

A black and white photograph of a forest path. The path is a dirt road that curves slightly to the right, leading into a dense forest. The trees are tall and thin, with some having thick, textured trunks. The foliage is dense, and the lighting is soft, suggesting a misty or overcast day. The overall tone is serene and natural.

# Canadian Forestry Journal

MARCH, 1916.



**"Canada's Largest Tent and Flag Makers."**

**To Get To Be The Largest  
We Had To Give The Best.**

Let us supply you with a price on your Camp Supplies.

Estimates freely given upon shortest notice.

**SMART WOODS**  
LIMITED CANADA

Ottawa, Toronto, Montreal, Winnipeg

**UNIVERSITY OF TORONTO**

AND

**UNIVERSITY COLLEGE**

WITH WHICH ARE FEDERATED

**ST. MICHAEL'S, TRINITY AND VICTORIA COLLEGES**

FACULTIES OF ARTS, MEDICINE,  
APPLIED SCIENCE, HOUSEHOLD  
SCIENCE, EDUCATION, FORESTRY

---

---

THE FACULTY OF FORESTRY OFFERS  
A FOUR-YEAR COURSE, LEADING TO  
THE DEGREE OF BACHELOR OF  
SCIENCE IN FORESTRY

For information, apply to the Registrar of the University, or to the Secretaries of the respective Faculties.



MONTHLY CIRCULATION 3900.

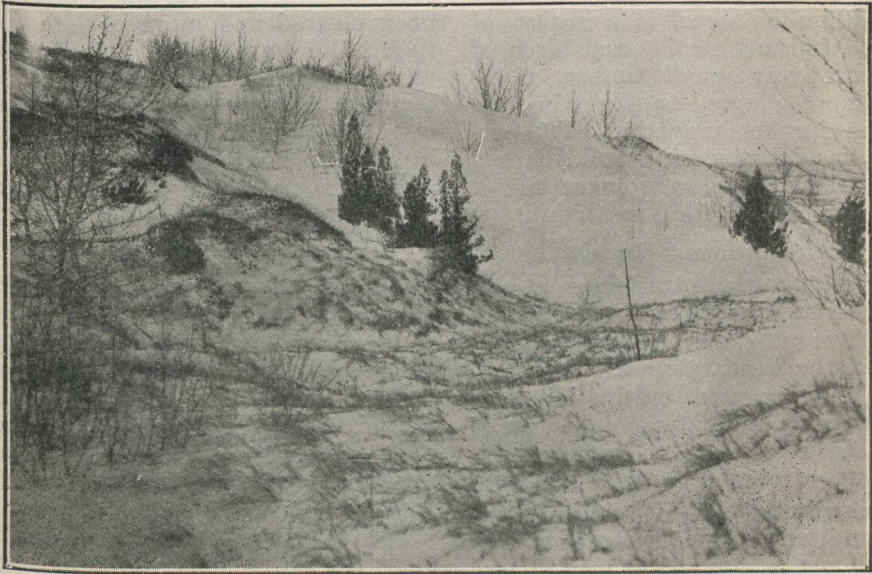
# Canadian Forestry Journal

VOL. XII.

MARCH, 1916.

No. 3.

(Printed at Kingston, Ont.)



*On the Norfolk Sand Dunes.*

The drifts here are particularly bad, but will be stopped by the planting of evergreens.

## Forestry Work in Ontario

Education Required to Link up Interest of Southern Ontario with Forest Problems of the North.

*By E. J. Zavitz,  
Provincial Forester of Ontario.*

In considering the forestry problem in Ontario, we must bear in mind the geographical arrangement of the province. We have Ontario divided into three great regions—the southern agricultural and industrial region; the Central Forest re-

gion; and the so-called Clay Belt at the north.

Ontario differs from some other provinces in the fact that a large proportion of the population is not directly concerned in forest industries. The ordinary citizen in sou-



thern Ontario is not likely to take an active interest in forest policy, and it will take considerable education and publicity work to make him see that he is a joint owner in the state forest lands.

The Clay Belt at the north, estimated as an area of sixteen to twenty million of acres, is a region of spruce, balsam, poplar and birch of comparatively small timber, probably more adapted to the pulp than to the lumber industry. This region has in general a soil adapted for agricultural development and it is being opened for settlement.

#### *Opinion Favors Burning.*

I do not propose to discuss at any length the forestry problems which are developing in this region. Owing to the local opinion that burning, clearing and cultivation will improve the climatic conditions of this region there is a tendency to look upon forest fires as a blessing.

It is certain that clearance, drainage and cultivation of the land will lengthen the growing season. There are many soils with a large amount of vegetable mould and humus where limited burning may be beneficial but indiscriminate burning is injuring many of the heavier clay soils, especially upon rolling land.

#### *Forest Reserve of All.*

Lying to the south of the Clay Belt is a region about one thousand miles long and from one hundred to two hundred miles in width, which from its very nature can never be developed along agricultural lines. Here and there are patches of soil suited for agriculture but in the main this must always be a forest and mining region. Within this region we have a number of Reserves and Parks. I often feel that it would have been preferable to have created this whole region a Forest Reserve and then to have admitted the smaller interests under special conditions. Within this region there is the outstanding problem of protec-

tion. Until this is reasonably well accomplished it is useless to talk of artificial reforestation.

The old settled agricultural portion of Ontario presents forestry problems peculiar to its own conditions. We have a region as large as some provinces, a region which has been cleared and more or less settled. We have large areas upon which efforts to farm have been attempted and given up as a hopeless task. Thousands of acres of worthless areas have developed which present social and economic conditions demanding attention.

#### *Experimental Planting.*

Ontario has undertaken a demonstration of the possibilities on one of these areas in Norfolk County. Here we have a Provincial Forest Station with two thousand acres, in the heart of a good agricultural region, where a demonstration is being made at forest planting and other forestry problems.

We have reclaimed by forest planting, sandy soils which had become a menace to surrounding territory, sand dunes covering township roads, etc. Aside from the actual work being done at this Station it is interesting to note the influence upon the surrounding district. The planting of small pines on these sands was at first ridiculed by many of the farmers of the district. Our first planting in 1909, upon a sand dune which was moving across the township road and over which many farmers had to pass, is to-day a young forest of imposing character. I repeat that at first this work met doubt and even ridicule. To-day it has the active support of the local people and last season over fifty thousand trees were given out in the vicinity to private parties wishing to follow the example upon similar soils.

I wish to point out that we do not expect to solve the problem of a future wood supply. We are, however, reclaiming waste land and lay-



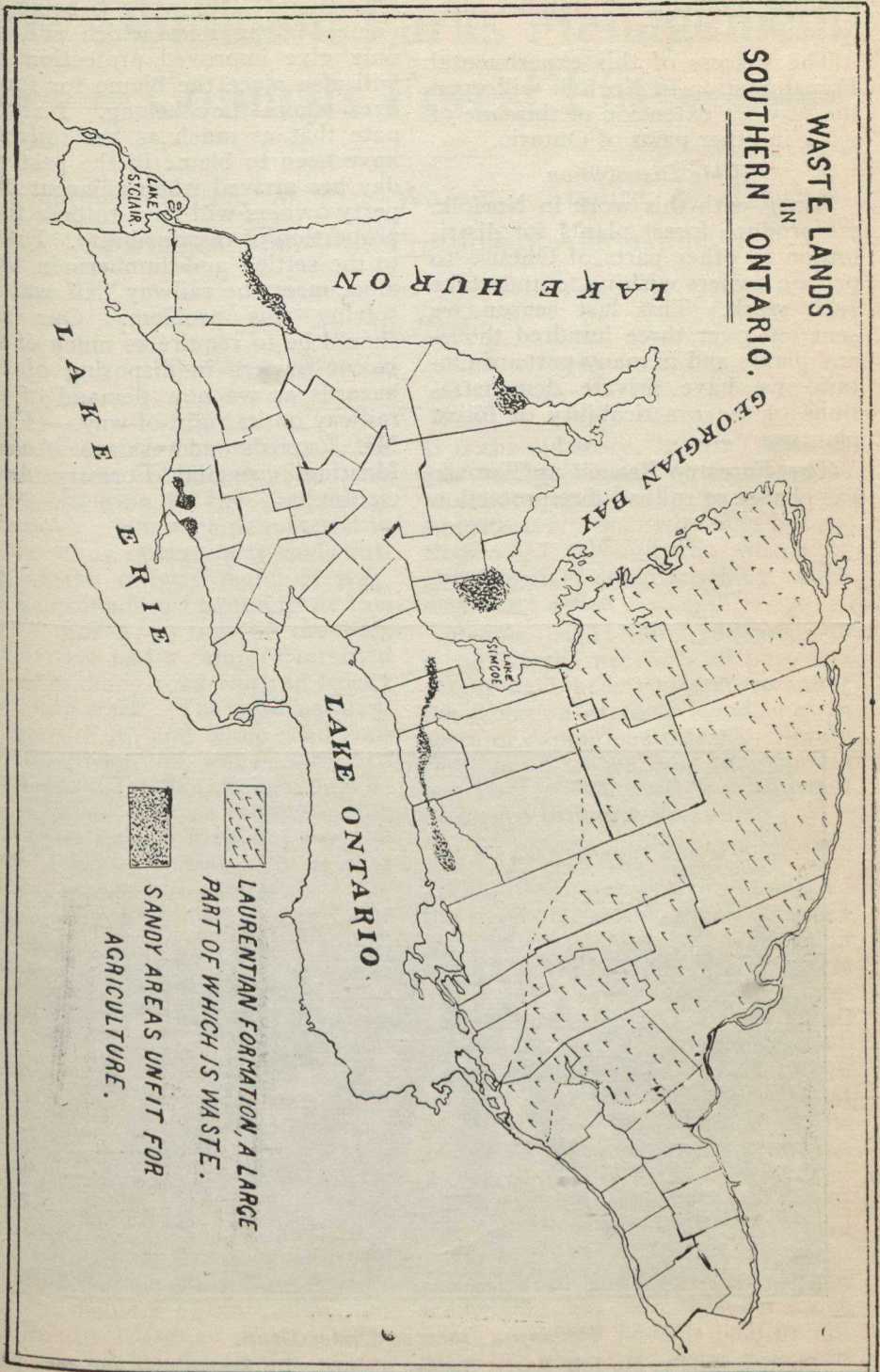


FIG. 1. Waste Lands in Southern Ontario.



ing foundations for future forest planting problems which must surely confront us.

The success of this experimental Forest Station in Norfolk will open the way for extension of this line of work in other parts of Ontario.

*Wide Distribution.*

Along with this work in Norfolk, we produce forest plants for distribution to other parts of Ontario to private owners wishing to undertake such work. This last season we sent out over three hundred thousand plants and in many parts of Ontario we have private demonstrations of the practicability of forest planting.

The Forestry Branch at Toronto has charge of railway fire protection

under the Board of Railway Commissioners. This work is being organized along lines which will not only give improved protection but will also place the blame for forest fires where they belong. I anticipate that as much as the railways have been to blame in the past the day has arrived when adjacent property owners will have to bear their proportion of responsibility. I refer to the settler and lumbermen who must meet the railway half way in solving this problem. Our aim should be to require as much of adjacent owners in disposing of fire hazards as we now demand of the railway on its right-of-way.—(From Mr. Zavitz's address to Annual Meeting, Canadian Forestry Association.)



*Placing a Barrens Under Crop.*

Shifting sand at Norfolk Forest Station planted with Scotch pine and Jack pine, showing third season of growth.



# How Dominion Parks Management Combats Forest Fire

A Complete System of Fire Warning Applied to Tourists,  
Sportsmen, Etc.—the Principle of Affirmation.

By J. B. Harkin,  
Commissioner of Dominion Parks.

The Forestry Committee of the Conservation Commission last year called attention to the desirability of removing inflammable material in the woods on government lands outside of the railway right of way. We have made a beginning at this work. For a portion of the past summer we had a camp of interned prisoners doing road work in Rocky Mountain Park. The road paralleled the C.P.R., and while road construction went on we also cleared the dead and fallen timber outside the right of way as suggested by the Committee. I may add that the proposition so appealed to us that we also applied it to the road the aliens were building, clearing out the dead and fallen material for 50 feet on each side of the road and at the same time trimming the green trees to a height of 5 to 6 feet above the ground.

We have devoted a good deal of attention to a fire prevention campaign. For practical purposes there are only two kinds of fires—man-caused and those resulting from lightning. The latter we cannot prevent but in regard to the former there does not appear to be any good reason why a great deal cannot be accomplished. I do not admit that one fire in 10,000 is started maliciously. Practically all are caused through ignorance and carelessness.

It is the old story, "I didn't know it was loaded." The obvious course to follow then is to endeavor to educate every man who may by any chance go through the woods to guard against doing anything which may start a fire.

People have been educated to recognize the necessity of pure air; people have been educated to suffer the isolation of their loved ones in cases of contagious disease. Surely there is no reason why they should not also be educated to be careful in regard to forest fires.

### *The Force of Affirmation.*

I think those who have studied the psychology of it, agree that men are influenced most by affirmation and reiteration. If a statement is affirmed vigorously enough and reiterated often enough practically all men finally accept it. There is no better vindication of this fact than the methods and the success of patent medicine men. You all know how they affirm and reiterate. Just think of the influence their campaign has on every one of us. There is scarcely a man present, I will venture to affirm, who talking ordinarily with contempt for patent medicines, has not on occasions when he found himself pale or out of sorts, gone to a drug-store and purchased some remedy that he has



seen blazoned in the newspapers and on the bill boards as being good for pale people. It is simply a case of the efficacy of affirmation and reiteration.

I spent some time ten years ago on a prairie ranch in a dry season and I may say that the affirmation and the reiteration on the ranch regarding care with fire rapidly developed in me a habit of carefully extinguishing matches and cigars which persists to-day as strongly as it was then. I automatically extinguish matches, cigars. The habit is such that I really do the act without any conscious thought.

#### *Match Box Warnings.*

As practically all fires originate in the final analysis from matches we decided it would be good policy to reach the people who use matches by having a fire warning notice put on the match boxes. All the match companies in Canada: The Eddy Company, Hull; the Canadian Match Co., of Drummondville, Que.; the Dominion Match Co., of Deseronto, Ont.; the Eureka Match Company of Halifax, very promptly acted on our suggestion and the result is that every person who uses matches is bombarded by the affirmation and reiteration of the fact that he should save the forest by being careful to extinguish burning matches. There is also a notation that the notice is printed at the request of the Dominion Government. This, I believe, gives additional weight to the warning and at the same time constitutes a recognition on the part of the Government that the Company is co-operating with the Government in an important campaign. I should add that the match companies made the necessary label changes entirely at their own expense.

#### *Warning Sportsmen.*

We recognized that large numbers of people annually go hunting in the woods and that it was desir-

able to specially educate them in regard to fire. So we asked the Dominion Cartridge Co., and the Remington Arms-Union Metallic Co.—the two large ammunition companies of Canada to insert a fire notice in their shell boxes. As in the case of the matches the reply was favorable and the result is that to-day every box of shells issued by these companies contains an effective fire notice. No hunter can get away from the warning. Every time he opens a box of shells he finds a warning to be careful in regard to fire. The warning is thus given at the psychological moment. Moreover, the warning is worded to show him that as a hunter he has a real personal interest in helping protect the forest.

#### *Notices in Tents.*

Not only hunters but also many others go into the woods and camp in tents so we decided tents would be a good medium of education. The result is that nearly all the tents manufactured in Canada to-day have a fire-warning notice sewn into them. Every time a man awakens in the morning this warning is staring him in the face. Every time he enters the tent the notice reiterates the fact that he must be careful in regard to fire.

#### *Notices on Axes.*

The next person we thought might cause forest fires was the man who works in the woods with an axe. We offered to supply a firm label to the Walters Axe Company of Hull and the Company very promptly agreed to stick them on their axes. The label contains a picture of a forest fire and the following legend:

#### **"No work for the Axeman**

If the forests are destroyed by fire,—save them by extinguishing completely camp-fires, cigar, cigarette butts and live ashes of pipes."



### *Telephone Books.*

The co-operation of the Bell Telephone Company was also enlisted in the educational campaign. It was felt that many of the people who have to consult a telephone directory at some time or other go into the woods and that conspicuous fire warning notice in the directories of the Bell Company would help impress upon them the lesson of carefulness with fire. The Bell Company very generously placed at our disposal gratis, half a page of their directories.

The work already outlined although started to benefit parks primarily related to fire education in general but the educational campaign was also carried on in other ways with special reference to the parks.

The tourist and the railway are the two sources of danger in the parks. The machinery developed by Mr. Clyde Leavitt, of the Conservation Commission for dealing with railway-caused fires is so effective that the railway fire now is no longer the thread-suspended sword that it used to be. Moreover, while developing our educational campaign it occurred to us we might help a little by making an appeal to the railway-men who cause the fires—the man on the engines—consequently we arranged with the C.P.R. and the G.T.P. for the posting of a card in the cab of every engine operating through the parks.

### *Notices to Passengers.*

To reach the tourist we naturally sought the co-operation of the railway companies. The first step taken was to ask the companies to post fire notices in their coaches and to print notices on the time cards and on their dining-car menu cards. All the railways responded promptly. No doubt these various notices are now familiar to all of you. To further emphasize the warning, arrangements were made with the

C.P.R. hotel department that a suitable fire warning notice should be printed in the menu cards of all the Company's hotels in the parks. In addition we printed an attractive card notice and had one hung in every guest room in every hotel in the parks.

Practically all visitors to the parks do a good deal of driving or horse-back riding. Consequently we had two types of attractive metal fire notices prepared; one was attached to the reins of all livery saddle ponies in such a position that the rider could not grasp the reins without noticing it, the other was attached to the dashboard and the backs of seats of all livery rigs in order that every one driving would have the notice constantly before him.

Of course in addition to these various schemes we also followed the usual practice of having poster notices distributed on all roads and trails in the parks so that no one could even walk around without learning the gospel of fire protection. For this purpose we used a special enamelled metal sheet in several colors and bearing a picture of a forest fire calculated to arrest attention.

### *Encircling the Tourist.*

Thus you will see that with regard to the tourist we carried out a pretty complete campaign on the lines of assertion and reiteration. We talked fire protection to him in the railway time cards, in the railway coaches, in the dining cars; at every meal at the hotel and restaurant dining-rooms; in the moving picture shows; we kept him in mind of it when he was riding and driving or out walking on the trails. We kept it before him when he was writing letters home and we even followed him to his bed-room with an appeal.



From the Association's Cartoon Service supplied to score of newspapers.



CANADIAN FORESTRY ASSOCIATION

**Father Bull:** "We'll have to stop every financial leak if we want to win this war."

**Jack Canuck:** "Leave it to me. I'll put another million acres under wheat."

**Father Bull:** "That is mere patchwork, my boy. Why not stop your forests from burning down? These acres of splendid timber at your door represent the easiest money you can ever lay your hands on."

**Newspaper Note:**—"The Canadian Forestry Association makes the statement that if Canada would take the simple measures to stop the plague of forest fires, the timber saved would pay the annual interest on the last Dominion loan of \$100,000,000."



# Silvicultural Problems of Forest Reserves

The Main Business to Provide for the Future—Dominion Government the Logical Controlling Power.

By

Dr. B. E. Fernow,

Dean, Faculty of Forestry, University of Toronto.

Last summer, through the courtesy of the Director of the Dominion Forestry Branch, and in his company, I had the privilege of inspecting conditions in some of the Dominion Forest Reserves in the prairie provinces and of some parts of the Rocky Mountain Reserves.

This inspection was made with a view of enabling me, as chairman of the newly established Advisory Board of the Forestry Branch, to formulate propositions for investigatory work as a basis for an eventual technical management of the Reserves.

While ten weeks travel can, to be sure, give only a very superficial insight into conditions and problems, contact with actualities and intercourse with the men in charge permits at least a judgment of the general requirements in the administration and management of these properties.

The practical wisdom of inaugurating the forest reserve policy would, I believe, be admitted by any one on general principles, but by him who visits the reservations and secures even only a slight acquaintance with the actual conditions surrounding them, any doubts as to the wisdom in each particular case will vanish, and the conviction will be

strengthened not only that these reservations should become or remain without question permanent, but that they should be added to, and also that they should remain under the control of the Dominion, which can much better than the provinces afford to carry the burden of the dead work that must be done to make these properties serve their object, namely to furnish continuous wood supplies to the surrounding settlements. The visitor will also realize, that to fulfill their function, namely to furnish wood supplies, a systematic *technical* management is a more or less urgent necessity and should be inaugurated as early as possible upon the basis of carefully prepared working plans.

## *Need of Technical Men.*

So far, in the minds of the public not only, but of officials as well, the problem of the forest reserves has appeared of the same nature as that of the mere administration of timberlands; so far, indeed, hardly more than a timberland administration has been attempted, albeit with a somewhat more conservative disposal of available supplies. Of the practice of forestry, the technical art, there is as yet hardly a beginning. For such an administration



as has been hitherto attempted technical men and technical knowledge are hardly required. The fact that most reserves are under the management of non-technical men bears out this contention: Forestry practice is still absent.

The application of forestry means efforts to reproduce the harvested crop, efforts to make the reserves continuous producers, to manage them with a view to sustained yield, as it is technically called, which can be done only by application of silviculture, the art of forest crop production.

The principal reason for the absence of such forestry practice is probably an economic one. Most of the reserves are located where, as yet, no market or only a limited market exists, and, moreover, the best timber, the marketable portion on most of the reserves, had been haggled away before the reserves were created, hence the administration was financially handicapped at the start.

In addition, the administrator of the reserve, if he consulted the technical man, would have found out that to reproduce the forest crop costs money just the same as reproducing the farm crop, and as he is accustomed to deal at any rate only with present-day affairs, he is apt to let the future take care of itself and to confine himself to present-day timber sales of whatever available supplies are at hand. He thinks that if he has made provision against fire danger and for reduction of waste generally, perhaps restricting the cut to a diameter limit, he has done all that can be expected. Surely, these administrative measures are of primary importance and need first consideration, but if this were to remain the proper attitude, the reserves would fail of their object and altogether the prosperity of the country would suffer in the future.

#### *Long-range Calculation.*

The forester also takes into consideration the economic conditions under which he is to practice his technical art; he also is shy at avoidable expenditures, but he makes a long-range calculation. His business is to provide for the future and hence he looks into and calculates with the future, and he knows from the experience of other nations that it requires expenditure and apparently dead work in the present to secure results for the future.

His finance calculation is for the long run!

We must not allow ourselves to be deterred by the fact that the forest crop is slow in maturing, that it takes many decades from the seedling to the log tree and not less than 60 to 120 years for a profitable crop to mature.

On the contrary, this is the very reason for a timely beginning to start the crop. It is this time element which makes the forestry business unattractive to private enterprise and furnishes the argument for government to engage in it, the justification for setting aside forest reserves and for handling them for the sustained yield under systematic forest management. Only a government with the duty to consider a long future, with providential functions, can afford to do this.

From the standpoint of the more or less immediate need of inaugurating such systematic forest management, we may classify the Reserves into four or five classes.

There are some reserves, located near well populated districts, whose supplies are already being heavily drawn upon, as e.g., the Cypress Hills Reserves in Alberta and Saskatchewan, the Pines and Nisbet Reserves in Saskatchewan, the Turtle Mountain Reserve in Manitoba. Here, there should be immediately inaugurated a well considered felling plan and a judicious reforestation programme. Under pre-



sent methods of mere exploitation the virgin supplies must be soon exhausted, unless adequate provision is made at once for a new crop.

Next, we have reserves which, as yet, are but lightly drawn upon, but which within the next decade promise to come into market more fully, as the settlements come up to their boundaries and the settlers' wood supplies are giving out. Such are the Duck and Riding Mountain Reserves in Manitoba. Here, every opportunity for more careful study of the silvicultural problems should be embraced, and a thorough preparation for technical management should be begun now in anticipation of their coming fully into market soon.

#### *Where Planting is Needed.*

Then there are a number of reserves that were not set aside on account of their timber, which was either used up, burned up, or naturally absent, but on account of the unsuitability of the soil for farm purposes and the possibility of using it for timber crops. Such reserves are the Sprucewoods Reserve in Manitoba, partly wooded, and the Manitou Reserve in Saskatchewan, largely without natural growth, and several other sand hill territories. Here, planting operations should be begun at once, first trial plantations with various species and methods, and, after experience has been gained, on a larger scale, with or without assistance by natural regeneration as the case may be.

Lastly, there are extensive reserves in the northern prairie regions and in the Rocky Mountains which are as yet so far removed from market as to place them last from the standpoint of the need of technical management. Here the problems are still mainly of administrative character: to prevent further deterioration of the properties, especially by fire; to regulate the use of whatever resources may be available, like, e.g., pasturage; to improve these resour-

ces; to make them accessible, and, as far as technical interest is concerned, to study the silvicultural problems against the day when they must be solved.

All reserves, however, once set aside for permanency, should be administered under systematic working plans, more or less elaborate especially with reference to their utilization; and, if they are to do justice not only to the present, but also to future needs, such plans must eventually provide for the application of proper silvicultural methods for securing a continuance of wood crops.

#### *Importance of Planning.*

There is no other productive business that needs so much planned and conservative procedure as the business of producing forest crops, for the reason that not only do these crops mature slowly, but there is little chance to advance and improve the crop after it is once started; its proper start, therefore, is the important thing. The manufacturer can change his processes in a few weeks, the farmer from year to year, but the forester once his crop is started, may not change his procedure for a century, and there is only limited chance during the life of the crop to interfere with its development; therefore, the necessity of careful planning.

If our reserves were all first-class, useful virgin timber, the working plans would be a simple affair. They would consist in prescribing the cutting of the year's requirements in such a manner as to secure reproduction—a natural regeneration. But this is by no means the condition, even in the well wooded reserves; only small portions consist of mature, useful timber, largely spruce; large portions, as a result of fires, represent young growth or are grown up to undesirable or at least less useful species, principally aspen; some of these aspen stands are rotten and useless; some areas are



mere brushlands, and still others entirely waste—dilapidated woods which only a laborious building-up process can bring into desirable productive condition, and that means careful planning and eventually the necessity of expenditure in starting future crops.

In this connection, there is one feature of importance to which I may refer in passing, that pertains at least to some of the reserves in the prairie region which is encouraging in this respect, namely the remarkable rapidity of growth, which excels that of the eastern provinces, and promises early maturing of a valuable crop.

This statement has special reference to the white spruce, which on the deep soils which it occupies grows for a long time on the average at a rate of 5 to 6 years to the inch, making a 15-inch tree, 80 feet in height, in 80 years.

(The foregoing forms part of a paper read by Dr. Fernow before the Commission of Conservation at the 1916 meetings. The balance of the paper will be published in the April issue of the Journal.)

### *Approves Quebec's Amendments*

(Montreal Herald)

The paramount importance of preserving our forests should ensure the most sympathetic consideration by the Quebec Government of the proposals recently submitted by a deputation of timber limit holders to prohibit the setting out any settlers' clearing fires. Briefly, the limit holders ask that the law shall prohibit the setting out of any settlers' clearing fires between April 1 and November 15 without the written permission of a qualified ranger. The law at present makes the "permit season" only from April 15th to June 15th, and after September 1st. That is, the present law fails to specify any form of control what-

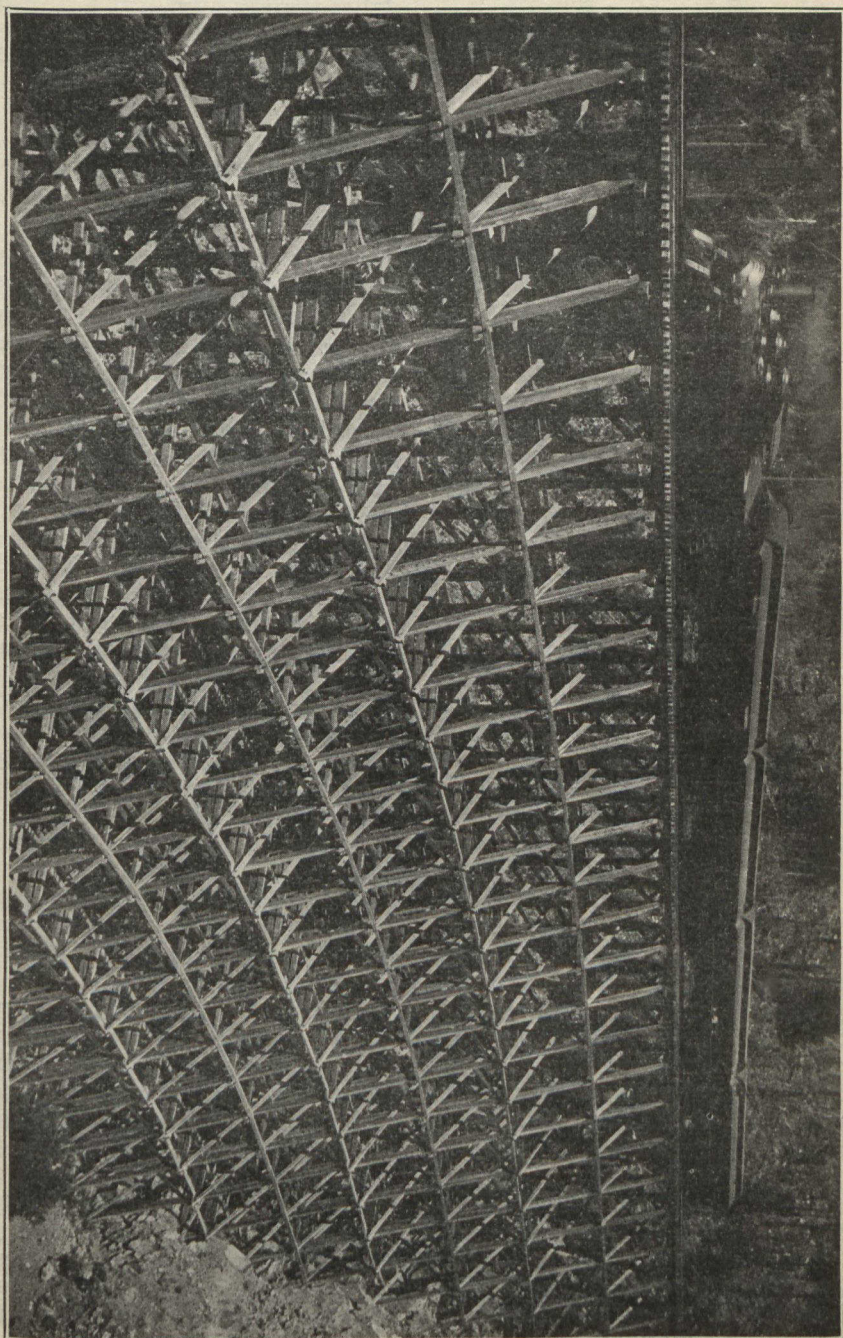
ever over settlers' fires between June 15th and September 1st. The limit holders ask that the entire season of fire danger be blanketed by the requirement regarding permits for fires. Settlers are to-day the biggest enemy to forest preservation in Quebec.

Then, it is asked that the minimum fine for failing to obey the requirements in respect to permits shall be one hundred dollars. The present fines are mostly trifling, \$2 and \$5, and do not accomplish what they ought. Thirdly, it is asked that no option of fine shall be allowed the man found guilty of setting fire to the forest in order to provide himself employment at fire-fighting. Twelve months should be the minimum sentence. Fourthly, the rangers or other forest officers should have authority to summon any male adult to help extinguish fires, such persons to receive the regular remuneration.

These are all perfectly reasonable proposals. They would not entail any hardships on bona-fide settlers, but they would do away with carelessness, which, under present circumstances, is often little short of criminal. It is becoming increasingly evident that the future of our province is bound up with forest industries, and no reasonable step should be neglected which will help preserve to us the great heritage we have in our forests.

Mr. H. R. MacMillan, Chief Forester of British Columbia, now acting as Special Trade Commissioner for that Province, has reached Johannesburg, South Africa. He writes from there that he is having a hard fight against Southern yellow pine. The orders coming to British Columbia since he began his journey tell of the success of his mission, especially those received from the British War Office. It is rumored that he will go to the front.





British Columbia Railway Trestle constructed entirely of Douglas Fir in 1896.



# The Question of Registering Hunters and Fishermen

A Group of Interesting Opinions From Friends of the Association  
Dealing With a Live Problem.

For some months past the Secretary of the Canadian Forestry Association has been gathering data regarding the feasibility of "registering" sportsmen. The object of the inquiries sent to all parts of Canada was to ascertain the views of representative persons and institutions. A few of the replies are given herewith and others will be published in succeeding issues.

That some means might be found to keep record of sportsmen, particularly fishermen, entering certain forested districts during the season of highest fire risk was the suggestion made in the Secretary's form of inquiry. It was further asked whether it would be practicable to secure the names, and probable routes to be followed, at the time the sportsmen took out his license, the information to be forwarded immediately by the license issuer, either to a central authority at the provincial capital or direct to a supervisor in the territory most concerned. It was not suggested that an entire province could be blanketed by such requirement but that sections might be tried out. If the idea was at all practicable, a well-organized body of rangers could certainly obtain valuable information from the system in regard to travelers within their patrols, and could likely eliminate some of the fire risk that annually arises from careless fishermen and hunters.

From Dr. Judson F. Clark, Vancouver, B.C.: "I see no objection to

this, if it can be carried out without any considerable expense. Viewing it from the local standpoint I do not see how it can be made effective on the B.C. Coast without a very considerable expenditure, but perhaps there would be some way of handling it which has not occurred to me."

A. J. Parr, General Freight and Passenger Agent, T. and N. O. Railway, North Bay: "Our thoughts are that this registration would be a decided step in the right direction and see no objections whatever to it."

Edward Beck, Managing Editor, Winnipeg Telegram: "I know of no reason why such representation should not be made to the Provincial Governments as planned."

Arthur O. Wheeler, Director, The Alpine Club of Canada: "I consider that the idea is an excellent one and I cannot see any reason why it should not be carried out as you suggest.

As you say, the very fact of registration is bound to have a deterrent effect and make the man in charge of parties much more likely to be careful, as he would feel directly responsible to the authorities.

It seems to me, however, that there might be some difficulty in registering people and parties who were making the one-day trips and also in registering parties who started from points that were not at or near registration centres; but, even if a few were missed in this way it would have a beneficial effect by keeping track of the majority.



I am of the opinion that persons, like myself, who move around frequently and at many different points in the mountains, should be created honorary or temporary fire wardens, so that they would be in a position to make inquiries of parties whom they met travelling, as to whether they held the proper registration certificate.

On general lines I very strongly approve of the idea and shall be very willing to do all in my power to assist it."

The Camp Fire Club of America (New York): "Your letter of December 7th, in relation to the registration of tourists, fishermen, hunters, prospectors and other itinerants who make occasional use of the forests, was presented last night at the meeting of the Committee on Conservation of the Camp-Fire Club of America, and was generally discussed.

The consensus of opinion was that such registration would be of benefit in preventing forest fires, and might well be put in practice if it can be accomplished without subjecting such itinerants to awkward delays in effecting registration, without requiring too close adhesion to an indicated route, and without throwing too much expense on the provincial governments.

Personal experiences in Algonquin Park indicated that under the conditions which prevail there such registration can be effected easily so far as the tourist is concerned, without great expense to the government, and with a reasonable degree of effectiveness because there is little occasion for departure from expected routes.

On the other hand, personal experiences suggested the difficulties in the way of determining with certainty the routes of hunting parties, for it was recalled that it frequently happens that the expected route of a hunting party is changed at the last moment, and perhaps after the

party has actually entered the bush, because of information gleaned by the retained guide with regard to the presence or absence of game. This brought out two suggestions, one that the licensing of guides and the turning in by such licensed guides of information as to the probable routes of their parties, and others who expect to visit lands without licensed guides might be required to obtain permits to build fires on wild lands and to indicate their expected routes in the application. In the State of Maine, for example, the building of fires on wild lands by non-residents, other than licensed guides, is prohibited. This, however, often works hardship to the fisherman or hunter who, in the experience of those present, is quite as likely to be careful about fires as the average licensed guide.

This Committee is at all times glad to be kept in touch with all matters which pertain to the conservation of forests and wild life and to respond, to the best of its ability, to such requests as that made in your letter.

Yours very truly,  
WILLIAM B. GREELEY,  
Chairman."

---

Some tests of the weight of freshly cut woods have just been made by the Laurentide Company and show that brown ash weighs 50.26 pounds per cubic foot, yellow birch 64.40 pounds, white birch 55.62 pounds, elm 71.31 pounds, and sugar maple 73.36 pounds.

---

Although South Africa has made great progress in planting to establish its own supply of timber there is still a large demand, especially for railway ties.



# Boards of Trade Back Forest Protection

Twelve of Ontario's Leading Bodies Give Support to Association's  
Appeals—Two Reforms Asked.

"The Board of Trade of the City of  
Toronto.

Toronto, Feb. 9, 1916.

The Hon. G. H. Ferguson,  
Minister of Lands, Forests and  
Mines,  
Parliament Buildings, Toronto.

Dear Sir:

"The Council of this Board, having carefully considered the subject of forest conservation and the protection of same from fire, desire to place themselves on record as being in favor of the Government adopting a rigid policy covering control of settlers' fires and the supervision of the work of the forest rangers.

"The enormous loss annually from reckless forest fires should warrant immediate action by the Government and the Board respectfully suggests that the matter be given due consideration at the forthcoming session of the Legislature.

Yours faithfully,

F. G. MORLEY, Sec'y."

Although the Canadian Forestry Association began its campaign only about two months ago to interest Boards of Trade in the forest protection movement, the fruits of the efforts are already showing. Quickly discerning the importance of forest conservation, once the matter was demonstrated as a business proposition, the officers and members of the Boards have not hesitated to take up with their governments several long-needed reforms.

Twelve of the leading Boards of Trade in Ontario dealt promptly and sufficiently with the proposals of the Association, and other Boards are quickly following their example.

Two points alone were dealt with in the initial effort: The need of some form of control over settlers' fires in the forested districts of Ontario; the necessity of reorganizing the forest protection service so as to bring about adequate field supervision and inspection of rangers.

After careful consideration of the evidence submitted by the Association in support of these contentions, the following made direct appeal to the Hon. G. H. Ferguson, Minister of Lands, Forests and Mines stating the Boards' endorsement of these reforms and requesting action along the lines indicated: Toronto, Hamilton, London, Belleville, Kenora, Fort William, St. Catharines, Prescott, Bracebridge, Smith's Falls, Chatham, and Berlin. Others will be heard from at meetings which are soon to be held.

That the keenest men in twelve communities would with such promptness endorse a movement for better protection of the forests of Ontario speaks volumes for the growth of conservation sentiment in Canada during recent years. The representations of the Boards are now in the hands of the Minister of Lands and Forests at Toronto and it is believed that his agreement to the proposals will not be delayed unduly.



## On the Destruction of Drumlanrig Woods

(First published in the Scots-Magazine for July, 1803, where it is stated the verses had been found "written on the window-shutter of a small inn on the banks of the Nith," and that they were "supposed to have been written by Burns.")

As on the banks of winding Nith  
Ae smiling simmer morn I stray-  
ed,

And trac'd its bonie holms and  
haughs,  
Where linties sang, and lammies  
play'd,

I sat me down upon a craig,  
And drank my fill o' fancy's  
dream,

When from the eddying deep below  
Up rose the Genius of the Stream.

Dark like the frowning rock his  
brow,

And troubled like his wintry wave,  
And deep as soughs the boding wind  
Among the caves the sigh he gave.

'And come ye here, my son,' he  
cried,

'To wander in my birken shade?  
To muse some favorite Scottish  
theme

Or sing some favorite Scottish  
maid?

'There was a time, it's nae lang syne,  
Ye might hae seen me in my pride,

When all my banks sae bravely saw  
Their woody pictures in my tide;

When hanging beech and spreading  
elm

Shaded my stream sae clear and  
cool;

And stately oaks their twisted arms  
Threw broad and dark across the  
cool.

'When, glinting thro' the trees, ap-  
pear'd

The wee white cot aboon the mill,  
And peaceful rose its ingle reek,  
That, slowly curling, clamb the  
hill.

But now the cot is bare and cauld,  
Its leafy bield for ever gane,  
And scarce a stinted birk is left  
To shiver in the blast its lane.

'Alas,' quoth I, 'what ruefu' chance  
Hast twin'd ye o' your stately  
trees?

Has laid your rocky bosom bare?  
Has stripp'd the cleeding aff your  
braes?

Was it the bitter easten blast,  
That scatters blight in early  
spring?

Or was't the wil' fire scorch'd their  
boughs?

Or canker-worm wi' secret sting?

'Nae eastling blast,' the Sprite re-  
plied—

'It blows na here sae fierce and  
fell,

And on my dry and halesome banks  
Nae canker-worms get leave to  
dwell:

Man! cruel man! the Genius sigh'd,  
As through the cliffs he sat him  
down:

'The worm that gnaw'd my bonnie  
trees,

That reptile wears a Ducal crown.

At the government nurseries located at Berthierville, for the Province of Quebec, at St. Williams, Ontario, for the Province of Ontario and at Indian Head, Saskatchewan, for the Dominion Government, and at Sutherland, Saskatchewan, stock will again be available this year. The number of trees shipped from

Indian Head has steadily increased from over two and one-half million in 1910 to about three and three-quarter million in 1914. These trees are distributed among farmers throughout the prairie provinces mainly for shelter belts, woodlots and the beautifying of grounds around buildings.



# “Proper Reforesting”

By *Ralph H. McKee,*

*Head of Pulp and Paper School, University of Maine, Orono, Maine.*

The planting and growing of trees deserves the same care and consideration as the planting and growing of other crops. The aborigines grew varieties of wild wheat and oats. The present day up-to-date farmer uses carefully chosen hybrids and as a consequence has varieties that will yield more than sixty bushels of oats and thirty of wheat per acre under conditions which, with the original wild varieties from which these crosses (“hybrids”) were obtained, the yields would be but four bushels per acre for the oats and two or three for the wheat.

Almost all our crop plants cultivated to-day, whether grown for their roots, seed, fruit, stalk or flower, have, by similar crossings of the original wild varieties, been developed to give yields from five to thirty times that of which the original wild varieties were capable.

## *Faster Growers.*

With trees, the present method of reforestation is to plant seedlings of the original wild varieties and the trees obtained are naturally no larger and no faster growing than the wild ones from which they sprung. I wish to plead to-day for the introduction of the modern scientific methods, that have been found valuable with other crop plants, to the growing of trees for wood for making paper pulp. In other words, I wish to plead for a careful study of the hybrids formed by crossing the varieties of trees that are related to the woods at present used for pulp wood, with the expectation that the hybrid varie-

ties thus formed will be very much faster growers and make at least as good quality pulp wood as any we now know.

Enough has been done by Burbank, Henry, and others on the crossing of trees for other purposes to show that this expectation of increased size and speed of growing has a strong basis in its favor.

Henry has called attention to the fact, that first crosses of trees, as of other plants, are remarkable for their size, rapid growth, early and free flowering, longer period of life, the ease with which they can be multiplied, and in all probability, their comparative immunity from disease.

Burbank produced in 1897 a hybrid walnut as a cross between the European walnut and the California walnut. Three of these trees in fifteen years each measured eight feet in height and six feet in girth. In these the timber when cut showed annular growth rings one inch in width.

## *Walnut Crosses.*

Another cross between the California walnut and the Atlantic coast walnut was at sixteen years one hundred feet in height and nine feet in girth. This, you will agree, is an astonishing size for such ordinarily slow growing trees as walnut.

These walnut crosses were not made for lumber, but only for their fruit and indeed so far have continued to be grown solely for their fruit.

Henry states that in England a certain hybrid willow “often attains, in fourteen or fifteen years from the



planting of the sets, fifty to sixty feet in height and three and a half feet in girth." One at fifty-five years was a hundred and one feet in height and eighteen feet in girth.

To those interested in pulp wood, the natural thing to do is to think of spruce and poplar. Spruce is slow growing and slow to flower (30 to 40 years under forest conditions) and so far as I know, there have been no crossings of spruce attempted. With poplar, on the other hand, the trees grown from slips will flower when about four years old. This and the fact, that the flowers are easy to artificially fertilize as compared with spruce and similar trees, make poplar a much easier tree to handle experimentally.

#### *Effect in Poplars.*

There are a few cases of crosses which have been made between varieties of poplars and you will be interested to learn regarding them.

There is a wonderful hybrid poplar growing at Metz, Germany, which in 1913, when eighty-one years old from seed, measured a hundred and fifty feet in height and twenty-five feet in girth at five feet above ground and at last accounts seemed to be still growing steadily. A younger tree, a cutting from the tree just mentioned, was at forty-three years old, a hundred and forty feet high, and sixteen feet in girth, and would cut 7,000 board feet of lumber. In the case of another hybrid poplar, which was unrelated to those just mentioned, the cutting was forty-five feet in height and eight inches in diameter fifteen years after planting. This was on a poor shallow soil. These were accidental hybrids. There is no reason to think they are the most rapid growing that would be obtained if crosses were made systematically.

#### *Ten Feet in 27 Months.*

Henry by artificial fertilization obtained a hybrid poplar that in twenty-seven months was ten feet

one inch in height. One appreciates what this means when one considers that many forest trees at twenty-seven years, instead of twenty-seven months, are scarcely more than a third this height.

Given a single satisfactory tree, there is no difficulty in getting in a few years thousands, or even millions, of trees from it, each as good as the original hybrid.

The practical solution of the problem will be to get together specimens of the twenty-five or thirty varieties of poplar known in this country and abroad, cross them, grow the resulting hybrids, and test the woods obtained from these hybrids for pulp-making qualities. From the results obtained, choose the hybrid that in growth of wood, quality of wood considered, is the best and, using this tree as a source of stock, reforest the cut over pulp wood lands.

#### *Cost of Experiments.*

To carry out such a programme will take skilled scientific workers and some time. As I estimate it, it will require, to cover all expenses, about \$7,000 a year for six or seven years to get and test the possible hybrids and to get seedlings or cuttings to begin actual planting on forest lands.

In this connection it may be worth calling the attention of the younger generation of paper-makers to the fact, that twenty-five years ago, poplar was more used than spruce for making ground wood pulp for news paper. It is well known that to-day poplar is our most used wood for soda pulp. Judging from an article of a month ago in the Pulp and Paper Magazine of Canada there is a possibility of poplar becoming in the near future an important wood for use in sulphite mills, if it can be had at a less price per cord than spruce. This sulphite pulp from poplar is obtained in good yield and meets the class of needs met in England by esparto pulp.



*Would Research Pay?*

To make the same tests with spruce will not be as quick nor as easy as with poplar, for methods of technique will have to be developed, and the experiment itself will be slower to come to completion. Even if the cost and time were double that given in the case of poplar, it would still be very worth

while. A forest with pulp wood of first quality, each tree of which increases two inches in diameter each year, is well worth working for. A single automobile company in this country expended last year \$500,000 in research. Should a company making pulp hesitate to invest \$7,000 a year for a few years when there is an even larger prize in sight?

## Cedars of Lebanon

There are only about four hundred of the Cedars of Lebanon left. High up on the rocky slopes, Hadrian sculptured his imperial anathema against all who should cut these sacred trees. The Maronite peasants almost worship them and call them the "Cedars of the Lord," and a recent governor of the Lebanon has surrounded them by a great wall, so that the young shoots may not be injured by roving animals. Yet, century by century, their number grows less.

But these few are of royal blood. They are not the largest of trees, though some of the trunks measure over forty feet around. Their beauty lies in the wide-spreading limbs, which often cover a circle two or three hundred feet in circumference. Some are tall and symmetrical, with beautiful horizontal branches; others are gnarled and knotted, with inviting seats in the great forks, and charming beds on the thick foliage of the swinging boughs. The wood has a sweet odor, is very hard, and seldom decays. The vitality of the cedar is remarkable. A dead tree is never seen, except when lightning or the axe has been at work. Often a great bough of one tree has grown into a neighbor, and the two are so bound in together, that it is impossible to say which is the parent trunk. Perhaps the unusual strength and vi-

talidity of the cedars are due to their slow growth.

When a little sprout, hardly waist-high, is said to be ten or fifteen or twenty years old, one cannot help asking, "What must be the age of the great patriarchs of the grove?" It is hard to tell exactly. There have been counted, with the aid of a microscope, more than seven hundred rings on a bough only thirty inches in diameter. Those who have studied the matter deeply think that some of these trees must be more than a thousand years old. Indeed, there is nothing wildly improbable in the thought that perhaps the Guardian, for instance, may have been a young tree when Hiram began cutting for the temple at Jerusalem.

### Annual Fees Now Payable

Members of the Canadian Forestry Association are respectfully requested to remit the annual fees as early as possible. A memorandum was sent to every member during the past month and it is desired that as far as possible the returns shall reach the Treasurer before the middle of April.

The attention of members is also directed to the new "Contributing Membership," by which those wishing to aid the 1916 programme of forest protection campaigning in a special way are enabled to do so.



## St. Maurice Protective Association

---

The St. Maurice Forest Association, Limited, held their fourth annual meeting recently at the Place Viger Hotel, Montreal. The report of the president, Mr. S. Laurence de Carteret, stated that the scope and influence of the association had increased materially during the past year, and the introduction of new methods have raised the degree of efficiency attained.

Most satisfactory advances have been made in eliminating indiscriminate slash burning on farmers' lots in clearing land. Use of burning permits in an experimental way during the season of 1914 gave such encouraging results that in 1915 a widespread effort was made throughout the territory of the association to have all slash in clearings burned under the supervision of fire rangers in conjunction with burning permits.

No forest fires occurred from burnings conducted in this manner, and these results have carried much weight with the Department of Lands and Forests when the desirability of the use of burning permits throughout the province has been under consideration.

It has been suggested that the members of the association issue written instructions to their woods employees advising them that preventing and extinguishing fires is their first duty, and the president suggested that a standard set of instructions to employees pertaining to forest protection, for use by all the members of this Association should be drawn up.

During the past fire season the total number of fires was 27 per cent.

less than during that of 1914, while the number of fires requiring extra labor was reduced 20 per cent. Several hundred miles of portage and trail had again been cut and cleared, making communication easier and quicker. Nine more lookout stations were constructed, making a total of twenty-three.

Good trails had been cut to all these stations with the intention of connecting them to the nearest telephone lines.

The financial statement showed receipts of \$37,757.45 and expenditures of \$36,509.52, leaving a balance of \$1,247.93. The regular assessment for patrol and general expense was a quarter of a cent per acre, totalling \$19,731.94. On December 2nd a special assessment of one-tenth of a cent per acre was voted for general uses, principally to cover the expenses incurred in fighting fires. The area patrolled held by members of the Association was 7,892,776 acres, to which must be added the settled districts adjoining, but from which no income is derived, and Government lands not under license. The expense in fighting fires during the past season was only 56 per cent. of that during the season of 1914, and a large percentage of the timber killed by fire in 1915 is so located that it can be logged during this and next winter.

The following officers were elected: President, Mr. Ellwood Wilson, Laurentide Company, Limited; vice-president, Mr. Robert F. Grant, St. Maurice Lumber Company; directors, Messrs. Joe. M. Dalton, St. Maurice Paper Company, Limited; Charles LeBrun, Belgo-Canadian Pulp and Paper Company, Limited; S. Laurence de Carteret, Brown Corporation; J. H. Danse-reau; secretary-treasurer and manager, Mr. Henry Sorgius.



# Swiss Forest Management

Old Method of Clear Cutting With Plantations Gives Place to Natural Regeneration Through Careful Cutting.

(Continued from previous issues.)

At the beginning of the 19th century the question of surveys was taken up seriously by the Swiss authorities. A triangulation survey of the country has been completed but more detailed surveys have been carried out over only 35% of the territory, and a general plan has been laid out for this work. The division of Swiss lands is as follows:

Total area . . . . .	10,330,997	acres.
Forest . . . . .	2,348,057	"
Agricultural . . . . .	5,377,022	"
Unproductive land . . . . .	2,605,918	"

That is, 25.2% of the land is unproductive; 22.7% is forested, and the remainder is devoted to agriculture. The large percentage of unproductive land is of course a result of the mountainous nature of the country. The percentage of forest in other European countries is: Germany, 25.9; Austria, 32.5; Hungary, 27.8; France, 18.7; Belgium, 18.3; Sweden, 47.8. No great increase in the area of the forest can be expected and the recent reforestation on new lands has been for protection against floods and avalanches. According to the census of 1910 the population of Switzerland is 150 persons to a square mile or .62 acres of forest per person. Switzerland imports much wood. Where the average of the forest area per inhabitant is below about .90 acres the importation of wood is greater than the export.

Of the forest land the state lands are 106,545 acres, the communal and municipal forests, 1,597,687 acres, and the individual forests 643,825 acres. Thus about three-fourths of the forest is a public domain.

## Quality of Swiss Forests.

The character of the forest varies according to location. To the north lies the range of the Jura mountains, a limestone ridge rising to a height of over five thousand feet. On this ridge, forested to the summit, are mixed forests of deciduous-leaved trees and conifers. Beech has the most important role in these forests. On the sunburned and dry slopes of the hills the beech preserves the soil against drying, thanks to the shade and its thick carpet of leaves. Its shelter permits the growth of other species:—ash, maple, fir, spruce. On the south slopes beech is almost always accompanied by Scotch pine but on the more fertile and cooler northern slopes the fir and spruce are found.

The central valleys lying between the Jura and the Alps contain the principal areas of agricultural land, the soil is better, and the climate milder. Naturally the forest is more varied and deciduous-leaved trees predominate. Oak, beech, hornbeam, ash, maple, elm, alder, willow and poplar are found generally. Fir and Scotch pine are also frequent and spruce, which seems to have been more recently introduced, has an important place.

As the Alps are approached spruce and fir increase rapidly in importance. It is along the northern border of the Alps that these species reach their best development and become dominant. From about 1,500 M. altitude spruce remains alone of these two species. The following species attain their maximum development in the Central Alps: larch,



Cembra pine, mountain pine, and also the Scotch pine. About 70% of the forest is of coniferous species; 40% is spruce, 20% fir, and 10% pine. 30% is deciduous-leaved trees and 25% is beech.

#### *Seeding and Coppicing.*

In the management of the Swiss forests nine-tenths are handled on a system of reproduction of high forest by seeding, and the remainder on a system of coppicing. Coppicing is suited best to good soils and is most in practise in small private holdings.

The method of clear cutting and reproduction by plantations was introduced by Swiss foresters who from 1820 had begun to study forestry in Germany. Fir and beech, which do not resist frost well in their first years, were thrust aside and spruce was almost solely planted. The ease and rapidity with which it grew and the usefulness of the wood also made it a favorite. The old stands of broad-leaved trees—oak, beech, ash—mingled with fir, gave place gradually to pure stands of spruce. Lands fallen out of agriculture were planted with spruce. Natural regeneration was little by little abandoned and maintained only in the mountain forests.

But the inconvenience of a method so ill-adapted to the natural conditions soon appeared. In the plantations of spruce there was found at the age of 50 to 60 years a diminution of growth. And then rot began to make disquieting progress. The ill effects of the latter decreased in importance when the spruce grew among other species, when special cultural measures were followed, or when growing at higher altitudes. By the forced cutting of trees broken by wind or snow or attacked by rot the stands were thinned and lost their resistance. They had often to be felled before the proper time. The soil becoming impoverished and regeneration was difficult. To all these factors were added the in-

sects which, in Germany and Austria, had completely destroyed great stretches wooded exclusively with spruce.

Reaction against this method soon followed and it has had its day. The treatment generally applied today is as follows: It seeks to preserve and to increase the productive power of the soil by a judicious mixture of species and maintaining the soil cover. It seeks regeneration by natural methods. The annual cut should be carried out on the oldest trees, those of defective form or of feeble growth so as to increase the volume and the value of the old stands remaining.

#### *Sustained Yield.*

The rotation which is generally the rule in the public forests is from 80 to 100 years in the central valleys, 100 to 120 or 140 years in the Jura, and 140 to 180 years in the forests of the high mountains. In all the public forests the principle of sustained yield is adopted which means that the annual cut does not exceed the growth. In order to fix this exactly, complete inventories of the standing timber should be made regularly. The principal revisions of inventories suffice every 20 years in the mountains but is considered necessary every ten years in the most productive forests. Indeed everywhere where the treatment of the forest is well understood it has been determined that the sustained production of the forest increases and that at each revision the annual possibility can be increased, and generally the greater value of a single annual cut suffices to largely cover the cost of the inventory.

The production of the public forests is 40.38 cubic feet per acre, the expenditure \$1.44 per acre, leaving a net revenue of \$2.72. The production from the 1,704,232 acres of public forest is 69,188,000 cubic feet, and the total for the whole country 95,310,000 cubic feet per annum. Most of the wood is consumed in



the country. The importation in 1911 was 30,005,000 cubic feet and the export 4,236,000 cubic feet. In spite of the use of coal, gas, electricity, iron and concrete, the consumption of wood increases unceasingly, especially of wood for industries and

particularly of lumber. To meet this demand it is urged that the production of the forests should be increased by proper management. It is estimated that the production of 40 cubic feet per acre could be increased by 30 cubic feet per year, or nearly doubled.

## *Campaigning Through Boy Scouts*

The Boy Scout Forest-Book, issued last month by the Canadian Forestry Association and presented to most of the Boy Scouts in Canada has met with a gratifying reception. Letters heartily commending the undertaking have reached the Secretary from many sources and applications for the booklet are being received from all parts of Canada and even remote sections of the United States where newspaper and magazine notices had first gone.

Twenty-seven photographic illustrations and sixteen pages of reading matter have been so arranged as to appeal first of all to the boy's sense of what is interesting and secondly what is most important that he should know. Newspaper comments upon the production have been laudatory in tone and a few excerpts are given as examples:

Montreal Herald: "It is a happy idea of the Canadian Forestry Association to get out a 'Boy Scout's Forest-Book' and present a copy to the members of the Scout Movement in Canada. . . . It certainly will arouse the interests of young minds in the value of the national forests and make the lads feel that the trees are the friends of both the individual and the community. We congratulate the Association on this further evidence of aggressive work along most valuable lines."

Victoria, B.C. Times: "This Forest-Book might well be in the hands of every citizen of Canada for it comprehensively, yet simply, points out the stupendous wastage of timber which occurs each year through

forest fires as the result of carelessness. . . . In the hands of the Boy Scouts this little volume should have great educational value and scout masters cannot over-emphasize the importance of the warnings it contains."

Pulp and Paper Magazine: "In the thirty-two pages of text and illustration, the boy is made acquainted with the Canadian forest as a personal and national necessity. The subject is handled from a new angle."

Toronto News: "It is made especially attractive to a boy as it deals with a subject that is almost invariably interesting to every healthy upstanding youngster."

St. Thomas Journal: "Mr. Black has written a helpful thing in 'The Boy Scout Forest-Book.' It is issued as part of the Association's educational propaganda for forest protection. The young reader is given the business reasons for putting an end to our plague of forest fires."

Copies of the booklet have been mailed to all members of the Canadian Forestry Association.

The Secretary is now preparing an edition in French for distribution to many thousands of senior boys in Quebec Province. It is possible that, owing to the relatively few Boy Scouts in the French-speaking population of Quebec, the name of the booklet will be altered to "The Canadian Boy's Forest-Book," and some of the illustrations and reading matter made to focus more directly upon Quebec's forest development.



## A "Forestering Battalion"

The war has given rise to many novel incidents but perhaps none stranger than the proposed raising of a battalion of woodsmen to cross the seas and help cut down some of Britain's home forests for war purposes. The official announcement as contained in the newspapers read as follows:

A Canadian forestering battalion has been asked for by the War Office and steps have been taken immediately by Major General Sir Sam Hughes to form it. It will be in command of Lieut.-Col. Alexander McDougall of Ottawa, the well known railway contractor. The majors of the battalion will probably be Gerald White, M.P. for North Renfrew, and B. R. Hepburn, M.P. for Prince Edward.

Canadian woodsmen are wanted at once in Great Britain for timbering operations in connection with war requirements. Lumber is now at an almost prohibitive price in the Motherland, and ocean rates on lumber from this side are so high as to practically stop export from here. In Great Britain there are still large resources of standing timber which can be cut down and utilized for building operations, trench construction work, etc. The men from Canada know the business and will get to work within a month or so on the job.

It is planned to raise companies of experienced woodsmen from British Columbia, from Alberta and northern Saskatchewan, from the Ottawa Valley, and from Quebec and New Brunswick. A number of prominent lumbermen and contractors have agreed to co-operate in the recruiting of the new battalion and these modern cours-de-bois will form one of the most picturesque and at the same time most serviceable of the Canadian battalions for overseas service.

### A Lesson in Consequences

(From Toronto "Globe.")

The sweeping of the bison from the Western plains is well-nigh parallel by the removal of the virgin forests from older Ontario. Men are still living who can remember when the greater part of the southern half of the Province was covered with timber of a class which commands famine prices to-day. The sturdy oak, lordly pine, towering elm, and beech, maple, ash, and basswood were found in abundance almost everywhere, while in special localities walnut was also common. Untold quantities of this timber were burned in log heaps; more of it was sold for a song. To-day so little of the original forest remains that some of the most valuable hardwood cannot be obtained in commercial quantities in older Ontario; a few years ago, in a period of fuel scarcity, the stumps of pine trees sold for fuel at a higher price than was secured for the trees which grew upon them.

The wholesale destruction of trees which occurred in the early days of settlement is not the only evil in the case. The Province has been so stripped of forest protection that creeks are drying up and the supply of well water has in many places been endangered. In addition to this, the clearing of light soils, unfitted for agricultural purposes, is leaving exposed sandy wastes which are a menace to better land in the neighborhood. The lesson taught by the experience of older Ontario should not be lost on the new area now being opened in the north. In the portion of the Province which has been over-cleared a vigorous policy of reafforesting should be adopted as soon as normal conditions are restored after the war.



## The Results of Public Lectures

---

The public lecture programme involving two lectures daily was carried out by the Secretary during the two weeks ending Saturday, February 26th, the territory covered representing Winnipeg, Port Arthur, Fort William, and Sudbury.

The newspapers at these points gave unstinted publicity to the propaganda in advance of, and during, the Secretary's visits. Columns of space were devoted by the Winnipeg newspapers to forest conservation matters in the form of interviews, reports of the lectures, and editorially.

The senior students of technical schools and collegiate institutes were frequently assembled for an hour, while the lecturer outlined the story of Canada's forest industries, the importance of maintaining the storehouse of raw materials, the damage wrought by forest fires on standing timber and stream protection, the work of fire rangers, etc., etc. The attention given was invariably good, and one-hundred pic-

tures on the screen accentuated the impressions of Canada's forest needs.

At Winnipeg, the Secretary was privileged to discuss with Hon. T. C. Norris, Premier of the Province, and the majority of his Cabinet Ministers the desire of conservationists for better co-operation between provincial authorities and those responsible for the care of the forest reserves. It was pointed out that the reserves required protection from settlers' fires on their borders and had suffered greatly from this source, that a policy of careful guarding and development by the Dominion Forestry Branch would inevitably bring great benefits to the surrounding country in increased supplies of wood for settlers and ultimately the starting of new industries. The Premier and Ministers gave the presentation a courteous hearing.

Other lectures have been arranged for Cobalt, Sault Ste. Marie, London, Hamilton, Toronto, Montreal, Brockville, and other centres.

---

## Fighting Forest Insects

---

Some little time ago Canadians were startled by the news that an outbreak of forest insects had occurred in Stanley Park, Vancouver, and that there was danger of a great part of that magnificent timber being destroyed. At the last monthly meeting of the Foresters' Club of Ottawa held at the University Club, Mr. J. M. Swaine, entomologist for forest insects in the Department of Agriculture, told how that outbreak had been first checked, and then beaten off. This came as an incident in his address on forest insects

in Canada, which address was illustrated by lantern views and made still more plain by the exhibit of samples of the wood and bark of destroyed trees, and by specimens of the insects which did the damage.

Mr. Swaine told of his work in the past three years to learn the life history of insects not yet fully studied and to devise and apply measures to combat their destructive work, and to save timber areas that had been attacked.

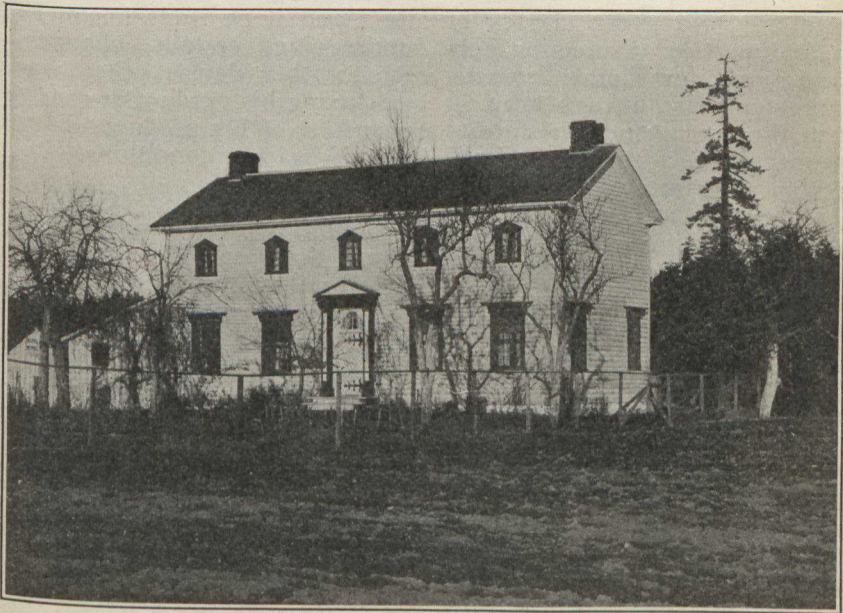
There was not a dull or uneducative minute in the whole lecture.



The great scope of the work was indicated by Mr. Swaine's references to work in New Brunswick, Quebec, Ontario and then across to the Pacific slope; while one of the greatest "finds" in regard to one of the spruce-destroying insects was made in a pile of three million feet of sawlogs on the shore of Lesser Slave Lake in Alberta. The importance of the subject is so tremendous and so much interest was aroused that it is not unlikely Mr. Swaine will be asked to address the club again with particular reference to one part of Canada, and the insects which endanger the forests in that part.

The chair was occupied by the president of the club, Mr. R. H. Campbell, director of forestry, who conveyed the thanks of the club to Mr. Swaine. He also explained that in addition to those who originally formed this club, lumbermen and others interested in forestry might become members and participate on the same basis. There were a number of visitors, including Dr. C. Gordon Hewitt, Dominion entomologist; Mr. B. M. Winegar, of the C.P.R. department of natural resources, Montreal; and Mr. Chrystal, assistant to Mr. Swaine in his forest protective work.

## *Lasting Qualities of Douglas Fir*



The house shown in the picture was built in 1851 entirely of Douglas Fir, except the roof which was of cedar shingles. It was erected by the Hudson's Bay Company near Victoria, B.C. There are practically no parts of the building that have had to be renewed.



# Forestry and the Lumber Industry

## How the British Columbia Government Grappled With Problem of Utilizing the Stores of Forest Wealth

By *W. T. Van Dusen,*

*British Columbia Forest Service.*

Forestry is a very broad word and has been used to embrace a wide range of activities. I would preface my remarks with a definition of Forestry as I understand it. Forestry may be defined as the best management of a forest estate keeping in mind both present and future interests.

There are two great classes of forested properties. Protection Forests and Supply or Timber Forests. The forester must always keep in mind in the management of forests the primary object to be obtained. Protection Forests are very important in some of the European countries but as the Timber Forest is the important forest of North America, at the present time, as they bring population, wealth, prosperity, I will limit my remarks to the Commercial Forest.

Forestry was first practised and has come to its highest development in European countries. There, even from the very first, the manager of a Forest Estate had no difficulty in selling his product at a sufficient price to net a profit on his operation. The great demand of the wood-using industries constituted a large and steady demand for the product of the forest. In the same way, the dense population created a steady demand for the product of

the various wood manufacturing establishments. So, we find in Europe that the Forester on account of the demand for his product has confined his activities to the growing of timber crops. To do this to the best advantage, however, he must keep in close touch with the market which consumes his product and if he finds his market is undergoing certain changes, he must either devise other ways of marketing his product or change the character of his product to suit the altered market conditions.

### *B. C.'s Fire Protection.*

Conditions are entirely different in North America. The immense virgin forests have been exploited by the lumberman (rightly so to my mind) and the Forester has come on the scene after considerable portion of North America's standing timber has been cut. It became his duty to see that the forest resource was not over cut, was not destroyed by fire and to handle the forests for the benefit of the people. In North America, of course, forestry is confined almost entirely to state effort.

Now, I want to tell you about forestry and the lumber industry in British Columbia.

The first thing to be done was to adequately protect the forests of



B. C. from the enemy of forests all over North America—fire. This has been practically accomplished. Do not let me be misunderstood. We still have forest fires, many of them, but as in a well patrolled city, the large majority do not get past the incipient stage and the annual loss through this source can be calculated fairly closely. After protection comes utilization of the forest wealth.

#### *Loss of Mature Timber.*

The Forest Branch after careful investigation covering three years finds that there is at a conservative estimate 400 billion feet of merchantable timber in B. C. This estimate will be fully borne out, I believe, when the report now being secured by the Commission of Conservation is issued. At the present rate of cutting this would last over two hundred years. But there is growing each year, at least 5 billion feet of which only from one and a half to two billion is being used. The balance is a total economic loss. This is a waste which, by all the rules of conservation, should be stopped and if it is possible to stop it, the Government of B. C. is going to stop it. We cannot allow such an economic waste, if it is possible to avoid it, especially when Canada and the Empire is at war. The same sentiment which prompts Canada to support the Empire with her men and money should stimulate those who do not go to fight the Empire's battle on the fields of Europe to economize, conserve and utilize the nation's natural timber resource, so that the forests of Canada can play their part in making prosperity and so help financing the war. The only way is to find larger markets for our forest products.

#### *Problems of Selling.*

We have logging and milling facilities to harvest the total annual growth. In fact, overproduction and sacrifice prices are an old and almost chronic trouble in the lumber

industry of North America. In addition to overproduction we have had decreased consumption. The per capita consumption of lumber in North America has always been very high—far higher than in England or Europe in general—and probably it is only to be expected that it would decrease somewhat as time goes on. Many substitutes are now on the market, and for some purposes some of them are unquestionably superior to wood. But in many cases they are sold by aggressive advertising and salesmanship for purposes where wood is far superior; for example, substitute roofing material versus British Columbia Red Cedar Shingles. Lumbermen are now beginning to see that in order to keep its proper place in the markets, wood must be advertised and sold more efficiently, and better service given to the consumer.

Another factor which has reduced the consumption of lumber is the decrease in building per capita. Some claim that a good deal of this money has gone to buy automobiles—in other words, many people are buying new automobiles instead of new houses. The great increase in tenant farming is given as another reason. The general business depression of the past year or so, and the effect of the war on foreign markets and shipping all aggravated the situation.

I cannot go into detail concerning what we are doing to secure increased markets in the time at my disposal, so I will just briefly mention the various lines that the work has taken.

#### *Commissioners at Work.*

(1st) Mr. H. R. MacMillan, Chief Forester of B. C., was sent on a world tour by the Department of Trade and Commerce. He is at present in India having visited the United Kingdom, France and South Africa and will visit Australia, New Zealand and China before he returns.



(2nd) B. C. Lumber Commission-ers have been placed at London, Eng., Regina, Sask., and Toronto, Ont. The Toronto office is in the Excelsior Life Building, at the corner of Adelaide and Toronto Streets.

(3rd) A quarter million pamphlets have been issued for distribution to the Prairie farmers, giving detailed plans for all kinds of farm buildings together with complete specifications.

(4th) A series of timber pamphlets are being printed describing the wood products which B. C. has for sale. These are for distribution to importers, architects, engineers and large users of wood in the markets that B. C. hopes to reach.

(5th) The Forest Branch at Victoria are prepared to forward to all lumber producers of the Province any inquiries received from prospective purchasers.

I might just add here that great drawbacks to the development of overseas markets has been great scarcity of tonnage and the fact that up to the present time almost the entire foreign business of the Pacific Coast has passed through the hands of San Francisco brokers. Steps are being taken in B. C. to create a local Merchant Marine, which will enable our lumber to compete in the world markets without the handicap of passing through San Francisco. In this work the Foresters of B. C. are working hand in hand with the lumber industry. And in this close co-operation there is being formed a basis of sound understanding and appreciation of each other's difficulties that will be a sure foundation on which to build a far-sighted provincial forest policy having in view the best and most efficient utilization of our timber resource.

#### *Co-operation the Key-note.*

Forestry and Lumber Industry are linked up almost inseparately in actual practice and the thought I wish to express before closing is this:—

On the North American Continent, it is my conviction that the Foresters having the management of State Forest resources in their hands should build a solid foundation of mutual understanding and hearty co-operation between all directly interested in the forest and secure by these efforts a public opinion on which there can steadily be built up a strong healthy forest policy.

Foresters, Lumbermen, Pulp and Paper Manufacturers and timber owners are allies who must work together to secure lasting results.

#### *Monument to a Tree*

Perhaps one of the most curious monuments in existence has recently been built in Ontario by Canadians, says "The Popular Science Monthly." The farmers have just erected a marble pillar to mark the site on which grew a famous apple tree.

"More than a century ago a settler in Canada named McIntosh, when clearing a space in which to make a home in the wilderness, discovered among a number of wild apple trees one which bore fruit so well that he cultivated it and named it McIntosh Red.

"The apple became famous; seeds and cuttings were distributed to all parts of Canada, so that now the McIntosh Red flourishes wherever apples grow in the great Dominion. In 1896 the original tree from which the enormous family sprang was injured by fire, but it continued to bear fruit until five years ago. Then, after 15 years, it died, and the grateful farmers have raised a marble pillar in honor of the tree which did so much for the fruit-growing industry of their land.

"The story of this apple tree illustrates the African proverb that, though you can count the apples on one tree, you can never count the trees in one apple."



# War's Effect on Shade Trees

By F. McVickar.

Mr. McVickar is a well-known Canadian Forester and has been serving in France for many months.

I am sending all I could scrape up about the effects of war on forests during the two months I was in France. In the army on service a man's time is never his own, and his movements are also very much never his own, and his movements are also very much restricted. Also when in the areas affected one is generally as close to mother earth as he can get during daylight hours; and consequently one's horizon is very circumscribed, especially in a very flat country.

"The sound of flying bullets and the burst of shells too tends to keep one's mind occupied with problems which at ordinary times are more interesting to woodchucks, badgers and the like than to foresters. However, now that everybody is talking of the war, and thinking of the war above all else, my little effort may not be entirely unwelcome.

"Unfortunately the country in which our force is operating is almost devoid of woodland. However, farther south in Alsace and Lorraine there are extensive forests, but of course I couldn't get near them. Photos are absolutely out of the question. Cameras are not allowed out there to any except a few generals, etc.

"I have been in the trenches in Northern France; and although I didn't see enough of the effect of military operations on forest land to warrant venturing on anything like a technical discussion of the subject, a few of my impressions of this side of warfare may not be entirely

amiss. First, I would like to say that while these operations are going on it is pretty nearly impossible to make any observations of value on this subject. This, I hope, will be made clear in the remarks which follow.

"The part of the line held by the British runs through a very low, flat country largely taken up by farming. It boasts of nothing but small patches of wood scattered about here and there.

"The operations that have taken place on this territory may be grouped under two heads; the first heading covering those operations incident to the advance toward Paris at the beginning of the war, and the second covering the almost stationary siege warfare of the present stage of the war.

"The damage caused by the first-class of operations is very slight in this part of the country. Chiefly because the patches of wood are isolated and because owing to the general scarcity of wood litter and dead branches are kept cleaned up. Consequently the woods are not easily burned. Also at that stage of the struggle bodies of men moved largely along the roads, and artillery fire was not of long enough duration in one place to do much damage. Earthworks then were not very elaborate and poles were not used so much in their construction as at present.

"The effect of the operations coming under the second head are much more noticeable for the simple rea-



son that the fighting has for many months been confined to a rather narrow strip of country.

"One might subdivide this area into two zones: the zone of constant bombardment, that is the zone of the trenches where there is an almost constant hail of shells and the zone of intermittent bombardment, this being the territory where the local range heavy guns drop a shell now and then, searching for the opposing artillery or sweeping the roads in search of transports or columns of troops.

"On the areas covered by the constant fire there are no living trees or even large shrubs left; in fact I've seen small patches where it seems that even the grass blades must be pretty well frayed out. Here, naturally in daytime, one keeps down in the trenches as much as possible, and in the dark one is too busy perfecting and repairing one's particular portion of trench to look around very much.

"However, by peeping out very cautiously in the daytime one may get an occasional glimpse of what used to be a patch of woods or a few isolated trees.

"All species look pretty much the same now; a stub more or less split up, with one or more bits of broken branches still clinging on near the top. There are no leaves, twigs, or small branches remaining, and even most of the bark has been whipped off by flying metal.

"The earth is generally broken up and pitted very generously with shell craters. Now the explosion of a good many of these shells, for instance those containing lyddite, generate fumes which stain everything in the immediate vicinity; sand bags, clothes, and the very earth it-

self. As far as I could make out these fumes constantly settling on the soil will kill, or at any rate damage, its vegetation, and probably will reduce its fertility, for a time at least. However, when the war is over our French and Belgian friends will be able to tell us all about this.

"As to the effect of the gas on the soil, I have never been in the gassed country, so do not know much about it. They say that it kills the leaves on trees and shrubs.

"The long range bombardment of the second class doesn't do any appreciable damage to woodlands because the shells do not cover much of the ground and are generally dropped on other things than trees.

"A good many poles are taken from this area immediately behind the trenches for use in earthworks. This undoubtedly takes a good deal of material from the future yield of the stands. However, owing to the great size of the area they are removed from it is not very noticeable in any particular spot.

When the time of reconstruction comes there will be an increased demand for timber for a time. All buildings, although in Europe largely made of brick or stone, require some wood in their construction. Most of the buildings close to the scene of the present operations will have to be completely rebuilt. Wood goes into railway construction, and a great many public works; all of which have suffered very heavily wherever near the trenches.

"Hence we will not only have damaged forests on the areas affected, but also a need for timber which for some time will be much greater than before the war."



## A Soil Survey

(From "The North Woods" of St. Paul, U.S.A.)

The State Development Committee, which met in St. Paul early in December, and the Northern Development Association, which met in Bemidji a week later, both passed resolutions favoring a soil survey, "to be made by those who want the land used for agriculture." One of these resolutions implies, and the other one states explicitly, that the foresters should not have anything to say about the soil survey.

We would call attention to the fact that the foresters have never asked for any part in this soil survey and do not want any part in it. We have always stood for a survey by experts in land classification, a classification based on scientific methods and not on prejudice. This is the only basis on which a soil survey would be worth while. The object of a survey should be to determine the use to which the land is best suited. A survey with any other object is merely a fake which uses up the people's money and accomplishes nothing.

We regret the narrow policy that the development associations have adopted because it means a serious setback to the best economic development of the state. It means that thousands of acres of land of little or no agricultural value will be opened up to settlement and branded with the state brand as farm land. Thousands of families will move on to it, wear out their lives trying to compete with the real farm lands,

"Only a man in a forest green,  
Only a match that was dropped unseen,  
Only a flame, some leaves and wood,  
And, only a waste where the forest stood."

and fail miserably. In the end the land will revert to the forest, survey or no survey. The state has lost the use of the land for many years and the labor expended on these lands has been worse than wasted.

There are millions of acres of good farm land in the state untouched. Why not use these and let the other lands produce timber until they are needed for farms. They can be changed into farm land just as well then as now and will be producing something in the meanwhile.

However, if there is no chance for an impartial, scientific soil survey, by all means let us have one on the basis that the development associations purpose. A definite classification will be better than none, even if it is all wrong; economic laws will correct it in time, though at a tremendous loss to the state.

A bill is to be introduced in the coming session of the British Columbia Legislature authorizing the government to build thirty four-masted schooners to be fitted with auxiliary Diesel engines to be used in the lumber carrying trade.

### The Charm of a "Brown" Canoe

The name "BROWN" on a canoe stands for distinction, perfect grace, every day reliability, safety, freedom from repairs. Take no chances this summer; buy a "Brown." 30th year. Send for a catalogue. "BROWN BOAT" FACTORY, Lakefield, Ont.

"You can paddle in any old canoe, but to paddle in comfort and safety and style you must have a "Brown." It has all the romance of the Indian birch bark with greater reliability and strength."



### Wisdom in Replanting

(Toronto News)

Because grandfather believed that the forest was infinite, we act as if it were. Yet the casual and occasional use of our eyes would prove the contrary. Forests have almost disappeared in the settled portions of Ontario. Wasteful methods of lumbering are clearing them away with appalling rapidity in the unsettled areas. The Laurentide Company, at Grand Mere, Quebec, permitted itself to be told by one of its staff that it was in a fair way to destroy its supply of raw material. Reforesting was undertaken in 1907, under the direction of Mr. Ellwood Wilson, and the results of that poli-

cy are explained in the current number of The Canadian Forestry Journal. Five thousand white, Scotch and jack pines were planted in May, 1908, on the waste lands of the St. Maurice Valley. These have reached an average height of five feet, eight feet and twelve feet respectively. Additional plantings were made every spring, and now a tree nursery has been established with capacity for a million trees per annum. It is the hope of the Company to plant one tree for every one cut down and ground into pulp. This will make the timber limits near the mills perpetual, keep the cost of transportation low and avoid the difficulty of having an expensive plant stranded in a bald country-side.

### A Hint to School Teachers!

How a study of wood-using industries may be linked up with the everyday programme of the public school was well exemplified recently in Fort William. The Secretary of the Canadian Forestry Association delivered a lecture to several hundreds of children and teachers at an afternoon meeting in the Auditorium.

On the following day, two of the teachers took the trouble to co-operate with the lecturer in a way that may be duplicated in almost any town having a saw mill or boat or furniture factory or other plant using wood and can be done, too, without a lecturer's help. The Fort William Times-Journal mentions the undertaking in this way:

"As a result of the address by Robson Black, on forest protection and forestry, G. H. Mathews received a visit yesterday at his wood-working factory from two of the teachers of the Fort William public school staff with their classes who were escorted around the works and

given a lot of interesting information by Mr. Matthews regarding the products of the forests and the use to which different woods were put and the possibility of making use of the waste material round a mill. The Mathews plant may from this time forth be made into an auxiliary school room if other teachers follow

### PERFECTION SLEEPING BAG WITH PNEUMATIC MATTRESS



These evenly-ground air mattresses may be used on damp ground with perfect safety—they are non-absorbent. And they are absolutely sanitary, with no place for dust or vermin to collect. Easily deflated and inflated—may be rolled into a small light bundle and easily carried in and out of the house. Last indefinitely. Invaluable for motor, yachting and camping trips. Endorsed by the Federal Government.

Write for Catalog and endorsements to-day

**Pneumatic Mfg. Co.** 536 17th Street  
BROOKLYN, N.Y.

Rolled Up



# RENNIES

# SEEDS

PUREST-CLEANEST  
MOST RELIABLE  
GET CATALOGUE  
AT BEST DEALERS  
OR DIRECT  
TORONTO - MONTREAL  
WINNIPEG - VANCOUVER

the example of their enterprising sisters."

School teachers everywhere are asked to send in their names to the Secretary, Booth Building, Ottawa,

in order that they may receive regularly the 'Forestry Talks for Young People' and other material which can be used as supplementary reading for school classes.

## *Revive Timber Growing in England*

London, Jan. 12.—(Correspondence of the Associated Press.)—A movement for the home growing of timber has been initiated here by Lord Selbourne in order to revive a steadily declining industry. Foreign competition has, within the past twenty years, driven all enterprise out of the British timber trade and frightened away capital. But Lord Selbourne hopes to take advantage of a temporary revival due to the war and put the industry on a permanent footing.

Forestry, he declared in an address before the English Forestry Association this week, has never received proper attention in England. English woods should be organized, new trees properly guarded and destructive animals, such as rabbits, exterminated. The speaker concluded with an appeal to coalmen to make their pit prop contracts with British landowners.

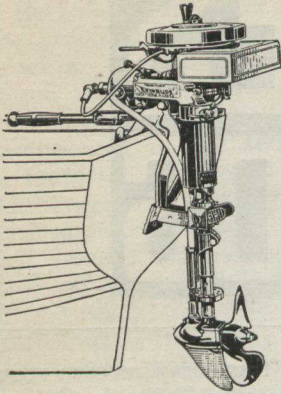
An immense amount of timber has been imported here since the outbreak of war, particularly for the construction of temporary barracks at the army training camps. Yet the freight rates have been so heavy that the resulting higher price of imported timber has given the British an unexpected opportunity. The freight cost has had the effect of a bonus for home products. Owing to the shortage of props from Norway, English props have been considerably used in the mines this year. English timber of the rougher sort for scantling and rough work has supplemented the usual Canadian supply as well.

The Forestry Association passed resolutions asking the government to retain at home experienced timber men offering themselves as Derby recruits, and also to recall them from the army.



# EVINRUDE

## DETACHABLE ROWBOAT AND CANOE MOTOR



2 H. P. and 3½ H. P.

A practical, powerful, reliable, two-cycle gasoline motor that can be attached to any row-boat in less than a minute; may also be attached to canoes, duck boats and all manner of small craft.

Very efficient for towing heavy loads.

All motors are equipped with reversible, high tension magneto and Maxim Silencer.

Drive a rowboat up to 8 miles and a canoe up to 12 miles an hour.

Our 1916 models embrace all the unequalled features of the 1915 machines, plus the new and exclusive Evinrude Automatic Reverse which adds 100 per cent. flexibility and enables Evinrude equipped craft to manoeuvre in a marvelous fashion.

Nearly 40,000 in use.

Write for catalogue and prices to

## MELCHIOR, ARMSTRONG & DESSAU

116-A, BROAD STREET, NEW YORK.

## *Deciduous and Evergreen Forests*

Those who lament the disappearance of the primeval forests of the older parts of Ontario probably have specially in mind the deciduous trees, which shed their leaves in autumn and renew them in spring. These were nearly everywhere interspersed more or less thickly with evergreens, such as the pines, spruces, balsams, and hemlocks, and in many localities the evergreens predominated. Pines and hemlocks were cut up into lumber in local sawmills, while the deciduous trees were got rid of by the aid of fire. The Canadian white pine, economically the most valuable lumber-producing tree in the world, has become practically extinct in the older settlements, and is becoming very scarce in the Laurentian region that was once its natural home.

The removal of the white pine, either by the lumberman or by fire, leaves room for an extensive and rapid growth of young deciduous trees that are of no great economic value; birches, poplars, basswoods, maples, and others. Unless these spaces are reseeded with white pine, there will be no new valuable crop of timber, and the denuded spaces will remain what they are now: the "waste lands" of the Crown domain.

In this connection arises the question of utilizing these same waste lands for ranching purposes. Assuming that the ranching of beef cattle would be a good use to put such lands to, then it is worth while to recall to mind that while cattle are fond of browsing on the leaves and twigs of the young deciduous trees, they have no inclination to



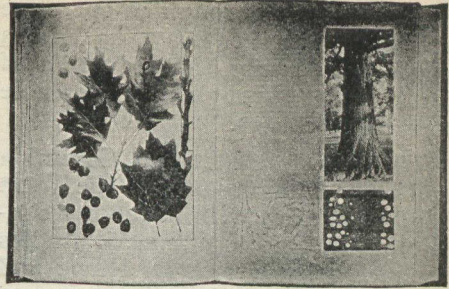
feed on those of the resinous ones. For this cause the presence of range cattle on such a ranch might prove beneficial by repressing the growth of useless young trees and promoting that of young trees likely to become economically valuable. It takes more than a generation to produce a white pine tree fit for sawing into lumber, but land may, long before such trees have become sufficiently mature for cutting, acquire added and increasing value to an indefinite extent through the mere presence of a growing crop of young pine trees. —(Toronto Globe.)

### Forest Protection in Canada

According to press reports, Sweden proposes to cut off the export of chemical pulp to Great Britain. Naturally, all eyes are immediately turned to Canada to supply the threatened deficiency.

The Commission of Conservation has just issued a report on "Forest Protection in Canada, 1913-1914," which is of particular interest in this connection. It contains much information respecting the work of the provincial forest services and of the federal departments intrusted with the care of our forests.

Forest fire protection is assuming a large place in public attention. It is obvious that, if Canada is to continue as a wood-producing country, she must conserve her resources of this natural product. The report treats exhaustively of the fire protection of forest lands along railway



### HANDBOOK OF TREES OF THE NORTHERN STATES AND CANADA

By Romeyn B. Hough.

Is photo-descriptive of the leaves, fruits, barks, branchlets, etc., and shows them all with the vividness of reality. Natural sizes ingeniously indicated. Distributions shown by maps. Wood-structures by photo-micrographs.

"With it one wholly unfamiliar with botany can easily identify the trees."—Melvil Dewey, Pres. Library Institute.

"The most ideal Handbook I have seen."—C. Hart Merriam.

"The most valuable guide to the subjects ever written."—Springfield Republican.

### AMERICAN WOODS

By Romeyn B. Hough.

Illustrated by actual specimens, showing three distinct views of the grain of each species. Contains 897 specimens of 325 species. Of such exceptional value that its author has been awarded by a learned society a special gold medal on account of its production.

Write for information and sample illustrative specimens.

### R. B. HOUGH COMPANY

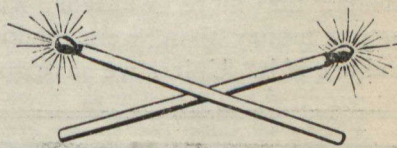
Box 22.

LOWVILLE, N. Y.

ASK



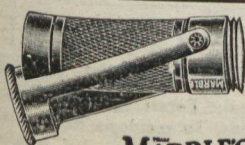
FOR



Pulls the Largest Stumps

Smith Stump Pullers

The Smith machine pulls the largest stumps at a cost of 5c each. Write today for free catalog and special offer. W. SMITH GRUBER CO., SMITH STA., LA CRESCENT, MINN.



### Dry Matches

After all day in a boat, rainstorm, or wet snow. Ask your dealer for

**MARBLE'S** Waterproof Match Box

If he can't supply you, we will send prepaid for his name and 50 cents. Dry matches may save your life.

Marble Arms & Mfg. Co., Dept. 5160, Gladstone, Mich., U.S.A.



rights-of-way. Through co-operative action, great headway has been made in securing the reduction of forest losses through fires traceable to railway causes.

The forests of British Columbia and on Dominion lands in the West have been dealt with in reports containing the results of special studies conducted by Dr. C. D. Howe and Mr. J. H. White. The Trent watershed in Ontario, has also received especial attention, in a report of an investigation by Dr. C. D. Howe in the townships of Burleigh and Methuen. This district is important in that, while of very little value as an agricultural area, it is being repeatedly overrun by forest fires and the little remaining merchantable timber destroyed. It is suggested that the area be placed under the control of the Dominion Forestry Branch for protection from fires and for reforestation.

Because of lack of field supervision, more money is wasted in fire protection to-day than is used economically. Fire wardens are nearly all temporary men, and if one does not give them supervision and training, and does not try to keep the good men from year to year, one cannot get the results desired. In the first fire protection services of Canada, far more wardens were wasting money than were making good use of it. Unless we have good

## FORESTERS AND RANGERS

EVERYTHING YOU NEED CAN BE SUPPLIED BY US

---



**Compasses  
Tapes  
Scribes  
Transits  
&c.**

**Aneroids  
Log Rules  
Lumber  
Gauges  
Levels, &c.**

---

**The Ontario Hughes Owens Co.**  
529 Sussex St. OTTAWA, ONT.

permanent rangers year after year we will not get the good results because we have large areas to protect with very small sums of money.—  
H. R. McMillan.

### DOUGLAS GARDENS Oakville, Ont.

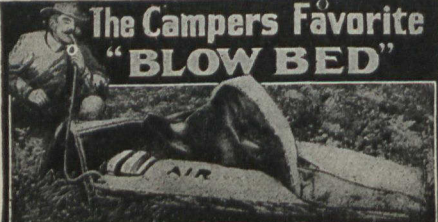
We specialize on Hardy Herbaceous  
Perennials.

Descriptive Price List sent free on request.

**JOHN CAVERS.**

Mention Canadian Forestry Journal.

**The Campers Favorite  
"BLOW BED"**



## SLEEP ON AIR with a COMFORT SLEEPING POCKET

Recommended by the Forest Service, Campers, Physicians, Invalids, Tuberculosis Patients and Sportsmen everywhere. A warm, dry, comfortable bed. Wind, rain, cold and water-proof. Packs 6x25. Air goods for home, camp, yacht, canoe, etc. Illustrated Circular Free.

Metropolitan Air Goods Co., Box 185 E, Reading, Mass.—  
Dealers write



## A WELL EQUIPPED LIBRARY

Think what it means to be able to have within reach the latest information relating to forestry and allied subjects.

The following books are suggestions. They are worthy of your inspection. Send for copies to-day, and be prepared to meet the various daily problems.

### FOREST VALUATION

By Professor H. H. Chapman, Yale University.

A valuable book for those not already familiar with the economic and mathematical principles on which the theory of forest finance is based.

283 pages, 6x9. Cloth, \$2.00 net.

### ELEMENTS OF FORESTRY

By Professors F. F. Moon and Nelson C. Brown, N. Y. State College of Forestry at Syracuse.

Covers, in an elementary manner, the general subject of forestry.

392 pages, 6x9, illustrated. Cloth, \$2.00 net.

### LOGGING

By Professor Ralph C. Bryant, Yale University.

Covers the more important features of operation. Discusses at length the chief facilities and methods for the movement of timber from the stump to the manufacturing plant, especially logging railroads.

590 pages, 6x9, illustrated. Cloth, \$3.50 net.

### MECHANICAL PROPERTIES OF WOOD

By Professor Samuel Record, Yale University.

This volume includes a discussion of the factors affecting the mechanical properties and methods of timber testing.

165 pages, 6x9, illustrated. Cloth, \$1.75 net.

### THE PRINCIPLES OF HANDLING WOODLANDS

By Henry Solon Graves, The Forester, U. S. Department of Agriculture.

Contains chapters on The Selection System, The Coppice Systems, Improvement of the Forest.

325 pages, 5¼x8, illustrated. Cloth, \$1.50 net.

### THE THEORY AND PRACTICE OF WORKING PLANS (Forest Organization)

By Professor A. B. Recknagel, Cornell University.

In preparing this book the author has constantly kept in mind the experience which he gained while doing active work for the Forest Service in various parts of the United States.

235 pages, 6x9, illustrated. Cloth, \$2.00 net.

## CANADIAN FORESTRY JOURNAL.

### JAMES W. SEWALL

Timber Estimates.

Topographic and Boundary Surveys, Planting, Logging Maps, Portable Mill Operations.

Technical Training, Thoroughness, Experience.

CENTRE ST. OLD TOWN, MAINE

### TREES, SHRUBS AND SEEDS

Hardy Northern Trees and Shrubs at Forest Prices. Native and Foreign Tree Seeds

### EDYE-DE-HURST & SON, DENNYHURST

DRYDEN, Ont. Shippers to H.M. Government, Etc. Correspondence Française.

### Hill's Seedlings and Transplants

ALSO Tree Seeds for Reforesting. Best for over half a century. Immense stock of leading hardy sorts at low prices. Write for price list and mention this magazine.

Forest Planters Guide Free.

The D. Hill Nursery Co. Evergreen Specialists Largest Growers in America.

Box 503

Dundee, Ill., U. S. A.

## YALE UNIVERSITY FOREST SCHOOL

NEW HAVEN, CONNECTICUT, U.S.A.

YALE University Forest School is a graduate department of Yale University. It is the oldest existing forest school in the United States and exceeds any other in the number of its alumni. A general two-year course leading to the degree of Master of Forestry is offered to graduates of universities, colleges and scientific institutions of high standing, and, under exceptional conditions, to men who have had three years of collegiate training including certain prescribed subjects. Men who are not candidates for the degree may enter the school as special students, for work in any of the subjects offered in the regular course, by submitting evidence that will warrant their taking the work to their own advantage and that of the School. Those who have completed a general course in forestry are admitted for research and advanced work in Dendrology, Silviculture, Forest Management, Forest Technology and Lumbering. The regular two-year course begins the first week in July at the School camp, Milford, Pennsylvania.

For further information address

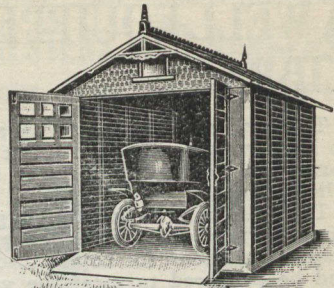
JAMES W. TOUMEY, Director  
New Haven - Connecticut



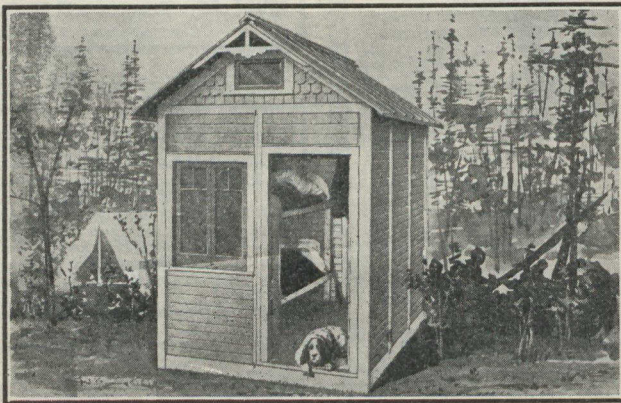
# SCHULTZ

## SECTIONAL- PORTABLE

# HOUSES



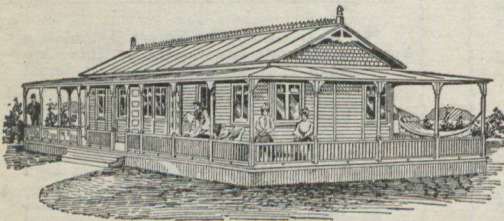
A SPECIAL LINE OF METAL GARAGES for restricted districts



Wall sections are all 3-ft. 2-ins. wide, and door and window can be placed to suit your taste

We can supply any style or size you require

**SCHULTZ SECTIONAL PORTABLE HUNTER'S CABIN**  
Affording full protection against Cold, Storm, Snakes, etc.  
Floor Size 6' 4" x 9' 6". 21 sections, weight 950 lbs. Price \$90 F.O.B. Brantford  
(Shipment upon receipt of price).



**SUMMER COTTAGES** at prices from \$90.00 to \$1500.00

Write to-day for Catalogue and Price List, showing separate sections and assembled buildings, and state the kinds you are interested in.

Kindly mention the Canadian Forestry Journal.

**Our Portable House Line includes :**

- |                     |                       |
|---------------------|-----------------------|
| Settlers' Home      | Boathouses            |
| Prospectors' Cabins | Dental Offices        |
| Photo Studios       | Barber Shops          |
| Hunters' Cabins     | Chicken Coops         |
| Summer Cottages     | Children's Playhouses |
| Refreshment Booths  | Garages               |
| Shore Cottages      | Rural Churches        |
|                     | Country Schools       |
|                     | Stores                |

**OPEN AIR SHELTERS FOR INVALIDS, ETC.**

## The Schultz Bros. Co., Ltd.

Dept. B. 31-57 Albion St.

Brantford, Ontario - - Canada





# The Canadian Forestry Association

(Seventeenth Year)

305 Booth Building, Ottawa, Can.

Patron, H. R. H. THE GOVERNOR-GENERAL.

Honorary President, RT. HON. SIR ROBERT L. BORDEN.

Honorary Past President, RT. HON. SIR WILFRID LAURIER.

President, LT.-COL. J. B. MILLER.

Vice-President, HON. SYDNEY FISHER.

Treasurer, MISS M. ROBINSON, } Booth Building,

Secretary, ROBSON BLACK, }

Ottawa, Can.

## Directors.

F. C. Whitman, William Little, Hiram Robinson, E. Stewart, W. B. Snowball, Thomas Southworth, Hon. W. C. Edwards, Geo. Y. Chown, John Hon. W. J. Roche, Sir Geo. H. Perley, Alex. MacLaren, R. H. Campbell, Gordon C. Edwards, Dr. B. E. Fernow, Ellwood Wilson, Senator Bostock, G. C. Piché, Alex. MacLaurin, Mgr. P. E. Roy, A. P. Stevenson, Wm. Pearce, C. E. E. Ussher, Denis Murphy, C. Jackson Booth, Sir Wm. Price, J. W. Harkom, A. S. Goodeve, W. C. J. Hall, J. S. Dennis, J. B. White, E. J. Zavitz, Geo. Chahoon, Jr., R. D. Prettie, Hon. N. Curry, A. C. Flumerfelt, H. R. MacMillan, Clyde Leavitt, Albert Grigg.

## Territorial Vice-Presidents.

Ontario:—Hon. G. Howard Ferguson.  
Quebec:—Hon. Jules Allard.  
New Brunswick—Hon. George J. Clarke.  
Nova Scotia:—Hon. O. T. Daniels.  
Manitoba:—Hon. T. C. Norris.  
Prince Edward Island:—Hon. J. A. Matheson.  
Saskatchewan:—Hon. Walter Scott.  
Alberta:—Hon. A. L. Sifton.  
British Columbia:—Hon. W. R. Ross.  
Yukon:—Hon. Geo. Black, Commissioner.  
Mackenzie:—F. D. Wilson.  
Ungava:—His Grace Mgr. Bruchesi, Archbishop of Montreal.

The Association prepares and places through its Publicity Department, many hundreds of special articles every year, reaching the Canadian Public through daily and weekly newspapers, weekly and monthly magazines, including agricultural, financial, religious, literary, engineering, juvenile, and practically all divisions of Canadian journalism.

Co-operates actively with forest protective associations, Government forest departments and commercial organizations in distributing information on forest affairs to the Canadian public.

Campaigns for forest protection through its Publicity Department, the distribution of illustrated literature to settlers, campers, etc., the presentation of lantern slide cartoons in motion picture theatres, and many other methods calculated to bring practical results.

Holds series of illustrated public lectures on forest protection in various sections of the Dominion.

Issues an illustrated monthly, "The Canadian Forestry Journal," which goes to 3,500 members, and to 200 Canadian editors by whom it is quoted extensively.

Holds conventions in various sections of the country to discuss local and general forest problems, and to arouse interest in public forest policies.

A Free Cartoon Service is supplied to newspapers, also a free "cut" service, campaigning for forest protection through interesting illustrations.

These are a few of the concerns of the Canadian Forestry Association.

Support is entirely from voluntary sources. The Association is not identified with any Government or special interest whatever.

## MEMBERSHIP APPLICATION BLANK.

Secretary, Canadian Forestry Association,

305 Booth Building, Ottawa.

I hereby accept membership in the Canadian Forestry Association entitling me to a year's subscription to the Canadian Forestry Journal and all other publications. I enclose \$.....

Class of Membership. ....  
Annual . . . . . \$1.00  
Contributing . . . . . 5.00  
Life . . . . . 25.00

Please designate class of membership preferred.



# UNIVERSITY OF NEW BRUNSWICK

FREDERICTON, N.B.

DEPARTMENT OF FORESTRY  
Established in 1908

Four years' course leading to the Degree of Bachelor of Science in Forestry. Special facilities for practical forest work.

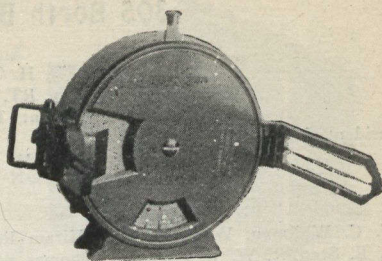
Tuition \$50.00 per annum. Other expenses correspondingly moderate.

For further information address:  
DEPARTMENT OF FORESTRY

University Calendar furnished on application.

C. C. JONES, Chancellor.

## "Everything for the Forester"



LOG RULES, SCRIBES, LUMBER  
GUAGES, ANEROIDS, SURVEY-  
ING COMPASSES, PLANE  
TABLES, ALIDADES,  
ABNEY LEVELS, TRANSITS,  
CORKING SETS, TREE  
CALIPERS, ETC.

### E. R. Watts & Son, Canada, Ltd.

OTTAWA TORONTO WINNIPEG



**Northern · Electric · Forest · Telephones ·**