remembered too that a considerable part of the appropriation was spent on new construction—notably on the Banff-Windermere highway—



Forest along La Biche River

Service estimates that each visitor spends at least \$100 on his tour and shows that the parks last year brought in over 100 million dollars to the Western United States. It is evident from the above that an active policy of development and publicity can raise the value of the parks indefinitely simply by developing the use that is made of them.

Noted travellers declare that the Canadian National Parks contain the finest scenery to be found on this continent, scenery that is capable of attracting visitors from all over the globe. But there must be an active policy of development and publicity to convert that scenery into actual wealth. So long as it is unused it is only potential wealth. But there is perhaps no business which will give

such quick and satisfactory returns for the same expenditure of energy. One of the best examples of the results that can be secured in this regard is Southern California. Twenty years ago Southern California had a small population and a very limited prosperity. To-day simply as a result of advertising her scenery and her climate and developing her roads and attractions she enjoys a revenue of \$300,000,000 yearly from tourist travel.

Five years ago tourist traffic into the Pacific Northwest was worth only \$7,000,000. In 1921, as a result of organized publicity, it reached \$40,000,000 and is said to have totalled \$60,000,000 in 1922. An industry that can be developed from \$7,000,000 to \$60,000,000 in 5 years by the ex-

penditure of a few hundred thousand dollars must be taken into consideration by every economist.

The State of Maine derives about \$40,000,000 a year from tourist travel, the Adirondacks \$7,000,000.

Tourist travel to Vancouver now reaches \$7,000,000 a year, while Montreal derives about \$6,000,000. These appear large sums but they are small in comparison with the pre-war revenues of European countries.

| | |
|------------------|---------------|
| France | \$600,000,000 |
| Switzerland . . | 150,000,000 |
| Italy | 100,000,000 |
| Rhine | 50,000,000 |

American visitors abroad are estimated to have spent \$450,000,000 a year, while \$700,000,000 in all is spent by people of the United States in travel for pleasure each year.

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!

The Story of Frank J. D. Barnjum

A Romance of the Forest—From the First Boyhood Venture in Montreal to the Final Task of Economic Reformer.

By Frederic Robson

NO IDEA runs very far," says George Horace Lorimer, "unless there's steam behind it." It is only in very recent years that Canadians have adopted the distinctive American device of backing a live idea with a "campaign." Everything, south of the line, turns on a campaign. Propaganda rose to its present amazing dimensions because great causes, important reforms, were not studied by legislators on their merits. The alternative of honest citizens concerned in public enterprises was to "put on a big show" and by the bigness of the show could be forecasted, quite commonly, the size and intensity of the discussion on "the floor of the House."

The similar propensity of Canadians to await a "campaign" before a nationally vital idea is ushered to the front benches is in itself sufficient to account for the phenomenon of F. J. D. Barnjum. He is a Reformer with a highly successful business career behind him. He built that career on foretelling future demand and future supply of timber. The experience brought him a wealth of specialized knowledge, most of which flatly contradicted the indolent conclusions of Canadian and American citizens that timber leaped from the soil like buttercups, and anyway "we've enough pine for two hundred years." Because he knew the public mind was stuffed with so much hokum on forest resources, and would stumble to the edge of the precipice unless shocked into an effort at self preservation, he disposed of all business interests in the United States a number of years ago and finally retired from business three years back and took on the thankless and expensive job of breaking lances on the Castles of Inertia.

F. J. D. Barnjum has a pretty instinct for propaganda. Without being a trained publicist, his shrewdness shows him the working principles

of "sentiment making." Wisely he does one thing at a time. The public has no mind for generalities. Therefore, Mr. Barnjum particularizes. "The embargo on unmanufactured wood shipped from Canada" is enough for public digestion in the first stage of economic convalescence. "Why close the bung and leave the faucet open?" he asks point blank. Three hundred editors help him talk it up. Every member of the House of

man knows the facts of our timber situation better than I do, let him put his story where the people can read it; let him step out from the wings and make his address."

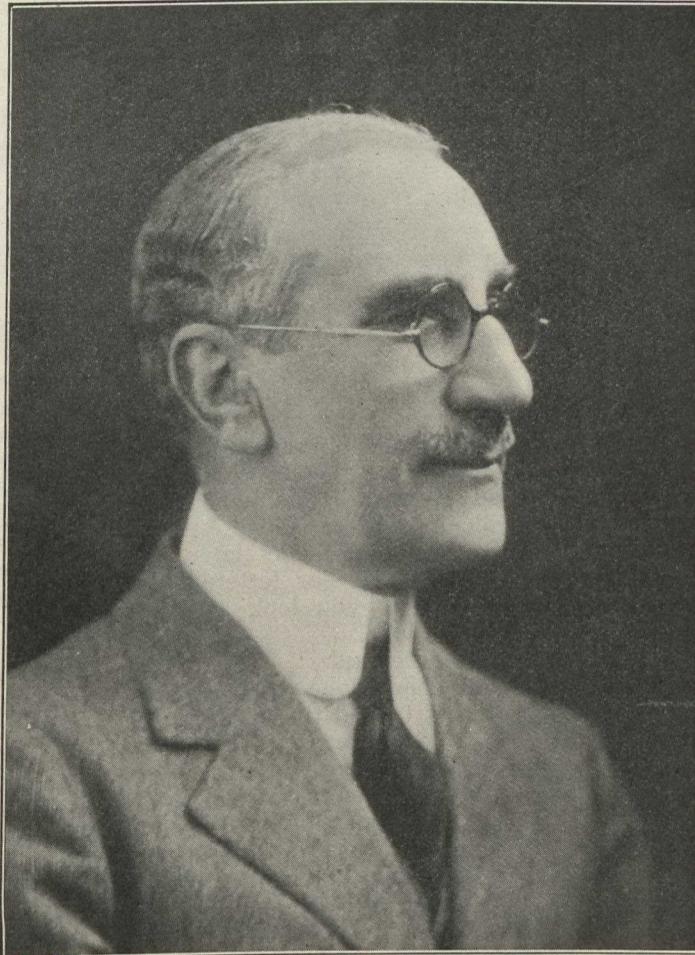
The other day, effect followed cause. Forest conservation came up for an airing in the House of Commons, a nice polite airing. Instantly the skies rained "Barnjum." The Right Hon. Mr. Meighen paid high tribute; the Hon. Mr. Fielding made it even stronger; other honorable members spoke by the book—(and they were Barnjum's books.) The whole atmosphere was sympathetic. The idea of that pulpwood embargo reached two thirds way across the gap. Next time—well, who will predict?

And just to think that nothing under the sun was a deader issue than this pulpwood embargo twelve months ago! "To advertise an Idea," said Mr. Barnjum to the writer, "is to bring it before the only jury that counts. If it's wrong you'll mighty soon know it. If it's right, the Public are shrewd to recognize it. Abraham Lincoln said that he always told the public the most sensible and honest things he could think of and seldom was disappointed."

Mr. Barnjum is long accustomed to hurling facts against unresponsive ears. He made a fortune in Maine by telling men who wouldn't listen that their timberlands would treble in value in two years and then, on their refusal, buying the lands for himself and capturing that three hundred per cent. He did that thing so often that you can't wonder nowadays

why he trusts to the integrity of his own judgment and asserts his case "as one that believeth."

You've done your own puzzling over that name, haven't you? "Barnjum" is English-Canadian. He was born in Montreal, a son of Francis E. and Leonora Barnjum of London, England, and a nephew of Major Frederick S. Barnjum, late



MR. FRANK J. D. BARNJUM

Commons and Senate has his pamphlets in the morning's mail. His correspondence spreads from Hudson Bay posts to New Orleans, and a hundred personal letters in a day's delivery is not uncommon.

"The printing press stands just as ready to prove me wrong as to prove me right," said he one day to an inquiring Cabinet Minister. "If any

of Montreal. His grandfather was a brother of Lady Dixie, wife of Sir Alexander Dixie who fought under Lord Nelson. The books say the Barnjum family was a direct descendant of Sir Francis Barnham who was one of the Crown's closest advisers in the 16th century, and that's how the family name originally stood.

"A Forest Romance" you might call the thirty-three years of Frank Barnjum's adult history. Let's take haphazard just one venture:

Six thousand acres of timberland in Maine were offered for sale at \$15,000. Mr. Barnjum looked it over and wrote his cheque. Before a year was through he sold it for \$45,000. The purchasers "cut it out" as they thought and he bought it back for \$6,000. Thirteen months later he resold the tract for \$30,000.

Boyhood Days in Montreal.

And now for a "cut back," as the motion picture director says when he wants to disregard the dimension of Time.

Forty-five years ago on St. Francois-Xavier Street, Montreal, beamed two spotless plate windows each bearing a pair of golden legends:

TAYLOR BROS.

STOCKS AND BONDS

Within the office, the elder Taylor peered across his desk at a bit of a lad with a pair of snapping eyes and a mouth that tightened at the corners.

"Sweep out in the morning, dust the desks, run errands, be diligent, honest, thrifty, respectful."

"Yes, sir."

"And if you prove a real asset to the firm we'll give you fifty dollars a year."

And so, the next morning, Francis John Dixie Barnjum hung up his cap and said "howdo" to St.-Francois-Xavier Street. It was hard going for a boy of thirteen, fresh from the schoolroom. In those days no elevators saved your legs the rise from cellar to fourth storey. No telephones made the world your desk mate. If you would call Boggs the banker, you took pen in hand and the office boy added his pair of reciprocating cylinders for a dash up street. But young Frank Barnjum was not muscle bound. He worked because he loved work. And he figured that at his office boy's remuneration, the first hundred years were bound to be the worst.

During the twelvemonth that followed, Mr. Taylor saw many stocks rise, and heading the list was Barnjum Preferred. So he broke all tradition on office boys and went "long" on F J D. He gave him two increases. It did look like a blossoming partnership some day in Taylor Brothers. Young Barnjum indeed in odd moments began to trace a new name on the firm's letterhead. But such was

not to be. One night after the others were off to bed, his mother showed him a letter from Boston. It told the story of promised advantages for the children. It talked of a business opening for young Frank. And so, with the faith of young hearts, to Boston fared the family.

There was in that city at the time a firm of dealers in tanning materials, W. W. Kellett & Company. Back at Port Alleghany in Pennsylvania—a state densely matted with green forest in those times, and now groaning under a forest famine and importing its daily necessities in timber—hemlock bark was plentiful. Thither went Frank Barnjum for the Boston firm. He was then nineteen years of age.

Hard times stalked the tanning industry and every week's budget of mail brought to Port Alleghany tales of unexpected disaster down East. Young Barnjum worked along and kept an eye to windward. Meantime the love of the woods was in and through him. His decision was easily made. He would hitch his fortunes to the forest.

He Makes a Venture in Horses.

One day, an old friend in the stock farming line put up at the same hotel. The two compared notes.

"I'm done with stock farming," said the elder, "it's the business for a millionaire."

"It might be a business for a business man," thought Barnjum. He closed the deal for the stock farm, land and buildings, good will and bad will and all that. The new buyer for hemlock bark for Kellett & Company arrived some days later and Barnjum was free—or fettered—according to how you look at stock farm propositions.

Well, he advertised.

Nobody had done that sort of thing, but it turned the trick for the bankrupt horse farm. The local editor wrote it up, other editors copied it. And so it went.

About three years later, Barnjum had occasion to check up his venture in horse breeding. He was exactly \$25,000 to the good.

That gave confidence. So he bought vacant land, made it into subdivisions, sold scores of the improved lots, then put up houses. Somehow the profits insisted on coming. From house building he worked back into lumbering, feeling it good sense to keep demand and supply under the one fedora, so to speak. And on a clear Monday morning, he started for the north part of Franklin County in the State of Maine. He knew enough about timber to know that hemlock bark came from the outside of hemlock trees, and that

yearling colts did not come from cones. For the rest he depended on L. P. Dudley, an old timber cruiser, the type of man with an eye full of scale rules and calipers. Dudley's business on this particular day was to guide him to a piece of timberland of 1,500 acres, offered by a Boston broker for \$1,500.

F. J. D. rode a horse. He believed in timber cruising by cavalry. Every half mile or so, Dudley would look back, say some mild things in Egyptian, as he set to with his axe to chop through a windfallen tree and clear the path for the man with the mount.

After some miles of these woodland pleasantries, Dudley swept an arm across the horizon. "Here's some of your timber!"

Mr. Barnjum tied his horse to a tree and took two minutes to think it over. The conversation recommenced:

"How long did those trees take to grow?"

"Fifty to two hundred and fifty years."

"Go and see how many trees there are to an acre."

Back came Dudley after a time with his estimate:

"About two hundred."

"Do you mean to tell me that two hundred trees that took fifty to two hundred and fifty years to grow can be bought for a dollar?"

"That's what."

"Come on home, Dudley," said Mr. Barnjum instantly, and untied his horse. "I'm not much at cruising, either afloat or ashore, but I can tell a whale from a seagull. We'll buy this at fifteen hundred dollars."

The scale created a sensation. A dollar an acre for timberlands! That, of course, was 1889. By 1905 and 1910, the dollar an acre days looked like the year before Tutankhamen.

Mr. Barnjum bought and bought. He took over a township for a dollar thirty an acre, \$30,000 in all. The man who sold it told his neighbor he 'got the last dollar out of it that any man'll ever get.' He was just about \$970,000 short in his guess, for counting the stumps sold from that township and the worth of the township that later developed, the total market price soared close to a million dollars.

The "Substracting" Mind.

By this time, of course, Mr. Barnjum knew timber. He rode no more steeplechasers on his frequent cruises. He asked no more questions as to whether walnut logs would float or sumach trees make pulp. Years had gone along since his first raw adventure and now his eye could inventory standing spruce or hemlock like the best of them.

"He calc'lates timber like an adding

"Cutting is a mere bagatelle compared with the incredible damage of fire" says Mr Barnjum.



Plate reproduced by courtesy of the American Forestry Magazine

machine," remarked a Maine woodsman when the subject of Barnjum's personality came up.

"A *substracting* machine is more his line," replied his neighbor who surely knew his man a good deal better.

It has always been the fault of governments and timber owners to overstate their forest possessions. Every 'unknown wilderness' was necessarily stocked with assets. Every unexplored, unmapped island or peninsula, though it be empty as a toy balloon can be filled with 'inexhaustible timber' by any well-fed after-dinner-orator. But when men claimed timber in 1900 or 1923 it has been the bothersome way of Frank Barnjum to say: "How do you know?" "Where is it?" "Did you see it yourself?"

He liberally capitalized his faith. He did all that one man could do to warn his fellow business men against the shocking waste of forests, but at the same time he put his money on his foresight. He sold short, as the market people say. With demand for lumber and pulpwood rapidly ascending, with the stock of growing timber on the toboggan, he took two jumps ahead of the market, bought and bought and bought.

"If I were in your shoes," he would say to many a friendly mill owner, "I would buy yonder spruce country. d it in five years. You'll

treble your money on it in ten." And at such times the mill owner would shake his head, confident that 'up north and down along' his firm had timber enough to keep the whistle blowing till Doomsday.

Then Mr. Barnjum would buy. And five years or even two years, would pass and that same mill owner or some other would offer a price that often multiplied the cost figure many times over.

"I never made less than fifty per cent on the rise of timberland values and sometimes it ran over a thousand per cent," admitted Mr. Barnjum once when a friendly broker cornered him on the topic.

This may look like a self-serve philosophy but such is not the case. Many a paper company in the United States acted years ago on Mr. Barnjum's timely warnings and improved their wood supply. Others would today be in a dilemma for next year's logs but for his urgings. Snug fortunes have also been added to the bank account of personal friends who had the sense to follow his dictum that 'the only time I ever lost money on timberlands was when I did not buy them.'

Twenty-three years ago he came to Cape Breton, N. S., and purchased an interest from the owners of 'The big lease' in the counties of Victoria and Inverness.

Three or four years of operating the

limits for export of the raw wood to the United States convinced Mr. Barnjum that a mill should be built in Cape Breton. His associates could not see the point. So he sold out his share and, moving on to Annapolis Royal, pitched his tent upon a glorious upland of shade trees and sunshine. That remains his home address to this day. If you have seen Annapolis Royal in June or the leaf-strewn mornings of October, you should not be taken aback at any man, arriving there, destroying whatever is left in his railway mileage book. It is best to see Annapolis with a one-way ticket.

Once more the "theory" of depleted forests, of higher demand and higher prices, sent the impatient Barnjum on his search for timberlands. He took title to over three hundred thousand acres, which has been increased from time to time. He also acquired a half ownership in the Macleod Pulp & Paper Company at Liverpool, N. S. When war time came, he bought more Victory Bonds than any other man in Nova Scotia, and, by the way, he never sold one of them while the war lasted and, while we're on the same subject, he never made a dollar directly or indirectly out of the war.

For several years past, all cutting has been stopped on Mr. Barnjum's holdings to allow recuperation of the forest growth and not only restore

original timber values but in the meantime conserve the water supply for thousands of farmers and many communities. "I began to take stock in Frank Barnjum's preaching," observed a Halifax lawyer to the writer, "the moment I saw that he himself was taking his own prescription."

He has spent large sums of money the past two or three years making his conservation ideas intelligible to his fellow Canadians. Some of it went to the fire rangers of Quebec, New Brunswick and Nova Scotia as a result of a competition offering rewards to the official keeping his district clear of fire trouble. Some of it—\$5,000—went to foresters and entomologists who constructed 230 expert treatises on the control of the spruce bud worm and other destructive insects and fungi. The prize essay, written by Mr. Otto Schierbeck, Forester of Price Brothers, was published in attractive form, elaborately illustrated and given wide distribution to the four corners of the continent with F. J. D. B. footing the rather tall account. Later came other contests culminating in the nationwide essay competition on prohibition of export of unmanufactured wood from Canada, attracting 550 authors, with total awards of \$2,000. All this purely individual propaganda, carried on by one man, at his own expense, working long hours from "field headquarters" consisting of a office in the New Birks Building in Montreal, or at Annapolis Royal, N. S., or the "Chateau" at Ottawa. It is an altogether unique achievement in economic propaganda, for it commenced with a Pamphlet entitled "Some Startling Facts about Canadian Forests," and is now beyond the power of any man or association of men to smother out.

In a recent conversation with the writer of this article Mr. Barnjum said: "I have been travelling the timber zone and making investigations for thirty years. In my time I have made many predictions and every one has been wrong. You look surprised! Every prediction has been wrong because, no matter how pessimistic, it finally proved to be short of the truth. Canada is in a bad way for the future timber supply. Cutting is a mere bagatelle compared with the incredible damage of fire and, in Eastern Canada, fire itself has been far outdone by the spruce bud worm. Between flames and forest insects we are due for a sharp reduction of the forest inventory.

Does the Timber Owner Lose?

"This is a severe blow to the country, of course, but the timber owner will lose very little in dollars and cents owing to the manifold

increase in value of his remaining stand. At today's prices—we think them high, don't we?—there is no other commodity that is selling so much below its replacement value as an acre of timberland. Any figures hitherto published on the cost of producing an acre of trees from the seed or seedling stage have entirely omitted the factor of waste or loss from bugs, fire and wind.

"Why do I head a campaign to stop the export of unmanufactured wood from freehold land? Canada is my native country, it is true, but I am not actuated by any unfriendly motives towards thousands of good American friends. But Canada faces a timber crisis, not tomorrow or next week, but this very moment and I would be doing less than a citizen's duty if I did not warn and work against the penalties imposed on us by our own prodigality. I have yet to be shown how Canada can feed her present mills with timber beyond a few years at most. What then? Are we to put up the shutters on the Nation, are we to stand by and watch an exodus of half our present population? Some reply: 'Plant trees, practise silviculture.' Excellent and we cannot start too soon. But when is harvest time for the trees that start growing in 1923? Not before sixty or seventy years. Then what will fill the gap between the end of the present forest supplies and the commencement of the new crop? Can anyone answer? Can anyone find any other solution than to save every log of wood we now possess for the feeding of Canadian mills, for the extension of their life? Why spend fortunes on conserving Crown Lands pulpwood when more than a million cords of wood a year cut from farmer's lands leave Canada unmanufactured to relieve the strain of American forests, to lengthen the life of American mills? I never could see the honesty or the common sense of that. Some say, of course, that the Canadian farmer cannot be restricted in cutting and selling his pulpwood. Why not? Every European country restricts its farmers to a scientific forestry programme. Belgium, the other day, stopped its citizens from shipping any more rags to non-Belgian paper mills. And so it goes the world over. When the rights and the necessities of the majority demand a thing, the convenience of a trifling minority is quickly set aside. Let us bear in mind that not two per cent of Canadian farmers own any pulpwood or care anything about it. Furthermore, to suspend the right to export Canadian grown wood to American mills would leave none of our farmers the poorer. An immediate effect will

be to increase United States demand for pulp and paper from Canadian mills and to compel the construction of Canadian plants by those U. S. companies now dependent on what our farmers send them.

"The Weakest Argument."

"The weakest of all the arguments against an embargo is the fear of retaliation. This is, of all things, most unworthy of Canadian common sense or pride. The plain truth is that the U. S. coal producers regard Central Canada as one of their richest markets, which they would not relinquish without a hard battle with their governments. Further, the pulp and paper mills of the Northern States anticipate an embargo on the balance of Canadian wood, and as with the U. S. Forest Service, harbor no resentment. Of all parties to the pulpwood question, least of all can the United States consumer complain. It is a ridiculous and unsound policy to ship such a bulky raw material as wood long distances when it can be manufactured so much more cheaply near the point of production. All that the American publisher wants is a supply of newsprint at the lowest cost and it is quite immaterial to him whether the paper is manufactured on one side of the line or the other as there is no duty in any case.

"Last week I returned from a seven thousand mile trip, covering a thousand miles of Pacific Coast forests by motor car. I passed through heavily populated states demanding huge annual supplies of timber and with hardly a square mile of trees within their own borders. I saw before me a busy and improvident people who cannot conduct a year's business until they have taken a forest toll that represents a four foot pile of wood 369,000 miles long or fifteen times around the earth.

"Just take a minute to reckon that consumption with pencil and paper. Then look over the country. Reckon up what fire has done, what insects have done, and tell me if you can where we of this continent are to get the stuff to feed that yearly procession of wood piles 369,000 miles long?"

"What do the financiers think? What does the pulp and paper industry think? By their shrewd investments ye shall know them. The other day owners of the Chicago Tribune, buying through the Ontario Paper Company, laid hold of 2,000 square miles of comparatively distant Quebec spruce lands at a price which will make their standing pulpwood cost \$10 a thousand feet b. m. Never has such a price been paid before. It looks high, but in the light of a year hence we'll all say it was a bargain."

Questions and Answers on Prairie Tree Planting

Question.—Last Summer, about July first, I plowed a strip of land (sod) 550 yards long and 24 feet wide, along the road on the west side of the farm, on which to plant trees. I have not applied to the Government for trees to plant there, partly because I was afraid I was too late to get them this Spring and partly because I thought we could use cuttings from our own trees.

We have some trees on another part of the farm which we planted in 1906 and 1907. They are Russian Poplars, Ash, Manitoba Maple, and a few Willows. Most of the Manitoba Maples died during the dry years so we did not want to plant any more of them.

We like the Russian Poplar best. How long should the cuttings be, and what is the best time and method of planting them and how far apart? Would you advise planting Caragana seed west of the poplars to protect them from the strong winds?

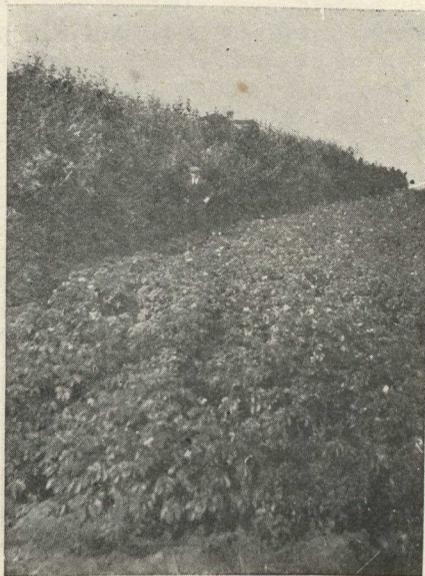
Answer.—If your piece of sod land has not been back set and worked up, it would be better to leave it another year and get that done before you plant it. First-class preparation always pays and another deep plowing will be of great service.

You might plant it to potatoes this year though a clean preparation without a crop is better.

If it has been worked up ready for planting, we would suggest four rows, the first from the outer edge six feet from the fence, the others four feet apart as follows: Caragana, Russian Poplar and Ash alternately two rows, and Caragana for the inside row.

This leaves six feet again from the inner edge but you will find it well worth while to break an additional 24 feet alongside the first and widen the strip, for it takes about eight rows at the least in the Macleod district to afford good shelter.

A SHELTERED GARDEN



That tree growing on the prairies to protect vegetable crops is not a tiresome process is shown by the above photograph of John Rees' property at Craigmyle, Alberta. The trees were planted in 1917, the picture taken in 1922—surely a splendid result in five years. Some of the trees are now 14 feet high.

A double row of Jack Pine inside the belt would be a great improvement.

Seed will be all right for the Caragana rows.

Russian Poplar cuttings are eight to ten inches long and are taken from last year's growth. Make them as early in Spring as you can get them planted. Plant with a spade, placing the cuttings in the ground at an angle of about 60 or 70 degrees, leaving an inch or two sticking out of the ground. Be sure and tramp them firm; and plant them four feet apart.

Trees for a Boulevard

Question.—Last year we planted trees on our streets, but did not prepare the ground beforehand, just digging holes in the sod and planting

the trees. Now we have been informed that this is not the best way and that the ground along the boulevard should have been prepared the year before. Is there any way to correct our mistake? We have been at some expense getting this tree movement started, and so far we are very proud of them. Kindly advise. I might say our only means of watering is by tank.

Answer.—Your informant is right, and though your trees may do well enough for a few years, a time will come when they will suffer from the fact of the boulevard not being prepared beforehand. You do not say how wide the holes were or how deep, in which the trees were planted, but we presume they would be the usual two and a half feet wide by eighteen inches deep.

If the trees are not too large, it should be possible even yet to break the ground and prepare the boulevard. If this is not feasible, dig around the holes, making them two feet wider and be sure the spade goes down to the full depth. This should be done another year again. The narrower the holes the nearer the grass to the tree, and a tree planted in a hole in the sod means a constant conflict between the tree and the grass for the moisture that falls, and the tree always loses out. Success in tree-growing in the dry country depends upon the moisture, and if you cannot supply an additional quantity when required, your only recourse is to preserve what you have.

You will find it well worth while to cover your dug-over ground right away with half a dozen inches of old manure, which will help to still further preserve the moisture for the tree. We trust this extra care will be given those trees, as we have had enough of tree failures in the past through just such negligence, and every failure only delays the tree-planting movement that is making such progress throughout the country.

REPLIES TO OTHER INQUIRIES

Q.—Is it a fact or just somebody's guess that the timber supplies of the United States useful for the manufacture of newsprint paper are in danger of depletion?

A.—It is a positive fact thoroughly well established from American sources. In at most ten years, many of the great United States industries manufacturing paper for newsprint purposes will have to transfer to Quebec,

Ontario or New Brunswick. If we are great employers of labor and distributors of wealth, we must make sure that the present rate of forest fire destruction in Ontario, Quebec and New Brunswick is cut down as far as is humanly possible. The forests coupled with the water powers of Eastern Canada are today the greatest industrial magnet that this country possesses.

The Canada Gander--A Gallant Bird

Experience Shows Him To Be a Model Spouse and Devoted Parent

By P. A. Taverner

Ornithologist of the Canadian National Museum, Ottawa.

OUR old friend, Jack Miner, of Canada Goose fame, professes unbounded admiration for the moral and mental excellencies of the Canada Goose. While his superlatives in this connection may have a flavor of the exaggeration of enthusiasm, it is not at all certain that Jack does not understand goose nature better than do some of us Doubting Thomas skeptics. Certainly Canada Geese make model spouses and most devoted parents. A drake mates only for the occasion, and enjoys a sensuous honeymoon, but refuses the further responsibilities of his actions, and leads a care-free existence with other gay bachelors and grass widowers in stag-parties on the open lakes and marshes while his conscientious duck alone shoulders the drab, exacting duties of raising the brood to maturity. Quite otherwise is it with the gander of *Branta canadensis*; he mates for life, standing watch and ward over mate, eggs and young, co-operates in protection, unites in self sacrifice and holds to his mate till death doth them part. Some of the following experiences go a way in substantiating Mr. Miner's oft-expressed opinions.

It was on Cypress Lake, Saskatchewan, in the Summer of 1921. We were in a rowboat with an outboard motor when we saw a family of geese, the pair of adults and four downy young but a few days from the egg, on the lake ahead. When they became aware that our progress was carrying us uncomfortably near, they edged towards the shore, slowly and openly at first, apparently not appreciating the unusual swiftness of our approach. Then they put on more speed, and arranged themselves in a long single file, one parent leading, the other bringing up the rear, swimming low, and both with their long necks outstretched and laid down flat on the water, making themselves as inconspicuous as possible. The young, coaxed from ahead and urged from behind, paddled along vigorously between, one close behind the other. From our low and distant point of view, the effect was interesting. They looked like a floating stick. Certainly they would not impress the casual eye as a family of Canada Geese and if we had not first seen them in a more



Jack Miner's famous "Jack Johnson" the wild Canada Gander that mourns for his mate and refuses to be comforted by another goose-mate.

characteristic pose they would undoubtedly have been passed without recognition. If our speed had been derived from oars or paddles, it would have taken a considerable chase to have caught them, but the engine gave us an unfair advantage and one they had not counted on, for in a moment we were upon them.

We tried desperately to get the graflex to bear upon them whilst they were in this peculiar lockstep formation. But even a long focus lens demands close quarters to make an appreciable image of even so large a bird as a goose and just before we were ready to take the shot the birds realized that concealment had failed and that other tactics were necessary. The parents raised their heads and, flapping their wings, endeavoured to get a higher burst of speed out of their charges. Failing in this, the gander, calling loudly and excitedly, splashed off ahead for a few yards, looked back to see that the goslings could not follow, and flapped helplessly on over the water. The goose hesitated a moment and then joined her mate whilst the youngsters, still little more than fluffy balls of down, bunched irresolutely and then one and all dove and disappeared from sight. During the next few minutes the old birds scurried back and forth over the water in our immediate

vicinity, playing the old familiar broken-wing deceit to decoy us away, occasionally rising and flying a few hundred yards, only to circle back to renew the attempts to coax us off, all the time honking loudly in a high shrill key that revealed the agony of their anxiety. Meanwhile the little ones bobbed to the surface in a scattered bunch like a handful of yellow corks, saw us and ducked again, came up more scattered still and disappeared immediately. They rapidly became more expert in their bobbing and diving and soon indicated their rising only by an instantaneous glimpse of a dull yellow spot in a swirl of cloudy water. The camera was confusedly pointed this way and that, but so quick were the subjects that no snap could be made, and all the while they kept scattering and getting farther apart until finally we were left, with a virgin camera, vainly waiting the reappearance of the last gosling seen, and there was nothing but empty lake before us with a pair of anxious parent geese still endeavouring to decoy us away—but from a safer distance and with considerably less recklessness. We withdrew rather crestfallen, but before we lost sight of them we could see that the little family was reunited and making for the grassy marsh where there was cover for young geese and safety from motor boats.

This was interesting of course as a demonstration of the ability of the young to scatter and hide on the open lake, but, except for the first line-formation with the long conspicuous parental necks prone on the water, not different from the actions of any of the ducks under similar circumstances.

Foiled in obtaining photographs this time, when we discovered another similar family a few minutes later, we resorted to more cautious tactics. The brood formed in line in the same manner as before, but instead of rushing in at full speed, we slowly edged them in towards shore. Here there was a narrow, sandy mud wash at the foot of a steep embankment some twelve inches high. On top of this was a dry flat, covered with scanty grass and sage clumps, rising gradually at

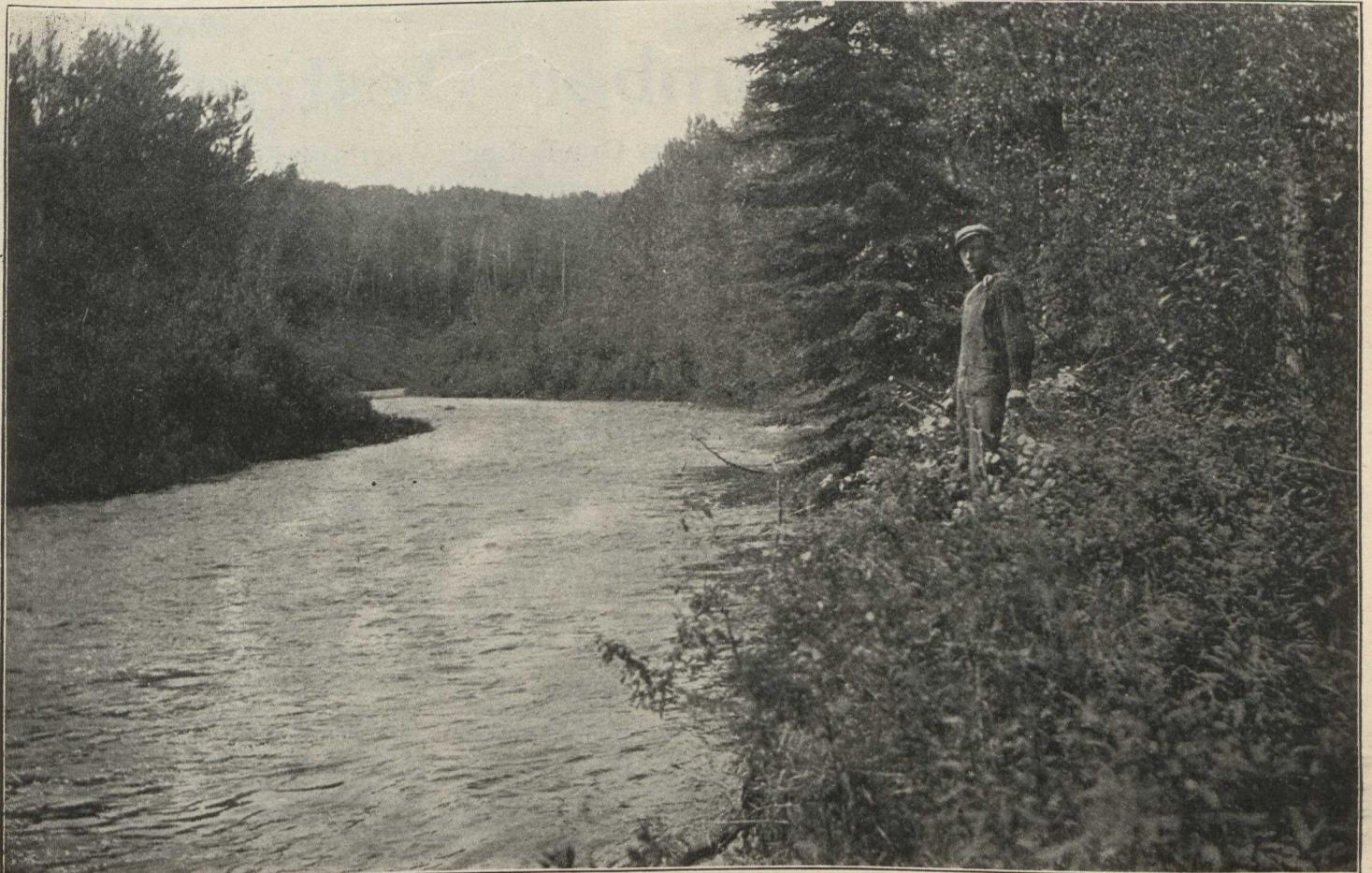
first, then more steeply, to a bare hill a hundred yards back. They gradually worked in to this shore. On being pushed a little too hard, the goose again splashed off. Seeing that a repetition of the former fruitless tactics was about to follow, we paused and let the gander herd his charges shorewards. They landed and climbed the bank, the gander leading, erect to his fullest extent and honking loudly, calling to us to follow. The brood came close after him. In the meantime, the goose, which had first left towards the right, had desisted from her exertions to lead us in that direction and had circled about us, and now appeared approaching the shore at our right where she also landed and occasionally answered her mate. The youngsters, toddling after the gander, at the first short grassy cover suddenly changed their course at right angles and with it their mode of travel. Hitherto openly intent only on speed, without any attempt to hide, now with heads low and sinuous movement, they moused through the scanty

herbage, taking advantage of every little grassy clump, and so just could be seen, glinting through the dull shadows in the sere yellow background. They followed parallel to the shore until opposite the waiting goose and then came out to where she waited to receive them and they all took to water again and paddled off quietly and inconspicuously whilst the loud-calling gander on the bare hill-side watched the result of the ruse anxiously and continued his conspicuous demonstrations to keep our attention on him. The whole little comedy was admirably worked out, obviously on the spur of the moment, and I doubt, if, given the same conditions, human intelligence could have evolved a better ruse for the safety of the little family.

It was notable that, though several times afterward we cruised this part of the lake, and knew that these geese families were still present, we never had such an opportunity again. It is my experience that birds learn much by one lesson. Opportunities for successful photographing occur

unexpectedly with certain birds once only. If they are not taken advantage of then, the chance is unlikely to be repeated. Birds with a nest are sometimes badly flustered when surprised, and if one is prepared to take advantage of the circumstance, good pictures may be obtained—but one must work quickly and immediately. The first swoops of the parent hawk are usually the closest and most daring, and on a return visit of the intruder more wary tactics are generally pursued. At any rate all we saw of these geese again was the stick-like line disappearing in the reedy cover far in advance of us and doubtless the first sound of our *put-put* in the distance was the signal for them to forsake the open water and make for cover. We had caught them in the open once, but they did not permit us to do so again. There on the lake where heretofore open water was salvation against all danger, they had learned at one lesson its futility against our speed and power had reorganized their whole system of protection.

ONE OF WESTERN CANADA'S SCENIC BEAUTY SPOTS



Scene along the Waskahigan River

Utter destruction—Great, gaping holes burned in the landscape replace what was a week or two before, a beautiful growth of forest. The urgent call to prevent this repeated sacrifice must and will be heard.

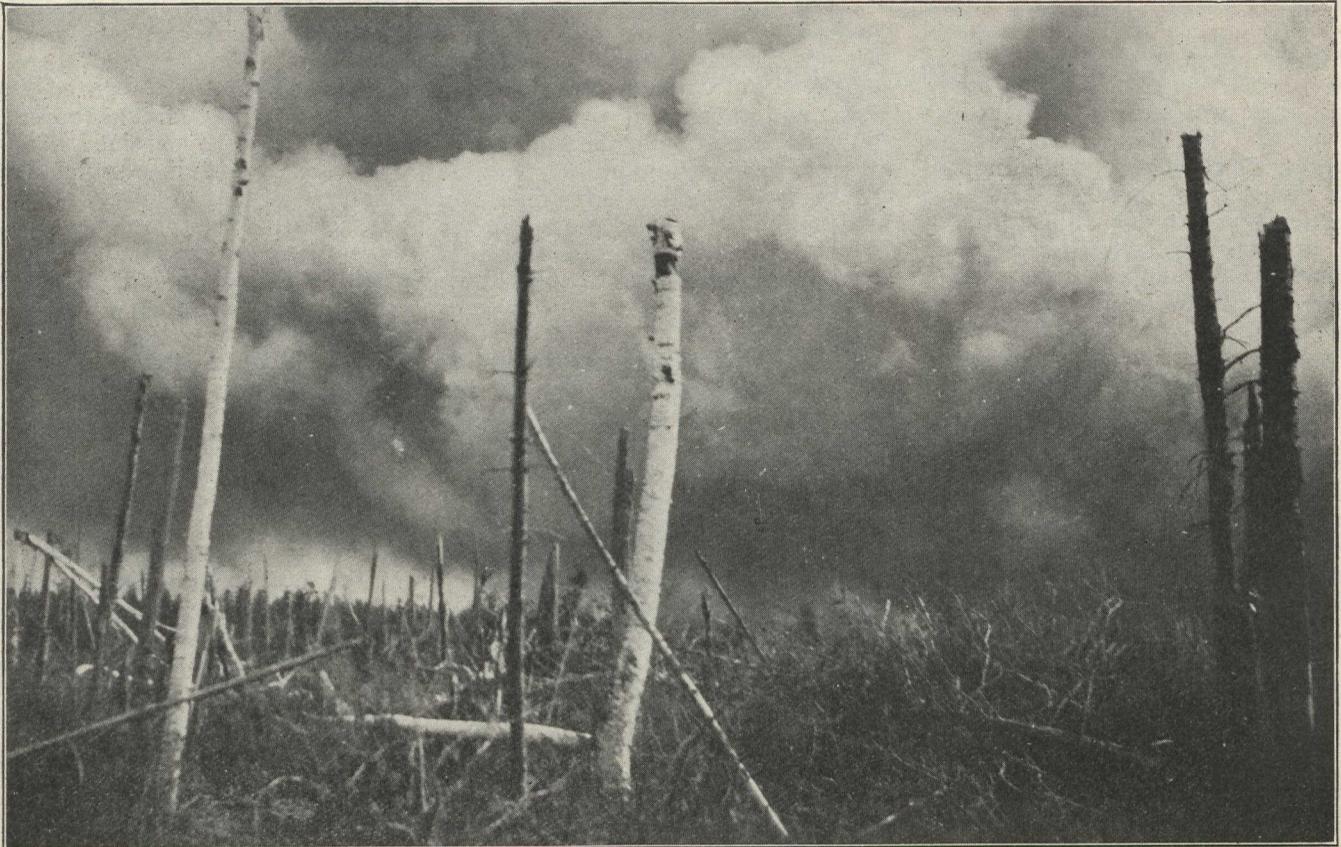


Photo reproduced by courtesy of the American Forestry Magazine.

Heading Off Timber Destruction

Ten Dollars' Worth of Forests Saved by One Dollar's Worth of Publicity

By E. T. Allen,
Forest Economist of the Western Forestry and Conservation Association,
Portland, Oregon.

EDITOR'S NOTE: The Western Forestry and Conservation Association is a mutual organization of the timber owners in five states with headquarters at Portland, Oregon. Mr. E. T. Allen, extracts from whose recent address to the Quebec Forest Protective Association are herewith reproduced, is a recognized authority on the forest fire problem and has achieved notable success in this work.

AS we learn the necessities of fire prevention on the one hand, and on the other observe more accurately the greater losses that result from penny-wise economy, we try more and more to get absolutely on top of the fire problem, whatever this may cost, rather than to figure what we think we can afford to pay.

This is one of the lessons of experience. It is one of the penalties of owning forest property, whether you regard this as private property or as a community resource. You cannot very well say "I'll spend one cent to keep it from burning up, but not five cents"; any more than, if it is five miles away, you can say

"I'll build one mile of road to reach it but not five." You cannot get effective fire protection without paying for it, and this is the only kind that protects. And reckoned as insurance on values, or even compared as an acreage charge with taxes, interest and other carrying costs, it is no more than must be expected with what cheerfulness we can muster.

The fact is that forest industry is undergoing a marked change, with us at least, in its underlying financial basis. Once a migratory business moving from one source of very cheap raw material to another, with costs and profits based mainly on the conversion of this into usable

commodities; it now involves heavily the investment in, and the protection and renewal of, a costly raw material production. Some of the problems and costs of this new enterprise are discouraging, but we cannot dodge them and stay in business. If the business is to go on, it must somehow be made to meet them as it does other operating costs which have become traditional and unquestioned.

I think it is generally recognized that we of the Pacific Coast pioneered the modern adaptation of publicity and educational devices to the furthering of public interest and responsibility instead of resorting to threats of prosecution. A tremendous change in sentiment was accomplished.

Keep Expenditures Balanced

As the demands on our facilities in other directions grew with our rather unique position, and fire publicity became a secondary instead of a primary function, we came in time to have less time and money for it and to drop into a routine of the methods we found got the most results for least money instead of increasing our ingenuity and expenditure. We kept up work, and probably learned the cheapest and most effective methods, but this branch of fire prevention did not keep pace in proper proportion with the rapid development of other branches. *The result is that we are now spending from half a million to two million dollars a year to deal with fires that we could reduce, at least, cheaper by more educational work.*

It is now hard to restore the proper balance. The field expenditure appears necessary and those responsible for it like neither to reduce it to support publicity nor to spend additionally for the latter. Nevertheless

those of us who have studied both throughout now feel that it was an error not to increase both in at least somewhat closer proportion. Two per cent. of two million dollars is \$40,000. I am confident that with this sum to spend on publicity last Spring we would have made such a noise that scarcely a soul in our territory would have had the subject out of mind once during the Summer, and that ten times the amount or more would have been saved.

Publicity At High Pitch.

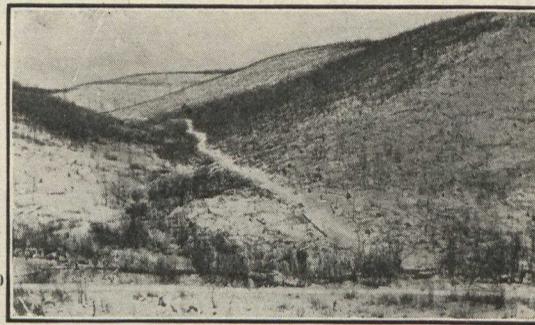
I therefore urge you not to fall into the same error. Keep your publicity work up to a high pitch. Don't treat it as a side-issue unsystematically. Give it a definite proportion in the budget and watch this proportion to keep it right as other things come up to engage your interest. Radical re-adjustment of any such proportions grow harder instead of easier as they get badly out of balance. Bear in mind also certain cardinal principles in this world-

wide modern art of "making them believe it" which has been so perfected by merchants, politicians, and nations with things to sell that we amateur forest people will get scant hearing if we don't apply these principles. First, you are trying to establish the idea of forest protection itself. Second, you should also establish by this activity as well as by your others, that you are a big factor in this great public service, hence always entitled to support and confidence. Third, as sentiment changes, your appeal must change accordingly, for it is as bad to waste primer stuff on a public already past this, as to shoot too high for its perception. Fourth, study the craft and technique. Nations and politicians use the press-agent method; merchants, the advertising method. We can use both, so must know the psychology and the mechanics of both. Fifth to tenth, *don't quit*. If you do, you will wake up to find somebody else has run off with your audience.

Striking Forest Protection Literature Published by the Anthracite Forest Protective Association, Hazelton, Pa.



The forest of the Anthracite Region as it was in by-gone days.



A wide expanse of brush-land marks the spot where the forests once stood

Photos reproduced by courtesy of the Pennsylvania Department of Forestry.

Do You Know That

FIRES not only kill the big trees or render them dangerously and immediately subject to the attack of destructive insects and fungi, but completely destroy the seedlings from which our future forests must grow?

FIRES completely destroy the humus, the very life-giving element of the soil itself? In a comparatively short time a barren wilderness where nothing can grow—not even huckleberry bushes,—results.

FIRES kill and drive out the game animals, birds and fish, thus robbing you of healthful recreation and sport?

FIRES turn beautiful mountain streams into muddy torrents which wash away the soil during freshets and go dry in the Summer, thereby seriously interfering with the domestic and industrial water supply?

FIRES make forest planting unsafe? Real forestry cannot be practiced until the forest fire evil is curbed.

FIRES are cutting away the foundations of our prosperity? In sixty years Pennsylvania has dropped from first to twentieth place in timber production.

FIRES are taking money from your pockets? A 12 inch pine board 16 feet long costs you now 75 cents. 25 cents of this is paid to the railroads to bring the board into Pennsylvania. You will save a third when the timber is grown at home.

FIRES can and must be prevented? You must realize that you have a distinct responsibility in protecting our forests if you and your children are not to experience a real wood famine.

A Burned Forest Means No Timber—No Wages—No Fish—No Game

IT IS FOLLY TO TOLERATE CONDITIONS WHICH MAKE A BURNED FOREST POSSIBLE.

The Dogs of the North

Some Intimate Facts Concerning "Huskies" and their Habits of Life

By Robert G. Hodgson

THE northern dog is generally considered as the horse of that country. Until they were featured in the so-called dog derbys throughout the northern parts of Manitoba, they were animals very little known by the public generally. It is a fact however that, without them, transportation would be much retarded in the Arctic and sub-Arctic regions where these animals furnish the only means of transportation outside of human locomotion during the cold Winter months when the snow is deep.

Northern dogs are usually considered as "huskies". All dogs of the north are commonly misnamed in this particular, at least those not really of the breed mentioned; and it stands to reason that one species cannot very well include such a wide variety as hounds, collies, Newfoundland and many other breeds such as are to be found there.

The genuine husky dog comes from the Mackenzie River section and is named Malamute after a tribe of Indians living near the mouth of the river. Lest I should make a scientific error I shall explain the Indian word. The Standard Dictionary spells it "Malemuit" and gives Malemute as an alternative spelling or variant—and who are we that we should quarrel with a ten pound lexicon? It has also been spelled in the following ways by different writers: Mahlemoot, Mahlemutes, Mahlemuts, Malegmjuti, Maleigmjuten, Maleimioute, Malemukes, Malemut, Malemutes, Maliemuts, Malimiut, Malimuten, Malimyut, Mamelut. German writers used the spelling ending in "en". As previously stated this name is commonly applied to all dogs originating in this section whether or not they are "huskies".

The "Husky" Breed.

The husky is a cross between a dog and a wolf. This cross may be a half breed wolf or may have only a trace of the wolf blood. Usually they have very much the appearance of a wolf, even if they are nearly all dog. The weight and color varies



A Fine Pair of Typical Northern Dogs.

a good deal, according to the breed of dog that is intermingled. Gray is, however, the predominating color—from a light to a dark gray. The weight of the ordinary dog is from seventy to eighty pounds when in good working condition. These dogs are very large, savage and rough, the strain being kept up by breeding with the hardiest wolves. The male dogs are from the Yukon River section, at least two thousand miles distant from the "huskies" named after the Indian tribe.

The Eskimo dog is about half the size of the "husky," rather stocky in build and slightly heavier than the English pointer. They have oblique eyes elongated muzzle, and a long, bushy tail, which is frequently curved tightly over the back, which gives them a wolfish and sneaky appearance. The color is usually a deep dun, obscurely barred and patched with a darker color. In recent years they have, to some extent, become mixed. They are commonly eaten by their owners. If they have been lazy and are consequently fat they are voted "just excellent"; while if they are thin they are "just dog".

"Huskies" Are Strong.

Compared to other animals of their

size and weight, there is nothing to equal the husky dog in strength. Jack London, in one of his books on the north country, tells of a dog moving a sleigh weighing over 1,200 pounds—a fair load for a horse. This occurred during the gold rush of 1898. Again, thirteen huskies drew a mounted police boat weighing over 5,500 pounds with the sleigh, across a fairly rough country a distance of four miles without stopping. One has only to make a comparison of the weights drawn and of the dogs to arrive at a conception of their pulling power. Or take for example one of the recent Dog Derbys: The entrants are started off together about eleven o'clock in the morning and make a non-stop trip two hundred miles and are back by nightfall of the following day. Neither dogs nor drivers sleep from the instant they leave until they return. The drivers run along behind most of the way but jump onto the sleigh for a moment at a time when they become tired. It appears a rather spectacular accomplishment to the man unused to the North when men and dogs are hard, to be able to run for two hundred miles without a let-up. In 1921 when eleven teams were entered and the winner made the trip in thirty-one hours, a record by the way, it was noticed that none of the drivers sought rest on his return to town after the long, hard trip. Every man took in the whole celebration, including the dances and remained until the early hours of the following morning. It is interesting to note that drivers entering the great event featured at Le Pas, Manitoba, for the purse of \$2,500, train and treat their animals, previous to race, like boudoir pets. In fact a dog's life, under the circumstances, is much to be desired.

Value of Dogs.

A good lead dog is worth a lot of money for upon him depends the work of the whole team. The lowest price at which a dog could be obtained last season was around one hundred dollars. First class animals that were good leaders were hard

to get at any price and, when obtainable, cost several hundred dollars each. Scarcity of dogs was due to the neglect of breeding stock by the Indians. Inbreeding has resulted in deterioration of the husky race and new blood from such cold weather breeds as Newfoundlands and St. Bernards, it is declared, is necessary if the value of the dogs of the North is to be preserved.

Great care and patience is required in the training of these animals. Care must also be exercised that the common dogs do not get into a fight with the leader, caused by the jealousy of the former for the latter's position. Only a few weeks ago a Mounted Police Sergeant at Le Pas had a good team ruined. Two of his dogs broke loose during the night and attacked the lead dog. The latter, being chained and unable to get away or to put up any fight, was killed. Even in a dog race where the animals are running abreast it is not unusual for two teams to get into a mixup, causing damage to the dogs and the whole outfit before they can be extricated by their drivers.

Years ago it was the custom of the racers to run their dogs in their heavy freight harness. In 1920, however, Walter Goyne, commonly called "The Going Kid" because he had won an event in Alaska at the age of eleven, against a big field, won the prize at Le Pas. He used

the very lightest harness possible and a light Alaskan racing sleigh, both of which are now universally used in racing. The restriction of five dogs to a team has been removed but the driver must end the race with the same number of dogs with which he started out. A dog harness is very simple, consisting of a collar, a pair of traces, attached to the collar, and an adjustable band similar to a horse's belly-band, which goes around the body to hold up the traces. The traces of the dog nearest the sled are fastened to the sled and those of the next dog to the one immediately behind and so right on through. A breast collar is sometimes used but the dogs can pull a bigger load much easier when real collars are used.

When much travelling is done on the ice, or on the hard crusted snow the dogs are often shod with moccasins of moose, deer, or caribou hide to keep the feet from becoming sore. On trap lines where trails are usually soft, flat-bottom sleds are used and for these the trail must be broken with snowshoes. The Indians on their trap lines, break out the trail the previous day or have the squaws walk ahead of the team and so break the trail.

Driving the Dogs.

Driving is done by the voice, the lead dog being trained for this.

Instead of urging the dog team with the civilized exclamation as applied to horses as "Get up Dobbin!" the driver of the dog team exclaims "Mush,—you! Mush on". It is more emphatic, whether or not it is efficacious. In conversation many drivers tell me that unless one swore at the dogs they would not drive as they do. It is largely a matter of what they are trained, however, the idea being that when a driver gets mad he customarily curses and swears at them and the dogs know this.

Huskies have mean dispositions which is largely accounted for by the treatment they receive. This is especially true of dogs belonging to Indians. It has been said that an Indian can ride a horse a hundred miles after a white man has given it up as being "all in". This is equally true of the dogs. I have seen the Indian knock one of his best dogs down on the slightest provocation, and how the animal managed to ever come to was a mystery to me. The white man invariably treats his dogs much better. The Indian has never been a factor in these dog derbys for the reason that he will not care for his animals properly. The Indian dog has nothing to look forward to but a cold bed in the snow, a piece of frozen fish for supper if his master is in good

HUSKY DOGS IN REST CAMP



Pictured above is a rather remarkable group of "Huskies" used for sleigh-hauling at the Trading Post of the Revillon Frères at North West River. In the centre of the group is "Tige", a famous dog character of the North and perhaps one of the finest specimens of husky flesh in existence. "Tige" is famous for the intelligence he shows and many stories are told of his accomplishments.

The photograph was taken by LeRoy T. Bowes, of the Hydrographic Surveys Branch of the Department of Interior, while engaged on surveys in the vicinity last Summer.

humor, and a beating if he isn't. During the Winter months the dogs are constantly in service, making long, hard trips. When Summer comes they are turned loose to shift for themselves, kicked around and generally much abused. It is no wonder then, that they are of a thieving disposition. Their thieving nature, combined with their highly developed and hereditary cunning makes it necessary to keep every thing of an edible nature out of their reach; they will steal anything that

has the slightest odor of food on it, even to old rags.

When working the dogs are fed once a day, usually after supper and are then given a place to lie down, when they are contented and ready for the next day's work. The allowance for a day is usually a pound of corn meal and one-quarter pound of tallow made into a mush. Sometimes they are fed on fish, depending on which item is the cheapest and easiest procured. Occasionally unique uses are made of them as revealed by a trip into the Hudson

Bay district some years ago by the writer where I saw six dogs hitched to a one-horse plow turning up the sod. Truly they are wonderful animals! Long may they remain in the North!

In the words of the poet:

"I have cursed your breed for a lazy crowd,

I have beaten you black and blue,
And now with my face to the South,
I'm proud

That I once owned mates like you".

PRINCE OF WALES ENCOURAGES FORESTRY

In Recent Speech at Guildhall He Made Strong Plea for Conservation

A MEETING of the Empire Forestry Association was held at the Guildhall, London, England, recently and was presided over by the Prince of Wales. It was attended by a number of public men representing various parts of the Empire, including the Duke of Devonshire, colonial secretary; Viscount Buxton, Viscount Milner and Viscount Novar.

The Prince made a speech in which he said he was keenly interested in forestry, and during the last three years, he had had unrivalled opportunities of realizing the vast timber resources of the Empire, and had visited lumber mills in Canada and Australia. He said he hoped the association would receive the support of all those throughout the Empire who recognized the vital importance of forestry to the life of the nation, and the need for looking ahead and promoting systematic planting and conservation of the existing forests if one of the most important resources of civilization were not to be lost.

Without a cheap supply of timber, His Royal Highness continued, any progressive community must face disaster, having regard to the many needs for timber in everyday life for which a regular, cheap supply was essential. This could only be secured by close attention to forestry in all its aspects. Experts estimated that the world

would be faced with a timber shortage, if not an actual famine, within the next twenty years, the Prince said, hence no time should be lost in making provision for future supplies. Steps must be taken to replant

probably not five per cent had been replanted.

It is estimated that a further three million acres were suitable for afforestation, the Prince said, and the time was opportune to undertake this work, especially in view of the urgency of solving the problem of unemployment. The association could bring home to the people of the Empire the need for action by states and private enterprises.

The Prince said it was unsatisfactory that by far the greater part of the timber used in Great Britain came from abroad. The association he suggested, might try to remedy this deficiency in forest production, and thus aid in economy for the Empire.

Lord Lovatt said there were eleven hundred million acres of forest land in the British Empire. Great Britain, he said imported £120,000,000 worth of timber a year, and it was little short of a scandal that barely twenty per cent of this amount came from within the Empire.

The Duke of Devonshire expressed the hope that the Imperial economic conference to be held shortly would consider empire forestry. Referring to the 1924 Empire Exhibition, he said there had been

periods of great anxiety in connection with the planning of the exhibition, but he believed these had been brought to a definite conclusion.



H. R. H. THE PRINCE OF WALES

the vast forest areas which were converted to other uses during the war and were estimated in Great Britain alone as a million acres, of which

Interest Charges on Growing Timber

Should Governments Handle their Planting Costs on Interest Bearing Basis ?

ONE of the questions which perplexes many of those interested in reforestation of non-agricultural areas is whether expenditures for tree planting can rightly be charged against current revenue. In many of the public discussions of the practicability of planting timber trees on waste land the conclusion is commonly reached that compound interest, if allowed to enter into the bookkeeping would render the whole undertaking prohibitive. With planting costs at, say, \$20.00 an acre and interest compounded for sixty years, until the maturity of the timber crop, it is sometimes difficult on the isolated proposition of cash investment and cash return to arouse public concern in any such venture.

Many foresters and other conservationists contend that a Provincial Government receiving from three

to four million dollars a year revenues from forest operations, most of which necessarily comes from reduction of the forest capital, may very well invest at least 50% of the net forest receipts in measures of forest restoration such as is involved in the wholesale planting of pine or spruce on waste land. Would not such expenditures by the State be ranked as equivalent to an insurance premium or a depreciation allowance?

In asking the question of several distinguished Canadians the "Canadian Forestry Magazine" did not intend for a moment to suggest that replanting barren lands was the keystone of a future timber supply. Nor was it intended to involve the question of tree planting by any others than provincial governments.

The fact is, however, that the pro-

vincial governments have undertaken extensive tree planting schemes to reforest waste lands and help out the timber stock of fifty years hence. As Professor J. H. White reasonably states in his article, tree planting is only a branch line of forest restoration. The practise of 'sustained yield' in the forest itself is the main track, carrying us to our destination in a fraction of the time occupied by the zig-zag route so commonly proposed.

The following statements on the subject of public investments in forest restoration are by Sir Clifford Sifton, Sir Edmond Walker, Professor J. H. White (specialist in forest finance, Forest School, University of Toronto) and Mr. Ellwood Wilson, Chief Forester of the Laurentide Company.

Eliminate Interest Considerations

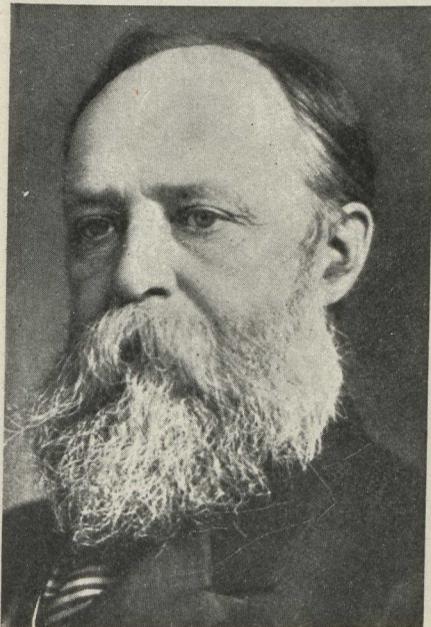
By Sir Clifford Sifton

I have your letter of the 3rd. I have no hesitation whatever in expressing my opinion upon the proposition as set out in the memorandum attached to your letter.

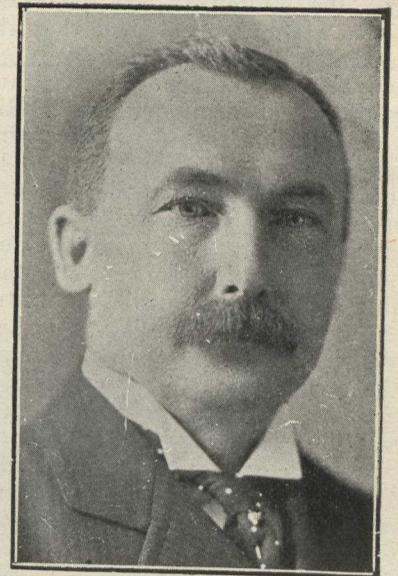
In my judgment the money spent

in planting trees should not, under any circumstances, be regarded as an investment upon which interest, either simple or compound, should be calculated.

I regard the cutting down of merchantable trees as a destruction of capital, and I would think it was the plain duty of the Government which permits the cutting down of such trees and derives a revenue therefrom, to insist on the re-planting of at least two trees for every one that was cut down, and that such cost should be taken out of the forest revenue and regarded as a permanent charge upon that revenue.



SIR EDMUND WALKER



SIR CLIFFORD SIFTON

Profit Certain on Reforestation

By Sir Edmond Walker

In reply to your letter of 3rd instant, I have no hesitation in expressing the opinion that the replacing of our forests transcends any question of interest or profit, and should be considered as a duty which those who cut down or otherwise destroy

our forests should be required to perform unless for any reason the state undertakes to do so. I am told that, because mainly of man's contact, we lose by fire, fungi, insects, wind, etc., many more trees than we cut and,

therefore, as against each tree actually cut we should replant several trees, if we really seek to maintain our forests.

No industry has the right, by its process of using up natural resources

which it did not create, to destroy the basis of other industries and of public comfort and prosperity.

We have waited so long before taking action that all governments down to townships will sooner or

later be forced to plant, and whatever we may hope to see accomplished the pace will be so slow that the price of timber in the future is likely to be high enough to secure a very handsome profit in return.

Look First to the Forests!

By Prof. J. H. White.

Undoubtedly the production cost of timber artificially grown should be reckoned in compound interest terms, whether private or State plantations. The interest rate does not need to be high, but some profit should be shown.

The position of the State as regards interest calculation on its plantations is this. In a forest which is organized and under management one attempts to cut in one year or any period an amount no greater than the growth put on by the remaining trees in that time—in other words the capital growing stock is maintained and only the interest is collected. Now, if a State is satisfied that the annual cut from its forest lands exceeds the annual growth, is thus reducing capital, it is clearly discounting future values, or borrowing money. This debt can be met by making plantations, but these plantations will not cancel the debt until 50 or more years. Ordinary business would demand that the cost of establishing such plantations be computed with interest compounded. Furthermore, without such a viewpoint, how is the owner, the State, to arrive at a proper sale price when these plantations are mature! In any event plantations of white pine would readily return six per cent. compounded even at existing lumber prices.

Coming to your direct question as to justification in charging reforestation outlays against current forest revenue, such a course would be entirely logical. But this does not cancel the compound interest obligation. Where the plantation establishment cost comes from makes no difference, if it comes from forest revenue the situation is no different than if taken from succession duties—the amount our governments must borrow is not actually reduced.

Do farms reckon interest.

However, the matter of interest has little bearing on the question of

State planting. With idle land and land fit only for tree growing, you can either put it to productive use or leave it. If a plantation on such land can only return 3 per cent. that's all there is to it. You can establish a tree crop and get your needed timber, or leave the land to



PROF. J. H. WHITE
University of Toronto

grow useless brush. The world will need timber, and depend upon it *somebody* will grow it, and the other fellow will not only provide the interest but the profit as well. Millions of acres of land are to-day producing crops merely on the basis of excess of income over outgo, without any consideration of interest on invested capital. Why look at the tree crops differently?

The matter of whether State plantation costs should or should not be computed with compound interest is relatively of little importance for other reasons. In the first place planting on any extensive scale is

physically and financially beyond the powers of most governments, when one considers that the initial outlay alone to plant a small township to-day would be in the neighborhood of a half million dollars. Secondly, lack of plantations is not a disturbing thought at all, but is a minor matter alongside the possibilities of improvement in our ways of dealing with the forest growth we already have. There are already in existence hundreds of thousands of acres of immature forest growth in eastern Canada of as fine crop quality as we can ever grow artificially, which are receiving little or no consideration as regards technical management. True, money is being spent in protection of this young growth from fire, but such expenditure is a normal carrying charge incident to ownership of inflammable property. No money is being spent on technical care of them. If plantations be left to shift for themselves after once being established, as we are treating our immature natural forest growth already on hand, the original outlay is poor business. Isn't it better business to transfer plantation outlay to management of the stands of young growth already in existence?

To sum up, a certain amount of State planting is defensible, if only for its educational and experimental value. But much attention to planting is going off on a tangent. Forestry is continually beclouded by its many phases, all excellent in themselves and worthy issues, but this results in our spending so much time and energy running around on branch lines that we forget there is a main trunk line which will take us to our terminal in faster time. The basic weakness of forest administration in eastern Canada to-day is that the policies are not sufficiently related to well-known forestry principles. Our provincial forest services are not accorded proper scope in determining policy and adhering to it.

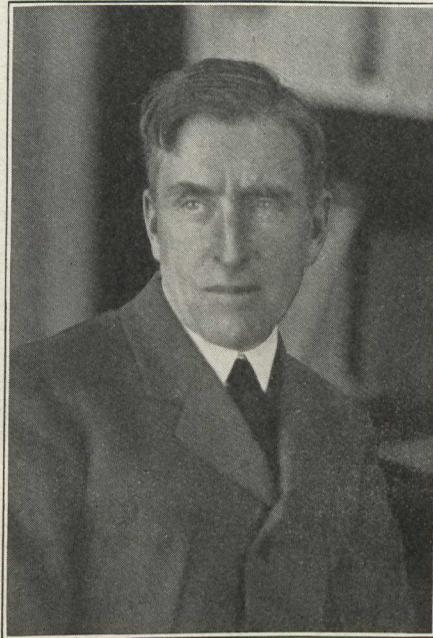
Governments Are Using Forest Capital

By Ellwood Wilson,
 Manager, Forestry Division, Laurentide Company.

In regard to the way in which reforestation costs should be handled, this has caused considerable discussion.

If a man has no timber and wishes to grow it, he could regard his investment in land and stock as a capital charge on which interest must be earned. The interest on forest plantations is usually figured at 2½% or 3%. Mr. Guise of Cornell University recommends 4½%, as from his investigations he shows that very few business concerns ever earn more than this year in year out.

Where a man or corporation have private holdings and wish to continue their supply, it has always seemed to me that money spent in planting should be charged to a depreciation account on timber lands, or to replacement account. Governments owning timber lands seem to me to



MR. ELLWOOD WILSON

fall into the same category, and they might stretch a point and say that plantations in Southern Ontario should be treated on this basis, as they would replace limits burnt over or cut over.

I see no objection whatever to a Provincial Government planting timber out of current revenue. The revenues collected from Crown timber lands are only in very small part income.

The cutting of matured timber which has been growing for up to 200 years is certainly an expenditure of capital.

You use the words "the ghost of compound interest", and that is all it is, nothing but a ghost. When our timber is gone it will be no excuse to say that we were afraid of compound interest.



The Forest Fire is Canada's most industrious Tax-Collector. He robs the public-owned resources of a century's savings and keeps them unproductive for from 60 to 150 years. Scene shows an area fire swept in Southern British Columbia.

Before and After Forest Fire



REPRODUCED ABOVE ARE TWO WOODLAND PHOTOGRAPHS WHICH SHOW THE IDENTICAL SCENE AS IT APPEARED "BEFORE AND AFTER" THE PASSAGE OF THE FIRE DEMON. These pictures were taken on what is called the "Sepra" Portage on the Weeetigo River in the Laurentian Mountains, Province of Quebec. This river is the main stream flowing through the hunting and fishing territory under lease to the Weeetigo Club Incorporated. The Weeetigo is a tributary to the River Ruban which, in turn, is a tributary to the River St. Maurice, flowing into same at Weymontachingue, a point on the Canadian National Railway, approximately two hundred miles north of Quebec City.

Mr. Earle Spafford of Montreal, who is an ardent outdoors man and a member of the Weeetigo Club, has supplied the Illustrated Canadian Forestry Magazine with the above prints and commenting thereon he says in part: "While the photos might not prove very interesting from a woodsman's point of view on account of the poor quality of the timber shown, the thing that impressed me from a 'lover of the woods' point of view was the contrast between the picture taken in the Spring, showing the undergrowth and the Sepra trees with a partridge in plain view, and the dead appearance of the burnt timber looking so cold and barren that one could readily understand that a partridge, or any other wild creature, would give this 'neck of the woods,' or any other barren country a wide berth."

The photos in question were taken by Mr. Elliott Averett, Chatham, N. J., to whom we are further indebted for permission to use same. Both Mr. Spafford and Mr. Averett assure us that all the members of the Weeetigo Club are enthusiastic for both forest and game conservation and they hope that the publication of the strikingly contrasted photos above, will win many converts to this worthy cause.

FORESTS AND WILD LIFE

The Destruction of the One Means the Disappearance of the Other

By J. McArthur ("Miskokway")

THE first step in relation to the protection of the wild life in Canada does not mean more drastic game laws, nor yet a curtailing of the present open seasons or bags. But, the *finis* of all game hunting in this country will soon be reached if the feeding grounds and shelter which nature provides in the shape of our forests are not now, and at once, given more care and protection. In the past, and even at the present time, Associations, formed for the purpose of protecting our wild life

seem to think that wild animals will exist on barren wastes through the stifling heat of Summer and bitter cold of mid-Winter.

The average hunter, from the day he quits the old camping and hunting lodge until the following year when the leaves begin to turn their gorgeous shadings 'neath the old Indian Summer-sun and fall clattering to old mother earth, does not give the deer, moose, bear, partridges or the wandering fur-bearers a single thought. He seems to think and reason out

that there will always be an abundance of the wily red deer or elusive moose—never reckoning on the destruction of Summer-fires; fires that sweep whole townships, burning over again and again, until, as far as the eye can see, there is a vast, undulating barren of grey rocks upon which not even moss has taken hold, and which even the wandering fox will not frequent, knowing no life exists thereon. Deer, we all know, love to haunt the burnt-over ridges for the edible shoots of cherry, willow, poplar and

birch, throughout the Summer months but, when the freeze-up comes, they trek to the heavy woods of hemlock, pine and hardwoods, and sheltering spruce and cedar muskegs. For when it is thirty below zero, an animal must have a certain amount of shelter.

Forests Needed in Winter

It is through the long Winter months that the fawns and calves of the deer and moose must receive succulent and nourishing food in their embryo state or else there will be stunted, weak or still-born young to propagate the species. One cannot expect a Winter wandering, ill-nourished doe to raise any fawns in the Spring, and we have seen the result of this in the scarcity of fawns in the past few years. Also hounding with dogs in mating season is not conducive to success in breeding. But, as in domestic stock, shelter and food come first. If there are no forests there will be no deer or moose.

Partridges require the shelter of pines and hemlocks and the hardwoods to forage among, if we wish to have them in numbers sufficient to be a sporting proposition. They are always plentiful in heavy wooded country, proving that they need the forests.

The black bear as anyone knows who has hunted him, only frequents the burnings in the berry season. His haunts are the forest depths, his den along the edge of a muskeg among the old upturned stumps.

The many fur-bearers, with but one or two exceptions, require the sheltering and general source of food-supply, the forests provide. Beaver soon migrate from the lakes that the fire-fiend has scorched, for their food supply has been destroyed. The foxes and lynx drift elsewhere for there will be no wood hare left for them to prey upon.

Waterways Dry Up

After the fire fiend has accomplished its work, we notice certain creeks and waterways drying up and receding from their old-time levels early in the Summer. This means that fishing will be affected and tourists don't come into a supposed virgin country to gaze at the weird desolation of

IN THE WINTER WOODS



A City Dweller Seeks Rest and Recreation

What was your Greatest Woods Adventure?

Two Cash Prizes of \$10 and \$5 will be paid by the Illustrated Canadian Forestry each month for the most striking articles of 500 words each for the best narrative of actual woods adventure, whether in the course of hunting, fishing, fire ranging or in any other way.

Get out your stub pen and go at it tonight. The prize will go not to a 'literary artist' but to the man with a real story.

All we ask is that you guarantee the truth of the yarn.

And, please, keep it down to 500 words at most.

sun-bleached rocks with no fish to be caught and no wild life to be seen. Not even the song of an insectivorous bird nor the chirp of a cricket livens up these barren wastes. The muskrats leave their dried-up marshes,

denning up along the chaotic, rock strewn shores of the lake, their food supply controlling their prolific breeding habits. And the muskrat is one of our most valuable fur-bearers today.

It is the brooding silence, expectant thrill and lure of the primeval that makes one love the woods. The mincing, dainty walk of a doe deer among the grey maples, the cow moose like a bronze figure standing with her mouth full of lily-pads in a bend of the river, the vain-like strutting of a partridge along the ridge of wintergreen, the kur-r-r of a scolding squirrel in the beech-tree. Or silent as a shadow the owl seeks the darker depths of the hemlocks, while an old porcupine sways in the poplar's top.

Fire soon effaces such a pretty drama as the above, leaving only smoking bog-holes and blackened, misshapen wrecks that once were the Creator's wonderful works of art. For only God can make a tree. Let us remember that to wilfully waste will bring a merited punishment. The forests are not just a monetary proposition to be cut down and destroyed. They have an immense value to the country as a drawing card for hunters, fishermen, and kindred tourists.

And so we sum up the total! If we wish to enjoy the thrill and pleasure of hunting and trapping. If we long for the lure of the leaping fish and rushing rapids. If we just love the woods for their beauty, or peaceful quiet, and the habitants that frequent them. If we look forward to the betterment of our Country, to provide labour in the bush in Winter and in the mills during the Summer. *If we do: Then.*—Let us guard our remaining forests, and encourage those coming on, demand better fire prevention and fighting methods and see that we get them. Otherwise it is but a matter of a few short years and the 'Drama of The Forest' will be finished and one of humanity's greatest friends and assets will be no more.

Moral: A match is man's greatest friend, it came from the forest, don't let it destroy that which it came from: Be sure your campfire is OUT.



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 | |
| Association | \$2.00 a year |
| Contributing Membership | \$5.00 a year |
| Life Membership | \$25.00 |
| SINGLE COPIES, 20 CENTS. | |

The Problem of New Population

A NATION without forests is a nation out at elbows. Canada without a steady timber supply would have the economic status of a cariboo barrens. We may think sometimes that lumber and pulp and paper are the only two dependent children of the Canadian forest, but so deeply involved is the business life of Canada with the welfare of the timber areas that if the forest steps off the stage in 1935 we will not find three million people from coast to coast ten years later.

Until the service of the forest is called in, no newspaper can go to press, no farmer till his ground, no fisherman hoist sail, no miner go a step below the earth's surface, no waterfall turn a turbine, no factory open its doors. Taking the nations of the world as a whole wherever you find a rag-tag economic system you will find there a rag-tag forest policy.

The big interrogation before the Governments of Canada is not the price of next year's logs but where our children and grandchildren will secure any forest materials at all except at a price that puts the cost of residing in Canada quite above the reach of workers.

We still have large forest areas but they are not nearly sufficient in Eastern Canada to provide for much, if any, development of our great industries. No forest can live in the same house as forest fires. We must choose one or the other and choose without another season's delay. Five thousand timber fires last year, most of them started by thoughtless travellers in the woods, brought Canada several notches closer to timber bankruptcy. Here's the world at our national counter begging to be allowed to locate municipalities by the dozen in what was yesterday a wilderness. Timber spells population and without timber, 80 per cent, of Canada's area must remain forever a silent waste. As citizen-owners of nearly the whole of our forest area, we should fasten our fingers on the gold mine of growing forests and say to the flame-throwers among us, 'Hands off!' This resource spells new population, new towns, new capital, new railway traffic, a new means to ease taxation. You can amuse yourself burning down the Town Hall, for that can be replaced in a few months but timber resources cannot be brought back for a century.

Who Is the Destroyer?

A RECENT issue of The Montreal Star contains an editorial headed, "Criminal Waste," which was reproduced in the March issue of the "Canadian Forestry Magazine". The main points of the article will be applauded by every forest conservationist, but one statement will be vigorously disputed. Says the editorial writer of the Star, "There is wood enough for us to cut and burn," say the limit holders and forest owners, 'let the generations to come take care of themselves!' What crass ignorance! What wrong-headed stupidity!"

This is a misfire surely. There is not a lumberman or forest owner—or at least we have never met him—who is so ignorant of conditions in Canada and so unpatriotic as to make any such statement. The lumbermen are not the forest destroyers. Some of the largest firms have held and protected their limits for from twenty to sixty years or more only to have them destroyed, not by their own lumberjacks, but by campers, smokers, settlers, and other elements of the general public.

Unlike an investment in mines or water-power or wheat fields, the forest presents a highly inflammable security. The limit-holder is almost entirely at the mercy of a thoughtless and indifferent Canadian public. The accusing finger of responsibility for forest devastation cannot be pointed at the lumberman until the public has cleared itself of the charge that nine forest fires in ten are set by the average citizen and that fires kill ten trees to the one that the axe chops down.

For Small Woods' Owners

R EADERS will notice that in this issue is commenced a new department edited by Mr. Arthur Herbert Richardson of Toronto, which aims to help the owner of a small woods or the suburban dweller with a group of trees on his place or the bushman with "a bit of a place up north" to look after their tree assets along common sense lines. In this connection the magazine is in receipt of a letter from Mr. A. G. Powter of Montreal who says, "Your journal is doing wonderful work in drawing the attention of so many of our citizens to the better protection necessary to our forests, or what is still left of them. I would humbly suggest that you make a wee department appeal to the small owners of woods, and their are tens of thousands of them, the farmer, suburbanite, city man, and sportsman, telling them to do their quota and explaining how best to clear their bush of dying and dead trees, logs, etc., and to plant saplings in their places. For instance, if all the thousands of acres owned by Montrealers in the Laurentians back of our city were cleared up and turned into beautiful plantations; if all the sporting clubs in Canada spent a little leisure time and spare money in beautifying and making their property more productive, what a 'grand and glorious feeling!' Let every woodlot owner go into his woods with axe on shoulder and pipe in mouth (if he must smoke) with a cap to protect the tobacco from setting fire to the grass and say, 'every day, in every way I plant trees more and more.'"

A Message from the President, Hon. Adelard Turgeon

Hon. Adelard Turgeon, President of the Legislative Council of Quebec, who is the President for 1923 of the Canadian Forestry Association, has issued the following inaugural address to the members of the Association:—

"I gladly take advantage of the invitation of Mr. Black, the manager of our Society, to express my sincere thanks for my election to the presidency. Being a very busy man, I hesitated a long time before accepting, but I have always been much attracted to the cause of the forests in this country and this is why I finally accepted.

"With the gradual disappearance of our forest resources due to the axe of the settler and the fire caused by various agents, I believe that every member of the Association should do his utmost to prevent such calamities. I believe every member should be an agent of propaganda to his friends and neighbours; it is only by educating our people that we can prevent the repetition of the calamities which have periodically devastated our country causing not only the ruin of an enormous wealth in forest

and property, but also the loss of numerous lives.

"We should, therefore, unite our efforts to bring about a better understanding of the real situation of our forests, a more complete co-operation between the public and the officers who work so zealously to protect our National domain. In every village, there should be an organization to prevent and fight forest fires; in every school the principles of forest conservation should be taught and Arbor Day should be celebrated by the young generation so that they should acquire the love of our trees, of our forests and become more and more attached to their country.

"Let us join hands and work together so that even if the drought this year should be greater than last year we will see less forest fires and consequently less devastation than heretofore."

Publish Newspaper in French

L'AMI DE LA FORET" is the name of a new monthly newspaper of four pages to be issued about April tenth in the French language by the Canadian Forestry Association for circulation to settlers and others in the forested parts of Quebec and Northern New Brunswick. The first edition will be 50,000 copies and the Association hopes to be able to afford editions of several hundred thousand monthly so as to reach a large proportion of the people of Quebec and French-speaking sections of New Brunswick who are in contact with the forest properties, and in the best possible position to afford them protection from fire. "L'Ami de la Forêt" will be distributed, at first, by the fire rangers of the Quebec Association and by the staff of the Quebec Forest Service and through other agencies. By no means will the paper attempt to force propaganda on its subscribers. In fact, the general appearance and the majority of the articles in "L'Ami de la Forêt" will indicate a publication designed to entertain the settler, his wife and children, to instruct them with agricultural hints and to amuse them with a dash of comedy. Forest protection news will be freely sandwiched in with other material. The effect eventually should be to enlist every recipient, consciously or otherwise, as a forest protector.

CHANGE OF ADDRESS

The Canadian Forestry Association offices have been removed from the Jackson Building, Ottawa, to the Standard Bank Building, 51 Sparks St., Ottawa. Members and business correspondents are requested to take note of this change.

Barnjum Prize Awards

FIRST and second prizes in the Barnjum essay contest for the best arguments in favor of prohibiting the exportation of lumber went to Ottawa, in the English section and to Quebec City in the French section. The two \$500 prizes were won by J. R. Black, Ottawa, and Avila Bedard, Quebec. The \$250 prizes went to J. R. Dickson, Dominion Forestry Branch, Ottawa, and Albert Trempe, Quebec. The third prizes were won by H. C. Scott, Pointe Claire, P.Q., and Eugene Rivard, Quebec, and the fourth by F. Barnes, Belgo Paper Co., Shawinigan Falls, P.Q., and Henri Roy, Van Bruyssel, P.Q.

In all 549 essays were submitted, and these will be printed in book form for free distribution throughout the Dominion. Each contestant will receive a free copy as soon as they are printed. Volume 1 will be ready shortly.

SUSAN MUSIN'

From "Root and Branch."

Oh, this is the song of the forester's wife,
As she struggles along through the battle of life;
No pretty certificate decking her walls,
To grade her "Class 'A'" when old Gabriel calls!

There are some who in metre their hardships narrate,
While learning the syllables, seven or eight,
In the name of a tree; and others arraign
These workers, and judge them the cause of their pain.

Now listen, I pray to the words of my song.
To all of us here must some trouble belong,
Each thinks his terrific, and sympathy seeks—
But oh! what a fate is mine, lonesome for weeks!

TREE PLANTING ON SAND

Some Helpful Hints as to Profitable Line of Action

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

TO the man who is accustomed to working on the soil, plowing, cultivating and harvesting as the year moves around, the work of tree planting should not be very strange. Trees are plants like other forms of smaller vegetation we are acquainted with and ask for just the same degree of care in handling. There are, however, certain factors which control the success of any crop and which the inexperienced will seek information about before he launches on the new venture—that is if he desires to take every precaution for success. Consequently, as a forester, I wish to point out certain lines of action which experience has shown to be profitable, if you are planning to set out trees on that piece of light land which you have often thought would be suited to such a crop and which, in fact, has not been overproductive as farm land.

When a man decides to plant an area with trees, numerous questions, speculations and possibly difficulties come to mind. For the subject in hand, these may be grouped under the following headings: Time of planting, Different conditions of Sand areas, Choice of Species, Handling the planting stock, and, Where material may be procured. In the order named above, therefore, I shall address myself to elaborate these headings.



Planting in Sand with no covering, showing the use of scattered brush.

Time of Planting.

Much has been written about the most suitable time of the year for planting trees. Some recommend the Spring, others say the Autumn. As a



Planting in sand with a covering of grass and weeds, showing the use of the ploughed furrow.

matter of fact, a tree, large or small, may be planted any time of the year, providing suitable equipment may be had, and proper care is taken. Forest tree planting, however, has to do with setting out a great number of small trees, and to the land owner, the period of the year in which the time for such work can be spared, is as much a factor as the season most suited to the tree. It is reasonable to expect that during the time of the year when the tree is not putting on growth and can be taken from the ground is the best time for the re-

ground is moist, when this work may be done. This is the best time of the year for tree planting. If the weather is wet and muggy, so much the better, for under such conditions the roots are less exposed to desiccating winds.

Fall planting may be carried on providing the ground is moist after continual rains.

Different Conditions of Sand Areas.

It would not be fair to presume that all areas of sand present the same problem of planting. This can be borne out by many of my readers, no matter in which part of Canada you live. Certain sand types by nature of their form and behavior should receive certain treatment.

A common site for planting is a field of light soil which grows a crop of grass in the Spring and is burnt up in mid Summer, due to lack of moisture. Such a field will have to have small areas of the stiff sod removed, so that the roots of the trees may get down into the soil. The easiest way to plant an area of this kind is to turn back the sod with a plow, making the furrow as shallow and wide as possible. In this the trees are planted with a shovel the desired distance.

The easiest sand area to plant is one which is fairly flat, somewhat protected by forest or hills from the broad sweep of the west wind and

moval. A period such as this occurs in the Spring just after the frost leaves the ground and before nature can be said to have awakened. Usually on the farm there are a few days before seeding commences, while the

which is just fertile enough to nurture a sparse crop of weeds and grass. No preparation of this kind of site is required. The trees may be planted with the assistance of a plow as in the foregoing example, or they may be planted with the use of a spade or shovel only.

A sand area which will require a little more care is one which is entirely clear of vegetation and has an inclination to drift slightly when the high winds come. Such an area will be equally successful with others once the trees become established, but the tendency is for such planting to be retarded somewhat for the first few years, because of laying bare of the rootlets.

A means of protecting trees on such areas is to scatter brush loosely over the ground on the parts which are most susceptible to drift, after which the trees may be planted with shovel or spade. Usually where planting is to be done, a supply of brush will be handy. This, of course, should be drawn while the snow is still on the ground—time will not be so valuable, the woods are more accessible and bigger loads may be drawn.

The two foregoing examples of sand land will illustrate areas which are most common in our country, but there may be cases where the soil is drifting to such an extent that scattered brush will not be sufficient protection. Under such extreme circumstances, brush should be laid more thickly and care taken to spread it like shingles on a roof, commencing on the side farthest from the direction of the prevailing winds, the last layer being pegged down either with stakes and wire or with crotched sticks. Where the sand has been drifting onto a roadway or good soil, the writer has recommended staking each window of brush with poles placed at right angles. This method, where adopted, has been very gratifying.

The last mentioned method, which is really a dead, soil covering, may prove too expensive for private planters, over a large area. A means of attaining practically the same results, at a lower cost, but requiring a longer period of time, is by planting belts of fast growing trees, such as willow and poplar. In order to get the best results, these should be considered as preliminary planting. Cuttings should be set out in belts of three or four rows, spaced not more than three feet apart, at right angles to the prevailing wind. The belts should be about two hundred feet apart, over the whole area it is

proposed to plant later with more valuable species. In two years, the growth from these wind breaks, for such they are, will be a protection for anything which is planted in between.

Choice of Species.

One of the important questions which arise is, What shall I plant? The answer to this depends on two things, namely,—what can I get and



Scotch pine planted in sand at the Ontario Forest Nursery Station, St. Williams—showing 6 years growth from the seed bed.

what species should be planted on sand. Of these two answers one regarding soil is more important, because if the site is not suited to a certain species it is little matter whether it is procurable or not, because from the standpoint of a successful plantation, it would be a waste of time to plant trees on soil for which they are not adapted.

As this article is meant primarily as a guide for planting on sand, let us go back in thought to the time when such areas were covered with trees. There at once arises in memory, pictures of extensive areas of beautiful pine—big fatherly trees of rare worth. There are other species mixed with these, but pine are the predominant trees.

If the purpose is to reforest an unsightly corner of the property or to cover a drifting area with pines of any kind, then Jack pine might be used. It is not recommended for extensive planting if one of the other pines is to be had. Jack pine is a native of Canada but is not considered one of the choicest timber trees.

Red pine is in high favour at the present time. It grows rapidly, does well on poor soil, has few enemies and is pleasing to the eye. The

timber is of good quality and can be used for most general purposes. If stock can be had, a land owner would do well to plant a few acres of this sturdy species.

White pine is still a favorite in our country for timber. Its beauty as a tree and as wood is well known. This species also does well on poor soil, but prefers a little more loam than Jack and Red. At the present time, it is advisable to plant this species in mixture with other pines, spruce or larch. The presence of these has the tendency to lessen the danger from disease and insect attack.

Another tree which is well suited to sand is Scotch pine. This species is not native in Canada, but has been introduced from Europe where it is one of the important timber trees. It is very popular at the present time for planting, and grows very rapidly. Most of the successful plantations of evergreens which are pointed out to-day are of this species. However, it is the opinion of the writer, that insofar as possible, it would be more loyal to the trees which have supplied us for decades with lumber, if we keep for a time at least, to our native species. Plant Scotch pine, by all means, and other exotics too, but not at the sacrifice of our own trees.

European and Japanese larch are two trees which are adapted to sandy soil and after the first few years will put on as much as seven feet in a year. In general appearance, they resemble our native larch or tamarac, but have a more bushy foliage.

Handling the Planting Stock.

When trees are shipped from the nursery, care is taken to protect the roots from drying out by packing them in wet moss. Under ordinary conditions, young stock thus packed will remain in good condition for several days. To assure success, some care must be taken to continue this protection until they are finally placed in the ground. From my experience in planting millions of trees, I would say that this interval—that is from the time the trees leave the nursery until they are planted—is a critical time and too much care cannot be taken. It would seem a pity, if after all the work of producing seedlings is performed—gathering of cones in the north, sowing, transplanting and shipping, extending over four years at least—it would seem a pity, I repeat, if during the interval of transplanting to the new site, the life of the young tree were withered.

Unpack your trees in a shady place. If you cannot set them out at once, bury the roots in a trench in the ground and see that the earth is firmly tramped around them. When planting, keep the roots in water and get them in the ground as soon as possible. Furthermore, see that the trees are actually planted. Have the roots hanging straight down and firm the earth well with the foot.

Where to Get Planting Material

In discussing the work of reforestation and tree planting with different people, the question is often asked, why one should secure trees from a nursery instead of digging them up in the woods. In fact, offers are quite frequently made to supply

forest grown seedlings for planting work. Such material may be used for planting and with good success, in fact the plantations of pine set out in New England forty, fifty and sixty years ago were made with this kind of stock. Seedlings which occur in the forest are often scattered, requiring considerable time to procure in abundance, also if the trees are the proper size, the root system is more or less straggling and not well adapted to rapid planting.

In a nursery, the trees are grown close together in beds and are transplanted at least once in three years. When this is done any straggling roots are pruned. The result is that each tree is forced to develop a

compact system with rootlets in a thick ball. This means that more of the nursery soil adheres to the tree, the vital forces of roots are in a small compass and consequently the energy of the young tree is not dissipated by the injury which comes unavoidably to long hanging roots.

The Ontario and Quebec provincial governments and the Dominion Forestry Branch for the prairie provinces maintain nurseries for growing forest trees. Correspondence with these departments will bring information to prospective planters regarding species available for the current year, as well as other information which will be of assistance in helping you to finally plant that sand area this Spring.

When the Patrol Fleet Puts to Sea

Boats of the B. C. Forest Service Do Excellent Protection Work

SMALL CRAFT.

When Drake sailed out from Devon to break King Phillip's pride,
He had great ships at his bidding, and little ones beside;
REVENGE was there, and LION, and others known to fame,
And likewise he had small craft which hadn't any name.

Small craft—small craft, to harry and to flout 'em!
Small craft—small craft, you cannot do without 'em!
Their deeds are unrecorded, their names are never seen,
But we know that there were small craft, because there must have been.

Scant ease and scantier leisure—they take small heed of these,
For men lie hard in small craft when storm is on the seas.
A long watch and a weary, from dawn to set of sun—
The men who serve in small craft, their work is never done.

C. FOX-SMITH in "Punch".

THE Grand Fleet of the British Columbia Forest Service may not sail the seven seas but it does sail seven-times-seven lakes, rivers, bays, quiet waters, tempestuous waters, wherever the duty of forest protection summons.

Forty-one patrol boats work along British Columbia's inland waterways and the long coast line, each with its "beat", each spotting fires, gathering up men and supplies, carrying on along the water routes a protective service that under British Columbia conditions can be secured in no other way.

The Coast Service which takes up 32 of the patrol fleet is no job for idlers. Docking one day last Summer, after a hard run into Vancouver, the Ranger thus described his experience:

"At one moment I could see right over Vancouver Island and the next moment the only thing I could see was sea."

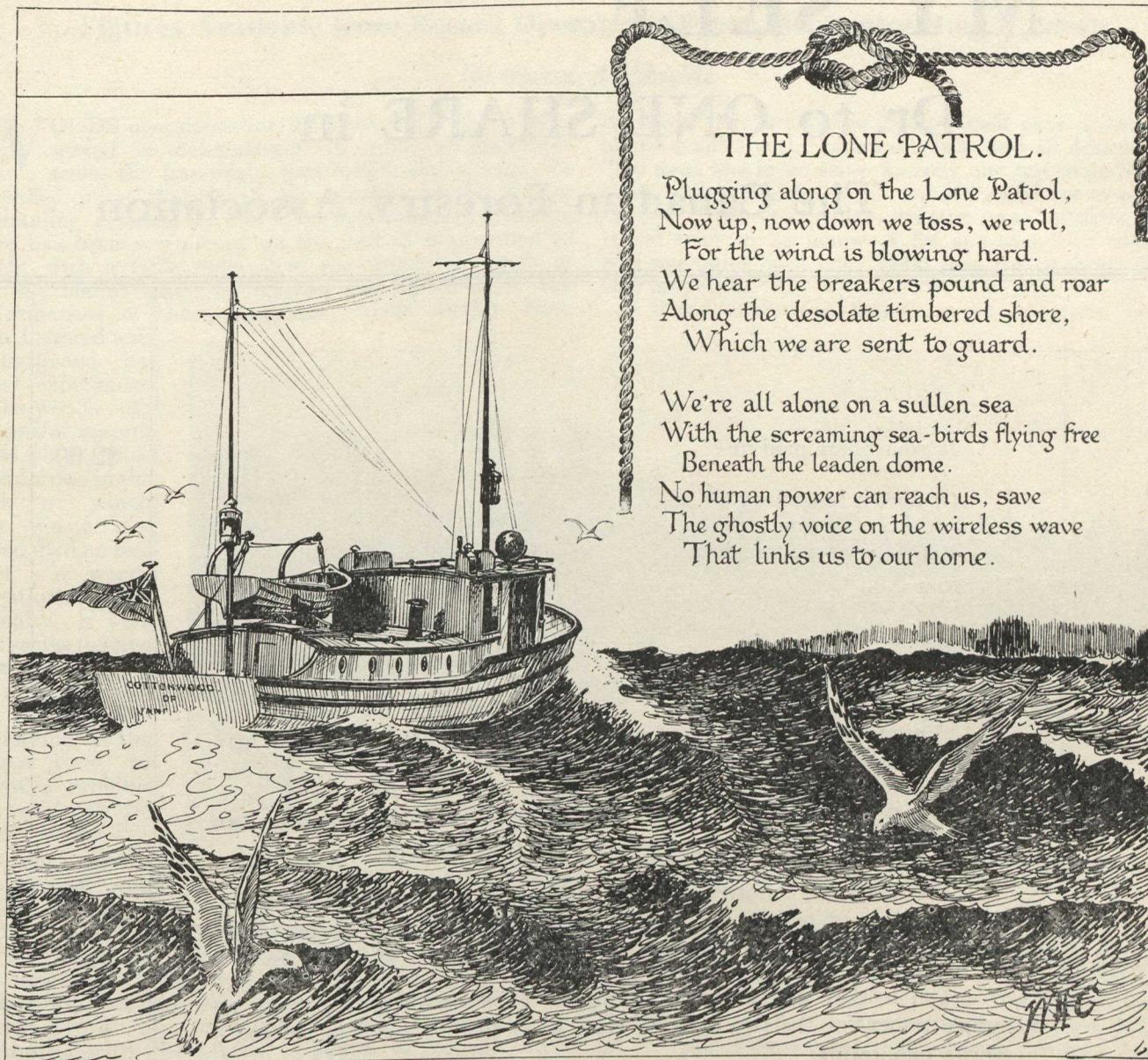
For rough service in the open waters, the patrol ships have to act as the floating homes of the Ranger and Supervisors. Five of them are equipped with wireless sending and receiving apparatus which keeps them in steady touch with Headquarters.

The fleet boasts of four main types. The flat bottomed dory with outboard motor, is used in shallow water. The lake boats, powered by a 12-16 h.p. engine, with a speed of ten miles an hour, can carry from ten to twenty men. The standard Assistant Ranger launch, which is 30 feet long, with a beam of 8 feet, carries an eight h. p. heavy duty

motor and will stand two tons of equipment and six to eight men. These are built with a cabin, and pilot house and are of one-man-control type. Then come the Ranger boats, doing seven to ten knots, 30 to 40 feet in length, carrying an engineer who also acts as cook. They have a cruising radius of 150-200 miles without refilling the fuel tanks.

The first mentioned class of boat is used by Patrolmen in the distant sections of the country where there is little travelling and the only fire risk is that occasioned by lightning, the occasionally careless trapper and nomadic Indians. The second type of boat is used in more thickly populated districts such as, in the Arrow and Kootenay Lakes, Shuswap Lake, Cowichan and Harrison Lakes,

THE FLAG-SHIP OF THE B. C. FOREST SERVICE ON ACTIVE PATROL



THE LONE PATROL.

Plugging along on the Lone Patrol,
Now up, now down we toss, we roll,
For the wind is blowing hard.
We hear the breakers pound and roar
Along the desolate timbered shore,
Which we are sent to guard.

We're all alone on a sullen sea
With the screaming sea-birds flying free
Beneath the leaden dome.

No human power can reach us, save
The ghostly voice on the wireless wave
That links us to our home.

Plate reproduced by courtesy of the B. C. Forest Service.

and is a speedier type. The third type, the standard coast Assistant Ranger's boat, is necessarily a sturdier constructed boat made to stand the heavy seas which it meets with when the fire season is at its peak. The Ranger boat is the home of the Ranger who carries on his normal

function of inspecting timber sales, logging operations, generally making logging inspection reports, noting timber trespasses, forest protection work, fire fighting, transportation of men, equipment and supplies, and generally doing the work which a well trained Forest Ranger should

do. In addition to the main fleet is a Headquarters Boat which is 60 ft. long, has a beam of 15 feet, is capable of sleeping eight people, and has a speed of approximately ten knots. This is used for general supervision work by the District Forester and Headquarters officials.

SEND your friends The Illustrated Canadian Forestry Magazine as a reminder each month of your thoughtfulness and good judgment. Let us have the name and address with a two dollar bill and we will be glad to write to the new member and inform him of your kindness.
Canadian Forestry Association, 51 Sparks Street, Ottawa, Canada.

MY SELF

Dr. to ONE SHARE in

The Canadian Forestry Association

Is your Share paid up?

\$2.00

Or does it hang fire?

Recently we sent each member a memorandum of his two dollar acc—

“Account” is hardly the right word.

“It is my best *investment*” wrote a prairie farmer the other day. “No Canadian can afford to with-hold his support.”

“I’m on a ranger’s pay but here’s five dollars,” stated an Ontario man who believes in making patriotism *work* as well as speak.

“I lost everything in the last forest fire but I’ve got my hands on two dollars and here it is,” reads a message from Temiskaming.

The Canadian Forestry Association is not a government department. It is not backed by any commercial organization. It is a citizens’ body with a vital objective and its maintenance depends on what *you* do.

You receive the Illustrated Canadian Forestry Magazine, surely an ample return for the two dollars. And we’re steadily building for you a better publication.

If you have postponed taking up your share in *your* Association, please look after it *today*.

As a working force in this worth-while Dominion, we are entirely in your hands.

Yours faithfully,

CANADIAN FORESTRY ASSOCIATION,
Ottawa, Canada.

TRACTORS vs. HORSES IN THE WOODS

Figures Available from Recent Operations Favor Mechanical Log Haulers

By George A. Mackie

WOODS operations for the season of 1922-23 have served to demonstrate on quite an extensive scale, the important part which tractors may be depended upon to play in the solution of the Winter log-hauling problem in the Canadian woods. Hitherto there has been a tendency on the part of lumbermen to accept with a trifle more than the proverbial grain of salt the claims made by tractor enthusiasts as to the performances of these machines. These doubts have been fostered and strengthened by past experiences in the woods with tractors of various kinds which, while of real value in the work for which they were designed, had no real place in woods operations. The difficulty in the past seems to have been in securing the requisite traction power without having, at the same time, to accept a prohibitive weight in the tractor itself.

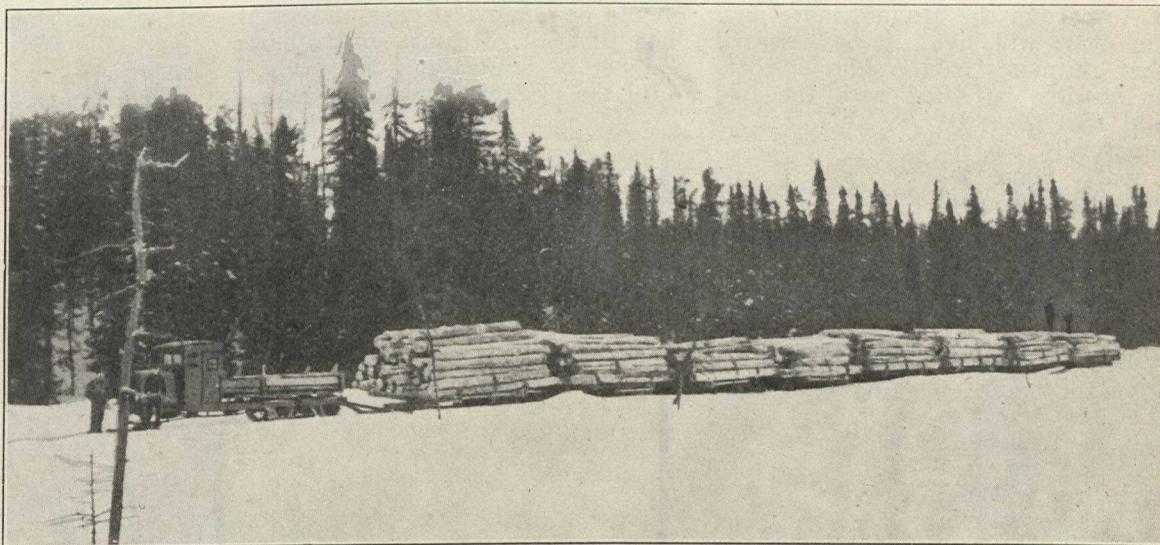
During several seasons past, the problem of hauling out the cut of logs to the main stream or nearest railway has been becoming increasingly difficult. Horse haulage was slow and expensive and the total haul by such a method was not, in many cases, commensurate with the investment in the operation. Woods foremen were confronted with the eternal question of getting their logs out at a price which would show a balance on the credit side for the season's work.

Information obtained by the writer from the men in charge of a number of tractor operations in the Canadian woods for the season just ending would seem to indicate that the problem of economical log-hauling has been solved by them. As a further assurance of this it has recently come to our attention that one of Canada's most reliable and conservative woods experts has become a convert to tractor haulage. After investigating the possibilities and performances of tractors in recent woods operations he has revised his method of calculating merchantable timber by increasing his distances from the railway or main streams from his former limit of five miles to a distance of double that amount. Tractor operators favor a distance of from 8 to 10 miles as the length of haul which serves to best demonstrate the economy and efficiency of tractor operation but there are records available of distances both less and greater than these, in which satisfactory results have been obtained.

In one particular operation which was visited by the writer, that of Messrs. Murray and Omanique near Madawaska, Ontario, a Linn logging tractor was hauling a total of 320 hemlock logs of from 16 to 24 ft. in length

on seven sleighs and the tractor itself over a distance of about 4 miles with remarkable ease and all desired speed. The road was in no sense an easy one but included many steep hills—which were sanded—and several short curves. This particular tractor was making seven round trips in 24 hours—4 by day and 3 at night and was averaging well over 2,000 logs per 24 hour day on this operation.

Some interesting figures as to operating costs of



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

tractors in woods operations are furnished in a letter from T. S. Woollings & Company Limited, Englehart, Ont., a facsimile copy of which is reproduced on the frontispiece of this issue of "The Illustrated Canadian Forestry Magazine". According to the data compiled by this operating company, the tractor proved a substantial saver of both time and money over previous results obtained by horse haulage.

Mr. Woollings states that the tractor hauled a total of 7,000 cords of wood a distance of 6 miles between the 7th day of January, 1923, and the 10th day of March, 1923, at a total operating cost of \$2,050 including gasoline, oil and 2 men's time operating the tractor. This, as Mr. Woollings points out, brings the actual hauling cost to 30 4-10 cents per cord. Comparing this figure with previous haulage costs, when horses were used, which worked out at from \$1.50 to \$1.60 per cord, the difference is quite notable.

Based on these figures the actual saving in money on the operation above described, reached very substantial figures. The saving per cord between \$1.50 per cord and 30 4-10 cents per cord on the total haulage of 7,000 cords works out to the very handsome sum of about \$8,400. Or put in another way, the tractor method of haulage shows a saving of about 80 per cent when compared with horse haulage.

The facts and figures above presented are surely significant and worthy of the consideration of all those to whom the problem of the long haul has become a vexed question.

ARE YOU PLANTING TREES THIS SPRING?

Here Are Practical Instructions That Will Give Sure Results

By Henry J. Moore,
Forester, Public Highways Department of Ontario.

How to Dig the Trees.

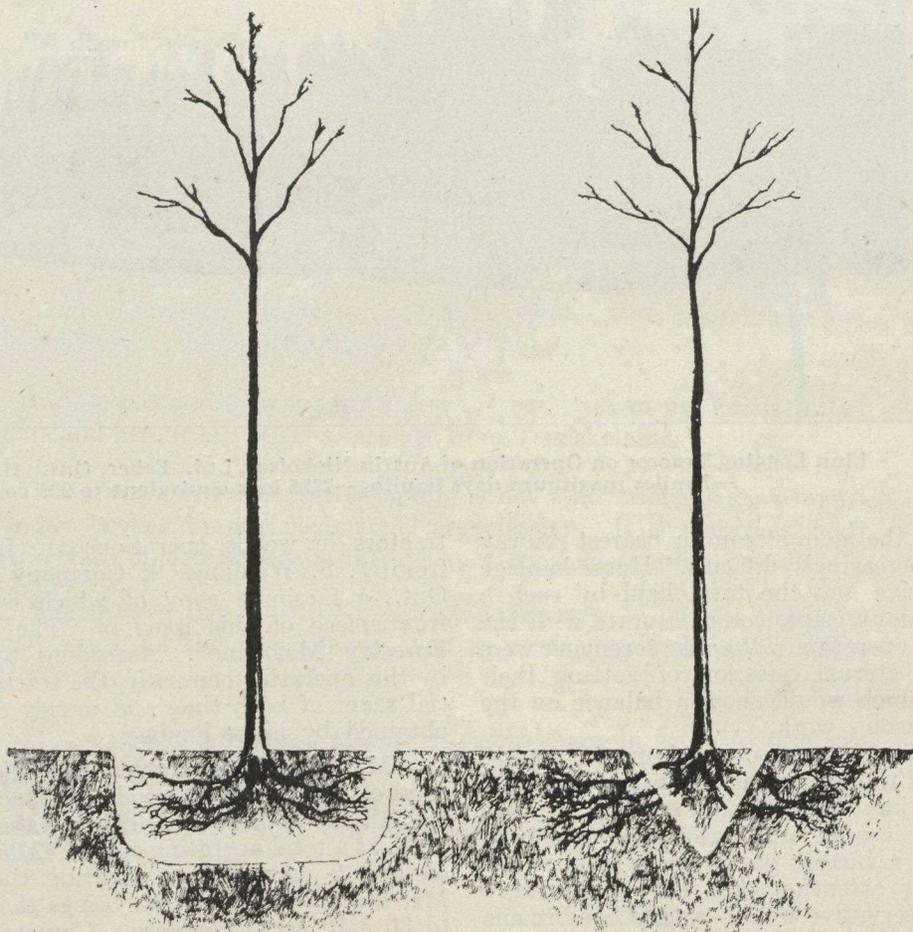
WHEN trees are carefully dug from the nursery rows or from the bush lands, as the case may be, and are subsequently well cared for, very few of them should die. When simply half dug or torn from the ground, more may die than will live. It is essential that as many of the fibrous roots as possible be lifted with the tree and that these be practically uninjured. Some injury, of course, may accrue in digging, but care will prevent much of it. When digging it is well to start some distance from the trunk of the tree, let us say of a sapling eight to ten feet high, we will dig or fork around in a circle at a radius of eighteen inches therefrom, then gradually work under the root system until it is entirely free. Bush trees may in this way be lifted with a large amount of soil adhering to their roots. The greater this amount of soil the greater will be the chance of success when planted. The illustration will show the right and wrong methods of digging bush saplings. Nursery grown trees usually have a finer and more fibrous root system than bush trees and, if properly lifted, a larger proportion may grow when planted even though for purposes of transit it is impossible to retain much soil, if any, on the roots. Their root fibres enable them more quickly to become established but whether nursery grown or bush trees, much depends upon the care they receive after they are dug. The following

essentials should be observed. The roots should not be exposed for more than a few minutes, on any day when evaporation of moisture is taking place. The trees should be transported quickly to their destination and in transit the roots should not be exposed to the atmosphere. They should be planted at once on arrival. The practice of laying out a large number of trees along the roadside until the planter comes along should

when digging tap rooted trees. The oaks and black walnuts especially must be carefully dug. All of the tap root, if possible, should be removed from the soil with the tree. Should, in the course of digging, the tap root be cut or broken, the mutilated end or ends of this or of other roots should be cut away with the knife and the wounds be left smooth.

The tap roots of black walnuts should be cut by means of a sharp spade one year before it is necessary to remove them for planting purposes, whether they be nursery grown or wild. The rest of the roots should not be disturbed. So treated the tap root will fork or branch, some fibres will be formed, and the following year the trees may be removed and be replanted with a greater certainty of success.

The planter should not be discouraged should a large percentage of the tap rooted subjects die after planting. The larger the trees the greater the number which will succumb, therefore when transplanting trees with tap roots it is best to plant small ones of perhaps six to eight feet in height.



RIGHT METHOD

WRONG METHOD

Digging bush saplings or young nursery trees

be deprecated. It is a harmful and senseless practice. If there are a large number of trees they should be heeled in a trench, the roots being well covered; from this trench they should be removed as required for planting. Exposure of the roots to sun and wind or frost for any length of time, say a few hours, will usually cause the death of the tree.

Extreme care must be exercised

Pruning Before Planting.

Newly planted trees die largely as a result of improper reduction of the crown or head, or of failure to reduce the same. When young trees are removed from the bush, nursery, or from an area in which they may be growing, usually their root systems are more or less injured, very often greatly so, even to the extent of the loss of nearly all of the fibrous roots

upon which the feeding root hairs are located. When during the lifting process the fibrous roots with their feeding mouths are mutilated, or are removed, the subjects when replanted cannot absorb sufficient moisture to replace that which is lapped up by the sun and wind from the numerous surfaces on the leaves and branches of a large crown, consequently wilting will occur as the cells of the growing tissues of leaf and stem lose moisture and collapse. This is one of the reasons that many newly planted trees die.

In nearly all cases of deciduous trees the head or crown should be reduced in proportion to the reduction of the roots, and even when roots have not actually been lost but where they have been disturbed in lifting, a reduction of the crown should be made, for in all cases the feeding roots are disturbed and when the tree is planted it will require some time to again become established. Until re-established and able to absorb the soluble food solutions from the soil the roots cannot maintain an adequate supply of moisture or of food to support life in the existing crown, much less promote other growth.

Removing Broken Roots.

It is essential that all broken and badly injured roots be removed from young trees ere they are planted, and also all excessively long ones such as protrude well beyond the general circumference of the mass of roots. If these roots are small a sharp knife will be the proper instrument to use; if large, a sharp saw may be used to greater advantage. In any case the roots should be removed with a sloping cut from the underside and if possible at the junction of two roots, one of which will thus be left to function. Sometimes it is not possible to do this, therefore the operator should use his judgment and sever the root at a point from which he thinks other roots are likely to spring and to maintain life in the portion of root he leaves.

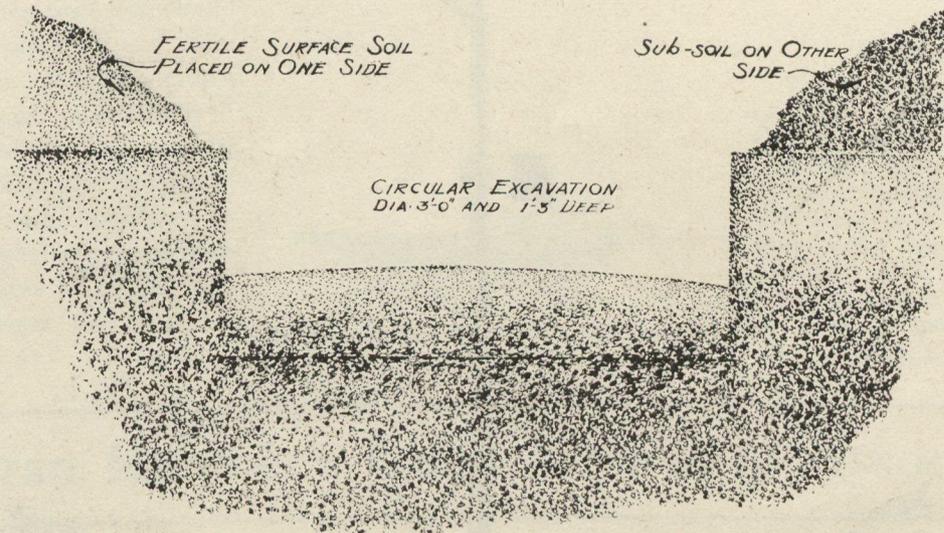
Planting the Trees.

Care must be taken in the planting of trees. It may safely be said that success in the work will be in direct ratio to the amount of care expended on it. Nursery grown trees usually have a good fibrous root system but little or no soil adhering thereto. It is essential that in the case of these and in fact of all fibrous rooted trees that in planting, when possible, the roots be spread out so that they will radiate from the trunk at the different levels at which they spring. There should be only a slight inclination from the horizontal. It is a very harmful practice to crowd the roots of these trees into a hole without a consideration of the manner in which they should naturally grow. Trees which are lifted from the bush lands, though with perhaps fewer fibrous roots, usually have a large ball of earth adhering to their roots; the

covered the remainder of the hole may be filled in with a mixture of surface soil and subsoil. It is better, however, to discard the infertile subsoil altogether. Infertile subsoil should never be returned to the bottom of the hole or be allowed to come in contact with the root system of newly planted trees. When the hole has been filled and the soil raised slightly above the ground level, firmly tramp it until it is well compacted. If the soil is at all dry, afford enough water to thoroughly saturate it to the bottom of the hole.

When the surface is dry enough to allow of cultivation, after Spring planting, as it will usually be in a few days, carefully fork around the tree forming a concave or saucer shaped depression which will, when the rain falls, catch it for the use of the trees. In fairly dry Summer climates, such as that of Ontario, it is

a mistake to mound up the soil around the trunks of newly planted trees in a convex manner. This mound will behave much like a dome-shaped roof and throw off the rain water which should be directed to the roots of the tree. After Fall planting a slight mound will be necessary to throw off the water during Winter.



The hole prepared for planting. Bottom forked. A few sods placed therein and fertile soil on these.

cause of this is that the soil owing to lack of cultivation has become compacted, and also the roots having permeated the organic matter caused by decaying leaves, have a tendency to hold the ball of soil intact. These trees may be set directly in the holes, no spreading out of roots being necessary.

If the tree to be planted has little or no soil on its roots, set the latter upon the mound of earth in the holes. Spread them out carefully and fill between and above them with a portion of the fertile surface soil, having a helper to hold the tree in position during the operation. The helper may slightly raise and lower the tree thus causing the fine soil to sift downward between the roots. When the roots have been thoroughly

planted more than two inches deeper than they originally grew. To bury the roots to a greater depth, and to cover a few more inches of the trunk may result in disaster. It is of the greatest importance that notice be taken of this warning. The inclination on the part of the would-be tree planter with little or no knowledge of the work is to dig holes which are far too deep, and to set the trees therein; when in contact with the cold and often badly drained subsoil the roots are unable to properly function, if at all. Trees will not grow when planted so deep that the oxygen of the air is excluded from the roots and from the soil in immediate contact with the roots. They will not grow because the subsoil is cold and warmth cannot

Under no circumstances should trees be

reach the roots. They will not grow because, under such conditions, nitrates, the most important of all plant foods, cannot be formed, as the bacteria which aid in the formation cannot exist except in the presence of oxygen.

The limit of the plant food area in average soils is nine inches from the surface. It is there largely by virtue of the air and the warmth which penetrates to this depth. Bear this in mind when planting trees and keep the roots near the surface.

Time to Plant.

In nearly every part of the Province of Ontario, except the northerly and north easterly, where at present the Provincial Highways exist, hardy shade trees may be planted during Fall as well as in Spring, and with considerable success. Planting should not commence before the middle of October by which time many of the leaves will fall, indicating that they have performed their functions for the year. A rule is, to plant the species whose leaves have yellowed or have fallen first, such as the elms and maples, and to follow with others as the leaves mature. The leaves of oaks are very persistent, and the trees should probably be planted as late as any. The planting of young trees generally should cease about the 20th November. In mild Winters, except perhaps during cold snaps, planting of hardy shade trees may be continued into the Spring planting season. In no case, however, should planting be persisted in during heavy frosts when the roots are likely to freeze, or when

the soil is at all frozen and cannot be returned to the holes in a friable state.

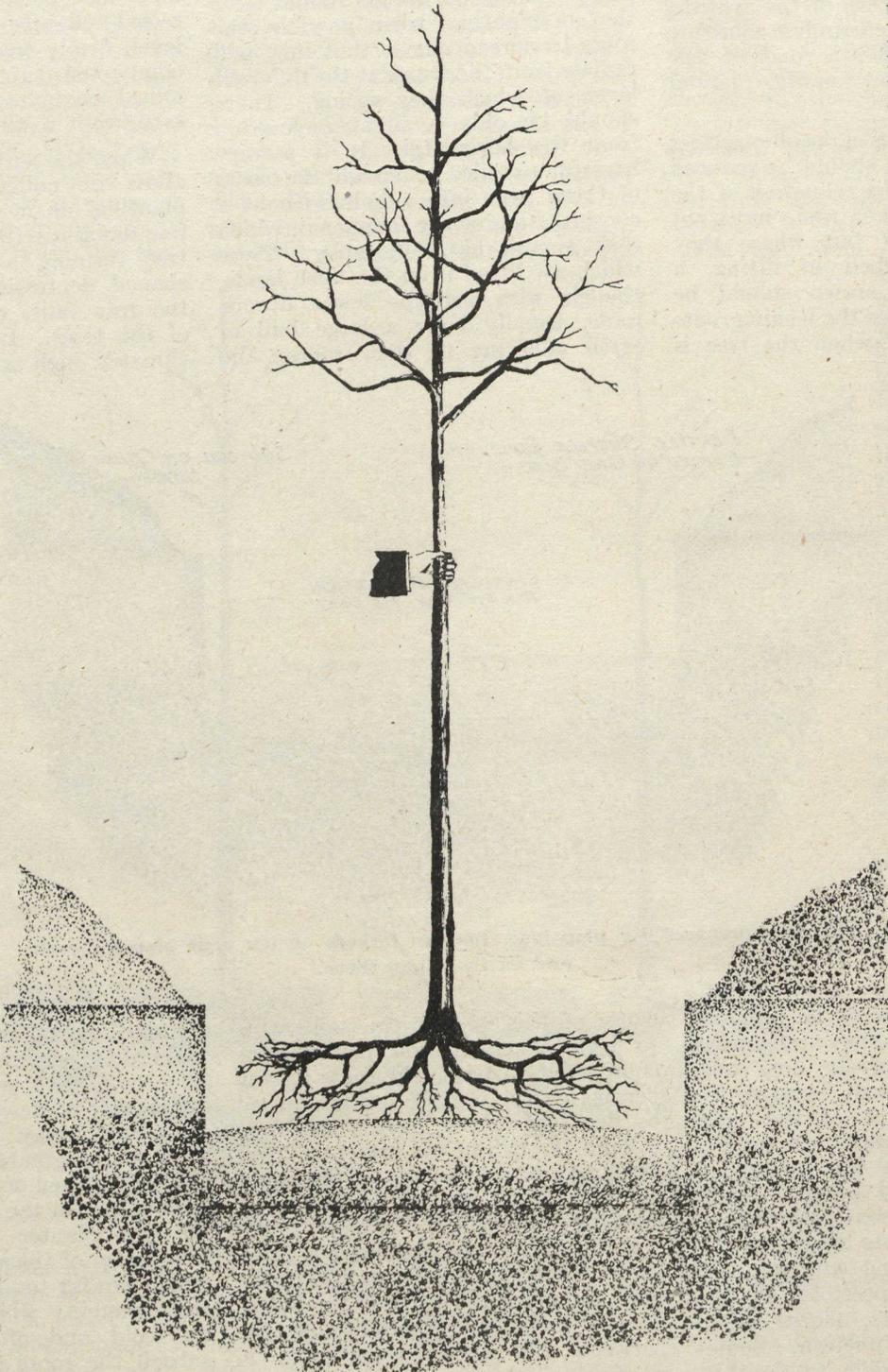
The Spring planting season usually pertains from the time the frost leaves the ground until the buds on the trees begin to burst into leaf. To plant later than this may court failure. The leaves and stems under the influence of warm dry weather

the first week of May, may be regarded as the Spring planting season for deciduous shade trees in Southern Ontario. Northward the period may be extended to a week or so longer. It is folly generally to transplant deciduous trees once the leaves have formed in any locality. Trees have been successfully transplanted when the leaves were half unfolded. It is, however, best to finish the work ere the trees arrive at this stage.

Bush Saplings.

There is much controversy regarding the merits of bush trees. By some they are not considered favorably. In fact, the general public are somewhat prejudiced against them. This is probably occasioned by a lack of knowledge of the subjects and the conditions under which they grow. Many do not realize that young bush trees of the present day are largely suckers from trees which have been removed or have been burned during forest fires. This second growth is useless for planting. In many bush lands, however, there are young trees (saplings) of varying heights which have sprung direct from seeds of the original trees. These are the ones which should be chosen for planting purposes.

Seedling bush trees differ from nursery grown trees only in that they are apt to have more or less thickened roots which have formed as a result of their long tenure in one position, whereas the nursery trees have during the process of raising been several times transplanted and as the roots have been severed the result is that a more or less



The tree planted. Surface concaved to catch rain after spring planting. It should be slightly mounded, if tree is fall planted, so as to shed water.

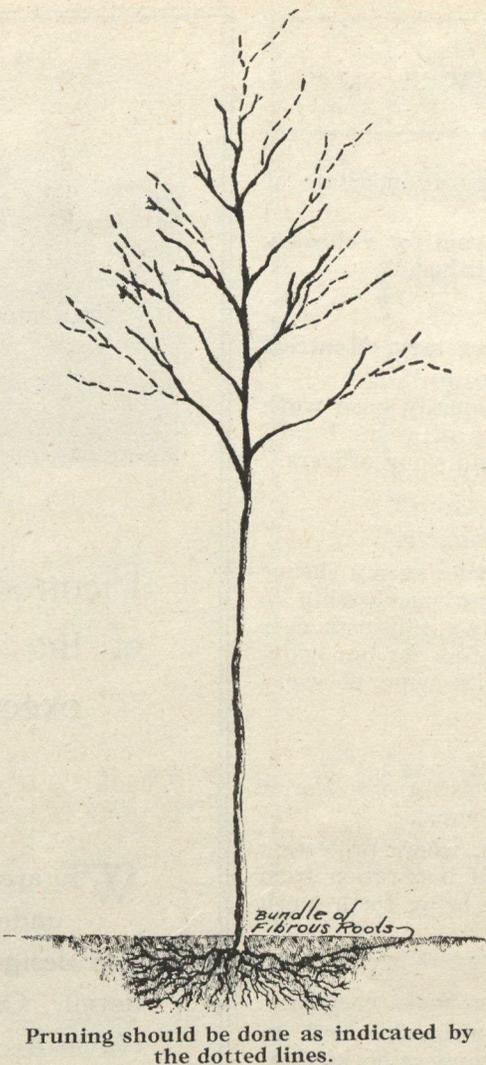
will give off all the moisture they contain and before more can be supplied by the roots the tree will perish. During normal seasons from the first of April, until, and including

the result is that a more or less

fibrous root system has been produced. Cultivation of the nursery area has also favored the growth of fine fibrous roots.

Bush trees may be of two kinds, those which have grown under crowded conditions and are long and spindly with only a few branches at the top, and those which grow in the open and are thus of sturdy appearance and are branched from near the ground upward. The former should not be used.

Sapling bush trees if properly lifted and pruned may be planted successfully, and in many cases with as satisfactory results as nursery grown stock. They should be lifted with all the roots and soil adhering thereto that is possible. The branches should be removed to a point six feet from the ground. The remaining crown should be shortened and thinned. Drastic and severe pruning may be the key to success in the culture of bush trees. "He who hesitates is lost" is a phrase peculiarly applicable to him who hesitates to prune bush grown saplings when they are replanted.



Staking.

Why is it necessary to stake trees? Because it is essential that once planted the root systems be not disturbed. If disturbed the fibrous feeding roots will lose contact with the particles of soil and many of them be broken. Staking will prevent this, for when the trees are properly secured to stakes, the swaying or oscillatory movement which is caused by strong winds is prevented; consequently, the root system remains stationary and the roots develop and perform their functions without a check. The stake also acts as a support and during storms prevents breakage of the trunk.

Timber for Buildings

The home forest in many sections of the country, will supply the timber which the farm needs for buildings, fences, fuel, repairs of all kinds, and many other uses; and there will often be a surplus which can be sold in the form of standing timber, sawlogs, posts, poles, cross-ties, pulpwood, fuel-wood, and blocks of billets for making spokes, handles, spools, oxes, barrels, and excelsior.

Veteran Member's Good Wishes to Association

WE have pleasure in reproducing a photograph of one of the oldest and, certainly, most devoted members of the Canadian Forestry Association, Mr. Auguste Dupuis of the Village des Aulnaies, Quebec. Mr. Dupuis is over eighty-three years of age and is a most successful horticulturist having been made the recipient quite recently of the Diplôme du Mérite Agricole Spécial conferred on him by the Quebec Government. Mr. Dupuis was for several years President of the Agricultural Council of Quebec, Director of the Pomological Society, and later attained the high honor previously referred to. In a recent letter to the Canadian Forestry Association Mr. Dupuis says:



MR. AUGUSTE DUPUIS

Photographed in his beautiful Garden at Village des Aulnaies, Que.

Thank you very much for your kind letter of the 24th in acknowledging mine of the 22nd instant,

re the election of Hon. A. Turgeon to the Presidency of the Association and appreciation of its wonderful work, progress and success in the education of the people for the preservation of our forests for future generations. All the good citizens of Canada think as I do. The officers of the Association are most patriotic and inspire confidence.

I am glad to learn of your publishing a French newspaper on Forestry, "L'Ami de la forêt". Such a paper is much needed, our mountains are denuded for pulp wood. The valleys suffer, the streams and rivers are drying. I wish I was younger to witness the success of the Association.

Respectfully and faithfully yours,

AUG. DUPUIS.

Some Words of Cheer

From: Chas. C. Dean, Dept. of Conservation, State of Indiana,

"I wish to say that your Journal for February is the best that you have ever published."

From: C. J. Smith, Manager and Secretary, Montreal Warehousing Co.,

"Having followed the exceptionally good work of your Association for a number of years I take pleasure in congratulating you and your officers."

From: George Ashdown, Winnipeg, Man.,

"I have much pleasure in enclosing my cheque for five dollars as my contributing membership to your association. I feel particularly enthusiastic over the valuable work you are performing for our country. I consider the association deserving of every loyal Canadian's support."

From: J. M. Sloan, Sec. and Treas. Anthracite Forest Protective Association, Hazelton, Penna.,

"We in the anthracite region, where protection is such a vital issue, get a world of inspiration from your magazine. May your efforts bring forth much fruit."

From James Devlin, Edina Farm, Venn, Saskatchewan:

"I must say I appreciate your magazine and its helpful hints about trees. The last copy came in very handy as we are not all versed in tree diseases and insects that destroy them. The pictures are really worth the \$2.00 that we pay for the paper."

From an enthusiastic and literary reader of the Magazine:

"The February issue was a wonderful one. Stephen Leacock, James Curwood, and Sam Harris, all contributing something spicy, good and true, and warnings to the wasters of bird and animal and plant life, especially trees. You should be proud of your magazine. Page 127 of the Magazine contains a verse 'A Peeled Birch Tree' that touches my heart, and 'The Smell of Trees' by R. L. Stevenson is a gem."

From: Earle G. Appleby, Camp 4, Dore Lake, Sask.,

"Just received (70 miles from the steel and a 'Barber-shop') my January number of Canadian Forestry Magazine—She's a Bear—and getting better every issue. Keep a 'pounding them on the tail' on this Fire Prevention stuff (Old Timer). You sure are doing good work right now. I delight in passing my Magazines out to the Fishermen and Trappers here as soon as I am through with them. And I am proud to belong to such an organization."



Pictured above is an example of the skilled workmanship executed in our plant.

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New Method of Fire Ranging

MANY favorable comments were heard at the various Conventions held in Montreal in January, on the new system for recording the work done by Fire Rangers each day while out on the Range. This was a new departure in Fire Ranging, tried out for the first time two years ago and which has been constantly growing in favor ever since.

Canada can claim the unique distinction of being the first country in the world to use time recording systems for Fire Rangers although the need of something of this kind would seem to be universal from the fact that many inquiries in regard to the operation of the system are now being received from other countries.

The system has proved of exceptional value to Forestry Protective Associations who were frequently forced to deal with complaints from limit-holders that rangers were not covering certain territory. They are now able to furnish absolute proof of the ranger's visits to any part of their territory, and the dates on which the visits were made.

Speaking at the Convention of the Quebec Forest Protective Association, in Montreal, Mr. E. T. Allen, Forest Economist, of the Western Forestry and Conservation Commission, Portland, Oregon, compared the results of air patrol with ground patrol and lookout towers. Mr. Allen stated that out of a total of 432 fires only fourteen were reported by the air patrol which had not already been reported by the lookouts and ground men, and sometimes extinguished by them.

The new time recording systems are used both for lookout towers and ground patrol. They keep a record of the ranger's work each day for a period of twenty-eight days or any portion of that time. Every user of the system last year has expressed satisfaction in the results obtained. The equipment is a product of Hardinge Bros. of Canada, Limited, of Toronto.

1923 "A.B.C." Lumber Directory

THE new edition of this valuable book of reference is recently off the press and exhibits many features which will make the directory and year book even more useful to the trade than its predecessors. In an industry such as lumbering in British Columbia, the busy man is continually confronted with the need for obtaining information on a thousand and one matters and this book provides a ready reference, giving instant access to accurate and voluminous data in every department of the trade. Altogether the book is a veritable guide to the lumber industry of British Columbia and is a worthy successor to the four previous editions put out by the Progress Publishing Company, Ltd., of Vancouver.

Forestry vs. Farming

Canada spends about \$800,000 a year on agricultural research and not more than \$35,000 is devoted to forest research. The forests of Canada occupy about 80% of the inhabitable area and practically the only population in that 80% of our country will have to be attracted by forest industries.

World-Wide Facilities



FOR the handling of Foreign Exchange transactions, collections and the remitting of money at home and abroad, this bank can offer you exceptional facilities and a direct personal service through over 700 of its own branches in Canada and Newfoundland, the British West Indies, Cuba, Central and South America, as well as in London, New York, Paris and Barcelona.

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Ottawa, Central Chambers

Aviation Plans for 1923

R. C. A. F. Is Making Preparation for a Busy Season's Work

Specially written for The Illustrated Canadian Forestry Magazine

By J. A. Wilson, Secretary of the Royal Canadian Air Force

THE Royal Canadian Air Force is busy at all Stations on preparations for the flying season. The Winter's work of overhauling and reconditioning the machines used last year is now approaching completion and plans are being perfected for the Summer's work, commencing in the beginning of May.

Demands for flying for other Government Services are increasing each year and are now beyond the capacity of the machines available. To replace machines worn out after several seasons constant service and to provide more modern and efficient aircraft to meet the many demands for flying, contracts have been let for the delivery of eight of the latest type amphibian flying boats. Two of these will be built in England and delivered in this country early in May. The remaining six will be of Canadian manufacture and are due for delivery during the Summer. Without these a very large part of the programme would have been impossible. With them and the machines already available, the Air Force have in contemplation a big series of operations and look forward with confidence to providing an even more efficient service than has been given in the past. The new machines will be smaller and, therefore, more easily handled by the small staffs available at the stations. They will require less maintenance; use less fuel for a much greater speed; have a greater carrying capacity in relation to their H. P., and a higher ceiling. The range of the operations and the ease with which they can be carried out will therefore be greatly increased by the new additions to the equipment of the Air Force.

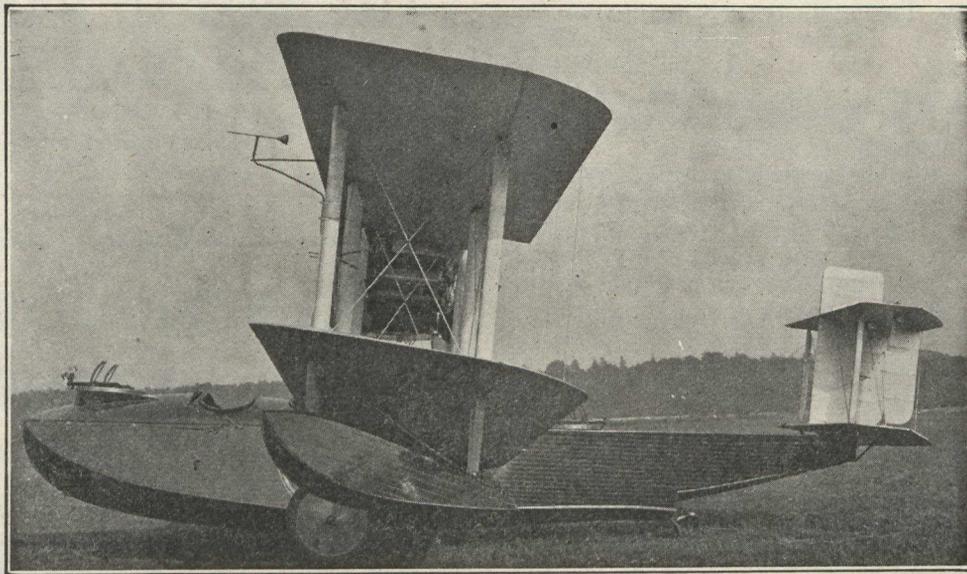
A tentative programme of work for 1923 has been drawn up as follows:

Patrols, in the railway belt in British Columbia, during the season of fire hazard, as required by the Forestry Branch, over the district lying between Revelstoke and Vancouver, will be carried out. No definite agreement has yet been reached with the British Columbia Government in regard to work for their forestry service. It is expected, however, that work similar to but double that of last year will be required in the coastal regions of southern British Columbia and on Vancouver Island.

This work included five trips on fire detection. These trips were not on any regular patrol, but were special trips of discovery ordered on information, or to obtain definite information where no reports had been received. A distance of eight hundred and eighty-two miles was covered on this work and the light three-passenger machine was used. Eighteen trips of fire fighting inspection were made and a total of forty-four hours ten minutes was flown, covering two thousand, six hundred and ninety-three miles. Seven flights were made on actual fire fighting. Forty-five fire fighters were carried to various fires. The flying time on this work was fifteen hours, thirty-eight minutes, with a distance flown of nine hundred and ninety-eight miles. On general supervision of Field Staff, eight trips were made, with a total flying time of seventeen hours, twenty-one minutes. Forty-three passengers were carried, covering a distance

of one thousand and fifty-nine miles.

From High River the patrols for the Forestry Branch and National Parks Branch over the Bow River and Crow's Nest Reserves and Waterton Park in southern Alberta will be continued, and, in addition, occasional patrols will be undertaken over the Rocky Mountain Park dis-



VICKERS "VIKING" AMPHIBIAN FLYING BOAT

Eight machines of this type have been purchased for use of the R.C.A.F. this year.

trict as far south and west as Windermere, B. C. It had been hoped to provide a regular fire patrol over this Park, but the limited funds available and the demands from other services made this impossible. Provided conditions permit, some flying will also be done from the Yellow Head Pass over the Park areas in that district. These will be undertaken principally for the survey services, but will also provide some measure of protection to the forests at the same time.

The plans provide for 725 hours flying during the season on this work. This will be sufficient to maintain a regular air patrol during the whole season of fire hazard and special flights as found necessary for the Forestry Branch. The modified D. H. 4B single seater aeroplanes, fitted with wireless telephony, which have given complete satisfaction during the past season, will again be employed. Their efficiency has been proved by the fact that out of a total of 495 flights made, not one single



Airscape of Power Plant at Gres Falls

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Aircraft offer the limit owner, engineer or executive a unique opportunity of gaining accurate personal knowledge of timber limits, mining claims or water-powers.

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With the results of an aerial survey before him the man who has personally flown over the territory is in a position to plan his operation from personal knowledge and accurate information.

Some of our work was recently checked over by a prominent forestry engineer who said:

“There was also a discussion as to the area burned, but the differences were relatively small, and as far as I went I found your map to be correct. I must say that my experience has given me a much better appreciation of aeroplane work than I had before, and I hope that we can co-operate again in the near future.”

Requests for further information will be cheerfully complied with and involve no obligation whatever. Address enquiries to either Company.

Laurentide Air Service, Limited **Fairchild Aerial Surveys Co.,**
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(near Grand'mère,)

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(Moonbeam, Ont.)

patrol was missed through mechanical defects. This perfect record is a tribute to the unremitting attention paid to detail on the part of the staff of the High River Air Station and the excellence of the design and manufacture of the Rolls-Royce engines used.

In the Manitoba area, patrols for the Dominion Forestry Branch from the main base at Victoria Beach and sub-bases at Norway House and LePas will be continued and extended. The new machines will be specially valuable in this district as last year the large and obsolete F. 3 boats made the efficient carrying out of this work with the small staff available, a task of extreme difficulty. The use of aircraft for fire detection and prevention is particularly valuable in this unsettled country where the forest area is very large and the present methods of transportation slow, uncertain and laborious. The work done, during the past two seasons has clearly proved the success of air patrols, and it is hoped that this year an adequate service may be maintained throughout the season with a corresponding reduction in the ground patrols.

Requests for similar work in northern Saskatchewan have been considered. Lack of funds and the limited number of machines available, will not permit of the establishment of separate units and a permanent base of operations in that district this year. Reconnaissance flights will be undertaken however, to gain information with a view to the extension of the air patrol into northern Saskatchewan in future years. It is also hoped to carry out a large programme of transportation for the maintenance of survey parties working in the remoter regions of the country and a programme of photography for the Survey Branches of the Government.

The programme allows for 700 hours flying for the Forestry services. This exceeds considerably the amount carried out last year and should provide for continual patrols throughout the season of fire hazard. It is

proposed to employ Vicker's "Viking" amphibians and H. S. 2L flying boats for the patrols and, in addition, to have available at Victoria Beach one large H. 16 twin engine flying boat for the carriage of fire fighting parties and equipment. All machines will be fitted with wireless telephony.

Negotiations are in progress with the Provincial Government of Ontario for the continuation of the forest fire patrols in the Algonquin Park region and their extension northward and westward over the country beyond the French River and Lake Nipissing. If the proposals now under consideration are approved the main base of operations will be moved into the North Bay district from the old headquarters at Whitney on the Parry Sound line. A base there will be much nearer the centre of the proposed operations. With refuelling depots at convenient places throughout the area a very large district containing some of the most valuable forest country in eastern Canada can be efficiently covered from North Bay. The operations for the Provincial Government will be carried out on a repayment basis as was the case last season.

The machines used on this work will be H. S. 2L flying boats and later in the season when deliveries are received Vickers "Viking" amphibians. For some of the patrol work a modified Avro seaplane with a Wolesley "Viper" engine and a single float, will be used. Tests were made of the Avro machines last year. With the modifications now in hand it is hoped to provide an efficient forest fire patrol single seater machine with a small H. P., more economical to operate than the larger types. These can then be held for carrying fire fighting parties and equipment.

In Quebec and the Maritime provinces the programme of work is still under consideration and it is not possible to state exactly what operations will be undertaken. Some interesting proposals have been received

VICKERS "VIKING" AMPHIBIAN

Brief Specification:

"VIKING" MARK IV, Six passengers and baggage or 1,360 lbs
 Freight RANGE: 340 miles, SPAN: 50ft. HEIGHT: 15ft. 1 in.
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The 'Viking' was the winner of the First Prize of £10,000 for the Amphibian Class of Aircraft entered for the British Air Ministry Competition, Sept., 1920.

VICKERS LIMITED HEAD OFFICE: Vickers House, Broadway, London, S.W.1
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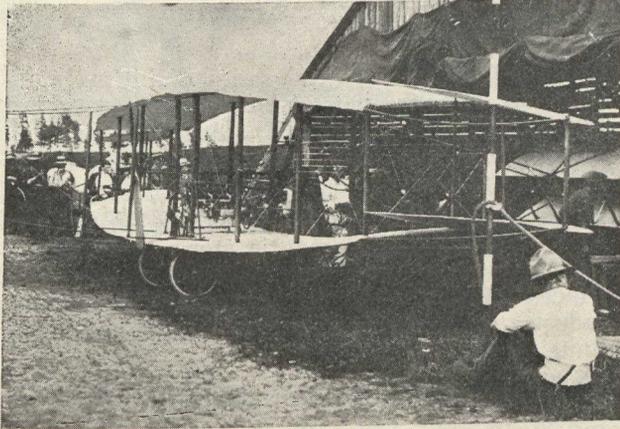


Vickers "Viking" Amphibian on the Thames.

and it is fully expected that a considerable quantity of useful work will be done during the coming season.

One feature of the operations during 1923, which will be watched with interest, will be the extension of the use of wireless telephony in forest patrol work. The success of the system was fully proved last season at High River

CANADIAN GOVERNMENT'S FIRST AVIATION ATTEMPT



Pictured above is the "Baddeck No. 1" which made one flight with a disastrous ending at Petawawa in August 1909. A sister ship to this however made successful flights later, under Government auspices in Nova Scotia. The pilots were Messrs. McCurdy and Baldwin. A comparison of this photo with that of the Vickers' "Viking" on a preceding page illustrates very strikingly the progress made in Canadian Aviation in a period of 14 years.

where all the patrol machines were equipped with wireless phones and were able to maintain continuous communication with their bases during their patrols over distances up to 175 miles. This work is being done by the Royal Canadian Corps of Signals.

Preparations are being made for the installation of a wireless telephone station at the forestry headquarters at Winnipeg through which communication will be maintained with the operations throughout the whole area. The District Forestry Officer will, therefore, be in direct touch with the operations from day to day and will be in a position to organize his forces to the best advantage. The advantage of this, over so large a district where the working parties are so widely distributed and where conditions vary from day to day, is obvious. By no other known method can such complete control be obtained. Wireless telephony will also be used in connection with the fire patrol work in Ontario.

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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 month ending February 28th, 1923, as follows:—

Private Air Pilots' Certificates.

Lapsed:

V. Simmons, Detroit, Mich., U.S.A.

Commercial Air Pilots' Certificates.

Issued:

W. Sharpe, Windermere, B.C.

Renewed:

G. M. Croil, High River, Alta.; J. H. Tudhope, High River, Alta.

Lapsed:

D. S. MacDonald, Wallaceburg, Ont.

Air Engineers' Certificates.

Issued:

W. Sharpe, Windermere, B.C.

Certificates of Registration of Aircraft.

Cancelled:

Commercial Aviation School, Victoria, B.C.

The Editor's Mail Box

Hamilton, Ont.

To Editor, Canadian Forestry Magazine.

Re-forestration in Scotland

The re-forestration of Scotland is a striking example of what was done to re-forest her barren and rocky wastes, somewhere close to the year 1750 and the evidence of how successfully that was done, is very apparent in our present day.

To give a few interesting facts from old Scottish records, dealing with this particular part of the history of that Country.

Grant of Monymusk, started in 1716 and continued to his old age to re-forest his lands. He set out and planted 50,000,000 Spruce Fir.

Lord Findlater in 1767 in Nairnshire, planted 11,000,000 trees.

Lord Moray over 12,000,000 of Oaks, Elms, etc.

Duke of Atholl in 1727 "with a keen eye to business" as well as improving his Estate, planted 16,000 acres with 27,000,000 Larches.

This was a time when the Scottish people went through great trials and hardships. Perhaps then, was laid the foundation for their National Trait of Character and Endurance, which has stood their people well, all over the World in years after.

I am not an expert in Timber tracts in our Northern Country on the re-forestration problem, but I am firmly of the opinion, that the best plan to re-forest cut over Pine Lands, which have not been burned, is "Nature" herself. She would re-forest such lands,—better, quicker and much more cheaply than artificial means, *provided fire was kept out.*

The burnt over lands are a greater problem and what a cheerless, desolate look they give our Northern Country—beautiful Lakes, Rivers and Streams, their banks for miles scarred and hideous from fire effects. We, in this generation feel the loss of our Pine and White Oak but little, except the increased cost, when in need of something special. Even then, it is difficult to get, if wanted in large quantities and special sizes must be imported from the United States. But the generations to follow will pay dearly for our improvidence, wastefulness and utter lack of vision for the future.

The recent fire at Haileybury is now a forgotten incident with most of our people who did not actually suffer, but what a set-back to that Country and the huge loss to those unfortunate people.

What steps will be taken for the future to prevent a re-occurrence perhaps somewhere else in our Northern Country?

WILLIAM HENDRIE.

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The Iron Horse of the West

BY BURT P. KIRKLAND

Is Just One of a special series of intensely interesting articles now running in **American Forestry**, the magazine of The American Forestry Association. Mr. Kirkland's article appears in the April number.

Our Last Timber Frontier is in the West, where the interesting and romantic story of America's last large-scale lumbering is being written with **Pieces of Iron**. It is here that the lumber industry is marshalling its great lumber-producing units.

America's Transition from Old Forests to New

by E. T. Allen, the Pacific Coast authority, is now appearing in four installments and presenting in a charmingly educational way the inspiration, past, present and future of American forests. Mr. George S. Long of Tacoma, Wash., says:

"It is the most illuminating and accurate story that has yet been told and should be read by every citizen of this country."

The complete series of articles includes:—

January—"Our Forest Hunger," by Ovid M. Butler.

February—"America's Transition from Old Forests to New," by E. T. Allen.

March—"The Passing of the Piney Woods," by R. D. Forbes.

April—"The Iron Horse of the West," by Burt P. Kirkland.

May—"The Blazed Trail of Forest Depletion," by Gifford Pinchot.

June—"The Long Haul from the Woods," by Earle H. Clapp.

July—"The Land Cry Against the Forest," by P. S. Lovejoy.

August—"The Farm and the Forest," by Henry S. Graves.

September—"Wild Followers of the Forests," by Aldo Leopold.

October—"The Forests of the World," by Raphael Zon.

November—"The Coming War for Wood," by Howard F. Weiss.

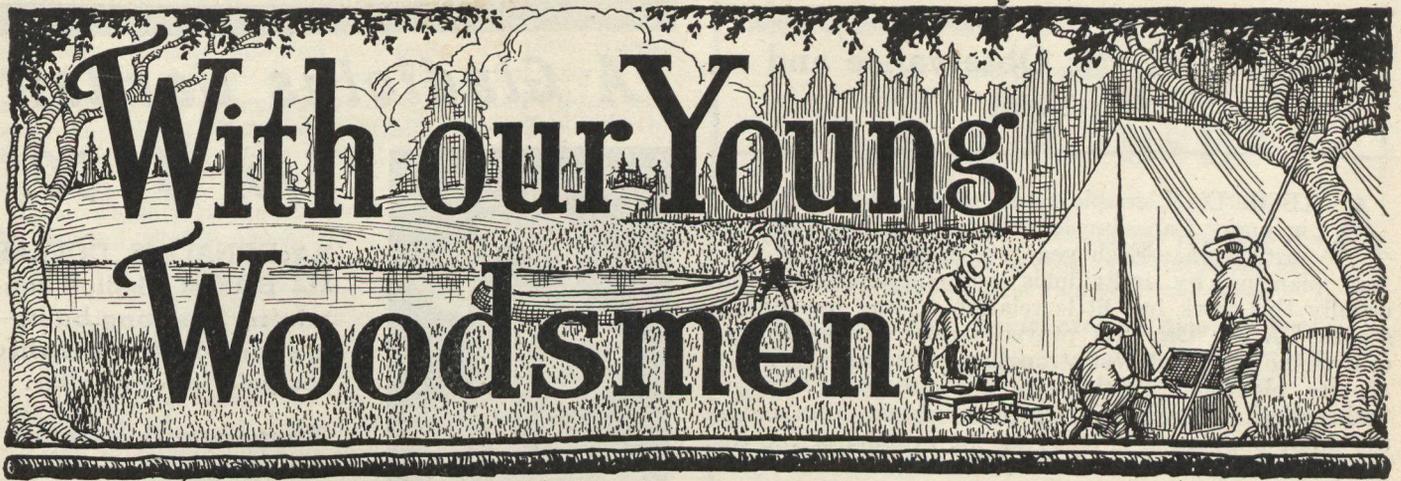
December—"Balancing the Forest Ledger," by William B. Greeley.

Do not miss these articles and many others of equal interest and importance which appear in every issue of **American Forestry**. Beautifully illustrated. Popularly written. Trial subscription three months, \$1.00. Order now. The subscription price of \$4.00 per year (Canadian postage, 25 cents extra) includes membership in THE AMERICAN FORESTRY ASSOCIATION and the privilege of purchasing any book published at a discount of 10 per cent from the list price.

A limited number of subscriptions may be placed starting with the January issue.

THE AMERICAN FORESTRY
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914 Fourteenth St., N. W., Washington, D. C.



The forest resources of Canada are about one third as great as those of the United States.

Five sixths of all lumber made in Canada is sold to United States consumers.

The grade of white pine that sold to Canadian home builders seventy years ago at twelve dollars a thousand feet, now sells at eighty dollars.

No one yet has supplied a satisfactory explanation as to how the sap of a tree rises.

Why the prairies are treeless is now generally ascribed to free running fires. Trees will grow on almost every section of the prairie.

There is no quarrel between the grower of forests and the grower of farm crops. The former asks only the soil that is useless to the latter.

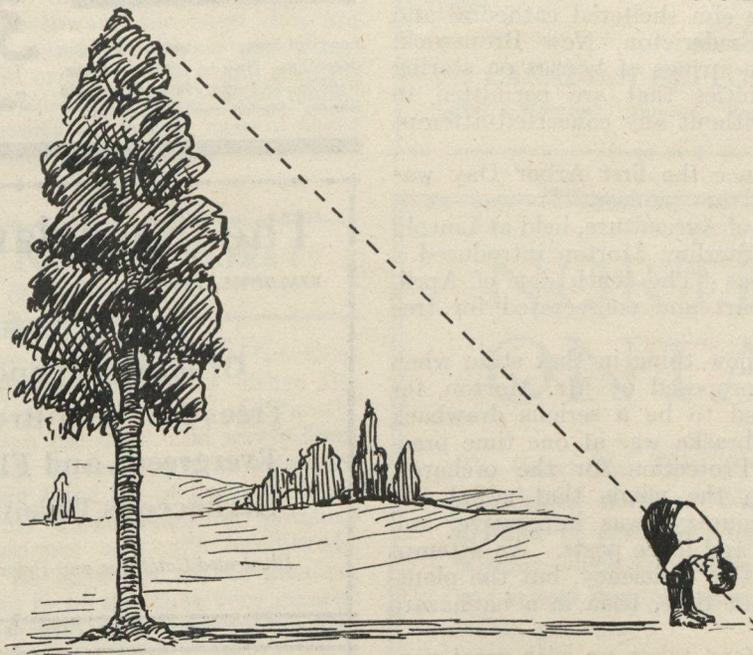
Forest fires destroy at least ten times of the Canadian Forestry Association's work is contained in three recent letters from Boy Scout organizations which a short time ago, joined hands with the Young Canadians Forest League, the junior branch of the Canadian Forestry Association.

At such widely separated points as Loverna, Sask., Elk Lake, Ontario, and St. John, N.B., Boy Scout organizations have been able to secure at each place sixty members for the Canadian Forestry Association. This excellent achievement brought each of the Scout troops an excellent radio set. Any juvenile reader of this issue of the 'Forestry Magazine' may secure a similar prize for a few hours of membership development in his neighborhood. Full particulars will be sent on application to the Young Canadians Forest League, 51 Sparks Street, Ottawa.

"We have been able to receive clearly eighteen stations", writes the St. John, N.B., troop regarding the radio set supplied them. "We wish to thank you for the kindly interest you have shown towards us".

as many trees as are laid low by the axe.

Some of the common causes of forest fires are unextinguished camp fires, lighted matches and tobacco, deliberate fires set by prospectors to uncover the rocks, and fires from railways.



ONE WAY TO MEASURE A TREE

In parts of South America the natives use a curious method of measuring the height of a tower or tree. They turn their backs to the tree and walk away from it until they reach a spot where by stooping down and looking between their legs the top of the tree becomes just visible. Then they make a mark on the ground and the distance to the foot of the tree is the same as the height.

Live boys win radio sets.

THE MAN AND THE WOOD

A man came into a Wood one day with an axe in his hand, and begged all the Trees to give him a small branch which he wanted for a particular purpose. The

Trees were good-natured and gave him one of their branches. What did the Man do but fix it into the axe-head, and soon set to work cutting down tree after tree. Then the trees saw how foolish they had been in giving their enemy the means of destroying themselves.—Aesop's Fables.

Arbor Day—Its Observance and Growth

ARBOR DAY, so pleasantly and usefully observed in many Canadian localities, is hardly a national institution. Each year witnesses more and more tree planting by individuals and municipalities but usually this work has little relation to any one day or season. Arbor Day has proved most valuable in concentrating public interest strongly on the value and need of tree planting. Particularly has this been effective with school children. In scores of communities today, the adult population is enjoying the benefits of the tree planting carried on in their childhood, for twenty or thirty years brings the tiny seedling or sapling into a thing of glorious and self-renewing beauty. However, one does not need to name the hundreds of Canadian cities where imposing school buildings have been erected these many years, surrounded by bare and bleak commons, with not a single tree to break the harsh lines of brick and mortar and boardwalk. Fifteen years would give all such schools a superb park of maples and elms or other species. Who will pretend that the wretched openness of so many of our school grounds exerts no effects on building of youthful character. Who would exchange the splendid picture of the elm sheltered cathedral and churches and streets of Fredericton, New Brunswick, for example, with the drab strings of houses on staring avenues of other communities that are permitted to continue year after year without any concerted attempt to remedy.

It is now 51 years since the first Arbor Day was observed. Nebraska was the pioneer. It was at a meeting of the State Board of Agriculture, held at Lincoln in January, 1872, that J. Sterling Morton introduced a resolution to the effect that "The tenth day of April, 1872, be especially set apart and consecrated for tree planting in Nebraska."

The planting was no new thing in that state when the Arbor Day plan was proposed by Mr. Morton, for a lack of trees had proved to be a serious drawback to the first settlers, as Nebraska was at one time practically a treeless state. Protection for the orchards, crops and buildings, from the winds that swept unhindered over that flat country, was imperative, and every farmer needed wood and fence posts. An attempt had been made to supply this deficiency, but the planting of trees had, up to that time, been in a haphazard manner.

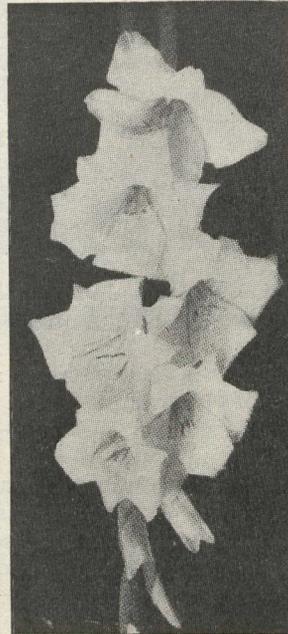
Arbor Day was, therefore, taken up with great popular enthusiasm and, during the quarter of a century that has elapsed since its first observance, more than 700,000 acres of land, containing nearly 1,000,000,000 trees, have been planted in Nebraska.

The idea of planting trees upon a particular day, however, was somewhat slow to find favor in the other states. Kansas and Tennessee did not follow the lead of Nebraska until 1875, and it was another year before Minnesota fell into line. It was not until 1882 that Ohio and North Dakota proclaimed an Arbor Day of their own.

Since that time, the plan has been gradually adopted by other states until, at present, nearly every state in the Union has its day set apart for the planting of trees, usually during the month of April, with appropriate exercises by schools and civic clubs.

Nor has the idea of Arbor Day been confined to the borders of the United States. In 1887 the educa-

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tional department of Ontario set aside the first Friday in May as a tree and flower planting day. In 1896 the plan was officially adopted in Spain. In 1905 Hawaii fell into line, and at the present time Arbor Day is observed in all the dependencies of the United States, and in Great Britain, Canada, Australia, New Zealand, the West Indies, South Africa, China, France, Russia, Norway and Japan.

L. C. Everard in his circular on Arbor Day, issued by the United States Department of Agriculture, strikes the keynote of the observance of the day when he says:

"The yearly planting of trees, accompanied by appropriate exercises, serves to keep the people continually reminded of the value and necessity of the work of the foresters; and they have such a far-reaching effect on the community spirit and through that on economic and social betterment that no community can afford to neglect Arbor Day.

"A clean and beautiful town is a source of pride to its citizens and constant incentive to them to go on and do better. A slovenly town is apt to mean slovenly inhabitants. The celebration of Arbor Day may very well be the turning point in the attitude of a community toward its civic duties and by consequence toward its social life and its manner of conducting business. Nothing so helps to beautify a city or town as trees, and few things so educate the people in public spirit and foresight as the care of trees.

"The greatest value of Arbor Day lies in its effect upon our attitude toward the trees that are already growing; for manifestly there are thousands of trees of natural origin to every one planted by man. The average citizen is only now beginning to realize the necessity for taking care of these trees, having never before considered that they needed any care."

Hands Off the National Parks!

By Robert Sterling Yard

THE national parks have a great and special function, in no sense replacing the function of either the municipal, the county or the state park. Obviously the nation can go further than the state, and wisely from its public lands it has set aside all too scanty an area here and there, usually embracing some bit of great scenery, some natural wonders, some broad reach of pleasure land, some tremendous evidence of God's handiwork. These national parks that we have are of the greatest importance, and they seem to be at this time very greatly important to the selfish few who view any public possessions as opportunity for private advantage.

Despite the great increase in the use and estimation of the national parks, they were never in so much danger as just now. The physical fact that water runs down hill is responsible for much of this danger, for that water as it drops may turn wheels to produce power to selfish advantage, or it may run at less cost on to lands and irrigate them to no less selfish advantage, although the claims to it are always clothed in statements of beneficence to "the poor farmer." There is only one proper platform for a patriotic and courageous American to take respecting the national parks and monuments, and it is "Hands Off!" The power producer and the irrigationist are untiring, ingenious, specious, and usually resourceful, financially and politically. They must be made to heed the "Hands Off" cry, by which only the vast majority of the public may hold for their use and for the use of generations yet unborn these relatively scanty areas of the public lands.

Insects destroy one billion feet of Spruce alone per annum

Much of this loss may be stopped
By Attracting the Native Birds

BIRD-HOUSES

Encourage the Birds to Settle and Nest

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Director of Colonization,

Parliament Buildings, Toronto, Ontario.

Germany's Black Forests

SEVEN HUNDRED years ago the area of the Black Forest of Germany formed part of the large estates of one of the Counts of Eberstein, concerning which gentleman nothing more descriptive can be said than that he was a typical and inveterate crusader. Time after time, he rallied his retainers about the ancestral banner to set out for Palestine, and as often returned home with only a ragged remnant of his band.

Each expedition left him poorer, and finally, to meet the cost of a last effort, he mortgaged to a group of thrifty woodsmen the best portion of his forest domain. History relates that the poor count was finally killed by the Turks, and as he left no heir his property fell to the state. The ruler of Baden subsequently tried his best to break the mortgage lien title of the woodsmen, but his efforts were of no avail, and the forest remains to this day in their successors' hands.

These men who supplied the money for the count to spend were known as rafters, because they put together great rafts of the largest fir timbers and floated them down the Murg, the Neckar, and the Rhine to sell in Holland, where the requirements of ship-building brought good prices. This was centuries before the first idea of forest conservation had occurred to anybody, but as there was no market for anything but the largest trees, which were also accessible to the streams, the forest was not ruined.

So grew up one of the world's earliest corporations and without doubt the first commercially productive private forest which has had an uninterrupted producing record up to the present day. The ownership has remained in the hands of the descendants of those rafters, most of whom have become wealthy families and now control not only that identical forest, but as individuals and members of other companies own and operate some of the finest saw mills, paper mills, and other wood using concerns of Germany.

The forest comprises about 12,000 acres of land similar to the Adirondack mountain region, said to be worth in the neighborhood of \$300 an acre, and there is probably almost as much timber growing on the land to-day as there was 700 years ago.

An inventory is taken of the forest every two years and the consumption

of timber regulated. The amount of timber in the Black Forest is a fixed quantity and does not increase or diminish. In 50 years there will be no more or less timber in south Germany than today. Quite a lesson for business men over here who are paying thousands of dollars in freight bills on lumber because there are millions of acres of idle land fit for nothing but growing trees.

Manufacturing "Antiques"

The "antique" furniture trade flourishes in the town of Dinan, France. Wonderful "ancient" Jacobean sideboards, chairs and spinning wheels may be purchased in profusion. The dealer makes and carves

his furniture, copying the originals of many periods. Rain and sun impart the necessary semblance of antiquity to the pieces which stand outside the shop in all kinds of weather.

To Aid Posterity

There are few farms that have not some corners, hills or ravines, or other untillable ground, where trees might be the only crop. It is a selfish argument with some, that the planter of a tree does not live long enough to benefit by it. This is not strictly true, but, if it were, every man should be glad to do something for the next generation and perhaps he could not do better than to plant a tree.



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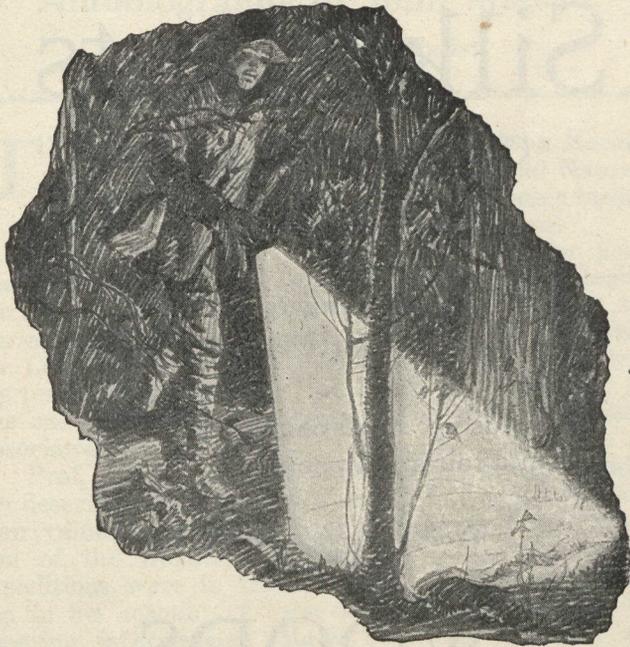
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Wild Life in Canada

By W. MacMillan

BLACK BEAR—*URSUS AMERICANUS*—OURS NOIR

HAVE you ever stopped to think of the few, mighty few, animals that have a coat of Black? It's a thing that makes one pause and think. "Why"? Better men than I have attempted an explanation of this curious fact and I will therefore refrain from adding any further suppositions.

The Black Bear of rhyme and story is not the same fellow that roams through the blueberry patches in the depth of the cool forest, for if we are to believe the



Photo from Natural Resources Branch

The illustration above shows how amenable a black bear, living in a wild state, is to the kindness of man. The bear shown in the picture was gradually tamed by the men employed in construction work on the Banff-Windermere Highway until he would literally "eat out of their hands."

traditions, the Black Bear goes roaring around the country-side seeking whom he can devour.

As a matter of fact if there is one inoffensive law-abiding creature in our forests it is this self-same Black Bear. Found in almost every corner of this Continent it is only his habit of slipping quickly away from danger that has so far prevented his annihilation.

Feeding on bugs, insects, roots and green things, he loves the taste of honey and a Black Bear in the act of demolishing a Bees' Nest is one of Comedies of the Woods... for the bees can only make their stings tell on his snout and eyes; the rest of him is too thoroughly well protected by his fur... Graceful in shape and action he is as much at home on his hind legs as on all four. His fur is smooth and thick and of the same length all over the body. His face is usually brownish in shade and of course he walks like all of his kind with a shuffling gait that, somehow or other, gets him over the ground in great shape.

Seldom eating the flesh of any beast, he keeps pretty much to himself. With the first sign of snow the Black

Bears seek out a hole in the rocks where they will stow themselves away for the Winter. The snow comes and seals up the entrance and they only come out with the warm suns of Spring. In certain sections of Northern Quebec, the Indians say that before hibernating, the Bear will pick up some smooth, round pebbles from the bottom of a stream. These he will swallow and during his long sleep he will keep turning these stones over and over in his insides, thus helping to keep the digestive organs in shape.

Upon coming from their holes in the Spring they are forlorn-looking creatures, thin and lanky, with cracked and bleeding feet. It is about this time that the cubs are born, and happy, sportive creatures they are too. They can have more fun than enough with a branch or old tin can. The maternal instinct is strong with the Black Bear and her care for her young is proverbial.

The price of a good Black Bear skin ranges from Twenty to Fifty dollars while the small fine cub skins, that make the better sets are worth from fifteen to twenty-five dollars apiece.

Protection for Deer

From The Ottawa Journal

IN the excellent February number of the *Canadian Forestry Magazine* Mr. Sam Harris, president of the Ontario Sportsmen's Game and Fish Protective Association, makes an earnest and sensible plea for further protection by law of the game, particularly deer, in Canadian forests. Some of his suggestions should have the support of all true sportsmen and of all people interested in wild life.

A controversy has been in progress for the last few years among deer hunters of Ontario as to the use of dogs in hunting. Mr. Harris makes a strong argument against dogs when he shows that their employment lessens reproduction of the deer by the distress which is caused to the deer by the pursuit by the dogs. The natural average of reproduction is two fawns a year for each doe, but Mr. Harris points out that this is being reduced. In districts where dogs run the deer there may be no reproduction at all. Thus the supply of game becomes steadily less.

Ontario places no restrictions on the use of dogs. And Ontario is the only province that doesn't. Neither do the laws of this province confine the hunter to bucks. He may kill buck, doe, or fawn. Mr. Harris would have the laws amended for the further conservation of deer, arguing that the hunter would quickly be advantaged through the rapid increase of the animals by reproduction.

Canada should look to the adequate protection of wild life now. If the rapid destruction is permitted to continue, attempts at preservation will soon be too late to

Dominion Forest Reserves

The total area of Dominion forest reserves, or national forests, is now 34,609.26 square miles. All these reserves are located in the provinces of Manitoba, Alberta and Saskatchewan and the Railway Belt in British Columbia. The areas in these different provinces are as follows:—Manitoba, 3,729.18 square miles; Saskatchewan, 9,302.2 square miles; Alberta, 18,894.5 square miles; British Columbia, 2,683.38 square miles. Much has been done in the endeavour to make the various resources of these areas available to the public, and steady progress is being made in furthering this policy.

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Autobiography of John Macoun

Explorer and Naturalist

THE Autobiography of the late Prof. John Macoun, recently published by the Ottawa Field Naturalists' Club, is a book that will interest many readers of the "Illustrated Canadian Forestry Magazine."

The writer of this Autobiography was for many years Assistant Director and Naturalist to the Geological Survey of Canada. He was a great lover of trees, and during his life continuously urged greater protection for Canadian forests for he was much impressed with the terrible destruction by fire constantly going on. He was one of the first members of the Canadian Forestry Association.

Prof. Macoun's explorations on the prairies, which are described in this Autobiography, did much to bring their value for agriculture and settlement to the attention of the Dominion Government. His most noted expeditions were in 1872, 1875, 1879, 1880, and 1881, and in his account of these is much valuable and interesting information. Many incidents of travel are described, most of them of a very amusing character.

The side-lights he throws on the organization of the Canadian Pacific Railway, and the exploration for and building of the same, and on the North-west Rebellions of 1870 and 1885, and other important matters of Canadian history are outstanding features of the book.

During his long life, 1831-1920, he had many noteworthy experiences both in Ireland, where he was born, and in Canada, the land of his adoption, and these he has recorded in his Autobiography.

One of Prof. Macoun's most important contributions to science is his Catalogue of Canadian Plants, published in seven parts in which the name and range of all Canadian trees are given. The preparation of this Catalogue is described in the book. Altogether this Autobiography is a most readable book, being almost free from technicalities, and containing a vast amount of information.

Forest Fires "Raging"

From "Root and Branch"

The forest fires are still raging in the South of France notwithstanding all efforts to check them, says the Central News Paris Correspondent. Several villages have been evacuated and a number of houses have been burned. The latest information, however, shows that the fires have not been extended, but six hundred acres of forest have been destroyed. Yes, sir—all of that!

Supplies Forestry Article

Mr. Freeman Tupper of Milton, N.S., Forester of McLeod Pulp and Paper Company, has been doing much valuable educational service in preparing articles and letters for Nova Scotia newspapers with wide circulation. Mr. Tupper is unusually well equipped to further the cause of forestry and frequently finds time to supply newspaper readers in Nova Scotia with most interesting and informing articles.

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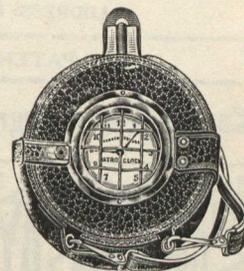
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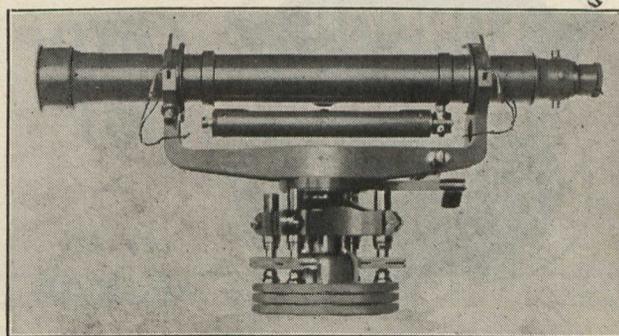


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This advertisement inserted in the interests of forest protection by

The Spanish River Pulp and Paper Mills, Limited

An Empire Forestry Conference for Canada

AT a time when authorities all over the American continent are giving careful consideration to the necessity of developing a more rational forest policy, it is most appropriate and fortunate that Canada should have been selected as the place of meeting for the 1923 Empire Forestry Conference. The first Conference of this character was held in London in the Summer of 1920, and was attended by foresters from nearly every part of the Empire. Representatives from the United Kingdom, Canada, Australia, New Zealand, India, South Africa, Newfoundland, and the Crown Colonies took part and frankly discussed the forestry problems presented to the individual constituents of the Empire and the Empire as a whole.

For Empire Safety.

From the statistics presented at the Conference it was quite clear that, if the forests be adequately protected and properly managed, there is every assurance that the Empire will be made entirely self-sustaining, so far as timber supply is concerned, for all time. Although the present is no time for panic measures, it is quite evident that to place the Empire on the desirable basis suggested, very much more care must be given, in all parts of the Empire, to the protection and management of the forest resources. Particularly in those quarters where the pioneering stage has not been passed, there is still a dangerous tendency to regard the forest as a "timber mine", rather than as a crop capable of being perpetuated. The reproductive power of the tree is its most important and most valuable characteristic, and the whole object of forestry is to take full advantage of this regenerative power, and through it to provide timber supplies for this and succeeding generations without diminution in woods' capital.

U. S. Worry vs. Canadian Apathy.

For several years past there has been an evergrowing and insistent demand in the United States for more rational treatment of forest areas. This has culminated in the appointment of a Senate Committee which is to make an exhaustive enquiry. Already, in that country, numerous forest industries have been

forced to shut down through the exhaustion of wood supplies. The pulp industry, once strongly entrenched in the East, is slowly but surely migrating to the Pacific coast. Unfortunately there exists in Canada a popular misconception that the extent of our timber wealth is greater than that of our neighbour to the south, and, to most Canadians, the evidence of alarm across the line gives little worry. The cold hard fact is, however, that Canada's timber wealth is not even half that of the United States. There is therefore every reason for serious consideration of our position in this country. We should not take into consideration only the demands of our own population; rather, if we

are to experience the national development which our resources justify, we must prepare for a very large export trade in forest products, not only to the United States, but elsewhere.

So far as the Empire is concerned Canada is now recognized as the one large source of coniferous timber, that is the soft-woods, and the demands upon our forest will be so great that Canada, if she is to enjoy the results of supplying that demand, must place her forest resource on the basis of business management and continuous production.

The Empire Forestry Conference which is to be held next Summer will go carefully into the question of Empire timber supplies; the



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forest policies of all constituents will be carefully reviewed and definite conclusions reached as to where improvements may be effected. The business meetings of the Conference will be held in Ottawa, but a tour is being arranged to give the delegates an opportunity of studying forest conditions and observing forest industries in the various provinces of the Dominion. A unique opportunity will thus be afforded to Canadian lumber and pulp manufacturers to demonstrate their commodities and processes of manufacture, and assist in removing some of the prejudices which have so far operated to restrict, in a measure, our Empire trade.

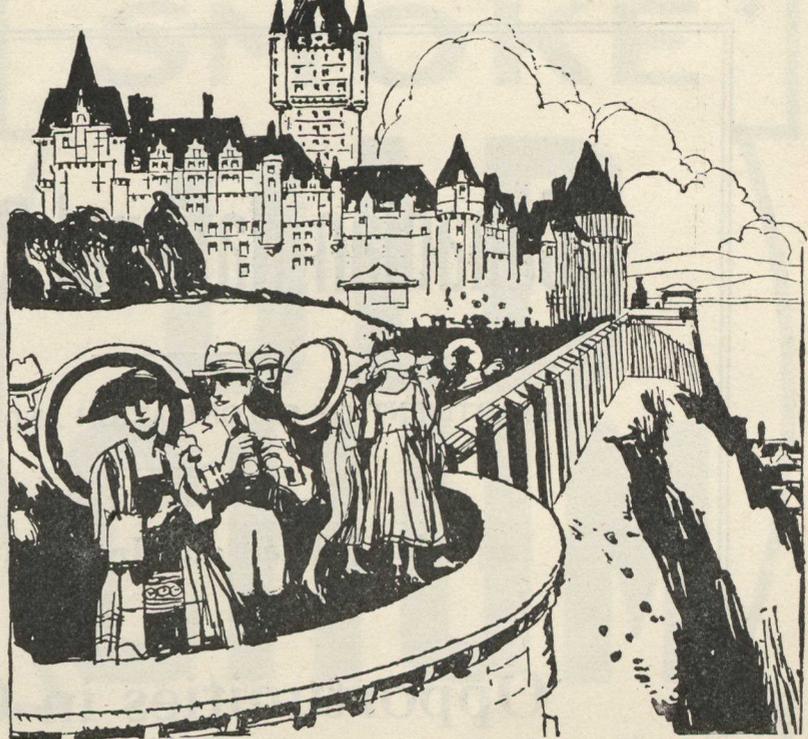
Lord Lovat coming.

It is fully expected that Lord Lovat, who in addition to being Chairman of the Imperial Forestry Commission, is an ardent exponent of rational forest management on his own estate on the Beuly River, in Scotland, will take a prominent part in the Conference. Lord Lovat was also in charge of British Forestry operations during the war, and has an expert knowledge of all phases of forestry operations. He is known to many Canadians and will find a hearty welcome awaiting him upon his arrival to attend the Conference in July.

NIAGARA, THE SPECTACLE, PAYS

It has been authoritatively stated that Niagara Falls entertains not less than 1,250,000 visitors each year. It is considered conservative to figure that each of these spends approximately \$20, which gives a travel income of \$25,000,000 accruing to Niagara Falls by reason of its scenic beauty. It has been estimated that Niagara developed as electrical horsepower, at the rates charged at present in a wholesale way, could at the most produce less than \$15,000,000 of income.

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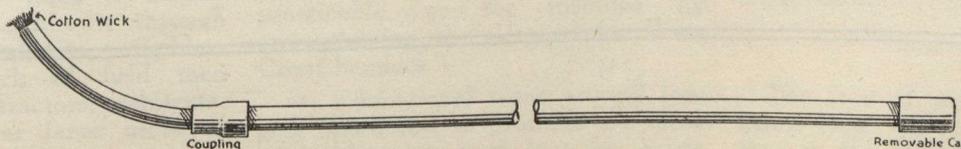
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CHATEAU FRONTENAC

TORCH USED FOR BURNING DEBRIS

WE reproduce herewith a picture of the burning torch used in the clearing of the right of way by the Canadian National Railways. While this device is known to many of our readers the illustration may suggest to others the use of such a torch in clearing out flashings and debris to prevent timber fires. Mr. W. H. Kilby, fire



inspector of the Canadian National Railways at Winnipeg has found that these torches, which are made of scrap pipe, can be put together for about 50c each. To obtain best results it is suggested that three parts of coal oil be used to one part of pitch oil. To insert the wick remove a short piece of the coupling which joins the curved piece to the straight section.

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| Boston, Maine, 294 Washington St. | Edmonton, Cor. Jasper & 100th St. |
| Winnipeg, Man., Union Station. | Toronto, 708 Royal Bank Bldg. |

TREE REPAIRING

An interesting bulletin entitled "Tree Repairing" has been issued by the Forestry Branch, Department of the Interior, Ottawa. It describes and illustrates the different methods with the filling of cavities and the of repairing trees, dealing chiefly bolting of trees that have split at the crotch. The bulletin gives a great deal of useful information on the subject. Tree repairing is a science in itself and nowadays, especially in the eastern sections of this country and the United States, men specially trained for the work operate on trees much as dentists operate on teeth, cleaning out the cavities and filling them with concrete or asphalt, bolting together trees that threaten to split in two, fixing up trees that have been damaged by wind, lightning, live stock or the carelessness of man. Tree repairing has become a profession and at least one school has been established for teaching the work. Anyone requiring a working knowledge of the business could acquire a good deal of information from the bulletin mentioned. It is free for the asking from the Director of Forestry, Department of the Interior, Ottawa.

B. C. ORGANIZES TRADE PROMOTION.

A NEW and most important step has been taken by the organized forest industries of British Columbia and recently commenced work under the name of The Forest Products Market Extension Bureau of British Columbia. The work will follow the following lines:

(1) Investigation of new markets which are now opening up for British Columbia products, such as the Japan market.

(2) Assistance to salesmen and manufacturers by practical work in existing markets, such as the four-billion foot market for shop-grade lumber in the wood-using industries of the East and Middle West, in which British Columbia material as yet has hardly gained a footing.

(3) Making the value of British Columbia products known through general publicity, exhibits, pamphlets and personal work of field men among buyers, contractors, architects, railroads and other large users of wood.

(4) Combatting propaganda aimed

by steel, concrete and roofing substitutes against wood products; opposing anti-shingle legislation and securing just treatment of Western woods in city building codes.

(5) Advising manufacturers regarding desirable changes in character of output to take advantage of new lines of market demand, and regarding possible improvements in selling methods. Assisting the movement for better standardization.

(6) Compiling practical information for both producer and consumer and maintaining a prompt news service regarding trade openings.

(7) Assisting timberholders by studying market possibilities so as to make closer utilization of stumpage practicable, as for instance by strengthening the demand for West Coast hemlock.

(8) Educational work around logging operations to promote the most profitable cutting of logs for grade and length.

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HEARTS OF OAK

London Daily Express: It has fallen to Italy not only to produce the finest of all the war memorials in the sublime Cross of Victory that overlooks the battlefield of the Carso, but, now, to devise the most perfect symbolism for a nation's cenotaph. Five hundred thousand trees are to be planted throughout Italy, and each is to have a tablet bearing the name of a soldier killed in the war. Trees throughout history have been the natural emblems of strength and courage, and it was a tree—the laurel—that twenty-five hundred years ago gave the wreath that crowned the victor in the Greek Olympic games.

The tree of mourning in ancient times was the dark cypress; it shaded the streets and tombs and was the decoration of monuments.

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Ford Motor Co., Ford, Ont

BANKING SERVICE

Royal Bank of Canada

BARKERS, FOR PULP & PAPER MILLS

The Waterous Engine Works Co., Ltd.,
Brantford, Ont.

BLANKETS, ALL WOOL

Ayers, Limited, Lachute Mills, Que.

BOATS, ALL CLASSES

Montreal Boat Builders Ltd., Mon-
treal, Que
Peterboro Canoe Co., Ltd.

CAMP EQUIPMENT

Grant-Holden-Graham Ltd.,
Ottawa, Ont.

CAMP SUPPLIES

Bovril Limited, Montreal, Que.
Canadian Milk Products Ltd.,
Toronto, Ont.

The William Davies Co., Ltd., To-
ronto, Ont.

ELECTRICAL APPLIANCES AND SUPPLIES

Northern Electric Co., Ltd., Mon-
treal, Que.

ENGINES

Canadian Fairbanks-Morse Co., Ltd.
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The Waterous Engine Works Co., Ltd.
Brantford, Ont.

ENGRAVERS

The Crabtree Co., Ltd., Ottawa, Ont

EXPLOSIVES

Canadian Explosive Co., Ltd., Mon-
treal, Que.

FELTS, FOR PULP & PAPER MILLS

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FIRE ALARM APPARATUS

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Montreal, Que.

FIRE FIGHTING APPARATUS

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Ltd., Brantford, Ont.

FLASHLIGHTS AND BATTERIES

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Toronto.

HOTELS & RESORTS

Chateau Frontenac, Quebec
Gray Rocks Inn, St. Jovite, Que.

INSURANCE

London & Lancashire Insurance Co.,
Ltd., Toronto, Ont.

INSTRUMENTS

Instruments Limited, Ottawa, Ont.

INVESTMENT BANKERS

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JACKETS, FOR PULP & PAPER MILLS

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LOGGERS

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LUMBERING TOOLS

Thos. Pink Co., Ltd Pembroke, Ont.

LUMBERMEN'S CLOTHING

Grant-Holden-Graham Limited,
Ottawa, Ont.

MACHINERY, PULP & PAPER MILLS

The Waterous Engine Works Co.
Ltd., Brantford, Ont.

MEATS, FOR CAMPS

The William Davies Co., Ltd., To-
ronto, Ont

NOVA SCOTIA, INFORMATION RE LANDS & FORESTS

Dept. of Forests and Game, Hai-
fax, N S.

NURSERYMEN

Edye-De-Hurst & Sons, Dryden, Ont.
Kenneth McDonald & Sons Ltd.,
Ottawa.

Prairie Nurseries Ltd. Estevan, Sask.
Sheridan Nurseries, Toronto
Toronto Nurseries, Toronto

ONTARIO, INFORMATION ON LANDS & FORESTS

Dept. of Lands & Forests, Toronto.

PATENT ATTORNEYS

The Ramsay Co., Ottawa, Ont.

PHOTOGRAPHIC SUPPLIES

Photographic Stores Ltd., Ottawa.

POWER APPARATUS

Northern Electric Co. Ltd.,
Montreal, Que.

PRINTING

Sampson Office Service, Ltd., Ottawa,
Ottawa Printing Co., Ltd., Ottawa

PROJECTION APPARATUS

Photographic Stores, Ltd., Ottawa,

PUMPS, PORTABLE GASOLINE

Canadian Fairbanks-Morse Co., Ltd.,
Montreal, Que.

RADIO RECEIVING SETS AND BROADCASTING EQUIPMENT

Canadian Westinghouse Co., Ltd.,
Hamilton.
Marconi Wireless Telegraph of Can-
ada, Montreal, Que.
Northern Electric Co., Ltd. Mon-
treal, Que.
Photographic Stores, Ltd., Ottawa,

SEEDS

Kenneth McDonald & Sons Ltd.,
Ottawa.

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Ottawa.

Woods Manufacturing Co., Ltd.,
Ottawa, Ont.

SULPHUR

Union Sulphur Co., New York City

TELEPHONES

Northern Electric Co., Ltd., Mon-
treal, Que

TENTS, TARPAULINS & AWNINGS

Grant-Holden-Graham, Ottawa,
Woods Manufacturing Co., Ltd.
Ottawa Ont.

TIME CHECKING SYSTEM

Hardinge Bros. of Canada Ltd.,
Toronto.

TIRE AND RUBBER GOODS

Dunlop Tire and Rubber Goods Co.,
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"Old Chum", Montreal, Que.

TOOLS, LUMBERING

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TRACTORS

The Linn, Mussels Limited, Montreal,
Que.

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Canadian National Railway
Canadian Pacific Railways

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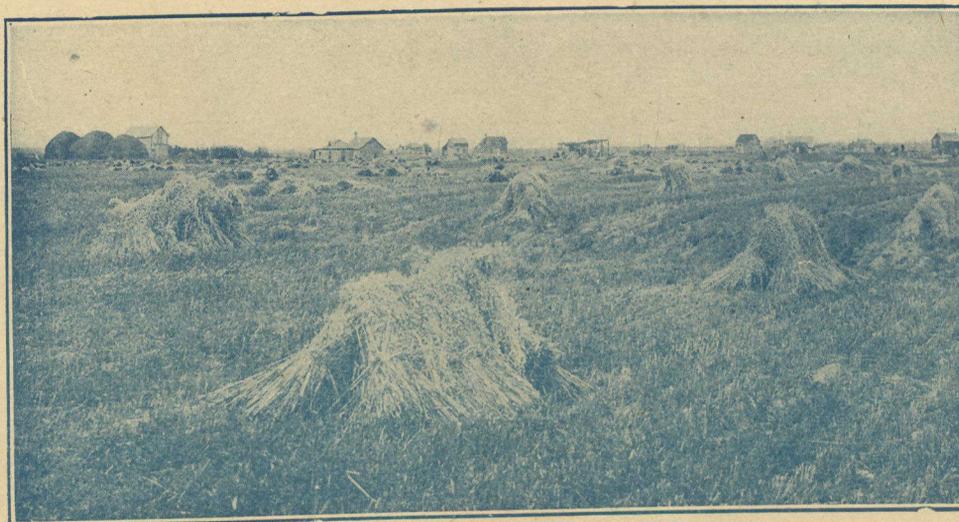
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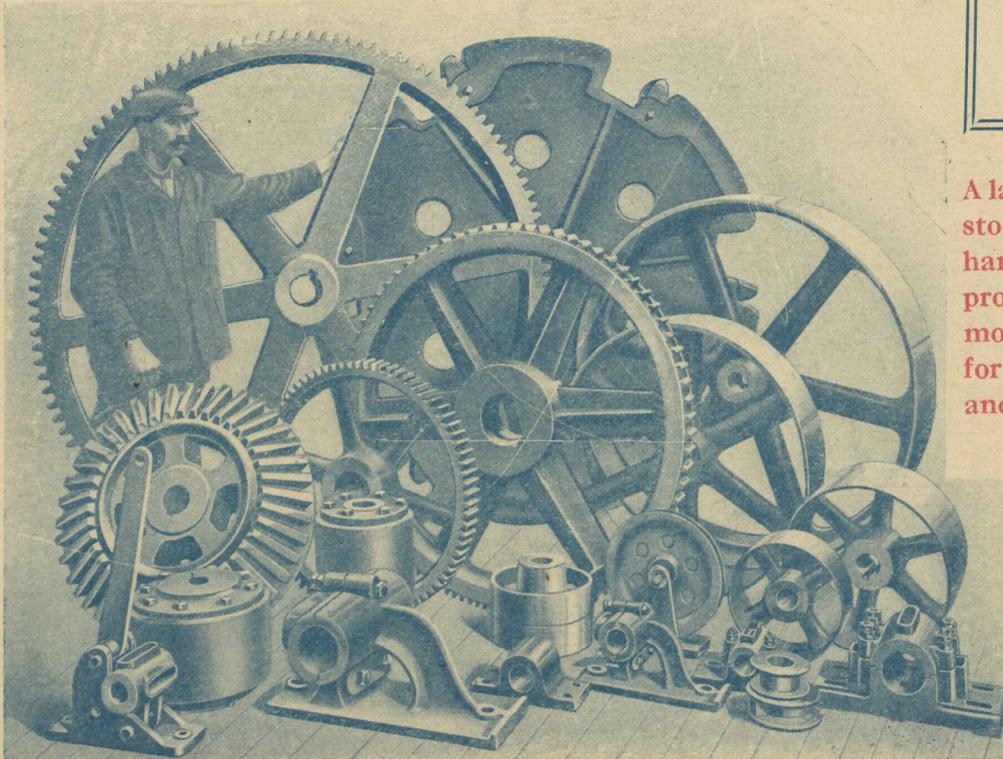
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