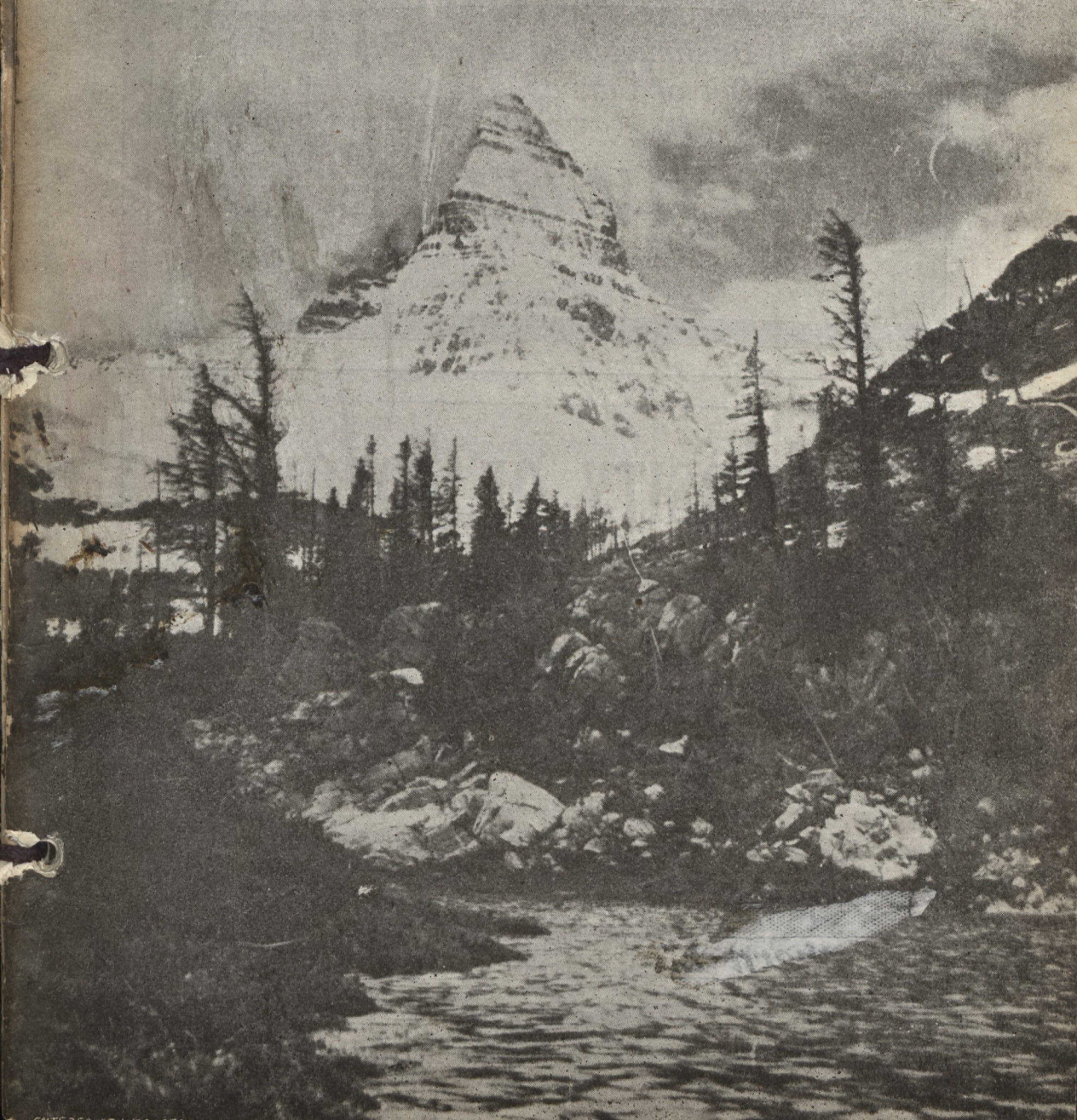


Canadian Forestry Journal

July 1917



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Courtesy of "The Timberman."

SUGAR PINE ON THE WESTERN SLOPE OF THE SIERRAS IN CALIFORNIA

Making Use of Aspen Poplar

BY DR. B. E. FERNOW

Dean, Faculty of Forestry, Univ. of Toronto

Present and Potential Ways of Utilizing Canada's Enormous Poplar Supplies

THE most ubiquitous tree in Canada is the Aspen poplar, also called quaking aspen and popple, there being two species (*Populus tremuloid* and *grandidentata*) which are, however, in looks, characteristics, and behavior so much alike, that they need not, for practical purposes, be distinguished.

Not only is the aspen ubiquitous, i.e. found everywhere and in all kinds of situations from East to West, but, at least east of the Rocky Mountains it covers, we may assert, the largest area of any tree species and presents, perhaps, the largest volume of wood material of any one kind. This wide distribution gives to the aspen an economic importance which its wood quality would otherwise not impart to it.

Its ubiquitousness is explained by the fact that it is an early and most prolific producer of light feathery seeds, which can be wafted by the winds in all directions for miles, sprouts quickly and grows quickly in full sunlight. In spite of these advantages in prolific seed production, ease of dissemination, and rapid growth, it would be a relatively rare tree if it were not for the forest fires, which create two conditions specially favorable to aspen life, a seed bed of mineral soil when the surface cover of vegetable matter has been burned off, and plenty of light. The aspen is what the forester calls a most "intolerant" species, i.e. intolerant of shade: it is light-needing and in competition with other, shadier species

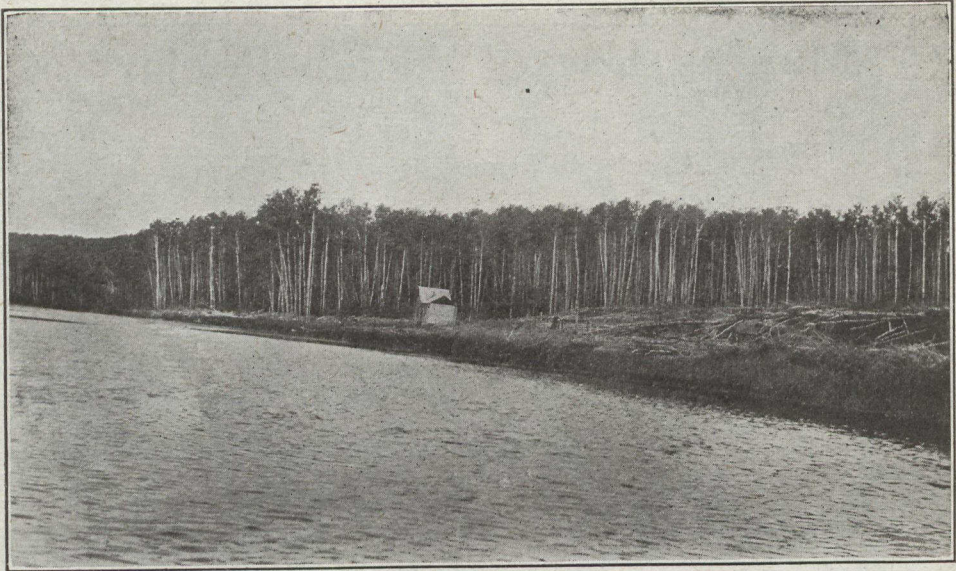
it soon succumbs; therefore, in the virgin forest it is rare.

The extent of aspen acreage is a measure of the carelessness of the people of Canada with fire, which by killing competing, especially coniferous, species and reducing the vegetable soil cover, creates these favorable conditions for it. Wherever fire has run through the loggers slash, aspen quickly takes possession as first comer; it is the balm for the sores which the fire fiend inflicts.

Protection for Conifers

If seed trees of the coniferous kinds are left, given long enough time, these will re-establish themselves under the light shade of the aspen, which is advantageous to their development, and by and by will overtop and kill out the short-lived aspen. While, then, the recovery of the ground for the more valuable conifers can in most cases be readily accomplished, there are conditions, as in Manitoba, where dense shrub growth of various kinds, notably hazel and viburnum, comes in under the light shade of the aspen and effectually prevents the re-establishment of the spruce. The aspen then becomes a serious problem for the future re-establishment of the conifer crop.

For all these reasons the question of the commercial use of the aspen is an important economic problem. Here we encounter a further trouble in the fact that, before the aspen attains what may be considered merchantable log size, it is liable to white or black heart rot, the work of a fungus entering some broken branch or dead root and destroying the wood fiber, progressing from inside outward.



POPLAR IN SOUTH-EASTERN MANITOBA

This rot begins its work sometimes when the tree is not more than 20 years old, more frequently later, and increases gradually so that by the time the stand has reached log timber dimensions, say in 60 to 70 years, almost the entire wood body is penetrated by the mycelia of the fungus, rendering the wood unfit for known purposes. In a given case the United States Forest Service found in a 95-year-old stand nearly 60 per cent unmerchantable; in another case, an excellently appearing stand, the loss was nearly 50 per cent. In order to get the largest amount of sound wood the trees should be cut before the fungus has made much headway, say in the 40th to 60th year, according to conditions, or 50 years on the average, when the diameter will average 8 to 10 and up to 15 inches in better soils, and from 30 to 40 cords per acre may often be found.

How Poplar is Used

The wood decays as easily in contact with the soil as the tree itself, otherwise it is fit for use wherever a light soft and not strong material is serviceable. Locally, to be sure, it is used in the absence of better material for many purposes, and cut

in large quantities for fuel, for which it is inferior, although for baking its quick, hot fire is advantageous. Commercially, it is used for the manufacture of excelsior, certain kinds of cooperage, especial y nail kegs; crates, baskets, berry boxes, spools, and more prominently for paper pulp, for which it is, perhaps, best adapted.

As regards the latter use, it is to be noted that it is specially fit for the soda process, that by itself it makes a weak paper, lacking in satisfactory matting quality, and is therefore customarily used in mixture with spruce pulp, when it makes an excellent book paper.

For Paper Making

In the United States more aspen is used for paper-making than any other wood except spruce and hemlock. In 1909, the proportion of aspen used in paper manufacture was 6 per cent. of the total pulpwood consumed, or around 250,000 cords, of which 25,000 cords came from Canada. In 1910, the consumption had grown to 360,000 cords, or 9 per cent. of the total pulpwood consumption, and the importation to 45,000 cords.

The Raid on Spruce-Filled Homesteads

Present High Prices for Pulpwood
Have Revived False 'Land Hunger'

UNTIL homesteading and timber licensing are completely removed from the vicious influence of political pull, various administrations will continue to play ducks and drakes with the public resources of land and timber.

In violation to the legal regulations and every consideration of the public good hundreds of 'homesteading' applications are granted because of political pressure and only the lack of publicity for such transactions can prevent a general protest.

None denies the right of a land-hungry citizen applying to his Government for a free grant. But in these days when spruce for pulpwood commands the high price of eight dollars a cord delivered at the railroad, it is significant how many persons are getting 'land hungry' and cannot be persuaded to take land that is not densely covered with pulp wood. Offer most of the appli-



A STAND OF ASPEN
ON RIDING MOUNTAIN
RESERVE, MANITOBA.

cants a homestead of cleared land, ready for the plow, and they would turn it down.

A Menace in the East

It is understood that the Lands Department of the Government of New Brunswick is overloaded with "homestead" applications. Traditional practice in some parts of the Dominion has granted these requests as freely as they arrived. So-called settlers seeking some cheap and accessible timber, when the market is thriving, are allowed to take these generous slices out of a licensed area. Indifferent to the effects of fire, careless as to the fate of the main stand, they form one of the most dangerous menaces with which the protective staffs have to do. Often the spruce lands are quite unfit for agriculture nor has the settler in many instances any intention to try a permanent residence. He clean cuts the standing timber, leaves no provision for natural reproduction of trees, creates a fire hazard, and finally moves off with some easy money.

When the Special Interest Enters

There are indeed many cases where permanent colonies have followed the settlement of such tree-covered lands but in all too many attempts, political pressure has compelled the giving of non-agricultural lands to men who are petty speculators and nothing else. They pay no timber taxes, observe no regulations and increase greatly the fire peril. Their interest is transient, and antagonistic to every consideration of the public interest. Not infrequently their applications are promoted by special interests concerned in the founding of a colony. It is the opinion of the Forestry Journal that these 'interests' are mistaken, no doubt honestly, in their purposes. They desire a permanent settlement, whereas the attractive crop of spruce is turned to quick account and the non-agricultural soil beneath as often as not will refuse to give a farmer a decent living. Such colonies are fated to live in penury after the first sudden harvest of easy money on the wood and will prove an eventual liability to any province that permits their development.

Community Life Essential

The straight-forward policy for any honest government is to refuse homesteading applications except for land definitely proven as agricultural and where it lies in sufficient volume to maintain a community and its social machinery. No citizen ought to be allowed to locate himself and family in a mere 'pocket' of good soil, isolated from schools, churches, and markets. Where applicants can be shown to be mere timber grafters, their cases should receive short shrift.

The Moving Forests of Alaska

Trees flourishing on moving glaciers is one of the curious sights presented to visitors in Alaska. Dr. B. E. Fernow, dean of the Toronto Forest School, was a member of the E. H. Harriman expedition of scientists to Alaska and made the following references:

Among "interesting observation on local distribution and the relation

of tree growth to soil" is noted "the presence of trees in close proximity to some of the great glaciers, showing an astonishing indifference to the influence of nearby ice masses. Not only do the trees, whenever soil conditions permit, grow close to the icy river, attaining as a measurement within 100 yards of LaeProuse Glacier showed; diameters of 5 feet and

heights of 150 feet, but in places they even encroach upon the icy field, when this has come to rest and has a scanty cover of soil from the moraine material, upon which vegetation can establish itself. Thus, at the foot of Lucia Glacier, on Yakutat Bay, the stream which runs in a wild torrent from the glacier, has cut a veritable canyon through the ice, exposing an ice bank 100 feet high. This ice is overlaid with moraine material a foot or more in depth, and this is sufficient to support a dense

cover, not only of herbaceous but of woody vegetation, a thicket of the ever present alder, with occasional willows, and even spruce do not find the substratum too cold. As the ice melts at the border, the soil and its occupants may be seen from time to time tumbling down into the stream, or else into the deep potholes with which we find the ice plateau amply provided."

In his "Travels in Alaska" John Muir describes a garden of flowering plants and seeding trees growing on the Stickeen Glacier.

German Trick to Ruin French Orchards

Thanks to the genius of the French race, it is hoped that large numbers of the fruit trees which the Germans did their best to destroy, and in many cases succeeded in destroying, may be saved. Mr. Henry Wood, the special correspondent of the United Press of America with the French Armies, tells in a despatch how this 'miracle' has been wrought. Throughout the entire district devastated there were thousands of trees that the close pursuit of the French prevented the Germans from cutting down completely. Instead the cultured tree-killers cut off a circle of bark which, with a few days' exposure to the sun would have been enough to kill them.

These trees presented the easiest problem. The wounds were bound up by thousands of army surgeons, and Red Cross ambulance drivers and stretcher carriers assisted. The circle was first covered with a special grafting cement, and the entire wound then carefully bandaged, often with bandages prepared for human limbs. Tar was used for the work, and finally even a loamy clay. In the end it was found that moss, twisted and tied about the dressed wound, was as effective as anything else. A much more serious problem presented itself where the trees had been cut down. But here French genius also solved the problem. The stumps, protruding usually two or three feet from the ground, were first trimmed

off so as to conserve the sap. This stump was then treated with the grafting paste and carefully bandaged till the tree lying at the side budded from the sap that remained after being cut down. Branches that showed great numbers of buds were then cut off and grafted into the prepared stump. To-day these grafts are in full leaf and blossom, and years have been saved in restoring the cut-down orchards.

WANTED—ASH AND HICKORY TIMBER LIMITS

An important British company are considering the possibility of erecting a factory in Canada for the manufacture of ash boat oars and hickory dimension stock. They would require at least three million (3,000,000) feet of ash per annum before they would be warranted in putting up a factory to manufacture the ash boat oars for which they have a market. They would also require large supplies of hickory. If hickory and ash are not obtainable together they might possibly consider the establishment of factories in two localities. Owners of timber areas containing sufficient supplies of ash or hickory or both might communicate with the Commercial Intelligence Branch of the Department of Trade and Commerce, Ottawa, referring to file No. 15782.

New Brunswick's Foundation— The Forest

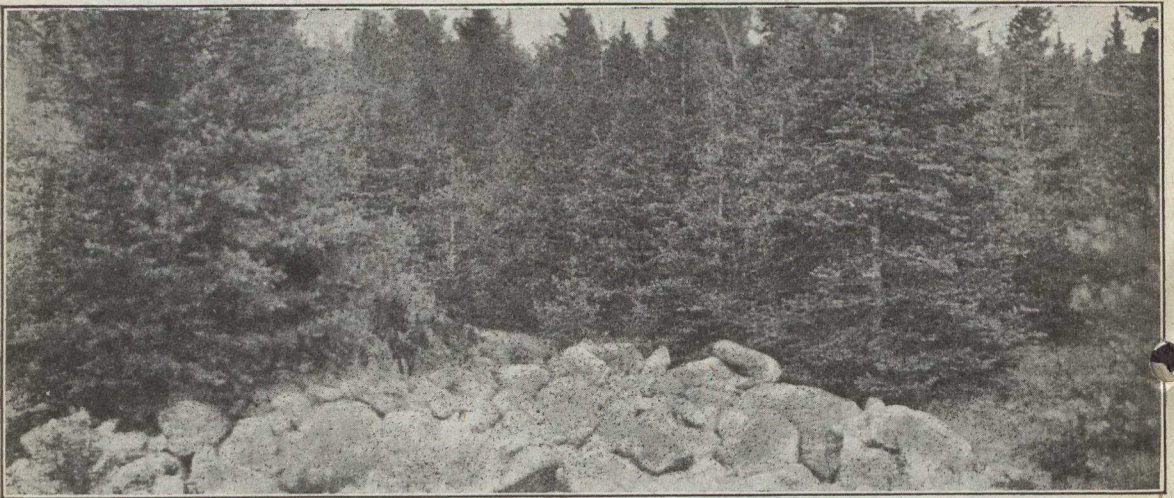
No Other Province Bases Existence
So Completely Upon Living Forests

PROBABLY no province in Canada is so thoroughly identified with forest industries as New Brunswick. Southern Ontario, for example, is a land of farms and industrial towns, continuously tending towards specialization and more and more remote from lumbering. Southern Saskatchewan has to do with wheat and stock raising, usually carried on as exclusive undertakings. But New Brunswick, with its relatively sparse population of 351,000 (1910 census) presents the interesting characteristic of multiple employment, where most male residents outside of the larger towns draw part of their income more or less directly from woods operations. The winter wages in the lumber camps for men and teams, the millions of dollars disbursed by the mills, account in no small degree for the happy average of prosperity which has characterized

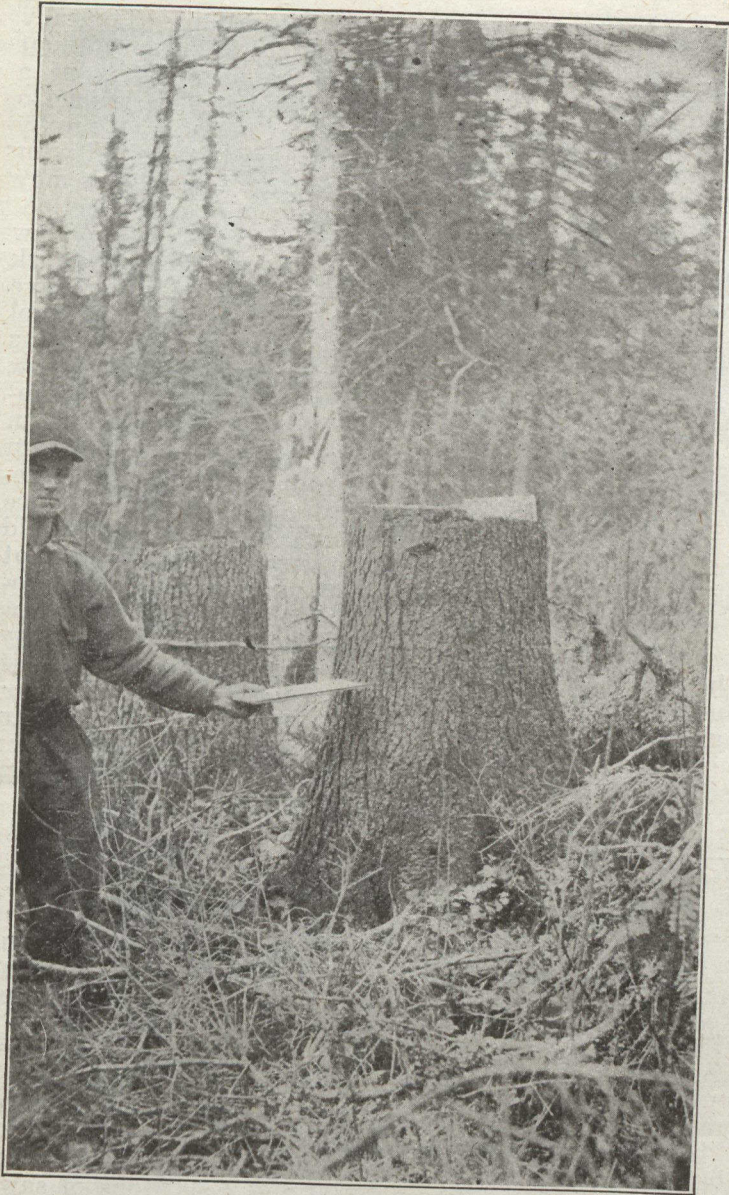
the province for a great many years.

Arousing Public Interest

The Secretary of the Canadian Forestry Association recently held nine public meetings in New Brunswick, at Moncton (auspices of the Canadian Club); Chatham; Millerton, Boisetown, Doaktown, Blackville, Renous, Tabusintac, and Bay du Vin. Through the kind assistance of Mr. W. B. Snowball, a director of the Association, the meetings secured due publicity, and the attendance, even on uncomfortably warm evenings, was splendid. The audiences in most places were composed of lumbermen, timber scalers, farmers, fishermen, local teachers, clergy, etc. so that over two thousand men and women were encountered in this brief series of illustrated lectures. The addresses told of the contribution of the forest endowment to prac-



THE FINAL RESULT OF OPENING POOR STONEY LAND FOR SETTLEMENT.
View taken at Hazleton Settlement, South West Miramichi, New Brunswick.



AN EXAMPLE OF PREVENTABLE WASTE OF NEW BRUNSWICK'S FORESTS. THE STUMP OUGHT TO HAVE BEEN NO HIGHER THAN THE LINE INDICATED BY FOREST OFFICER.

tically every line of employment. The story of Canada's forests from the days of the French Governors was recounted, with attention to the gradual development of public policies of conservation. Emphasis was given to the primary interest of the state in forest protection and its responsibility to make the foundations of wood-using industries solid for all time to come, to guard the natural resources as a trust for coming generations, and maintain the

chief source of provincial revenues. The audiences were much interested in new discoveries and applications in the use of wood, in-as-much as they assured any province, well stocked with wood supplies and water powers, numerous other industries utilizing the tree for new purposes and turning to profitable use what to-day the lumber and pulp industries regard as waste. The progress of other countries in forest management was touched upon, and modern meth-

ods of fire patrol and fire fighting were described. Attention was given to the New Brunswick Forest Survey and Land Classification, explaining its purposes and present progress. The speaker found the Survey project to be very largely misunderstood. Occasion was taken to strongly advocate the creation of a Provincial Forest Service, directed by technically qualified foresters, having charge of the fire-ranging work and, what was quite as important, having authority to supervise logging operations to see that Crown Lands regulations are properly observed. The meetings were marked by excellent order and a new series of gatherings ought to follow next fall.

What Should Follow!

New Brunswick's wisdom in undertaking an inventory of its forest resources is unquestioned. By the information obtained the province will have scientific guidance not only in placing apart non-agricultural soils as permanent timber reserves, but in directing future settlement away

from impossible locations. Logically there should follow, and without longer delay, the establishing of a Provincial Forest Branch, similar to that of British Columbia, whereby the administration's responsibility for the condition of the forest lands may have some means of practical action. Qualified foresters versed in New Brunswick's own conditions and working co-operatively with all progressive lumbermen ought to have a general oversight of logging operations so as to reduce the heavy waste that now obtains. This plan invites co-operation of every limitholder who has an honest desire to keep his limits in productive condition, and would result in an all-round profit to province and operator. Few licensees would deny that New Brunswick cannot hope to hold its pace in lumber production while the source of the raw materials is running down hill by unregulated logging. Obviously, the fire protection work would come under the proposed Forest Service and in all probability a new system of ranger management put in operation.

Fifty-Six Forestry Companies for France

The following report of the work of the Canadian Forestry Corps has been received by the Canadian Government from general headquarters in France:

There are at present 22 companies of the Canadian Forestry Corps operating in France. The first eight companies arrived between December last and the end of March, and five companies arrived in April, with their full technical equipment and approximately 60 per cent. of their transport. Eight more companies arrived in the third week in May. It is hoped to employ 56 companies in all by September.

The companies are equipped with Canadian made saw milling machinery and tools, and the greatest efficiency and keenness is displayed by all ranks. Operations extend over a large area.

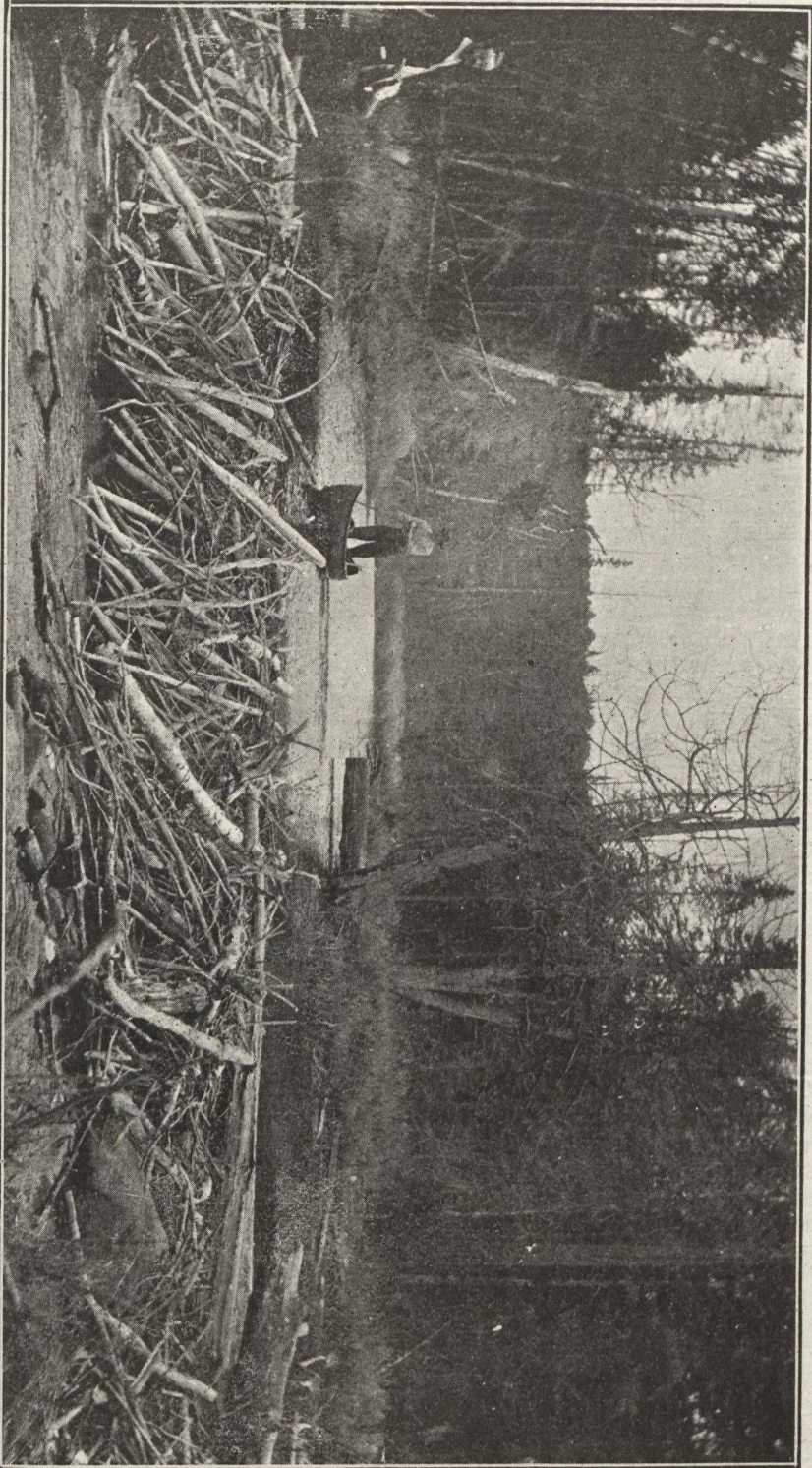
All species of lumber are manufactured, including sawn timber, sleepers, trench-timber, pit-props for roads and mining.

The establishment of the companies, including transport, is 190 all ranks. The average production varies according to the nature of the woods. In suitable woods between 1,000 and 1,500 tons of sawn lumber, together with sufficient round timber to bring the out-put up to 2,000 tons per month, may be expected. On round timber alone, however, a company produces about 4,000 to 6,000 tons per month.

Working Under Fire

Some of the operations of the Corps are being carried out under shell fire, and one unit was recently

(Continued on page 1203)



A BEAVER DAM IN ALGONQUIN PARK, ONTARIO.

(Courtesy Canadian Northern Railway.)

About the Common Crow

BY NORMAN CRIDDLE,

Dominion Entomological Laboratory, Treesbank, Man.

THERE is probably no bird that has been more generally condemned by the public than the crow and I have little doubt that fully ninety people out of every hundred would subscribe to such an opinion, fully believing themselves to be right. This, I think, is largely due to the fact that its misdeeds are mostly of a prominent nature and easily observed, while its benefits pass unnoticed. Thus a crow carrying off a young bird is apt to attract attention; there will be the cries of the parents or perhaps the nestlings are known, whereas the same crow might pick up thousands of noxious insects without any one being any the wiser; indeed its presence would probably lead to its being accused of some fresh atrocity. And so, no matter how a nest is ravaged—be the offender cat, dog, coyote, skunk, squirrel or hawk—if there is a crow in the neighborhood he is the thief without doubt, and another cry goes up about his iniquities.

There is another point that is either overlooked or ignored by those condemning crows. As I have pointed out above, these birds make a practice of watching mankind, being probably on the look out for food. Thus a man visiting another bird's nest is more often than not seen by a crow, moreover, he disturbs the brooding bird in broad daylight. Thus, there is every chance of the crow discovering the nest. Compare these artificial conditions with natural ones and we see at once, that they are totally dissimilar. An excellent illustration of this has been supplied by a violent anti-crow advocate from whose statement the following is taken: "I have watched Mr. Crow for many springs and I find him getting more and more numerous and hungry every year. I have found prairie chickens and

grouse nests and *marked them to keep watch* and found that the crow got two out of every three before hatching." He goes on to speak of a blue-jay's nest. "I watched and passed this nest two or three times every day. When almost ready for hatching I heard a great commotion in Jayville and found the nest robbed by Mr. Crow." The italics are mine. Almost all the arguments as to crow habits follow this line of reasoning.

The Injury Done by Crows

In Eastern Canada and throughout the corn belt of the United States the chief complaint against crows is that they destroy much sprouting corn for which they soon acquire a taste, thus not only causing severe loss, but necessitating the treatment of the seed with a tar preparation as a deterrent. In Western Canada, however, we have not as yet suffered to any appreciable extent from injury of this nature, due doubtless to the comparatively small amount of corn grown. With reference to the destruction of other cereals, this is chiefly confined to grain in the stock when large flocks of crows make a habit of visiting certain fields daily. The injury, however, is not usually as severe as might be expected, owing to the fact that the birds really pick up a large proportion of insects.

The Value of Crows

It is common knowledge to every farmer that crows are constantly in attendance behind the plough, cultivator or harrow, not, as has been claimed, to pick up the seeds, but to feed upon the various larvae such as cutworms, wireworms, and white grubs that are exposed, especially the last two pests. I have seen white grubs in heavily infested fields

reduced more than fifty per cent by the aid of crows, and as these grubs are almost impossible to destroy in other ways, the value of crows in this respect is of considerable importance. Cutworms are also located among the growing crops and eaten in large numbers. Indeed to observe a flock of crows constantly returning to the same area in a field is strong evidence that there are cutworms or some other noxious insect present. A remarkable example of how crows sometimes aid farmers was witnessed near Treesbank, Manitoba, in September, 1915. There was a destructive outbreak of army-worms at this time, which having eaten all the available vegetation in the close vicinity were marching over a roadway in enormous numbers to attack a field of oats. Here it was that the crows found them and soon caused a

very appreciable reduction in their numbers. This flock of crows which was estimated at 3000, had previously been frequenting a locust-infested area which they speedily forsook for the more palatable army-worms, with which they remained until these larvae pupated and even then many pupae were located beneath clods of earth and devoured. It is interesting to know that in this instance the crows were at first actually suspected of some mischief by the farmer chiefly concerned, though later when their real object was pointed out this farmer could not say too much in favor of the crows. Apart from their value as destroyers of noxious insects, crows also kill mice and young rabbits. Add to these their habit of devouring offensive carrion and we have reviewed the chief points of the birds' usefulness.

Mankind's Debt to Entomology

Extract from a Paper Presented at the Reading Meeting of the Pennsylvania Forestry Association

Entomology has always been a stepchild in the economy of our civilization. Its true values have not been recognized for ages, and even to-day it receives but scant appreciation from the public and the authorities, while her sister sciences are nursed and pampered with jealous care. But Entomology has wedged its way from obscurity to prominence, and plays to-day an important part in shaping directly or indirectly all phases of our economic life, whether generally conceded or not.

Let us go back to remote ages and review briefly the history of this interesting study. At a time when the human hand and mind were not employed in searching for a system to establish the relation between natural objects, we can only expect disconnected utterings either in writing or by picture. Thus we find in the early Chinese and Japanese history mention made of insects which benefitted

them—such as the silk moth and honey bee. Butterflies often appeared in early Chinese ceramic art. The early Egyptians (about 1500 B.C. and centuries before) went so far as to hold a beetle in religious veneration.

The ravages of the Black Death or Plague in the Middle Ages, now known as being caused by bacilli transmitted by fleas, which in turn are carried by rats, have claimed victims by the millions. In the year 542 A.D. an outbreak occurred in Egypt, which spread all along the Mediterranean to Europe and Asia. It lasted 60 years and caused the death of many millions of people. In the year 1364, another outbreak of Plague spread over the whole then known world, and the mortality is estimated at about 25 million people.

There are many instances in which the all pervading ignorance on entomological matters in these days is

overshadowed by glaring superstition. Turning to the pages of Frank Cowan's "Curious History of Insects," we find dotted all through history records of "Showers of blood."

Homer, Ovid and Livius speak of them, and during the Middle Ages no explanation was given as to how red drops could fall from the sky so numerous as to appear like rain. We know that certain butterflies, especially of the genera *Vanessa* and

Grapta, after emerging from the pupa, void their body of a reddish liquid, which when the insects are numerous enough, would give the appearance of "red rain." In the annals of England we find two such accounts of showers of blood, and there are many accounts from the European Continent. In the year 1296, in Frankfurt, one of these showers led to a massacre of the Jews, in which 10,000 people lost their lives.

Beetles Damaging Yellow Pine

To British Columbia readers of the Journal who have noted the damage to Western yellow pine the following letter from the Entomological Branch to a Vancouver lumber firm will prove interesting.

We have received from the Canadian Forestry Association, a quotation from your letter referring to the injury to yellow pine in the Okanagan and Similkameen valleys. This injury has been caused by bark-beetles, particularly by the western white pine bark-beetle and the western pine bark beetle. The injury in British Columbia has been very carefully investigated and our bulletin No. 7 sent you under separate cover deals with the matter in detail. The injury has been very greatly extended since the bulletin was written and has assumed very serious proportions. During the latter part of the summer I hope to make a further examination of the extent of the injury and the rapidity of its spread during the last two years. All companies having limits in the yellow pine country should take immediate interest in the spread of this destructive pest and take every precaution to protect their limits from serious infestation. A limit that is being logged can be protected without great expense.

We shall be glad to receive any reports of forest insect injuries that come under your notice.

Signed by J. M. Swaine,

In charge of Forest Insect Investigation.

GOLD CAMP IN PERIL

Tashota, the newest Ontario gold camp, had a nerve-racking experience during the late dry spell, says the Toronto Mail and Empire. The country is densely wooded, the small settlement clustered about the railway station being but a speck in the ocean of forest surrounding it. May was dry, and the early days of June found the whole countryside parched and fit to feed the flames once a fire should be started. Finally, what all men had feared came to pass; the whole district was full of smoke and fire, and the skies were as brass.

Nearer and ever nearer crept the burning, until it seemed that Tashota was doomed to the fate of Porcupine. An urgent message was sent to the officials of the N.T.R., and in response a train was made up and sent to the settlement. Into it all the worldly belongings of the miners and railway officials were packed, the women were put on board, and steam kept up, so that an immediate retreat might be made should one become necessary.

Then, just as the outskirts of the clearing had been reached by the flames, the flood came down; furniture and belongings were hastily unloaded, and the settlement returned to normal life and could once more breathe freely.

DEFEND YOUR COUNTRY

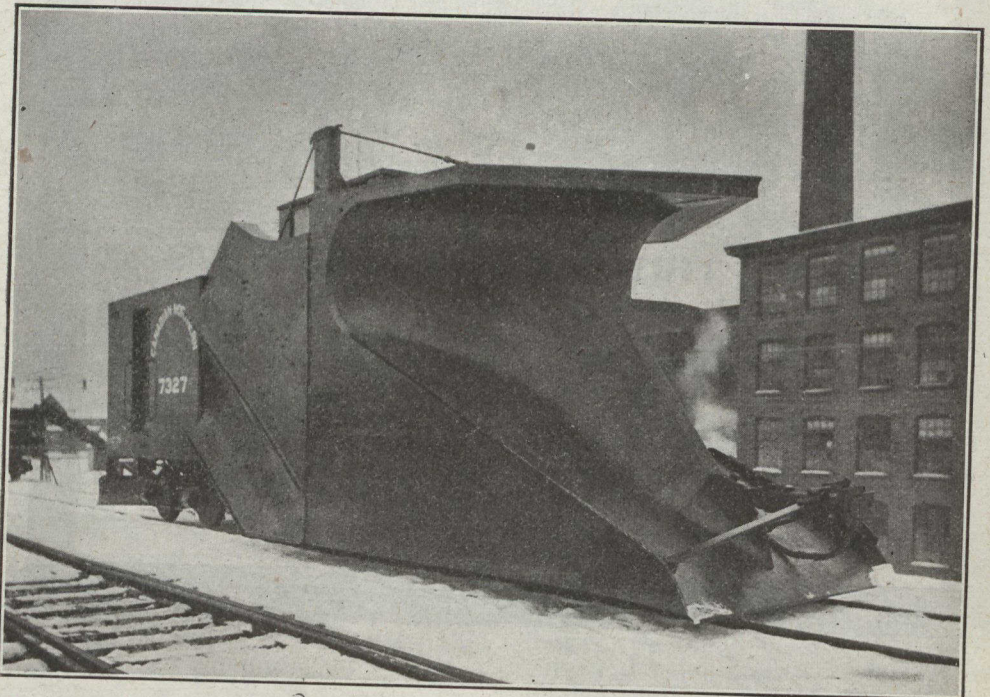
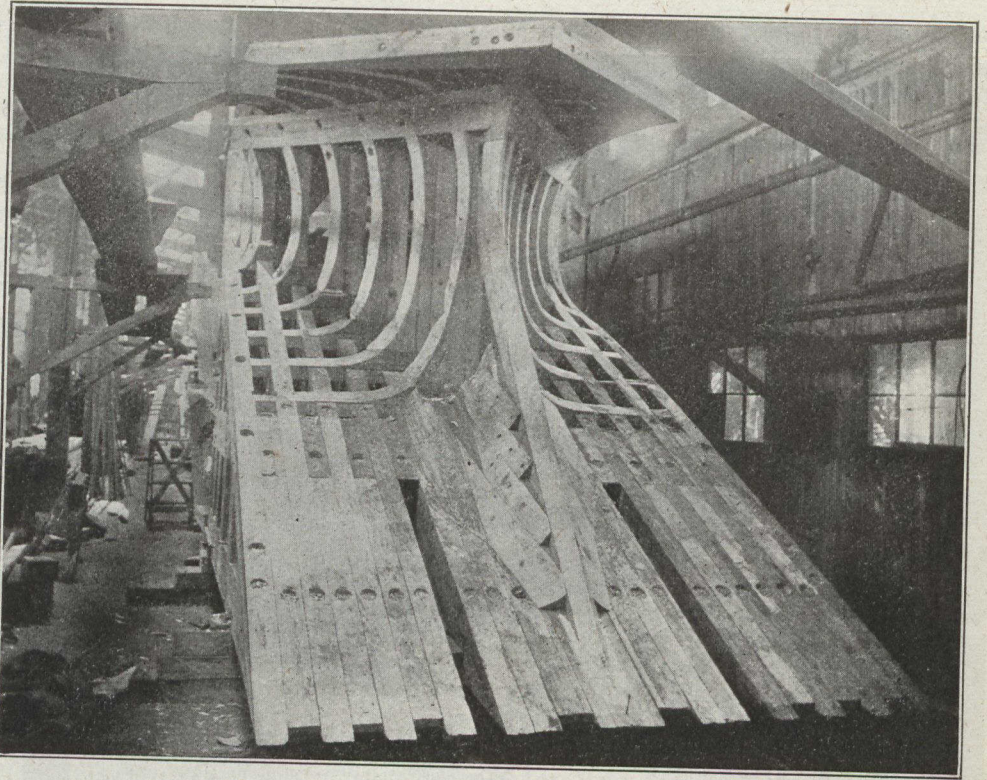


FIRES THIS YEAR WILL COST US
MEN, HOMES AND RESOURCES
TAKE NO CHANCES
WITH CAMP FIRES
MATCHES, CIGARETTES, OR SLASHINGS
PUT THEM OUT

WESTERN FORESTRY AND CONSERVATION ASSOCIATION

DESIGNED BY
WESTERN FORESTRY & CONSERVATION ASSN.

How Snow Plows are Built



Showing the amount of wood construction visible in a Railway Snow Plow before the steel shield goes on. Photographs by courtesy of the Canada Car and Foundry Co., Amherst, N.S.

Edmonton Board of Trade Favors Better Forest Management

Province and Dominion Should Join Hands in Eliminating Fire

At a luncheon of the Edmonton Board of Trade at which the Secretary of the Canadian Forestry Association gave an address on Forest Conservation as related to the prairie provinces, a special committee was appointed to bring in a report on Alberta's forest conservation needs. The members were James McGeorge, G. E. Hayward, and William Short. After investigation the following report was delivered to the Board and adopted, a copy being forwarded to the Minister of the Interior:

Your committee having considered the matter reports as follows:—

In the Province of Alberta within comparatively recent time there was approximately 100,000 square miles covered by merchantable timber now mostly destroyed by fire. Of that area a very large proportion as to soil and climate is not suitable for farming—particular reference is made to the Eastern slope of the mountains and to the more hilly and broken section in the North of the Province, where as to plant life, timber is the only effective crop.

If fire were kept out and even if slight effort to that end were made in thirty years this area would reforest to the extent that there would begin to be a large output of merchantable timber, and in fifty years this area would become an exporter of timber beyond what is required on the prairies.

The ownership of the timber is retained by the Dominion; the interest of the Province is that land suitable for agricultural purposes is not diverted to reforestation. Therefore to prevent trouble on this head there ought to be joint action on the part of both Governments to determine what land is suitable only for

timber. If that be not done, and protection be not afforded, fires will continue to destroy the only growth of which this land is capable, and settlers will continue to settle upon land which is not suitable for farming, and will thus waste their own energies and add nothing to the wealth of the Province.

Examination by the two Governments and setting apart for reforestation of lands found suitable only for timber would prevent this useless waste of effort, and settlers would the more readily abstain from seeking such lands, if after competent examination, they were set apart for timber purposes. As the growth of timber on the area suitable for no other purpose would by the bounty of nature alone add enormously to our wealth—the added cost of protection being a mere bagatelle.

It is therefore respectfully recommended:—

1. That a survey be undertaken by the Dominion and Provincial Governments jointly to determine

- (a) Timber lands.
- (b) Grazing lands.
- (c) Farming lands.

2. The areas found suitable only for timber growing should be set apart as a timber reserve and reforestation promoted thereon.

3. Roads should be constructed through this timber area with cross roads at intervals to permit of an effective patrol. Along the Eastern slope of the mountains it is suggested that there should be roads running East and West every ten or twelve miles, with cross roads at intervals. These should follow the line of least resistance, and for the most part would need no more than that the

earth be levelled sufficiently to permit the proper ranging of the territory.

4. As far as possible prison labor should be employed in the construction of these roads.

5. A corps of forest rangers should be employed to patrol this timber area using therein

- (a) Indians.
- (b) Farmers or stock raisers who would be allowed to settle on grazing areas within the reserve.
- (c) Specially trained rangers who should be charged with the duty

of reforesting.

6. Allowing fires to escape should be rigidly punished. In this connection the recent Manitoba Act for prevention of fires is not at all severe.

7. The reforesting and reproduction of timber in this area should be set about as patiently and scientifically as is being done in Europe, and the settlers of the Province thoroughly advised of the purpose and necessity and advantage of this being done, so as to secure their cordial cooperation.

Summer Resorts Aid Forest Protection

Most of the larger summer resorts of Canada were asked early in June by the Canadian Forestry Association to urge upon their guests by various means greater care with fire in the woods. The response from summer resort managers has been remarkably good and on the menu cards and advertising literature of many hotels can now be seen warnings regarding forest fires. Many most valuable suggestions for the extension of this plan in the summer resort districts were made to the Association but these cannot be carried out at present for lack of means. Some of the mottoes submitted to the hotel managers were as follows:—

“Do not throw away lighted matches or tobacco in or near the woods. Bush fires spoil the fun for the next man.

“Most of the damaging fires in the woods are set by human hands. Watch yours.

“This resort needs the trees. Play careful with your matches and lighted tobacco when walking through the woods. Never leave a camp fire unextinguished.

“Make this a year of thrift in forest fires. Thrift starts in the head but works through the finger tips. Careless finger tips toss away lighted matches and tobacco. That’s how the big fires start.

“Guests are requested to practice every care in keeping the woods in

this neighborhood free from fire damage.

“Only the amateur neglects to extinguish his camp fire in the woods.”

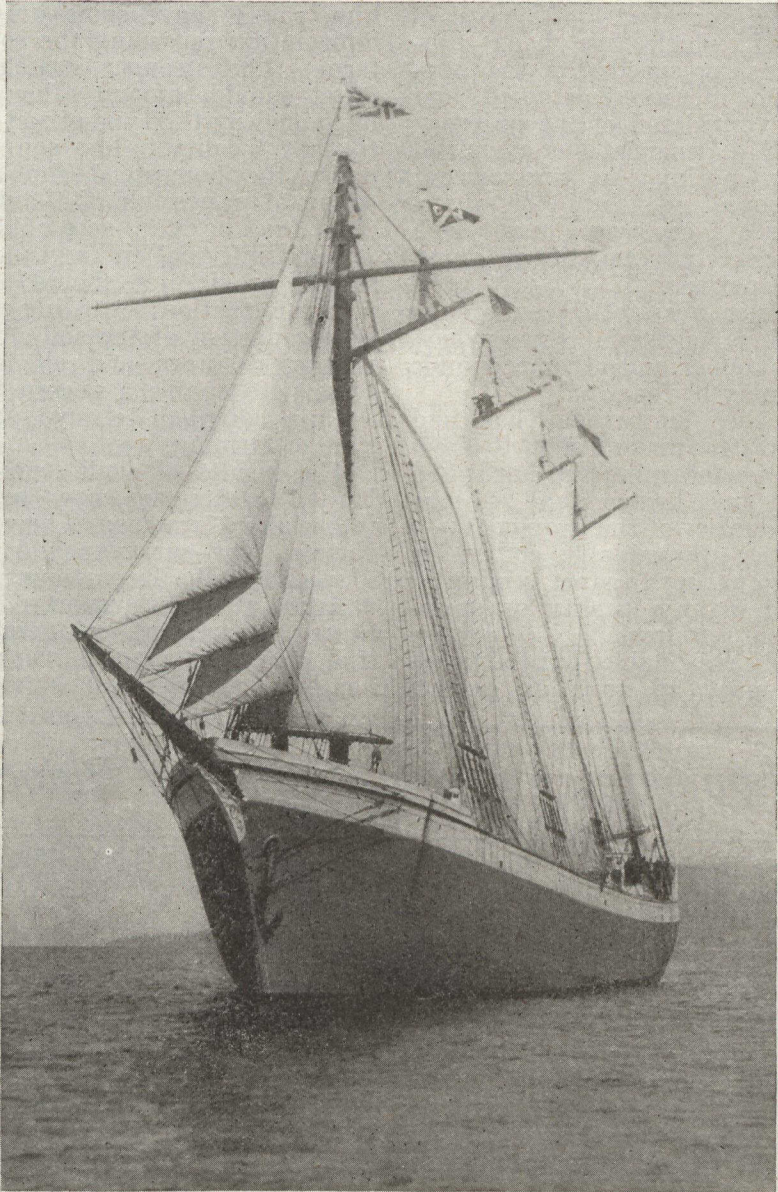
FIRST SCHOONER OF FLEET

On another page is an illustration of the motor-driven five-masted schooner “Mabel Brown,” launched by the H. W. Brown Company, Ltd., Vancouver, B.C., who constructed the vessel. The “Mabel Brown” is now on its way to Sydney, Australia, with a cargo of 1,534,000 feet of lumber for the Government of New South Wales. The vessel is built throughout of British Columbia Douglas fir. She took on her load in ten days at the plant of the Victoria Lumber and Manufacturing Company, Limited, Chemainus, B.C., and will occupy about 45 days in reaching Sydney. The freight charges on her cargo amount to \$45,000. The “Mabel Brown” is the first of many similar vessels which are now being built in Canada, to take the water. She is equipped with two 160 h.p. engines of the Diesel type.

NOTICE

The Canadian Forestry Association would be pleased to receive copies of the April, 1915, issue of the Canadian Forestry Journal. These are urgently wanted.

First War-Time Schooner from B.C. Yards



(Courtesy "Canada Lumberman")

Auxiliary schooner "Mabel Brown," in Burrard Inlet, running under flying jib, outer jib, inner jib, fore-topmost, staysail, main-sail, mizzen, spanker and driver.

Soil Surveys in Nova Scotia

BY L. C. HARLOW, B.S.C., B.S.A.,
Chemist, Agricultural College, Truro

NOVA Scotia has frequently been surveyed. Every railroad which has been projected was preceded by the surveyor who measured, studied and mapped every detail of the proposed course. The geologist has examined the rocks, noting the kind, extent and outcrops, and has put his observations into a geological map which shows rocks characteristic of many geological periods.

The miner has dotted our maps with various marks to show where the gold, copper and other economic minerals may be found.

Again the lumberman has had expert foresters make a map to show the details concerning the hardwood softwood and barren land of the various counties of the province.

All these are valuable guides for anyone preparing to start mining or lumbering in any locality or in indicating our resources.

It is only reasonable that the farmer, who must, to quite an extent,

depend upon what the soil can give him, should have some quite exact information regarding the soil of his farm. The stranger in selecting a farm, should, among other factors, be guided by the type of soil peculiar to that locality. The son who inherits the homestead should know as near as possible the amount of plant food in every acre of the farm.

This information a soil survey should provide; it should also furnish information regarding the physical condition of the soil, the water supply, drainage and all facts necessary to enable a person to select a farm adapted to any particular type of farming.

The results of such study in the United States are now being put into elaborate maps. There the soil chemist, the surveyor and the soil physicist of the Department of Agriculture at Washington, and the State Department co-operate. No such extensive plan of work as this has been attempted in Nova Scotia.

Lumbermen's Sons at Vimy Ridge

Perry Robinson, war correspondent with the British headquarters in France, has paid a tribute to the lumbermen's sons who fell at the great Canadian victory at Vimy Ridge. He says:—

"On the summit of Vimy Ridge there is a little group of white-painted wooden crosses, marking the graves of the Seaforth Highlanders of Canada, who fell in the capture of the ridge. These Canadian Seaforths were mostly British Columbians. A long, long way they came to die, the long-limbed sons of Victoria, Vancouver, New Westminster and Nanaimo. Some came even farther, for they came from the far off slopes and peaks of the mountains of the upper waters of the Fraser River, when they heard the call."

"There could be no prouder burial place than this ridge which they won so splendidly.

"One knowing the British Columbia of bygone days, stops to look at these graves. It is the old British Columbia that leaps to mind with its great reaches of unbroken forest. If one had his way he would plant this Vimy Ridge with trees, brought from British Columbia, and let these men, when the present wooden crosses are replaced by a noble and permanent monument, rest under the shadow of a grove of their own pines, firs and cedars."

A Cheap Method of Snow Removal

A very important part of the work of the U. S. Forest Service is replanting the burned-over and denuded land which are contained in the 152 National Forests. About 12,000 acres of these lands are reforested every year and in order to supply the necessary planting stock twenty-one nurseries with a total capacity of more than 37 million young trees are maintained.

The majority of these nurseries are located in mountain valleys of the West where the climate is exceedingly rigorous. During the winter, when the thermometer drops far below zero and the snow piles up to a considerable depth, all operations have to be practically suspended.

In some places this heavy snowfall is a rather serious hindrance to early spring planting, since it often happens that the higher bare slopes, where the planting is to be done, are exposed to the sun and warm winds, and are bare of snow long before the valleys in which the nurseries are located. On this account, it frequently happens that the snow has to be removed from the nursery beds in order that the planting may be done at the most advantageous time. With two or three feet of snow, this is something of a job and entails a considerable expenditure of both money and valuable time.

At the Beaver Creek Nursery, on the Wasatch National Forest, in Utah, which has a capacity of 750,000 plants, it was found that by sowing finely pulverized dirt over the snow the melting was so hastened that shoveling was unnecessary. The first experiments were so satisfactory that they were continued and have been adopted as the official snow removal method.

Each fall sufficient supplies of fine dark soil are stored at the nurseries for use the following spring. At the same time the beds of stock to be used for planting are marked by long stakes in order that they may be easily

identified. About two or three weeks before the stock is needed the soil is sown on the top of the snow, just as grain is sown. Hand sleds are used to transport the bulk of the supply, from which a bag slung from the worker's shoulder is filled as needed. By this method one man can remove from three to six feet of compacted snow by one day's work if done sufficiently far in advance. Many commercial nurserymen will doubtless be able to employ this simple practice to uncover stock needed for early planting, or to prevent losses from fungi which work under deep snow late in spring.

Fifty-Six Forestry Co's for France

(Continued from page 1192)

heavily shelled, fortunately no casualties resulting.

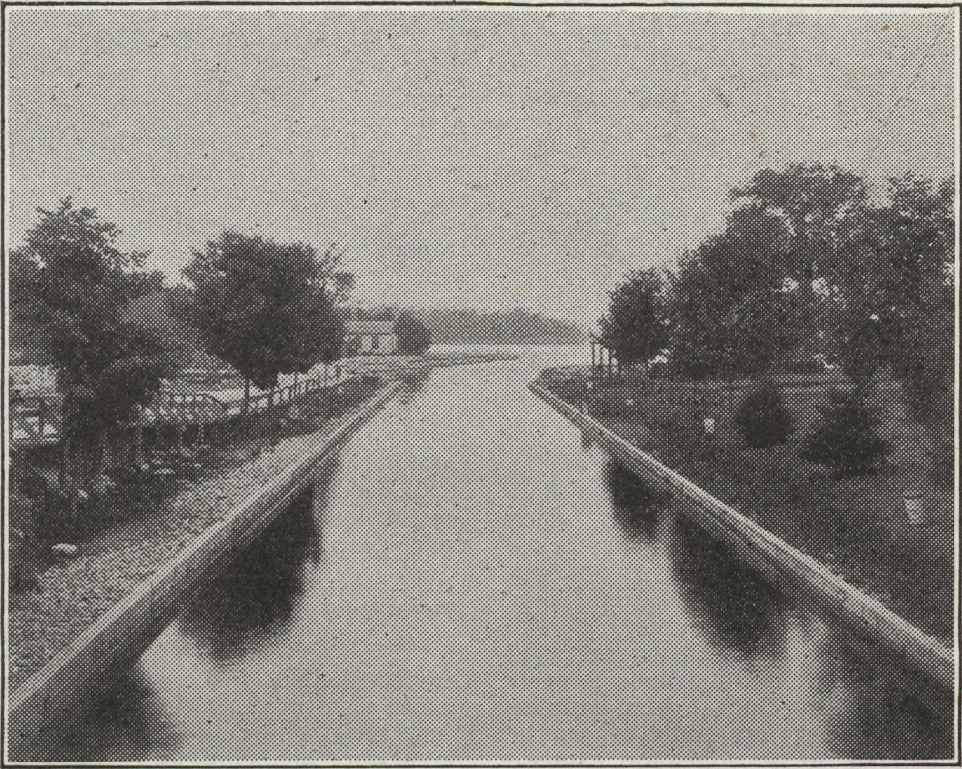
Of these companies six are employed in the army areas although their work is greatly handicapped by having to operate in small woods, as a rule devastated by shell fire. The daily output is most satisfactory and wood is delivered direct to armies at very short notice.

Companies, including the Canadian Construction Company (colored) are employed in the Jura Wood The Canadian mills in operation in this area have aroused great interest amongst the French military and civil authorities who have not hesitated to express their admiration of the mechanical efficiency evidenced in the design and construction of the mills.

Ten companies are now working on the lines of communication. Some fine forests have recently been acquired for exploitation in this area.

In 1914-15, Canada imported for structural purposes, southern pine valued at \$1,608,788.

Douglas fir timber, 46 by 46 inches square and 70 feet long, is used in Montreal for harbor work.



Courtesy, Grand Trunk Railway System.

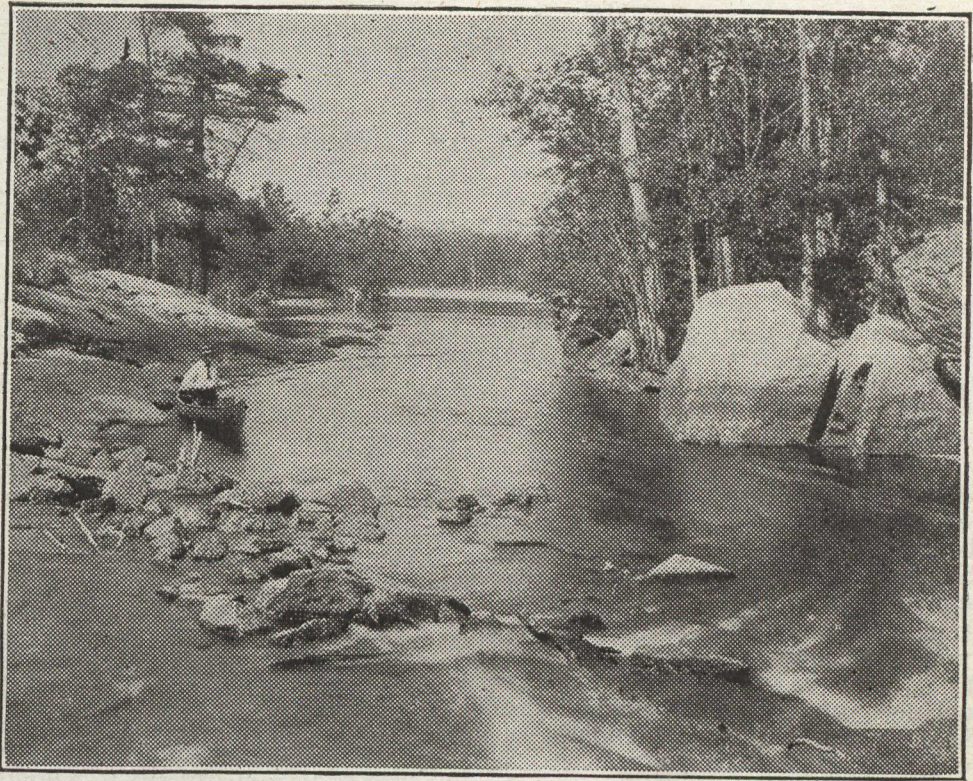
In the Kawartha Lakes Region of Ontario

Cutting Down Waste in Wood Mills

As a result of suggestions made by a number of Coast and Mountain lumbermen, Hon. T. D. Pattullo, Minister of Lands in British Columbia, has taken steps to ascertain if something worth while cannot be accomplished in the way of utilizing more of the waste products of our sawmills and box-making plants. To this end Mr. L. B. Beale, B. C. Lumber Commissioner at Toronto, has been summoned to the Coast for a couple of months in order to conduct the preliminary investigations. Mr. Beale has a thoroughly practical mind, and being so equipped it may be taken for granted that if he makes a recommendation in favor of the utilization of any particular class of waste materials common to sawmills and box plants—and perhaps our

woodworking factories also—the laboratory chemist or other highly trained expert may be called in with reasonable certainty that the proposition will be pronounced a feasible one. The feeling is general in the lumber industry that too much of the log is wasted in the manufacture of lumber according to present methods, but solace appears to be found in the trite phrase, "Everyone is doing it."

The millman who refuses to bestow some thought upon this question of utilization of timber waste is undoubtedly making a mistake—the matter is already engaging the serious attention of prominent lumbermen on both sides of the line, who realize the seriousness of the tremendous economic waste involved in leaving 25 per cent. of the original tree in the



Courtesy, Grand Trunk Railway System.
Perry's Chute near Burleigh Falls, Kawartha Lakes, Ontario

woods and the sacrifice of another 30 or 35 per cent. of the board contents in the process of turning the tree into finish lumber. There are those who say the day is not far distant when the lumber industry will practise conservation of waste materials after the fashion set by Chicago packers, but the dream is almost too good to come true. Our lumbermen have a long way to go, yet they may arrive. It should encourage them to persevere if they will but recall that large factories employing hundreds of hands are now kept busy manufacturing articles from wood waste that formerly went into the mill burners, and that inventive genius is likely to speed the day when practically everything that now goes to the burner will have a market value.—*From Western Lumberman.*

NEWFOUNDLAND PULPWOOD

The Newfoundland Legislature, now in session, is expected to enact

a law permitting export to the United States of a considerable quantity of pulp wood. This was intended for shipment to England and France, but, because of the shortage of ships, its transfer to those countries has become impossible.

The popularity of the National Forests in the United States as summer playgrounds is increasing by leaps and bounds each year. These vacation wonderlands were visited by over 2,000,000 people in 1916. Of this number Colorado received 605,000, or 30 per cent. of the total.

From the Manager of an Oil Company, Lethbridge, Alberta: "It is with much pleasure that I become a member. I am greatly interested in the work, particularly in the preservation of forested areas for pleasure and game preserves. You may call upon me for any co-operation you desire."

Upsetting Old Ideas of Logging

Are scientific methods and mechanical improvements to be forever debarred from logging operations? asked D. C. Magnus, at the recent Appalachian Logging Congress.

"Are we, as loggers, keeping pace with the other great industries of the world? Is it not a fact that the lumbermen are being outstripped by their own industrial competitors? He must do more of the work with power-driven machines.

"For instance, the sickle, the knitting needle, the old hand-loom, the needle and thread, the coal pick, and the cross-cut saw were all rocked in the same cradle. The sickle has developed into a reaper, the knitting needle into a great factory filled with humming spindles, the needle and thread into a sewing machine, the coal pick into a coal cutter, and the old cross-cut saw has remained a hopeless case all these years.

"Is it possible for the old cross-cut saw to form an armor that cannot be pierced by the scientific brains of this age?

"The cross-cut saw is not the only tool to which we should bow our heads in shame. Several weeks ago we were moving earth for a railroad grade and found a kit of stone tools that were used by some prehistoric race. Among the number there was a stone axe. This axe was similar to the one we use to-day, with the exception of being stone and having

the handle attached on the outside. Is it possible that we must cling to that old stone model forever? Should we not make some great effort to get an electrically-driven tool to replace at least a part of its uses?

"We are living in an age when it requires a number of individuals to compose an efficient unit. The backwoods cabins are becoming landmarks and the cave of the hermit a curiosity.

"Co-operation and concentration effort must be made if we would have our ideals become realities.

"The loggers realize that they can't compete with the other industries. They should begin now to fortify themselves against the future labor problems which are sure to come.

"The time has passed for a lumberman to be content to have a man at the helm of the logging end of the business who is not worthy of a greater title than 'bush man' or 'woods hick.'

A shrewd business man said to me after going over a logging operation: 'I am surprised to learn of the responsibilities of a logging superintendent. To be efficient he must be a timber cruiser, machinist, civil engineer, diplomat, and psychologist.'

"The lumberman's slogan should be 'Scientific logging,' and he should put forth every effort to get men to conduct it on scientific lines."

Canada's Loss by Forest Fires

The statement has been made, and sometimes disputed, that Canada loses from \$6,000,000 to \$10,000,000 a year by forest fires.

Now comes to hand a report of the West Virginia Conservation Commission showing that in one small state, 710 fires occurred in 1908. This was the estimate of the loss:
Area burned over: 1,703,850 acres.

Standing timber	
burned.....	943,515,850 feet.
Value of standing timber	
burned (at 1908 prices)	1,903,500
Value of lumber, tan bark	
and improvements burn-	
ed.....	\$490,175
Injury to soil and under-	
growth.....	1,703,850
Total of loss.....	\$ 5,097,525

Since that time an intensive fire patrol has reduced the loss by nine-tenths. Sufficient money has been saved from this source alone to pay all expenses of the entire State government.

Prior to this time there was no organized effort to control forest fires, each property owner endeavoring to

keep fires from burning his own fences and improvements and allowing it to consume all of the forests without hindrance. It was the general rule to set fire to the forests, it being coveted that the burning improved the ground and made better range for the cattle.

What Alberta Owes to Forests

(Reprinted from the *Lethbridge Herald*)

"Southern Alberta is as closely linked up with forest conservation as the most heavily wooded part of Canada. Irrigation derives its life from watershed forest protection. Coal mining faces one of its chief problems in a supply of wooden pit props. The fertility of the farm lands owes much to the forest's contribution of moisture to the air currents. The cattle and wheat raiser are extensive users of lumber, and the cost of these wood supplies is an item of high importance. Though we may live far from the edge of growing timber, it is upon us, as users, that the penalties of forest waste are bound to fall."

This statement was made this morning by Robson Black, secretary of the Canadian Forestry Association of Ottawa, who spent the day in Lethbridge, discussing conservation questions with many leading citizens, including President Marnock of the Board of Trade

Mr. Black praised the progressive stand taken by the board in declaring for the riddance of the patronage evil in public administration, and mentioned the mischievous results in forest protection systems operated on the patronage basis.

"Alberta is now the only province in Canada that has not taken provincial action in the thorough elimination of forest fires. The greatest hazard to the maintenance of the irrigation projects of Southern Alberta is the freedom enjoyed by settlers in or near the forest, burning their

'slash' without taking reasonable precautions.

These settlers' "clearing fires" must be stopped at once unless the tree cover on the watersheds is damaged irreparably. The only authority that can act in the matter is the provincial legislature which was asked to pass an act establishing what is called "the permit system" whereby every settler's fire in or near forest country shall be supervised by local fire guardians or Dominion forest rangers. This means practically no expense to the province and is imperatively necessary. Saskatchewan and Manitoba adopted the law without controversy. It is likely Alberta will pass an act next session.

"The water supply of the Alberta plains takes its source in the eastern slopes of the Rockies. On account of free-running fires in times past more than 90 per cent. of the trees are less than 100 years old and 75 per cent. are not 50 years old. As a consequence, the rivers originating in this great protective and regulating area are all subject to gross fluctuation, thereby reducing their value for irrigation purposes.

Demands of Coal Mines

"The coal mines of Alberta use six lineal feet of wood for every ton of coal taken from the earth. The farmer on our plains is the greatest wood user on earth, using nine times as much per capita as the European farmer. Wherever we turn we see the absolutely essential character of forest maintenance.

"The question of provincial ownership of the forests is only distantly related to the question of conservation. The people who lose by the waste of Alberta's forests are the people not of Quebec but of Alberta. All the profits from conservation go likewise to Alberta. The Dominion Forestry Branch, now administering the reserves of Alberta at a cost of \$215,000 annually, get back only a part as revenues. The total revenues of the Dominion Government from all sources connected with the prairie forests fall short by about \$200,000 of what is expended by the Dominion in their protection from fire and in forestry development. Whoever owns and administers the Alberta forests carries them as a heavy financial liability for long years to come. This is due to the fact that fire destruction has been so excessive in times past that instead of 'cashing in' on present supplies of timber, the forests of Alberta must be nursed back to normal before they can take care of the future wood requirements of the people, and become equal to their function as guardians and regulators of stream flow."

LIEUT. BIGWOOD KILLED

A cable despatch received by Mr. W. E. Bigwood, of Graves, Bigwood & Co., (lumbermen) Toronto, on June 28, from the British War Office, stated that his son, Flight-Lieut. Paul Herrick Bigwood, of the Royal Flying Corps, has been killed in action in France. Lieut. Bigwood went overseas with an infantry battalion and later was transferred to the Royal Flying Corps, serving in France as an aviator only a short time. He was twenty-one years of age.

RIFLE STOCKS FOR THE WAR

The New England Westinghouse Company, Meridan, Conn., which has a contract of 1,000,000 rifles awarded by the Russian Government, on which it has been working for more than a year, is now producing 500 weapons daily with 1,600 hands employed. The company is now in-

creasing its output rapidly and expects soon to be turning out 1,000 rifles daily. The present consumption of hardwood lumber for stocks alone is approximately 3,500 feet daily.

ABOUT LOG RULES

The following was contained in a letter from Sgt. A. V. Gilbert of the Canadian Forestry Corps in England:

"It is interesting to note here some points about board foot log rules. The Doyle & Quebec rules are commonly used in Canada. It is astonishing that the Doyle rule which gives ridiculous results for very small and very large logs should be in such general use in Canada. The large percentage of small logs at our operations in Britain emphasizes the fact that this rule should not be used by this Corps in any calculations. The Quebec Rule gives larger results than the Doyle but not so large as the Maine Rule, and since the latter, as we have shown, does not give large enough results for the class of material we are turning out it is clear that in any calculations it should be used in preference to either Quebec or Doyle Rule."

FRANCE CALLS FOR FORESTERS

In announcing the formation of forestry battalions to go to France and aid in supplying trench timbers, railroad ties, mine props, cordwood, etc., the United States military headquarters makes the following comment:

"The French forests have been managed for many years with great care and skill. It is the view of the Government forestry officials that if the American forest regiment is to do creditable work it must be able not only to cut and manufacture the timber with high efficiency but also to avoid waste and leave the forests in good shape for future production. This is the reason for selecting mainly trained foresters as officers."

The Riordon Pulp and Paper Company will plant about 250,000 trees this year near St. Jovite, P. Q.

ADVERTISING AGAINST
THE FIRE FIEND

Various schemes to bring before the public the necessity of eliminating forest fires have been put under way since the beginning of 1917. The response to all of them has been remarkably generous. Business firms have consented in scores of instances to insert special fire prevention advertisements submitted by the Association even when the use of the advertising was costly. Some firms taking this action owned no timber limits or wood-using mills. Extracts from a few letters in addition to those already published, are reproduced herewith:—

From Clarke Bros., Bear River, N.S.: We have read with interest the suggested advertising copy. We shall be pleased to have the copy in question used until October 1st."

From Green Lumber Co., St. Thomas, Ont.: "We will gladly insert the advertising matter as you request."

From Columbia River Logging Co., Golden, B.C.: "We will have special advertisement run in our paper for several weeks during the dry season."

From MacLeod Pulp Co., Liverpool, N.S.: "We have arranged to have 'copy' sent us published in our local paper during the next four months."

COMPOSITE STEEL CARS

William Queenan, assistant superintendent of the Burlington railway shops, in an address before the Western Railway Club, Chicago, stated that the composite, or steel frame and wooden superstructured gondola car is superior in nearly every respect to the steel car. In summing up the advantages he specified the following items:

That the initial cost of the composite gondola with the present price of steel should be less than the all steel gondola.

That the composite type of car costs less to maintain than the steel gondola.

That sides of the composite car

do not bulge as do those of the steel car.

That records show that while the composite cars cost more to repaint than the steel car, they do not require painting so frequently.

That a large portion of the repairs to composite cars can be taken care of at other than steel car shops.

That certain properties in coal cause corrosion to steel and that wood is not affected by these.

He gave records of 1,000 cars of each type built in 1903. During the last fiscal year, 167 of the wooden cars were in the shops, and 332 of the steel, and the average cost per car of the steel car repairs was 36 per cent. higher than of the wooden or composite cars. The average number of the cars repaired showed that fewer repairs were needed by the composite cars and that the number in service, therefore, was larger.

300,000 ACRES FOR RESERVE

The State of Minnesota has set aside for state forests an area of over 300,000 acres of state lands. This tract is composed of scattered sections and "forties" of land, a part of a much greater area of similar character lying in northeastern Minnesota. The National Government had previously set aside over a million acres in this region as a National Forest.

Northeastern Minnesota, in the northern half of Lake and Cook Counties, is a granitic area of outcropping rock ledges, shallow soils and innumerable lakes and water courses. It is the southern extension of a similar great area in Canada.

C. A. MacFayden, formerly of the Dominion Forestry Branch, is now British Columbia District Forester at Fort George.

From the Right Reverend, the Bishop of Kootenay: "I shall very gladly become a member of the Canadian Forestry Association.

"Your object is one of vital importance to Canada, certainly to British Columbia."

Forest Area Set Aside for Study

The Council of Industrial and Scientific Research of Canada, has persuaded the Dominion Government to set aside one hundred square miles in the Portawawa Military District in Ontario. A sufficient grant will be made to carry out a thorough survey of this area next summer, the work to be done by the Dominion Forestry Branch. Beyond the survey a program has not yet been prepared. The Research Council has been formed for the purpose of ascertaining and tabulating the various agencies which are now carrying on research work in universities and colleges, in Government laboratories, business organizations and industries, scientific associations or by private persons; also to ascertain the lines of work being done and the facilities and equipment and especially the man-power available for such work; to coordinate all agencies, to induce co-operation and prevent overlapping, and to bring about a community of knowledge; to study the problems which confront our industries and to link up the resources of science with labor and capital so as to bring about the best possible economic results; to make a study of our unused resources, wastes and by-products with a view to their utilization in new or subsidiary processes of manufacturing; to develop ways and means by which the present small force of competent and trained research men can be augmented.

This work is being rapidly organized and the following organizations have volunteered to help in it: The Canadian Society of Civil Engineers,

Canadian Mining Institute, Canadian Manufacturers' Association, Society of Chemical Industry and the Canadian Society of Forest Engineers. The country will be divided up into districts and volunteer field-workers will cover these districts and gather all available information.

RANGERS' HANDBOOK

One of the most complete little volumes dedicated to the lore and craft of the ranger and woodsman that comes for our review is the Handbook for Rangers and Woodsmen, by Jay L. B. Taylor, forest ranger in the United States Forest Service. The object of the book, according to its author, is to serve as a guide for inexperienced men in the woods. It tells what to carry with you in the woods, how to pack an animal, how to cook and what provisions to take. It gives instructions how to build a field telephone, how to use powder, how to survey, how to handle ailments of pack animals and a thousand and one other valuable hints to the man on his own resources. The book is for sale by "Canadian Forestry Journal" at \$2.50 per copy, net.

MORE CARE WITH FIRES

Cobalt, Ont.—The past couple of days have been very warm and a number of small bush fires are in evidence about the town, chiefly caused by settlers clearing their land. With vivid recollections of the disaster of last Summer, greater precautions will be taken than heretofore, and fire rangers throughout the district are working under much more stringent regulations than in previous years, which should do much to eliminate the danger from this source. Each fire ranger is making a report of the district over which he has charge, and making recommendations to the chief ranger with the idea of eliminating the places where danger of fire is apparent.

Forest fires in the United States have caused an average annual loss of seventy human lives and twenty-five to fifty million dollars' worth of timber. The indirect losses run close to half a billion a year.

News Notes of Forest Services

G. H. Prince, formerly of the British Columbia Forest Branch, and lately assistant to P. Z. Caverhill in the New Brunswick Forest Survey has been appointed Mr. Caverhill's successor as Director of the New Brunswick Government Forestry Division. Mr. Caverhill is now attached to the head office staff of the British Columbia Forest Service.

* * *

R. E. Benedict, British Columbia Forest Service, has been appointed a Major in the newly organized forestry battalion of the United States Army or "Tenth Reserve Engineers (Forest)." Mr. John Lafon, another British Columbia Forester, has attached himself to the same unit. Prof. W. N. Millar, of the Toronto Forest School, is a Captain of the corps.

* * *

H. S. Irwin, formerly district forester at Prince Rupert, and District Forester H. G. Marvin of Fort George have been transferred to the head office at Victoria. The Hazleton and Prince Rupert offices are being handled by District Forester Allan from Hazleton.

* * *

Calgary, July 5th.

B. R. Morton in charge of silvicultural work at Head Office, Dominion Forestry Branch, spent a day at the District Office last week and then proceeded to the Coast where he is in charge of a collection of seed of numerous British Columbia species for the Imperial Government.

* * *

T. W. Dwight, Assistant to the Director of Forestry, spent Wednesday last at the office here proceeding to Kamloops and the British Columbia Inspection District, where he will probably spend a couple of weeks in connection with District Inspector Cameron. He will then return here and make trips to several of the reserves in Alberta. He is looking particularly into timber sale work as well as other projects. Probably part of July will be spent in this district.

A successful Ranger Meeting was held at Morley under the direction of Forest Supervisor St. Clair. The Rangers spent several days at Morley going over all sorts of administrative work and entering into detailed discussion on various lines of improvement and fire protection work. They were also given some elementary training on survey work and taken all round seemed to be pleased with the start made.

* * *

J. A. Doucet left here on the first of May for Edmonton, going thence a few days later to Fort McMurray. He has been down there since early in May on inspection and reorganization of the Fire Ranging operations in the Slave and McMurray Districts. By reason of these efforts an amalgamation of the two districts has been effected and it is hoped to place the whole works in charge of a competent Chief Ranger. Doucet will probably be there for the best part of the summer.

The manufacture of gun powder requires large quantities of charcoal which can be secured only from hardwoods, and even smokeless powder requires the use of wood alcohol in its manufacture. This product is particularly necessary in the making of gun cotton. Wood alcohol is also used as a solvent in medicine and the wood distillation industry will contribute largely to the extra amount of hospital supplies needed during the present war. Acetic acid or wood vinegar, which is another important product, is used in the manufacture of cordite and liddiate, two high explosives. Necessary increases in the production of steel for war time uses will require a large amount of charcoal for use in blast furnaces.

Besides these direct uses, the development of the dye industry takes over a great deal of the wood alcohol obtained from the distillation of hardwood.

Farm Lands in Forest Reserves

BY D. ROY CAMERSON

*Inspector of Forest Reserves, Kamloops, B. C.
in Annual Report, Dominion Forestry Branch.*

"The principal objection made to the establishment of further forest reserves in this district has been the fear of the possible inclusion of agricultural lands. This fear is the result of a statement made some two years ago, that the development of the country was being retarded by the tying up of areas of agricultural lands within forest reserves. This matter has been discussed in my reports of previous years and mention made of the recommended eliminations of land of possible agricultural value. Unfortunately, owing to the war, statutory action has not been taken as yet in accordance with such recommendations, so that a somewhat anomalous condition exists with regard to such lands.

"The present method of requiring action by parliament to withdraw agricultural lands found to be included in forest reserves causes considerable delay, which it would be well to obviate.

"It seems reasonable to expect that, so far as lands valuable only for the production of hay are concerned, the proposed amendments to the regulations with reference to hay meadows will afford the best solution of the utilization of such lands. Observations of the degree of development attained in cultivation of lands of this class by settlers and squatters on adjoining forest reserves show that in the majority of cases the outlook for these people is well nigh hopeless. Now that government work has been largely discontinued, owing to the necessity for economy in expenditure, the unequal struggle has forced many to abandon such claims and seek a livelihood elsewhere. This condition of affairs is evidence of the truth of the statement made by myself previously that the extraneous support given by government work was all that enabled settlers on such lands to remain, and

that the lands themselves cannot be considered as suitable for homesteads in the true sense of the term, namely, that they enable a settler to obtain a descent living from them alone.

Settlers are Hampered

"There are, however, lands within forest reserves, other than hay lands, about which there can be legitimate doubts as to their value for agricultural purposes. With the introduction of improved methods of agriculture, especially with reference to dry farming, and following the impetus given by the 'back to the land' movement which is bound to come on the termination of the war, it may be expected that there will be very insistent demand for a chance to use lands within forest reserves which possess any potentialities whatsoever agriculturally. The need of preparedness for this eventuality leads me to believe that we can no longer delay consideration of the introduction of a 'forest homestead' amendment to the Forest Reserve Act, applicable at least to British Columbia, which will provide for the disposal of agricultural lands within forest reserves in a similar way to the act of June 11, 1906, with reference to national forests in the United States.

A personal message sent by the Canadian Forestry Association to more than 3600 "professional" guides, trappers, hunters and fishermen:

Dear Friend:

A runaway fire does no service to sportsman, guide, timber-owner, artisan, or the public treasury. Every man is a loser when fire gets away.

The Canadian Forestry Association in which over 5000 Canadian outdoors men take part, asks your help to keep 1917 as free as possible from forest fires.

We ask you to watch your camp fires as never before. Keep them small and see that they are entirely put out. Don't take chances, but toss on a few spadefuls of earth, or a couple of buckets of water.

We ask you to watch your lighted tobacco. Don't throw away a lighted cigarette or the heel of your pipe. It sounds like an inconsequential request but carelessness on the part of campers, hunters and fishermen forces Canada to pay a tremendous bill every summer.

We have about 10,000 forest fires every year in this country—ten thousand bids for desolation and human misery.

Give us a hand in cutting that ten thousand by half. An ounce of "Thrift" in Canada this year puts a ton of weight on the country's enemies! Thrift starts at your finger tips. Watch them. Watch them every time they handle any kind of fire in or near a Canadian forest.

Yours faithfully,
Canadian Forestry Association.

Reaching the Public—The Meeting Method

The holding of public meetings for the discussion of public policies relating to the care of the forests has proved a most valuable means of propagandist work.

These meetings, through widespread advertising in advance, have attracted large audiences of men and women, boys and girls, ninety per cent. of whom had never encountered the subject of forest conservation from any but a casual point of view. The subject can be made intensely interesting to mixed audiences and, with technical phases reduced to plain language, and public responsibility for conservation policies duly emphasized, the impression upon auditors is direct and permanent. Particularly is this so when, as with all Association meetings, hundreds of interesting and 'live' pictures are projected on the screen.

French Lectures

French lectures will be commenced during July by the Forestry Association, co-operating with the Department of Lands and Forests, Quebec. Mr. Avila Bedard, of Quebec, will deliver from ten to fifteen addresses, illustrated by stereopticon, in the Eastern Townships, and points such as La Tuque, Chicoutimi, Grand Mere, Three Rivers etc.

In New Brunswick

Another series of French lectures

will be delivered in the counties of New Brunswick where French-speaking citizens are numerous, and where the question of better fire protection and the protection of non-agricultural lands is badly in need of better public sentiment.

The Secretary of the Forestry Association recently returned from New Brunswick where nine public meetings were held, with very large audiences at all but one point. Earlier this year, lectures were given through British Columbia, Alberta, Saskatchewan, Manitoba and Ontario.

The cost of these lectures bears heavily upon the small resources of the Association, as the meetings are free to the public, and expenses of advertising, printing, frequently the hall rent, travelling outlays, etc. are given no local assistance and must come from the central treasury.

From Rev. Fred. H. Graham, Diocese of Kootenay, Nelson, B. C.: "It may interest you to know that last Sunday, the King's birthday, there was a Church Parade of local Boy Scouts and Cadets, and in their hearing and that of a crowded congregation I read the excellent and timely appeal of the Canadian Forestry Association to the people of Canada."

Canadian Portable Homes for France

During a discussion in the House of Commons recently, Sir Geo. E. Foster, Minister of Trade and Commerce, replying to a question about ready-built houses for France, said:—"The matter was brought to my attention, and I took it up with the department and had the woodworkers plan certain houses. After these plans were made it was thought better—and under my advice it was done—to send the plans to Paris to have them thoroughly looked into and vided as it were, by governmental authority, acting either directly, or through a committee. That was done, and we received modified plans from them for two or three different styles of what we would call shacks, to be used temporarily until more permanent buildings could be erected. In every case their plan called for a more elaborate and more costly building than we had planned. Our buildings would cost from \$75 to \$100, but with

the improvements, coverings, and the like of that, suggested by the French authorities, they would cost considerably more. However, a number of houses were constructed and I got transport for them free of charge to Paris, where they were on exhibition in the Champs Elysees. I myself saw them when I was over there last summer. They had the name of Canada on them, and served to show not only our plan of construction for temporary buildings, of this kind, but our materials as well, and they were seen by a great many people. But the war has gone on much longer than anybody thought it would, and although we know now what they want and though the plans are in the hands of the woodworkers of Canada, not much is being done at present. They, too, I suppose, are awaiting the proper time. What works directly against them is the absolute impossibility of getting transport for goods."

A Wisconsin View of Forest Guarding

Extract from Biennial Report of the State Conservation Commission of Wisconsin for 1915 and 1916, (P. 79).

The protection of forests from fire is the first essential in the development of a forest policy for a State. Past experience has proven that the forests of Wisconsin have suffered great damage from fire at times, and, without question, history will repeat itself in the future, unless a well planned fire organization is developed, to be ready for the real dry season.

The protection of forests from fire in the north one-half of the State is brought about through an organization of town fire wardens, assistant fire wardens and the protective force of rangers and patrolmen in what is known as the forest reserve region. The town fire warden system is established by having each town chairman become ex officio fire warden

and the road superintendents, assistant fire wardens. The chief duties of the fire wardens, of whom there are about 555 in the territory in which there is a fire hazard, are the fighting of fires, instead of prevention and detection. The system of fire protection as applied to the greater part of the State lands or the so-called forest reserve area is one of *prevention detection and control*.

The present forest fire organization outside of the protected area is inadequate since there is no definite plan of detection and prevention. The local wardens usually will wait until fires are upon them before taking any protective measures. From a conservation standpoint, forest fire prevention is the most important



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feature. Therefore, adequate appropriation should be made through State taxation to make it possible to provide for the appointment of so-called district fire wardens, whose duties would be to co-operate with the local fire wardens, timber owners, and others, throughout the entire wooded area of the State.

POLITICS AND STATE FORESTRY

Pennsylvania has been one of the first states to take up forestry in a serious manner and it is the *only* state that has taken up forest management in a thoroughly logical and professional way, remarks "Forest Leaves." The chief difficulty has been that it began and limited its activities to strictly cut-over forest lands and often thoroughly devastated lands. Hence, it must be a long time before its foresters, whatever their skill, can restore any considerable part of the once magnificent timber cover. To accomplish anything at all the State must *adopt* a far-seeing statesmanlike policy, and then *persistently* stick to it until the foresters can show the final results—one hundred years and more hence. Here lies the chief difficulty in state forestry. Very few states have carried out *any* consistent long time policies of any kind. State activities go by fits and starts, and if there is anything hostile and injurious to the forest work, it is the "fits and starts" method of pro-

cedure. The continual organizations and reorganizations, the changing of men and ideas, the upsetting of policies, and particularly *greatly fluctuating appropriations* are incompatible with a successful State Forest Policy. Forestry requires men trained for a life work, and men of faith and vision in the future. Nothing kills the spirit of such a force of men as the uncertainty of what the next legislature will do; of what attitude a new governor will assume toward the work; of what change in viewpoint and ideals the always possible replacement in executive head may bring about.

RUSSIA'S FUTURE IN TIMBER

With the marvelous increase in the harbor facilities of Archangel and Vladivostock and the extension of railroads in the forested districts, the Russian lumber has a big future. In 1913, the last year of normal export, lumber worth 165,000,000 rubles was exported. By the closing of the Baltic ports this export has been reduced to a valuation of 27,200,000 rubles. Vast stores of timber have accumulated, and in Archangel alone 65,000,000 rubles' worth of timber is ready for shipment. In 1916, when an increase in exports is noticed, little big timber was shipped, the exports being mainly pine for matches and spruce for paper pulp. Domestic consumption of timber has been large, a considerable quantity being required for military purposes. The demand for railroad ties has been

great and the erection of factories all over the country at a time when unusually heavy demands were made upon railroad facilities has caused many of these factories to burn wood instead of coal. As, however, the Ministry of Agriculture possesses a modern and progressive Forestry Bureau, this use of timber for fuel is being managed in such a way as to increase rather than deplete the great forests of Russia.—“American Forestry.”

THE CAT A BIRDCATCHER

In every land, in every tongue, the cat has been noted as a slayer of birds. Maister Salmon, who published “The Compleat English Physician” in 1693, describes the cat as the mortal enemy of the rat, mouse “and every sort of bird which it seizes as its prey.” The French and Germans particularly have deplored the destruction of birds by cats. M. Xavier Raspail in an article on the protection of useful birds written in 1894 says that though cats are outside the law and therefore may be killed with impunity their numbers are renewed from the villages incessantly to such an extent that not a night passes without traces of these “abominable marauders.” Of 67 birds’ nests observed from April to August only 26 prospered; at least 15 certainly were destroyed by cats and others may have been. Baron Hans von Berlepsch, the first German authority on the protection of birds after forty years’ experience, says that where birds are to be pro-

tected the domestic cat must not be allowed at large. The above are but a few citations many of which might be made to show that the cat always has been recognized as a menace to bird life. Many present day cat lovers, however, claim that their cats kill no birds, or very few, “not more than one or two a year,” and that the destructiveness of the cat to-day has been exaggerated to the last degree.

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THE CASE FOR THE LUMBER EXPORTER

In the last issue of the Journal appeared an article entitled, "Can Canada sell John Bull his wood supply?" written by Captain Douglas Weir, officer in charge, Canadian Forestry Corps, and read at a meeting of the Imperial Institute in London, England, by Col. Gerald White, a well-known lumberman of Pembroke, Ont.

Two or three specific criticisms were made of the Canadian lumber exporter:

"The question of finance also enters into the discussion. The Baltic exporters have worked harmoniously with British merchants in shipping timber on six months' notes, etc., whereas Canadian timber men have insisted on their timber being paid for before it left Canadian ports."

The justness of this criticism would probably be greater were it not applied to the exporting industry as a whole. The largest Canadian timber exporters, particularly in Eastern Canada, have carried on their business with British purchasers for many years to the greatest mutual satisfaction. An Ottawa firm, having probably the largest dealings with the United Kingdom of any Canadian concern, has had an arrangement with two British firms dating back more than a quarter of a century whereby the latter make cash advances on the season's requirements, an adjustment taking place once a year, and this plan has caused no complaints on either side. What

arrangement some smaller firms may have and whether they insist on payment before the cargo leaves Canadian ports is a matter in which the larger lumber exporters have no interest. The latter have their permanent selling agents in England and seldom have occasion to look for purchasers or even to discuss questions of credit with transient customers.

The article in question also stated that "timber from Canada did not arrive here in as good condition (as Baltic timbers)—even recently timber received here does not conform to the specifications it is shipped under. This is, of course, due to shrinkage, and dealers in this country consider that the timber was not seasoned before shipment as well as Baltic timber. The British Columbia timbers showed this defect to a much greater extent than Eastern timbers."

Again the authors of the article would appear to have aimed their shaft at individual mills, or possibly mills in a certain section, and cannot justify the charge against the long-established heavy exporters of Canadian timber. One of the great exporting firms in this country, to which the Forestry Journal submitted the question, declared that not a stick entered a cargo that did not have a winter's seasoning to its credit. This is certainly the method of the big and successful Eastern mills. On the other hand there undoubtedly are mills not hesitating to load directly from the saw, without any seasoning preliminaries, and this sort of thing has no doubt accounted for an adverse impression of some English wood users.

Commenting on the criticisms of the Canadian lumber exporter, Mr. Frank Hawkins, Secretary of the Canadian Lumbermen's Association, said, "If any branch of Canadian

(Continued on page 1226.)



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THE WORLD OVER



Bulgaria's forests may be divided into four zones, according to altitude. The lowest and warmest extends from sea level up to an altitude of 1,300 feet, and is the home of the oak, elm and ash. Above this belt, up to a height of 2,600 feet, is the oak-beech transition zone. Between 2,600 and 4,300 feet is the typical beech zone. It contains ample supplies of timber. Finally a pine zone, equally well stocked, extends between 4,300 and 6,600 feet.

Bulgaria's forest area in 1908 comprised 7,086,232 acres, of which 1,611,423 were national property. No statistics have been available since that date. The forests were then valued at \$125,000,000, but entire sections were destroyed during the Balkan wars of 1912 and 1913.

* * * *

UPS AND DOWNS IN MATCHES

A survey of the world's supply and demand for matches by the Canadian Trade Commissioner at Leeds is interesting. Sweden and Norway are the main sources of supply and, before the war, Austria took third place. Germany could not compete with cheaper goods from Japan. France had a government monopoly in matches, but since the largest factories are in the section occupied by the Germans, must now import. The United States and Russia have large match industries, but as both countries have or had a high protective tariff, they could not compete in the international market. Under the revised tariff in the United States, however, Scandinavian matches have made their appearance increasingly. South America supplies itself with an inferior match. Since the downfall of the Austrian supply, India offers a good field. The Japanese control the far East Asiatic market, but in India and other European colonies they have lost ground, apparently on account of inferior quality of product. While during the period 1907 to 1912 the match market was unfavorable, the stopping by the war of several sources of supply has given an impetus, especially to Swedish manufacturers, and prices have been very high, due in part to increase in value of raw products.

* * * *

DRESSING TREE WOUNDS

Experiments with different substances for covering pruning wounds, by G. H. Howe, showed the following results, says the Bulletin of the International Institute of Agriculture:—

White lead, white zinc, yellow ochre, coal tar, shellac, and carbolineum were employed on pruning wounds of various sizes and age of apple and peach trees, with some wounds untreated for check. The observations were made in the two seasons following the treatment. In all cases the untreated wounds healed more rapidly than the protected ones. Shellac caused the least injury to the cambium, but had least adhesive power. Carbolineum and ochre were very injurious, the white paints the least so; especially white lead was most efficacious; tar is evaporated too easily. Nothing is gained by waiting with the application.

In peach trees, and presumably other stone fruit, all substances produce damage.

The total result is inimical to the use of dressings, but the author admits that for a longer period of observation infection of fungi, which was not observed in the two seasons, might occur and change the finding.

* * * *

MOTORS FOR LOGGING

Although motor trucks and tractors have been used in logging operations on the Pacific Coast, to a limited extent in the past, such use received

a great impetus last year, due to the high price of steel and railroad equipment, notes the American Lumberman.

One logger reports that on a 7.8-mile haul his motor truck averaged six trips daily, hauling from 3,000 to 5,000 feet log scales per trip.

A logger on the North Pacific Coast, using a 10-ton Knox logging tractor with a trailer, states that the machine makes from four to five round trips daily for distances from 2 to 7 miles, and hauls from 15,000 to 40,000 feet of logs daily, depending on the length of haul and the condition of road.

On a 7-mile haul another logger makes four round trips daily, averaging 4,000 feet per trip.

A firm in Washington uses two tractors for hauling logs to the sawmill, a distance of 3 miles, during the day time, and employs one tractor at night to haul lumber to the railroad, 6 miles distant.

From the above performances, it would appear that the logging tractor is rapidly gaining a place in the lumber industry. It is certain to prove a boon to the small logger.

U. S. LOGGING CORPS

Lumbermen in the New England States are aiding in organizing forestry units to be sent to England and France. They have inaugurated a campaign to raise, equip, and send abroad, largely at their own expense, ten large portable sawmill units, and have insisted that all expenses until the outfits are loaded on the British transport shall be paid by them,

although the British Government had expected to pay for the mill outfits to the extent of about \$100,000.

An initial expenditure of \$125,000 to \$150,000 will be necessary to provide the mills and equipment and to recruit the 400 experienced woodsmen and millmen required for cutting lumber abroad and manufacturing it into railroad ties, trench props, etc.

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Fertile Farms and Run-down Forests

That the great plateaus at the ends of the Nottawasaga Valley in Ontario vividly illustrate the crazy policy of stripping forest lands and leaving their rehabilitation to chance, is one of the conclusions reached by "Ahmik" in the Toronto Globe in the course of a colorful, well-written article.

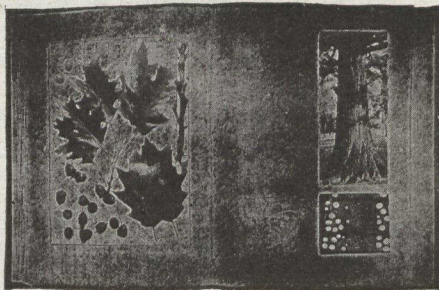
Ahmik describes the great beauty of the valley and the prosperity of the farms and then—

"But all is not as it should be even here. The plateau at the southern end of the Great Saucer is, in large part, a mass of sand. The elevations at the northern end, in form like the waves of the Atlantic, are also of sand. At one time dense forests of pine covered both the northern and southern rims of the Great Saucer. Years ago, however, the mature trees were stripped to the last stick, the young growth was destroyed by fire, and great stretches of sand, unfit for agricultural purposes, were left almost wholly barren. Had these areas been treated with intelligence the forest growth would have been made a source of permanent income and the bush would have given to the valley an even greater measure of protection than is enjoyed now. By the removal of the forest vast stretches of sand have been exposed that even now are a menace to the rich lands of the valley and will be a steadily growing menace with each passing year.

Nature Needs Assistance

Nature is endeavoring to prevent the full measure of evil for which man's folly has prepared the way. Here and there on the southern plateau seedling pines have sprung up. On the sand dunes at the north, which by one of those strange freaks in nomenclature are called the "Huckleberry Plains," seedling pines are more numerous still. If these areas were merely enclosed, and fires kept out, Nature would ere many years reclothe the barren places with timber. The process could be much hastened

by judicious planting. But what is really happening? In one section, timbered over a generation ago, a sec-



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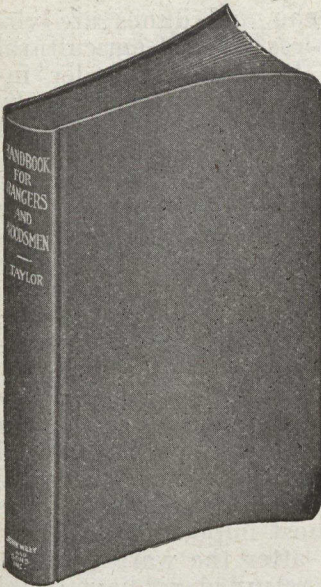
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ond growth of pine had twenty-seven years ago, in many cases, attained a diameter of four to six inches at the butt. To-day these trees are ten to eighteen inches at the butt and forty to fifty feet high. Left alone for another quarter of a century or so there would be in this section a magnificent forest of mature pine. But, so I am told, these immature trees are about to be cut down and sawn up for what can be got out of them now. The chances are that, in the subsequent burning of the refuse, fires will be started that will destroy a host of trees still farther from maturity. It does seem a sinful waste of Nature's bounties.

Ontario's Duty

These sandy areas at either end of the Great Saucer should never have been alienated from the public domain. They should have been retained as part of a Provincial forest reserve. The duty of to-day is to see that they are brought back into public ownership and made to serve the purpose Nature intended them to serve—the growing of timber.

Replanting for Soldiers

In its editorial columns, the "Globe" observes:

In the absence of public regulation, this sort of thing will go on until, between cutting and burning, the dune will be left a barren waste, absolutely bare of tree growth of any kind. Then the dunes, a mass of light sand, lashed by winds sweeping down from Georgian Bay, will become a very serious menace to the fertile valley lying to the south.

To the south of the valley, and north of Barrie, is a sand plateau where the present and past conditions of the sand dunes to the north are repeated. This plateau was also once covered with timber. Years ago the mature growth was removed. To-day there are considerable numbers of young pines growing from seed scattered by the parent stock. Cutting and burning here, too, as the years pass, in the absence of public control, will leave a sandy waste, with more danger to the valley lying below.

Both plateau and dunes are virtually value-less for real agricultural purposes. Both could, under intelligent forestry management, be made to yield a perpetual source of timber wealth, and, incidentally, to give added protection from storms to one of the most fertile sections of the Province. Intelligent forestry management can be secured only by the Province taking hold of the property, keeping out cattle, preventing fire, and filling in the bare places by planting.

The borders of Nottawasaga valley form only one of numerous sections in which such a policy should be followed. A well-thought-out and earnestly prosecuted policy of reforestation is one of the most important duties to be taken up after the war. In that work many returned soldiers could find useful and congenial employment.



Courtesy, "Rod and Gun."

On the Portage

Forest Protection Work in B.C.

The organization of this year's fire protection work in the province provides for the employment of 65 Assistant Forest Rangers for a period of five months. These men were selected by an Appointment Board, consisting of two Coast and two Interior lumbermen, with three Forest Branch officials, from the applicants who were successful in passing the civil service examination held for this position. These examinations were written and oral, were severely practical, and intended to show the applicant's knowledge of general woods work, fire fighting, and ability to submit reports. In addition the record of each applicant's previous experience along lines of work which would fit him for the work he would be required to do in the Forest Service counted he vily in the final selection of the men. By this system of examinations and appointments—made with the approval of representative lumbermen—the Forest Service is assured of a forest protection field

force of men who have had experience in woods work and in the handling of men.

During the most hazardous part of the fire season each Assistant Ranger will be provided with a number of patrolmen, so that during the season of greatest danger this year's plan of organization provides for the employment of at least as large a force as was engaged last year. A change in the method of patrol has been made in some instances. When the system of roadways will permit, the Assistant Rangers have been provided with specially equipped motor cars, and this is proving an effective method of patrol.

In spite of old H. C. L., one Pennsylvania State Forest tree-planting camp served 3,000 meals last spring at an average cost of sixteen and one-half cents each.

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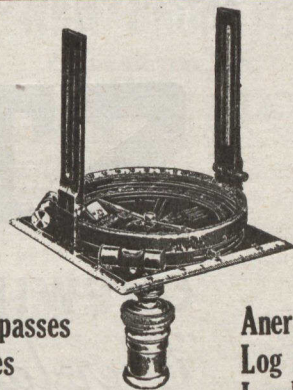
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Canada is undoubtedly to be called upon to become one of the world's greatest sources for the supply of pulp and paper. This industry has grown by leaps and bounds during recent years, and further large developments are to be anticipated, both in the east and west. This will mean a constantly increasing strain upon our forest resources, and must result in careful consideration as to whether very large areas, in which the heaviest cutting is being done or is to be done, are not in danger of depletion.

The Commission of Conservation has started a study of these fundamental problems. This investigation will have for its objects the determination of the extent to which cut-over pulpwood lands are reproducing valuable species in potentially commercial quantities; the effect of fire on reproduction, and the rate of growth of the reproduction present, to determine how long after cutting one may reasonably expect another crop. The answer to these questions should go far in determining what additional measures are necessary, to place the business of pulpwood production upon a thoroughly permanent basis.

The work for this season is under the direction of Dr. C. D. Howe of the

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C. C. JONES, Chancellor.

Faculty of Forestry of Toronto University. A co-operative arrangement has been made, under which the first part of the study is hereby made upon the limits of the Laurentide Company, Limited, whose forester, Mr. Ellwood Wilson, is co-operating in the field investigations. It is expected that similar studies will be made in other sections of the pulpwood forests of Canada during succeeding years. The results will undoubtedly be of the greatest interest to all who are directly or indirectly concerned in the perpetuation of this great industry.
 —From article by "C. L." in "Conservation."

The Case for the Lumber Exporter
Continued from Page 1217
 trade or industry has been the subject of the most thorough and efficient organization, that branch surely is the export lumber trade of Canada. I venture to say that the firms engaged in the export lumber business of the Dominion keep themselves thoroughly well posted and have done so for years, as to lumber conditions existing in Europe, especially in the United Kingdom." Mr. Hawkins believed the critical assertions of Captain Weir's article had no application to the firms represented in the Canadian Lumbermen's Association.

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Department of Lands and Forests

Quebec, 2nd June, 1917.

Public notice is hereby given that, in conformity with the law, on the 21st August next, at 11 o'clock a.m., at the office of the Minister of Lands & Forests Dept., Quebec, there will be offered permits to cut timber on lands belonging to the Crown in the Upper-Ottawa, Lower-Ottawa, St. Maurice, Lake St. John, East and West, Saguenay, Rimouski West and Bonaventure West agencies, comprising several large blocks in the Abitibi, Upper-Ottawa and head waters of the St. Maurice and Gatineau and on River Chamouchouan.

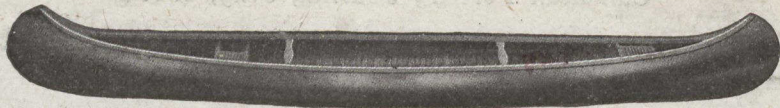
Permits will be adjudged to the highest bidder.

The price of adjudication is payable in 3 equal instalments.

The permit to cut will be subject to the ordinary conditions of the Law & Regulation and the grantees of any of the aforesaid territory must, within a delay of three years, manufacture, in the province of Quebec, with the timber cut in said territory, either pulp or paper in the proportion of ten tons per day, or sawn lumber in the proportion of ten thousand feet board measure per day, per hundred square miles.

Further information may be had by applying to the Department of Lands and Forests.

ELZ-MIVILLE DECHENE,
Deputy-Minister, Department of Lands and Forests

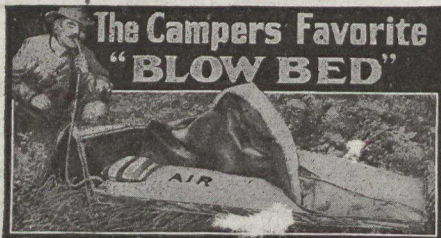


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