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No. 11



Photo by courtesy of Exhibits and Publicity Bureau, Ottawa.

See **AT HOME WITH "KING" and "QUEEN" MOOSE**, Page 1125

Feature Article **"THE PRICE OF HUMAN SAFETY"**

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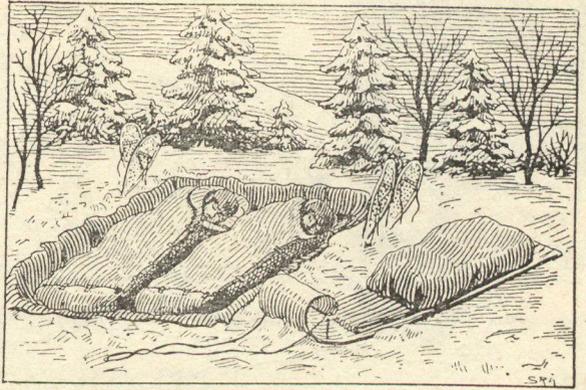
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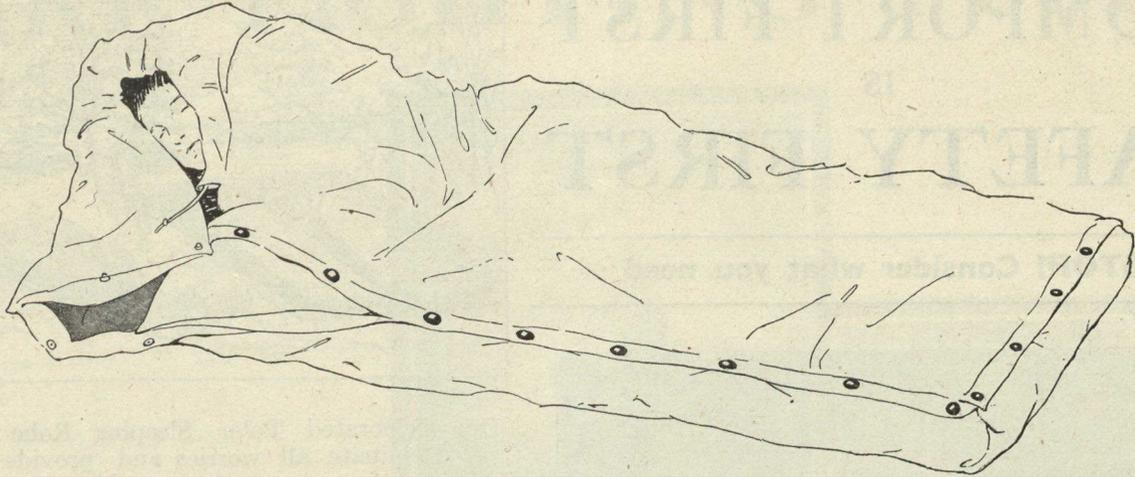
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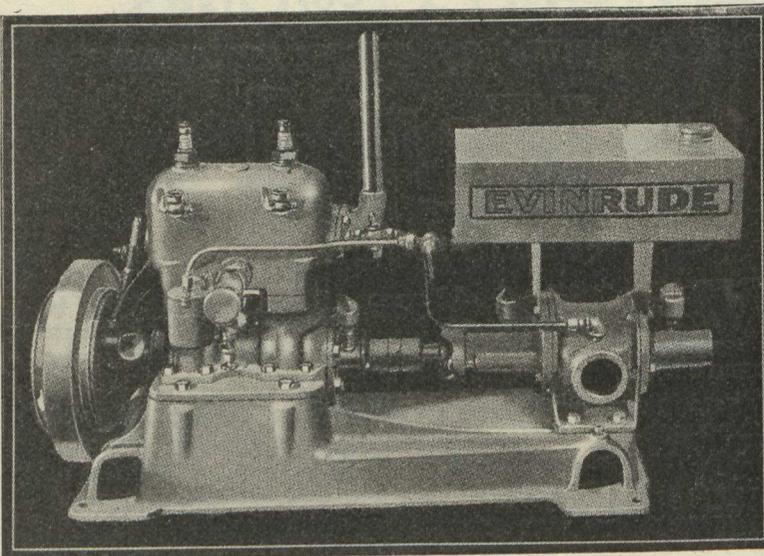
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THE ILLUSTRATED CANADIAN FORESTRY MAGAZINE



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

VOL. XVIII

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TABLE OF CONTENTS

	Page		Page
The Price of Human Safety (Illustrated)		Editorial	1144-5
By Clyde Leavitt.....	1121	Les Forêts du Portugal — Les Forêts du Brésil	
This is the Forest that God Made (Illustrated)		Par Noël Le Bressant.....	1146
By R. O. Spreckley.....	1124	Briefs About People and Events.....	1147
At Home with "King" and "Queen" Moose (Illustrated)		Mechanical Aids to Wood-using Industries.....	1149
By E. L. Chicannot.....	1125	The Investment Field	1150
Why Forest Fire Plague Defies Cure (Illustrated)		AERONAUTICAL SECTION.	
By Dr. C. D. Howe.....	1129	Air Board Operations for 1922 Totalled 2,500 Miles	
The Forest as a Recruiting Sergeant		(Illustrated) By J. A. Wilson.....	1152
By Robson Black.....	1130	A Record of Aerial Achievement	
The Conservation of Wild Life in Canada.....	1132	By George A. Mackie.....	1155
Putting Trees in a Treeless Land (Illustrated)		Radio and Aviation for Forest Fire Fighting.....	1156
By Angus G. Cooch.....	1133	Air Board Statistics.....	1157
Some Words of Cheer.....	1135	Forest Research in Eastern Canada	
The Dire Need of Re-Foresting Bible Lands		By T. W. Dwight.....	1158
By Jane Hill.....	1136	Should Fix Upon Timber Reserves.....	1161
Asia Minor and the Penalties of Deforestation		Educating Loggers.....	1163
(Illustrated).....	1137	A Rich Estate in France (Illustrated).....	1164
A Tribute to the Dean of Forestry in America		Prize Essay in Barnjum Contest	
(Illustrated).....	1138	By P. Swanson.....	1168
Civic Wood-cutting as a Solution of Unemployment		The Last Buffalo Hunt.....	1170
Problem (Illustrated)		The Forests of New Zealand.....	1171
By Frank O. Fowler.....	1139	SPECIAL ILLUSTRATED FEATURES	
Planting Memorial Trees on Roadways		Nellie McClung Snaps Fire Rangers.....	1123
By Henry J. Moore.....	1140	The Value of Trees to Saskatchewan Farmers.....	1123
A Forest Protection School on Wheels		A Tree-Growing Miracle on the Prairies.....	1131
(Illustrated).....	1141	Former Dark Spots Transformed into High Lights.....	1143
Beautifying G. T. R. Grounds.....	1142	Forest Officers and Geodetic Engineers Co-operate.....	1148
A Little Walk			
By Peter McArthur.....	1142		

INDEX TO ADVERTISERS

(Alphabetically arranged)

Bovril	1171	Instruments Ltd.	1171
Business and Professional Directory.....	1166	Klim	1117
Canadian Explosives Limited.....	1169	Laurentide Air Service.....	1153
The Canadian Fairbanks-Morse Co., Ltd.	Inside Front Cover	Lewis, Apedaile and Hanson, Inc.....	1155
Canadian Fire Hose Co., Ltd.	1169	Linn Logging Tractor (Mussen's Ltd).....	1120
Canadian National Railways	1172	Lord & Burnham.....	1165
Canadian Pacific Railway.....	1160	The Marconi Wireless Tel. Co. of Canada, Ltd	1156
Can. Woodlands and Pulpwood Agency Reg'd.....	1160	Montreal Boat Builders, Limited.....	1161
Capital Gasolene Light Co.....	1170	H. R. McMillan Export Co.....	1169
The Crabtree Co., Ltd.....	1168	Province of Ontario.....	Inside Back Cover
The E. B. Eddy Co.....	1170	Pulp & Paper Companies.....	1167
Evinrude Motor Co.....	1118	Rod and Gun.....	1162
Fairchild Aerial Surveys Co.....	1154	Royal Bank of Canada.....	1151
Grand Trunk Railway System.....	1160	Sampson Office Service.....	1163
Grant-Holden-Graham, Ltd.....	1117	Vickers, Limited	1157
Gray Rocks Inn, St. Jovite, P.Q.....	1168	Waterous Engine Works Co.....	Outside Back Cover
Greenshields & Co.....	1151	Windsor Hotel, Montreal.....	1168
Imperial Tobacco Co. of Canada.....	1159	Woods Manufacturing Co., Ltd.....	1118

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The Price of Human Safety

Some Searching Facts Bearing Upon the Fire Tragedy at Haileybury—Public Opinion Must Penalize Carelessness.

By Clyde Leavitt

IT IS AN old saying and a true one that in a democratic country, a law, to be effective, must reflect the moral sense of the community as a whole. Conversely, no law which does not reflect the general moral sense of the people can be adequately enforced.

Has not the application of this truism a bearing upon the catastrophe which overtook Haileybury and the surrounding district on October 4 resulting in the destruction by fire of some forty-four lives and of property valued at around eight million dollars, to say nothing of several thousand people rendered homeless at the beginning of northern winter?

In the Forest Fires Prevention Act of Ontario is a clause establishing a close season for the setting out of fire, within the Fire Districts, from April 15 to September 30 of each year, and providing that within a Fire District, permit areas may be set aside, within which, during the close season, no fire shall be set out for clearing land, disposal of debris or inflammable waste, or for any industrial purpose, except upon written permit from the fire ranger or other authorized official.

The Fire Districts were defined in the law, and the Permit Areas were duly established by Order-in-Council, the district around Haileybury, North Cobalt, Charlton, Englehart, etc., being included in both.

Settlers' Fires the Great Menace

In the North Country, fires escaping from settlers' clearing operations constitute probably the predominant element in forest fire losses. The country is comparatively newly-settled, the bush is a terrific obstacle to cultivation, the amount of in-

flammable slash left from logging and land-clearing operations is great, and the cost of outside labor for clearing is prohibitive, even had the settlers the money to pay for it. A very general feeling appears to exist that the only practicable way by which the country can be opened up and reduced to possession for agricultural purposes is by the liberal use of fire. Thus, the terrible fires of 1911 around Cochrane, and of 1916 around Matheson were by many regarded as substantially forwarding the process of settlement, although of course the loss of life and of improved property were most sincerely regretted. Both these were essentially

which is very inflammable when dry. In many sections, this layer of vegetable matter is so thick that it is a common practice for settlers to burn off the top portion, so that the plow may be able to cut through to the clay beneath and cause a highly fertile mixture of the two classes of soil. If the upper or vegetable layer is burned too deeply or too severely, the fertility of the soil is destroyed or rendered merely temporary. Enormous damage to soil values in the Claybelt has been caused in this way.

Undoubtedly it was the inflammable character of the soil itself which is largely responsible for the terribly wide and rapid spread of the fire between Haileybury and Englehart, where the forest has very largely disappeared and the country has more of an open or prairie aspect. It is this same character of the soil which must be taken very carefully into account if future recurrences of past catastrophes are to be avoided.

It remains true nevertheless that public opinion in the North Country has always regarded the free use of fire as essential to the clearing away of the forest debris and to the preparation of the soil, preliminary to cultivation.

The Permit System

As a result of the general sentiment adverse to restrictions upon the conduct of burning operations, a resolution was passed at the annual meeting of the Temiskaming County Boards, asking the Provincial Government to withdraw the fire-ranging staff from the organized townships, including the territory between Haileybury and Englehart. This action was taken, thus in effect repealing the permit system of regulating

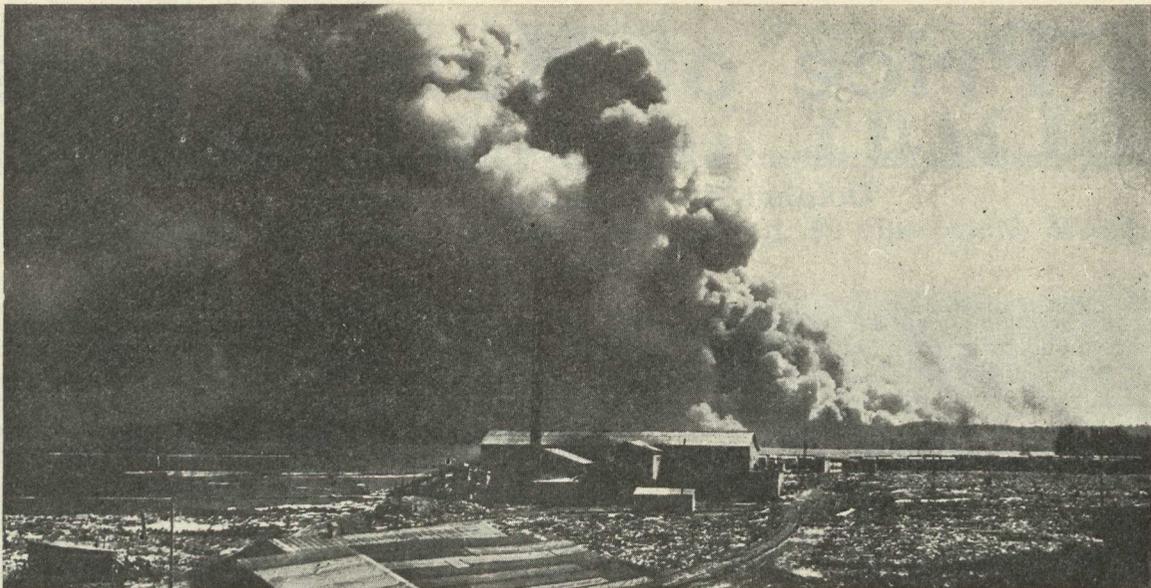


Photo by British and Colonial Press, Toronto.

A Scene in Haileybury after the Fire.

bush-fires, which the fire of October 4th was not.

Fires escaping from settlers' clearing operations during protracted periods of dry weather, coupled with high winds, were a large factor, though not the only one, in initiating these destructive conflagrations. In these cases, like that of the Haileybury-Englehart fire of this year, the highly inflammable character of the soil itself contributed largely to the rapid spread of the fire. Throughout the Claybelt, the mineral soil is covered with a heavy layer of vegetable matter, of a peaty formation,



Forest Fire on Townships StLouis and Grove, one hundred miles north west of Sudbury, near the village of Gogama on the C. N. Rys Ruel Subdivision. Lake Minnesinaqua and Lumber Mill in foreground. This fire was set out by river drivers, working on lake. The area burned was over $9\frac{1}{2}$ square miles, consisting of 5,120 acres of slashings with some timber left, and 960 acres of cut over and previously burned over lands. The value of standing timber destroyed was \$8,700. This fire was fought by the Ontario Forest Ranging staff with 49 men and one portable pump and extinguished at a cost of \$700.

settlers' clearing fires in that section. Now, after the event, this unfortunate state of public sentiment and the action resulting from it, appear in the light of a terrible and fatal mistake, which obviously should be rectified.

Throughout the permit areas of Ontario generally, as well as in other provinces and in many of the States of the Union, the permit system of regulating clearing fires has worked splendidly, and has been a tremendous factor in reducing the losses by forest fires, although, as might be expected, local difficulties are met with in some cases, particularly at the beginning.

The permit system is not an absolute cure-all, and fires still occur to some extent where it is in effect. The fire-ranger may use his best judgment in issuing permits, and unusual weather conditions may still neutralize his efforts and result in the spread of fire. However, all experience proves that the permit system constitutes a precautionary element of safety which no new settlement in a forest section can afford to be without.

According to press reports, fires had been smoldering for weeks prior to the disaster, in the territory tributary to a line between Haileybury and Englehart.

Under normal conditions, such fires would not seriously menace life and improved property. However, as past history in the North Country demonstrates, periodically, perhaps once in five or six years, normal weather conditions do not prevail, but, on the contrary, the period of



CLYDE LEAVITT

drought becomes unusually protracted, whether in spring, summer or fall, high winds spring up and the many small fires which may have been smoldering away more or less harmlessly, are driven together and become a raging conflagration which utterly destroys everything in its path. This was the history of the Cochrane and Matheson fires, as it is of the Haileybury-Englehart fire.

If conditions remain the same, is there any reason to doubt that there will be periodical recurrences of these catastrophes, until the North Country has been so cleaned off by fire that

they will for that reason alone become impossible?

Fundamentally, it is a question of public sentiment. If the people in the North Country want immunity from periodical conflagrations of this character, they can have it or at least can come a good deal nearer to having it than in the past. But they must be prepared to pay the price. It is an old saying that one cannot eat his cake and have it too. The price to be paid is an uncompromising and overwhelming public sentiment against carelessness or recklessness in the use of fire, and in support of the fire-ranging staff in its efforts to render the country safe to live in, through the application of the permit system. It must be accepted as a matter of course that land clearing will have to progress somewhat more slowly. Fire must be relegated to its proper place of a good servant instead of a terrible master. Further, public sentiment must support still larger appropriations for the fire-ranging service, so that an adequate staff may be kept on duty, until the fire season is indubitably over.

Good Work of Forest Service

The annual appropriation for the Ontario Forestry Branch may appear large, and it is large, but in proportion to the enormous area which has to be covered by the fire-ranging staff, all past experience shows that it is still much too small. More money is needed for fire-rangers, for overhead supervision, for roads and trails, for aerial patrol, and for mechanical equipment such as telephones, radio,

lookout towers, portable fire-fighting pumps, motor cars, canoes, launches, etc.

The forest revenues are large, and the Province can well afford this additional expenditure. It cannot afford to be without the protection which such an expenditure would ensure. In addition to the absolutely vital question of safeguarding life and improved property, there is the enormously important problem of conserving our supplies of pulpwood

and saw-timber, which are becoming sadly depleted, the adequacy and continuity of which are of the most vital importance in the industrial life of the Province and of the Dominion as a whole.

The Ontario Forestry Branch has made great strides during recent years toward better forest protection. Statistics of appalling forest fire losses prove however that the facilities are not yet adequate by a wide margin. The fire-ranging service is

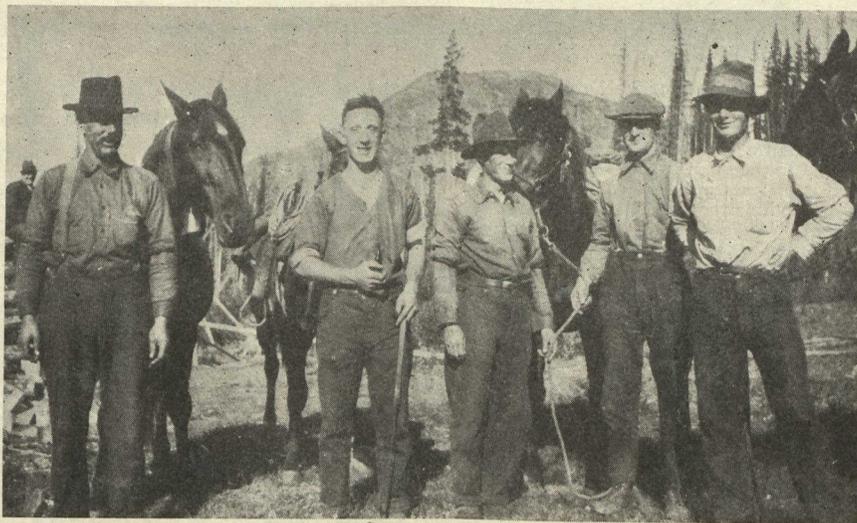
not responsible for the Haileybury disaster, but its hands should be so strengthened that it will be in a position to enforce all reasonable precautions to prevent a recurrence, perhaps five or six years hence, perhaps next year or the year after.

This is a matter for the public conscience of the people living in the North Country and of the people of the Province as a whole.

What is the answer?

MRS. NELLIE McCLUNG SNAPS FOREST RANGERS

ONE OF the most devoted and helpful members of the Canadian Forestry Association in Western Canada is Mrs. Nellie L. McClung of Edmonton, Member of the Legislative Assembly of Alberta, and known to our readers, of course, as a successful author. In sending the Illustrated Canadian Forestry Magazine, the accompanying picture, Mrs. McClung remarked:—"I had the pleasure of meeting some of the Forest Rangers



The figures in the picture from right to left, are;—Mr. Irwin, Fire Ranger in the Smoky District; Mr. Burrows, Fire Ranger at Entrance, Alberta; Mr. Ernest Harrison, Ranger of Smoky; Mr. James D. Cook, of Rock Lake and Mr. Tom Monaghan, of Entrance.

of Alberta [when I was out for my holidays in August this year and took a picture of some of them at Rock Lake, Alberta. The two Forest Rangers of the Smoky District are in this picture and you will remember that the Smoky District is one that was very hard hit by fire this year. The Rock Lake District did not have a single fire. On all sides I heard the greatest praise of the Forest Rangers at their work."

THE VALUE OF TREES TO SASKATCHEWAN FARMER

IN SENDING the accompanying photograph to the Illustrated Canadian Forestry Magazine, Mr. F. W. Pinder of Melville, Sask., states that the shelter belt has been so valuable to him that he would not take a thousand dollars and be without the trees.

"When I planted these trees" writes Mr. Pinder, "they said I was foolish to spend my time that way but when the trees grew up they spoke



differently. Other farmers wish now they had planted some of my trees. It is a very pretty place I have, apple trees two years old, growing in the garden. This was a bare spot, when I came here in 1882. I have ash trees as thick as my arm and I often go in and cut one of them that I think is in the way and use if for all kinds of things where hardwood is needed."

THIS IS THE FOREST THAT GOD MADE

"Rhymes are made by fools like me
But only God can make a tree."—Joyce Kilmer.

This is the forest that God made.

This is the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.

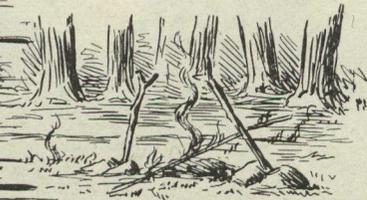


This is the camper that came that way,
Just on a pic-nic to spend the day
In the shade of the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.

This is the camp-fire neatly laid
To boil the water, when tea was made,
Lit by the camper that came that way,
Just on a pic-nic to spend the day
In the shade of the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.



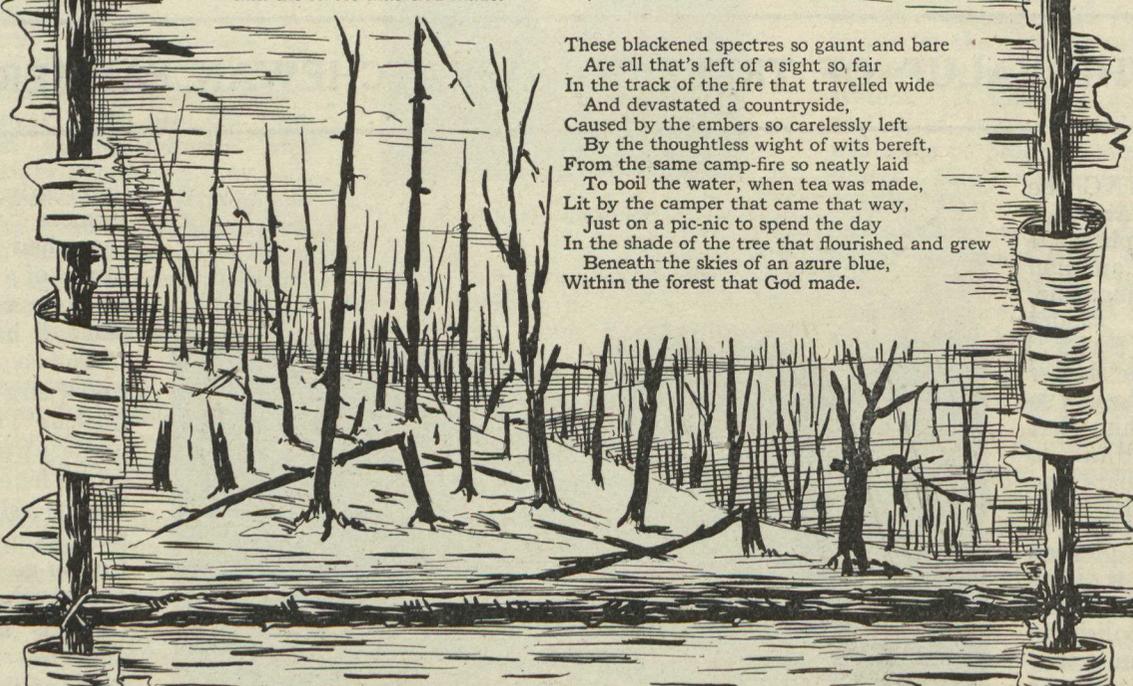
These are the embers carelessly left
By the thoughtless wight of wits bereft,
From the same camp-fire so neatly laid
To boil the water, when tea was made,
Lit by the camper that came that way,
Just on a pic-nic to spend the day
In the shade of the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.



This is the fire that travelled wide
And devastated a countryside,
Caused by the embers so carelessly left
By the thoughtless wight of wits bereft,
From the same camp-fire so neatly laid
To boil the water, when tea was made,
Lit by the camper that came that way,
Just on a pic-nic to spend the day
In the shade of the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.



These blackened spectres so gaunt and bare
Are all that's left of a sight so fair
In the track of the fire that travelled wide
And devastated a countryside,
Caused by the embers so carelessly left
By the thoughtless wight of wits bereft,
From the same camp-fire so neatly laid
To boil the water, when tea was made,
Lit by the camper that came that way,
Just on a pic-nic to spend the day
In the shade of the tree that flourished and grew
Beneath the skies of an azure blue,
Within the forest that God made.





At Home with "King" and "Queen" Moose

By - E. L. Chicanot.

WE WANTED to visit the moose at home and observe the monarch of the Canadian woods in his native haunts. We had no desire to slaughter this splendid animal nor any aspirations to being photographed astride the stricken victim of nature's treachery, nor yet to bear home a magnificent spread of antlers to adorn our den and furnish us with a postprandial narrative for the remainder of our mortal existences. We are rather pleased to think now that we were actuated to this little excursion purely from a love of the open and the wild things existing in it, and our sole object was to observe the forest king in his kingdom and do him no harm. We had a fermenting idea that the moth-eaten specimens we had seen at the Zoo, shorn of all regal bearing, were mere travesties of this greatest of Canadian fauna and we greatly desired to see him yet a king, reigning supreme in the woodland, not heartbroken with the oppressive knowledge that his wild roaming was at an end. We sought advice and it was given in four words "Go to Nova Scotia".

Nova Scotia's Resources

We headed for the heart of the peninsula province and, incidentally, the reaching it was not uninteresting, but on the contrary full of charm and exhilaration. Nova Scotia has been so economically developed that its settled areas lie close to the shores of the peninsula. The fertile waters off the long coast line furnish the resources which go to constitute the province's leading industry, whilst running parallel to the shores lie undulating, fruitful valleys where many forms of agriculture have been profitably followed as far back as Canadian history goes.

The journey into this incomparable

woodland fastness is entertaining and enjoyable throughout, and though one can reach it from the coast in a single day every type and description of scenery is traversed from the serene and tranquil cultivated valleys overlooking the Bay of Fundy to the wild and primitive grandeur of the primeval forest. For the greater distance one travels in an atmosphere most redolent of mediaeval Europe, of such engaging tranquility and brooding calm that the automobilist unconsciously sighs for the more leisurely caravan or other means of tardy journeying that he might browse the longer on the exquisite scenery of the countryside in a manner it thoroughly justifies.

After crossing the Bay of Fundy from St. John to Digby, we left the sea behind, turning at right angles to the renowned Annapolis Valley and the historic country of Evangeline at Grand Pré, passing through a region of diminutive farms and comfortable orchards whilst the tang of salt in the air grew fainter and fainter. The countryside is romantically picturesque. The apple is predominant in orderly orchards on both sides of the road, prolific with laden branches borne to the ground. Apple trees even grow wild along the roadside and the wayfarer may pick his fill and be indebted to no man. The horse seems to be almost

yet ahead of history there. Teams of oxen, harnessed to wagon or stoneboat, are encountered all along the route and their leisurely gait and philosophic mien are more characteristic of the country and its people. The huge, lumbering animals fit harmoniously into the general scheme of the countryside and its peaceful life.

The further one penetrates, the thicker and denser becomes the forest growth and the fewer and more distantly separated are the settlements with cultivated lands about them. Impenetrable brush borders the roadside and one is into the Nova Scotia wilderness—a magnificent wilderness of untold acres of tall and stately spruce and fir, of graceful hemlock, sturdy oak and flaming maple. It is a wilderness of arboreal beauty, a monumental example of the wonders of creation, pulsating with the life of myriad wild creatures, destined to be a perpetual heritage to man and an eternal harbor to the lower created beings.

In the Moose Country

At Milford Lake we reached the first large body of water, which, too is the entrance to some of the continent's best moose country. Each year it is the haunt of countless hunters and nature lovers who go there from all distances and have been doing so year after year, never surfeited with the primitive grandeur of the region. It is the first of the Liverpool chain of lakes which, linked up by the Mersey river, reach through fifty superb bodies of water of varying expanse to the Atlantic ocean. Here we outfitted ourselves with canoe, tent, cooking apparatus, and grub, and placed ourselves unreservedly in the hands of a guide whose reputation for woodcraft is international



A Nova Scotia Ox-Team

and who, we were told, would produce a moose if any mere human being could be expected to do so.

The ten mile paddle down to the moose grounds will be a memory for many years for, in the almost instantaneous transfer from the bustling and sordid atmosphere of a large city, the romance of the quest overwhelmed us, the utter silence closed about us oppressively, the vast primitive beauty seemed beyond finite conception. Out of one lake into another the canoe glided, expertly guided, past boulders which impeded the way in the connecting waters. The narrows connecting the lakes were contrastingly spots of gentle calm where sheltered trees drooped gracefully over the motionless water. The forest on either side was dense and impenetrable to the eye, but was gay with all the tints of nature. Flaming clumps of maples in their autumnal garb quickly arrested the attention; birch and hemlock leaves were turning brown; the oak had assumed a more sombre hue; only the pines and spruce maintained their green coats untarnished. In the narrows, dead leaves dropped rustling into the canoe, or floated idly away on the water. It was a picture all the artists' brushes in the world could but inadequately depict.

Deer Hunting Without Guns

We had started out in the hope of seeing a moose but were even luckier and in the course of the few hours' paddle encountered two of his only slightly less regal subjects. In one of the lakes, whilst yet some distance off, the wonderfully attuned eyes of the guide spotted a buck white-tailed deer making his way from one shore to the other. Some strenuous work with the paddles brought us fairly close to him before we were observed and the swimming animal decided to make for the bank more expeditiously. He swam rapidly, his head, sporting a fine set of antlers, erect in the water. With a single leap he was up the bank, and in another had been completely swallowed up by the woods.

Within the same hour we espied a brother of his, also finding the same shore more desirable and though we observed him for some considerable time he is ignorant to this day of having been so close to the human-kind or the imminent peril he might have been in. The wind was blowing from the swimmer towards us and it was possible to paddle the canoe up so close that his every movement could be observed. The bank confronting him was steep and he swam back and forth for some time before he found a convenient spot at which

to emerge. He finally gained a footing, clambered out with some difficulty and stood for fully a minute upon the bank, broadside on, in our uninterrupted view. The veriest tyro with a rifle could scarcely have failed to bring him down, but for us his beauty would have vanished in his slaughter, with that graceful poise changed to one of clumsy rigidity, the lithe movements stilled in the rigidity of death.

Ten miles paddling brought us about the middle of the afternoon to Birch Point where camp was made, a tent set up, and roaring fire built. The situation was an ideal one, at the junction of two large lakes and where one of them opened into a rounding bay known as Palmer's



THE MOOSE CALL

Louis Harlow, famous Nova Scotia guide photographed in the act.

Cove. The forest grew thick and dense down to the water's edge save in the cove where beyond the fringe of the trees was an extensive area of tag alder on which the moose browse summer and winter. The silence seemed heavy as a blanket. In the sheltered cove scarce a ripple was stirred up on the water. Only periodically did the wind sough through the tall trees or some small creature cause a rustling in the underbrush. It was an atmosphere of unutterable peace and exquisite beauty, reacting in an exhilaration of the spirit. It was infinitely good to be alive.

The sun had set and the evening's chill was on the air before the guide stowed his pipe away in his pocket and led us down to the canoe in which we seated ourselves. Silently he set the craft out from the shore and made for the cove, seeming to redouble his caution to cause never a ripple as we approached the reeds. The canoe wound its way through a narrow channel in the alders and was still some distance from the shore when the growth impeded further progress and a last shove of the paddle made it fast.

Spasmodically a light breeze blew from the forest to us, swaying the tops of the trees and creating an almost incredible disturbance in the still air.

"Not de bes' night" whispered the guide. "De win' she blow too much".

Calling the Moose

We were facing the shore in the canoe, the guide in the bow, and merely a slight rustle told us that he had risen to his feet. Then the simulated wail of the cow moose burst from the little birchbark horn, plaintive, longing, alluring, followed by the two brief snorts of the imaginary calf with her. From side to side the horn swung, the raucous blast piercing the woodland on all sides.

The echoes died away in the distance and we settled down in silence to wait. There was something eerie in that waiting, the air pregnant with a subtle something that defies description. There was a frosty chill in the air, the last shred of light was flickering, the shadows of the wood growing deeper. We heard a thousand noises, real and imaginary. Each rustle of the tree tops we judged might be the progress of the towering animal through the brush. Leaves seemed to fall with a veritable crash. Small birds moved in the noisome manner of mammoths. Our attitude was tense, heart pumping rapidly, eyes keenly alert. Each fancied stir ahead of us set the blood coursing more rapidly.

Fifteen minutes or so passed and the guide again rose to his feet and sent the impassioned bellow ringing through the woods. Then silence again. Close beside us was a beaver dam and we occasionally heard the muffled movements of the animals and their curious breathing. A muskrat dropped into the water with a plomp that resounded in the intense stillness and sent the heart into the mouth. A few roystering songsters still stirred twittering about the branches of the pines.

In periods of about fifteen minutes, for more than an hour, the guide called. The last vestige of light had disappeared and the night was becoming inkier every minute. We were growing cramped and chilled and a trifle discouraged. Though we heard many imaginary moose plunging headlong through the brush or footing their way cautiously as indicated by breaking twigs, they never materialized. We were disappointed, cold, and it was too dark to see anything anyway.

Appeared and Disappeared

Just then the guide whispered "Listen", and pointed with his paddle. From the direction came the noise of breaking twigs, similar to a hundred sounds we had heard. Then directly ahead of us the darkness seemed to open up and a blacker shadow emerge. The huge bulk moved and there was the sound of harsh, deep breathing. We waited for what seemed an hour but could hardly have been more than a minute. There was further movement, a crashing of branches, and the dark blotch melted again in the murk of the night.

"Too dark to see" said the guide well pleased with himself and no



A Buck White-Tailed Deer snap-shot in his native haunts

doubt feeling justified, though we could not have been more deeply thrilled than at this magic of the night. "We see him in the morning. Going to be dam fine morning."

It was about three o'clock on a pitch black morning when the guide again roused us with a steaming can of coffee in his hand. Logs piled one on another were blazing away furiously and throwing their heat into the interior of the tent. The light they diffused disclosed a ground, white with frost. We shivered as valorously we stumbled down to the water's edge and soused faces and hands.

"Dam fine morning" said the guide as he poured the steaming coffee into our mugs. "De vin, she stay quiet."

We stood on the border of the lake

and watched the day break over the further rim of the earth, a wondrous sight which man sees too seldom for his own spiritual good. Gradually the blackness became less opaque, and slowly a narrow arch of dull light appeared in the eastern sky. The mirrored reflection of the stars in the water became dimmer.

Before the first rays of the sun had had time to show themselves we were seated in the canoe with a supply of blankets and headed once more for the cove. Arrived there we put the blankets about us and huddled up in the craft. The forest was yet deeply shrouded in the cloak of night but every minute revealed new details. There was scarce a sound; never a ripple on the waters or soughing in the trees; even the birds seemed to have not yet awakened to herald the new day.

The cadence of the mating moose issued from the guide's trumpet, splitting the morning air, travelling far into the woods on the motionless air. Shiveringly we waited for a response. For nearly an hour we sat there, cramped and cold, whilst the guide periodically called.

"Hear that" whispered the guide at length, and from afar off came deep staccato notes, not unlike the short, sharp brayings of a hound. "Bull there."

We waited a long while but there was no further development. As the guide explained to us later the bull which had fitfully responded was already mated and not to be lured away by another siren call.

Just with what faculty he made the discovery I am unable to determine, but a few seconds later there was an insistent whisper from the



Mr. Chicanot, his guide and his companion on their early morning camera-hunt for Moose

guide and we turned to see him pointing to the other side of the cove, several hundred yards away. The light was yet dim and for a while it was impossible to distinguish anything but the monotonous stretch of trees. Already the guide was moving the canoe in the direction he had pointed with long, powerful, but silent strokes. Then there was movement in the spot upon which our eyes were glued and as cautiously we approached closer the familiar proportions of the monarch of all Canadian animals revealed themselves.

Moose in Full View

Clearer and clearer the bulk of the noble animal loomed up in its immensity as the canoe with imperceptible motion crept up. It was moving now along the denuded edge of the lake in our full view and apparently so unapprehensive that we got within fifty yards or so of him and could distinguish the huge swinging head, the ponderous ears, the tuft of hair hanging from the jowl. I have not been able to satisfy myself whether he saw us or not. Occasionally he would pause in his heavy

progress and turn his head towards the lake, his eyes apparently fixed upon the canoe. Instantly, with a deft turn of the wrist, the guide would bring the craft to an absolute standstill and the animal would continue his leisurely unruffled way.

"He go round to where I call" whispered the guide, as the beast was hidden for a moment by a clump of brush. It was exactly so. The bull, apparently not yet having attained his full strength and being consequently cautious and unaggressive, was making his way round to where he had been led to believe a cow waited, but he was not unduly advertising the fact and wished to avoid the risk of a combat with a more mature bull.

For fully twenty minutes we followed his progress along the shore. At any time within that period he offered himself a target for the merest tyro among marksmen. But I could not bring myself to regret that the hunting season was not yet open or that the most lethal weapon we had with us was a camera. That magnificent animal slaughtered could never have possessed the interest and attraction he compelled as he stood there most truly a king, looking over

the expanse of lake and woodland which was his kingdom. Disappointed and doubtless somewhat puzzled he returned to the woods.

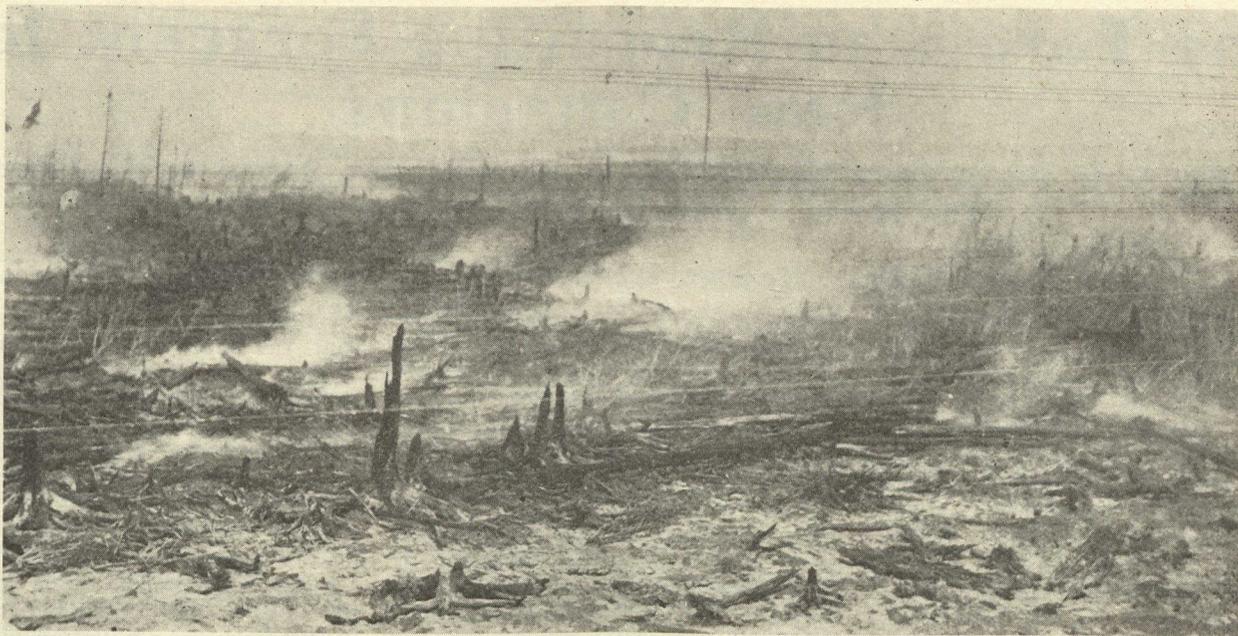
"I'm satisfied" I said. "Me too," said my companion, and the guide smiled. The rays of the rising sun were now warm upon our blankets as we dipped in the paddles and plied our way back to camp and breakfast.

Virtually this was the end of our quest. We had seen the lordly moose in the heart of the Nova Scotia wilderness, that wilderness surpassingly rich in the possession of a dozen species of beautiful trees, that wilderness which annually sees the birth of countless wild things and gives them harborage. Only the man whose heart has been alienated from its natural bent and whose sense of proportion has been lost by a civilization defeating its own ends could term a wilderness this wonderland of lake and wood. For us it is an eternal memory to be long cherished and a solace to us when the meagre fruits of civilization are bitter to the taste and we must yet perforce deafen our ears to the clarion call of the open.

The Motor Car Smoker

(From "Root and Branch", B.C. Forestry Service.)

A BIG FAT man in a motor car, thoughtlessly smoking a fat cigar,
Tossed the butt, which was burning still, into the brush on a dry side-hill.
On he rolled in his careless way, and left behind the devil to pay,
Just a spark scarce worth the name, but look, the spark becomes a flame!
A spark, a flame, a furious fire! Up the wind rose, higher and higher,
Fanning the flames, which rose and roared. Up and away the wild sparks,
soared! On through the forest it cut its path, seething, raging in its wrath.
Firs that God took years to build, caught in its grip were scorched and
killed. Feeding the greedy, hungry flame (Oh, the senseless, blundering shame.)
On and on it gnawed its way, and came to where a homestead lay.
The wretched settlers, faced with death from the Horror's scorching
breath, bravely struggled, gasped and fell. . . Death laughed loud in that
raging Hell! On it swept and left behind wreck and ruin while
the wind Muffled with its awful roar the screams that up to Heaven tore
From a many a tortured beast that fled, mad with fear till it sank down dead.
Where the forest glimmered green, now a charnel-house is seen;
Blackened stumps on rocks and stones stand like monstrous half-charred
bones. And this is all that's left today—just stumps and rocks, all black
and grey. Ah, if that man could only know the loss he caused and the
bitter woe, I wonder what the fool would feel—that big fat man in an
automobile!



Aftermath of the 1916 Holocaust in Northern Ontario showing the fires in progress close to Matheson. The recent fires occurred in an area a considerable distance south of that above pictured.

Why Forest Fire Plague Defies Cure

By Dr. Clifton D. Howe, Dean, Faculty of Forestry, University of Toronto

FOREST FIRE protection is a question of public morals. People do not realize how much we depend upon the products of the forest for our comforts and necessities. We come in contact with these products every hour of the day and every day of our lives, from the wooden cradle to the long wooden box. The forests are the very foundation of our industries. Next to agriculture no industry contributes so largely to our national and Provincial wealth. The lumber industry of Ontario gives employment to 17,000 men in the bush alone, with an annual payroll of \$12,000,000. Pulp and paper mills of Ontario employ 8,000 people and pay wages \$7,000,000 a year. The invested capital of these two industries is nearly \$150,000,000.

Nearly 500,000 acres of forest are burned every year in Ontario. We have not a supply large enough to stand this awful drain very much longer. If the forest fires continue at their present rate of destruction these industries which I have just mentioned will simply have to go out of business. We know approximately how much forest area we have. We know how much is burned. It is only a simple arithmetical problem to calculate the time of the crippling of some of our most important industries, if not the time of their actually going out of business.

I say forest fire protection is a question of public morals, there never will be adequate fire protection in Northern Ontario or anywhere else until the people demand it. Over 95 per cent. of all forest fires are due to human carelessness. You see, the responsibility rests almost entirely upon men themselves, upon the managers of the railways, upon the tourist and the camper, upon the settlers and the lumbermen. All of these are residents or travellers in the North Country. We will never have adequate fire protection until we can educate the fool with his match, or until we can educate carelessness out of the human system.

It costs the Ontario Government over \$3,000 a day in the summer time to look after the fool and the criminally careless who wander at liberty, or who work in our forests. You and I help pay for that. No forest fire fighting organization in the world can give adequate protection without the support of public opinion and this support our Provincial fire protection service does not have in the North Country. It is very easy to criticize another, and specially easy to criticize the government organizations, but before we become too critical, I think we ought to ask a few questions about conditions in the North Country.

It is reported in the newspapers that the disastrous fire at Haileybury started with a settler burning his

potato stalks. We ought to ask whether that settler made any attempt to put out his fire when he saw it getting beyond him. We ought to ask how many settlers passed by that fire without offering a hand to put it out. We ought to ask how many settlers evade the permit system for burning slash in operation in many sections of the North. We ought to ask to what degree this evasion is winked at, or even encouraged, by the leading citizens of those towns. We ought to ask even if the members of the Legislature for those districts do not sometimes petition the Government to let up on the enforcement of the forest protection regulations, on the basis that they are so unpopular that, if the member espouses them, he will fail of re-election. Before we become too critical we ought to ask if there are not the lines of a big railway system running through the North Country that has been practically indifferent to the regulations in regard to the care of engines that throw off sparks along the right of way. The railways are responsible for over 40 per cent. of the fires that occur in the North Country.

As I said in the beginning, forest fire protection is a question of public morals, and it will never be adequate until we have educated this carelessness and indifference with regard to the destruction of public property on which our welfare depends. We should protect the things we value.

The Forest as Recruiting Sergeant for New Canadians

Eighty Acres out of Every Hundred in the Dominion are Barred to the Farmer
—The Forest a powerful Builder of Population.

By Robson Black, Manager, The Canadian Forestry Association

THERE IS only one thing wrong with immigration talk. It takes for granted that the only lure to new population is a quarter section of plow land. This has brought about such a distortion of perspective in the public mind that "immigration," "national development," "booming business," "lighter taxation," "more railway traffic" and such like desiderata are nearly always spoken of as dependent wholly upon a procession of new farmers. Let us consider another angle of national development.

If you came into possession of an estate of a thousand acres, even as all of us come into the common inheritance of Canada's resources, you unquestionably would call for plans of your land, its layout, its drainage, present use and potentialities. Presumably you would apportion your soil for wheat, rye, corn, vegetable garden, orchard, and so forth. Such procedure would agree with business principles.

Suppose your estate foreman asked you to keep your eyes on the corn field, insisted on speaking of corn crops, showed you only the corn cutter as the chief piece of farm machinery, and waved aside the wheat and oats and alfalfa as mere incidentals of annual production, you would either fire the foreman or succumb to his specialized talk and become a corn fan.

The Farm and Forest as Partners

As far as concerns the making of great and costly plans of action, the organizing of public and private effort Canada has made arrangements to coax American and British emigrants into the unworked vineyards of Western or Eastern Canada. There can be no protest against such worthy and imperative effort. One may only interpose an earnest wish that the magnetising power of *all* the natural resources of Canada could enjoy the same advertising and organized exploitation. It is no criticism of immigration policies to say that home-keeping Canadians are very apt to be falsely persuaded that agricultural lands are the only generator of increased population and national wealth; they may very easily commit

themselves to large outlays on new farmers while treating with flippant unconcern corollary policies of forest conservation absolutely vital to the business success of the new farmer. Canada's emergence from war debts, railway debts, and other handicaps is not a matter of immigration policies alone, but of the prompt correction of gross mismanagement of such other natural resources as the Forest, the ruin of which through public neglect will not only strangle immigration but drive from the country the farming population that we now boast. For, be it known, where the forest withereth, the farm fadeth. That is the stalest, and least heeded lesson of Old World history.

Eighty per cent of the habitable area of Canada is of non agricultural type. Note that please! The percentage looks higher than the Empire Day spell-binder used to mention when he painted this Dominion a Utopian chromo for the gaping attention of a schoolchild audience. Eighty per cent of the habitable area is of no account for present or future farmer. Only five percent of the whole area of British Columbia is of agricultural worth. And to quote that plain fact does not in the least depreciate the greatness of British Columbia's natural wealth, unless one's mind runs in the narrow groove where "wealth" never looks itself unless decorated with wisps of hay.

Not more than one third of Saskatchewan is of a type fit for farming. Ontario's area is probably seventy per cent non agricultural. And so the story runs.

The development of Canada, therefore, is scarcely compassed by one dominant public policy restricted to the promotion of farm settlement. Indeed there never can be any such thing as an immigration and colonization policy without a four-square forestry policy. And the start of any adequate forestry policy is a satisfying answer as to why four thousand forest fires were burning in Canada this year, and why the greater part of the country's natural forest inheritance is today a wilderness of blackened wreckage.

Were it possible to prepare a review of the enormous service done by the

farmless Empire of this Dominion that the map makers designate as "forest area" what surprises would evolve therefrom? How wonderingly we would trace the influence of the lumber industry on development of new population, new towns, new railways. There is scarcely a community outside the prairies which has not part of its foundations in somebody's sawmill. But much of the story of the lumber industry and its influence on population would be retrospective—pathetically so. There is more to be gained by climbing to a newer altitude where the huge bulk of pulp and paper plants gleams white against the spruce woods.

The pulp and paper industry is the prodigy of Canada's industrial history. Twenty-five years ago it was straggling far to the rear of home activities. The newsprint mills of the United States foresaw the eventual embarrassment from declining wood supplies and the trek began to the "happy, happy land" of Canada where abundant spruce forests and first rate water powers promised a cut in production costs. Yesterday's sleepy village became the young city of Grand Mere; the Canadian 'Soo' pulled to itself thousands of new citizens; Three Rivers was suddenly filled with processions of home seekers; Iroquois Falls and La Tuque broke the wilderness with a chain of chimneys and orderly lines of workmen's homes. And year after year these pulp and paper communities add to their numbers with no thought of suspending growth for a dozen years to come.

This is pioneering on the wholesale plan. This is colonization, this is settlement, although we commonly leave those terms for the immigration agent. Yet the pulp and paper companies have carried out the national development idea. They have given Canada scores of prosperous towns, they have contributed enormously to railroad traffic, they have given steady jobs to 30,000 good class workmen at generous wages in their mills and another 25,000 in bush labor.

Nearly forty million dollars a year are paid by these companies to

their workers. This is mostly new money since 1890.

Over 350 million dollars of invested capital has been attracted to date and this does not take account of five new mills in course of construction.

And let us make good note of the fact that paper making in Canada is no exotic coaxed into activity by a tariff hot-house. Eighty-five tons out of every hundred manufactured here are shipped to the United States. Newsprint today is the ace of our industrial exports. It is the finest thing we do because it defies world competition, without an ounce of government bonus or any other quack medicine by which home industries sometimes are made to look big when they are only puffed up with taxpayers' sacrifices.

Is it, after all, the pulp and paper mill that accounts for all this transformation of the wooded wilderness, this placing of new population where only the trapper walked before?

Is not the paper mill the sub-agent of the Forest? The whole of the development is in consequence of

forests and water powers. The mills came because forests were available and mills will depart when the forest ceases. Population came **because raw material called it.**

Grand Mere and Kenogami and Iroquois Falls would never have existed but for the magnet of the forest.

Farmers and Factories

The visitor to the Canadian forest community, whether lumber town or paper town, is struck by a second fact. He finds each forest industry the core of a farming population, attracted there and sustained by the ability of the town to absorb all farm production. He inquires at Iroquois Falls, Ontario, the home of the Abitibi Power and Paper Company, where the farm products come from and is informed that the surrounding settlers cannot commence to feed the towns people who import most of their vegetable foods from Toronto. Thus is the forest industry not alone transmuting timber into negotiable wealth, promoting employment, and pouring out traffic onto the railways,

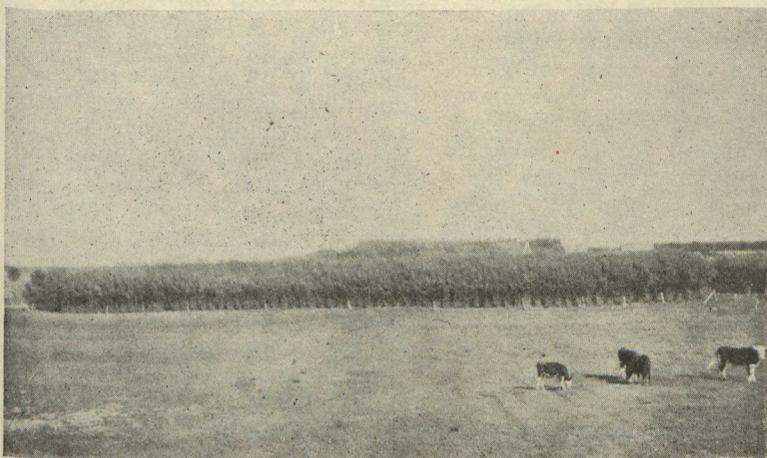
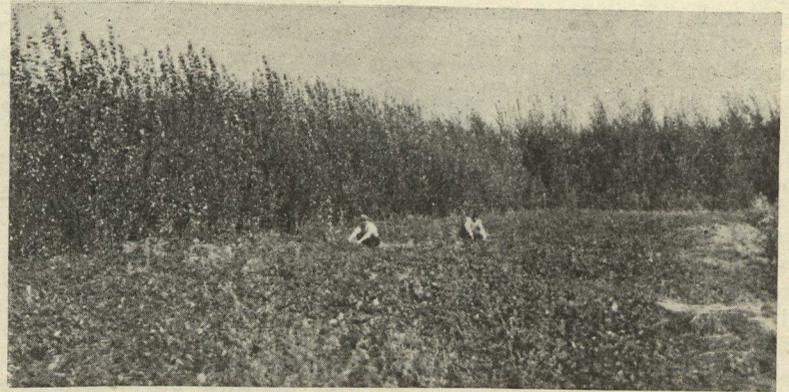
but it furnishes the sole reason for the entry of farmers into the patches of fertile soil that otherwise would never produce a penny.

Without the forest industry, supplying the market, however, most of such farms would be counted out as business propositions. The vast non agricultural northland (which means more than two thirds of the area in the case of Ontario and Quebec) will never be really "peopled" except by those who come seeking timber or mines. And those who seek mines are ultimately counted as transients in a country to the extent that most mines are transient producers. Only the forest assets can, under a proper forestry system, be counted as self perpetuating assets reproducing the "gold of timber" without diminution, generation after generation.

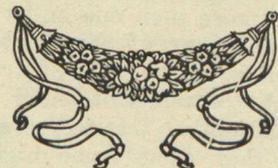
The one and only major "value", except mining, on eighty acres out of every hundred in this Dominion is the Green Forest. On all except ten or fifteen per cent of our national area it is the sole colonizer, the sole bidder for new Canadians.

Tree Growing Miracle on the Prairies

The accompanying plates graphically present the miracle of tree growing on the prairies. Mr. Alfred Johnson, Strathmore, Alberta, planted the trees shown in the picture in 1911, securing the cuttings from the Indian Head Nursery. The results will be regarded by most of our readers as truly remarkable although they are by no means abnormal.



Mr. Johnson, in sending the photographs to the Forestry Association, remarks, "I like the Canadian Forestry Magazine very much and hope that it may long continue to give the utmost satisfaction that it has done in the past."



The Conservation of Wild Life in Canada

EVERY HUNTER SHOULD SIGN SPORTSMEN'S CREED

By J. Moffatt Ross

PRESENT measures aiming toward Wild Life Conservation in Canada might very well be represented as a more or less dilapidated fence, separating a pasture field from a field of luscious clover over which, once the pasture gets short, a herd of cattle looks to see how high the fence is, and then if it is possible to get over, one of the herd breaks through at a low place and the rest follow. The result is that twenty-four hours after, the cattle have filled themselves to over-capacity, and they usually lie down on or otherwise foul the balance of the clover so as to make it unfit for harvest or even food for themselves.

What we need today is a closer inspection of the line fence separating the people of this Country from their vast heritage of wild life, so that during the proper seasons they take only what they require and even then bear in mind that all wild game killed must be re-stocked in some way or other. You can build a mill on a stream and ruin it for fish. You can shoot off all the fawns and does amongst our Red Deer and sooner or later you will have no Red Deer left for the Sportsmen.

The question of using dogs for hunting wild game is one that should be dealt with in the very near future, as it is a common thing amongst hunters to see deer after deer driven into ice-cold water on their local lakes, and when shot find that the meat has undergone such a heating followed by a chill that, chemically, it is practically unfit for use.

One day I asked a hunter why it was that he had so many fawns in his bag that season. His only remark was that as he caught most of them on the jump it was very difficult to distinguish between the young and the older deer. Although no particular authority, I can just pass on my own experience as a still hunter, and I invariably get my largest bucks by really careful deer stalking, which is about the only way that you can get these wily old fellows. Rarely have I had to use more than one bullet to dispatch the largest of them, while daily we can hear the roar of from three to eight or ten shots fired by hunters in adjoining territory, and frequently they come home nights with no game in their bags. With

WHAT'S WRONG WITH OUR GAME LAWS?

By W. J. Taylor, President, "Rod and Gun in Canada."

If the game laws in force in the various parts of Canada were properly observed there would be plenty of game for all. The natural yearly increase is sufficiently large to take care of the legitimate kill in the Dominion. The game laws of the provinces should be co-ordinated so that adjoining provinces, with similar climatic and geographic conditions would have the same open seasons or at least seasons that are more uniform than at present. This objective could be attained by a national convention held under the auspices of the Department of the Interior. At the same time a wild life survey could be taken, which, if revised yearly, would be invaluable to legislators in deciding the game seasons and bag limits.

our very rapid shooting rifles, including the automatic, a tendency amongst hunters is to reel off a roll of bullets as fast as they can pull the trigger, and then when the white tail of the deer has just gone over the hill, they stop and consider what "dub shots" they are, whereas one well aimed bullet by a cool-headed hunter would bring home the bacon without any guess-work. Consider the way our forefathers had to aim in order to bring down their game with rarely more than one shot.

We have enormous areas in Canada of land more or less useless for agricultural purposes, and on most of this roams a variety of valuable wild life. Therefore all we have to do is to co-ordinate the efforts of all the Sportsmen throughout the Dominion, and we have an army of game-wardens, such as no Government could afford to pay, doing the necessary guardianship for the sake of sport. If every man who asks for a hunting license signed a "Sportsmen's Creed" embodying all that is fair and sportsmanlike in the game, this would go far toward building up a safe barrier between the wasteful people of this Country and the God-given heritage that was left them in such abundance of wild life, which was never intended to be killed and eaten all in one year, but rather to be a continuous source of supply.

SAVE THE PRAIRIE GAME!

By the Editor of the Saskatoon Star

It is stated on good authority that wolves are killing more big game in Saskatchewan in one year than all the hunters who gather in the wooded lands in the open seasons kill in ten. This is a serious condition, and persists despite the fact that the province employs between the months of September and April fifteen game guardians for the protection of the thousands of game animals and birds that inhabit practically every portion of the country. Saskatchewan obtains a revenue from game of approximately \$32,000 annually. Last year the sum was \$32,684.

There seems no particular reason why the province of Saskatchewan should not take as great an interest in its magnificent game resources as has its neighbour to the south, and it would be well for those in authority to take the necessary steps quickly. In older lands it has frequently been found that measures for restricting the unnecessary slaughter of game have come too late, and it has been necessary to exercise the most extraordinary care in order to preserve any game at all.

Unless adequate game protection measures are taken, within reasonable time, there will come a day when the people of the province of Saskatchewan may look upon empty forests, rivers and prairies and lament the passing of the "good old days" when moose, deer and elk, prairie chicken, partridge, and wild duck abounded in a land where now only an occasional gopher pops up his head and squeaks the triumph of the fittest to survive. This is no empty threat, but a situation that has been found in dozens of countries where proper steps were not taken in time. The creation of a public conscience with regard to the preservation of game, backed by an adequate force of game guardians competent to exterminate pests as well as protect game, are the means by which our animal and bird resources may be saved. Already sportsmen in various parts of the province are forming themselves into associations and using their best efforts to bring the seriousness of the situation fully before the public. It is to be hoped that their efforts may meet with the success they deserve, but it is a matter more to the point that prompt steps should be taken by the government to preserve this most valuable natural resource.

Putting Trees in a Treeless Land

How the Men and Women of the prairies are being helped to better homes and higher profits

By Angus Graham Cooch

Assistant-Lecturer, Western Campaigns of the Canadian Forestry Association

"In that school of eighteen pupils, only three had ever seen a tree and there are thousands living on the prairie to-day who have never seen one big enough to climb."

IT IS NOT my intention to outline herewith the history of the Canadian Forestry Association's Tree Planting Campaign but to give the readers an idea of the problems and experiences encountered while carrying on with the Tree Planting Car during the past few months.

We have been travelling over what one could call old ground, that is to say country visited on previous occasions, and consequently we have had an excellent opportunity to observe at first hand whether or not our information is reaching the right people and what they are doing with it. The gratifying thing about it is that we are finding traces at every place visited for the second time, that the information we have been able to give is being used. We get proof of this in the form of new plantings around home, school and church grounds, boulevarding of streets, planting of small town parks and cemeteries and in numerous other ways. Interest in tree planting has never been greater and we are kept busy from morning till night attending to visitors at the car, going with owners in town and country to inspect their places, laying out school and church grounds, parks and boulevards with groups of business men from the towns, and carrying on with our usual lectures. We have the school children through the day and at night give our regular lecture to the adults. The school meetings are so arranged that the lower grades will be kept separate from the older and more advanced students. The tots are given a movie show and a few simple words on trees, while the senior pupils are given the regular illustrated lecture. The little ones are most enthusiastic

and receive the movies with loud cries and shouts. In many cases it is the first time they have ever seen such a thing and the remarks of the youngsters are consequently amusing and sometimes pathetic. One little girl was frightened of the dark. She liked the pictures but the dark was too much for her and she gave way to tears. She was taken to the back of the car, comforted as well as possible and finally quieted. By this time she was well acquainted with the writer and the following conversation passed between them:



Tree Planting Lecture Car of the Canadian Forestry Association

"God's in every house, is'n't He mister?"

"Yes, He's in every house."

"He's up the chimney with Santa Claus, is'n't He?"

"Yes, He's up there too."

She was quiet for three or four minutes but the little mind was working all the time. "Well then, where is he in this house; there's no chimney?" This followed by another outburst of tears and a hard job to convince the little lady that the ventilator over the gas light was chimney enough.

Had never seen a Tree

On another occasion while showing a film entitled "Capturing Live Bears" in which a guide is seen

climbing a tree after a cub, one of the little fellows cried out in sheer amazement, "Oh look at the man climbing the telephone pole". The poor little chap had never seen a tree big enough to climb and had taken this fine specimen of a spruce for one of the native prairie telephone poles. In that school of eighteen pupils, only three had ever seen a tree and there are thousands living on the prairie to-day who have never seen one big enough to climb.

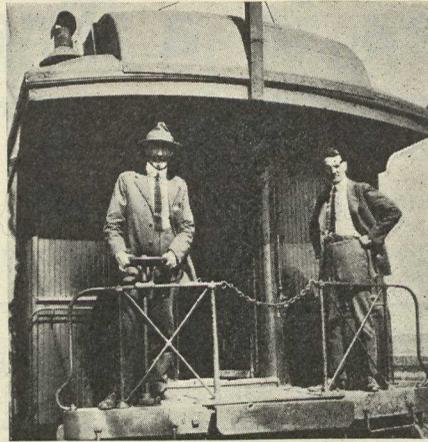
The older pupils, both Public and High School, are the finest lecturing material we can find anywhere. Used to being spoken to at school, still at the stage where they can take in information without any difficulty and because we have something different to offer them, they are always attentive and we get good hearings. Now that the Departments of Education at Regina and Edmonton have included the subject of Tree Planting amongst those on which essays must

be written during the term, our lecture offered the pupils a splendid opportunity to get this information and they invariably attended with note books and pencils. A good thorough talk was given them, followed with an illustrated address on the laying out of the home grounds and results already obtained by farmers throughout the country. Later, when possible, came an outside demonstration at some nearby shelter belt where actual planting, pruning, preparing of cuttings, etc., was shown.

Why the Prairies are Treeless

The evening lectures are always well attended and on numerous occasions we have found it extremely difficult to accommodate everybody seeking

admittance. In our lectures we touch on the value of trees, the necessity for them as a stabilizer of our population and endeavour to portray to our audiences what the prairie would be like if systematic tree planting were carried out on a large scale. It is difficult sometimes to convince our hearers that the prairie is naturally a tree country and that trees can be grown. One man during a discussion remarked: "If God meant trees to grow on the prairie, why were they not here when we arrived?" and this same doubt unfortunately has led a great many people to believe that trees cannot be successfully grown on the prairie. The fact that they did not find trees on the prairie when they came there seems to be proof enough that trees won't grow. Why the prairie is treeless has been discussed on numerous occasions and experts have suggested various reasons. Of all I have heard, the most likely explanation is that fires were undoubtedly the cause. In the first place it is not known how these fires started though it is said the Indians were the cause of a great many. They used to set fire to the prairie in the fall of the year after the buffalo had migrated south so that the nice fresh green grass in the spring would tempt the buffalo nearer home. Without a doubt these fires didn't stop where Mr. Indian started them and the result of course was disastrous to any permanent growth appearing on the prairie. Now that the country is settled, one hears less and less of the prairie fire menace; in fact it has practically disappeared except for a few isolated cases. The result now is that the trees are coming back on the prairie and very rapidly too in the form of the Aspen Poplar which are appearing in bluffs of various sizes. Old residents tell us that thirty-five years ago there were no trees on the prairie west of Brandon excepting in the river bottoms and sloughs. Now you have to travel as far west as the outskirts of Regina, before you are out of sight of these bluffs. The spread from the north has been equally rapid and the trees are well south of the C.N.R. Edmonton-Saskatoon line and travelling fast. From the west the advance is coming on too and trees are reported at various places where there was none a few years back. In fact even in the central parts of the prairie small bluffs are appearing, the seed evidently being carried over by the wind and finding a damp place to germinate. And all this has taken place during the past few years, as few of these trees are over twenty years old as can be seen on examina-



Archibald Mitchell, Western Lecturer of the Canadian Forestry Association and his assistant, Angus G. Cooch, on the rear platform of the Tree Planting Lecture Car.

tion. This, too, despite the fact that the west has passed through one of the driest spells of its history and instead of the trees dying they have actually increased. There is no question at all but that we have sufficient moisture every year for trees on the prairie and that trees can be grown. We have sufficient moisture if we keep what we get and nature accomplishes that by growing her trees close together, forming a dense canopy over head to keep the sun out and by using shrubbery coupled with the close planting so that the wind cannot pass through to steal the moisture.

I am not going to publish details of how a shelter belt should be planted, the trees to use etc., as this has been covered on numerous occasions by well known authorities. This information is given though to the audience and illustrated by some sixty lantern slides, prepared from pictures taken by the staff during previous seasons.

The Question Hour

Following the lectures we hold a discussion. The audience is invited to ask questions and also reminded that it is only in this way that we can get at the root of their local problems. A good discussion is well worth while and a lot of useful information is handed out by the farmers themselves while telling of their own experiences. Everything from trees to gardening is discussed and on numerous occasions it has been well past midnight before the last man left the car.

Our field work takes us all over the country. A farmer comes in and wants us to take a look at his trees.

We are motored out and a thorough inspection given, suggestions made for improvements and demonstrations in how to handle various little things he is not clear on given right on the spot.

City and town plantings are booming right along. Calgary had the biggest Tree Week in its history when the various business men's organizations appointed a committee to handle the campaign and no fewer than twelve thousand trees and shrubs were planted under their auspices. Cardston, Vulcan and numerous other small towns are boulevarding their streets. It is refreshing indeed to see that this task has been tackled with determination and a decided improvement made on the appearance of the town. Tugaska and Cupar in Saskatchewan are other small towns that have boulevarded streets and numerous others will start next year.

Plans are Prepared

Cemeteries, too, need trees. Of all the bare, desolate looking places in the west, the average cemetery is the worst. This year the towns of Gull Lake, Sask. and Burdett, Alta., have taken the matter in hand and are falling in line with High River, Alta., and other older settled places that have really beautiful cemetery grounds. Plans were prepared by Mr. Mitchell, Western Lecturer, of the Canadian Forestry Association, for these places and already the energetic Mayor of Gull Lake, Mr. Sydney Smith, has started the ball rolling by having the land prepared for planting next year.

We have been greatly aided in our work by the splendid co-operation of the press. It cannot be too strongly put that the success of the work to a great degree has been made possible by the excellent publicity obtained from all western papers. As one expert put it, "Tree planting is freezing out the advertising." At least one cannot pick up a paper without seeing something on the subject.

So much well-merited praise has been given in these columns to the Tree Planting Division of the Dominion Forestry Branch at Indian Head and Sutherland, Sask., as to make detailed reference in this account unnecessary. The pioneer work of the Tree Planting Division in popularizing tree culture and in carrying on experimental work, has won the gratitude of thousands of

westerners and constitutes the real backbone of tree planting in the prairie provinces today.

Western Governments Alert

The Provincial Governments are falling right in line too, and Saskatchewan and Alberta have come through with substantial grants to enable us to carry on. Then by co-operating through their various departments particularly the departments of Education and Agriculture, a lot of useful information is provided. The Government of

Saskatchewan in addition takes the Tree Planting Car along with its Better Farming Train. This University on Wheels as it is called, is sent out annually by the Government and assisted by the University of Saskatchewan, for the purpose of bringing to the very front door of the farmer the latest and best methods of farming. The train consists of some twenty-two cars and carries everything from live stock to a diner for the staff. Its lecturers are supplied for the most part by the University and the Professors at the head of the various Departments make

it a point to be with the train most of the time.

Our subject was of interest to everybody and we had the opportunity of addressing them all. In the five weeks' tour with the train we spoke to 33,416 people, delivered 253 lectures, visited 62 towns and covered 1604.2 miles.

The Tree Planting Car carries on from day to day with increasing interest on all sides. To date the total number of people spoken to for the year has been 51,975; number of lectures given 438, and 6403.6 miles of prairie railway lines traversed.

SOME WORDS OF CHEER

CONGRATULATIONS!

From Colonel S. Maynard Rogers, Superintendent Jasper Park, Alberta; "Might I tender my most sincere congratulations upon the great improvement in your splendid magazine."

* * *

GOOD WISHES!

From Mr. W. A. Whitelaw, 201 Madison Avenue, Toronto; "The work you are accomplishing through your Journal is of paramount importance. I sincerely wish you every success."

* * *

THINKS IT INTERESTING

From Mr. A. R. Rhodes of Prairie Cattle Farm, Zelma, Sask.: "I think the magazine quite interesting. We are in a new settled district. We came seventeen years ago and have now a nice bulk of trees with fruit inside the shelter. This year we have quantities of currants, red, white, black, raspberries and a few plums. Now others are interested also and most of the farmers are preparing to plant trees in the near future. Wishing the Magazine success."

* * *

ADMIRES OUR SYSTEM

Macdonald College, P.Q.

Canadian Forestry Association:

I am a great admirer of your Association and the valuable work it is carrying on for the preservation of our Canadian forests. This admiration, however, pales into insignificance when placed along with the admiration which I hold for the tenacity, persistence, patience, and aggressiveness of the financial wizard who sends out your subscription appeals. I have succumbed again to his barrage and enclosed you will find your cheque for two dollars. This genius should have charge of the Canadian National.

DOING MUCH GOOD

From a Quebec member of the Canadian Forestry Association: "It is always a pleasure to be of any assistance to this Association which is doing so much good."

* * *

ENJOYED FORESTRY CAR

From Hon. Beniah Bowman, Ontario Minister of Lands and Forests, Toronto; "I had an opportunity of seeing the Forest Exhibit Car, Espanola, Ontario, some little time ago. I can assure you I enjoyed very much the demonstration. I understand the people of the north are greatly attracted by it."

* * *

FOND OF MAGAZINE

From William Rea, Barrister, Edmonton; "I am very fond of the magazine and I fully appreciate the fine work you are doing for Canada in the campaign you are carrying on for preserving our forests and for creating and cultivating a love for trees in the younger generation. I have always loved trees myself. The trees about my old home in Ontario were almost like persons to me."

* * *

THE SCENIC ANGLE

From Guy Tombs, Montreal.—Your article in the July issue of the Forestry Magazine was exceptionally interesting, and in tackling forest protection from the scenic angle I am sure you opened up a new thought to some people.

* * *

FROM A. B. C. FOREST RANGER

"I had the pleasure of attending the Forestry Association's Exhibits Car while it was at Courtenay this Spring. I consider this splendid propaganda and sincerely hope that it will become a permanent institution."

The Dire Need of Reforesting Bible Lands

Constructive Program Inaugurated to Relieve Distress of
Famine-Stricken Areas.

By Jane Hill

A CONSTRUCTIVE program for reforesting Bible lands is being inaugurated by the Near East Relief, the organization chartered by United States Congress to relieve the distress of the people of the famine stricken and war-torn areas of the Levant.

Palestine today is for the most part a treeless country, nearly all its forests having been improvidently destroyed to provide building material and fuel. Yet it is a country which needs large forest reserves, and which cannot prosper without them.

Gone are the cedars of Lebanon, save for one small hollow on the north west slopes of the mountains. Gone are the oaks of Abraham, save in the table lands of Gilead—where Absalom was caught in the low-hanging branches of one of the large trees of Bashan. Most of the sycamores and the oleanders have also been sacrificed. Even the palm trees, once the glory of the land, are almost extinct.

The loss of the picturesque palm is perhaps regretted the most of all, because it is by far the most beautiful and most characteristic of all the trees of the Holy Land. In the old Roman days the palm was universal throughout the country. Nowhere else in the Roman Empire did the tree grow so beautifully and uniformly in its stateliness. The palm tree was imprinted on the old Roman coins as the national emblem.

The Jericho Palm Grove

Jericho was once surrounded by a palm grove seven miles in width, and

in those days must have been a city well worth visiting. Today every vestige of the old forest has disappeared, and the plain around the city, once well watered and fertile, is now the desert site of a group of squalid hovels with a degenerate population of not more than 250 souls. To renew the agricultural prosperity of 2,000 years ago will be made possible when the war orphans under American care become skilled in the scientific methods of farming and forestation which is a part of the educational curriculum in Near East Relief orphanages.

The name "Jericho" means "place of the palm's fragrance". The palm grew naturally without cultivation, all along the valley of the Jordan. In Southern Syria, along the busy maritime coast from Beirut to Acre, great palmgroves greeted the eye of the Roman traveller. Tyre and Sidon were surrounded by palms. Phoenicia took its name from them,—the "Land of Palms."

Treeless lands suffer

The passing of the palm trees from most parts of Palestine has certainly served to add to the prestige of the few specimens that remain. There are a half-dozen beautiful trees in Jerusalem, and a fine group surrounding the mosque at Nablus. The most striking spot on the whole coast of the Sea of Galilee is the little palm-tree oasis which greets the traveller at sunrise from the window of his hotel at Tiberias. In the valleys beyond Nazareth, an occasional stately palm is encountered, and in Damascus there are several fine

specimens. It is along the seashore between Acre and Beirut, in Syria, that they are most abundant, and here they are fighting a useful battle against the encroachment of the sands, which a few years ago threatened to engulf all the fertility of these maritime plains.

Agricultural conditions, of course, are entirely different here from those in European and American countries. Palestine cannot hope to produce great forests like those of Canada and the United States. But it is faced with a rigorous necessity of producing its own fuel and building material, and some of the foreign agricultural colonies in Palestine have already proved that this can be done without difficulty.

Most of the war orphans under American care in Bible lands expect to remain there as farmers and artisans. Therefore the importance of the reforestation of the country is emphasized in the industrial training classes. Economically speaking the Holy Land is dependent on sound agriculture, irrigation and forestation.

Realizing that the future of the Near East rests largely on the 100,000 kinless children, now provided for until they are old enough to look out for themselves, the Near East Relief is making every effort to give them the kind of training that will be most helpful in rehabilitating the country. To this end the school day is divided to allow the children to spend part of the time acquiring a rudimentary schooling and the other part in practical industrial accomplishment.

REFORESTATION IN CHINA

During the year ending with the spring planting in 1920, China spent from \$20,000 to \$250,000 in forestry enterprises, mostly in nursery work and forest planting. The year showed a production of 100,000,000 trees in more than 1,000 nurseries and the planting of 25,000,000 to 30,000,000 trees on 100,000 acres of land. Prof. John H. Reisner, of the College of Agriculture and Forestry, remarks that while these figures seem small it should be remembered that interest in forestry in China is of recent development. It is stated that about 2,500,000 trees have been planted, about 1,000,000 of them in the spring of the present year. Three nurseries were

maintained, carrying 1,275,000 transplants and about 3,000,000 seedlings of 73 different species. Trees and seeds for nurseries and more than 50,000 trees for transplanting were distributed. There are also three substations located in different parts of the country, and two more are being planned. Forestry development is being carried forward under modern methods, largely under American trained foresters. The Government railways are engaged in the work with a view to supplying their own ties and timbers used in railroad construction and maintenance, and other railroads are expected to fall in line.—*The China Press.*

ASIA MINOR--AND THE PENALTIES OF DEFORESTATION

DANGERS OF DEFORESTATION

When by reckless tree-cutting the forest cover is removed from hills and mountains, nothing is left to hold the rain—no layer of living roots, mosses or other vegetable growths mixed with decaying leaves, to act as a sponge and retain the moisture. Thereafter, in consequence, the rainfall runs off in torrents, and the streams to which it should afford a regulated supply throughout the year are flooded in winter and dried up in summer. Incidentally, the soil is washed away and the hillsides, once beautiful with fresh growing verdure, become so much barren desert. In this way the supply of certain areas has been practically destroyed. The forests of the hills and mountains are natural storage reservoirs. Destruction of these reservoirs means ruin to the farmers in the valleys and on the prairies.—*Editor.*

RECENT warlike events have focused attention upon Asia Minor. The complexities of the struggle between Briton and Turk have been sufficient to prevent the hurried reader from inquiring as to the physical character of the country which only a few weeks ago threatened to be the stage of a terrific conflict. Probably no land on earth offers a more graphic subject to those in search of illustrations of the penalties paid by nations and people for neglect of their forests. Canada has made so many major mistakes in her forest management, the Canadian people have paid so highly for lost forests and will pay a sterner account during the next century, that the 'pointing finger' of older countries may give us a new sense of our dangerous direction.

Asia Minor is a deforested land, and the consequences are pitifully displayed in a struggling agricultural industry, dried up rivers, and generally stagnant civilization. One of the most authoritative writers upon the state of the natural resources, Mr. George P. Marsh, has the following indictment not alone of Asia Minor but of a large part of the other states constituting the old Roman Empire: "If we compare the present physical condition of the countries of which I am speaking, with the descriptions that ancient

historians and geographers have given of their fertility and general capability of ministering to human uses, we shall find that more than one-half their whole extent—not excluding the provinces most celebrated for the profusion and variety of their spontaneous and their cultivated products, and for the wealth and social advancement of

washed away; meadows, once fertilized by irrigation, are waste and unproductive, because the cisterns and reservoirs that supplied the ancient canals are broken, or the springs that fed them dried up; rivers famous in history and song have shrunk to humble brooklets; the willows that ornamented and protected the banks of the lesser water-courses are gone, and the rivulets have ceased to exist as perennial currents, because the little water that finds its way into their old channels is evaporated by the droughts of summer, or absorbed by the parched earth before it reaches the lowlands; the beds of the brooks have widened into broad expanses of pebbles and gravel, over which, though in the hot season passed dry-shod, in winter sea-like torrents thunder; the entrances of navigable streams are obstructed by sandbars; and harbors, once marts of an extensive



CHANAK, ASIA MINOR.

A view of Chanak (Dardanelles), and the town of Kilid-Bahr (the Lock of the Sea), on the European side of the straits. On a clear day anyone in Chanak can easily see people walking on the opposite side. The city of Chanak, in the neutral zone, is the scene of much activity.

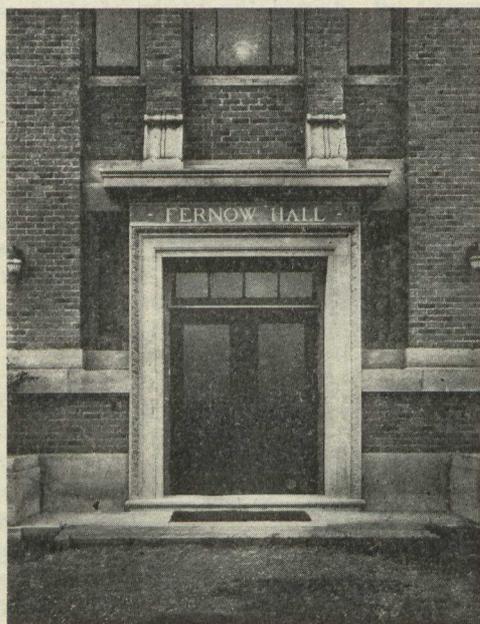
their inhabitants—is either deserted by civilized man and surrendered to hopeless desolation, or at least greatly reduced in both productiveness and population. Vast forests have disappeared from mountain spurs and ridges; the vegetable earth accumulated beneath the trees by the decay of leaves and of fallen trunks, the soil of the alpine pastures which skirted and indented the woods, and mould of the upland fields, are

commerce, are shoaled by the deposits of the rivers at whose mouths they lie; the elevation of the beds of estuaries, and the consequently diminished velocity and increased lateral spread of the streams which flow into them, have converted thousands of leagues of shallow sea and fertile lowland into unproductive and miasmatic morasses"

A Tribute to the Dean of Forestry in America

ON October 5, 1922, at Ithaca, New York, there was unveiled over the main entrance of the Forestry Building of Cornell University a tablet bearing the name Fernow Hall. This action was taken in honor of the services rendered to forestry in America by Dr. Bernhard E. Fernow; Director of the first forest school in America, the old New York State College of Forestry at Cornell University, the first Chief of the then Division of Forestry, now the Forest Service, of the United States Department of Agriculture, and the Dean of the first school of forestry in Canada, that of the University of Toronto.

This official recognition of the valuable contributions made to forestry by Dr. Fernow was authorized by the Board of Trustees of Cornell University at a meeting held June 20, 1922. The exercises at the unveiling of the tablet consisted of a series of brief addresses commemorative of Dr. Fernow's accomplish-



Entrance to the Forestry Building
Cornell University



Dr. Bernhard E. Fernow

ments. The speakers were Dr. Livingston Farrand, President of Cornell University, Dean A. R. Mann of the New York State College of Agriculture, and Professor R. S. Hosmer, Head of the Department of Forestry. One of Dr. Fernow's sons, Mr. Karl H. Fernow, now a graduate student at Cornell, raised the flag covering the tablet bearing his father's name.

To all those in any way associated with forestry in Canada and the United States the name of Dr. B. E. Fernow is well known. To him is due much of the credit of bringing about a correct understanding by the people of these countries of the aims and purposes of forestry. It is particularly gratifying to all who have worked with him that this honor should be conferred upon him while he can enjoy the recognition accorded the results of his life work. It is an eminently fitting tribute, for Dr. Fernow is justly entitled to the appellation that the professional foresters like to give him, the Dean of American Forestry.



Civic Wood-Cutting as a Solution of Unemployment Problem

Results Attained by City of Winnipeg Were More Successful than was Anticipated

By Frank O. Fowler, Mayor of Winnipeg.

The Canadian Forestry Magazine recently asked Mayor Frank O. Fowler of Winnipeg for a statement on the efforts of Winnipeg last winter to combine unemployment relief with the cutting of hardwood for fuel. The following account is a most interesting one.

THE CITY of Winnipeg, like many other cities in Canada, was faced with an acute unemployment problem during the winters of 1920-21 and 1921-22. To deal with this problem a joint agreement was entered into whereby the Federal and Provincial Governments and the City each assumed a share of the cost of relieving persons destitute through unemployment.

A considerable number of those requiring assistance were physically fit men without dependents and it was to care for these men that the camps for cutting cord wood were organized by the joint committee handling the matter. Unemployed men were engaged to go to these camps on terms similar to those prevailing in privately operated cord wood camps, the men being paid at the rate of \$1.50 per cord and charged for their board, transportation and cost of washing blankets, etc.

Inexperienced Help

A large percentage of the men had absolutely no experience at bush work and the Committee, when organizing the camps was of the opinion that a considerable loss would result, but felt it was much better to put the men to work than to keep them in the City without work at a cost of \$1.00 per day each.

It is very gratifying to say that the plan worked out very much more successfully than was anticipated. In the case of a few men their earnings were not sufficient to meet charges for board, transportation, etc., but by far the greater number

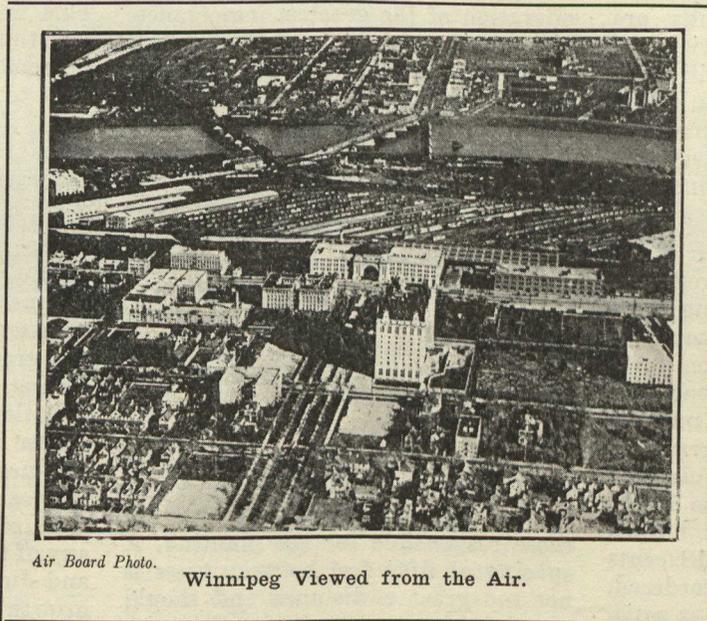
had substantial credit balances at the end of the cutting season and came back to the City in much better physical shape than when they went out to work. A very important phase of the matter is that a large number of the men on returning, stated that they had always been afraid to attempt bush work, but that they would have no hesitancy about taking it up in future; therefore, in the Committee's opinion

showing would have been much improved:—

Total number of cords cut.....	4,476
Total credit to the camp including wood cut at \$1.50 per cord, which was sold to the Provincial Government and taking credit for what it would have cost to keep the men in the City.....	\$13,556.06
Total charges against the camp.....	11,861.40
<hr/>	
Credit balance.	\$ 1,694.66

There were a total of 236 men at the camp for an average of 21 days. The average net earnings, after deducting charges for board, railway fares, etc., was \$23.38; the highest amount earned by one man was \$108.60. Of the 236 men sent to this camp only 50 of them failed to earn sufficient to pay their board, etc., and the average amount of debit balance in their case was \$5.85. The average earnings of men who stayed in camp 30 days or over was \$49.07, or practically an average of \$25.00 per month.

In reference to the disposal of the wood cut; the largest quantity of it was made use of in caring for families of unemployed, the balance being sold in car load lots at \$7.50 per cord on the open market. This price of \$7.50 per cord comfortably covers the cost, including freight, stumpage, interest charges and other contingencies.



Air Board Photo. Winnipeg Viewed from the Air.

the big thing that has been accomplished is the making of a number of experienced bush-men out of men unwilling to try this work.

Financial Statement

Some figures in connection with the operation of the largest camp organized last winter are here given, and it might be mentioned that this camp was only operated for two months. Had it been operated for the entire cutting season the

Planting Memorial Trees on Roadways

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

(Concluded from the September issue)

Newly planted trees should be staked—to hold them in position so that their roots will not be disturbed and to protect them from injury during storms. Apart from this the stakes serve the purpose of holding the trees vertically in position thus favouring uniformity and a pleasing appearance in alignment. The staking should be performed as soon as the trees are planted.

Trees which remain unstaked are apt to be blown out of a vertical position and as they move or partly oscillate in every breeze, their roots only by the greatest difficulty are able to seize hold of the particles of soil. If fall planted they will blow out of the vertical and should the soil freeze hard they will remain at various angles and appear very unsightly until they are straightened up in spring.

Stakes of a minimum length of six feet and a maximum of seven feet will be satisfactory for staking trees in memorial avenues or in fact anywhere along roadways. Stakes 2" x 2", painted and pointed at one end, will be strong enough for the purpose in question. The heaviest grade of trees, say 10' to 12', will require the seven foot stakes and the 8' to 10' or smaller grade the 6' stakes. Such stakes will cost 12 cents to 18 cents each according to the number ordered. Stakes which will be equally as satisfactory though perhaps not of such pleasing appearance are white cedar ones of 2" diameter and of the fore-mentioned lengths. These may be obtained from any owner of a cedar swamp or grove at a cost of 5c. each in quantity.

When placing the stakes in position, drive them behind the trees and about three inches therefrom and to a depth of about two feet. Place a piece of rubber about two inches wide entirely around the trunk. Take a piece of wire, pass it around the rubber and stake and secure it so that neither tree nor stake can move separately;

or one-half inch rubber hose may be used. Pass this half way around the trunk, interpose a piece of rubber between stake and trunk, pass the wire through the hose and secure the ends behind the stake. This will effect the same purpose. The trees will be secured and the rubber between tree and stake will prevent chafing. Such staking is permanent and will suffice for two years when the stake and rubber may be removed.

Spacing the Trees.

The proper spacing of trees in Memorial or other avenues is a consideration of the greatest importance. The spacing should be such as to allow of proper and unrestricted development of both crown and root. It should also be such that they will not unduly shade the road surfaces and cause moisture to stay thereon to their detriment, nor to cause snow to drift and pile thereon during the winter. It has been said that avenues wherein the trees are planted fifty feet apart are the most beautiful. They may be equally beautiful where the spacing is greater. Along the Provincial Highways of Ontario the spacing is seventy-five feet. As, however, the planting of avenues along the latter is not in question, the writer must leave the spacing to those responsible for the planting. A spacing of fifty feet between trees is not too great a distance and should certainly be regarded as the minimum. Planted a less distance apart the trees cannot properly develop. They will soon begin to crowd each other, the sunshine and rains will not have full access to the branches nor will the air have a full and free circulation through them. Light, air and rain are the agencies which help the trees to grow and the latter is the agent which removes all deleterious matter from the breathing pores of the leaves and keeps the tree cleanly and as a result healthy. Give the trees a chance to live. Allow them to breathe the fresh air and to enjoy the cleansing and health-giving proper-

ties of light and rain. Only when such facilities are afforded will the avenues develop the majesty and the grandeur of which they are capable.

Maintaining the Trees.

During the first two years after transplanting, the trees must at the proper times be cultivated and watered. If such practices are not affected, a large number will die and the surviving ones will not grow satisfactorily. At least four times during the late spring, summer and fall months the area of the original hole around the trees should be cultivated. This to promote the aeration of the soil, to favour the formation of food, to remove weeds and last but not least to conserve the moisture in the soil. Just as vegetable and other crops respond to cultivation, so do the young trees.

During the periods of drought water must be afforded to newly planted trees. A thorough and adequate one must be given when necessary. Four or five times during the growing period will suffice even during the driest summer if the applications are judiciously timed. Water is life to a newly planted tree and neglect to apply it will have but one result. Trees suffer from drought most of all during August, although any of the summer months, May, June and July, may be so dry as to retard growth or to cause death.

The signs of excessive drought are a wilted condition of the leaves which is later followed by a premature yellowing of the same. This condition should not be allowed to pertain. The yellow leaves will quickly shrivel and the subject die.

A cultivated soil will more evenly absorb water than an uncultivated one. Cultivation should thus be effected before water is applied. If applied slowly, the water may be evenly distributed around the tree and all of it will soak in. As much as eight to ten gallons may be applied to each.

A Forest Protection School on Wheels

THE UNIQUE service accomplished by the Forest Exhibits Car of the Canadian Forestry Association is winning high praise from those who appreciate the importance of an informed public opinion on forest conservation. During the first months of the year, the Exhibits Car covered a long itinerary in British Columbia where it attracted eighty thousand persons. Since that time it has travelled in Northern Ontario, going as far west as Sault Ste. Marie and more recently covered scores of communities in Quebec province including those on railway branches running out of Ottawa into Northern Quebec; the C. P. R. line from Ottawa to Montreal (north shore); the Grand Trunk and C. P. R. lines in the Eastern Townships, where the daily attendance was unusually heavy, and the Quebec and Lake St. John division of the Canadian National Railway System. At the time of writing (October 23rd), the car is at Quebec City where it will remain for two days and will then be moved into New Brunswick for a considerable period.

The total attendance thus far in 1922 exceeds one hundred and ninety thousand while the number attending daily motion picture demonstrations in forest protection, with lectures, runs up to 63,247. The mileage for the season thus far is 10,862.

A few of the typical daily experiences as regards public response to this educational effort would convince members of the Canadian Forestry Association and various companies and individuals, contributing the funds to keep this work in action, that no similar expenditure of money and effort could possibly draw together such large bodies of population.

To have actually witnessed the popular interest during visits to the car would overcome all need for further argument as to the potency of this branch of propaganda. Many friends of the Canadian Forestry As-

sociation have testified that in their local communities the school children have talked about the visit of the Forest Exhibits Car for months after the event. Hundreds of schools have devoted time to the writing of essays on the subject of the forest resources of Canada and their protection purely as the consequence of the visit of the Car and the new interest aroused in the subject.

The following are a few of the daily experiences from the diary of the Forest Exhibits Car:—

Bromptonville, Quebec: Total attendance for the day 600, attendance at the lecture 450. Mr. Tobin, M.P., was among the first to visit the car and took a keen interest. Practically



all the employees from the Brompton mills attended.

Waterloo, Quebec: Visited public school and convent and arranged for pupils to visit the car. Total attendance 400 with 300 more at the motion picture demonstration.

Sutton, Que.: I was able to secure use of town hall equipped as a moving picture auditorium. Had a much interested audience at the evening meeting. Many farmers. Total 275, which is the capacity of the hall. Attendance at the Car was steady all day and numbered at least 550.

Sherbrooke, P.Q.: Our Exhibit Car was attached to the Quebec Government Better Farming Train at the C. P. R. Station. Our car was packed with people, the total for the day being approximately 3,500 per-

sons. Over 2,500 others attended on the following day.

East Angus, P.Q.: Rained very hard all day Sunday and weather cold and dreary. In spite of this we had fully 2,000 persons during the afternoon and evening.

St. Raymond, P.Q.: About 700 school children visited the Car today with their instructors. Used the town hall for a public lecture with an attendance of about 650. The Vicar acted as Chairman and Mr. Oulette delivered his customary address in French.

Metabetchouan, Que.: Opened Car at 6.45 p.m. and remained open until 10.30. Had 700 visitors at the Car with 500 in attendance at the motion picture demonstration in the open air.

Hebertville, P. Q.:— Good steady crowd of interested farmers all day, some from as far distant as 21 miles. The parish priest had announced our visit well in advance. We are getting the utmost co-operation from the clergy. Total attendance at the car 800.

Chicoutimi, P.Q.: By the kindness of Mr. Jean J. Guay, Forest Engineer of Chicoutimi, excellent advance arrangements were made by which we secured maximum crowds. By using the town hall we had an audience at 1.30 p. m. of 500 boys from the Seminary and at 3.00 p. m. filled up again with another group numbering almost 600.

In the evening we again packed the hall with grown-ups numbering 600. His Worship the Mayor presided and Messrs. Guay and Oulette spoke.

Total attendance at the Exhibits Car was 2,500 and 1,700 more at the lectures. The visit to Chicoutimi was one of the most successful in our experience.

Mr. G. Gerald Blyth is in charge of the Forest Exhibits Car. Mr. Oulette is the French lecturer, by kindness of the Quebec Government.

A Little Walk

By Peter McArthur, In the Toronto Globe.

EKFRID, Ontario.—One spring morning four, or perhaps five, years ago, the youngest boy and I took a little walk that may leave its record on the farm for more years than anything that has been accomplished on it since the original clearing of the land. He had found some sprouting acorns under the big white oak near the house, and he brought them to me. As it was an idle morning we decided at once that the acorns should be given a chance. We filled our pockets with them and went out to the wood-lot. There we rambled about, stopping every few rods to plant one of our sprouted acorns. Then we forgot all about our little adventure in reforestation. As oak trees make a slow growth, the results of our plantings were hidden by thousands of faster-growing sugar maples and the pines, chestnuts and other trees that had been planted some years earlier. But one day last week I happened to notice a thrifty little oak growing on a little knoll beside one of the few small boulders on the place. At once I remembered distinctly that we had planted an acorn on that spot. By an effort of memory I recalled other stops where we had planted acorns, and on visiting them found lusty little oaks. While I found it impossible to retrace all our steps on that spring morning, because the undergrowth is too thick, I found a number of little oaks that were undoubtedly of that planting. Although it will be many years before they become noticeable among the faster-growing trees, the "many centuried oaks," if undisturbed, will outlast all the others. As the years pass the course of our morning ramble will become definitely marked with noble trees. Future generations will perhaps wonder how this particular

wood-lot happened to have so generous a supply of white oaks, and in examining the giant trees may retrace the steps of our morning walk. Who knows but taking that morning walk with our pockets full of acorns may prove to be the most enduring thing that either of us will have done. In any case, we did something worth while.

An Editorial by George E. McKee

President Canadian Pulp and Paper Association

THE real source of employment for fifty thousand Canadians in the pulp and paper industry is not a steel-and-cement mill but an inflammable wooden forest, and every time a camper or fisherman or hunter contributes to forest destruction by his camp-fire or his cigarette or match he puts one or many workmen out of a steady job.

The real meaning of forest destruction is not the devastation of trees but the devastation of workmen's jobs. Too many people regard forest fires as clearing up land for agriculture. This is not true of one forest fire in fifty. Nearly all the land on which fires occur is of non-agricultural character and will never pay a profit to this country in any other way than through timber growing and occasionally through mining.

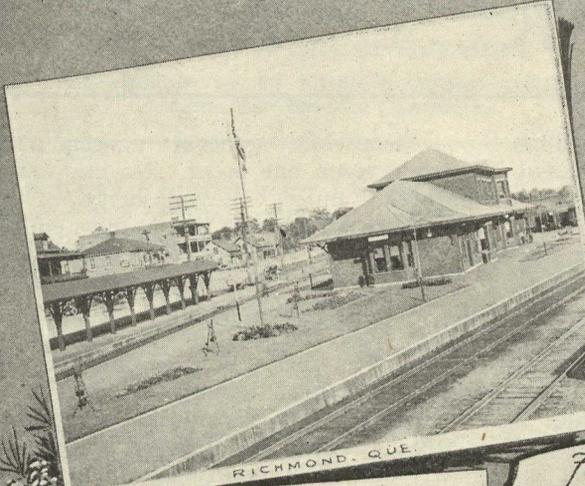
The pulp and paper industry and nearly five thousand other wood-using plants, with an army of employees, are the creations of the living forest and according to the condition of the forest they progress or decline. The axe, after all, is a minor factor in timber destruction. The Dominion's forests are being put out of business by people who need them most, the camper, the smoker and in an amazing number of instances, the amateur fisherman.

Beautifying Grand Trunk Station Grounds

THERE HAS been much favorable comment during the past summer on the improved appearance of the grounds surrounding the stations on the Grand Trunk Railway System. While it had been the practice at a few of the larger stations to have flower beds, there was no general plan dealing with the creation of garden effects at the smaller stations until about two seasons ago. Reproduced on the page opposite are photographs of the excellent effects which have been attained at various G. T. R. railroad stations in Ontario and Quebec. As will be seen from these considerable progress has been made and what were formerly waste pieces of land and often cinder beds have been transformed into green lawns, shrubberies, and flower beds. The officers and employees have co-operated in the work and the successful results obtained are due to the practical interest in the new departure.

The amount of ground available around the various stations was as a rule not extensive and nothing of an elaborate nature was attempted, the main object being to have some simple arrangement of lawn, shrubs and annual flowers in keeping with the general surroundings. In order to obtain results with a minimum of expense there was no interference with the general contour of the land. Considerable care was given the collection of flowers and shrubs, as they were required to grow under conditions not conducive to the best of plant health. The work has been carried out entirely by the track forces and station staffs of the railway, and the fact that a large portion of the upkeep has been done by the men in their own time shows how enthusiastically they have supported the plan.

The men in charge of the various stations were supplied with the plants, etc., and in the majority of cases they did their own arranging. The ultimate result of their work, as seen from the passing trains is in every way satisfactory, and reflects great credit on the men, who, previous to the Company taking up the subject, had done little or no horticultural work. As there has been a marked awakening of interest in the improving of home surroundings, the work accomplished by the Grand Trunk men in beautifying the railway premises will serve as an inspiration to the citizens of many towns with regard to what can be done in a simple and inexpensive way in improving their own home grounds.



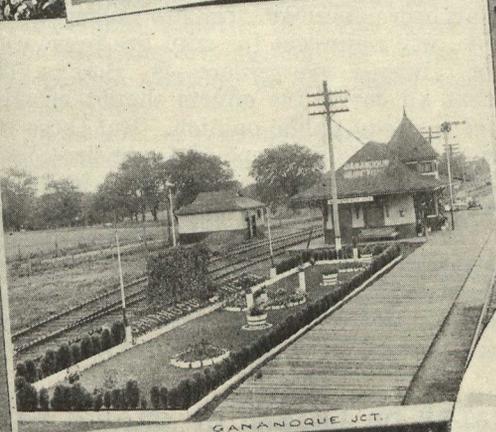
RICHMOND, QUE.



DIXIE STATION.



Former Dark Spots
 Transformed into
"Scenic High Lights"
 Some striking instances
 of results attained by
 G.T.R. Station Agents
 in beautifying rail approaches
 to Canadian towns & cities.



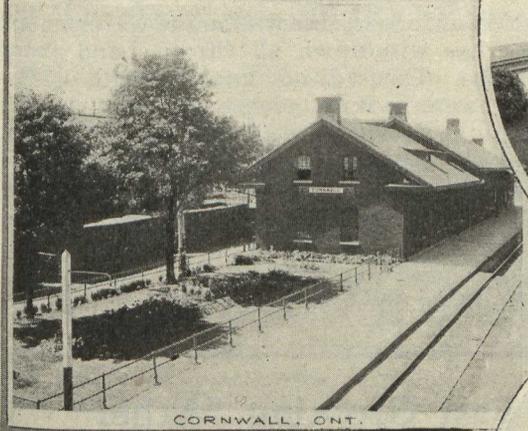
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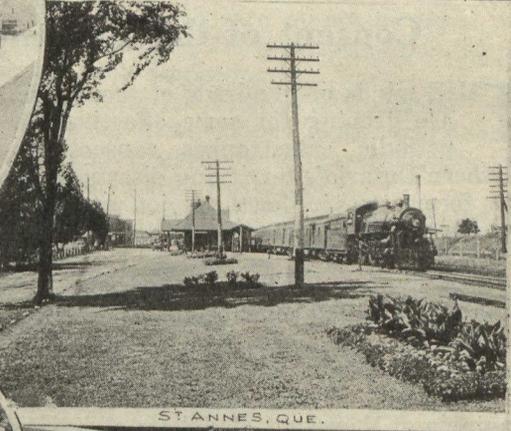
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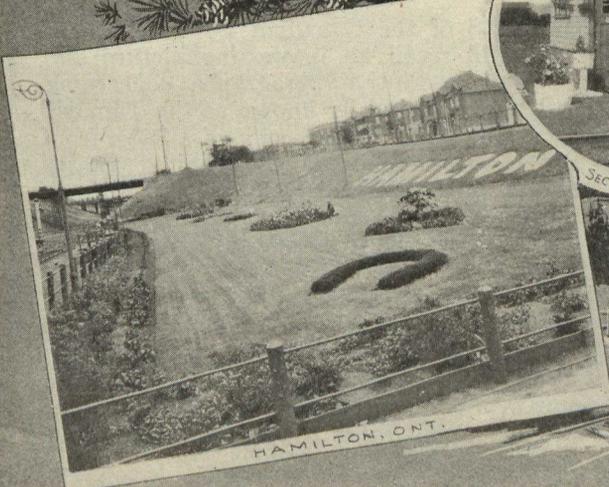
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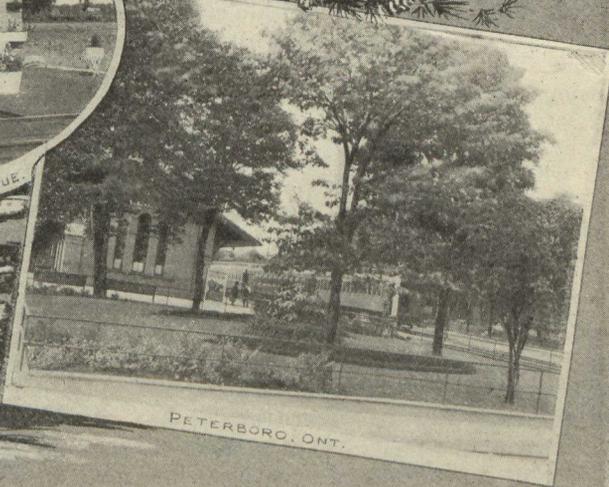
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PETERBORO, ONT.

E D I T O R I A L

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Consent of the Governed

THE minds of hundreds of thousands of Canadians are groping for some effective escape from the periodic catastrophes caused by forest fires. Northern Ontario's terrifying disaster apparently differs from former ones in that the region was comparatively clear of dense forest and therefore was outside the jurisdiction of fire rangers. For all that, the Canadian public, easily aroused by loss of human life where loss of timber would create small commotion, 'asks to know' if pioneering in Ontario's north *must* necessarily be paid for in the lives of women and children, millions of dollars in fire insurance collected from other parts of Ontario, and hundreds of thousands of dollars of relief regularly paid out from public treasuries. Within eleven years the opening up of agricultural lands of Ontario has taken 347 lives by fire. Is this the normal forfeit for provincial expansion? Few who balance values on a humane scale will say that any conceivable pile of oats or rye or hay or potatoes can compensate for such sacrifice. Fewer still who know anything about the Northern Ontario situation will argue that the natural inflammability of the country under extremely dry and windy conditions is beyond control.

Many remedies already have been suggested and the inquiry under way at Toronto at the moment of writing may be depended upon to reduce the problem to proven and practical suggestions. Remedial action undoubtedly will follow if for no other reason than that Northern Ontario cannot survive many further doses of the fearful advertising which, despite the local optimists, every one of these holocausts showers upon her.

The need of Educational Patrol

Meanwhile general agreement is evident upon one point. No law can be enforced unless the majority of the people to whom that law applies endorse and support it. In a jail yard or a hospital ward (easily managed units) any law can have immediate enforcement with very little human help and little or no sympathy from those affected by the regulation. But in broad sweeps of country, with population scattered, and the task of making a living often very acute, it is one thing to print a law forbidding carelessness with fire; it is quite another job to keep it enforced. The fact is, in newly settled lands every man to a large degree must be his own policeman. The fire ranger, denied local co-operation, will never get far with fire prevention. Public opinion always,—everywhere—is Boss. This does not say that all corrective efforts should be withdrawn in face of a *wrong* public opinion. But those who are looking for a "mailed fist" type of forest fire control will have to resign themselves to the more intelligent process by which restrictive laws over forest fires are buttressed by the good sense and co-operative loyalty of a popular majority. If one fifth as much were spent on 'educational patrol' as on ranger patrol, the evil reputation of Canada for forest catastrophes would rapidly disappear.

NO MORE SALES OR LEASES OF CROWN LAND

In the interest of forest conservation the Government of Nova Scotia has withdrawn all Crown Land from either sale or lease. This will not interfere with settlement in any way, as there is abundance of vacant cleared land and farms in the Province for all settlement purposes.

This measure, it was stated in the announcement, has become advisable owing to the rapidly diminishing wood supply and is in the interest of the preservation of our waterways, water powers and water supplies.

This is an advanced step on the part of the Government in the line of an effective forest policy.

The Fast Growing "Athel"

READERS of the Canadian Forestry Magazine will recall an interesting picture and several descriptive paragraphs concerning the Athel tree scientifically known as the Tamarix Articulata. The editor is in receipt of a letter from Mr. Bruce Drummond of the United States Department of Agriculture, at Indio, Calif. in which definite information is given as to the ability of the Athel tree to stand cold temperatures. Mr. Drummond says: "This tree comes from North Africa and is, so far as we know, a desert tree that will not resist a severe climatic condition that you have in the North West. It has frozen down at six above zero and while it sprouted from the stump again, yet we have no reason to feel that it would thrive and resist the climatic conditions other than in the South West."

Canadian Banks' Precautions with Timber Loans

A Statement by Sir Edmund Walker, President,
Canadian Bank of Commerce

IN REPLY to your letter, I would say that in determining the attitude of this Bank towards a customer undertaking lumber operations, the first matters taken into consideration are, of course, the capabilities and experience of the customer.

Our next step is to make sure, as far as possible, that the mill erected is not of a more costly character than is warranted by the life of the limits to be worked. This naturally involves our satisfying ourselves as thoroughly as possible as to the area and quantity of the various kinds of timber on the limit. The question of location, or the accessibility of both timber and mill to a shipping point, is also a matter of prime importance, and in this connection the driving facilities by land and water, and the general contour of the limits would come under consideration.

As a matter of course, the balance sheets of *all* borrowing customers are carefully examined and checked as far as possible, but in this respect no difference is made between a customer engaged in the lumbering business and any other.

It is perhaps needless to say that the Bank is thoroughly in accord with the work being done by the Canadian Forestry Association, and whenever the opportunity occurs stresses the importance of careful lumbering.

Uncle Sam's 25,000 Forest Fires

IN an article recently published in the "World's Work" an alarming picture of the waste going on in the United States lumber industry is presented by Theodore M. Knappen, a former resident of Vancouver, B. C., who says that the incomparable white pine whose supply once seemed limitless in New England and the Great Lake States is all but gone, he says, virtually eradicated within 70 years. Southern pine, 650 million feet strong, called upon 30 years ago to fill the growing gaps in the white pine forces, now nears exhaustion itself. Cypress fights a hopeless battle in the Southern swamps.

The once great hardwood forests of the States have been slashed right and left, and the time is at hand when Ontario and Quebec hardwood, none too plentiful, will be called on to supply American needs. Upon the Western yellow, pine and the redwoods, cedar, Douglas fir and spruce of the Pacific Coast, American and Canadian, devolves the task of making the last fight for the forest wealth of this continent—either the end of all timber or a winning fight that shall hold the fort till forestation or reforestation shall turn the tide.

Despite the 81,000,000 acres of eroded, fire-scarred useless desert which marks the path of the lumber hogs in the United States, and the 300,000,000 acres of scrubs where to the extinction of fire was not added, Knappen thinks he sees a ray of hope, and signs that this mad debauch is nearing an end, before it is too late. For from the very lumbermen who threatened to impeach Grover Cleveland for creating forest reserves, and who scoffed at conservation when Roosevelt barred the door to the last of the Federal forests, has come an outcry against the possibility of a resumption of the ancient policy of reckless use today, and forget tomorrow.

The Passing of Pine

From an Address by Dr. C. D. Howe

DURING the early eighties a remarkable wave of enthusiasm for forest conservation swept over Canada and the United States. It took the form of fire protection legislation, tree planting on arbor days, and the establishment of forest plantations. Among the leaders of the movement in Quebec were Sir Henri Joly de Lotbiniere and Mr. William Little, whose names public spirited people still revere. At this period there was much discussion of the approaching exhaustion of the timber supply. One writer lamented the fact that the pine logs in the drives would yield deal boards only two feet wide compared with the logs of previous years that would square from two to three feet. Mark the dimensions, those of you who have seen the log drives of recent years! A prominent lumberman predicted that the supply of pine in Quebec would not last more than 25 years. Over 60 million feet were cut in the Province in 1920, which shows there is still some pine left. Yet the lumberman was right. Using the standard of his time, his prediction came true. It apparently never occurred to him that it would ever be profitable to use trees less than two feet in diameter. He couldn't have imagined the use of small pine logs for laths and matches.

Courteous Fire Wardens

(A letter in the Victoria B. C. Colonist.)

I would like to say a word of appreciation for the forest fire wardens of this Island.

We know that too much care cannot be taken with fire, but when one's mistakes are courteously pointed out, the lesson seems to sink deeper in.

I have motored from Los Angeles to Qualicum Beach, and in all that journey have camped by the wayside and in the various camping grounds, and was always sure that I was particularly careful with fire.

A few weeks ago, however, I was just leaving my luncheon fire, when a fire warden drove by, and seeing that I had lit a fire, stopped and spoke to myself and my wife. He told me that I had broken the Island fire law, because I had not cleared the debris for three feet around the fire. I replied that perhaps that was so, but I had put the fire out with water.

He then took off a dilapidated felt hat and said, "here is the reason for the law," and fanned what I thought was a dead fire. In a few minutes there was a bright little blaze, and looking up, he said, "you can see that there is a reason for the regulations."

He told me then that I had rendered myself liable to prosecution, but if I had digested the practical lesson he had given me he felt that his object was achieved.

I have met forest service officials, both from our Federal service and the California state forests, but I have never had a lesson explained as politely as this one was by the Island fire warden.

His parting words were: Go thy way and sin no more, and if possible, prevent others from sinning.

I would like to assure Fire Warden Cowan, for such was the name given, that I will follow his instructions as far as I can, and I congratulate his employers on the possession of such a courteous and painstaking official.

JAMES H. COLLINS,

1473B 16th Street S., Los Angeles.

LES FORÊTS DU PORTUGAL

Par Noël Le Bressant

(Suite et fin)

LES MASSIFS de pins de la Sierra Cuenca ont des âges très variables. Les plus beaux ont jusqu'à 120 ans. Ils comprennent des pins laricios, des pins sylvestres et des pins maritimes. Les peuplements, maintenus à l'état très serré, ont une belle hauteur, 12 à 15 mètres de service, mais leurs dimensions en grosseur sont généralement faibles. C'est le pin maritime qui, sur les terrains siliceux, possède la croissance la plus active. Les incendies, malheureusement trop fréquents, qui se succèdent dans ces pineraies, sont ordinairement suivis d'un recensement assez facile du terrain, toutes les fois que le pâturage ne vient pas ajouter ses dommages à ceux du feu. Il n'est pas rare de trouver, dans les enceintes brûlées, un sous-étage complet de jeunes pins, issus du recensement naturel.

Le service forestier portugais a fait de très louables efforts en vue de regarnir les vides existants dans ses forêts. Il a procédé tantôt par voie de semis directs, tantôt par voie de plantation.

Les graines sont récoltées sur place par des ouvriers travaillant à la tâche et payés à raison de 2 pesetas l'hectolitre de cônes de pin maritime. Un hectolitre de cônes fournit de 2 à 3 kilogrammes de graines.

Les semis sont effectués par bandes alternes, larges de 0 m. 40 et ouvertes à la bêche plate. Ces bandes sont interrompues tous les 5 ou 6 mètres sur une longueur de 2 à 3 mètres. Avant l'ensemencement, on donne une deuxième façon au sol, toujours avec la bêche plate, puis on place la graine dans un sillon profond de quelques centimètres. On recouvre en traînant une branche sur le terrain ensemencé. Le sillon est enfin garni de rameaux de pins destinés à protéger la graine et les jeunes plantules contre la voracité des oiseaux.

Ces semis réussissent assez bien, sauf aux altitudes supérieures, où ils sont détruits par les gelées.

Les plantations se font au moyen de plans élevés dans des pépinières permanentes, situées à proximité des forêts à regarnir. On plante dans des trous de 0 m. 50 sur toutes faces des sujets âgés d'un an et disposés en deux bouquets de 5. C'est donc la plantation par touffes qui est usitée au Portugal. Les travaux

s'effectuent au printemps, soit en avril. Les résultats sont médiocres. On arriverait à de bien meilleurs résultats en donnant au sol une culture plus complète. L'augmentation de dépense n'est qu'apparente, car les soins à donner aux semis et aux plants, sous forme de dégagements, augmenteront considérablement la première mise de fonds de reboisement.

Pour se prémunir contre les incendies, allumés par les bergers, pour revivifier les pâturages, les forestiers portugais ouvrent des tranchées garde-feux larges de 6 mètres, et ils entourent les cantons à repeupler d'une clôture de pieux reliés entre eux par trois rangs de ronces artificielles. Eloigner les troupeaux et les bergers constitue bien le meilleur préservatif contre les incendies. Cela vaut mieux que les haies d'agaves ou de figuier de Barbarie préconisées en Algérie et que les massifs de mélilots recommandés en France.

Tout compte fait, et si le Portugal ne compte guère comme pays producteur de bois, on peut cependant dire que la science forestière y est en honneur et en progrès. Ce qui paraît le plus lui manquer, c'est d'une part un commerce de bois bien organisé, et d'autre part un réseau convenable de chemins, permettant d'accéder facilement dans les massifs forestiers.

Les Forêts du Brésil

DANS SON rapport annuel sur la situation économique du Brésil, le consul de France à Rio de Janeiro donne les renseignements suivants concernant les forêts et les industries du bois de ce pays :

Les forêts du Brésil, par l'extraordinaire abondance et la multiplicité des essences qu'elles renferment, sont certainement les plus vastes et les plus riches que l'on connaisse dans le monde. Jusqu'ici, les richesses naturelles ont été saccagées de façon regrettable, par suite de l'imprévoyance de l'habitant de l'intérieur, de l'absence de contrôle des autorités officielles et de l'impossibilité d'exploiter industriellement les bois, dès

qu'il s'agit de résoudre le problème du charroi loin du chemin de fer. En dehors des bois précieux, dont la consommation est naturellement assez limitée, on ne compte pas moins au Brésil de soixante et quelques espèces de bois de construction et de menuiserie de premier ordre.

Jusqu'à aujourd'hui, l'industrie du bois est encore dans ce pays à l'état rudimentaire; c'est ainsi par exemple que malgré l'excellente qualité du pin du Panama, la presque totalité du bois employé au Brésil pour la confection des caisses, emballages, planches communes, etc., est importée des Etats-Unis, de la Norvège, de la Nouvelle-Zélande, d'Australie. Le long des voies ferrées en exploitation ou en construction, les arbres sont indistinctement débités pour servir de traverses. On ne se préoccupe pas de la rareté ou de la valeur du bois, uniquement de sa valeur immédiate comme bois de construction ou comme bois de traverses. L'industrie des bois de traverses, convenablement exploitée, c'est-à-dire procédant par coupes annuelles régulières et reboisement des forêts abattues, pourrait être considérablement développée au Brésil. Les besoins des bois de traverses augmentent tous les jours. On estime que les Etats-Unis consomment, à eux seuls, plus de 150 millions de traverses par an.

Dans un autre ordre d'idées, il existe une industrie qui n'est presque pas encore exploitée au Brésil et qui serait susceptible d'une grande prospérité, nous voulons parler de l'industrie de la pâte à papier. Il y a là pour les capitaux un emploi assuré et très rémunérateur. Le Brésil importe presque la totalité du papier qu'il emploie.

Presque tout le papier employé aujourd'hui en Europe provient de la pâte fournie par le pin résineux de la Scandinavie. Il existe au Brésil nombre d'essences qui pourraient être traitées pour la pâte de bois. L'utilisation industrielle des forêts est pour ainsi dire inépuisable; citons l'industrie des bois pour le pavage, des bois pour les allumettes, etc.

En thèse générale, le Brésil se trouve encore, au point de vue industriel, dans la période de tâtonnements et d'inactivité. Les deux grands problèmes dont la solution permettrait seule la mise en valeur intensive du pays, celui des capitaux et celui des bras, subsiste toujours aussi difficile à résoudre l'un que l'autre.

Briefs About People and Events

AN INVENTOR AT LARGE

FELLING trees with red hot wire and rapid guns to test some new inventions have placed Rudolph Mayer, the experimenter, on the forest service black list.

The wire not only burnt its way deep into a big red cedar trunk but also started a fire that quickly spread to adjoining pitchy timber.

The wire was carried to and fro rapidly by an electric motor, the heat generated by friction being intended to sever the wood tissues quickly and smoothly.

Mayer's other idea was to aim a rapid fire gun into the trunk of a tree slowly turning the muzzle across the diameter. In the experiment the hard pointed bullets felled a two foot tree but many passing through the trunk chipped large chunks off other trees and frightened the lumberjacks a long distance off.

EXPERIMENTAL FORESTRY

The Dominion Forest Service is extending its experimental co-operative forest work and many sample plots are being laid out this season to determine the results of different methods of cutting in both coniferous and hardwood stands. The result of both clear and selection cutting on the reproduction will be studied and also how much of the overwood and also how much of the overwood in mixed and pure stands should be removed to get best reproduction. Experiments will also be tried by removing undesirable species and trying to foster the growth of the more desirable ones. Plots have also been laid out in natural reproduction where the young trees are thinned out to different distances apart to see what results can be obtained.

THE STONE AGE IN B. C.

The Stone Age existed in British Columbia up until as late as a century ago, according to prominent archeologists who have been exploring old community sites, mounds and graves along the coast and in the interior. Stone and bone tools were in common use when white explorers visited the North Pacific, although copper and iron were found almost everywhere. Stone hammers and axes

discovered are almost identical with the tools of the neolithic man found in Europe. Old shell mounds on the Fraser and Thompson rivers reveal many things formerly used by man of the Stone Age.

TO TEST SHINGLES

The Dominion Fire Prevention Department is employing a committee of three experts under the chairmanship of Professor McKay, of McGill University, to make tests on wooden shingles and suitable roofings, to see how they compare in resisting fire and decay.

FOREST EXPERTS ENDORSED

Messrs. James W. Sewall and James A. Conners of the Sewall timber cruising organization, Old Town, Maine, have been at Tupper Lake, New York, as expert witnesses on timber quantities in the case of Litchfield vs. Town of Altamont. Their estimates of quantity of timber were taken as conclusive in the case in question in spite of considerable adverse testimony.

NEW WAY TO BURN STUMPS

A new stump-burning method employed in Washington consists of placing an apparatus against the stump with a flue and blowpipe in position. A draft created by the blowpipe turns the inside of the stump into a mass of coals, the fire eats down into the roots and the entire stump is consumed at half the cost of former methods.

A NEW ONTARIO NURSERY

The Forestry Department of the Ontario Government has bought the Ralph Stutt farm, also the farm of the late Thomas Hooper, and some 30 acres of the late Wm. Connell farm, all near Orono, about 175 acres in all. Mr. Meredith Linton will be superintendent in charge of these lands. These lands will be used as a nursery and will grow pines and a number of other varieties of trees for reforestation purposes from seed. This will likely give employment at some seasons of the year to as many as fifty hands.

NEED OF PUBLIC INTEREST

"The situation this season," writes District Forester Bonney of Prince George, B.C., "illustrates very clearly how ineffective and helpless any system of fire prevention is in the face of an apathetic public, when weather conditions are against us. As one's experience grows it is apparent that progress in fire prevention (especially in a sparsely-populated district where means of communication are very limited) is directly proportional to and largely dependent upon the attitude of the general public."

A BENEDICTINE WOODS

Benedictine monks for 910 years have been cultivating one of the world's finest forests. It surrounds an ancient hermitage, about 50 miles southeast of Florence, Italy.

This forest is as fine as it was nearly 1,000 years ago, though lumber has been taken out of it steadily in great quantities.

A SCHOOL OF PAPER MAKING

The Quebec Provincial Government has under study at the present time a project for the establishment of a school at La Tuque for the teaching of the pulp and paper industry. The council of the town of La Tuque has passed a resolution urging the Government to establish the school there. It is likely that this question will be studied by the Cabinet at an early date.

VENEZUELA'S COW TREE

One of the most curious botanical curiosities of South America is the so-called cow tree, which grows on the broad barren plateaus of Venezuela.

The sap of this tree resembles milk both in appearance and taste, and, according to naturalists who have examined it, it is very wholesome and nourishing and not so very different from rich cream except for a slight balsamic flavor. The tree frequently attains a height of over 100 feet, and is often entirely smooth and without a limb for a distance of 80 feet from the ground.

If a hole is bored or any sort of wound made on this smooth bark the milklike fluid will commence to flow and continue for several days until it coagulates at the mouth of the wound and forms a waxy substance which prevents further flow.

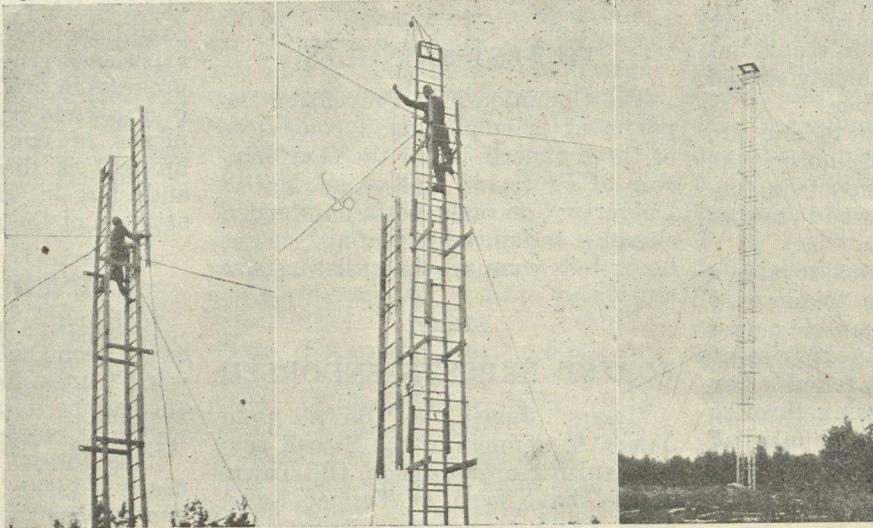
Forest Officers and Geodetic Engineers Co-operate

THE triangulation system of the Geodetic survey of Canada, which is gradually being extended over Canada, and which has for its purpose the co-ordination of all surveys made by various organizations, is made use of by the Forest Services in several provinces for fire detection purposes. The triangulation stations are located on the highest points from 10 to 40 or 100 miles apart and are visible one from the other; hence, they command a view of a large extent of country and their location is completely suitable for fire look-out stations.

Frequently high towers are necessary to overlook local timber or intervening ridges, and the reconnaissance tower (three stages in the erection of which

are shown herewith) has been adopted by the Geodetic Survey from the French army pattern to determine what height of more permanent tower is necessary for taking observations. This type has also been utilized by provincial forestry organizations. It consists of two sets of ladders set two feet apart, the various units of each set

fitting together like a window cleaner's ladders. The two sets of ladders are connected by pairs of braces at five feet intervals. It is raised in 12-foot lengths by a small crane which fits on top. Its height is 78 feet and has sets of guys at the 25, 40, 55, and 70-foot levels. Two men can erect the tower in about two hours and can take it down in less than an hour. The weight is 900 lbs. complete with all fittings, and it is conveniently carried on a motor truck.



An arrangement has been made between the Geodetic Survey of Canada and the forestry organizations of New Brunswick and Quebec, whereby such towers as are mutually agreed upon shall be built at triangulation stations by either the Geodetic survey or

the forestry branch of the province, to plans mutually suitable, each organization bearing half the cost. Under this arrangement two towers about 90 feet in height were built in northern New Brunswick last winter by the Forestry Service, and others will no doubt be built in future.

Stabilizing the Western Farmer

To the Editor:—

A BURNING question in our Canadian west to-day is how to stabilize the population? It is a well known fact that permanent development is being greatly hindered by the itinerant ways of so many prairie settlers. It is a common saying that every farm has its price. A man with a little money can come into the country, pick out the place he wants, make an offer and the owner takes steps to locate in another part of the country where he thinks he will have better luck. The poor wife and family pack up, move a few hundred miles, and start right in again on another half section to all appearances the same in every respect as the one just vacated. The house may be just the same, so with the barns and out-buildings and the usual landscape of barb wire and telephone poles to stare at from dawn

to dusk. Take for instance conditions in Alberta and Saskatchewan to-day. The south has an excellent crop and the north is less fortunate. Those living in the north are casting eager glances towards the south, and many the murmur one hears in passing through the country to that effect. This is an exact contrast to what one heard last year when the good crops were the other way around; those in the south could see nothing to it but the north and so it goes on, year in and year out. The only solution to the problem is to have the settlers take a pride in their own district. Encourage them to shelter themselves from the wind, make homes for themselves and give their families an environment to live in that will be worth while. You can never make a home out of a wheat field and a shack and the home ties that bind are the trees that connect it up with the rest of the earth. A. G. C.

The Fire Ranger's Omar Unabridged

(From "Root and Branch" B. C. Forest Service)

A bag of wrenches underneath the car;
Some oil and grease as black as any tar;
And you beside me in the dust and dirt
With sullen oaths to tell me where you are!
The dripping oil drips on, and having dripped,
Has left a smear of grease. A wrench has slipped.
And knocked a tooth from out my smiling face;
And when I move I feel my clothes have ripped.
"Like wind along the waste, forever blowing,"
Your sage advice is ever, ever flowing.
I twist and pry and pull at this and that—
But when we'll fix this car there is no knowing.

MECHANICAL AIDS TO WOOD-USING INDUSTRIES

With this issue of the "Illustrated Canadian Forestry Magazine" is inaugurated a department devoted to news articles descriptive of equipment and labor-saving devices designed for use of the Lumber and Pulp and Paper Industries. We hope thereby to render a service both to our supporters in the Industries mentioned and to firms and individuals who are engaged in the manufacture of machinery and products, essential to Lumber and Pulp and Paper Plants. We will welcome interesting items of this character, from those in a position to supply them. All matter is subject to editorial revision and the writer in each case should identify himself for our information—although not necessarily for publication.—EDITOR.

Evinrude Fire Pump Tests

HIGHLY satisfactory results have been obtained in exhaustive tests of the Evinrude high pressure two cylinder pumping outfit manufactured by the Evinrude Motor Company of Milwaukee and sold through Watson, Jack and Company, Ltd., Power Building, Montreal. The tests at Ottawa were held before the Standardization Committee on forest fire protection. On September 6th, the pump was placed on a barge in the Ottawa River at a point adjacent to the first lock of the Rideau Canal, and about eight feet from the surface of the water. The first test was made by laying 1,300 feet of 1½" linen fire hose up the Canal bank to the Plaza Bridge—a height of about 91 feet above the river. With a ½" nozzle it delivered 24 Imperial gallons per minute, and threw a stream almost across the Canal. The hose friction was equal to a head of 65 feet, making a total head of 156 feet. A ⅜" nozzle was then put on, and the delivery at the same point was 21 imperial gallons per minute, and this stream was thrown clear across the Canal. The pressure in both these runs was 145 lbs. at the Pump. On the third run a ½" nozzle was used and the delivery was 25½ Imperial gallons with 165 lbs. pressure at the Pump. (One Imperial gallon equals 1.2 U. S. gallons).

On September 7th, the pump was placed on a raft at the same point in the Ottawa River. 1,500 feet of hose was laid along the west bank of the Rideau Canal and up to the top of Parliament Hill, Parliament Hill being 175 feet above the river. It delivered 17 Imperial gallons per minute through a 3-8" nozzle at the top of the hill, and threw the stream approximately 50 feet horizontally, and almost the same distance vertically. The pressure at the Pump ranged from 140 to 160 lbs. The hose friction in this case was equal to 75 foot head, making a total of approximately 250 feet.

On September 8th, the pump was set on the upper lock gate, Rideau Canal. A short demonstration was made to see how far the Pump would throw a stream, using ¼" and ½" nozzles. With the ¼" nozzle the point of saturation was 80 feet on the level, and with the ½" this was a little less. The water in the Canal Lock was drawn off and down to the end of the suction line, which unfortunately would only reach 12 feet down into the Canal. This suction head of 12 feet was very readily picked up by the Pump, without priming, which demonstrates the very high efficiency of the Unit.

The outfit consists of the Evinrude two cylinder, two cycle 4-5 H. P. gasoline engine with the famous Evinrude built-in-the flywheel Magneto, gravity feed carburetor, and easy starting device. This engine is direct connected to a Viking 1½" special type High Pressure Pump, both being compactly mounted on a strong aluminum base. The complete outfit weighs only 99½ lbs. and is designed specially for fighting forest fires, and general fire service in lumber yards, industrial plants, small towns, and isolated institutions. The outfit was originally designed to pump against 120 lbs. pressure, but in these demonstrat-

ions it greatly exceeded its rated capacity and the pressure gauge showed an average of 150 lbs., and at times reached the high pressure of 185 lbs. per square inch.

Forest Products Laboratories

RESearch and Technical Service in connection with wood and all articles or products manufactures therefrom is the business of the Forest Products Laboratories of Canada at Montreal.

The laboratories have adequate modern machinery and equipment for research into the mechanical, physical, chemical and other properties of woods as related to their uses—35 technologists and others are engaged in strength testing, preservative treatment, pulp and paper making and other branches of wood technology.) The laboratories have the finest reference library in Canada relating to the properties and utilization of woods; have made over 40,000 tests on the strength of Canadian woods by modern standardized methods; have investigated conditions at over 300 mills, factories and other buildings in Canada and the United States with respect to the decay of timber in such buildings; have published over 70 technical articles, bulletins, etc.; have dealt with thousands of technical inquiries, frequently involving special experimental investigations or tests; have investigated preservative treatments as applied to Canadian timbers for railway ties and other purposes; have conducted research into the chemistry and technology of Canadian woods in relation to pulp and paper making; offer information on the causes and prevention of decay of wood in buildings and on the preservative treatment of timbers; offer free technical services of various kinds to the public, such as the identification of woods, analysis of pulps, papers, etc.; offer courteous co-operation in the solution of any problem encountered in the use of wood.

Creosoted Post Outlasts Cedar

FOR many years it has been thought that the only timber that would give a reasonable period of service as fence-posts was cedar. The Forest Products Laboratories of the Department of the Interior, Canada, state, however, that by employing a comparatively simple method it is possible to treat posts of certain hardwoods in such a way that they will have a life at least twice as long as cedar posts. The preservative effect of this treatment is clearly shown in fencing erected at the Dominion Forestry Branch forest nursery at Indian Head in 1917. Here posts of Russian poplar were used, both treated and untreated, and it is interesting to note that all the untreated posts erected at this time have decayed and been removed while the treated posts are all still in service and appear as sound as the day they were placed in position.

THE INVESTMENT FIELD

Specially Written for the Illustrated Canadian Forestry Magazine

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

THE EASTERN war cloud that brought a sharp reaction in the security market carried with it fairly obvious lessons to investors. Some of these have been impressed in recent articles in this Department and no more impressive "horrible example" need be conjured up for the moment. Hundreds of thousands of dollars were lost through failure to observe what must be regarded as basic principles in investment. In a word; thousands of "marginal" buyers of perfectly legitimate securities were caught when the market dropped 5, 8, 10, 12 or more points; had no reserve fund with which to "cover" marginal calls, and their stocks were sold for heavy losses. Or, where they had money to protect their purchases, they had not sufficient faith in a recovery in market prices or in the merits of the security they held, to feel warranted in investing more money as a protection, and let their stocks go. So much for "marginal" buying of securities on an inadequate reserve, and on a basis of some one's "tip" without an intelligent comprehension of the real merits of the security.

"Instalment" buying once more was justified over "marginal". Bonds, as a favorite objective of "instalment" investment, held their own during the reaction with only a slight shading off, a fraction of a point in many instances. Preferred stocks also held their own well; it was the "common" stocks, the more speculative element, that were influenced in the downward movement, thrown overboard in a temporary panic or reflecting immediately the more transient character of their dividend protection, or prospective earnings in the event of an outbreak of war. But in even the more severe declines the instalment buyer had nothing to worry over. His investment house carried the security for him according to agreement.

The "slump"—which in most cases was in part, quickly regained—was also due on the New York market to a great extent and in Canada to some extent, to a natural reaction after a prolonged upward movement, known generally as a "bull" market. The return of better conditions in business is proving more slow of accomplishment than had been anticipated, and the stock market, probably, had been over-optimistic of the speed of recovery.

Two big events, however, have interfered with the orderly deflation in industrial costs which had been progressing fairly regularly since the peak of 1920 was attained. One was the settlement of the coal strike; the other, the shopmen's agreements that have been and are being signed. Both of these were directly, United States problems; both, indirectly, but to an important extent, control conditions in Canada, and influence the trend of investment. The coal miners have gone back at the peak of wages, for two years more, and the railways are patching up contracts with the shopmen, out of line with the progress of deflation in wages of industry in general. These two events of more than national significance are certain to prove a set back in the return to normal, and may well be a signal—with the advance in

wages by the steel mills—for a period of secondary inflation. This latter condition might well be welcomed in agricultural prices where the heavy slump carried them far below a proportionate level with most other commodities, but industrial commodity prices called for no such remedy. Such a secondary inflation might easily arrest for a time the drop in interest rates that has been progressing steadily, and conceivably arrest, also, for a time, the upward march of prices of bonds and other securities.

Beware! The German Mark

The warning arising out of the recent break rests, then, against buying on small margins and immensely in favor of buying in instalments or outright.

Present circumstances call for another: against gambling in German marks. Thousands, perhaps, tens of thousands of Canadians have been lured on to squander their money on what was held up to them as an absolutely "sure thing", buying German marks at their depreciated current price on the theory that sometime or other they would return to their old par value and net a tremendous profit to the patient holder.

If this theory were anywhere near correct, not millions but billions of dollars of easy money would be dangling within convenient reach of the "investor". The easiest money, and the biggest return, probably, in the history of investment, original Standard Oil or Ford shares, would fade away into contemptuous neglect.

Think of it! you "put up" one thousand dollars now, and it becomes \$500,000. If you can spare \$2,000;—presto! and you are a millionaire; while if \$4,000 can be scraped together, a double millionaire is created. Take hundreds in Canada who could muster \$100,000, and "when the mark comes back to normal" they would be rated at \$50,000,000! German mark buying would expand into regular industry, the fashioning of millionaires.

This is the basis of the theory: the mark in normal times was worth 23.8 cents, or roughly four for one dollar.

When the mark slipped away to 3 cents, the same bait was held out: "it is now down to one-eighth; buy it now, and you will get **eight times** your money,"—when the mark returns to normal.

The flood of printing kept on—marks were turned out by the billions, and every extra billion of inflated currency drove down the price. It was like an acid solution; the more water that is poured in it, the weaker it becomes.

The mark fell to 1 cent: "Buy now! It is 1-24 of normal; you will get 24 times—\$2,400 from \$100,"—when the mark returns to normal.

This was in the Spring of 1921—a couple of months later the mark slipped down to 7-10 of 1 cent; this spring to 4-10, to 3-10 to 1-10 and at the time of writing

it is slipping, slipping down under 4-100 of 1 cent; or less than 1-600—one six-hundredths—of normal.

Anyone who bought marks in the Spring of 1921—when the bait was held out in tempting promises—say, “invested” \$1,000 of hard saved earnings—would be fortunate in finding a purchaser to-day for \$40.

“When the mark comes back to normal”—it never will!

More likely than not, it will disappear entirely, repudiated by the German Government which does not dream for an instant—like some of these almost criminally reckless salesmen of German bonds today to Canadians—of building up a value of \$1,000,000 to-day—be it bonds, or currency, or national credit—until it becomes \$600,000,000, or \$100,000,000 until it is worth \$60,000,000,000, or **one billion dollars until it is worth six hundred billion.**

That is the stark-crazy proposition that German mark salesmen are putting up to their dupes in Canada to-day when they offer them marks—and suggest what these will be worth “when the mark returns to normal.”

ANALYSIS OF PAPER STOCKS

In connection with a recent article in this department dealing with the pulp and paper securities, and especially the paper ones, as long-term semi-speculative investments, readers of this magazine will be interested in an analysis made of the leading listed paper stocks in the annual Pulp and Paper Number of “The Financial Post”. This allows Price Bros. a reduction of \$15,000,000 in capital as the lumber part of the Company’s business is large in proportion to that of other companies in the same list. In each case the basis of production is the saleable tonnage per annum. An analysis of Belgo Paper Co., which is making a bond issue and early in the New Year is certain to attract the attention of investors when its securities are listed, has been added for the convenience of readers of this department.

Capitalization, Output and Charges

	Total Capitalization	Annual production tons	Capital per ton of production	Bond interest and dividends	Annual charges per ton of production
Abitibi.....	\$38,315,500	160,000	\$239.46	\$ 1,812,870 at \$4 div 2,312,870 at \$6 div. Int. 90,000 5% div. 700,000	\$11.33 14.55
Belgo Paper.....	15,500,000	105,000	147.62	Total..... 790,000 6% div. 840,000	7.52
Brompton.....	19,913,000	123,000	161.90	Total..... 930,000 Int. 269,780 \$7 div. 980,000	8.86 2.19 8.00
Laurentide.....	28,800,000	125,000	230.40	Total..... 1,249,780 Div. 1,728,000	10.19 13.82
Price Bros.....	47,453,896	100,000	324.53	1,092,198	10.92
Less \$15,000,000 allowed for business.....	32,453,896	100,000	175.54	Div. 394,995 at 5% Div., 631,992 at 8%	8.77 14.02
St. Maurice.....	7,899,900	45,000	175.54	Int., 277,818 6% div. 300,000	8.77
Spanish River.....	30,646,960	215,000	143.50	2,211,972	10.28
Wayagamack.....	9,630,300	70,000	137.14	Int., 277,818 6% div. 300,000	8.25
				577,818	8.25

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Air-Board Operations for 1922 Totalled 2500 Hours Flying Time

The Season Just Ending Has Been Notable in Many Respects

By J. A. Wilson, Secretary of the Air Board

THE OPERATIONS of the Air Board of Canada for the aviation season of 1922, now drawing to a close, have been notable in many respects. The work done during the previous year was largely experimental. Its success is proved by the increased demand for flying during this season, when the total flying time in all stations was in the neighbourhood of 2,500 hours. The scope of the operations has been widened into many new fields. This is specially true in regard to

considerably by the establishment of landing grounds at the northern and southern extremities of the patrolled area. This district is now covered twice daily, machines going out in the morning and returning from the sub-bases in the afternoon. The extension of the patrol system into the Rocky Mountain Park has been under consideration. If sufficient funds are available this will probably be done next year. The establishment of emergency landing grounds in the valleys is an essential



Air Board Photo:

Mount Robson in the Canadian Rockies



Air Board Photo:

Horse Shoe Power Plant, Bow River Valley, Alta.

aerial photography. The pioneer work done last year for the International Joint Commission on the St. Lawrence Waterways and the Forestry Branch in various districts, drew increased attention to the possibilities of flying in connection with survey work. At every station there has been an increased demand for photography. Though in British Columbia and Alberta, owing to the smoke caused by forest fires, it was not possible to start this work until well on in the season, much has been accomplished. Each operation was undertaken with the co-operation of technical officers of other branches of the Government service to whom the results are now being delivered for investigation. During the winter months the results obtained will be the subject of study with a view to improving the technique of aerial photography and determining the best methods of transferring the information obtained to existing maps.

Fighting Fires in West.

On the Pacific Coast during the great fires which raged in June and July the demands on the Station at Vancouver for transportation of fire fighters and material were constant. A great deal of excellent work has been done under very trying conditions, the smoke rendering visibility almost nil at times. The patrol of the forest reserves on the eastern slope of the Rocky Mountains from High River station has been extended

before patrols can be safely undertaken in mountainous country. The National Parks Branch are greatly interested in this work and have undertaken to prepare suitable open spaces. Reconnaissance flights, from Jasper in the Yellow Head Pass, in connection with the Interprovincial Boundary Survey, over the practically unexplored territory for 150 miles north of Mount Robson, were successfully carried out in July.

Using Wireless for Patrols.

In Manitoba the forest patrols have been greatly extended by the establishment of bases at Norway House and Le Pas. The efficiency of the patrol has also been notably increased by the use of wireless on the machines and at the stations. This renders prompt communication possible between forestry and station headquarters and the districts lying several hundred miles north in a country where rapid means of communication at present are non-existent. The types of machine available for this work have not proven satisfactory. The F.3 twin engine boat is unwieldy and obsolete. Until new machines are available which can be more easily handled by the small crews on the stations, the full benefit of the patrol will not be obtained. The work done during the past two years proves conclusively that flying is a prime factor in forest conservation in Manitoba, provided that suitable aircraft are employed. Much transportation work has

been carried out in northern Manitoba and Saskatchewan for survey parties. Depots of provisions have been laid and reconnaissance and inspection work done by air. Many photographs have been taken amplifying the results of surveys being made in that country. The success of this feature of such operations is very gratifying. There is no doubt that, in the exploration of northern Canada the use of flying boats will increase the territory covered each year and give much more detailed and complete information as to the areas covered.

In Ontario fire patrols from Pembroke on the Ottawa River, to Parry Sound on Georgian Bay, and from the Ottawa River and Lake Nipissing, south to the edge of the forest country, have been carried out on repayment for the Ontario Government. Daily patrols have been maintained during the whole season. The increased efficiency flying brings to the fire fighting forces, in a district such as this, has been demonstrated beyond question.

For the Quebec Government the work at Roberval Station has been continued and extended. Exploration by sketching and photography in the region lying north and west of Lake St. John, as far as the watershed to James Bay, has been continued. Reliable information has been obtained as to the extent and nature of the forests in that area.

Explored Timber Resources.

An interesting operation was undertaken for this Government on the Natashkwan River on the north shore of the St. Lawrence, due north of the easterly point of Anticosti Island. A machine was flown there in September and several days were spent exploring the timber resources in that valley back about 100 miles into the interior.

Little flying has been done from the Dartmouth Station during the season. Photographic work for the Water Power Branch in connection with Hydro Electric developments in Nova Scotia has been successfully carried out.

Advantage was taken of the opportunity to investigate flying conditions in the Arctic by despatching an experienced Air Force officer, who had made a special study of navigation and meteorology, with the steamer "Arctic," on her voyage to establish police depots in Ellesmere Land. From the information obtained there is every reason to expect that the exploration of the Arctic Archipelago can be materially assisted by the use of aircraft. Flying can be carried out with success during several months of the year in northern latitudes. Intercommunication between posts in remote districts will be greatly facilitated by the use of aircraft.

TREE IN MORNING — NEWSPAPER BY NOON.

RECORDS of all kind have become common, and this is especially noticeable by business firms showing how quickly and accurately their products can be turned out. The latest to come to our notice is of a German company manufacturing paper pulp. Trees upon which the birds warbled their morning song are turned into newspapers and sold as mid-day editions on the same day in certain towns of the Hartz district, says the Papier-fabrikant, the leading German paper makers' organ. The exact time taken in the process is 3 hours 25 minutes. The trees were felled at 7.35 a.m., pulped and turned into paper by 9.30, rushed in a motor truck 21½ miles to the printing office and at 11 o'clock newspaper boys were crying the local sheet on the streets.

EMERGENCIES==

Call for prompt, effective action and because they usually occur under the most difficult conditions, are a real test of any service.

During the recent devastating fires in Northern Ontario — a Government Department, which has learned from experience, the very real value of efficient aircraft service — sent an emergency call for a flying boat to assist in organizing their relief programme.

Owing to pressure of work elsewhere, the nearest Laurentide Air Service plane was several hundred miles distant. Fire, smoke, and bad winds made the trip extremely difficult but in a few hours a machine was on the spot — ready for service. Accurate surveys of the burned and burning area, humanly impossible in any other way, were done from the air in a few hours. Effective measures for relief and conservation were undertaken — for accurate, dependable information was available.

The cost of this service was small, and was defrayed many times over by the saving of property, not to mention lives.

Laurentide Air Service operate aircraft for any strictly commercial purpose. This service is built upon four years' experience, which is at your disposal, upon request, and without involving obligation.

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OBLIQUE VIEW OF REMI LAKE STATION OF LAURENTIDE AIR SERVICE LTD.



VERTICAL VIEW OF REMI LAKE STATION OF LAURENTIDE AIR SERVICE LTD.

These views show how clearly various kinds of trees can be distinguished from aerial pictures and how the number of trees in any given tract can be actually counted. Areas of different types of timber, burns, blowdowns, swamps, etc., can be accurately measured. As the whole area is covered results are more accurate.

Maps of properties can be made in far less time than by the old methods, and the cost is lower.

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A Record of Aerial Achievement

By George A. Mackie.

ARATHER unique event in connection with Aeronautical enterprise occurred on Saturday, October 28th at Lachine, Quebec, when an informal reception was held under the auspices of the Aerial League of the British Empire, Montreal branch. The aeronautical equipment and personnel was furnished by Laurentide Air Service Ltd. and the Canadian Aerial Service Ltd. An account of the affair could not be obtained in time for insertion in the current issue of this publication but it is hoped that this will be available for the December issue of the Illustrated Canadian Forestry Magazine.

Some figures have recently been obtained concerning the flying operations of Laurentide Air Service for the period from May 1st to September 30th inclusive. During that period, the machines operated by the company carried a total of 627 passengers a distance of 62,288 passenger miles. Including the crew required for operating the machines, the distance flown was equivalent to carrying one person 164,327 miles. To do this, two machines covered a total distance of 53,066 miles. The total useful loads carried aggregated 44.48 tons, and the operating loads, that is gasoline, oil, operating crew, equipment, etc., brought the total loads carried up to 231 tons. The various distances covered, made this equivalent to carrying one ton of useful load 7,901 miles, and the total of all loads carried, to 38,191 ton miles. During the period of these remarkable operations not even a minor injury has been sustained by either passengers or personnel, and not a pound of the valuable cargoes has been lost. Air lines have been established as far north as Rupert House on James Bay, and south to Lake George, N. Y., and east and west from Clarke City on the Gulf of St. Lawrence, to Hearst, Ont. The operations have consisted mostly of Forest Fire Patrol, Timber Reconnaissance, Aerial Photography, and Transportation.

12,000 square miles of unmapped country, 300 miles north of the Transcontinental Railway have been reconnoitred, a topographical map produced, timber inventory taken, water power determined and mineral resources investigated, all by aircraft, a feat which would have been impossible at any cost, by ordinary ground method.

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REGULATIONS governing the payment of compensation for death or injury resulting directly from aeroplane flights undertaken in the course of duty by public servants of Canada, have been made public by the Government. They provide for the payment of compensation approximately on the same scale and in the same manner as at present awarded under the Pensions Act to members of the Canadian Air Force. The annual rate of the total emoluments which the civil servant was receiving at the date of death or injury, form the basis for fixing the amount of compensation to be paid.

The compensation to be paid for death or injury to a civil servant in receipt of \$1,200 or less per annum, shall be the scale of pension as provided for a military private; over \$1,200 and not more than \$1,800, the scale of the pension provided for a sergeant; over \$1,800 and not more than \$2,400, the scale of pension as provided for a lieutenant; over \$2,400 and not more than \$3,400, the scale of pension for a captain, and over \$3,400, the scale of pension for a major.

The regulations have been passed "in view of the extent to which aerial observation is now utilized by certain departments of the government."

Radio and Aviation for Fire Fighting

THERE have been installed during the present season, in the west, three wireless telephone stations as links in the Government Forestry system of fire fighting and survey work. The opening of the Winnipeg station, which is located in the Customs Building, along with the forestry branch is the latest of the three wireless stations now operating in the Province of Manitoba, the others being at Norway House and Victoria Beach. The installation has been effected by the Royal Canadian Corps of Signallers, who are doing all the work for the Canadian Air Board and the Dominion Forestry department.

Major W. A. Steel, who has charge of the radio work stated the wireless installation was primarily carried out in order to speed up the work of fire fighting. Speed was an essential thing both in fighting and controlling fires. As a result of the radio communication, the time required for communication between Col. H. L. Stevenson, district forest inspector in Winnipeg, and Norway House, has been reduced from a matter of ten days or a fortnight to the same number of minutes.

Provided a financial appropriation is secured, Major Steel said he would also like to equip all the aeroplanes in Manitoba with wireless sets. A system like this is in operation in Alberta, where in addition to the ground stations, all the aeroplanes are fitted with radio sets, so that the pilot can keep in touch with his home station

all the time to report fires and call for assistance if necessary. These aeroplanes cover a patrol of approximately 350 miles. The Manitoba system and the Alberta radio system are in touch with each other, said Major Steel, through the stations at Victoria Beach and High River, a distance of approximately 750 miles. Any of the three Manitoba stations will be able to keep in touch with Alberta, but for all practical purposes only the two stations mentioned will be used for this communication.

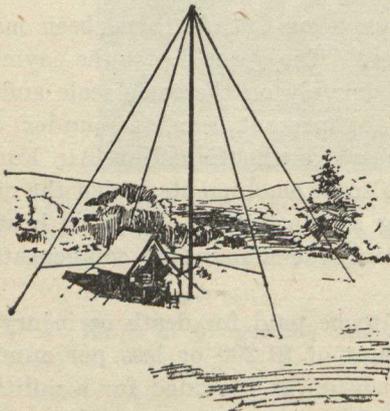
A system of wireless has been developed in Ontario for the Canadian Air Board, but has not yet been connected with the forestry department, although this will likely be carried out shortly. The great difficulty according to Major Steel, is in securing men experienced not merely in sending and receiving wireless messages, but in getting those conversant with the type of machine used. One of the features connected with the inauguration of the radio stations in Manitoba, is the daily weather report received by Col. Stevenson from Norway House, which enables him to keep in close touch with the fire situation and possible development.

Installation of these radio stations have greatly facilitating the locating and checking of forest fires, according to Major Basil N. Hobbs, Superintendent of the Victoria Beach air station. As an example of this, five forest fires which were started by lightning in the vicinity of Norway House during the latter part of August were located by one of the aeroplane scouts in less than three hours after they had started. By the same evening fire fighting gangs had been dispatched by aeroplane to the several points and all the fires were extinguished before they had time to gain any headway.

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Air Board Statistics

Private Air Pilots' Certificates

THE AIR BOARD announces Civil Aviation Certificates and Licenses, issued, cancelled, and renewed, under the various classes as shown, for month ending September 30th, 1922, as follows:—

Issued:—J. M. Eddy, Brantford, Ont.
 Lapsed:—M. G. Fraser, Toronto, Ont.

Commercial Air Pilots' Certificates

Lapsed:—C. St. C. Guild, Musquodoboit Harbour, N.S.; N. R. Anderson, R. R. No. 2, Hanover, Ont.; C. H. Dickins, Edmonton, Alberta; A. A. Leitch, Norwood Grove, Man.; G. G. Wakeman, Teeswater, Ont.; P. M. Wallace, Yorkton, Sask.; J. B. Home-Hay, Wadena, Sask.; G. O. Johnson, Toronto, Ont.; E. L. MacLeod, Atchelitz, B.C.

Renewed:—W. H. Brown, Victoria, B.C.

Air Engineers' Certificates

Issued:—W. G. Chapman, Ottawa, Ont.; D. S. Atkinson, Toronto, Ont.; H. W. Francis, Victoria Beach, Man.

Certificates of Registration of Aircraft

Issued:—The Air Board, Ottawa, Ont.; J. V. Elliott, Hamilton, Ont.

Cancelled:—Pacific Airways, Seattle, Wash.; Dayton Wright Co.; Toronto, Ont.

C. A. F. Officers' Course

The following officers have completed a tour of duty at Camp Borden, during the month of September, 1922:—
 Squadron Leader, F. G. Pinder, Montreal, Que.
 Squadron Leader, C. J. Clayton, Victoria, B.C.
 Flying Officer, B. de Salaberry, Ottawa, Ont.

Aeroplanes for Discovery Trips

SEVERAL hitherto unknown lakes and river valleys have been discovered in Jasper Park, Canadian Rockies, through the use of government aeroplanes. This work was undertaken by the High River air station, Alberta, and three experimental flights were carried out over the region for the purpose of exploration and reconnaissances. The Canadian Air Board report states: "A flight was made on each of three successive days with gratifying success and the possibilities of the use of aircraft for exploration in mountain regions and in the administration and general maintenance of the park system were proved without a doubt."

At the conclusion of the operation, Colonel Maynard Rogers, Park superintendent, who was taken as observer on each of the three flights, expressed himself as highly pleased with the results obtained and with the rapidity with which it was possible to reach any part of the park as compared with making a similar trip by trail. In the seven hours flying over the park he claimed he travelled more distance and inspected more country than he could possibly have done by trail in six weeks' or two months' hard travelling. Col. Rogers also expressed the opinion that sufficient flying had been done to demonstrate the absolute necessity of having machines stationed at Jasper Park to continue this exploration and general reconnaissance work, as well as for the purpose of forest fire protection.

Forest Research in Eastern Canada

Some Developments that have Occurred in Various Experimental Plots East of the Rocky Mountains

In two parts—Part II

By T. W. Dwight, Assistant Director of Forestry, Ottawa

The Swedish foresters have worked out a formula for calculating the size of trees all along the trunk and the applicability of this formula to Canadian species is being thoroughly gone into. As this formula allows the construction of volume tables by mere calculation, provided the average form quotient of stands can be readily determined, we may yet reach the long sought goal of a universal volume table. At any rate we should learn a great deal more about what we really have in our present volume tables, and avoid the necessity of constructing so many different tables.

Other work done along the lines of mensuration has been the construction of local volume tables, the measurement of growth, and the collection of data for yield tables.

In the field of silviculture which includes so many problems for which solutions are necessary before scientific management of our forests for continuous production can be successfully undertaken, a considerable range of studies has been begun. A brief mention of the general nature of these studies may explain what are the main purposes of this work and what is the necessity for it.

It may be explained first of all that the studies are made by establishing small, permanent sample plots of from a quarter acre to one acre in area. On these plots complete data of the existing stand are recorded, and plans prepared showing the location of every tree. Then whatever operations are involved in the experiment are carried out. If trees are removed it is noted on the plan. The trees left are numbered with metal tags, so that measurements made at later dates can be compared exactly. Following this method, we will know definitely what the original conditions have been, and exactly what has been responsible for any changes that may take place later. Remeasurement at five year intervals is contemplated. This method was adopted after foresters had attempted in vain to solve silvicultural problems by studying old logged-over areas and old burns, to

determine the conditions under which reproduction recovery from suppression and the like took place. The lack of exact knowledge of previous conditions militated against the success of the work. In order to de-



T. W. Dwight, M. F.

termine the success of any silvicultural operation, it is necessary to create the condition desired by an operation carried out for the purpose, and to record full data of what has been done. Records taken at succeeding periods will show definitely what the results have been, and make it possible to determine the reasons therefor. This is the purpose of the permanent sample plot. A period of years must elapse before conclusions can be reached, but only in this way will definite answers to questions be secured.

At Petawawa, 48 sample plots were established up to the end of 1920; 33 of these being established in the last year.

The growth of white and red pine in mixture with poplar and paper birch has been the subject of one

series of studies. This is a common condition on logged-over or burned pine areas. On some plots the poplar and birch have been removed to see if a better stand of pine cannot be secured. The material was disposed of at a profit. The Petewawa Experiment Station offers an opportunity of demonstrating the practicability under certain conditions of removing undesirable trees in order to improve the character of the final stand. In some cases, sufficient pine for the final stand are present and it was desired merely to release them from competition. In other cases, there was only a sufficient number for seed trees, and the intention is to try and secure pine reproduction by the shelterwood system.

Several plots in pure white pine have been thinned to different degrees. This was done to determine not only the practical advantage of thinning, but the maximum yield that can be secured from pure pine stands.

The question of the most suitable soil conditions for natural reproduction of pine has been approached by establishing a series of plots under a variety of conditions, on which different methods of preparing the seed bed have been followed. Plots are also being established in mature white pine areas which are being logged under ordinary commercial conditions.

The Commission of Conservation have established an experiment station at Lake Edward, Quebec, in co-operation with the Laurentide Company and under the direction of Dr. C. D. Howe, Dean of the Toronto Forest School. This station is located in a region cutover originally for white pine and later for spruce and balsam, leaving a mixed softwood and hardwood forest. The area offers an opportunity for studying in connection with spruce and balsam problems similar to those outlined in connection with pine at Petawawa. This station has now been taken over by the Dominion Forest Service and the work is being continued.

The main problems being studied are the seed bed and other conditions necessary for satisfactory reproduction of the softwoods, the effect of the hardwoods on the growth of the larger softwood trees remaining after the logging operations, the effect of growth of the softwoods and on the removal of the hardwoods on the reproduction of them, and the rate at which the smaller seedlings already present die off before reaching the upper crown level. It has been found that although there may be a sufficient number of seedlings of small size, only a very limited number are successful in finally establishing themselves and reaching maturity.

Experiments In N. B.

In New Brunswick, a very interesting experimental cutting of 600 acres of black spruce has been carried out on the limits of the Bathurst Lumber Company. The tract has been permanently reserved by the Provincial Government which co-operated actively in the work. In New Brunswick no spruce under 12 inches in diameter is allowed to be cut except under special authority. There are large areas where black spruce grows in dense stands of an average diameter of 9 or 10 inches, with few trees above the 12 inch limit. It was desired to determine what would be the effect of cutting to various diameter limits. The main part of the tract selected was cut in strips two chains wide to 6, 8, 10 and 12 inch diameter limits successively, with strips one chain wide between which were clear cut. The logging slash was burned, lopped and scattered, and left untouched on one-third of each of the different classes of cutting.

A wide variety of conditions was thus established, and the plan of operations provides for remeasurement at five year intervals. Seven permanent sample plots were established to give more detailed data in regard to the results of the different methods practised, and seeding and planting experiments were carried out.

Four studies of the conditions of lands cut-over for pulpwood have been made by the Commission of Conservation in co-operation with the pulp and paper companies on whose limits the work was done. The companies concerned were the Laurentide Company, the Riordan Pulp and Paper Company, the Abitibi Pulp and Paper Company and the Spanish Mills, Limited. These companies bore approximately half the expense.

The studies on the Laurentide and Riordan limits were mainly to determine the amount of reproduction on the cut-over lands, and the relation of the hardwoods to the character of the stand remaining after logging. The studies on the limits of the two Ontario companies related more particularly to the growth made by the small trees left, and the importance of protecting them during logging and afterwards so as to give

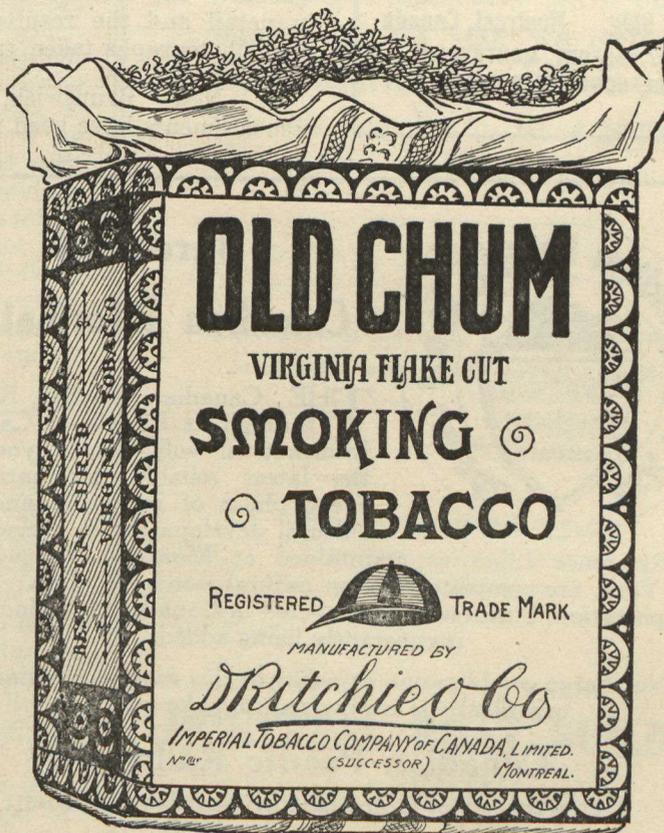
an opportunity for a profitable second logging operation.

In connection with all these studies conducted by the Commission of Conservation, a great deal of very valuable volume and growth measurements have been made and compiled into extremely useful tables.

Quebec Service Active

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Mr. Lussier, to devote his whole time to research problems. Mr. Lussier was given an opportunity by the provincial government to spend a year in study in the forests of France. Arrangements are in progress to have



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him brought into close touch with the research work already begun in Ontario and Quebec. At the present time he is engaged in a detailed study of the possibilities of forest reconnaissance by aeroplane at Roberval, Quebec. An area is being cruised in detail and the results compared with photographs taken from the air.

In New Brunswick, extensive measurements have been made of the

current rate of growth of the spruce in that province. This work has been carried on in connection with the detailed map and cruise that is being made of the whole area of crown timber lands in that province, some 7,500,000 acres in all. The cruise is being made on the basis of a tally of the trees on 5% of the total area and is believed to be much the largest project of its kind yet attempted in Canada. To date approximately one-half the work is completed. In connection with it, volume measurements of 8,000 spruce and balsam trees have been made.

In the Dominion Forest Reserves in the prairie provinces and the railway belt of British Columbia, investigative work has been initiated on a systematic basis only during the present season. It will be carried on under the direction of the central research staff of the Dominion Forest Service by the permanent field officers administering the reserves. For several years timber sales have been in operation on the Dominion Forests where the timber to be removed has been marked so as to leave seed-trees standing, and where the brush has been burned. These areas offer an opportunity of studying the effect on the trees left and on reproduction of different degrees of cutting and of brush disposal.

Should Fix Upon Permanent Timber Reserves

To The Editor,

Illustrated Canadian Forestry Magazine:

RECENT legislation in the Province of Quebec on Forest policy has been of such progressive character that we are encouraged to believe that both the Government and the Public are awakening to a fuller realization of the importance of the preservation of the Forest wealth of the Province.

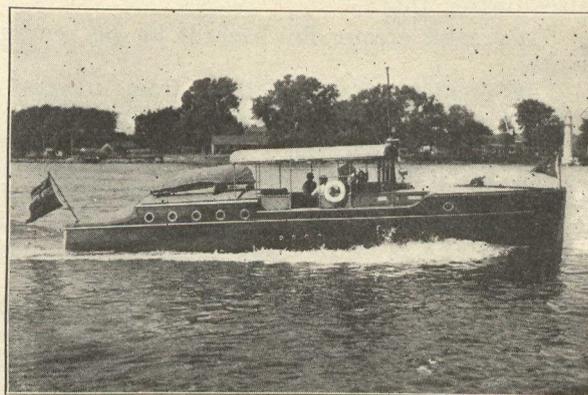
The nature of the legislation referred to tends to the preservation of the forest for the present, but we must go further than this and arrive at a policy which will preserve the natural forest areas as forests in perpetuity. The latest legislation given effect to by Order-in-Council is the Travel Permit Law, the effect of which may have far-reaching results if it is adhered to and firmly and conscientiously administered. Governing as it does, the movements of all people circulating in the forests during the fire danger season, and, almost as important, bringing firmly to the notice of the individual throughout the country the necessity for caution and his individual responsibility for the care and preservation of the forest, it tends to create among all that conscientiousness of our forest wealth and the vital importance of preserving it that is so remarkable in certain countries of Europe. The Forest Department and the Government are to be congratulated on this measure, which will allow the Fire Protection Organizations to tighten their control and to exercise authority where it is necessary for the better preservation of the forests from fire.

Had this legislation been put in force earlier in the present season it is possible that much destruction which has resulted from forest fires might have been prevented.

But while the course of forest legislation tends to the preservation of the forests, the lumber man to-day is without that feeling of security which is necessary if he is to give his wholehearted co-operation and hard cash in this endeavor to preserve the forests of the Province in perpetuity. The cause for this lies in the fact that forest reserves on a large scale have not been formed, nor has the policy which governs colonization been guided along lines which give equal regard to the agricultural development and population of the country and the vital importance of preserving those areas unfit for cultivation and at present bearing good forest, as forests for the future.

Let us examine casually some of the results that arise from that policy which, without discourtesy, we call haphazard colonization.

Forests in certain areas are being cut into in all directions and lots are often sold that are unfit for cultivation to people who are not bona fide farmers, with the inevitable result that the lots eventually come into the possession of timber operators, who, under the cloak of the law governing the clearing of these lots, are enabled to clear all the timber off the land without the payment of stumpage dues. The lumber man is faced with this situation, that other timber operators can cut timber off his limits without stumpage dues and sell this timber in competition with the lumber man—in most cases undersell him. But this is not the worst evil, though in all conscience it is bad for the limit owner. Every year he sees larger or smaller areas taken out of his limits for the purposes of colonization knowing full well that a portion of these lots will yield timber, as already pointed out, to operators who are his competitors. Large holes are made in his limits without giving him the advantages consequent



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upon opening up the country, without increasing the rural population and therefore his labor market. He recognizes further that:—

It creates greater fire hazards for his remaining limits.

It creates greater danger from insects and climatic exposure to his remaining forests.

It compels him, in self protection, to endeavour to cut his forests in areas and in a manner not always the most suitable for the preservation of his limits since he will naturally cut over those areas which he thinks will be taken away from him in the near future.

His enthusiasm for forest conservation and more progressive technical forest management evaporates, as he does not see the use of spending money on these matters on forests for the future when he may not be left in possession of these forests for a sufficient length of time to enable him to derive any benefit from his expenditure of cash and energy.

Nor does the Province receive a proportionate benefit from this state of affairs:—

The forests are continually being depleted and the forest areas taken up in such a manner that administration and management in the future will be difficult and expensive.

The Government receives no revenue from these operations.

The development of the country is not advanced in proportion as the land is apparently allotted to colonization at the expense of the forests.

A new rural population is not attained.

The control and preservation of the water supply will become difficult as the forests disappear. Witness the floods that annually cause so much damage in the Chaudiere Valley.

The limit owner is not encouraged to evolve or practice forestry over his limits and his co-operation with the Government on this question is half hearted.

The cure suggested for this state of affairs is the close co-operation between the Government Departments concerned and the limit holders, so that the whole Province may be inspected and classified, after which those areas unsuitable for colonization and the areas on which high forest should be preserved to maintain water supply, prevent erosion, etc., should be established as **permanent forest Reserves**.

A defined policy for colonization should be formulated after which it will be possible to place further areas suitable for cultivation, but for which population is not available at the moment, in forest Reserves for shorter periods, renewable after each term until colonization definitely starts in these areas.

Such a policy would minimize or eradicate the evils spoken of above, would obtain the confidence of the limit-holder and definitely identify him with the progressive forest policy towards which recent legislation is leading.

If some such policy is not given effect to it is only a matter of time before many of the bigger sawmills will close and the result of this will be reflected most upon the colon, as his main market for his labor and his produce will disappear with the lumberman, to the great disadvantage of the colon and future colonization.

We must get away from the idea that we have an inexhaustible supply of timber—we have not. In fact we have seen it stated on good authority that in spite of the great outcry on timber shortage in America, America has four times the quantity of timber that is available in Canada. It behooves us, therefore, to look to the interests of our Province and preserve that which is and will long continue to be, our greatest asset. N. H. R.

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EDUCATING LOGGERS

(From the Pacific Coast Lumberman)

THE COMMENTS we have received from our readers on the subject of educating loggers for work in the woods show that the matter is one of great interest.

One opinion is that the bosses do not give a likely man the necessary chance, that is to say, when a man arrives in the camp and starts to work on a job that at first is too hard for him, he is simply turned down

and fired for inefficiency; whereas in many cases a little encouragement would turn him into a buckler or chokerman, as the case might be. It is pointed out that in these cases the man is often too independent to turn around to the foreman and protest that he is not being given a fair chance.

Another reader looks at the matter from an entirely opposite standpoint

and says that the green men themselves will not give the job a chance nine times out of ten. They go to work the first day, get tired out and do not reason to themselves that this is because they are unaccustomed to the job. They fail to realize that if they stayed on the job their muscles would soon become accustomed to the strain and the stiffness disappear, and that the little knacks of the old hand would soon become familiar to them. This reader states that no foreman of any intelligence in the woods ever turns down a trier, no matter how poorly he shapes at the start.

Of course the ideal situation is to get husky men to the woods who are willing to stay with the job under supervision of foremen who have an open eye and a word of encouragement for the man who is evidently trying to do his best.

Day in and day out in Vancouver and in other cities people are solicited by strong, upstanding young men to buy anything from tea to real estate and life insurance. What particular fascination this particular hand to mouth kind of life possesses for a manly young fellow it is difficult to imagine, except that it enables him to live in the city. Life in the woods should present greater attraction to such men, as it is a far more healthful and more steadily remunerative one in the long run than the precarious existence maintained in the city. The knowledge and strength acquired in the tall timbers will eventually stand a man in good stead in later days. The prizes of the future are to the strong and to the man of mechanical mind rather than to the ordinary run of commercial workers.

The lumber industry, the basic industry of British Columbia, is a good business to know thoroughly, and it is difficult to see how anybody can really understand it who has not spent at least some time intelligently in the woods.

Not one of our readers touched upon the main question, which is that of establishing a regular system of selection of likely workers from the casual labour of the province. We should like to hear more from one reader who mentioned an apprentice system as being a likely source, but who failed to give any idea as to how this system should be established.

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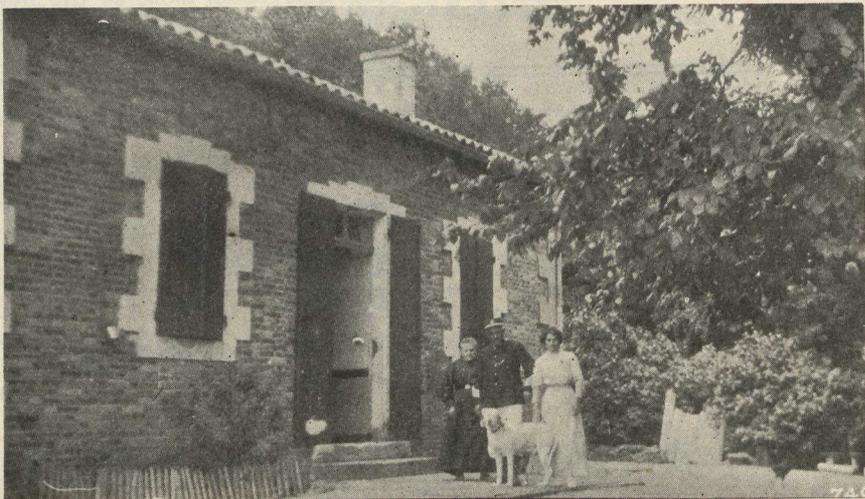
A RICH ESTATE IN FRANCE

ONCE A MARSHY WASTE

THERE is a large tract of country on the southwestern coast of France, extending for 240 miles from Cape Guane at the mouth of the Gironde to where the River Adour flows into the Atlantic, which to the majority of tourists is practically unknown owing to its isolated position far away from the beaten-track. At one time it was composed of bare, wild, shifting sandhills, which were at the mercy of every Atlantic storm. Today, by reason of the vast forests of sea-pines, which now cover this wonderful territory, they have become stationary. The hungry sea no longer works its will upon them, but instead a series of salt-lakes have been formed, which, enclosed in an exquisite setting of sombre verdure, sparkle like gems in the rays of the southern sun.

To appreciate thoroughly the severe beauty of this rarely-visited part of France, one must quit the main road and wander through the silent woods, where the aromatic perfume of the pines mingles with the scent of the ocean breeze, or stay awhile in the picturesque hamlets and villages, which are scattered at random in the forest clearings. To watch from the 'dunes' the setting sun slowly vanish beneath the waste of waters, transforming beach, sea, and forest into glory of crimson and gold, is a sight not easily forgotten. The starting point for a motor tour through the 'Cote D'Argent' is Bordeaux. The main roads are quite good, the by-roads practicable but sandy, the going in places rough,

which necessitates slow progress. The first day's run from Bordeaux to Arcachon, by way of Lacanau and Ares, where a halt is made for lunch at the delightful rural restaurant of Mere Barsac, is exceedingly pretty,



The keen business sense of the French nation in respect to forest management is nowhere better illustrated than in the thorough organization of their forest service. The picture shows a Chief Ranger's house in the Gironde district. The uniforming of the Rangers and their supervisors has a decided effect upon efficiency, and a modified application of this feature has been frequently suggested for the Canadian forest services.

the road leading through the pine-woods the entire distance, affording occasional peeps of the sand-hills and sea. After a night's rest at Arcachon and a ramble through the town, the journey is continued through the forest, traversing the famous 'Landes' district, with its sandy paths, its solitude broken here and there by foresters' huts, nestling amid the

of the lovely stream of Sainte-Eulalie, which is one of the marvels of the 'Landes.' Unfortunately, it can only be accomplished in Canadian canoes and one should be a good swimmer, in case of an upset.

After leaving Parentis the road becomes very sandy and continues so, all the way to Mimizan-les-Bains, where a halt is made for the night. Mimizan boasts of two good hotels, by no means luxurious, but clean and comfortable. There is no Casino, but a splendid beach, excellent sea-fishing, and bathing. After a leisurely morning spent by the sea, or in rambling through the woods, a late start is made after lunch for Leon, passing through Contis-les-Bains, noted for its light-house and superb panorama. On arriving at Leon for the night's stop do not fail to engage a boat overnight for the trip down the Huchet River the next morning.

The Huchet is one of the wonders of picturesque France. An early start should be made so as to return in good time for lunch. One should be under way not later than seven o'clock. It takes nearly half an hour



A cleared space in the Gironde forest area of France acting as a fire guard.

to cross the great Leon salt lake. The entrance to this enchanting stream is exceedingly beautiful, the sandy banks being luxuriantly wooded. In many places the branches of the trees on each side interlace, so that one proceeds beneath a canopy of thick greenery. Further on the stream divides into many channels, most of them unnavigable, but keeping to the main stream, after a charming voyage of nearly two hours, the woods are left behind, and the Boulevard footbridge is reached. From this point vegetation ceases, and bare sandhills take its place, until Moliet's-Plage comes into view at the river mouth.

Leaving Leon in the afternoon, a short run through Messanges, Vieux Boucau, Soustons to Hossegor gives one an opportunity of seeing the salt lake chain. That of Hossegor, at one time a huge fresh-water reservoir, until it was invaded by the sea during a terrific storm, is particularly lovely, as it is entirely surrounded by pine trees, whose reflections in the still, mirror-like surface lend it an added charm. A navigable channel leads to the tiny village and beach of Capbreton, where on a real stormy day the breaking of the enormous Atlantic rollers on the shore is a truly magnificent spectacle. After spending the night at Hossegor, send the car on to Capbreton, and be taken across the lake and through the channel by boat. This is a charming little variation, the banks being bordered with pretty villas, with a background of pine-woods.

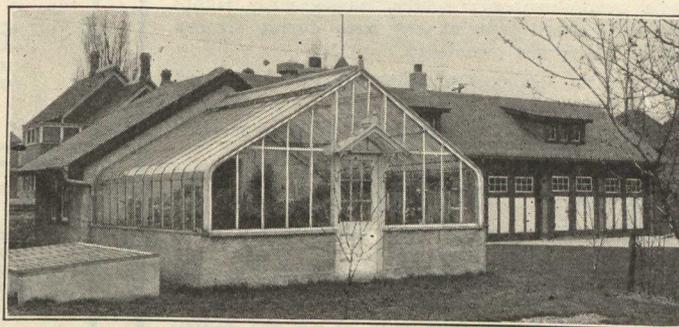
After a leisurely lunch at the hotel the last stage is accomplished through oak and pine woods as far as Labeme, where we join the main road to Bayonne. A stop of an hour or so to visit the cathedral, the 'chateau-vieux,' the citadel and ramparts of this old-world city, and then on to Biarritz, the end of the tour of the Silver Coast. A more delightful way still of spending a summer holiday during August or September in this unique and beautiful district would be on foot, with plenty of time at one's disposal in which to visit all the out-of-the-way 'beauty spots,' which are missed in a short trip by car.

FIRST APPLE TREE ON PRAIRIES

In Ontario the horticulturists, a few years ago, put up a monument to mark the site of the first McIntosh Red apple tree. In Manitoba they reverse the process by honouring the man rather than the tree, and by doing it while the man is still alive. At the recent convocation of Manitoba Agricultural College the portraits of four men who have greatly helped western agriculture were hung

in the convocation hall and their names inscribed on the college roll of fame. Those honoured were Dr. S. A. Bedford, Brigadier-General Hugh N. Dyer, and Messrs. J. W. Scallion and A. P. Stevenson, all well known agriculturists. The last named was honoured for his success in fruit growing and as being the one who over forty years ago, planted the first apple tree in Manitoba. In addition to his work in connection with fruit trees, Mr. Stevenson was one of the

earliest believers in the work of planting shelter-belts across prairie farms and about the farm buildings, and for over twenty years has been one of the tree-planting promoters of the Dominion Forestry Branch. When he began, it was generally believed that trees would not grow on the prairies, and much of the progress of the work in the early days was due to Mr. Stevenson's enthusiasm and to experience gained on his own farm near Morden, Manitoba.



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Prize Essay in Barnjum Contest

By P. Swanson.

(Concluded from October Issue)

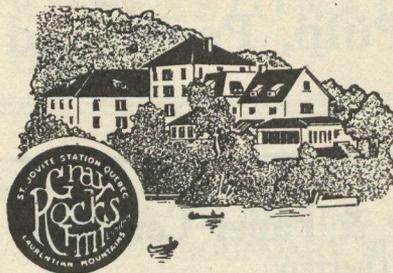
It may be advanced that this would work a hardship on the settlers, inasmuch as the price offered by United States owners competing with our own pulp-mills, gives the settler a fair chance of obtaining a fair return for his wood when cut and hauled to the rail. It must be remembered, however, that competition is very keen in this country itself, and every pulp district has at least two or three mills. Even if the companies agree on a fixed price, the settler can refuse the proffered price, and ultimately will benefit by greatly improved prices. If there is one thing that can be prophesied with certainty, it is this: that standing timber is increasing in wealth by leaps and bounds with the passing of time. An export duty on all pulp wood will prove no drawback to the settler. Legislation should be passed imposing such a duty immediately.

In passing, it might be added that in large virgin timbered areas the killing of beaver should be strictly limited. Beaver dams and meadows form a natural barrier to fire and their value can hardly be overestimated. In addition, the beaver cannot be regarded as an animal destroyer of forest-life such as the porcupine, which in some districts is a menace. Right here let us say that if such animal destroyers of forest-life become too numerous, the remedy is simple: a government bounty for the death of each such destroyer would quickly reduce their number.

It is a sad commentary on the public intelligence of Canada that the question of forest protection has aroused the interest of very few. Only when some great disaster, involving the loss of life, such as took place in the Cochrane and Matheson fires, visits a section of our country, is interest gained, and then only for a few weeks. An awakened public conscience can force any government to take strong and immediate action to protect the greatest national asset this Dominion possesses. It is the bounden duty of the great newspapers of Canada to see that the public conscience is awakened to the importance of this question. It should hardly be necessary for forestry branches to pay for inserted advertisements. Ringing editorials should be hurled broadside upon a lethargic and sleeping public. A newspaper exists for more than profit. It plays more than the mere part of transmitting news. Surely, surely, they exist to mould and fashion public opinion, to lead the public, not to follow, and in no sphere is there such a fertile field to exercise their talents as in that of forest protection.

Schools and universities, especially the public schools, should impress upon the youth of this country the value of our timber and our forests. In ancient Greece, during the age of Pericles, it was said that every free male was capable of holding any public office. We have not yet reached that ideal state, but surely we can educate the youth of our country so that, when they become citizens in the full sense of the word, they will have an intelligent conception of the value of our natural resources. Sweden has done so. What Sweden has done, Canada can likewise do.

Above all, there must be thorough co-operation



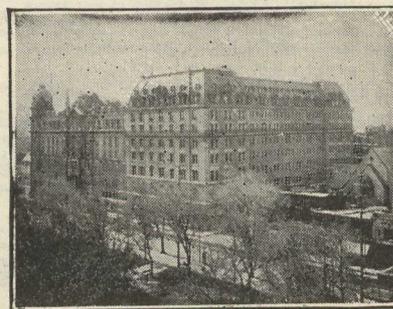
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throughout Canada of all agencies that have forest protection for their aim. Federal and Provincial Governments must work in harmony with each other on this important question. Insofar as local conditions will permit, legislation, affecting the welfare of our forest life should be uniform throughout the Dominion. Wise governments will see to it that we benefit by the experiences of the past, that legislation will be adopted to protect the great natural resources, of which we are so justly proud, in order that future generations will arise and call them blessed.

Reforestation, properly speaking, does not belong to this discussion. It aims not at conserving the present forest areas, but at procuring an adequate supply for the future. One concerns the present. Suffice to say that re-forestation is taking place in many of our provinces under government control, and many private companies are undertaking it on their own initiative. The country would indeed be sadly behind the times if she neglected re-foresting their denuded limits.

To sum up broadly: heavy fines should be imposed on those violating existing laws; new statutes should be placed in the statute books of our country and strictly enforced, dealing with the carelessness of those who journey through the woods in the dry summer season; an export duty on fee land wood; fire-ranging system more closely co-ordinated and well-equipped; more scientific logging operations must be adopted to eliminate logging slash and debris; rigid inspection of timber in each timber area throughout Canada; an aroused public opinion by means of newspapers and schools; close co-operation of all agencies existing for the purpose of securing forest protection; uniform protective laws throughout Canada; re-forestation of denuded areas must take place on a far larger scale.

It is the fashion for public speakers in Canada, especially political platform orators, to speak grandiloquently of the boundless resources and inexhaustible wealth of the Dominion. Far from being inexhaustible, boundless and infinite, the forest wealth of Canada is fast approaching the point of depletion. The public is led astray by the glittering generalities of demagogues whose knowledge is less than nothing and therefore dangerous. Impress on our political representatives the importance of our forest life, and if the voice of the people of Canada speaks with sufficient strength and clearness to the politician of our day, *vox populi* becomes *vox Dei—mirabile dictu!* Then we may expect action.

The tragedy of the whole situation lies in the fact that we may take protective measures too late. The cry of "too late" re-echoes through the corridors of time, while powerful city walls are tumbling and mighty nations crash in ruins. Let us in Canada see to it that the voices of a few men crying in the wilderness do not pass unheeded. By united public effort, the forest life of our country can be preserved. It must be preserved. Without it, our economic and industrial life will be paralyzed; the bright future that opens before Canada will become darkened, and the hopes of all lovers of our land will become blasted. With the Preservation and Conservation of all the tremendous natural resources of this country, Canadians can face the future with the utmost confidence, secure in the belief that in the years ahead Canada will gradually emerge from its swaddling clothes, assume the toga of manhood, and take its place among the first nations of the earth.

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The Last Buffalo Hunt

(Medicine Hat News)

IT WAS just over thirty-four years ago when Mr. Samuel McKay, of Atlee, Alta., returned to Medicine Hat from his last buffalo hunt, having bagged two bulls on the trip, which are said to be the last wild buffalo killed in Southern Alberta.

It was on June 7, 1888. Medicine Hat was but a small village in those days and was in the district of Assiniboia; Mr. McKay, having heard that signs of buffalo had been found north of the Red Deer river by freighters from Swift Current to Edmonton the previous year, thought that he might be able to capture some calves, by making the expedition. Accordingly he made preparations for the trip. There being no bridge or ferry-boat on the Red Deer river at that time he built a skiff, about three feet by twelve feet, which he used for the dual purpose of boat and wagon box to facilitate the crossing of the river.

In the latter part of May, 1888, Mr. McKay and a man by the name of Alex. Gardipee set out, taking a good milk cow along so that if calves were found there would be plenty of milk with which to feed them. After travelling about three days they arrived at the Red Deer at a point about one and a half miles east of where Mr. Andrew Gordon afterwards established his ranch. After soaking the boat over night, the lumber expanded, closing up the seams. It was used for rowing the wagon and equipment across, it being necessary to take the wagon apart to get it across the stream. The horses and cow swam across. Having assembled their wagon they loaded on the boat and went on north.

On the first of June, 1888, Mr. McKay located a small herd of eleven (11) head of buffalo, about five miles south of where the village of Cereal, Alberta, now stands. After close examination of the herd, to his disappointment, Mr. McKay found that there were no calves, for some cause unknown.

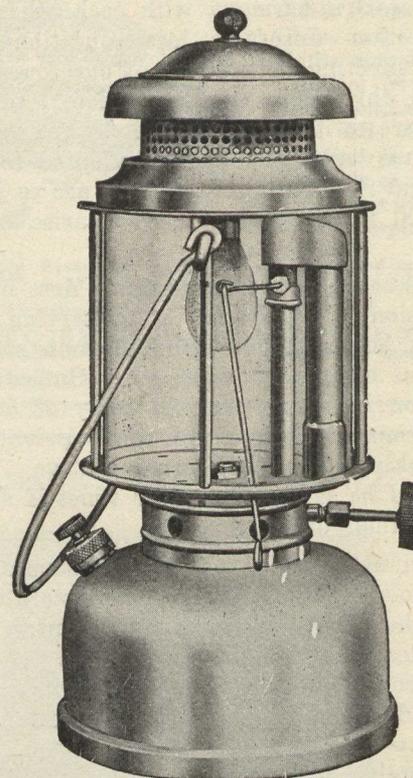
It was a mixed bunch, cows and bulls, so in order not to make a useless trip Mr. McKay shot two of the bulls. He could have slaughtered the whole bunch, but as their hides were of no commercial value at that time of the year, he let the other nine escape. Some time that fall Indians killed the rest of the buffalo somewhere north of the Saskatchewan Landing, which is probably in the Rosetown district in Saskatchewan. Mr. McKay afterwards sold the heads of the two buffalo he shot for fifty dollars apiece here in Medicine Hat.

AUTOMOBILISTS AND FOREST FIRES.

IN many parts of this continent it is found that automobile registrations and forest fires are increasing about proportionately. A great many people are touring about the country, seeking out places away from the railways and main highways and, unfortunately through carelessness with fire, some of them misuse and destroy the forests. There is no desire on the part of forest authorities to bar citizens from the forests, but there is no reason why forest fires should follow in the wake of the automobile. All that is needed is that every tourist who camps for the night or stops at noon to boil his kettle in the woods should personally see to it that his fire is dead out before he leaves it. Those who go into the woods for either business or pleasure see the value of the forests and should catch the enthusiasm for the conservation and proper utilization of this great Canadian resource.

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The Forests of New Zealand

By Charles S. Thompson, Vancouver

DURING a recent visit to New Zealand the writer made some observations on Forestry that may prove of interest to the readers of this magazine. The native bush of New Zealand is quite unlike any I have seen elsewhere. They seem to be mostly hardwoods and some species of cedar. The hardwoods have most unpronounceable names, which I have forgotten. The native bush grows short and thick. I did not see a tree that would cut more than two 12 foot logs and I saw none that in British Columbia would be considered fair sized.

This native timber cannot stand after a break is made on it by clearing. It seems to die out then. These must have been splendid big trees at one time for I saw and greatly admired in Auckland Museum a great War Canoe, about 95 feet long, 7 feet beam and about 5 feet draft. This was made out of one log, with stone and bone tools before the white man came. This canoe was most beautifully finished with carvings and had a stem and stern 7 or 8 feet high attached by pegs and cords. There was no iron in its construction or any iron tools used. It carries 100 men and is a fine sea boat.

Imported firs consist mostly of European varieties of pines, larch and many other trees. In the Roborna district, the government by means of prison labor is now planting 30,000 or 40,000 acres of mountain land with firs and pines and they are doing well. I never anywhere saw so many or such beautiful weeping willows, which reach a large size, 3 or 4 feet in diameter. These are very numerous on the banks of the Waugaubesi River and in the lovely park in the City of Christ Church I saw many of these beautiful trees.

New Zealand is a decidedly windy country and wind breaks, are planted on every country farm, to shelter the sheep and cattle and in every city garden to protect the flowers. In gardens they use hawthorne privet a very pretty cedar, called "Macricarpa." This will grow 50 or 60 feet high if not cut and is frequently used as a farm wind break.

Cutting Trees to Improve a Woodlot

By Col. William B. Greeley,
Chief Forester of the United States

IMPROVEMENT cuttings help the woods in the same way that weeding helps field crops.

Trees grown close enough together in the farm woods so that their tops are in contact produce high-grade saw logs.

Young trees should be coming up in the openings. They should be encouraged by keeping out stock and fire, and by proper cutting methods. Sometimes it is necessary to plant.

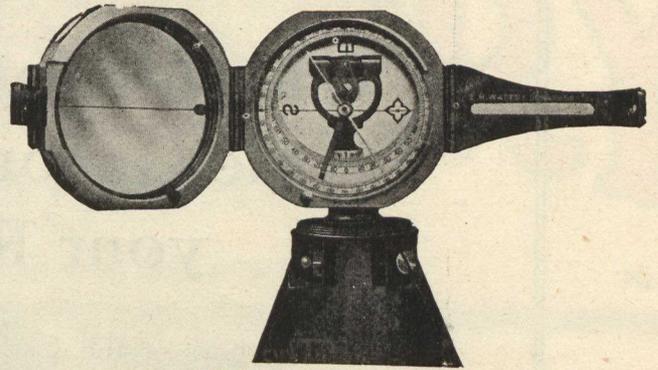
In cutting timber take out inferior species to a smaller diameter than the more valuable species and remove all defective trees in order to improve the quality of the farm woods.

Grass in the woods is a sign that the trees are not close enough together or that the woods are being mistreated. Pasturing and timber raising on the same area are mutually disadvantageous.

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Firms considering industrial development should consult this department and secure the benefit—special data compiled for enquirers.

MINES AND MINERALS

Those interested in raw materials should write for pamphlet just off the press, "Mines and Minerals" on the Canadian National Railways, which contains a fund of information including new uses for a number of economic minerals.

C. PRICE-GREEN,
Commissioner,
Canadian National Railways,
Toronto, Ont.