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# ILLUSTRATED ADIAN RESTRY

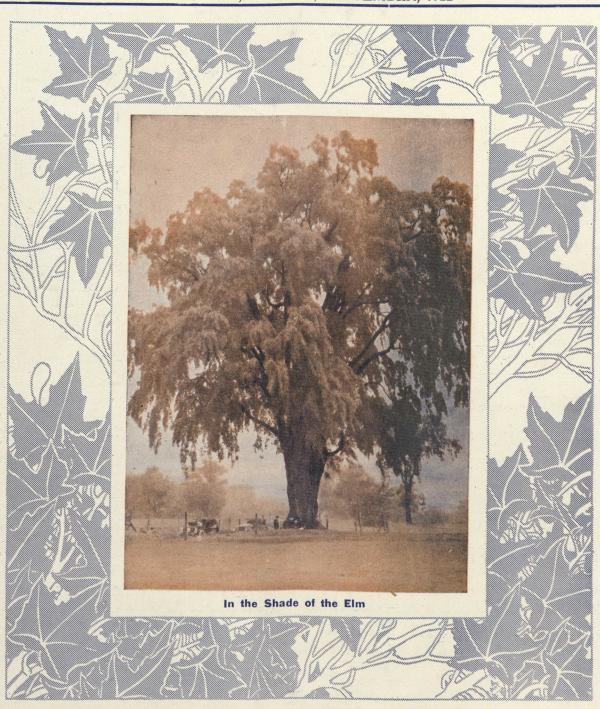
13,000 NATIONAL CIRCULATION

JAZINE

Vol. XVIII

OTTAWA, CANADA, SEPTEMBER, 1922

No. 9.



# FIRE FIGHTING PUMPS



A MONG the many appliances for fighting forest fires, FAIRBANKS-MORSE FIRE PUMPS have

proved to be the most effective.

Operating anywhere within reach of a lake or stream they provide a means whereby one or two men can put out the fires when they start.

Weighing only 120 lbs., they can easily be transported by boat, canoe, aeroplane, and can be carried over the trail by two men.

## THE CANADIAN FAIRBANKS-MORSE COMPANY, LIMITED

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

# Announcing 15 New 1923 Models

Nine New Master Sixes



Six New Master Fours

## BUICK

Canadats Standard Car

#### **NEW PRICES**

9 NEW MASTER SIX MODELS

O HEN MADI	THE DIVE	MODE	LO	
		New Price	Old Price	
23-41-Touring Sedan	5 Pass.	\$2725		
23-44-Special Roadster	2 Pass.		\$1965	
23-45-Special Touring	5 Pass.	1725	1995	
23-47-Sedan	5 Pass.	2795	3095	
23-48-Coupe	4 Pass.	2675	2945	
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23-50-Sedan	7 Pass.	3095	3445	
23-54-Sp'l Sport Roadster	3 Pass.	2295		
23-55-Sp'l Sport Touring	4 Page	2375		

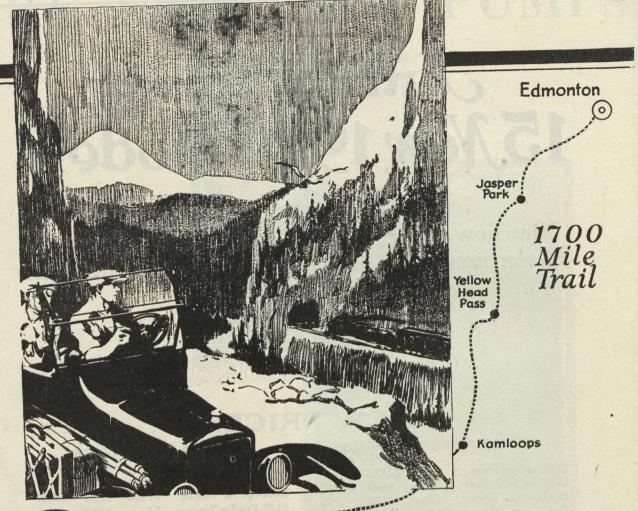
#### 6 MASTER FOUR MODELS

	New Price	Old Price
2 Pass.	\$1275	\$1340
5 Pass.	1295	1375
5 Pass.	1235	1295
3 Pass.	1645	1895
5 Pass.	1950	1995
5 Pass.	1855	
	5 Pass. 5 Pass. 3 Pass. 5 Pass.	2 Pass. \$1275 5 Pass. 1295 5 Pass. 1235 3 Pass. 1645 5 Pass. 1950

All Prices F.O.B. Oshawa
—Government Tax Extra



McLAUGHLIN MOTOR CAR CO., LIMITED OSHAWA, Subsidiary of General Motors of Canada, Limited ONTARIO



# Ford CAR WINS GOLD MEDAL as Pathfinder of the Canadian Rockies O Victoria

FORD CAR PILOTED BY GEORGE GORDON MAKES FAST TIME TO COAST AND GETS GOLD MEDAL.

Made Trip of Seventeen Hundred Miles Over Rocky Mountains in Eight Days without Repairs or Change of Tires.

[From the Edmonton Journal, July 15th]

The recent pathfinding tour from Edmonton to Victoria, B.C., brought further laurels to the Ford Car and it demonstrated that this popular car can be operated successfully under the most severe conditions.

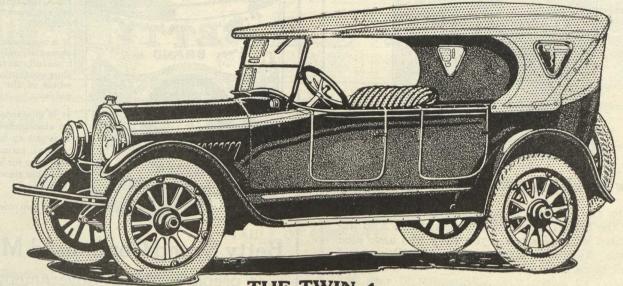
When the City of Victoria offered a gold medal to the driver of the first car to blaze a trail from Edmonton to Victoria via Jasper Pass, Yellowhead Pass and Kamloops, it was considered an almost impossible feat, and if accomplished the trip would take from three to five weeks and the car would be almost a wreck.

A motor road between Edmonton and Victoria has been the dream of Western Canadians. An automobile had never crossed the Rocky Mountains. Mr. George F. Gordon, the winner of the Gold Medal gives unstinted praise to the Ford Car in which he made the trip:—"I knew that if any car got through in reasonable time it would be the Ford, and to back my own faith, I purchased a new Ford Roadster. We never had the slightest trouble with the engine, and we found it economical on both tires and gas. We had no further damage than a broken spring leaf, and never used any of the spare parts. The tires do not show any wear at all, nor did we have a similar trip I will take a Ford."

Remarkable, Yes! Unusual, No! Every day on the ragged edge of civilization, hundreds of Fords blaze new trails, do the impossible. Sufficient publicity has not been given to the unbelievable performances of the Ford.

FORD MOTOR CO. OF CANADA, LIMITED, FORD, ONTARIO

## ANNOUNCING



THE TWIN 4

"A Mile An Hour To A Mile A Minute"

# A NEW LOW PRICE



I win Four Model 47

## Effective August 1st

The "Twin Four" since its introduction into Canada has set a new high standard in motor car performance—a standard hitherto unknown to motorists.

You will find in this car all the beauty, comfort and superior performance of the highest priced multiple-cylindered cars—coupled with economy. The Complete Oldsmobile line with prices is as follows:

The Twin 4—Model 47
(Five Body Types)

The 4 Cylinder—Model 43A
(Five Body Types)

	January 1 Price				August 1 Price	
Touring-5 Pass	-		1	\$2,545	\$2 165	
Roadster—4 Pass			1	2.545	2,165	
Coupe—4 Pass				3,275	2,825	
Sedan—5 Pass				3,445		
Super-Sport—4 Pass		,		2,895	2,495	

	J	an	ry 1	August 1 Price
Touring-5 Pass			\$1,675	\$1.475
Roadster—4 Pass			1.675	1,475
Coupe—4 Pass			2,475	2,145
Sedan—5 Pass			2.675	2,295
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All Prices F. O. B. Oshawa—Government Taxes Extra.

## OLDS MOTOR WORKS OF CANADA, Limited

OSHAWA

Subsidiary of General Motors of Canada, Limited

ONTARIO

Complete Line of the new 1923 Oldsmobile Models will be on display at Toronto, London and Ottawa Exhibitions.



#### New Booklets are Now Ready for Mailing

giving full information and several illustrations of how the Woods' Eiderdown Robe is used. Also unsolicited letters from men you know who have used Woods' Eiderdown Robes under all conditions and in all kinds of weather.

Actual experience counts most.

Drop us a postcard with your name and address.

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

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

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

Have you tried it?

## Betty Brand Condensed Milk

is prepared under Government Inspection At the Condensery of

THE LAING PRODUCE & STORAGE CO.,

BROCKVILLE, ONTARIO.





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

#### Forty Miles from a Cow but One Minute from Milk

THE NEW



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

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

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# 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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## THE LINN LOGGING TRACTOR

Designed and Developed for Winter Hauling, in the North Woods



Linn Tractor Hauling 621/2 Cords of Mixed Spruce and Hemlock

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

To fulfill all requirements of the Northern Logger a tractor must:-

Haul heavy trains of sleighs down steep sandhills and around sharp curves. Haul with absolute safety over lakes and rivers, where the ice is sometimes not thicker than fourteen inches. ¶Haul heavy trains over main hauls-over all encountered grades—to landings. ¶Have carrying capacity on itself, so that it can be used for supply haulage over Portage roads. ¶Must be foolproof and easily operated and controlled.

All these requirements are fulfilled only by

The Linn Logging Tractor

Ask the operator who uses Linn

-Logging Department-

## MUSSENS LIMITED

DUBRULE BUILDING

MONTREAL

## Planting Memorial Trees on Roadways

Some Instructions as to the Proper and Improper Course to Follow



No road is a long road — with trees beside it.

TO BE as concise as possible and to fill this article with as much instruction as its limited space will allow, are the objects of its writer. If it conveys to the mind of the reader the idea of what is proper and improper in the planting and care of trees along our roadways, its publication will be justified.

Success in the planting of trees depends absolutely upon the application of knowledge in practice. Ignorance in practice will surely result in failure. This article may be the means of guiding someone to success in the glorious work of tree planting who otherwise would fail. Such is its purpose.

Tree planting is not child's play by any means although even a child may successfully plant trees under the instructing hand and the watchful eye of an expert, and it is to be hoped that this text will be found of such simple language that children may read and understand for themselves.

A tree is a living, breathing thing, and requires careful treatment in planting, pruning, and other cultural operations. Trees are our

By Henry J. Moore

Forester, Ontario Department of Public Highways.

friends and should therefore be treated as such and if we cannot actually love them we can at least respect them.

Trees are both useful and beautiful. So useful that man cannot live without them; so beautiful that the Creator could not make them more beautiful. Trees impart to barren roadsides beauty and shade. They make our roads impressive, they make them livable, and a pleasure to travel upon. Roads beautified by trees express the intelligence characteristic of an advanced stage of civilization. Civilization always surrounds itself with beauty and weaves it into the fabric of its life.

Trees are symbolic of life. They, in their strength and majesty, suggest immortality. Towering toward the sky they spread a protecting canopy over every living thing. Even the birds of the air in them seek shelter and protection and in their kindly shade their nests are made, their broods are hatched and a million songs from gladdened throats fill the air with the music also symbolic of life—of life and of happiness. Trees impart music to our lives.

Old stone road, you have not suggested life, rather you have existed as a mute expression of carelessness and apathy. Hot, dusty, barren and parched, those who have used you have not loved you. We are going to line you with trees to make you a lovable way, a livable way and the way of everlasting happiness and of beauty.

#### Roads of Remembrance.

To plant memorial trees in avenue form along roadways and at the approach to municipalities is a work which should receive the commendation and the whole-hearted support of every intelligent citizen. Memorials to symbolize deeds that are immortal should suggest life and permanency. What form of memorial is more suggestive of these than avenues of trees? The traveller will in passing learn of their reason, he will be constantly reminded of the time when



A COMPANIONABLE ROAD.

A public highway should be something more than a bumpless lane between two towns. After all, there's nothing friend-lier during a long journey than a uniformed guard of grenadier elms or maples. No Canadian road can be called "finished" until trees have been established at proper intervals.

Canada's manhood stood the test in the greatest struggle of all time—that for human liberty, and emerged victorious therefrom. Surely no memorial will more eloquently express this purpose.

Such avenues will have a story for future generations. They will weather the storms of the ages and become strong in so doing. The sun and rain may efface the name from the granite monument and the winters' frosts cause it to crumble. These and the ever returning spring will but cause the trees to burst into glory, — everlasting glory befitting the purpose for which they were planted.

Trees for memorial avenues should be selected above all for permanency. Long lived subjects alone are worthy of such use. White Elms, Red Oaks, White Oaks, Hard Maples, White Ash, Black Walnut, native Planes or Button Balls, are splendid native trees. There should be no mixture of trees in the avenues. It should be an Elm avenue, or an Oak avenue and so on. Other species may be used, except, however, at the approaches to towns or actually therein, native trees should alone be used. Exotic species or varieties such as Norway Maples, Oriental Planes and European Lindens may in the Southern and milder parts of Canada be used to great effect in planting memorial avenues near our towns and cities. There will, however, be no trees as good for the purpose as the forementioned hardy native ones.

While the choice of trees must be left largely to the various committees or bodies responsible for the planting, a word of warning regarding the excessive use of certain species may not be out of place. There may be a general tendency to plant maples. Were all the avenues composed of maples or largely so, monotony would pertain along our roads. Could the work be co-ordinated and handled by a central executive such as the Canadian Forestry Association, excessive use of any given species could be obviated.

#### Soft Maples Unsuitable.

Soft or silver maples should not be too extensively used. They are subject to injury in both wind and sleet storms with the result that they become at times unsightly and their branches sometimes litter the roads. The tree itself does not suggest permanency although it is a fairly long lived species. The Manitoba or Ash leaved maple should be avoided. There is nothing permanent about it. It is more harmful than useful to roads. The poplars of various kinds, while extensively planted in Europe along the roads are not of permanent character in our climate and usually in fifteen to twenty-five years start to decay and become dangerous. The Horse Chestnut, a noble and dignified exotic has its limitations. It is subject in all dry localities to a rust which attacks the foliage, and also to the attacks of various insect pests. In localities with a humid summer atmosphere the tree does well. It has been predicted that this species is doomed to extinction on this continent. The writer hopes that such is not the case as apparently it is one of the few shade trees for road or street which may be grown largely in Northern Ontario, at least in the latitude of Cobalt, and where it makes strong and healthy growth, as evidenced by the specimens which have been planted.

The thought of what will constitute the ultimate appearance of the avenues should be uppermost in the minds of those responsible for the planting, as well as what will constitute their appearance at various seasons of the year. What can be more beautiful and more impressive than an avenue of Red Oaks at any time, whether in winter when nude of foliage in their very mightiness or in the spring or fall at which latter time the gorgeous colouring of the leaves cannot be surpassed.

Do we ever stop to think that we live in close communion with the trees for a period of five or six months during winter and early spring when they are dormant? Why then should we not choose trees which afford a pleasing and unique effect during these dull months? Avenues of the occidental plane or Button Ball are exceedingly impressive in winter, the greyish green appearance of trunks and limbs is always attractive, and the trees are beautiful at all times.

#### Hard Maples Suitable.

The symmetry, beauty and adaptability of the hard maple tree for avenue planting is too well known to merit mention here. It is altogether in another class from the soft maple. If used judiciously Hard Maples

Beauty is only a relative term and can only be judged by comparison. Avenue after avenue ad infinitum of one species will after the first feeling of admiration has left him become uninteresting to the beholder and will remain so until fresh and interesting objects strike the eye.

Imagine you are driving along a flat and uninteresting road. How monotonous and even tiresome it becomes as mile after mile is traversed and no relief appears on the landscape. What a change when rolling tree clad hills appear in the distance and soon on every side there is variety. You are alert in a moment, interested and awake. To the sickening monotone has been added the notes which create harmony and your very being seems to absorb the music.

So with the avenues of spreading maples, lordly elms, mighty oaks, distinctive and different in themselves, their grace and beauty enhanced, if anything, by comparison as the various avenues are encountered along the different roads. There is no monotony, only the harmony that pleasing changes alone can bring and the quiet restfulness which the un-



WELL PROTECTED HIGHWAYS FOR THE PRAIRIES.

A fine avenue of Manitoba maples with such an abundance of foliage that the appearance of the countryside is transformed.

should have a high place in the scheme of Memorial Avenue planting. If however, they are used exclusively in a number of adjacent municipalities the avenues will lose their attractiveness and individuality as they will become decidedly monotonous and commonplace. Every avenue will be alike.

impaired dignity of these God-given avenues alone can impart.

#### Digging the Trees.

Nursery grown trees, and those which grow naturally in the bush land, may be planted. If the former, the prospective planter will not be

(Continued on page 1049)

## High Trees, not High Tariff, is Secret of Trade

Canada in 75 Years has Thrown into the Furnace a Forest Empire Eighteen Times the Size of Maritime Provinces

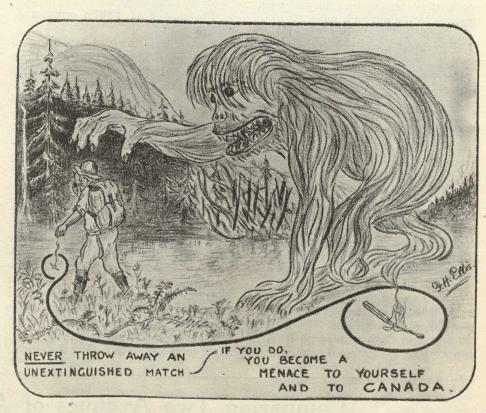
By Dr. Clifton D. Howe, Dean, Faculty of Forestry, University of Toronto

N the past few months, the newspapers and magazines have contained many columns, conspicuously displayed, of discussion concerning the tariff, but one must hunt long to find as extended references to the necessity of protecting the forests. It would seem to one reading these newspaper discussions, that the fate of the country depended upon the height of the tariff, when as a matter of fact, it is much more dependent upon the height of trees, because the products of the trees of Canada contribute more wealth each year to the country than any other activity of nature or man except the production of agricultural crops.

The quality of a tree, for most commercial purposes, is a function of its height and the height of the trees in our forests is being constantly reduced by forest fires. Every year thousands of acres and in some years, millions of acres of actual or potential timberlands are converted into scrub and bushes — forests of low trees. Here are some of the records for eastern Canada.

#### The pillage of fire

Last year 760,000 acres of forest land were burned in Ontario: 640,-000 acres, in Quebec, and about 100,000 acres in the maritime provinces. The above figures represent the officially recorded fires in the summer of 1921. Extensive fires in the hinterlands, and sometimes in other places, are either not reported or not recorded, but it will be seen that the officially reported fires covered an area totalling one and a half million acres. One can visualize the enormous extent of the area burned by thinking of it as the equivalent of a strip of land nine miles wide between Ottawa and Toronto, or as



Drawing Contributed to the Cause of Forest Fire Prevention by F. H. Ellis (late R.A.F.)

a strip a mile wide between Halifax and Winnipeg. Last year's figures for the west are not at hand but the forests there, on the average, are being burned as severely, if not more so, than those in the east. In fact a single fire in the western mountains has been known to convert a million acres of high trees into a forest of low trees. And moreover, official reports have contained the statement that a larger number of timber trees has been killed by fires in the west than are standing at the present time in the whole length and breadth of the country. Perhaps the seriousness of the forest fire menace may be brought home to the reader by the statement that the area of forests burned in the past threequarters century is over twice as great as the area of Ontario including the district of Patricia; or over

40% greater than the area of Quebec including the district of Ungava or twenty times greater than the area of the maritime provinces. All this in seventy-five years and it takes that length of time to make a pulpwood stick under average conditions in the forest and twice that length of time to make a saw log. Therefore, for the most part these vast areas are covered with low forests, not with tall forests of commercial trees. The rate of destruction is probably on the increase in spite of the heroic efforts of the men in charge of the fire fighting organizations. rapid strides, as certainly as the march of man to the grave, we are reducing our forest areas to mere brushlands.

When we become a country of low trees, it will not matter much whether the tariff is high or low for business will stagnate and the brain and brawn of the nation will seek foreign fields of endeavor.

Why then spend so much of our mental energy discussing the tariff when with all the other lobes of the brain, we are consciously or unconsciously allowing the destruction of the raw material which, when worked upon by the industries concerned, constitutes the second largest contributor to the nation's wealth?

#### The forest a mighty employer

The official statistics give the three largest sources of wealth as agriculture, manufacturing and forest products — the farm, the factory and the forest - but the conversion of wood in its various forms into finished products is included under the head of manufacturing. This makes the forest with its products stand second as an employer of labor and a producer of wealth. In fact the pulp and paper industry is probably the largest single manufacturing industry in the country today, based on capital invested and value of products. Yet the supply of raw material for this and certain wood using industries is rapidly approaching exhaustion. The end is much nearer than men in position to know, dare admit—perhaps even to themselves, certainly to the public. This state of affairs is chiefly due to the unrestricted fires in the past and to the inadequacy of fire protection methods at the present time. The extent of the annual fire ravages expresses inadequacy but it does not express inefficiency or lack of responsibility on the part of the forest fire fighting organizations.

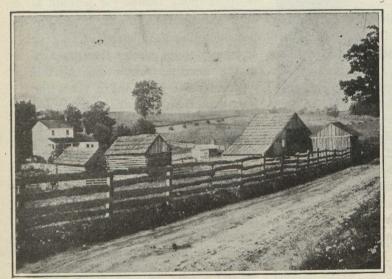
#### The power of public opinion

The greatest instrument ever invented for fighting forest fires is public opinion and this the organizations do not have behind them to an adequate degree. Witness the fact that over 90% of the forest fires in Eastern Canada are caused by human carelessness and therefore would never occur if the perpetrators cared. Suppose that 90% did care, then how soon the forest fire menace would disappear! Only a few years ago, it was practically impossible in the north country to obtain a conviction for setting forest fires and there are still many localities where magistrates refuse to impose a fine upon a man convicted of setting a fire that destroys timber worth thousands of dollars, yet these same magistrates may send a chicken thief to prison for a year! The simple and tragic truth of the matter is that the public

in general is not interested in forest fire protection. Not more than 20,-000 people in Canada have an interest in the forests or have any appreciation of the extent to which they maintain the industries of the country. Not one person in five hundred cares whether the forests burn or not. Adequate fire protection in the forest under such conditions is just as impossible as it would be in the city of Toronto, Ottawa or Quebec under a like condition of public opinion. In its actual significance the fire protection problem is quite simple: the people must choose between forest fires and functioning factories. The wood using industries can not continue to increase the wealth of the country by millions of dollars a year unless the occurrence of forest fires is reduced to a minimum.

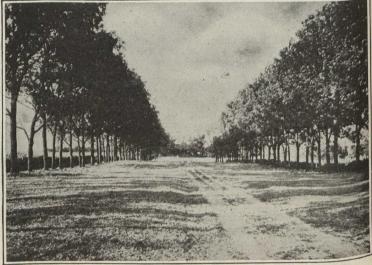
Like the poor, the tariff we will always have with us, but commercial trees in adequate quantities we will not always have with us. It would more completely serve the purposes of patriotism and contribute more effectively to the permanent prosperity of our industries if the slogan of some political party became; "Low trees and penury; high trees and prosperity." Let us place the protection of our home industries at their source.

## Comparing Two Avenues of Approach.



A COMMON WAY OF APPROACHING THE FARM.

To reach this farmhouse you must drive past a pigsty, corncrib, henhouse, manure pile, and clutter of farm tools. A bad approach gives a bad impression of the farmer. It is a matter for regret that roads like this are all too common in Canada. Compare with this the scene shown in the companion picture. Surely, there can be no doubt as to which is preferable.



THE RIGHT WAY OF APPROACHING A FARMHOUSE.

The approach to this farm is a double row of Black Walnut trees, half a century old, lining a drive an eighth of a mile long. The trees have not required more than one day's work a year for one man. Considering merely their value as timber, these trees would probably show a good profit. Have a simple, dignified, permanent approach!

## ASSOCIATION ACTIVITIES

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

HE pioneer work of the Tree Planting Car of the Canadian Forestry Association continues to progress, in spite of the great difficulties encountered in raising funds for the enterprise.

Readers of this magazine will bear in mind that the Association employs two railway cars for field work, the "Exhibits Car" under Mr. Gerald Blyth, being devoted to forested districts, while the Tree Planting Car under Mr. Archibald Mitchell and Mr. Angus Cooch is devoted to the treeless prairie districts, occasionally venturing into areas of scattered natural bush.

Following are a few excerpts from the Alberta diary of the past month: "Left Hatton by freight early morning, arriving Walsh, at 10 o'clock. Worked in car all day on tree planting plan for Gull Lake. Had number of callers, chiefly Mennonites from the Cypress Hills looking for information. Evening lecture in car with 87 citizens, including a party of eight American tourists from North Dakota, who were deeply interested.

Irvine, Alberta: Made usual inpection of the town with local officials and advised on their local tree prob-

## Real Spade Work by Tree Planting Car



"Here's how you do it!"

In a circle of the high school children at Standard, Alberta, Mr. Archibald Mitchell, Western Lecturer of the Canadian Forestry Association, is showing the boys and girls how to plant trees. In the back ground is the Tree Planting Car which has brought practical help and inspiration to 45,000 prairie residents this summer.

lems. Several diseased trees found and owners advised to destroy them. Evening lecture had o capacity aud-

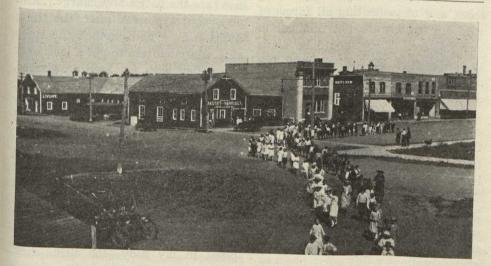
ience and twenty more witnessed pictures and heard lecture through the car windows.

Medicine Hat: Steady stream of callers bringing their tree troubles and problems for discussion.

Lomond, Alberta: Evening lecture well attended. A number of farmers came quite a distance to be present. Had 125 in the car with another 25 crowded out. The discussion lasted until midnight. Many of the audience told us that the worst of their farm problems could be solved by shelter belts.

Retlaw, Alberta. Car packed to capacity with scores outside.

Thus the work of the Tree Planting Car moves along. Already, more than 45,000 prairie residents have come to the car this summer, listened to the lectures, witnessed the educational pictures, and heard the inspiring discussions as to selection of trees, methods of planting, and the causes of success and failure. The consequences of this prairie work cannot easily be estimated but in the opinion of most observers they have already been felt throughout the West.



The unconquerable battalion of youth

A daily scene during the tour of the Canadian Forestry Association's tree planting car in the prairie provinces. The photograph shows the school children of Qu'Appelle, Saskatchewan, marching with their teachers to the Association car, there to be instructed in the common sense of establishing shelter belts about prairie homes and fields. The car is equipped for motion pictures.

# James Oliver Curwood, a Champion of Forests and Wild Life

How the noted writer turned from hunting to conserving wild animals

(An interview in the Dearborn Independent.)

AM fighting for, wild life harder than I ever hunted. these guns, I have left red trails to Hudson's Bay, to the Barren Lands, to the country of the Athabasca and the Great Bear, to the Arctic Ocean, to the Yukon and and throughout British Alaska, Columbia. This is not intended as a paean of triumph. It is a fact which I wish had never existed. And yet it may be that my love of nature and the wild things, at the last, is greater because of those years of reckless killing. I am inclined to believe so. In my pantheistic heart, the mounted heads in my home are no longer crowned with the grandeur of trophies, but rather with the nobility of martyrs. I love them. I am no longer their enemy, and I warm myself with the belief that they know I am fighting for them now.

"In this religion of the open, I have come to understand and gather peace from the whispering voices and even the silence of all God-loving things. I have learned to love trees.

"I am not merely fighting for the conservation of wild life. It is my belief that next to God and religion the two greatest words in the languages of all the world are conservation and propagation, but of all natural resources, and especially forests. Our future, our very lives, you might say, depend on the conservation of the resources which nature has given us. We have annihilated our forests to such a point that Michigan, for instance, is now a wood-importing state, where only a short time ago it was one of the greatest timber producing states in the Union. Last year the freight bill for Michigan's imported timber alone was \$10,000,000, or sufficient to reforest 150,000 acres of our 10,-000,000 acres of burned over and waste lands. And wild life as well

as the welfare of the human lives depends first of all upon our forests. Without forests our rivers will become barren and dry up, and our smaller lakes disappear. And the wheels of almost every industry will cease to move. My belief is the biggest thing a state can do toward this conservation is to take the work of conservation and propagation out of politics. Politics can run a government or a nation, but politics can run neither God nor our national resources. When it comes to religion and conservation the rule of politics, greed and ambition is a menace and a crime.

"The most logical and best place to begin teaching humanity the value and necessity of conservation and propagation of our natural resources is in the public schools. Children should be made to understand that trees are as important to the welfare of this earth as they themselves are. They should be taught to see the necessity and beauty of planting trees, and of protecting all forms of wild life which are not inimical to our welfare. They should be made to understand that if all wild life and vegetation were taken from the earth tomorrow, the human race would within a very short time become as extinct as the Dodo and Brontosaurus. Within a few months the whole world would be a madhouse of disease, famine and death. To my mind, the most beautiful thing in the world is to teach a child not only the necessity of protecting and encouraging nature, but the beauty of it as well.

"I think the most dramatic climax of my desire to let live came when I was seeking material for my book, 'The Grizzly King.' With a pack outfit of a dozen horses I had gone into the British Columbia mountains,

and in a wonderful valley I came one day upon the track of a huge grizzly bear. It was the biggest track I had ever seen, and as there was no particular limit set to my time, I struck camp. For three weeks my mountain companion and I hung to that grizzly. He was a monster, weighing 1,200 pounds, if he weighed an ounce. I watched him feed. I saw him fight. I followed up his daily life until gradually there came over me an overwhelming desire to possess the skin and head of this king of the mountains for myself. I named him Thor, and I began to watch my opportunity to kill him. At the end of the first two weeks, I believe he felt that I was not going to harm him. Then I got a shot and put a bullet through his shoulder. After that it was a game between the cunning and trickery of two men's brains and a brute's instincts. I got two more shots on two different days and hit him both times. The third time I was surprised that Thor did not face the battle and charge. And then almost a week later, the thing happened. I had climbed the steep side of a mountain to get a look over the valley with my hunting glasses, and rested my gun against a rock. Then I went 40 or 50 feet farther on, following a narrow ledge, until I found myself in a little pocket, with a sheer wall of the mountain at my back, and a 100-foot precipice below me. Here I sat down and began to scan the valley. Perhaps 15 minutes had passed when I heard a sound that stopped every drop of blood in my body—the click, click, click of clawed feet coming along the ledge. With my rifle 50 feet away, and no escape up or down, I sat petrified. And then along the ledge came Thor!

"He stopped squarely in front of me, not more than six feet away, and turned his great head toward me, swinging it slowly from side to side. His jaws were open a little, and they were drooling. His eyes were small and shone with a dull red fire. In that moment I was certain that my end had come, for the big grizzly had smelled me many times, he had seen me and had felt the sting of my bullets, and vengeance was rightly his. He looked at me. And now I

saw there was no anger in that look. In those terrible moments my heart went out to that great, lonely brute. For perhaps two minutes the grizzly stood there, and then he went away, leaving me unharmed! And yet he knew that I was hunting him, that I had shot him, that I was his enemy! I was weak when I got on my legs again.

"From that hour something new

was born in me, a new world opened up for me, and in all my adventurings since then that world and its possibilities have grown steadily more wonderful. I have learned the truth of the Biblical prophecy. It is not wild life that is at war with man, but man that is at war with wild life. In the heart of the wild creature, waiting to be fanned into life, is a love for man."

# Irrigationists and Tree Planting

Efforts of Canadian Forestry Association appreciated by Western Canada Organizations.

A PPRECIATION of the efforts of the Canadian Forestry Association in the conservation of our national forests and the extension of tree planting on the Prairies was expressed in a resolution that was passed unanimously at the Sixteenth Annual Convention of the Western Canada Irrigation Association at Maple Creek, Saskatchewan, at the end of July.

An address by Dean Howes, of the University of Alberta, on "Tree Planting as a Factor in Home Making," led to one of the most interesting discussions at the convention. Many farmers told of the success they had attained in the growing of trees and shrubs about their homes and of the satisfaction they had derived therefrom. A. L. Fryberger, one of the first settlers in the Eastern Section of the Canadian Pacific Railway's Irrigation Block, who came to Canada in 1914, said that his trees planted in 1916 had now reached a height of between twenty and thirty feet. He found them easy to grow. The need of getting the children interested in the planting of trees about the farm homes was insisted upon by many speakers. "If we can get the children to take a greater interest in tree planting on our prairie farms," said one speaker,
"we need not bother about their fathers.

#### A Tree-loving community

A drive through part of the irrigated area in the neighborhood of the town of Brooks, which was part

of the programme of the convention on its transference to this town on the third day, was a practical demonstration of the manner in which trees readily respond to a little care in those parts of the prairies where irrigation is available. Though the country is only just beginning to get settled, a wonderful transformation has taken place already. In every direction are small farm communities, where belts of trees are rapidly hiding from view the neat farm homes and protecting them from the wind and the sun. In most cases the trees were planted as small slips no bigger than a pencil, but the application of water soon causes these slips to take root in the rich soil and the growth is very rapid. In two or three years a dense shelter belt is obtained, behind which it is easy to have a garden producing small fruits and all kinds of vegetables so prolifically that one would imagine being in the Niagara Peninsula rather than on the prairies.

The town of Brooks affords a further demonstration of the beautifying effect of trees and of what can be accomplished in a very short time with the aid of irrigation. Not many years ago, Brooks was one of the most uninviting little towns between Winnipeg and Calgary. Two years ago the town authorities began to plant trees along the streets, and by pumping water from a nearby irrigation ditch to the height of the highest point in the town it was made possible to irrigate these trees by a gravity system. The result has been wonderful, and so has the example. The growth of these trees has been steady and rapid, and

pride of their town has been instilled in the hearts of the townspeople. They also have planted trees and shrubs in their own gardens. They intend to make Brooks the prettiest prairie town on the main line of the Canadian Pacific Railway.

The convention was a most successful one and besides the discussions on tree planting and home beautifying and the practical demonstrations of these, there were also many demonstrations of the practical value to the farmer of irrigation in enabling him to get a good crop every The engineering and agricultural phases of irrigation were also dealt with by many able speakers, some of whom came from the United States. I. D. O'Donnell, of Billings, Montana, whom the Country Gentleman not long ago described as the best farmer in that state, spoke both at Maple Creek and at Brooks, and his addresses were both inspiring and instructive. He also took part in the discussion on tree growing, and said that on his place in Montana they plant a few trees every year and cut those that are old enough to make good wood. From his small lot he has sold more than \$1,000 for trees besides having enough wood for fuel. The conditions at his farm are similar to those on the prairies of Canada. He said that there was no doubt but that the farmers in Alberta and Saskatchewan would be able to grow apple trees, making the assertion that where the cottonwood grew it was possible also to grow the Wealthy and several other winter varieties of apples. But is is necessary to have sufficient moisture and sufficient protection.

## Home Making by Tree Planting

How Both the Quality of Living and the Profits of Farming in Western Canada may be Easily Augmented

By Dean Howes, University of Alberta, In an address before the Western Canada Irrigation Association

T a meeting which seems to be so largely utilitarian, in motive, it might be more seemly and more consistent if my talk on tree planting were confined to variety, method, care, etc. However, there are several good reasons why I prefer to take some other phase of the subject. In the first place I am not an authority on tree planting and tree culture, and in the second place —but what is the use of a second reason when the first is so good? It would appear to me, however, that the greatest problem before us is to get our people interested in tree planting. We can get the technical information, when and where necessary.

It seems hard to understand why it is so often difficult to interest the farmer in the question of planting trees on his farm, when one considers the years he has possibly spent facing burning winds in summer, icy winds in winter, with too little precipitation and no means of holding the winter snows. Then, too, when we think of what a setting of trees would mean in the formation of an honest-to-goodness homesteading, it seem still more hard to understand why a farmer should not be interested in the practice that would mean so much in improving the appearance of his property, correcting the extremes of climate to which he is exposed, and enhancing the value of the property as to market value.

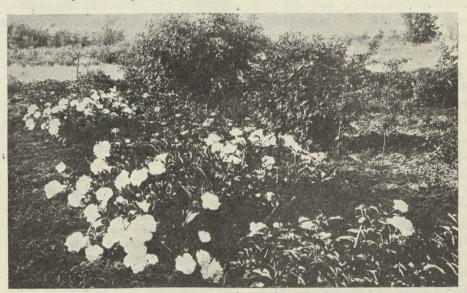
#### Nothing to do but work

Some, perhaps all, of our farmers came to western Canada from the east and from the south, avowedly with the purpose of getting away from the so-called drudgery of the more or less standardized, mixed farm, which many of us remember so well. Those who came west early in our history re-visited their poor relations in the east, spending the winter with them, and on them, because, forsooth, they had nothing to do during the winter under the peculiar farm conditions in the Golden

West, and this was their story: There were no cows to milk twice a day for seven days in the week, no hogs to pamper, practically no chores to do. There was a little rush at seeding time and at harvest but for the rest all they were expected to do was

#### Under Pioneer Conditions

They came west under pioneer conditions and for some years either carelessness or the grim struggle I have hinted at, precluded any ideas of beautification, or the establish-



THIS HELPS TO MAKE "HOMES" OF PRAIRIE "HOUSES."

Mr. A. Heyer of Neville, Saskatchewan, is a successful farmer and a great tree planter.

He has cultivated many lovely beds of peonies by means of the shelter afforded by his tree plantations.

a lot of heavy sitting around. This more or less fanciful picture may have been partially typical of the younger or unmarried pioneer, what about the man with a family? The man who came west with his family very often came with little means in the way of money or goods. That occasionally may have been one of the reasons for his moving. He settled on the prairie, and for some few years the struggle to secure what they should eat and what they should drink, not to speak of that wherewith they would be clothed, occupied the attention of Dad and the whole family. Do you think that either of these types of pioneers were likely to be much interested in the planting of trees for home beautification? It is fair to surmise that they very seldom thought of the tree as an economic factor in the development of their farms.

ment of a real home, such as they knew in the other lands. The years went by as they have a habit of doing, our people got into a rut, and in time lost the incentive necessary to this important work. And the pity of it is that young children brought west, or born on the prairie have grown up never knowing what the planting of trees about a home means to the individual, to the community, or to the nation. Our bare buildings on the bald prairies can never be homes to hold the young people, where they are most needed, and to the work for which they are best fitted. It is my belief that much can be done to interest the children and young people in the planting of trees through the schools, schoolfairs, clubs or other organized effort. Through these means you can cultivate and develop the taste for the aesthetic that is in most human natures. You can get young people to plant trees because they will like trees and want to plant them.

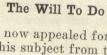
#### Interest the Mothers

Frankly, I have grave doubts that you can do much in stirring up the fathers with anything you can say as to the value of trees and shrubs from an aesthetic standpoint. I have considerable faith in its appeal to the mothers, however, and perhaps, through them we can do something with the alleged heads of the families. Perhaps the most valuable contribution I could make in the whole discussion is to suggest at this place, that stations now distributing trees

#### Love for Old Home

Of all the factors and of all the ideas connected with the wish to keep our young people on the land or interested in the land, there is nothing that can be as important, aside from the love of father, mother, brothers and sisters as is the love for the old home itself, and the maintenance of this love depends, to a large extent, on the mental pictures carried away when the youth leaves home. I ask you earnestly, if the large majority of prairie homes at present can furnish the best type of pictures in the minds of our young people? I shall assume that you agree with me in this, that from the

deal of the resultant moisture is lost through evaporation. The function of trees as a wind-break and the consequent effect on evaporation is obvious. What is not so generally recognized is the fact that these clumps and rows of trees are a factor in retaining the snow upon the ground. Large forests apparently in drier countries are not now recognized as necessarily conservers of snow-fall. Forestry experts claim, on the other hand, that the great function of trees is to hold the snow on the intermittent bare spaces. It is therefore, plain that the planting of clumps and rows of trees, not too far apart will have just this very effect.



Having now appealed for consideration of this subject from the aesthetic and the economic standpoint, let me point out that the one thing lacking is the will to do. Everyone of us knows some farmer who has staged an object lesson that is almost a reproach to us, when it comes to the matter of tree planting. Why not study his methods and try to catch some of his spirit? It may seem far fetched to say it, but every tree that is successfully planted makes it easier to succeed with the next tree, and if this work is carried on to an appreciable extent we will find a difference in our precipitation and in the retention of our available moisture. Let me repeat that if we have the will the means are at our dis-

And now to you irrigationists, I have to say that all this appeals to you also for reasons annexed, but also let me remind you that you have not an excuse in the recognized difficulties a dry-farmer has to contend with. You can, if you will, make irrigated Alberta the prettiest and most desirable part of Alberta. You have the fertility and where water is available, you have no excuse left. If you will pardon a personal reminiscence I would like to tell you of my first experience with the effect of irrigation on tree growth. I and my little family had travelled from Chicago westward, through Wyoming with its cattle raising, into the great American desert of Red Butte country and then across Utah into the sage-brush state of Nevada, across the vast area with only the sight of an odd rabbit, coyote, or alkali covered cow-boyuntil we reached Washoe Valley in Nevada. I am not going to speak on the 50,000 acres of productive farmland, but I do want to speak in the next issue on the little city of Reno.



Mr. Heyer's windbreak composed of Spruce and Jack Pine.

and shrubs, forestry organizations, government branches. fostering through extension service, certain activities among the young people, should think very seriously of the possibility of establishing this important line of effort, the encouragement of tree planting in the schools and at the homes. The technical information can be easily obtained; the trees and shrubs are offered by different stations or they can be obtained in their wild state near by. What is wanting is an organization to put this thing over, something that will mean so much to the moral as well as to the economic standpoint of our people. And now lest this be looked upon as merely an exhortation, let us briefly consider what tree planting would mean in Alberta.

The first idea of benefit from tree planting, the one that suggests itself most readily, is that we must have trees and shrubs as a setting before we can classify as home-makers, instead of visitors.

aesthetic, yes, from the moral standpoint, it is not only advisable but absolutely necessary that we attempt to provide those essential settings for the farm buildings that go to make up a real homesteading, that will inspire love and pride.

#### Wind-break values

The desirability of wind-breaks in the shape of shrubs and trees is generally recognized. The park-areas of our province do not suffer as do the areas, which we may describe as bald prairie. It is scarcely necessary to advocate the necessity of this factor, but the great wonder is that so few farmers have made a definite move in this direction. If we could, by some magic means plant the southern part of this province with rows and clumps of trees I venture to say that there would be no more hot parching winds of the type now so dread-

Quite a bit of our precipitation falls in the shape of snow and a great



Burgess Pass in the Canadian Rockies.

F YOU ARRIVE in the afternoon or evening, mind that

you just shut your eyes to the scenery:" my travelled friend had said. "It will be something you'll never forget the morning sun on that wonderful blue water, and the yellow poppies swaying in the wind."

And so, after our little journey in the dusk. in a Rolls Royce driven car that runs on rails from the train to the Chalet (vaguely extended there in the shadows) - we stepped at last into the great entrance hall, with our thoughts all on the morning, and these yellow poppies above the blue waters.

"Why, there's 'Sherlock Holmes' again!" whispered Jean excitedly. "Funny how we meet him at every

stop-

Sure enough, the darkeyed young fellow in the checked cap which had helped us to nickname him, was standing near the desk in earnest conversation with another chap. As he caught

sight of us, he came forward, smiling.

"You'll pardon me-" he said. snatching off the cap, "but we've just been arranging a horseback party for Moraine Lake tomorrow. Perhaps you would like to go?"

After some hesitation and murmured plaints by Jean that "she knew, she positively knew, she'd fall off and disgrace us," and reassurances by Mr. Sherlock to the effect that "these were sure-footed mountain ponies, comfortable as a rocking-chair," and settling of the riding togs and lunch questions, we finally consented to lend our presence to the sporting event.

Off to Early Start.

And now it was morning-almost the "crack of dawn", indeed, since

MOUNTAINEERING the Canadian Rockies Bu LUELLA STEWART Photo by courtesy of Publicity Dept., C.P.R.

> we had arranged to be called for a very early start. Jumping out of bed, Jean dashed to the window, and gave a cry of delight.
> "Quick!" she called to me. "There

was never anything so beautiful!'

She was right. From our windows in the Chalet, a spacious lawn sloped down to the water; and just at its edge was a host, a marching army, of poppies as gloriously yellow as the lake was gloriously blue. And what a strange blue that water was! Not a turquoise, exactly, and certainly not an azure; but a strange, opaque, baffling shade, seen only in water fed by a melting glacier.

There lay the glacier, too, just across the blue interlude of the lake -greenish-white, majestic, myster-

ious, outspread in the triangular gorge of the great black peaks.

It was a sacrilege, after that, to think of breakfast;

but-!

A little later, when we crept sheepishly down the steps in our borrowed riding-breeches-for it isn't considered safe to ride sidesaddle in the mountains -and who wants to ride side-saddle, anyway? there were the "surefooted mountain ponies' lined up in waiting. Our steeds looked sure-footed enough, indeed, and also sedate enough; with heads down, and an expression of pathetic boredom, they were listlessly nibbling at the lawn. When we had been hoisted to the saddle — trying hard to look experienced and debonair—the cavalcade set forth.

We were a motley party—as varied as the Canterbury Pilgrims. There were Jean and I - just average New York girls; a breezy young widow from California, dark and dashing, and a graceful fig-

ure on horseback (the only such among us, I might add!). Then, there was a tall, lanky Irishman, with an unquenchable fund of humor; a little Scotch ship's doctor who had never been on a horse before and soon began to realize it; a taciturn and Sherlock Western lawyer; Holmes and his friend-both Harvard boys. ("You can always tell a Harvard man - but you can't tell him much.")

We passed through wonderful scenery from the very start—woods, and mountain pastures, boulderstrewn valleys, and steep hill-sides where rocks clattered down under our ponies' hoofs; and always dark peaks looming up behind us and in the distance — black against the paleblue sky—and the scent of the firs always in our nostrils.

#### "Flirting with Death"

"Help!" wailed Jean suddenly. "Look! Look what he's doing!"

We were picking our way, at that moment, along a two-foot mountain trail, with a sheer drop of hundreds of feet, below us; and Jean's "sure-footed mountain pony" was calmly, placidly, stretching his neck out into the abyss for a juicy thistle far below—with two of his famous feet hanging right over the edge!... Oh, well, we got used to trifles like that before the day was over.

The little ship's doctor rode with us, whenever the trail was wide enough. After the first hour or so, his cheery smile had faded. "Awed, 'tis a verra long way, do ye mind," he would mutter, "an' this beastie none the easiest ridin"...

However, at twelve o'clock his sad heart was cheered by wild shouts from the van of the procession. Moraine Lake was in sight.

What a scene! A flat, rock-strewn shore, sparsely grown with grass (at which our steeds' eyes glistened covetously) and tiny spruces and birches here and there; before us, the lake—almost as wonderfully blue as Lake Louise—hemmed in by sharplycut dark crags towering into the sky. Piles of shale and huge rock seemed sliding gradually into the waters This from those summits. the moraine which gave the spot its name; debris carried down by some vanished glacier — vanished long years ago, for tall firs and cedars had rooted themselves in these piles of rock.

Here we rested and feasted, alike on the scenery and on the hotel's delicious sandwiches and cake; and posed for photographs; and dozed and day-dreamed, gazing off over the hills, through a burned black thicket which fantastically pierced the brilliant blue of the sky, like a giant's lace pattern.

And then the homeward trail. How wonderful it all was, even on a second view! We agreed with the English traveller who had written in the Chalet guest-book, "The Alps—the Andes—the Himalayas—Lake Louise is more beautiful than any of them!"

But how those sure-footed ponies, all afternoon, did hover over the edge of the precipices, "flirting with death" for the sake of some green delicacy or other! And how "Sherlock Holmes" and his friend teased the little Scotchman, who, sitting as sideways as possible on his charger, with pale drawn face, and tense hands clutching the pommel of his saddle, still vowed that he had taken a great fancy to that horse; it was a wonderful beastie; he was going to charter it for the whole summer, do ye ken!

#### Full of Scenery and Ozone

At last as the dusk was falling we reached the Chalet, full of scenery, and ozone, and pleasant sleepiness. While we unbent our creaking joints, dismounting, the Western lawyer called out, "We're all dining together to-night—in half an hour—remember!"

The joke of it was, that when we drifted into the dining-room by ones and twos, all washed and combed and polished up—we didn't recognize one another! It was a jolly dinner, though, when we did get ourselves sorted out—one of those parties with everyone telling things on everyone else; and anecdotes ad lib., chiefly contributed by the lanky Irishman; and unlimited fun poked at the little Scotch doctor, balancing cautiously on the softest side of his chair.

After the banquet, as Jean and I were sleepily departing, the Western lawyer stopped us at the stairway.

"You're both staying another day, aren't you?"

We admitted it. Who would willingly leave Lake Louise sooner?

"Well, then, we're the sole survivors; all the rest are going right through to Banff... Don't you think it's your duty to keep me amused to-morrow?"

Why, of course! And duty must never be shirked.

"Very well, then! Very well!" He rubbed his hands together gleefully. "We'll meet down here, right after breakfast. Just leave all the details to me!"

At eight-thirty the next morning, we found Mr.—Mr. Denver (he came from Denver, anyway) —awaiting us in a dashing golf costume which quite transformed him.

"Good morning! Are you ready? Come along, then..."

We crossed the terrace, with one more view of those golden poppies, and soon found ourselves at the brink of the lake—and at the boat landing—and getting into a rowboat.

"Why, where are we going?" Jean wrinkled a puzzled brow.

"Over to the glacier. Don't you want to see it at close range, and go into the ice-cave—"

#### Deceiving Distances

"Oh, good!" Both of us were delighted. "We can row right over can't we, and spend the whole morning there!"

Mr. Denver gave an odd smile at the words "Row right over"—but we got in and he began to row...

The day was gloriously clear, the water gloriously blue, and the glacier just before us—practically in the hotel's front yard.

Mr. Denver went on rowing.

How wonderfully the sun shone!—and there was the glacier, right before us...

Mr. Denver went on rowing.

This might be continued indefinitely, but I will spare you. Briefly, we were informed later on that it was three miles across that lake.

Finally, we did arrive. The boat was tied securely (for the water was a trifle coolish for a three-mile swim)—and then began the upward scramble, through a fringe of rocks and boulders, with little streams of water trickling through them, up to the ragged edge of the glacier.

There it lay before us—a prehistoric monster, dingily green and white; soiled, battered, and yet majestic; outspread through the valley, silently defying the suns and winds of the marching years.

Jean was struggling and slipping along, with stifled grunts—"These rocks! I'll break my ankle yet, I know I will..." while Mr. Denver, far in the lead, beamed back at us now and then and called cheerily, "There are only two kinds of girls, the clinging vines and those that aren't. I can always tell 'em apart... I wouldn't insult you by offering to help!"

We forgave him, however, when, after we'd gazed with awestruck faces and chilled noses into the green depths of the ice-cave, he picked out a nice sunny rock near by for a resting-place, and brought out a big box of chocolates...

The row back, through the warm sunlight, was glorious. We floated on blue Lake Louise like a toy boat on some strange opaque, magical mirror; the black crags towered high above us, and far ahead lay the Chalet, glistening in the sun, outspread on its green terraces like a carved ivory toy on a velvet panel.

Then lunch, and naps. And then Mr. Denver was waiting for us again -this time with all sorts of fruit mysteriously concealed about his person—to lead us out on a wonderful walk, up hill and down dale, and through pine-scented woods, to a craggy summit where the lake and the Chalet and all the beautiful valley about it, were outspread before us- and the sun dropped lower and lower toward the horizon while we ate chocolates and pears and plums, and

Mr. Denver related the plot of "The Wood-Carver of 'Lympus''—for even a corporation lawyer has his softer moments, you know! - and encored that with the favorite Western yarn (suggested by our morning's row) of that tenderfoot who started out "to walk to that mountain right over there before, before breakfast", and who, when rescued at 2 p.m. with the deceitful mountain as far away as ever, tried to swim a three-foot irrigation ditch on the way back,

because "you can't fool me about this river, anyway!". . . .

Once more we traversed the piney trail to the Chalet with its hospitable warmth and cheer; there was a gay three-cornered dinner, and then while the darkness fell we watched the flames leaping on the broad hearth, and the soft strains of the string trio floated in to us-snatches from "The Tales of Hoffman," full of poignant sweetness—the ideal ending of our halcyon days at Lake Louise.

### THE LOG OF THE GOOD SHIP "PROPAGANDA"

Some of the daily experiences of the Canadian Forestry Association's Exhibit Car in Ontario and Ouebec.

"In this and like communities, public sentiment is everything. With public sentiment nothing can fail, without it nothing can succeed. Consequently he who moulds public sentiment goes deeper than he who enacts statutes or pronounces decisions."

ABRAHAM LINCOLN.

HERE is little use bemoaning the plague of forest fires and railing against public indifference and carelessness, if some corrective action does not follow. The policy of the Canadian Forestry Association is to frankly face the fact that forest fires are due to an absence of public interest in the forest resources and to go direct to the people with constructive and popular propaganda. This is the aim of the Canadian Forestry Association's Exhibit Car which is attracting thousands of people daily. In the evening a motion picture demonstration of forest protection is given, with a suitable lecture. Much informative literature is also distributed to visitors to the car.

Following is a partial summary of the daily experience of the Association Car in relatively small com-

munities :-

St. Jerome, P.Q.: Visitors to car, 1,400; at evening

lecture, 2,000.

Shawbridge, P.Q.: Visitors to car, 600; at lecture, 400.

Montebello, P.Q.: Visitors to car, 450; at lecture, 600. Fassett, P.Q.: Visitors to car, 600; at lecture, 500. Calumet, P.Q.: Visitors to car, 500; at lecture, 450. Lachute, P.Q.: Visitors to car, 800; at lecture, 1,200. During this tour, Mr. Napoleon Lemay acted as

French lecturer, fulfilling that office with much distinction. He was succeeded by Mr. J. G. Guilmette who proved most popular and effective with his audiences.

Mont Rolland, P.Q.: Visitors to car, 600; at lecture, 500.

Ste. Agathe, P.Q.: Visitors to car, 1,800; at lecture, 1,500.

St. Faustin, P.Q.: Visitors to car, 450; at lecture, 600.

St. Jovite, P.Q.: Visitors to car, 650; at lecture, 450. Nominingue, Labelle and Mont Laurier were also

visited with a similarly good public response.

The itinerary then turned for a time into Ontario, where Braeside, Renfrew, Eganville, Pembroke, Mattawa were visited, turning for a day into Quebec at Temis-kaming, thence to Sturgeon Falls, North Bay, Latchford, Cobalt, Haileybury, New Liskeard, Matheson, Timmins,

Iroquois Falls, Cochrane, Kapuskasing, Fauquier, Moonbeam, Hearst, Franz (on Algoma Central), Sault Ste. Marie, Thessalon, Cutler, Espanola, Sudbury, North Bay, and points on the Canada Atlantic into Ottawa. Following are typical daily experiences:-

Pembroke: Civic holiday and wet weather. Total attendance at car approximately 3,500, with 1,500 at lec-

Temiskaming: 500 at car, 600 at lecture. Renfrew: 5,800 at car, 1,500 at lectures.

Sturgeon Falls: 4,000 at car, 1,800 at lectures.

North Bay: Mayor Ferguson opened car at 11.30 a.m. From that time on, a continuous stream of people. Total attendance about 4,000 in one day, with 3,000 following day and 1,800 at motion pictures. All traffic prohibited in our interest on street near station.

Cobalt: 900 at car and 1,100 at lectures. New Liskeard: 1,800 at car and 1,200 at lectures.

Thus proceeds the educational mission of the Forest Exhibits Car, an enterprise controlled by the members of the Canadian Forestry Association. Once more, acknowledgement must be made to the railway companies and the T. and N. O. Commission for their unfailing courtesy in facilitating the car's prompt movement from place to place. From President or Chief Commissioner to the junior employees at a village station, the railway car enterprises of the Canadian Forestry Association have been assisted in every way with personal kindness and model efficiency.

#### Become a Member

Every Canadian interested in the forests from any angle should be concerned in forest protection. accept membership in the Canadian Forestry Association is the one best way of making your conservation beliefs effective.

I hereby request membership in the Canadian Forestry Association and enclose my cheque for \$.....

Indicate class of membership Ordinary Membership, including Canadian Forestry Magazine ..... Contributing Membership, including magazine.... Life Membership, including magazine..... \$25

Adress....

## Some Natural and Artificial "Beauty Spots"

Great things have been done by the Canadian Pacific Railway in the prairie provinces in beautifying their station grounds. The enthusiastic interest taken by the station agents is worthy of high praise. Here is the station at Piapot, Saskatchewan. The C. P. R. has a system of awarding prizes for the best work in beautification of station grounds and this generates a healthy rivalry. It is interesting to note how the conductors and trainmen, en route, pay keen attention to the various station grounds and follow closely the progress of the company competition.

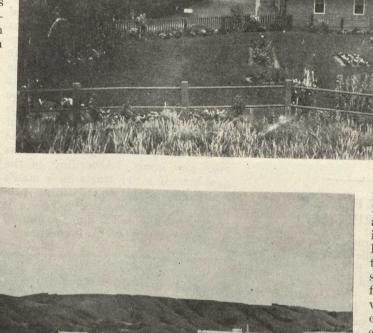
#### The Home Beautiful

Readers of this magazine will find news of special interest on beauti-

fication of home grounds by turning to page 1029. The firm of Kenneth McDonald and Sons is heartily recommended by the Canadian Forestry Magazine.

#### GOOD APPLES— GOOD WIND-BREAK

An effective windbreak is given credit by Walter Palmer, a successful apple grower near Marshville, Welland county,



A fine natural landscape effect at the Fort Qu'Appelle Sanitarium, Saskatchewan.

A cheering view on the so-called 'treeless plains'. The grounds of the Fort Qu'Appelle Sanitarium, Saskatchewan. A happy union of good roads, sheltering bush, hills, and water.

for the good set of fruit that is an annual occurrence in his plantation. His trees appeared to be carrying a splendid load of fine, clean apples when visited re-cently by a staff correspondent of The Globe. Just behind the orchard is a sixty-acre wood lot, an unusually big bush for the older part of the Province. This, Mr. Palmer contends. protection to the offers invaluable

trees from frost and wind, the last of the two elements being a particular source of loss with small apples after setting. While Mr. Palmer sprays thoroughly, the fact that his apples are so clean in a bad year may be in some measure due to the fact that the bush is a haven for insectivorous birds, a form of crop insurance commended by Peter McArthur. At any rate, Mr. Palmer considers the wood lot so necessary a part of his equipment that he has this summer bought it for himself, to ensure its remaining a permanent fixture.

#### DECLINES FORESTRY POST

The Ontario Government offered the position of Commissioner of Conservation, at \$10,000 per year, a new post created in connection with Ontario's forests, to Dr. Judson Clarke, who declined with thanks.

## Briefs About People and Events

#### MAJOR BLACKADAR BUSY

AJOR GEORGE D. BLACKadar, Yarmouth, N. S. continues to be one of the most active exponents on Forest Con-Referring to a recent servation. address of Major Blackadar's, the "Yarmouth Herald said in part: "Major George D. Blackadar, addressed the Yarmouth County Farmers" Association, and held the closest attention throughout the evening. The picture screen illustrated the various points made relative to Forest Correct and faulty Conservation. methods of logging were shown and compared and the disastrous consequences of forest fires were urgently pointed out.'

## PRAIRIE FARMERS EXPERIENCES.

NE of the most interesting and helpful bulletins issued by the Dominion Forestry Branch is number 72 entitled "Success in Prairie Tree Planting." It is compiled by Mr. Norman M. Ross, Chief of the Tree Planting Division, Indian Head, Sask. and demonstrates conclusively the successful experience of thousands of prairie farmers in establishing shelter belts, improving their farm conditions, adding to the value of their lands, and making home surroundings vastly more agreeable, by means of the Dominion Government policy of distributing trees without charge but under careful supervision. Scores of letters from successful tree planters are reproduced in the bulletin and it is interesting to note the enthusiastic endorsement of shelter belts as a prairie farm necessity and the general agreement that such shelter belts have added a value to the farm property of from \$400 to \$5,000. The bulletin has had wide and careful distribution and will accomplish a world of good.

#### QUEBEC'S NEW REGULATIONS

R EADERS are again reminded of some of the excellent improvements made in Quebec's forestry laws this year.

No saw-mill can be established within a mile of any timber limit or any Crown Land without the written consent of the Minister of Lands and Forests. There is a penalty of ten

dollars per day and the judge can order the mill demolished. Any person who does not take the necessary measures to prevent a fire from spreading from his land to another property is liable to a fine of from \$25 to \$2,500. Persons who pile lumber, logs, pulpwood along a railway line must after it is removed clear up any debris left. All persons wishing to travel in the woods, whenever the situation warrants it, in the discretion of the Minister, shall be obliged to obtain a permit from the local fire-ranger. No charge will be made for this. Any person who is duly employed for the protection of forests from fire, may, in the course of his duty, enter upon and cross over any lands. According to the new law, if a fire starts on a man's land and spreads to adjoining property, he is assumed to have set it and is responsible for damage caused unless he can prove his innocence.

#### The Village Fire Pump

The settler was clearing land, pilling up old logs, brush and stumps in readiness for burning when conditions became favorable. The weather was dry and windy. The settler was smoking a pipe. A fire started in the brush and was soon into the woods nearby, spreading very rapidly. The neighboring settlers became alarmed, and the alarm spread to the village. Out came a Councillor and citizens round about with the Village Fire Pump (a Fairbanks Morse) with several units of hose. Everybody worked hard, and with the aid of the fire pump the fire was soon brought under control. Result: The village was saved. The settler and his neighbors, of course, lost some 200,000 feet of timber.

(Taken from a fire report of a N.B. Ranger, May, 1922.)

Moral: Fires will occur in spite of efficient Fire Permit Laws, but the Village Fire Pump is a great safety device for any municipality.

#### A NEWS BOY'S RECORD

A LONDON news vendor claims the world's record for selling a single newspaper, with a total of 113,000,000 copies of the Evening Star. He has been selling papers since January, 1888, when the Star was first published. On August 4, 1914, he sold 29,000 copies to crowds clamoring for war news.

#### NOVA SCOTIA CORPORATION PLANTS 30,000 TREES

HE importance of re-foresting is gradually being recognized. So far the Province of Nova Scotia seems to have made little progress in planting; but a good example has been set by the Panstock Corporation of Caledonia, Queens County, an American firm with interests in Canada. Acting for them, Messrs. Edye-de-Hurst & Sons of Dennyhurst, near Dryden, Ontario, have this spring completed plantings of White Spruce over three areas now containing some 30,000 young trees; these lands being selected as likely to be seed distribution centres for natural re-forestation in the future.

The work on this Corporation's limits also includes a nursery capable of meeting, in due course, the demand for material for further operations.

Credit is due to the Panstock Corporation for the steps they have taken toward keeping up forest production not merely for their own benefit; but as an illustration of what may be done on lands unsuited to agriculture and which may well be copied by other firms with similar interests. Messrs. Edye-de-Hurst & Sons have done much to increase appreciation of the advantages of tree planting both in Eastern and Western Canada and have considerable interests involving the collection of Canadian tree seed and its distribution to distant points outside this Dominion.

Their own lands near Dryden are a fine example of what may be accomplished in clearing land for agriculture whilst preserving shelter belts and ornamental growth.

## Questions and Answers on Prairie Forestry

UES .- We are paying \$8.00 to \$10.00 a cord for firewood here. Would it be possible to grow our own firewood on the farm?

Ans.—Yes. The Dominion Forestry Branch Nursery Station at Indian Head have found they can grow eighteen cords of fair firewood in eight years from Russian Poplar cuttings. This is a little over two cords per acre per year. This at \$8.00 a cord would give you \$16.00 worth of wood for every year your trees would be growing. There's a lot of wheat land that has not paid as well as this the last few years.

Ques.—How late in the summer should I irrigate my trees?

Ans.-Not later than the end of July.

Ques.-When is the best time to trim a Caragana Hedge?

Ans .- Anytime, three or four times during the summer if you like.

Ques.-What are those big green caterpillars eating the leaves off the tops of Russian Poplar Cottonwoods and Ash in m y plantations? And what should I do for them?

Ans.—These are the larvae of the Sphinx Moth and

their attack is rarely serious enough to require spraying. Their size renders them very conspicuous and they are readily picked off by the birds. Spraying with Arsenate of Lead powder at the rate of a tablespoonful to two gallons of water will effectively clear them.

Ques.—I have been advised not to clear the brushwood under the trees at my summer cottage. What should I do?

Ans.—Leave the underbrush alone. This is nature's way of keeping the soil moist and in good condition for your taller trees. If you clear off the brush the trees will die in a few years.

Ques.-My Tartarian Honeysuckle are being eaten up by a bluish green beetle about half an inch long. What are they, and what can be done for them?

Ans.—These appear to be a lesser variety of the Blister Beetle and may be destroyed by spraying with half a tablespoonful of Arsenate of Lead in the powder form to a gallon of water. The Arsenate is the same as is being used for killing grasshoppers.

Here's the inquiring spirit of the West advancing in mass formation on the Tree Planting Car of the Canadian Forestry Association at Neptune, Saskatchewan. These boys and girls will determine the character of Western Canada within the next ten or fifteen years. They will control governments, and dictate poli-

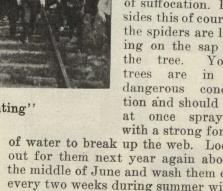
and lift them with a good ball of 'soil' taking care not to let it break off. Plant firmly about two inches deeper than the tree was before, and water well after it is planted.

Q.—Our cottonwoods shed a lot of cotton this year which seems to have collected among the needles of our Spruce trees, making them look dirty and dull. What can be done to get rid of it?

A.—Your trouble is not due to the cotton from your cottonwood trees as a close examination will show It is caused by red spider or mites, species of Tetranychus. The creatures are very small and you will require a magnifying glass to see them. They are present in thousands on spruce this year all over the

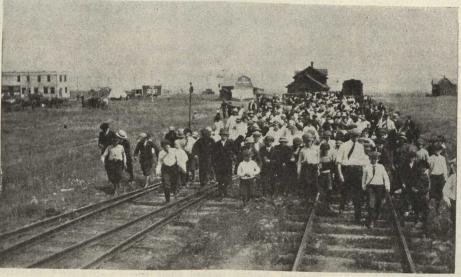
country and as they are continualy wandering about among the needles, spinnig a web as they go, the branches soon get covered with the wooliness you mention. ust sticks to the web, air is shut out from the needles and the plant slowly dies of suffocation. Besides this of course, the spiders are living on the sap of the tree. Your trees are in a dangerous condition and should be at once sprayed with a strong force

of water to break up the web. Look out for them next year again about the middle of June and wash them off every two weeks during summer with the water spray. Many spruces have died on the prairies from red spider the past few dry years.



Q.—The cottonwood trees in my plantation grew splendidly till they were about twenty feet high, but now most of them are dying at the tops. What can I do about it?

A .- Your experience is a common one on the Prairies. It would seem that the cottonwood requires more moisture than it has been able to secure the last few years and unless under irrigation, or unless you are prepared to give them special care, they should not be planted under dry farm conditions



"We're coming to find out about tree planting"

cies. The Canadian Forestry Association is doing its utmost to persuade every Western youth to become a tree planter, adding not only to the business profits of Western farm lands but enriching human life itself and stabilizing prairie population.

Q.—I am informed that the fall is a good time to transplant evergreen trees from the woods. Is this true, and what size would you recommend?

A .- Evergreens can be quite successfully transplanted in August. The tree has completed its growth for the season then and yet there is sufficient root action going on to enable it to take hold in its new site before Select trees two to three feet high growing out in the open

## Quebec Will Reward Planters of Young Forests

Progressive Province Will Give Cash or Land Grants and **Guards Against Confiscatory Taxation** 

UCH reforestation work has been put under way in the Province of Quebec. The extensive provincial nurseries at Berthier are supplying great quantities of young trees for work of reforestation, and it is expected that before long the movement will have gained great headway throughout the province. Under recent legislation the lieutenant-governor-in-council give a reward to anyone who plants 1,000 trees to the acre on land that is unfit for cultivation. The area planted must be kept in good order for at least five years. The reward lieutenant-governor-inthe council may give may be in money or in grants of land, and the governor is also empowered to fix the municipal valuation of reforestated lands and plantations for which a reward has been given. The purpose of this might go to considerable expense in

planting trees, and turn barren, useless land into valuable timber land, and then be met by a high valuation. is obvious. A company or individual

It is also provided that public bodies, homes and municipalities may acquire lands to form private or municipal forests, but they must provide for their preservation. reason for empowering municipalities to build up municipal forests is due to the fact that many municipalities depend almost entirely for their existence on the adjoining forests. The disappearance of the forests would mean the eclipse of the village or town. These new enactments will not conflict in any way with colonization. Lots suitable for farming purposes are turned over in quantities to the colonization department and are consequently out of the jurisdiction of the forestry department.



#### ON WALKING TOUR IN OLD COUNTRY

Mr. R. CLIFFORD MARTIN (left in this photo), a young farmer of Iroquois, Ontario, and his friend, Mr. MAURICE FRAYNE, a surveyor of the same town, have arrived in England, having worked their passage across in charge of cattle for the British market. Their are visiting the Old Country for the first time, and in order to obtain a knowledge of the country are making a walking tour through England and Scotland, carrying inscriptions stating that they are Canadians over here on a visit who will be pleased to answer any inquiries relating to the opportunities Canada offers to the British settler.

#### YOUR HELP IS NEEDED HERE!

The Canadian Forest keeps alive 5,000 of our industries. It fills pay envelopes for several hundred thousand men.

The Canadian Forest gives you recreation. It is your friend and benefactor. WHAT DO YOU GIVE TO THE FOREST?

Do you invariably extinguish your camp fire with water and earth, stamping out every smouldering coal? Do you watch your lighted tobacco and matches as you would in a powder factory?

The top floor of a Forest is just pulverized wood, the ideal kindling for a mam-

To guard the Forest is called for by Law. But your sense of Fair Play is quite sufficient.

### Death of Alex. MacLaurin

The Canadian Forestry Association lost one of its most valued directors recently in the passing of Mr. Alexander L. MacLaurin, of Montreal, at

the age of seventy years.

Mr. MacLaurin will always be remembered by those who knew him as a man of high character, rigidly Christian principles, and charitable spirit. His success as an astute and industrious business executive was undoubted. So valued was his counsel that he could accept only a few of the positions on directorates to which he was invited.

Mr. MacLaurin was born in East Templeton, Que., 70 years ago, and from his early youth was associated with the lumber business since his father, the late John MacLaurin, was also a well-known lumber man. In due course he became director of the Charlemagne Lumber Company, which became incorporated with the St. Maurice Paper Company, Limited, of which concern he was vice-president and general manager at the time of his death. His business activities were many and varied and included interests in both Canadian and American companies. He was president of MacLaurin Brothers, Lachine; Campbell MacLaurin Lumber Company, Limited, Montreal; Laval Electric Company, and he was also a director of the following companies: Union Bag and Paper Corporation, New York; Crown Trust Company. Montreal; Yorkshire Insurance Company, Limited; Montreal Stocks Yard Company. For many years he was on the council of the Board of Trade, in whose building at 42 Sacrament street he had his offices. He married in 1878 Miss Wilson Paterson, whose death occurred about three years ago. He is survived by two sons, Messrs. J. P. MacLaurin, Montreal; Arthur L. MacLaurin, Lachine; and three daughters, Mrs. J. P. Markey, Lachine, and the Misses Jessie and Myrtle, both of Montreal.

#### NEW SURVEY BY JAMES SEWALL

Mr. James W. Sewall of Old Town, Maine, has gone into the upper Ottawa region, in Quebec, where he has a crew completing a detailed survey and timber estimate of their holdings for McLachlin Bros. Ltd. of Arnprior. Ontario.

## If only we could grow these trees in Canada!



Plate by courtesy 'American Lumberman.'

Picture shows an Athel windbreak, just eighteen months after the small cuttings were planted.

quick grower, and was introduced into California and Arizona from Northern Africa. What such a tree could do for the Canadian prairie farm, if it could be persuaded to stand the climate, is indicated by its attainment of a height of six to ten feet one year after planting, while trees four to six years old reach 40 to 50 feet. It thrives in sandy and calcareous soils and in

those with considerable alkali and is very drought and heat resistant. In addition it is an exceedingly beautiful tree, forming thick branches close to the ground, just what the prairie farmer needs in a shelter belt.

The Forestry Magazine hopes to have for the next issue a report from United States sources as to the ability of the Athel tree to stand low temperatures.

## How Wood is Distilled and what Results

If hardwoods such as birch, beech or maple are heated in an iron vessel they are decomposed into gases, aqueous and oily vapours and charcoal. The uncondensable gases are inflammable and, in commercial distillation plants, are burned in the furnace used to heat the wood. The charcoal is cooled and sold for domestic fuel.

The vapours are passed through pipes surrounded by cold water and condense into a tarry acid liquid which, on standing, separates into layers of oil, watery liquor and tar.

The watery liquor is called Pyroligneous Acid and contains wood alcohol, acetic acid, acetone and other substances. The acid in this liquor is neutralized with lime thus forming

Grey Acetate of Lime from which acetic acid, cetone, ketone oils, acetate of soda and other chemicals are derived.

Wood alcohol is separated from the neutralized Pyroligneous Acid by redistillation. The oils and tar contain creosote oils and pitch.

Hardwood distillation is the principal source of acetic acid, acetone, sodium acetate, etc., and is the only commercial source of methyl alcohol which is the purified form of wood alcohol. Acetone is valuable as a solvent in the "Smokeless Powder" and Celluloid industries. Ketone oils may be used as varnish removers. Methyl alcohol is important as a solvent for shellac anl other varnish gums and as a fuel. Methylated

Spirits is used for the same purposes and consists of grain alcohol which has been rendered unfit for drinking purposes by the addition of methyl alcohol. Formalin, which is so much used for cleansing wheat before sowing, is manufactured from methyl alcohol. Creosote oils yield a substance called Guaiacol which is a valuable medicinal drug.

## HOW PINE TREES MAKE TURPENTINE.

HE operation of turpentining pine trees does not lower the strength or resin content of the wood, according to information obtained by the Forest Products Laboratory at Madison, Wis. The crude terpentine, or oleoresin, is not drained from a store in the tree, but is manufactured under the stimulus of the wound by living cells in the sapwood immediately adjacent to the cut on the trunk. No turpentine is produced by the heartwood because all of its cells are dead. The heartwood may be saturated in places with pitch but this does not readily flow out as does the resin freshly formed in the sapwood.

The major part of the tree is not appreciably affected, and the loss due to death of trees or to a reduction or degrading of lumber is very small when the proper method of turpentining is followed; this loss is more than offset by the additional revenue obtained through turpentining. The greater part of the wood that is chipped away would not have become finished lumber, but would have gone into slabs and edgings at the sawmill. With proper treatment, the turpentined faces remain healthy, and the wood underneath does not become saturated with resin.

#### PIERS MADE OF PAPER

Supporting piers are now being made of paper in California. These piles are not subject to attack by the teredo. They are 60 feet in length and from 18 to 30 inches in diameter. A square steel cap is fitted over the top to receive the shocks of the piledriver.

#### PLASTIC WOOD

Plastic wood is a collodion preparation made with very fine wood meal and of the consistency of putty. It is claimed to be waterproof, will set hard and can be turned with a lathe. Nails can be driven into the dried material without cracking it.

## Questions and Answers on Forestry

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

Q.—How many forest fires have taken place in Canada this year?

A.—Approximately 3,000. British Columbia had about 1,400 and Central Quebec passed through the worst fire experience in many years.

#### Seaplane service

Q.—For what purposes are aeroplanes and seaplanes used in forestry work?

A.—In detection of fires for which they are admirably adapted, for carrying fire fighters to the point of danger, for carrying food and other supplies to rangers, for saving time in transporting fire inspectors and managers, for the survey of limits by photography, and the rapid and accurate examination of terrain with a view to the most economical operation of timber limits. These are just a few of the day to day uses of aircraft in Ontario, Quebec, Manitoba and British Columbia. Fire rangers in British Columbia and Quebec this summer have transported fire fighting pumps within one hour where the journey by land and water formerly required from fifteen hours to two days.

#### The right to cut a tree.

Q.—Is there any court decision as to the right of a land owner to prune shade trees that are on a neighbor's property provided that such trees are ruining a lawn by their dense shade?

A.—Recently a decision was given by an Old Country justice denying the right of anyone to prune or trim the branches of trees reaching from a neighboring estate over his buildings and causing, so it was alleged, unhealthy conditions. We do not know of a similar Canadian decision.

#### Insects and fire.

Q.—Which do you regard as the more destructive, forest insects or forest fires?

A.—Forest insects, once they attack an area, work with incredible rapidity and deadly effect. They do not damage the soil, however, as is the case with fires. It is probably fair to say that the recovery of an area is more rapid after an insect attack than after a serious fire. Fires

are steadily reducing the forest producing land, turning into dead wastes enormous stretches year after year.

#### What is my pine bush worth?

Q.—I am trying to figure out what a large plantation of white pine on my father's farm is worth today. It is approximately 40 years old.

A.—Canadian estimates are hard to secure. However, a 36-year old New York State white pine plantation sold recently at \$500 per acre 'on the stump'. Two acres of white pine near Keene, New Hampshire, were sold before the war for \$2,000 on the stump. The total stand was 254 cords. The trees were from 80 to 85 years old. The growth on each acre was about 1,000 feet per annum and the gross returns about \$12.20 per acre per annum.

#### Who can identify woods?

Q.—What authority in Canada will identify certain woods submitted to my factory as samples. The ordinary manufacturer has no means of verifying these woods.

A.—The Forest Products Laboratories, McGill University, Montreal, will be glad to handle all such problems for you without charge. Send your woods to them marking plainly the country of origin and in the case of Canadian woods the district of origin.

#### Flowers for fall planting

Q.—Can you give me a list of Perennial flowers suitable for planting this fall?

A.—Tall growing varieties—Golden glow; Tall Larkspur; Tiger Lily (double or single), Medium—Peonies; German Iris; Chinese Larkspur; Gaillardia: Perennial Flax; Phlox, Oriental Poppy. Low Growing—Pyrethrum; Roseum; Clove Pink. Plant in moist soil about the end of September and mulch over winter.

#### How to get a single stem

Q.—I have four trees with four or five stems each which I wish to develop into trees of one stem. Will it be alright to cut them all off to one stem this fall?

A.—No. If you do, you will likely weaken the base of the remaining

stems and they may break off in the storms of winter. Better select your permanent stem and cut the others off at about half way down this fall if they are likely to be broken by snow or wind over winter. Then in spring take two of them off and no more. Next year take two more until you have the single tree effect you desire. If you cut off all the undesirable stems at once your trees will send out a lot of suckers to take their place and you will just be as bad as before.

#### Causes of Forest Fires

Q. In the minds of many people, the cause of most forest fires is ascribed to lightning, action of the sun on quartz, broken bottles, etc., and to "spontaneous combustion." How far is this true?

A. If lightning fires and fires set by broken bottles, etc., were the only menace of the forest, nine-tenths of the fire rangers would lose their jobs. Unfortunately, while lightning sometimes is a minor factor in certain districts, (and now and then it is just possible that broken glass may concentrate the sun's rays and start a blaze) the serious fact we have to bear in mind is that four fires in every five are started by careless human beings. The campfire, the lighted cigarette, land-clearing fires employed by settlers to burn up debris, are responsible for the main losses.

Q. Is there any Dominion law obliging the railways to guard against setting forest fires?

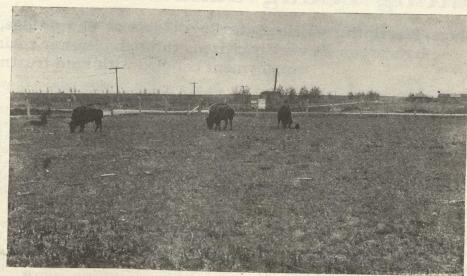
A. The control of the privatelyowned railways, such as the Canadian Pacific, as regards precautions against setting forest fires, is amply taken care of by the Board of Railway Commissioners and careful regulations have been drawn up and closely adhered to by which railway fires are being rapidly reduced. The Government Railways are now giving good co-operation in forest fire prevention so that the total losses from railway sources per annum have become a minor factor in Canada's forest destruction. The monthly records sometimes show large numbers of fires set by railways but further enquiry will bring out the fact that the greater number were quickly put out without material damage.

## From Prairie to Woodland--A 20-Year Miracle



Here's a story easily told by photography. Here is shown the site of the Exhibition Grounds at Brandon, Manitoba, twenty years ago, just the bleak prairie and the inevitable barbed wire fence and telegraph poles.









And today, a mere twenty years of time since the first picture was taken, we travel through the Brandon Exhibition Grounds transformed into a shady and delightful woodland, with the harsh lines of the open field obliterated and everywhere a suggestion of restful beauty. The trees are mainly Manitoba Maples, and various conifers.



Is this a corner of England or a recreation park on Canada's 'bald prairie'? It is indeed the rich reward of tree planting at Brandon's Exhibition grounds, Shrubs and Conifers have been used with excellent effect. Such a product is 'for the having' by any other organized community in Canada's Great West.

It will be manifest to our readers that such an achievement in tree planting and general beautification was no accident of Nature. Men of idealism and foresight Such as Mr. H. L. Patmore and Dr. F. A. Beckmore, who were directors of the exhibition in the early days, Colonel F. J. Clark, the first manager of the exhibition board, Superintendent Ben Smith who has been in direct charge of the grounds for the past ten or twelve years, and Mr. R. M. Matheson, now president of the exhibition board, have all made large and unselfish contributions to the success of the work. Mr. William Dowling, Mr. Peter Payne are vice-presidents of the exhibition board and Mr. W. I. Smale is the Secretary and Manager.



## Putting Young Canadians on the Right Track

A short, descriptive article of the Boys' Farm at Shawbridge, P. Que., where delinquent boys are made worthy citizens through pleasant environment and useful employment coupled with kind treatment.

By G. Gerald Blyth

THE CANADIAN Forestry Association's Exhibit Car has visited many interesting communities and been visited by thousands of interested spectators, but in the year's travel it is certain that the car has not been visited by a keener group of young Canadians than the boys from the Boys' Farm at Shawbridge, Province of Quebec. This institution boasts of no other than the able director of affairs of the world's greatest railway as president, namely, President E. W. Beatty, of the Canadian Pacific Railway. The Boys' Farm was made possible through the generosity of such public spirited

men as Mr. Beatty, Mr. Henry Birks, Mr. Lansing Lewis, and O. C. Dawson, and also receives the enthusiastic support of the Kiwanis Club of Through Montreal. the kindness of Mr. Barss, the Superintendent, who so ably directs the lives of the 177 boys under his care, the writer was recently shown over the premises.

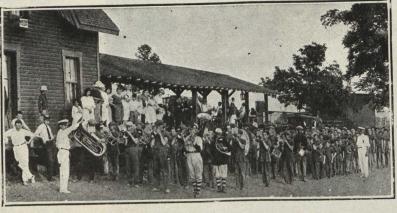
#### Purposes of the Farm.

The Boys' Farm takes the place of the old-fashioned house of correction and fills the threefold purpose of looking after boys who are orphans; those whose parents cannot give them the necessaries of life, and those who have got off the beaten track and run foul of the Law. Congenial yet useful employment is given these boys, who are at all times under most careful supervision. Kindness and an exceedingly keen interest on the part of the entire staff from the Superintendent down, with an abundance of liberty, work marvels. The health of the boys receives considerable attention as does their spiritual welfare and the wholesome influences of a beautiful home life very soon win the boys over. The error of the boy's former way is brought home so forcibly when he begins to feel the influence of the new



School on the Boys' Farm

life, the new comrades and the new environment that it is not long before a complete transformation takes place.



The Boys' Farm Band at Shawbridge, P.Q.

The Boys' Farm is most charmingly situated in the heart of the Laurentian Mountains, only a short distance from Montreal. The boys work on the farm, in the tailor shop, look after the poultry, pigs, cattle and horses. There is work for all with a minimum of discipline.

#### The Day's Routine.

The day begins at 6 o'clock in the morning and the boys are early to bed. Regularity in sleeping, eating, play and work have a tendency to inculcate those higher qualities which are so essential to the successful man.

#### Mr. Beatty's Code.

In a very excellent address recently delivered to the boys in this institution by President E. W. Beatty,

of the C. P. R., he stated that there were three moral qualitites without which a boy could not obtain permanent advancement; these were:— "Honesty, Courage, and Modesty." Everything at the Boys' Farm tends to develop these necessary qualities. The boys have in Mr. Barss, the Superintendent, a shining example to follow, and his remarkable personality seems to permeate the entire institution.

The boys at this institution through a carefully planned curriculum, kind treatment and healthful environment are being moulded into men; through a process of education they are

being put on the right track.

Faith and a whole lot of determination were required to build up an institution like this one. Success is more than in sight for the Boys' Farm; it has already crowned the efforts of those who are responsible for this ''life-savings'' enterprise.

The Canadian Forestry Association intends to maintain friendly contact with

the Shawbridge boys through periodical visits of its lecturers.

I spent a most delightful Saturday and Sunday with the boys, inspected their living quarters; watched them at work in the kitchen, in the hay fields, the poultry run, etc. In passing with Mr. Dawson through the groups of boys gathered here and there in the grounds on Sunday, I was amazed to find that he knew them all by their first names and they all knew him. Sunday, after chapel, it was my privilege to address a mass meeting of the boys on the subject of Forest Conservation, and the attention and interest shown was truly remarkable. In the afternoon all the boys were marched to the railway station where they visited the Canadian Forestry Association's Exhibit Car.

# Timber Resources of Australia

Some interesting facts concerning the forest products in the Antipodes.

By John D. Macfarlane

OME months ago the "Canadian Forestry Magazine" had an article on the timber resources of the world and made mention of the area of forest in Australia. The writer lived in Australia for twenty-two years, and has visited all the States except the Northern territory. The area best known to him is the coastal region of Queensland.

This territory extends from Cape York in the north, about S. Lat. 10, to the New South Wales boundary, about S. Lat. 29. There is a small coastal plain of varying width, and to the crest of the range it receives a fairly abundant rainfall. Some parts have an excessive rain, averaging, for a belt of perhaps 300 miles, 180 inches per annum. In rich soil, and a permanent Summer climate, this makes for a wonderful growth, as the growing season never stops. This strip of Queensland is as large as Cuba, and all the British West Indies, and probably has richer potential resources.

It already has a large cane sugar business, and fairly well-started ba-nana and pineapple plantations, also experimental plots of cotton, arrowroot, rice, and sundry other tropical products. As yet only a small part of the area has been brought into cultivation, as clearing the dense scrub is a costly operation.

The writer is a mining man, and no botanist or timber expert, but anyone who has seen the Queensland forest cannot doubt that this timber wealth must some day become a factor in the world's markets. It is particularly rich in Cabinet woods, of beautiful grain and color, and has besides a supply of more common grades for general use. In the latter class, there is cedar, which will compete in size with the famed cedars of British Columbia, and a pine called Kauri pine, larger than our eastern Canadian white pine. In the mines at Charters Towers the trees used for mine timber and fuel were ironbark, bloodwood, lancewood, and flindersia.

The ironbark has a hard corrugated bark, like an old oak, and makes a good steam fuel. The bloodwood got its name from the intensely red sap. A large tree cut down at the right time makes a very slaughter house appearance on the ground. It is

probable that a valuable dye may be secured from this tree. Other common trees in general use as timber, are:-Crowfoot elm, beech, bean tree, silky-oak, figtree, kauri gum, Ti-tree (pronounced tee) and gidyea.

#### Names Inappropriate

The early settlers named the trees, which were strange to them, according to no system at all. The silky oak, for instance, is not in the least like an oak. Its foliage consists of needles, pointed like rushes in our marshy places, somewhat larger than our white pine needles. The timber is beautifully grained, and is much used for interior finish in buildings. The white cedar is not a cedar, but a leafed tree; our nearest foliage is perhaps the black cherry. This tree is a thing of beauty when in flower; the tree is literally covered with hanging tassels of blooms, scented like a lilac, and is a great attraction for butterflies, bees, and honey-eating insects. The writer had several of these in his Australian garden. The flowers develop into a fruit, which brought flocks of flying foxes every evening, till they were all con-sumed. The timber of this is considered excellent for chests and cabinet work generally. The Moreton Bay ash, is not in the least like an ash of the Northern hemisphere; the same may be said of the beech; and there are two trees named fig, from the leaf being somewhat like. One of these figs grows a very large size, and in the tropical jungle of Queensland is often covered with parasite growths, including orchids.

The finest cedar district was the Baron River Country. This has now been mostly all cut out, and young trees take a long time to mature. At the first opening of the cedar area, here, the timber getters (that is the Australian expression for lumbermen) attempted to run the logs down the Barron River over the falls, which have one drop of 680 feet. The result was that practically all the logs were broken into matchwood. Others who had logs cut in the bush, left them there for many years, till the railway was run up the ranges from Cairns. This cedar is a high-priced article. When the Atherton scrub lands were opened, and divided into small farms, on a table-land, or

rather shelf, about 1,200 feet above sea level, in the range, the cedar was all reserved to the Crown. These farms run from 80 to 320 acres and sold at ten shillings per acre to bona fide settlers. One man took up 160 acres, which was reported to carry no cedar. After he had cleared up what the law required, and secured his title, he found one solitary huge cedar, which he sold as it stood, for one hundred pounds sterling-and he only paid eighty pounds for the farm; a profit for this one tree of twenty-five per cent. on his land.

#### The Eucalyptus Family

The most common family of trees in Australia is the eucalyptus, commonly called "gum-tree". There are several varieties, which shed the bark annually, and retain the leaves. The leaves do fall from time to time, but there is no general fall as in Canada. This family of trees stand drought well, and are more common on the inland side of the ranges than on the more moist area toward the sea. The leaves are a dull greygreen color, and hang with the edge to the sun, which seems a provision of Nature to prevent evaporation.
Another widely spread family is the
Wattle. This is not so large a tree as the eucalyptus, but the blossom is almost a national emblem. Budding poets of the Commonwealth, do not seem to consider themselves rightly entered into the temple of the muses, until they get off an apostrophe to the wattle blossom.

Going inland, beyond the coast range, the character of the forest changes greatly. The dense undergrowth and vines disappear in the drier atmosphere and many of the coastal trees do not cross the range. Going inland further a second ridge is crossed and then comes the bare treeless plains, or "downs" as this is called in Australia. That is the real sheep country. These plains have a deep black soil, which, when wet is very tenacious. A man carries a garden on each boot in wet weather. If the coastal rains were divided up with the "downs", it would be the garden of the world, as the soil is rich, and they could grow crops the year round, in North and Central Queensland. In the Atherton scrub

(Continued on Page 1048)

## LES FORÊTS DU PORTUGAL

Par Noël Le Bressant

ANS son fameux rapport de 1900, Mélard attribuait aux forêts portugaises une étendue de 450,000 à 500,000 hectares. M. Ferreira Borgos, chef du bureau des forêts au ministère de l'Agriculture, leur assigne une superficie de 1,621,-589 hectares. Ainsi que le voient nos lecteurs, la différence est insignifiante. La statistique est décidément une belle chose; elle a des surprises qui déconcertent. Il n'empêche que les âmes candides continuent à se livrer, dans le silence et le farniente des cabinets, à un empilage consciencieux de chiffres, et à tirer de ces chiffres des déductions qui font rêver. Laissons donc ces mandarins aux soins que comportent leurs ongles démeusurés, et cherchons, non pas à mettre les statisticiens d'accord, ce qui est aussi malaisé que de résoudre le problème de la quadrature du cercle, mais plus simplement à donner la caractéristique de la production forestière du Portugal. Quelques indications sur les exploitations sont, du reste, le plus sûr moyen de jeter de la lumière sur des faits que nous continuons à ignorer, malgré tous les congrès passés, présents et à venir.

Le Portugal a une superficie totale de 89,607 kilomètres carrés, inférieure à celle de mainte province russe, et sa population, assez faible, est drainée par un violent courant d'émigration vers l'Amérique du Sud.

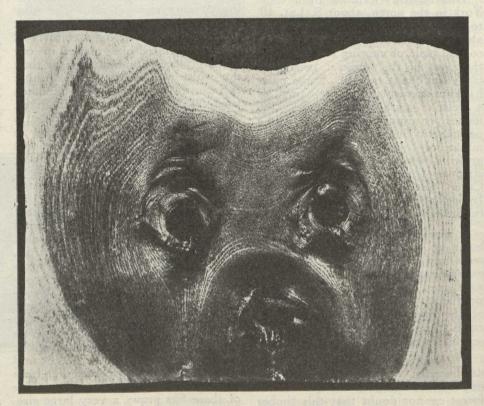
Les principales essences du Portugal sont le châtaignier, le chêne tauzin, le chêne pédonculé, le chêne du Portugal, le chêne vert, le chêne-liège, le pin maritime et le pin pinier. D'assez importants reboisements ont été effectués en eucalyptus, acacias et autres essences australiennes dans la région littorale, en pin noir et en pin sylvestre dans la région montagneuse.

Alors que, dans la partie sud du Portugal, règne un climat maritime, particulièrement doux et qui permet la culture de l'oranger, de l'olivier, du caloubier, de l'agave, du nopal et même du dattier, dans la partie nord, au contraire, et dans les chaînes intérieures de montagnes, le climat devient rude et âpre, la neige tombe chaque année et couvre le sol pendant plusieurs mois. Dans la Sierra de Cuenca, la température moyenne ne dépasse pas 11° et les précipitations atmosphériques sont faibles, malgré le voisinage de la mer, car

elles se trouvent comprises entre 460 et 580 millimètres.

La principale richesse forestière du Portugal est le liège; mais le chêneliège portugais est plutôt arbre de verger que de forêt. On estime que cette essence couvre environ 300,000 hectares répartis en trois groupes principaux: celui du Nord, qui comprend les peuplements situés entre le Douro et le Moudego, districts de Viéza et de Guarda; celui du milieu, qui englobe la vallée du Tage, districts de Lisbonne, Santarem, Sétubal, Portalègre et Evora; celui du Sud, beaucoup plus restreint, qui se trouve dans les districts de Béja et de Faro.

L'aire du chêne liège s'étend des rives de la mer aux régions de basses montagnes, jusqu'à 650 mètres d'altitude en moyenne; mais il réussit particulièrement bien sur les collines de moindre élévation et qui ne dépassent pas 300 mètres d'altitude. La



A NEW BREED OF BULL PUP (KELLOGGSIANA)

Pedigree may be discerned in every feature. This curious photograph represents a cross section of a black ash tree picked up at Mellen, Wisconsin. It has never been marked nor 'doctored' in any way and the photo has not been retouched. The engraving as above is absolutely true to nature. The dark colored heartwood outlines the face while knots fill in the features.

This unique piece of wood is the property of Mr. R.S. Kellogg, Secretary of the News Print Service Bureau of New York, who observes that the little fellow has been an efficient watchdog during his ten years' service in the office and retains all his faculties unimpaired.

#### NOUVELLE RACE DE BOULEDOGUE (KELLOGGSIANA)

On peut en distinguer tous les traits. Cette singulière photographie représente la coupe verticale d'un frêne noir trouvé à Mullen, Wisconsin. On ne l'a pas altéré d'aucune façon et la photographie n'a pas été retouchée. La gravure ci-dessus est absolument exacte et naturelle. Le cœur de l'arbre, d'une teinte foncée, forme le contour du visage et les nœuds constituent les traits.

Cet unique morceau de bois est la propriété de M. R. S. Kellogg, secrétaire du News Print Service Bureau de New-York, qui nous fait remarquer que ce petit animal a toujours été un bon chien de garde, durant ses dix années dans le bureau, et il conserve toujours ses facultés.

méthode portugaise se propose la culture du chêne-liège à l'état isolé, sur un sol cultivé à la charrue, régulièrement ensemensé en céréales, ou tout au moins complètement débarrassé de la végétation forestière et arbustive, qui caractérise la forêt spontanée. Dans ces terrains de parcours pour els porcs, les chènes verts se mélangent souvent aux chênes-liège. Les uns et les autres sont taillés annuellement en vue non seulement d'augmenter le rendement en liège, mais encore de favoriser la production des glands.

Comme les "encinas" d'Andalousie, les "moutados" portugaises nourrissent d'immenses troupeaux de porcs à demi sauvages. Et ce n'est pas un mince étonnement pour le voyageur, que de voir ces grands vergers de chênes espacés de 10 en 10 mètres, dont le fût ne s'élève pas au-dessus de 2 à 3 mètres et qui sont plus ou moins taillés en gobelets. De la forêt, cela n'a aucune apparence.

La régénération des "moutados" se fait plus ou moins irrégulièrement;

et les vieux arbres, impropres à tous les usages de l'industrie, souvent cariés par suite des nombreuses plaies d'élagage, sont convertis en charbon.

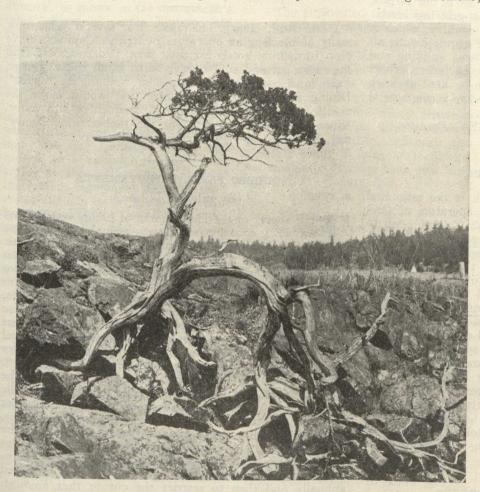
On démascle vers 30 ans, à moitié du fût; à la première levée, on pousse jusqu'à la couronne des branches; puis, aux levées subséquentes, on étend progressivement le démasclage aux maîtresses branches. Toutefois. pour ne pas épuiser par trop l'arbre ainsi complètement déshabillé et mis en production, on furete en quelque sorte le liège, et on échelonne sur 3, 4 ou 5 ans le démasclage du tronc et des branches. Grâce à la culture intercalaire du sol, la montée du liège de reproduction se fait très vite. A 6 ans en plaine, à 10 ans en montagne, il atteint son épaisseur marchande. Mais toute médaille à son revers. Le liège obtenu si rapidement est gras et souvent même marbré.

Les propriétaires particuliers, entre les mains desquels se trouve presque totalement la production du liège, ne font pas de catégories; ils vendent tout venant, après avoir simplement rebuté le liège ligneux ou doublé, au prix moyen de 30 francs le quintal métrique. En général même, l'exploitation est peu soignée, et le pied des arbres est trop incomplètement nettoyé.

La production totale des forêts portugaises en liège est d'environ 450,000 quintaux, presque entièrement exportés en Allemagne, en Angleterre et aux Etats-Unis.

Le chêne vert, cultivé comme le chêne-liège en vergers, couvre une étendue sensiblement égale. La brousse de ciste ladanifère, d'arbousier, de myrte, de bruyères, etc., est souvent transformée en "encina" par le dé-frichement et la culture On réserve, de-ci de-là, les pieds de chêne vert qui s'élèveront assez rapidement au milieu des champs de blé ou d'orge. L'encina donne des céréales pour l'homme et du gland pour les porcs. C'est une pauvre méthode de culture appliquée à de pauvres pays. Le bois très dur de ces arbres isolés n'est bon à rien, hormis pour les usages domestiques et pour la transformation en charbon. Le débit en traverses luimême serait peu rémunérateur, tant en raison de la faible élévation des arbres, que des loupes que ceux-ci renferment.

Le chêne tauzin et le chêne du Portugal, qui n'est pas autre chose que la forme européenne de notre Zéen d'Algérie, vivent le plus souvent en mélange à l'état de rapailles abrouties.



THE STRUGGLE FOR EXISTENCE

A losing battle, but Nature still manages to scrape together enough nourishment from the rocky soil to maintain a few sprigs of foliage. The photo shows an Arbutus tree on a rock islet in Esquimault Harbor, British

Columbia. Photo by kindness of Mr.

Walter W. Baer.

(The Editor cordially invites readers to send in pictures of tree phenomena. Share your unique pictures with 13,500 other readers. The photos will always be returned uninjured.)

#### LUTTE POUR L'EXISTENCE

C'est une bataille inutile, mais la nature réussit à tirer du sol rocailleux assez de nourriture pour faire vivre quelques branches de feuillage. Cette photographie, que M. Walter W. Baer a eu l'amabilité de nous donner, représente un arbuste qui pousse sur une île rocheuse du havre d'Esquimault, Colombie-Britannique.

(Le rédacteur invite cordialement tous nos lecteurs à nous envoyer des photographies de phénomènes forestiers. Montrez-les aux autres 13,500 lecteurs. Les photographies seront toujours retournées intactes.)

(A suivre.)

#### AS OTHERS SEE IT

#### U. S. FORESTRY PROBLEM.

times as fast as timber is being grown. It is useless to decry the generous use which American industry has made of our forests. It has contributed powerfully to the industrial development and commercial supremacy of the United States. The forestry problem does not result from the liberal use of our forests, but from our failure to use our forest-growing lands. There is an ample area of land in this country, which is not tillable, to support all of our timber requirements, all of our wood manufactures, all of our home building and agricultural use of timber, indeed an even larger export trade than at present, if that land can be kept at work growing timber. Reforestation has become a commercial necessity of the United States."

Col. W. B. GREELEY, Forester.

#### REDUCING FIRE LOSSES.

HREE million dollars," which is the estimated loss suffered by the logging operators of Oregon, Washington and British Columbia up to the middle of July, "would build a large amount of com-mercial power lines," remarks J. Kenneth Pearce, of the Logging Engineering Department of the University of Washington, in discussing the causes of fires in logging operations. The electrically operated donkey engine reduces the fire hazard to the minimum, and from this standpoint alone is well worth considering wherever Each year as the timbered country is opened up the danger from fire increases and spark-emitting logging equipment is responsible for its proportion of losses. In Western British Columbia logging is suspended by executive proclamation until the danger point is passed. It would seem as if the time had arrived when logging during the extreme dry season should be suspended when the fire situation becomes critical. Smoking in the woods should be strictly prohibited during the dry season.

#### HENRY FORD BATHES LOGGERS.

(Western Canada Lumberman.)

A ND now comes the ubiquitous Henry, the manufacturer of the small but efficient motor car, that has given dollars and lustre to the name Ford, and says:—

"Henry Ford has revolutionized the system of conducting logging camps at Iron Mountain, Michigan.

"When Ford started lumber production, besides carrying on operations in a progressive manner, he gave consideration to the accommodation and the comforts of men in his lumber camps at Sidnaw and Ontonagon.

"The men now enjoy all the comforts of a real home. In the good old days, the men slept in dirty bunks with straw for mattresses, ate food that was good, bad and sometimes worse, were paid low wages, and were forced to read by lamplight, providing they bought their own reading matter.

"Now it's different. The buildings are equipped with electric lights, reading room, dining tables and writing desks. Each man has his own bed, not a bunk, equipped with a mattress, comforter, sheets, blankets and pillows.

"And last, but not least, there are bath rooms. Now every man takes a bath at least once a week, and has a complete change of clean clothing to put on. In the old days, many lumberjacks would go to the woods in the fall and not take a bath until the camp broke up in the spring."

Old stuff, Henry, old stuff. For several years now many of the logging operators in British Columbia have been furnishing hotels for their men, two men ONLY to the room, hot and cold shower baths at all times. Large, warm and comfortably furnished "lounging rooms." Dining rooms with bills of fare that would make the mouth of an old Roman epicure fill frequently with water. When it comes to getting out the timber, nay, Henry, nay, B. C. can show you the way, all the way.

#### QUEBEC PLANS IMPROVEMENTS.

(By Ellwood Wilson.)

HE report of the Department of Lands and Forests for 1921 contains some very valuable suggestions for the better management of Quebec's forests. The law that was passed at the last session of the Legislature, to the effect that anyone operating on Crown Lands, so-called "limits," must, if he wishes to cut in any other way than to the present diameter limits, thirteen inches two feet above the ground, for white and red pine, ten inches for white spruce, seven inches for black spruce, present a working plan for the approval of the Chief Forester, is a long step forward in forestry practice. When this is approved permission to cut to different diameter limits or even to cut clean may be granted. This law is not only a good one for the public domain, but also for the licensee. It prevents over cutting and thus lengthens the life of the timber supplies, insuring the permanence of industries dependent on the forest, which stabilizes and strengthens such industries putting them on a permanent foundation. The government's idea is to ascertain the amount of wood produced annually and then to restrict the cut to that amount. This will, of course, necessitate the mapping and estimating of the timber by licensees and the preparation of working plans in advance of logging, but the more progressive companies have already either nearly completed such work or have it under way. Almost all of the uncut stands in Quebec are over mature and the areas show an annual decrease in the amount of timber rather than an increase and these areas will never become productive until they are cut. In many instances the advanced growth is sufficient to restock the areas if they are cut clean. There are also many areas in the north where only about ten per cent. of the timber ever reaches the government diameter limit and these, if the diameter regulation is enforced would be practically closed to lumbering. By co-operation with the government, practical plans for lumbering can be worked out which will not only put limits on a sustained yield basis but will make logging cheaper and more profitable. Mutual confidence on the part of the government and the licensee will help both parties and will be to their advantage.

## THE EDITOR'S MAIL BOX

Correspondents discuss various matters of interest to our Association and Members

#### LIKES "SELLING SCENERY."

Editor,

The Illustrated Canadian Forestry Magazine.

Allow me to congratulate you on the high quality of the Forestry Journal, as shown in the last month's issue. First, of course, I appreciate your article in regard to "selling" scenery and think it is very timely that you should point out to Canadians the financial returns that can be secured from this industry.

We in Vancouver have been working on it with very great profit and would like to see the idea applied to many of our Canadian cities, and indeed, in a national way. We are trying to arouse the appreciation of the various newspaper men and writers of Canada to the great opportunity that lies before Canada now, with next door to her, such an enormously wealthy country made up of people who are a restless, energetic, travel-loving class and through the press we hope the people in Canada generally will not only be back of the Governments and other organizations which trying to develop this industry, but will themselves give some thought to the entertainment of the stranger when here. I hope that as you go about and see various press representatives you may be able to further spread these ideas.

The whole of the recent number of the magazine is of a very high order and you are to be congratulated in bringing it to this high standard in such a comparatively short time.

I have lived in the prairie provinces and can appreciate what immense improvements can easily be effected there through the tree-growing campaigns. I notice that in Biggar, Sask., they are offering prizes to those who have improved their property in this way.

It occurred to me that perhaps that idea could be extended and that the Exhibitions Associations in the various localities might be persuaded to offer similar prizes. In that case, the grants which the Provincial Governments make to the prize lists of these exhibitions would help provide the funds necessary for this.

J. R. DAVISON, Manager, Vancouver Publicity Bureau.

#### A WELCOME TRIBUTE.

From a faithful subscriber in the West comes the following very welcome tribute:

Editor.

The Illustrated Canadian Forestry Magazine.

Enclosed please find cheque for two (\$2.00) dollars covering my yearly subscription to the Association, and I might add that I am delighted at the way you are carrying on, despite the many obstacles that the Association must overcome, one way and another, and must also say that owing to financial troubles I am unable to do more than just send two (\$2.00) dollars, but hope to be able to do more in the future.

#### HOMESICK FOR TEMAGAMI.

Editor,

The Illustrated Canadian Forestry Magazine.

Congratulations on the makeup and interesting articles in the recent issue of the Illustrated forwarded to me. I enclose my cheque for \$2. par in your city, for the magazine to 31st December, 1923.

I have always been a lover of the "Out of Doors" more particularly the woods and streams. Having been Accountant of this Bank at Cobalt for about two years, in 1912-13, you may be sure that I spent many pleasant days fishing and shooting, more particularly fishing in Old Temagami. Expect to spend at least a month in the old place this summer to recuperate and will visit some of the old haunts. That picture of the water, the rocks and canoe, sure makes me homesick, more particularly when taking into consideration the bald prairies, and also that I have always been accustomed to the trees of Old Ontario.

Some of my farmer customers are planting trees this year and others are planting more trees to increase their windbreak. This should have been done eight or ten years ago and by now the trees would be beautiful.

With best regards,
I remain, Yours truly,

A. E. KUHN, Manager The Canadian Bank of Commerce, Kerrobert, Sask.

#### THE TREE PLANTING CAR

Irvine, Alta, July 30th, 1922. Canadian Forestry Association.

Your forestry car which was here on the 28th inst., was well patronized and much appreciated by our citizens, and if at all possible, we would like a chance to have this car stop here next year.

Mr. Cooch looked our little town over, and gave us many helpful hints; the lectures were beneficial to all, and motion pictures interesting.

Thanking you for the opportunity afforded by having this car stop here, and hoping it will do so again next year.

T. G. McLAUGHLIN. Sec.-Treas. Town of Irvine.

#### WELL DONE, BOY SCOUTS

Magog, Que, July 22nd, 1922

Canadian Forestry Association.

Not knowing of any Forest Ranger in this vicinity I wish to place my Senior Scouts at your disposal for preventive work here and any booklets or literature or notices, etc., will be gladly distributed free. While on a mountain hike to Mt. Oxford, Saturday, we dug up and put out a smouldering rot wood, ground fire, of about 1 yard square and as water was scarce it took some time. Some campers had put out their fire on top but not underneath.

Sincerely yours,
ED. KINGSLAND, D.S.M.,
P. O. Box 83,
Magog, Que.
Canada.

#### MONEY SPEAKS

Alpena, Mich., July 27th, 1922.

Canadian Forestry Association.

We are inclosing New York draft for One Hundred Dollars (\$100.00) as a donation to your association. Let the good work you are doing go on.

Very truly yours,

Wm. H. JOHNSON, Pres. Alpena National Bank.

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

#### A Gamble in "Charcoal Preferred"

URING the last three quarters of a century the Canadian people have permitted the destruction of a forest empire twenty times the size of the three Maritime Provinces.

There have been 4,000 forest fires in Canada this year, each one exchanging valuable public-owned timber lands for worthless wastes of charcoal and fire-weed. It is sheer business stupidity, as inexcusable as the ex-

change of pounds sterling for paper roubles.

The Canadian citizen of 1750 and 1800 beheld a land wherein the forest was a no-account cumberer of the ground, a trespasser on agricultural soil. He had no lumber industry to speak of, no pulp and paper industry, no highly organized domestic business calling on the forest for its daily needs. But times have changed and yet the public mind refuses to bulge. Agricultural land is not now cumbered by forests, but instead the forest is very much cumbered by worked-out farms. There is more cleared land in Canada that should be put back under forest than there is forested land that ever can be profitably cleared for agriculture.

Forest conservation is not a matter of using less wood but of growing more. Eighty per cent. of the habitable area of the Dominion is unfit for agriculture and adapted only for timber production. The timber crop and minerals are the only possible magnets to new population, new towns, new industries over that untillable eighty per cent. To-day in the markets of the world, the crops of Canada represent a precise equivalent of new factories, new employment, new sources of wages. Every year, the market valuation on forested areas rises in direct ratio to the decrease in America's timber supply and the advance in public demand for forest products. And yet with this enormously valuable public resource owned by the people of Canada, distributing its benefits to every man, woman and child, we who boast of being astute business men are throwing into the furnace ten trees for every one we turn to use. We, the trustees of the Canadian forest, turned to ruin last summer the equivalent of a strip of timber one mile

wide reaching from Halifax to Winnipeg.

Slowly, but inevitably, Canada's forest resources must come under scientific management, but right now the peremptory call is to get busy and put out the flames. Why talk of redecorating your house while the dining room is choked with smoke? Unless the present plague of forest conflagration is blocked by the conscious shouldering of responsibility by every Canadian citizen, another ten years will relieve us of all need for worry about the forest resources. But let there be no confusing of plain facts. We must choose between forest fires and forest industries. The two things cannot travel in double harness, nor live in the same pasture. We must choose one or the other and the choice must be made right now, for another few years an inert public will solve the matter quite thoroughly for us.

Forest protection is not protection of a tree. It is an insurance policy on pay envelopes, operating industries, thriving municipalities and public revenues. It means a sense of self preservation and a partnership in upholding the rights of the future. It means that we admit and practise the gospel that we have no right to play the prodigal with a resource that cost us not one penny and that appears in the Will of Providence as the common property of the generations that follow.

#### An Editorial by C. Price Green,

Chief Commissioner of Industries and Resources, Canadian National Railways.

VERY forest fire that broke out within fifty miles of the Canadian National lines this summer stole away some of our immediate or potential traffic and delayed to that degree the financial buoyancy of the public-owned system.

A large mileage of the Canadian National runs through natural timber-growing lands wheih can never produce any other marketable crop than timber. At the same time, these wooded regions are generators of tourist traffic and account for the rapidly expanding number of visitors from the United States travelling on our lnes, as well as for the great volume of recreational travel on the part of Canadians. The security of the forests, therefore, is absolutely vital to the solvency of any rairoad system in this Dominion.

The destruction of forests by fire this year was not the work of the railways, as Government reports will prove, but of fishermen, campers, settlers, and woods travellers generally. It is the careless citizen, himself a shareholder in the Canadian National, who can wreck or maintain these forest resources so essential to our national prosperity and the successful operatoin of the public owned

railway system."

## Join the Empire Forestry Association

(INCORPORATED UNDER ROYAL CHARTER)

The Object: To federate in one central organization voluntary associations, individuals or corporate bodies engaged or interested in the growth, marketing and utilization of timber throughout the British Empire.

Patron: H. M. the King.
President: H. R. H. the Prince of Wales.
Chairman of the Governing Council: Rt-Hon. Viscount
Novar, P.C., etc.

Hon. Treasurer: Sir John Stirling Maxwell, Bart. Secretary: J. S. Corbett, 17 Victoria St., Westminster, S. W. I.

The vital importance of strengthening the hands of the Empire Forestry Association is indicated in the following resolution moved at a recent meeting of the Association in London by Lord Lovat, Chairman of the British Forestry Commission:—

"That in the opinion of this Meeting a determined effort is needed to secure the early extension in all countries of the British Empire of a constructive forest policy, whereby the natural sylvan resources of the Empire may be scientifically conserved and prudently exploited for the mutual benefit of the British Commonwealth of Nations; and further, that this Meeting recommends as eminently deserving of public interest and support the newly inaugurated Empire Forestry Association, which is pledged to supplement the normal activities of official departments and bureaux by constant education of public opinion in the matter of forest problems and policy, by steady endeavour to stimulate the wider utilization of the many valuable commercial timbers of the Dominions, Colonies and Protectorates, and by the promotion of mutual friendship and cooperation between forest experts in all parts of the British Empire."

Members of the Canadian Forestry Association desiring further information and complete membership blanks may address Mr. Robson Black, Manager, Canadian Forestry Association, Ottawa, (Member of the Governing Council of the Empire Forestry Association).

#### APPLICATION BLANK.

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Signature....

Address....

N.B.—Cheques should be made payable to the Empire Forestry Association.

#### SWITZERLAND'S COMMON SENSE

Switzerland to-day reaps the benefits of her wise policy of forestry pursued for hundreds of years. Out of every 100 square miles of territory, 17 are covered with forests. The municipal forest of Zurich, famous throughout the world, has been producing timber continuously during the last 600 years. Crop after crop has been grown and marketed and new crops started. It is a common saying in Europe that "Switzerland holds her mountains up and her taxes down" with her forests. These forests, largely municipal, protect farms and towns by preventing landslides. In addition they pay dividends which materially reduce tax levies. Moreover, it is her forests, as well as her mountains, which make the men of Switzerland strong and self-reliant. It is her forests, too, which help to attract and charm tourists.

#### FACTS LITTLE KNOWN

Over one half of the population of the United States and Canada live in wooden houses.

Over two-thirds of the population of America use wood exclusively for fuel.

More wood is used for shipbuilding today than when wooden vessels were the only ones afloat.

The people of this continent are using almost twice as much wood per capita as they did fifty years ago.

#### TO HIM WHO PLANTS A TREE.

Perhaps our God has somewhere made a thing
More beautiful to see
Than a majestic tree;
But if He has, I think it grows
In heaven, by the stream that flows
Where whiter souls than ours do sing.

Who plants a tree, he is akin to God,
In this impatient age
Where quick returns engage
The fevered service of the crowd.
In reverent wisdom he is bowed
And hides his purpose in the clod.

The blessed man that plants a long-lived tree
That shall grow nobly on
When he is dead and gone,
He seems to me to love his kind
With true sincerity of mind,
He seems to love his fellow yet to be.

Above his grave the suns shall flush and fade,

The seasons come and go

And storms shall drive and blow;

But sun and rain that from his tomb

Efface his name, renew the bloom

And glory of the monument he made.

—Author unknown.

# Prize Essay in Barnjum Contest

PRIZES have been awarded by Mr. Frank J. D. Barnjum in the Prize Essay Contest on Practical Forestry as follows:—

First prize: \$500 to P. Swanson, Timmins, Ont.

Second prize: \$250 to M. Currie, Grand Mira South, Cape Breton.

Third prize: \$150 to Donald C. Oxley, Annidale, Greens County, N. B.

Fourth prize: \$100 to R. M. Brown, Pincher Creek, Alberta.

Mr. Swanson's essay is to be printed in two instalments in this magazine. The first instalment follows:—

No question faces Canada today of such national importance as the question of Conservation and Preservation of Natural Resources. The best minds of the Dominion should be fastened upon it. Men of vision and courage are already speaking with a frankness that is reassuring; these are the men the Dominion needs—men who through wide experience and sound judgment, foreseeing the future, have the courage to speak and act in the present. Especially are such men needed in dealing with the problem of forest protection. It can be said with a certainty that forbids dispute that, unless the leaders of our nation act with both vision and courage, the forests of Canada will be as a tale that is told.

When we remember that the industrial life of Canada depends to an unique degree on our forest wealth, is it any wonder that the far-seeing men are crying for urgent protective measures to be taken? With the complete depletion of our timber lands, it takes no imagination to calculate the consequent detrimental effects on many of our greatest industries, e.g., lumbering, shipbuilding, mining (underground timbering), the saw-mill, the pulp and paper mills; factories engaged in the production of equipment of the above industries, transportation, both rail and sea. In short, the industrial life of this country would collapse. Forest Protection and Preservation is a question of paramount importance; it is the greatest economic problem facing this young country.

Nowhere are the facts so startlingly arresting. A few will suffice. Canada possesses today 1,900,000 square miles of soil covered with forest, roughly one billion acres, yet in the past seventy-two years, the life-time of one generation, two-thirds to three-fourths of our timber wealth has been destroyed by fire; in other words, 1,000,000 square miles has been denuded of its standing timber. What does that mean? A child can answer the question—and fire is only one agent of forest destruction!

Another fact: East of Cochrane along the Transcontinental to La Tuque less than 1,000,000 cords have been cut and hauled to the rail. Yet 20,000,000 cords of wood have been destroyed by fire! Is forest-fire a great menace? Do we need more adequate forest protection from fire?

Right here, bear in mind that the appalling loss caused by a fire through virgin forest is not the only loss suffered through fire. This fire-swept area becomes a fertile field for another fire. The fact is indisputable that repeated fires over the same area are most prevalent. Witness the Cumberland area in Nova Scotia, the Miramichi in New Brunswick, and the Porcupine in New Ontario. What are the results of the repeated fires? These: the remaining seed trees are wiped out and all



Drawing for and presented to the Cause of Forest Fire Prevention

By F H Ellis (late R.A.F.)

thrifty young growth is destroyed. The truth is that the repeat fire is as disastrous as the original fire. Another fact: during the fall and winter of 1920 and 1921, freight on a cord of pulpwood from points along the T. & N. O. and the Transcontinental in northern Ontario to pulpmills in the United States was \$16.00; the price paid for this cord, cut and hauled to the rails, ranged from \$14.00 to \$20. This for wood as small as 2½ inches in diameter. Were the pulp magnates of the United States eager to get our fee land wood? Is forest fire the only danger threatening our timber supply? Again: with the exception of two large companies the larger mills of the United States have an adequate supply of pulp from their own timber lands for only a very few years. United States pulp mills use 5,500,000 cords of wood each year! Where are they going to get their future supply? Do Canadian forests and Canadian industries need protection from fire alone? Will they need it more in the future? Yet another fact: In one timber limit in the Province of New Brunswick, 65% of the standing timber was destroyed by the spruce bud-worm. This is the insect that destroyed 50% of the spruce and fir stand of Maine. It is making head-way in Northeastern Quebec, where it is followed by the black beetle which attacks the balsam fir. The bud-worm is only one of many parasitic pests, and there is still left other agencies, e.g., the wind which causes tremendous loss-and people think that more forest protection is the mania of a few!

The truth is—let us be frank—that logging operations conducted each year throughout the Dominion is a direct attack on the capital wealth of our forest herit-

age. Whatever normal growth there is, is totally offset by the tremendous losses caused by fire, insects and other devastating factors. The above facts are well known. Every close observer of our forest life knows them to be true. They are repeated here to emphasize the facts and they are facts that cannot be over-emphasized. True as these things are it may well be asked, how can they be remedied; and this, after all, is the supreme question. What measures can be taken that are practical, workable and capable of enforcement, which will preserve, or tend to preserve our forest life?

It will be conceded by the great majority of people that the forest fire is by far the greatest menace threatening our timber supply today. For a proper solution of this problem, the problem of the forest fire, the essential aim is the total prevention of fire. Failing this, we must direct our attention to more efficient methods of fire fighting, with its subsidiary problem of eliminating all factors contributing to the progress of this awful menace.

### What Causes Fires?

It is imperative in a study of this question to distinguish carefully between direct causes of fire and factors contributing to its progress. It has been stated and stated often that logging slash and debris is a fertile cause of fire. This assuredly is not the case, but is perhaps the greatest factor to contributing to its onward journey. The chief direct causes, I think, are three, namely, carelessness on the part of settlers burning slash in all newly-opened districts; carelessness on the part of intruders such as fishing and hunting parties, prospectors, surveyors, riverdrivers in our immense timber areas during the dry summer season; sparks from smoke-stacks of engines whether locomotive or stationary, possessing defective screens. Among those classified as intruders, river-drivers may not properly be entitled to the term, as their work is closely related to an industry based on forest life, but the others are intruders and nothing else; they have no appreciation of the care that must be exercised while journeying through the woods in summer; they have no love for the forests apart from the profit they derive. Other causes there are undoubtedly, e.g., lightning and incendiary, but they are negligible compared to those stated above. An examination of each, with possible remedies for their extinction, will prove profitable.

Carelessness on the part of the settler in burning slash is a more fertile cause of fire than is generally believed. Only the other day, one of the leading officials of one of our greatest pulp companies stated that fires resulting from spread of a settler's burn were negligible. The facts are not with him. How does he explain that the fires that originate far from where man lives are few, very few, compared with the fires that have worked from the settlers burn into some great wooded limit, in short, has had its origin in carelessness on the part of the settler? This carelessness is easily explained. There is a deeply-rooted belief among the settlers that fire is a beneficial thing, that land can be more quickly and easily cleared where fire has swept, provided the available standing timber has been utilized. It cannot be denied that from the standpoint of the settler he is right in so far as his own land is concerned; but he must be awakened to a sense of public ownership, that he is only one of many, that the private gain must be effaced for the common weal. It is with reluctance that one is forced to state that you cannot educate the settler to a sense of national duty through pamphlets or signs. He must be dealt with drastically. The only remedy is simple, viz.: the imposition of a heavy fine on all the settlers who fire without a permit, and those who do not carry out

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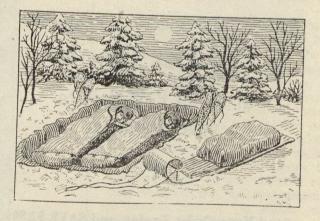
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the conditions of the permit. A permit demands that a "slash-burn" must be watched by men sufficient to keep it from spreading. This part of the permit is honored more in the breach than in the observance. A strict watch, while slash is being burnt, is absolutely necessary, and any settler not living up to the conditions of the permit should be heavily fined. One or two fines will educate the settlers of a district more quickly and thoroughly than any other method.

The second major cause of the forest fires is the carelessness of all those who enter or journey through the woods in the dry summer season, either for pleasure or work, e.g., fishing and hunting parties, prospectors, riverdrivers, etc. They lack intimate personal knowledge of the disastrous effects of their negligence and therefore might be rightly termed intruders. It has been suggested that such intruders should only be allowed entrance into the woods by means of permits issued by officials of game clubs, and by officials of the Crown. This undoubtedly

would be a wise move.

The two chief faults of these intruders are negligence in extinguishing camp-fires and carelessness in smoking—faults which cannot be eradicated without the passing of certain legislation. Last summer I witnessed a forest fire of considerable dimensions caused by a river-driver carelessly throwing away the butt of his cigarette. In the Olympic Peninsula, Washington, the United States Secretary of Agriculture has forbidden smoking. Canada can do no less. Each province should pass legislation, heavily fining those found guilty of smoking in our forests and all those found guilty of carelessness in extinguishing camp-fires. Private rights must be sacrificed for the common weal, and if not willingly, then by compulsion.

To be concluded in the October issue.

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# N. B. Forest Industries Rapidly Approach 50 Million Mark

L. R. Webb, Assistant Forester of New Brunswick

EW BRUNSWICK yet ranks fourth among the provinces of the Dominion in timber production. The amount of capital invested in the forest industry has steadily increased until today the capitalization totals about \$45,000,-

000. This includes the manufacture of lumber, lath and shingles, the pulp and paper industry which has grown rapidly the last ten years, and the numerous planing mills, sash and door factories, hardwood industries, etc. It is expected that with the con-



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tinued growth of the industry, especially the pulp and paper and the hardwood industry, which is slowly but surely being established in this province, that the valuation of the industry will soon pass the Fifty Million Dollar Mark. Through continued development, New Brunswick is hold-

ing firmly to fourth position.

The annual payroll in the production of lumber, lath and shingles amounted in round numbers to a little over 51/2 million dollars in 1919. Add to this the yearly payroll of the other industries which totals over \$1,000,000 and we may begin to realize the great importance of this great basic industry to the prosperity of the province. Continued growth has been possible because the province yet contains a considerable amount of raw material in the shape of green forests, which may be regarded as capital producing crops through the simple process of growth. About 65% of the total area of the province is

Thus is seen the necessity of keeping the forest land productive. It is most essential that the mills always maintain that industrious and healthy appearance, a direct contrast to the deserted village of tar paper shacks, rusty stacks and disbanded equipment of worked out mine. Lumbermen have realized that judicious cutting will not hurt the forest. What they do fear is Forest Fres, which through the destruction of the raw material renders valueless the immense amounts of capital invested in plants and equipment. It should be remembered by all those going into the forest on business or pleasure that the first or foremost habit to acquire is that of Being Careful of Fires. It is an easy habit to acquire if one will only practice it on the lighted matches, burning tobacco, and abandoned camp fires, and it will result in reduced destruction to the forest crop.



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# How Paris Manages Her Shade Trees

By Wm. Solotaroff,

Sup't. Shade Tree Commission of East Orange, N.J.

A S the trees on a street advance in age and the failing specimens become in the majority, the plantations would look ragged if an attempt were made to replace only the dead trees while those that were still alive, but also on

the verge of decay, were left standing. Then when the new trees re-established themselves, the old trees would die, and under such conditions it would no longer be possible to maintain a uniform planting. It is best to set out new trees entirely. The soil

should be renewed and as a general practise it is best to replant with a different species.

Dr. W. A. Murrill writes in his bulletin on "Shade-Trees," "I was struck by the absence of old or even large trees on the streets of Paris. All trees seem about the same in age and size, and all are in the very prime of life."

The splendid condition and the imposing effect of the street-trees of Paris is due to the most painstaking methods of planting and culture; the partial replacing of failing specimens just so long as the uniformity of the trees can be so maintained; and, finally, the renewal of the plantations entirely when the majority of the trees begin to fail.

The planting of small trees between old ones is a bad practice, because it is hard to establish young specimens in such cases. They grow slowly on account of the cutting off of sunlight, they tend to shoot upward rather than to spread, and the roots of the old trees invade upon the available food of the young trees. If, however, it is found desirable to interplant young trees among large ones, which are to be removed when the young trees grow up, then the branches of the old trees should be so trimmed as to allow plenty of sunlight to reach the small ones, and the roots of the neighboring trees should be cut so that they will not interfere with the new specimens.

The period of the duration of life of city trees is much less than that of the same species growing in the forest. Their length of life depends upon the conditions of soil and the care and culture bestowed upon them.

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### WORK IN THE MARITIMES.

THE Canadian Forestry Association is now giving a special news service to fifty of the newspapers of New Brunswick and Nova Scotia by means of brief articles written by a New Brunswick authority dealing with various aspects of forest protection and the vital interest of the Maritime Province in the preservation of their forests..

# Fighting Forest Infestations

Reports from Various Parties Engaged in Work Indicate Considerable Progress

R. J. M. Swaine, of the Division of Forest Insects of the Entomological Branch, reports a very interesting situation in connection with the outbreak of spruce bark beetles which he has been investigating recently in the Gaspé Peninsula. On a considerable section of the infested area, a great fire killed the timber in July of last year. On this burn all the large spruce which were scorched only at the base, are now attacked by the destructive spruce bark-beetle and survey has shown that the dying trees have drawn the infestation almost entirely from the healthy timber for a long distance around the burned area. These trees will serve as trap trees and during the coming winter a lumber company which owns a large part of the limits will concentrate on cutting the infested spruce on the burn. Those logs will be removed in the drive early next spring and any other infestation will be treated in the proper way according to directions. It is hoped that this work will decidedly check the depredations of the beetles on a large part of the infested area.

Doctor F. C. Craighead reports that his survey party at Pessiguit Brook, between Bathurst and Newcastle, N.B., has completed its work. It is now planned for them to spend about ten days studying spruce budworm injury near Warenton, twenty miles from Newcastle. This survey has obtained a very large amount of valuable information regarding budworm injury to red spruce. Further details will be given when complete reports are available, but it may be noted that although spruce was not seriously injured in Quebec, on large areas, in northern New Brunswick,



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surveys have shown that as high as 50% of the spruce has been actually killed by the outbreak, as well as more than 75% of balsam.

Mr. Ralph Hopping, in charge of forest insect work in British Columbia reports splendid results from detailed experiments in connection with pine and Douglas fir bark beetle outbreaks in central British Columbia. These experiments are directed toward improving methods of control in completing information regarding the conditions of attack on healthy trees. The control work carried out during the last two years appears to have been successful to a most gratifying degree. Mr. Hopping reports almost no infestation on the areas previously treated. The control work this year is largely on new ground and will probably be quite as successful.

A membership in the Canadian Frestry Association will pay handsome dividends to your children's children.

### Handling a Farm Bush for Profit

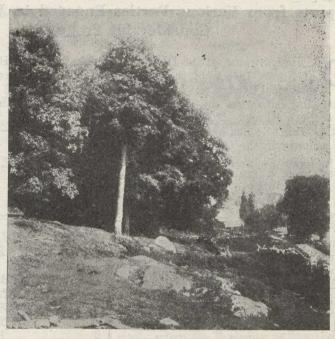
By J. A. Ferguson, M.F., author of "Farm Forestry."

THE trees in the farm woodlot can be considered as forest capital from which an income is to be derived or the same as money in the bank at interest. The amount of wood that is laid on the trees in a year, the annual growth, is the interest on the forest capital. If the amount of wood produced by each tree every year is large, owing to rapid growth, a high rate of interest will be earned by the woodlot.

Unless the trees in the woodlot are fast growing species of trees and unless they are given the proper amount of space for their best and most rapid development by means of thinnings, a low rate of interest must be expected. Like any other business, the returns from the woodlot will depend on the kind and amount of capital in the business, and also on how that capital is handled.

It is important to know the amount of timber that can be removed annually from the woodlot without detriment to the forest capital. It is a common saying that a farmer cannot use his woodlot and have it too. This is because as soon as he begins cutting in the woodlot it is not many years before the woodlot is in a wornout condition, the trees standing far apart and grass and weeds covering the forest floor. This results from not knowing the amount that can safely be removed each year. In this case instead of cutting the interest only the owner has been cutting into the forest capital. The amount that can safely be cut from the woodlot each year is the amount that grows each year or the interest earned by the forest capital. If more is cut the woodlot will soon run out.

A cord per acre per annum is an old measure of the growth of the ordinary woodlot. There are, however, few woodlots that grow at that rate. Most of them produce but half a cord or less per acre every year. In cutting it will not be safe to figure on a high yield. Raising the yield is the problem of the farm woodlot. With a well stocked stand of fast growing trees that



Waste land should be planted with forest trees. No land on a well-managed farm should be idle.

are given the proper room for their best growth by means of thinnings, a cord per annum and more should be produced. The yield should be placed at a certain amount and if the owner finds that after cutting a few years the woodlot is becoming thin, a less amount should be removed annually. If, on the other hand, the woodlot is becoming overstocked with large trees, a larger amount can safely be removed.

### Protecting Against Prairie Winds

THE Canadian Forestry Magazine received the picture below by kindness of Mr. L. L. Devlin of Winnipeg, with the following interesting particulars:

"During my vacation this summer I had the pleasure of visiting the farm of J. Nesbitt Poole situated five miles north and one and a half miles west of Neepawa, Man.

"Enclosed is a snap of part of the grove at this farm. This grove is about 35 rods long and consists of 3 rows



of spruce, (with a sprinkling of Tamarac and Jack Pine) 2 rows of Manitoba maple, and one of Russian Poplar. The Spruce and Maple average about 30 feet high and 6 inches in thickness. The Poplar are much larger averaging 35-40 feet in height by 10-14 inches through. This grove was planted about 22 years ago by Mr. Thos. A. Poole, a brother of the present owner, now resident in Neepawa.

"Mr. Vincent Grainger is the present tenant and fully appreciated the benefits of this wind-break last winter."

# Radio Broadcasts Fire Warnings

THROUGH the generous co-operation of the Marconi Wireless Telegraph Company of Canada with the Canadian Forestry Association, ten-minute weekly talks on the cause and prevention of forest fires and other forestry topics are being broadcasted from the powerful stations of the Marconi Company at Montreal and Toronto and probably Halifax during the Summer months. There are now thousands of installations of radio, the users of which will listen in on the forestry "lectures" and will likely gain from them instruction and entertainment that help build up a valuable public opinion. The action of the Marconi Company will be greatly appreciated by all interested in the conservation of the forests.



"The Flowers that Bloom in the Spring," -(and Winter too) should be considered now.

# cDonald's Fall Catalogue ready September 1st,—is replete with good things in Bulbs, Plants, and Shrubs, in the best standard sorts,

suited to our Canadian climate; while in novelties of real merit our offerings will be found quite in advance of most houses.

Let us mention but a few of the good things we are listing:-

# **Bearded Irises**

### McDonald's Superb Iris Collection

Lac	h
Caprice, rosy red, handsome	0 )
Jacquesiana, coppery crimson and maroon20	One of
Mrs. Newbronner, deep golden	each for \$1.00.
Pallida Dalmatica, lavender	carriage
Violacea Grandiflora, rich blue	prepaid.

# **Peonies**

### McDonald's Superb Peony Collection

Each	Each		
Albert Crousse, salmon-pink\$1.00	One of		
Festiva Maxima, one of the best whites .50	each for		
Felix Crousse, brilliant red	\$3.25		
L'indiepensable, immense pink75	carriage		
Mons. Jules Elie, deep shell pink\$1.00	prepaid.		

### McDonald's Creme-de-la Creme **Peony Collection**

	Each	
Le Cygne, the finest white	\$20.00	One of
Mons. Martin Cahuzac, dark garn		each for
Primevere, buff and sulphur-yello		\$40.00
Therese, beautiful soft pink	\$6.00	carriage
Tourangelle, finest pink	\$7 50	prepaid

### McDonald's Special Hyacinth Collection

For many years this popular collection has given the greatest satisfaction to thousands of flower lovers. Strictly select "top root" bulbs are used.

Here is an opportunity for you to try out,—at a reasonable price,—six of the finest Hyacinths that grow:

Admiral Courbet, deep violet-blue
City of Haarlem, bright golden yellow
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Lady Derby, beautiful soft pink, lighter centre
compact spike
Queen of the Pinks, the best pink in our list.

One of each for .90c. postpaid.



Write NOW for McDonald's Fall Catalogue containing the newest and best in Bulbs, Plants, Shrubs.

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### McDonald's Creme-de-la-Creme Iris Collection

	Each	
Ambassadeur, reddish, violet and purple	\$4.00	(
Cluny, lilac-blue, shaded deeper	\$2 00	One of
Lent A. Williamson, Campanula- violet and royal purple	\$5.00	each for \$17.50
Magnifica, violet-blue and reddish violet	\$4.00	carriage prepaid
Zouave, lovely soft lilac	\$5.00	caudid.



# AERONAUTICAL SECTION





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

# Showing an Aviator How He Flies

Several devices are now being employed to test ability and technique of pilots.

A FTER nearly twenty years of flying without knowing just how he did it, man has now conceived a means of recording what an aeroplane pilot does and how the aeroplane responds. Aeroplane designers, builders, owners, instructors and pilots are delighted, though surprised, over the revelations of a method of recording accurately what an aviator does in executing any maneuver in an aeroplane, and also for securing exact data on the performance of an aeroplane in flight. This method has just been devised by the aeronautical experts and pilots of the National Advisory Committee for Aeronautics.

Three special instruments have been perfected to record the speed of the aeroplane in the air, the loadings or changes in weight on the wings, and the movement of

the controls by the pilot.

Although fairly complicated themselves, the operation of these instruments is simple and mechanical, the recording being done by means of a photographic film. The results reveal for the first time a practical method of securing information in testing new types of aeroplanes, and for determining the ability and technique of a pilot. The last function of the instruments will be of great value to the pilots themselves and to instructors of novices, who are seldom able to recall just what they did with the controls at a certain point of a flight.

### Three Instruments Record All Moves

The first instrument is an air speed meter, a device for recording the speed of the aeroplane through the air. A second is used for recording variations in the loading on the wings in flight, and the landing carriage when landing, taking off, or while running along the ground. In flying through a loop, for example, the pilot is sitting down hard as he goes up and again as he flattens out, but he is literally hanging in his belt at the top of the loop. It is these variations in load on the wings, due to the weight of the aeroplane and the aviator in the air that are recorded by this instrument and the weight on the carriage while on the ground. The third device, the control-position recorded, indicates the exact position of all the controls during any maneuver, or part of a flight. When the pilot gives his ship left rudder it is recorded in degrees, when he dives by pushing on his "stick," or pulls it back to lift the nose, these movements are shown on the record of the flight. After he lands, there is no argument as to what he did, for it is plotted from an automatic record. If one pilot reported that a certain aeroplane was not controllable, he could be checked up by having another pilot put the aeroplane through the same maneuvers, and then comparing the records of both pilots as delineated by this new instrument.

### Instruments Act in Unison

These three instruments are synchronized to operate simultaneously, by means of a timing device which makes possible the co-ordination of the three records into a composite one available for study and analysis. The instruments themselves are not bulky and they do not interfere with the movements of the pilot oroperation of the aeroplane. All the attention they require is the throwing of a switch, before a maneuver is begun and when it is completed, to see them all in operation and to stop them.

When the flight is completed the photographic records with their delineations of the pilot's movements and the aeroplane's performance are taken to a laboratory, greatly enlarged for study, and then plotted on a single sheet so that a complete story of the particular flight or

maneuver is ready for analysis.

The instruments developed have been employed at the Committee's free-flight laboratory at Hampton, Va., by Test Pilot Thomas Carroll, in studying ordinary and stunting maneuvers, including looping, rolling, the socalled Immelman turn and reverse turn. An extensive study of landing and taking off also has been made.

In his report on the tests, Pilot Carroll points out the importance of taking off and landing, which are the determining factors of the efficiency, and perhaps long-evity, of a pilot. Of the two, he says, landing is perhaps the most important, for it is in this phase that the majority of accidents and damages occur. A paper on taking-off and landing by Major R. M. Hill, a British flying officer, is the only one known to have been published on these important maneuvers, and it was this treatise which inspired the tests and developments undertaken by the National Advisory Committee for Aeronautics in this country.

### Keeping Tabs on the Pilot

Applications of this research work are seen in designing new aeroplanes based upon performance tests, testing ad-

vanced and hitherto untried types, and for study by instructors and pilots themselves. The author states: "It reveals to even the skilled pilot startling facts as to his technique." "It is surprising to the flier," he says, "to see an accurate record of his every movement of the controls in the air and the fluctuation of the loading and air speed which have given him but fleeting impressions while he was in the air." Up to the time of these developments in recording instruments, designers and engineers had to depend upon the memories of the test pilots as to the performance of a particular aeroplane. The pilot's recollections were often vague and they frequently disagreed as to the same aeroplane, due perhaps to the personal equation. Today, however, a review of the finished chart by the flier enables him to recall his actions, the response of the aeroplane, and give a comprehensive report, which frequently adds much to the delineations on the chart.

#### Hitting a Four and One-Half Ton Blow

In one of his recent tests, Pilot Carroll made an especially bad or "pancake" landing, by levelling-off about six feet above the field, instead of a foot or so as is usually done, to see what effect on the aeroplane a loss of flying speed at that height would have. The record of the blow in vertical acceleration showed that he hit the ground with a force of 4½ times the weight of the aeroplane, or a total force of about four-and-a-half tons. Strangely enough there were no dire results, except that one of the rubber shock absorbers broke. In careful and regular landings this force seldom exceeds 1½ to 2 times the weight of the aeroplane.

Further developments in perfecting these recording instruments include the addition of a recording device to show the progressive speed or revolutions of the engine, and another device to record the actual force or power the pilot applies to his controls, that is, how many foot pounds he exerts in pulling his stick back or pushing it forward in a particular movement. This, it is said, will indicate whether or not the pilot "drives" with a loose or tight rein, and whether he abuses his controls and the

aeroplane itself.

### HEAT WAVES GAVE THRILL TO AVIATORS,

Flying directly above a fire-swept area is as thrilling as "shooting the rapids" in a small canoe, according to pilots from Jericho seaplane station, B. C. who flew to Hardwicke Island, where they delivered a pump and hose to fire-fighters. Dense smoke forced the pilots to fly close to the ground so they could see where they were going and the blazing forest caused heat waves which made flying extremely difficult.

The party, piloted by Major C. MacLaurin, left again for Thurston Bay, accompanied by Major L. R. Andrews, district forester to survey fires there. Pilot Earl McLeod took another party of department of agriculture.

culture officials to Alert Bay.

### A FLYING CABINET MINISTER

The first Cabinet Minister in Canada to utilize aircraft in the discharge of his official duties is Hon. Mr. Patullo Minister of Lands of British Columbia, who left recently on a seaplane trip visiting many points on Vancouver Island and the Mainland coast. British Co'umbia now uses seaplanes as an essent al part of its forest protection system, thereby economizing greatly the travelling time of its chief officers.

# **TRANSPORTATION**

is one of the biggest problems confronting Forestry executives, particularly in wood operations.

Preliminary surveys, cruisers reports, personal inspections, logging operations—all depend upon transportation for efficiency, economy, and thoroughness

The same problem confronts the engineer, the prospector and the miner. Again transportation is probably the biggest single factor making for success or failure.

The more rugged and remote the area—the greater become the advantages of aircraft. The air is free to all, exists everywhere, and is the same over water, woods, muskeg and snow—settled or unsettled country. Aircraft measure distances by straight lines—and travel direct.

The cost of air travel is reasonable—to any man whose time is valuable or who requires prompt accurate reports and is willing to pay a reasonable price for value received. Efficient operation requires experienced pilots, skilled mechanics and an organization of specialists which requires years to build.

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# Controlling Forest Fires from the Air

Rangers supplied with food and equipment—Managers supervise fire fighting from aloft.

By Ellwood Wilson, Chief Forester of the Laurentide Company.

N receiving a report from an air pilot at Grand'Mère recently regarding several forest fires a flight was made to locate the fires, ascertain the damage done, and to plan for their control. Almost immediately the plane was in the air, smoke could be seen in heavy clouds to the north, and within an hour the scene of the first fire was reached. It seemed literally to be eating up the stands of conifers, and flames could be seen rushing up the trunks of the trees and rushing on before the wind. The fire was seen to have a front of about six miles, then there was a gap and to the west another fire with a front of fourteen miles was burning and sending up a barrier of smoke so dense that one could not see across it. The smell of smoke was distinct at five thousand feet. The areas already burned were noted and the plane pushed on to the nearest point where fire-fighters could be obtained and landed. The boat used for landing during the previous season had been taken away so that it was necessary for one of the crew of the plane to swim ashore with a line for mooring. The plane was refueled and the Company Depots were notified to send men by canoe immediately to the scene of the fire. We heard that the Manager of the Fire Protective Association was on his way to take charge of the work, having left about ten in the morning by automobile. The plane had left at 12.30 and had arrived at the district headquarters, after looking over the fires at about two. The Manager hove in sight about four. He was immediately taken up in the plane to look over the situation and at eight that evening the plane started back to the base. About nine it was becoming too dark to land comfortably at the base so we dropped down at a Club and spent the night. The situation as seen from the air was so serious that a meeting of the Fire Protective Association was held and immediate steps taken to improve the service. All the fires but one seemed to have been set by men hunting, fishing and trapping in the woods, of whom there were many owing to the scarcity of work. The Fire Protective Association directors went to Quebec and met the Executive Council of the



Inspection officers of the St. Maurice Forest Protective Association on a canoe journey in Central Quebec.

Government and the Premier and asked that the law, passed at the last session of the legislature, empowering the Minister of Lands to forbid all persons entering the forests without first securing a permit, be immediately put in force. The Cabinet, after the hearing, immediately issued an order-in-council requiring everyone going into the woods to obtain a permit and the priests in all the parish churches were asked to give out the notice at the following Sunday service and the order was published in the newspapers. Men were appointed in all the towns and villages near the forest to issue the permits. The Government of Quebec is much to be commended for passing such important legislation and for the promptness with which the situation was met and the law enforced. From the 31st of May until the 10th of June the plane patrol was continued. Messages were dropped, ordering men on the drive to go and fight fire. The Fire Inspector in charge of the district was flown over the fire daily so that he might see how best to fight it, all the men fighting one fire were kept in provisions which the plane carried in, and men to take charge of the firefighting crews were taken to and from the fire by air. The fires this season have demonstrated that men travelling in the woods as patrolmen

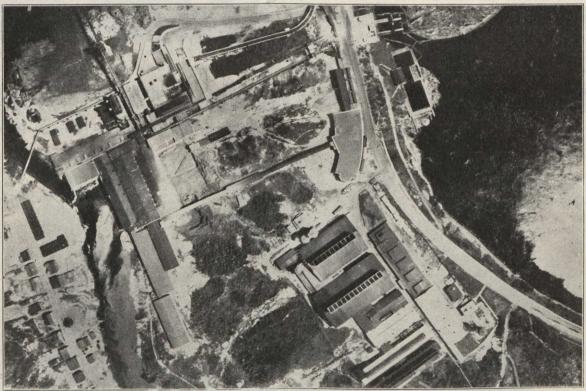
in canoes do not discover fires soon enough and are not able to visit their territory often enough. Also that fires can only be controlled by men who understand how to fight them, and who are willing to put their whole hearts and souls into the The idea that a fire once started cannot be extinguished is wholly erroneous and is but a confession of weakness on the part of the man holding it. Lookout stations, supplemented by air patrol, with planes to carry men, provisions and fire fighting equipment and to direct the fire-fighting will very soon make disastrous forest fires things of the past IF the personnel is right.

### WOOD IMPERVIOUS TO DECAY

HE wood of the mangrove tree which grows abundantly in French Guiana, is said to be impervious to rot; at least, it has not rotted under the severest tests given it for four years by a French railway company. The grain of the wood is so close that it practically excludes moisture and it has the further protection of a large amount of tannin in its composition that prevents the invasion of insects and protects it from mold, damp, etc. Its discovery is important, especially to users of railway ties and telegraph and telephone poles.



Oblique View, Showing Plant and Location.



Vertical View, Showing Plan of Above Picture.

R ECONNAISSANCE and preliminary surveys for all engineering projects and developments, maps and estimates of timber properties, can now be made in a fraction of the time required by the old methods. Timber cruises can be made more quickly and accurately, covering 100% of the area. Aerial photographs give a far better and more accurate idea of a country than any map and enable the executive to form his opinions at first hand. Generally the work is cheaper than for ground surveys. Reports on all kinds of engineering work, timber surveys and estimates will be made, information given and prices quoted by

# FAIRCHILD AERIAL SURVEYS CO. OF CANADA LIMITED

Five Years' Experience

GRAND'MERE, QUEBEC Associated with Laurentide Air Service

# Commercial Flying in Canada

Air Board Report Indicates Reasons for Gratification with Progress

N General Progress Report No. 10, covering activities of the Canadian Air Board for the months of October, 1921, to March, 1922, inclusive, reference is made to Commercial Flying in Canada, the extent and character of the work being graphically illustrated in a very excellent photographic map containing intimate details of the character of work in various parts of the Dominion. The Report comments thereon, in part, as follows:—

To those interested in Commercial Aviation, the progress made during 1921 may appear disappointing. The number of firms operating decreased from 35 in 1920 to 31 in 1921. The number of flights 18,671, mileage 422,-462 and total duration 6,505 hours flying in 1920 dropped to 10,386 flights, 294,449 miles and 4,347 hours in 1921. The number of passengers carried decreased in the same way from 15,265 to 9,153. The freight or express carried, however, shows a remarkable increase from 6,740 pounds to 77,850.

The figures are symptomatic of what is occurring throughout the world at this stage in the development of flying. During the war there was no commercial aviation and the public had no opportunity of flying. Everyone had learned of the tremendous progress made in aviation and their interest had been aroused by the work of the flying services during the war. Commercial aviation, therefore, received a tremendous impetus after the Armistice was signed. Numbers of young pilots, keen on continuing flying, were available and surplus machines were

cheap and easily obtainable. Small flying companies sprang up in every city and town and the public flocked to see, for the first time in many districts, the wonderful machines of which they had heard so much and to experience the pleasure of flying.

The inevitable reaction is now taking place. The great publicity given to flying accidents has shaken the public confidence in the new form of transport, the cost of operating machines is found to be high and the public no longer cares to pay fancy prices for a few minutes flying. Financial conditions prevent the investment of money in ventures of which the success has yet to be proven and many companies have been forced to discontinue their operations. On the other hand, in those forms of aviation which are sound, headway is being made by those firms who are operating aircraft along useful lines under efficient management.

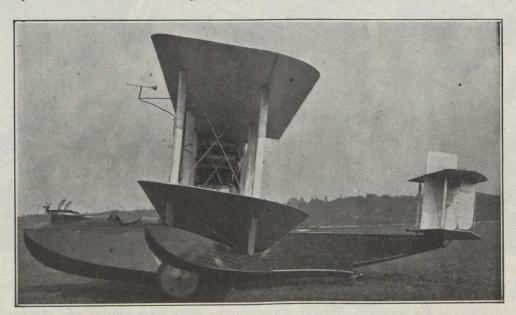
While passenger carrying and exhibition flying still comprise the major portion of the work, yet the other forms are already beginning to show that progress is being made in the more useful, and, in the long run, more profitable forms of flying. The widespread activities show that flying is no longer an exceptional feat, but is becoming gradually an ordinary phase of transportation throughout the country. This is as it should be and the sooner the idea that there is anything out of the ordinary in the sight of an aeroplane, the better for commercial flying.

The steady progress made by the firms employing aircraft as a subsidiary to their main operations is perhaps the most gratifying of the operations during the year. In the Province of Quebec several of the large pulp and paper companies are now employing aircraft regularly in connection with their forestry work, for sur-

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A Picture of a Movie Star in Every Package

vey, fire protection and transportation within their limits. The success attending such developments gives promise of a steady outlet for commercial flying.

#### An Auxiliary Service

In Canada at present it is felt that competition with existing methods of transportation is a mistake, except under exceptional circumstances. The real opening for flying is as an auxiliary to railroad, steamboat and motor transport, not in opposition to them. In the remoter parts of the country where transportation is undeveloped and the canoe, pack-horse or dog train are the only methods of travel, aircraft fill an urgent need. They provide a safe, reliable and rapid means of transport and make possible journeys which can now be only undertaken by laborious and lengthy methods. The operations carried out by the Imperial Oil Company in the Mac-Kenzie Basin from Edmonton north to Fort Norman show what can be done even with an incomplete organization and it is a great misfortune that the developments in the north did not justify the maintenance of this service, which was closed down just as the initial dif-ficulties were being overcome and experience was being gained in the operation of aircraft under entirely novel conditions.

During the past winter further work of this pioneer character was carried out by the Laurentide Air Services of Montreal. Four flights were made by machines, fitted with skiis, between Cochrane, Ont., on the National Transcontinental Railway and Moose Factory on James Bay. The average flying time between these two points was about two and a half hours as compared with eleven days by dog team in winter or canoe in summer.

Considering progress as a whole there is no need for

discouragement. Aviation is passing through a normal phase of its development. The boom period following the war is dying down. Consolidation is taking place and experience is showing those operations which will prove not only profitable, but of value to the community as a whole. This phase will continue for further period of years, during which the more temporary phases of flying will disappear and useful forms of work will gradually be developed. The opportunities for commercial flying in Canada are prographed in any part of the world. Developed Canada are unequalled in any part of the world. Development takes time and financial conditions are adverse, and those interested in aviation may look forward with confidence to steady progress along sound lines. The work done by the pioneers will reap its reward and with the production of more efficient types of machines and engines there is no doubt but that aviation will play an increased part in the development and conservation of the resources of this Dominion. Mail and passenger services will follow more slowly as the present forms of transportation are efficient, highly developed and serve their pur-pose well. As an auxiliary to these services aircraft already play some part and a great opening exists here, especially in regard to summer tourist traffic. As the public gains confidence in flying the demand for faster mails will become insistent and air mail, passenger and express services will follow.

The greatest need in aviation today is the creation of public confidence. This is essential to progress and, so long as it is lacking, aviation cannot succeed. This cannot be gained by freak operations or stunts, however brilliant, but only by strict adherence to business principles and conservative operations on the part of aviation executives and careful flying on the part of pilots.

### Air Board Statistics

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

#### Private Air Pilots' Certificates

Issued:—L. P. J. Roy, St. Leonard, N. B. Lapsed:—A. Raymond, Montreal.

#### Commercial Air Pilots' Certificates

Issued:—O. H. Clearwater, Saskatoon. Lapsed:—G. E. Hervey, Calgary.

Renewed:—G. R. Howsam, High River, Alta; R. J. Groome, Regina; E. A. Alton, Winnipeg; E. C. W. Dobbin, Brantford; G. M. Croil, Summerland, B. C.

#### Air Engineers' Certificates

Issued:—O. H. Clearwater, Saskatoon; E. A. Dixon, Edmonton, Alta; F. E. Johnson, Kindersley.

Cancelled:—J. E. Davies, Camp Borden, Ont.

#### Certificates of Registration of Aircraft

Issued:—O. H. Clearwater, Saskatoon; Laurentide Air Service, Montreal; The Air Board, Ottawa; W. P. C. MacDonald, Wapella.

#### Air Harbour Licenses

Issued:—Neilson Bros., Edmonton; W. P. C. Mac-Donald, Wapella.

Cancelled :- May-Gorman Aero Ltd., Edmonton.

### Summary of Statistics

A summary of Civil Aviation Certificates and Licenses issued, cancelled, renewed, and still in force for period January 1st, 1922, to June 30th, 1922, is as follows:—

Private Air Pilots':—Carried over in force from 1921: 52; new 1922 issues: 4; lapsed, suspended, or cancelled, 19; renewals or reinstatements: 6; 1922 issues in force on June 30th, 1922: 4; total in force on June 30th, 1922: 43.

Commercial Air Pilots':—Carried over in force from 1921: 61; new 1922 issues: 8; lapsed, suspended, or cancelled: 56; renewals or reinstatements: 42; 1922 issues in force on June 30th, 1922: 6; total in force on June 30th, 1922: 53.

Air Engineers':—Carried over in force from 1921: 179; new 1922 issues: 19; lapsed, suspended, or cancelled: 2; 1922 issues in force on June 30th, 1922: 19; total in force on June 30th, 1922: 196.

Air Navigators':—Carried over in force from 1921: 1; lapsed, suspended, or cancelled: 1.

Airship Officer Pilots':—Total in force on June 30th, 1922: 1.

# AVIATION INSURANCE

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

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Make a test of a system for the balance of this seas on at our Expense. It costs nothing.

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### GREAT WORK BY B. C. PLANES

Additional seaplanes are needed at the Jericho Air Board Station to fill demands of government departments for rapid transportation of officials, air surveys of fire-swept areas and customs patrols, according to a statement by Major C. MacLaurin, superintendent.

"During the recent weeks," he said, "the three planes in running order have been kept in almost constant service, while mechanics have worked until late hours overhauling the machines after their flights. We have sufficient work at present to keep five machines at work."

Major MacLaurin made a flight to Lund, B.C., recently, carrying a small fire engine and spare parts for forestry patrol motor boats. All equipment was urgently needed in the fight against forest fires in this district.

The trip occupies about 15 hours by steamer but was made by the plane in a little more than an hour.

Navigator Earl McLeod left recently, accompanied by A. T. Davidson, of the White Pine Blister Rust Control Board, for Thurston Bay and points in the vicinity where Mr. Davidson will continue his investigation of the White Pine blight in this area.

While the Jericho flyers are booked up for Dominion Government forest survey work in the interior of the province, it is unlikely that 'planes will be shipped inland until the forest fire situation on the coast is considerably improved.

### AN AERIAL FIRE DEPARTMENT.

OADED down to the gunwales with six hundred pounds of fire-fighting equipment in addition to its crew, one of the smaller seaplanes of the Jericho station left recently for Welbroe Channel, 160 miles north of Vancouver, where there was a nasty looking outbreak of fire on Hardwicke Island. A fire pump and hose and tools were in the outfit.

### A YEAR WITHOUT A DEATH.

(Boston Globe)

A TATIME when the mechanical devices of modern civilization exact such a hideous toll of human life as is featured almost daily in the press, it is refreshing to discover an important and significant exception to the apparent rule of slaughter. That exception has now appeared, and in the one field of activity where it might seem least likely. The United States Air Mail Service reports that, covering a period of 12 months, not one single fatal accident has occurred in this branch of our system of transport and communication. There have been accidents, but death resulted from none. Yet, in that time, the air mail carriers traversed more than 1,750,000 miles on the New York to San Francisco route alone, and they have transported more than 600,000 tons of mail.

# 25 AEROPLANES ON FORESTRY WORK

Canada now has twenty seaplanes and five land machines in action on forest survey and forest fire prevention. Seventeen of these are Dominion Air Board machines and eight are owned by private companies. This by no means covers the number of machines engaged in commercial aviation in this country, for a great many are being used for passenger transportation and other commercial purposes not identified with forestry.



# Mapping 1000 Sq. Miles by Aeroplane

Spanish River Pulp & Paper Mills, Limited. They are using a Dayton Wright seaplane to map 1,000 square miles of their timber leaseholds. They know that the wings of the airplane and the eye of the camera can give them the facts a hundred times quicker than a whole army of timber cruisers could.

This new seaplane will also be used for a fire patrol. Thus fires can be detected and reported days in advance, when compared with the usual hit or miss system of human patrols. That alone should mean the saving of many square miles of valuable pulp wood every year.

Quick and accurate mapping of large areas; frequent inspection for forest fires; easily made timber surveys—these are the advantages accruing to the companies who use the Dayton Wright Forest Air Service.

Your inquiries are welcome and will be given immediate and careful attention.

# DAYTON WRIGHT COMPANY

DAYTON, OHIO, U.S.A. "The Birthplace of the Aeroplane."



# Successful Month's Flying

Laurentide Air Service Had Record of Over 200 Hours in the Air.

By George A. Mackie.

RLYING Operations carried out by the Laurentide Air Service Ltd., for the month of July showed a very gratifying improvement over any previous months both as regards quantity and quality of work done. Operating from the firm's Air Stations at Lac à la Tortue, Que., and Remi Lake Moonbeam, Ont., the record for the month of July was as follows:

Photography and Fire Patrol 71 h. 15 m. Forestry Reconnaissance and mapping, 124 h. 50 m. Sundry transportation 11 h. 01 m.

In view of necessary extension of the firm's work for the remaining three months of the season, it has been necessary to secure additional flying equipment. This has taken the form of the purchase of a Loening "Flying Yacht" which went into commission about the 21st of August, operating from the Remi Lake Station. This American Machine is said to be most modern and efficient in all its details of construction and performance. It is a monoplane with 38 ft. wing span—smaller than a Curtiss "Jennie"—but equipped with a 330 H.P. Liberty Engine and capable of carrying five passengers and luggage. It takes off in from seven to eight seconds with its full load, and on a recent trial trip from Montreal to Lac à la Tortue, Que., a distance of 120 miles, made the journey in 70 minutes. Pilot Maxwell is flying the new machine.

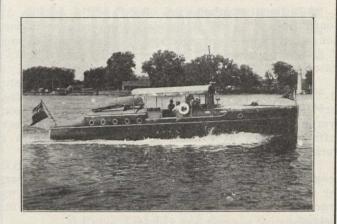
Pilot Wilshire, flying one of the Company's H. S. 2 L. machines from Lac à la Tortue to Remi Lake, recently made the distance of 700 miles in ten and a half hours, stopping three times to take on petrol. The company's record for July as above outlined constitues a record for Canada in actual flying time, and it is also believed to be many times greater than that accomplished by any other commercial company on this continent.

### SETTLERS FORCED TO PAY PENALTIES

As a result of the instructions issued by Hon. Honore Mercier, Minister of Lands and Forests, to forestry engineers and their assistants, to take all possible means of finding the real causes of many forest fires which broke out this spring many complaints have been laid against settlers, and recently, two men residing in the Lake Frontiere district, were found guilty of violating the forest portection regulations and sentenced respectively to a fine of \$200 or two months, and \$25 or one month, the maximum and the minimum.

Both parties referred to had been seen in the forest near Daaquaam a few hours before the great fire which destroyed quite a large area of forest there. Further investigation proved that they had burnt wood and the sentences were imposed in accordance with their respective responsibility for the fire.

In the course of the present month new actions are going to be entered against alleged violators of the same regulations, and the Minister of Lands said he would prosecute to the utmost extent of the law.



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# WOLMAN PROCESS FOR WOOD PRESERVING.

G. W. R.

ITH our forest resources rapidly diminishing, it is with a serious aspect that Canadians are looking to find a reliable process for preserving wood material in industries. The average life of a railway tie is about five years, and the cost of replacement is enormous. In mines, where timber has to put up the greatest opposition to destruction by fungi, the cost of replacement is enormous, and no inconsiderable amount of timber is used annually for replacement.

The wood products which are mostly exposed to, and above all must be protected against, destruction by fungi and insects are: railroad sleepers; poles and masts for telegraph and electricity; timber for mines; timber for building; shingles; wood for ships, etc.

The preserving material for sleepers and telegraph poles which is most in use, but also the most expensive, is creosote or tar-oil, but in certain respects its use had considerable disadvantages. Creosote smells offensively and has disagreeable corrosive properties. In coal mines men frequently refuse to work in places where timber impregnated with creosote is used; and when they perspire at work creosote causes disagreeable skin diseases. Other known preserving processes which are in use, besides the creosote process, which do not by any means comply with the requirements of an efficient preservative are: sublimate of mercury; sulfate of copper; and chloride of zinc.

After scientific researches and trials on a large scale for years, Wolman proceeded to find a process which answers all purposes, and which has proved its excellence for more than fifteen years. The Wolman Process, patented everywhere, has been introduced with a great many Railways, Postal Administrations, the most important electrical companies, and principally in coal mines, and there are in existence 80 impregnating plants

in Europe built according to Wolman designs.

The Wolman Process is a process of preserving wood by impregnation with salt mixtures. The salts used are of different composition, according to the various purposes, and are known as. "Triolith"; "Fluoxith"; "Tanalith"; "Monolith"; Triolith and Fluoxith serve for the preservation of wood generally. Monolith is especially prepared for mine timber, and Tanalith, a poisonous mixture, protects the wood not only against fungi, but also against all animal wood destroyers, such as termites, wood and bore worm, and is of special interest for the tropics.

After being introduced into the wood, the salts combine firmly with the wood fibre, and it is supposed that an intermolecular embedment of the salts in the wood fibre takes place. Complete insolubility would not be appropriate for the reason that in such a case the antiseptic would not show its effect.

Wood impregnated according to this process is clean, less combustible, can be easily worked and painted, while its firmness is raised about 13 per cent. The Wolman Process answers all the requirements of a wood preservative, in the highest degree, and its cheapness is remarkable, considering that it lengthens the life of the wood about six times the normal life.

With the object in view of introducing the Wolman Wood Preserving Process in Canada, the Canadian Wood Impregnating Company will be incorporated shortly. The officials of the Company anticipate building two impregnating plants in Eastern Canada, and two in Western Canada. The exact location of the plants, and the head office, has not been determined, although it has been decided to build one of the Western plants at Swift Creek, B.C. Each plant will employ about 96 men.



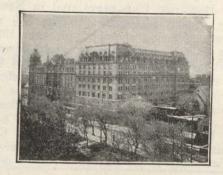
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# THE INVESTMENT FIELD

Specially Written for the Illustrated Canadian Forestry Magazine

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

HE Minister of Finance does not put it too strongly when he called his "conversion" offer to holders of the issue of Canadian Victory bonds maturing on Dec. 1, 1922, a sacrifice, as compared with the higher price obtainable in New York for a similar bond. It is a safe forecast that the 1923 Victories will not be converted into another Government bond with as high a return as 5½ per cent. Mr. Fielding referred to the 5 per cent. Dominion loan negotiated in New York a few months ago as a contrast to the  $5\frac{1}{2}$  per cent. bond he was offering holders of the 1922 issue. At the same time, New York today might demand about 51/4 per cent. as the "pause" in the upward movement referred to in the August article is still in effect. Bond prices indeed show a slight shading off as compared with the high level attained in the full flush of the April rush. The Minister of Finance could not, in the opinion of bond houses, float an issue in Canada at 51/4 per cent. this Fall unless the upward movement in bonds gets strongly under way again in the next month

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of two. No one can estimate yet with any degree of accuracy what proportion of the \$178,000,000 of the maturing issue will be converted into the 5-year or 10-year new offering. It must be remembered that the new bonds are taxable, and it will be only human nature in holders of large income—especially those amenable to the surtax—to take the cash and re-invest in tax exempt bonds like the 1933's and 1937's. Large sums, likewise, have been invested in the 1922's as a temporary condition by branch houses of United States firms, awaiting a transfer to the States with exchange nearly normal, or to be thrown into industrial uses in their own business in Canada.

### Will move above par

All this will tend to lessen demand for the new issues and for a time hold down the price after the conversion is made. But not for long. The movement of the new issues above par, must be preceded, however, by the 1934 bonds—also taxable. These are the only Victories that can be compared with the new issues, but they are two years longer maturities than the new ten-year issue (1922 to 1932) and seven years longer to go than the five-year issue (1922 to 1927). Now on the theory that interest rates are due for a steady decline for 20 to 25 years the longer maturities are worth more as investments than the shorter. The best illustration of this appears in the higher market levels of the longer term Victories, the 1937's and 1933's as distinct from the 1923's, and 1927's:

#### HOW LONG TERM ISSUES LEAD

Maturity.	Present price.	High in 1922	Low in 1922	High in 1921	Low in 1921
1923 1927 1933	99.95 100.80 103.35 105.60	100.10 101.25 103.50 105.60	99.00 99.90 101.25 103.45	99.25 101.00 101.80 104.00	95 95½ 95½ 97½

Here it will be seen that the 1933's stand about midway between the 1927's and 1937's—6 years longer and four years shorter. The quotation at time of writing for the 33's is 2.55 points above the 1927's and 2.25 below the 1937's. Where the market sags off, however, the 33's show the weakness more than the 37's, the low in 1922 being only 1.35 points above the 27's, and 2.20 below the 37's, and the high in 1921 was even closer the 27's. The reason for the 27's and 37's being stronger relatively was that smaller amounts of each were issued than of the 33's. The point is clearly indicated, however, that the longer term security is selling and has sold invariably about the shorter term. The reason for this is that the holder of the 1937's, for

example, will have  $5\frac{1}{2}$  per cent. interest coupons on his bond some years from now when prevailing interest rates may be  $4\frac{1}{2}$  or 4 or even less, and hence the 37's may be expected to sell much higher even than to-day. Present prices are anticipating this. And the 33's will continue to sell higher than the 27's, for a similar reason.

Hence for the holder of 1922 Victories the problem as to whether he should purchase the 5-year (new 1927) or 10-year (new 1932) Government bonds should be decided by taking the longer maturity. The price on this should rise higher than on the 5-year.

But the future prices of these new bonds cannot be expected to rise as high as the tax-exempt Victories, such as the 1933's and 1937's. The 1934's have one vear more to run than the 33's but linger in the vicinity of par. Compare the three thus:

#### TAX EXEMPT FOR ABOVE

Maturity.	Present price.	High in 1922	Low in 1922	High in 1921	Low in 1921
1934 1933	100. 103.35 105.60	101.40 103.50 105.60	98.35 101.25 103.45	99.30 101.80 104.00	92 95½ 97½

Here, it will be noted, the 33's consistently run 2 to 3 points above the 34's, in high or low, and at the time of writing are up 3.35, and last year were 3½ up in the low, and more when the 33's were above 105 and the 37's over 107.

The explanation of course, is that those whose incomes are so high as to call for the application of the surtax can afford to pay—and do—far more for the tax exempt issues and still have a net return higher than on the taxables selling several points below. This fact will prevent as strong a demand for the new bonds from wealthy investers. Just how this works out will be dealt with in next month's issue.

### An upward swing in bonds

There is an impression in some circles that during the next few months—before December 1, 1922— bond prices will start the upward swing again, and that the 1922 issue will be bought for the conversion rights it carries. In this way the larger part of the \$178,000,000 may be converted with no need of a big cash refunding.

### The pulp and paper stocks

Reference was made in last issue to the paper industry as to one that had shown the strongest recovery after the process of deflation common to all industries. Probably no other industry, it was pointed out, was in a position where the demand for its products was equal to the full capacity, and that too a capacity that had considerably increased since the time when prices and demand were at the peak. Logically enough it was the paper securities that started the movement early in August which extended later to a number of other securities on the Canadian exchanges. The movement in the paper stocks comprising Abitibi, Brompton, Howard Smith, Laurentide, Price Bros., Spanish and Wayagamack among the listed securities, was all the more surprising in that

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it happened in the summer season when so many of the usual investors were out of town and at a time when the New York market was practically stagnant, doing its best to hold up under the double menace of a protracted coal strike and the new threat of a railway strike.

A glance at the opening prices of these securities at the beginning of the year with the prices that they had reached at the time of writing shows that the largest advance had taken place in Spanish River common of some forty-two points with Spanish River preferred up thirty-six points from the price at the beginning of the year. Close to these is Abitibi, which has more than doubled its price, from \$30 to \$65, an advance of 35 points. Next came Wayagamack at an advance from 40 to 65 or \$25 a share, with Laurentide following close from 73 to 96 or \$23 and Brompton with 17 points from \$1 to 38 a share, and Price Bros., about 13 points from \$34 to \$47 a share. Howard Smith preferred showed an advance of 11 points and the common from \$75 to \$84 or \$9, or a greaer advance if the low price is taken into account.

In the case of Abitibi and Spanish River particularly the advances have been quite sharp as it must be remembered in both cases that these are the two largest producers of news print in Canada, the Spanish River mills running close to 700 tons a day and Abitibi close to 500. In both cases the production is very much larger than it was at this time last year. Present prices of the stocks are in every case still well below the high records of 1920.

To the investor there is a semi-speculative element in these common stocks which places them lower, of course, than a good bond issue. In the industry itself, however, there is an underlying strength that should result in a considerable appreciation in the market value of these securitie in the next year or so. Among the securities on this list Abitibi reduced a 6 per cent. divident to 4 and then passed it entirely last year; Brompton reduced from 7 to 4 and then passed; Laurentide maintained its 6 per cent. dividend as did Spanish its 7 per cent. both on common and preferred; Price reduced its 3 per cent. to 2 per cent.; Howard Smith preferred maintained its 8 per cent. but reduced its common from 8 to 6, while Wayagamack passed its dividend. As dividend possibilities next year Abitibi and Brompton and Wayagamack should come in for serious consideration. At the present time it seems a safe conclusion that all in the list are now earning their present or former dividend requirements, where pulp wood supplies have been cut down to current values.

The incentive that lay behind the recent rise and seems likely to result in a further rise during the next few months is the probable increase in the price of newsprint from \$70 to \$75 or to \$80 a ton. In the case of those companies, either pulp or paper, that are fortunate enough to have attached to their properties an excellent supply of pulpwood, the promise of increased profits and therefore of an improved dividend rests not so much in the net earnings on manufacturing operations as in the cumulative values that will extend to the timber limits

year by year.

#### Advice Holding Bonds.

The opinion expressed above that bond prices should rise steadily for several years to come as interest rates decline is supported in a current bulletin of the Babson Statistical Organization. "Hold your bonds!" is the caption that accompanies the chart reproduced therein. "Now is the time to hold bonds. Just because prices are fifteen to twenty points higher than in 1920 does not mean that they are high. Right now the average of 20 high grade bonds is lower than in the most panicky days of 1907 or 1914. 4½% long term municipals, for example, may look high at 105, but I will venture a prediction that within the next two years these same issues will pass 115."

The chart itself gives the trend during the recovery from the Civil War, and the record for 1920, 1921 and 1922 shows how similar has been the market of the past three years,—a rapid advance following a war. "Later," the bulletin continues, "when the depression in business is ended, and the supply of available capital diminishes, the rise in bond prices temporarily will be checked. We may have some such movement as that indicated from 1881 to 1883." He adds: "There will be temporary declines, but the long swing fundamental trend is still up-

ward.'

### ·LUMBER RISES WITH FOREST FIRES

Already the enormous loss in the forests is beginning to tell on the price of lumber and several dollars a thousand has been added to both domestic and export quotations. Logs are also strong with prospects of a serious famine in the log market if weather conditions do not co-operate in the extermination of fires. At the present time the unsold surplus in the market runs to about 35,000,000 feet or about half of normal, but with the mills running steadily as at present this surplus will soon be picked up. A large proportion of the logs in the water now are culls from previous sales and are of a much inferior grade of timber, a condition that mitigates against their ready sale.

Only about 18 per cent. of the logging camps in the British Columbia Loggers' Association are operating and at meeting of the Pacific Coast Loggers' Association

held this week it was decided to discontinue operation of all camps where the government thought it necessary to prevent further conflagration and loss to the timber of that province.

### The Value of a Forest

THE value of our indigenous forests (observes the Daily Telegraph) is illustrated in the statement of the Government Forester of Western Australia that there is under survey for settlement purposes in that State a forest of 92,000 acres, the timber of which has an export value of £21,187,000. Per acre that works out at £230. If the same land under wheat produced 20 bushels an acre at an export value of 5s. a bushel, it would take about fifty years to amass the value of the timber standing in this superb forest. This forest wealth has been produced without the intervention of human hands by the unaided chemistry of Nature. The wheat replacing it would have to be sown and reaped by man's labour, and by those processes men would live. marry, rear children, and contribute their share to the upbuilding of the nation. Therefore it is decreed that the forest must go. On the other hand, if the forest goes, timber to replace its products must be imported, and the self-sustaining, balanced life of the nation will give place to an uneconomic lopsidedness. As between the rival claims of men and trees, the farm and the forest, the truth seems to be that, in a country with such almost illimitable areas as West Australia, their claims never should conflict. It is only because good forests grow on good land that the territories of the trees are coveted for settlement. Still, if we had no forests we should be forced to plant them. Why not keep those we have, in area sufficient for our needs, particularly as forest replacement is such a lengthy and costly process?

# Overhanging Trees—A Legal Verdict

IN April last a case was heard before the Monmouth-shire Quarter Sessions in Newport, England, where Mr. E. Hartland, of Hardwick Court, Chepstow, appealed against the decision of the Magistrates who had ordered him to 'op or prune trees overhanging a road on his Estate. The Appeal succeeded on the grounds that the trees constituted ornamental timber; and although it was stated that they were an obstruction and interfered with the circulation of light and air, Mr. Hartland was exonerated from the obligation to prune them.

### British Columbia and Its Forests

Half the trade and commerce of British Columbia depend upon forest products. Half Canada's resources of merchantable timber are in that Province. Capital' is invested in 9 million acres of timber holdings. There are 289 sawmills; 79 shingle mills; great pulp and paper mills; box, sash and door factories; 2,200 logging operations every year; an output of 65 million dollars; a provincial forest revenue of 3 million dollars, besides millions of dollars in timber taxation; 20 thousand men employed in lumbering; an immense dependent business in towboats, rail and motor transportation, machinery, commissary, supplies and many other lines of trade.



# To Holders of Five Year $5^{\frac{1}{2}}$ per cent Canada's Victory Bonds

Issued in 1917 and Maturing 1st December, 1922.

# CONVERSION PROPOSALS

THE MINISTER OF FINANCE offers to holders of these bonds who desire to continue their investment in Dominion of Canada securities the privilege of exchanging the maturing bonds for new bonds bearing 5½ per cent. interest, payable half yearly, of either of the following classes:—

- (a) Five year bonds, dated 1st November, 1922, to mature 1st November, 1927.
- (b) Ten year bonds, dated 1st November, 1922, to mature 1st November, 1932.

While the maturing bonds will carry interest to 1st December, 1922, the new bonds will commence to earn interest from 1st November, 1922, GIVING A BONUS OF A FULL MONTH'S INTEREST TO THOSE AVAILING THEMSELVES OF THE CONVERSION PRIVILEGE.

This offer is made to holders of the maturing bonds and is not open to other investors. The bonds to be issued under this proposal will be substantially of the same character as those which are maturing, except that the exemption from taxation does not apply to the new issue. Holders of the maturing bonds who wish to avail themselves of this conversion privilege should take their bonds AS EARLY AS POSSIBLE, BUT NOT LATER THAN SEPTEMBER 30th, to a Branch of any Chartered Bank in Canada and receive in exchange an official receipt for the bonds surrendered, containing an undertaking to deliver the corresponding bonds of the new issue.

Holders of maturing fully registered bonds, interest payable by cheque from Ottawa, will receive their December 1st interest check as usual. Holders of coupon bonds will detach and retain the last unmatured coupon before surrendering the bond itself for conversion purposes.

The surrendered bonds will be forwarded by banks to the Minister of Finance at Ottawa, where they will be exchanged for bonds of the new issue, in fully registered, or coupon registered or coupon bearer form carrying interest payable 1st May and 1st November of each year of the duration of the loan, the first interest payment accruing and payable 1st May, 1923. Bonds of the new issue will be sent to the banks for delivery immediately after the receipt of the surrendered bonds.

The bonds of the maturing issue which are not converted under this proposal will be paid off in cash on the 1st December, 1922.

W. S. FIELDING,
Minister of Finance.

Dated at Ottawa, 8th August, 1922.



# Forest Fires and Radio

Some Developments in the United States which are Applicable to Canada

By Carlisle Shannon.

PROBABLY the two greatest aids in preventing serious forest fires are the aeroplane and radio. The first of these has played an important part in forest conservation for some time but it is only within the last few years that radio has been used to any great extent. With the perfection of radio telephony to its present high state, however, these two forces go hand in hand, helping daily to safeguard the nation's wealth.

hand, helping daily to safeguard the nation's wealth.

In the late summer of 1919 the United States
Government installed the first two radiophones to be
used in the Forest Service. One of these stations was set
up at Beaver Ridge, Idaho, and the other at Lolo Hot
Springs, Montana. While these two points are but twelve
miles apart by air line, they are separated by a mountain
range and the route by trail is about thirty miles through

rough, heavily timbered country.

The apparatus used at these two stations was installed under extremely difficult conditions. In the first place, transportation offered serious difficulties. All material had to be carried by pack train over the thirty mile trail and as it included everything from storage batteries and gasoline engines to delicate instruments, the task was no easy one. After many delays and hardships had been overcome the two stations were put into operation on the morning of July 19, 1919 and have since demonstrated the value of permanent radio look-outs for forest protection.

### Radio a Vital Necessity

In the first official report to the Forest Service concerning aerial patrol work, radio was urged as a vital

necessity.

In California, six patrol routes were mapped out and twice each day six aeroplanes covered over 5,000,000 acres of rough country. Many fires were discovered, located and reported by radio in advance of the regular

Forest Service detection organization.

In addition to the aeroplane patrol work, permanent look-out stations have been equipped with radio. These stations, established at suitable points in forest areas, are connected by telephone with the forest supervisor's office. The moment a fire is discovered, its location, usually exact within a quarter of a mile, is telephoned to headquarters. If the fire appears to be of a serious nature, a general alarm is broadcasted and a large force of fighters and equipment is rushed to the scene.

### Use of Radio in Fighting Fires

The value of radio has been proved not only in reporting fires but also in directing the operations of the fire fighters. A good example of this is the Mill Creek fire, covering about 12,000 acres in the Lassen National

Forest. A portable radio receiving set was taken to the fire line and a special aeroplane was detailed to the fire. The duty of the aeroplane was to circle the entire fire, report conditions and direct the fighting as far as possible.

With the receiving set on the fire line it was possible to get practical directions from the plane regarding the best disposal of the fire fighters. During the progress of the fire there were from ten to fourteen miles of fire line to be patrolled. Fighters were scarce and the fire was uncontrolled on one side. With the plane flying just above the tree tops, patrolling the fire line, radio reports were phoned to the receiving station. These reports were absolutely relied upon and all operations of the fighters were determined by them. If the fire line was reported as clear the men were all kept at work fighting the fire on the other side, but if the report came in that the fire had broken over or was about to, men were rushed to the threatened point and the danger was averted.

This is the first time, in the knowledge of Forestry officials, that a successful patrol of a fire line has been made, and had it not been for the constant and reliable communication provided by radio it would not have been

possible.

# Revisions of National Electrical Code

(Continued from August issue.)

Splices and joints in the antenna shall, unless made with approved clamps or splicing devices, be soldered.

Lead-in Wires

(h). Lead-in wires shall be of copper, approved copper-clad steel or other metal which will not corrode excessively and in no case shall they be smaller than

No. 14 B. & S. gage.

Antenna and counterpoise conductors and wires leading therefrom to ground switch, where attached to buildings, must be firmly mounted five (5) inches clear of the surface of the building, on non-absortive insulating supports such as treated wood pins or brackets equipped with insulators having not less than (5) inch creepage and air gap distance to inflammable or conducting material. Where desired approved suspension type insulators may be used.

(i). In passing the antenna or counterpoise lead-in into the building a tube or bushing of non-absorptive insulating material shall be used and shall be installed so as to have a creepage and air-gap distance of at

least (5) inches to any extraneous body. If porcelain or other fragile material is used it shall be installed so as to be protected from mechanical injury. A drilled window pane may be used in place of bushing provided five (5) inch creepage and air gap distance is maintained.

Protective Grounding Switch

(j). A double-throw knife switch having a break distance of four (4) inches and a blade not less than one-eighth (1/8) inch shall be used to join the antenna and counterpoise lead-ins to the ground conductor. The switch may be located inside or outside the building. The base of the switch shall be of non-absorptive insulating material. Slate base switches are not recommended. This switch must be so mounted that its current-carrying parts will be at least five (5) inches clear of the building wall or other conductors and located preferably in the most direct line between the lead-in conductors and the point where ground connection is made. The conductor from grounding switch to ground connection must be securely supported.

Protective Ground Wire

(k). Antenna and counterpoise conductors must be effectively and permanently grounded at all times when station is not in actual operation (unattended) by a conductor at least as large as the lead-in and in no case shall it be smaller than No. 14 B. & S. gage copper or approved copper-clad steel. This ground wire need not be insulated or mounted on insulating supports. The ground wire shall be run in as straight a line as possible to a good permanent ground. Preference shall be given to water piping. Gas piping shall not be used for the ground connection. Other permissible grounds are the grounded steel frames of buildings.

(To be continued)

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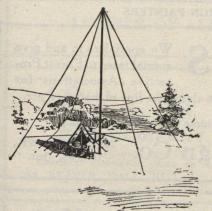
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### Timber Resources of Australia (Continued from Page 1015)

farms, referred to above, they grow two crops of maize each year.

### Some Dangerous Types

Any standard work on botany will give a full list of Australian trees, from the scientific point of view. Science nearly always seems to neglect the practical, and does not give much detail about mercantile value, or the utility of the trees. It does, however, warn against dangerous types. In the coastal region, especially in the tropics, there are several very dangerous trees and shrubs. Some, even to touch the leaves with the naked skin, gives intense pain, others have saps of lethal quality. One in particular, a very handsome shrub, with broad, beautifully tinted leaves, invites one to pick them for their sheer beauty. On the writer's first visit to the Barron Falls, a party of tourists arrived at the same time. An elderly lady of this party picked some of these leaves with her bare hands; and was in agony for over 24 hours. Her hands swelled like boxing gloves. She had prompt attention too.

In the jungle areas, there are some very mean vines. One called "waita-bit" catches the unwary, and it

takes patience to get free.

Another is called "the lawyer." This has large curved thorns, and it is claimed that the vine bends round anything touching it and these hooks fasten into the clothes. Once well caught, it is hard to escape with a rag of clothing. The writer never experimented personally, but people who have, speak of it in very evil

### White Ants Devour Windfalls

In the inland side of the range, the forest is not so dense, and one thing in particular strikes anyone who may have seen these natural forests, that is the absence of dead trees, and rotten logs on the ground. Probably as many windfalls occur as with us, but the white ants devour the fallen trees there very speedily. There are two trees which the ants will not touch, the ti-tree, and gidyea. These are consequently in much demand for fence posts, and building blocks, to erect wooden buildings on. All wooden houses are built on blocks, to preserve them from the ravages of the white ants. The gidyea is a free bloomer, and a grove of these in flower gives out the most nauseous thing in scents known to the writer, and he has met skunks, which, on this side seem to hold the record in that line. This fetid odor of the flower may have something to do

with the ants refusing the wood as an article of diet.

The ants do not always wait for a tree to fall before attacking. They build a mound around the trunk, and devour the tree as it stands; when the tree is all used up, they roof over the vacant spot. Most of the very large ant hills are no doubt made in that way. Anyone who has not actually witnessed the ravages of the white ant, can hardly credit the destruction these insects commit, on anything of wood. The trees mentioned in eastern Australia and the jarrah of west Australia are the exceptions. The jarrah is even more immune to insect attack, as even the teredo will not touch it, consequently this timber is in much demand for wharf piles, in all sea ports.

### Ant Hills As Ovens

It is a common practice with mining prospectors, to select a small ant hill for an oven. He breaks a hole in the side with his pick, clears out the cell divisions, makes a draft hole in the top; and the oven is ready for firing. While the oven is heating up, he is busy mixing his "damper" as they call their bread in the bush.

A former town clerk of Charters Towers, in north Queensland, (where the writer resided for over 20 years) had a fine collection of cabinet woods. He had about 30 different trees sectioned in various ways, and polished to show the grain and color. These were all good. Perhaps Queensland rosewood was the choicest. This collection had quite a range of color from almost clear white (satin-wood) through shades of yellow, brown, red,

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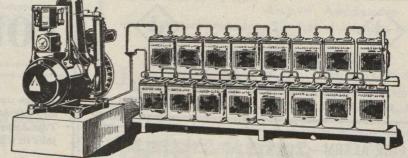
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and almost black, besides variegations. Anyone who has seen a similar collection, cannot doubt that there will arise a large demand for most, if not all, of these some day.

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#### Planting Memorial Trees on Roadways

(Continued from page 996)

concerned with the digging. If you have recourse to native grown trees, choose those which stand out from their fellows, not those which are tall and spindly. Trees eight to ten feet high will be proper. If to be planted on shallow soils, somewhat smaller trees will be preferable, as big trees cannot be established so readily on these. If elms are to be used, avoid those which grow in swamps, always select those which grow on high land.

Having chosen a tree trim it up to a distance of six or seven feet from the ground, then with a spade cut a trench around the tree, eighteen inches or so from the trunk and about twelve inches wide and deep. Then with a digging fork carefully work under the root system until the tree can be readily removed by an energetic pull. When thoroughly released, leave the trees in their respective positions and lightly cover the roots with soil while the required number are being dug, then carefully load on to the wagon or truck as the case may be, without disturbing the soil which adheres to the roots.

If tap rooted trees, as the walnut, are chosen, better success in planting will be possible with trees which are not more than six feet high and when digging such, obtain all, or as much as possible, of the tap root. Exercise extreme care in digging these trees. A few minutes extra spent on the work may make a success of what would otherwise have been a failure in planting. Dig deep enough to obtain the tap root.

Exposure to the atmosphere, that is to the drying influences of the wind and sun and to the frost for a very short time will usually kill the trees. Therefore unless rain is falling keep the roots covered with burlap, straw or soil until the trees are to be planted. If in large numbers heel them in a trench deep and wide enough to allow all of the roots to be covered with soil.

### Cutting Back the Crown.

The crown of all deciduous shade trees should be cut back before they are planted. This may be done when lifted in the bush, thus making it easier to transport the trees. This will offset the loss of roots, for some roots are either removed or greatly disturbed no matter how much care is taken in digging. Unless the young trees are pruned, the leaves which form upon the branches will give off larger quantities of water in the form

of vapour than the roots of the tree can supply. This condition will usually lead to the death of the subject.

Prune the crown and curtail this loss of moisture to the extent that the roots are able to supply it and the tree will have a good chance to live.

When pruning, shape the tree like a cone, cutting back each branch to its junction with another one, or just above a bud or buds. So cut, stubs will not be left and the wounds will heal rapidly. Retain a central growth or one approximately in the centre as a leader. The end of this should be the apex of the cone.

### Digging the Holes.

To receive bush grown trees, dig the hole 3' wide and 1' 3" deep. Lay the fertile surface soil carefully on one side and the infertile subsoil on the opposite side. A somewhat smaller hole may be adequate to receive nursery grown trees as usually their



fibrous roots exist closer to the trunk. It is better, however, to make them larger than the actual spread of the

roots in any case.

On low lying areas do not make the holes very deep, otherwise they may remain full of water for too great a time. On such areas it is best to elevate the roots of the trees and to mound over them with soil rather than to sink them down to a cold water-logged strata. This practice combined with a judicious selection of trees suited to their areas should result in a fair measure of success in the initial planting. The partial mounding of the roots of the trees will not be detrimental to the practice of watering. Usually on low-lying areas few artificial waterings are necessary as the rain water naturally finds its way to the lower levels.

It is necessary that the roots of trees be so planted that they are above the "Water table" in the soil. Below this the soil may, for too long a period in the year, be filled with water to the exclusion of oxygen. Therefore, for instance, should it be evident that the water table or level exists 9" below the surface, the holes should not be made deeper than this. A slight mound over the roots will then have to be made. If the water table exists at 1' 3" or deeper the normal hole may be dug.

No matter in what position the roots of the tree may be, the water will rise from the water table by capillary attraction to the surface of the soil and from this source the tree will generally obtain the moist-

ure necessary for life.

### Time to Plant.

The planting season for deciduous shade trees in Canada, varying of course with the latitude are: (a) The spring season from the 1st of April in southern localities until the 15th of May in northern localities or those in which the late springs usually pertain. (b) The fall planting season, from the 1st of October until frost suspends the work, which is usually about the 15th of November. Occasionally during the mild winters the time may be extended until De-The forementioned statecember. ments apply only to the ordinary grade of trees and not to those which may, during the winter, be transplanted with a frozen ball of earth adhering to the roots.

For the benefit of those who may be in doubt as to the wisdom of planting hardy deciduous trees during the fall, the following statement is made: Under the writer's personal supervision and in localities where the minimum winter temperature varies from ten degrees to 30 degrees below zero, Fahrenheit, more than 25,000 trees have, during the last twelve years, been planted during the fall periods and more than 15,000 during the spring planting seasons. The fall planting has in every way proved as successful as that of spring as evidenced by the trees which by comparison bear silent testimony.

#### Planting the Trees.

Prior to planting the trees remove all broken roots, cutting them at their junction with other roots or fibres. A heavy pruning knife is the best instrument to use. On thick roots use the saw. Fibres or other small roots will quickly grow from the points of severance when the trees are planted.

If the roots appear at all dry immerse them for an hour or so in water. This will more quickly revive the trees and restore moisture to the cells than any other practice.

The holes already prepared to receive the trees, the next step will be that of planting. Fork the bottom of the holes to allow of drainage, then place the coarsest of the surface soil. if any, such as sods, grass side down, in the bottom, cut this up with a spade and upon it place the fine surface soil until the hole is about onethird filled, then tramp lightly. Set the roots of the tree upon this soil and if the topmost roots are level with the surface of the hole, this is proper. Trees should be so planted that they are little, if any, deeper in the soil than they previously existed. Two inches deeper under any circumstances should be the limit.

If the tree in position is one with a large ball of earth adhering to its roots, with the spade fill in the fine surface soil around the ball and work it under this until it is fairly firm and all air spaces are eliminated. Fill to about two inches above the ground level then tramp the area around the tree firmly. This will cause the soil to settle to at least the ordinary ground level. In the case of nursery raised trees or bush trees from which the soil has fallen, it will be necessary to carefully spread out the roots at the elevations at which they spring from the trunk and to make them radiate in all directions. Keep them apart and with the hand fill the fine soil between and above them so that the fibres will be in absolute contact with it. Finally fill the remainder of the hole, tramp firmly and leave a slight depression around the tree to catch the rain. Water the soil adequately. In watering, about ten gallons should be used to thoroughly



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saturate and settle the soil to at least the depth of the hole.

#### The Sub-Soil.

It is important that the sub-soil should not be filled in around the roots A little of it may be fixed with the surface soil to finally finish the filling of the hole, but only after the roots have been covered with the latter. It is better to entirely remove the sub-soil by spreading it to fill any depressions which may exist in the vicinity away from the trees, where in time, through the action of the weather and the accumulation of humus it will become fertile.

### Mulching the Trees.

Trees should be mulched after planting for two reasons. (a) To conserve the moisture in the soil, after the spring planting season. (b) To protect the roots from injury during the periods of intense cold after the fall planting season. Many kinds of materials may be used for mulching purposes. Strawy litter shaken out from the manure pile, newly cut grass, a mixture of strawy litter and leaves and even half decayed leaves in themselves make an excellent mulch.

(Concluded in October issue.)

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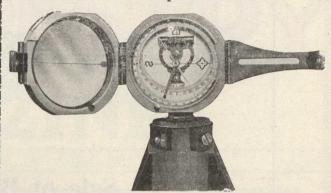
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BENIAH BOWMAN,
Minister of Lands and Forests.

Toronto, August 11th, 1922.

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