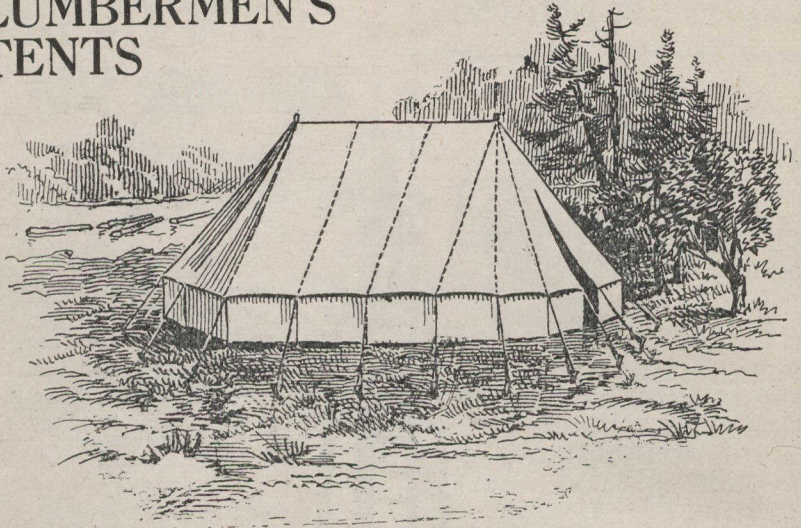




Canadian Forestry Journal  
FEBRUARY, 1916.

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J. B. T. Photo.

Clay plain in the Northern Subdivision of the Upland Country.

## Forests of the District of Patricia

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Population, 3000 Indians, 9 Whites—Average of Whole Country  
About Two Cords Per Acre.

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By

J. B. Tyrrell, M.A., M.E., F.R.S.C., F.G.S.

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The district of Patricia lies in the extreme North-western portion of the Province of Ontario and constitutes that vast new country which has recently been handed over to it by the Dominion. Up to the last

few years it was an unorganized and practically unknown portion of Canada directly under the control of the central Government at Ottawa. It has an area of 150,000 square miles, more than three times the

size of the State of New York, or about one-fourth larger than the combined areas of Great Britain and Ireland. Unlike the rest of Ontario it faces on the sea, with a shore line on Hudson Bay 600 miles in length. In shape it is roughly triangular, with a greatest length in a north-east and south-west direction of 630 miles, and a greatest width in a north and south direction of 390 miles.

It is inaccessible, except with light canoes, from any of the southern and more settled parts of Ontario, and none of the main lines of travel used by the early fur-traders of the Hudson's Bay Company passed through it, either on their way southward from Moose Factory to the Great Lakes, or westward from York Factory to the plains of the Saskatchewan or the forests of the Athabasca valley. No attempt has yet been made to develop any other industry but the fur trade, and consequently, though not at all the most remote, it is one of the least known parts of Canada.

#### *Population Meagre.*

It is very sparsely populated, the total number of people in it, according to the last census, being 3,009, about 9 of whom are white fur traders, while 3,000 are Indians belonging to the Cree and Ojibway tribes who live by hunting and fishing, though a few of the more civilized have small gardens in which they grow potatoes. The above population gives an average of one person, man, woman, or child, to every fifty square miles of country.

Like most of northern Canada, it is a country of slight relief, with few prominent hills. The highest land, with an elevation of about 1,500 feet above the sea, lies in its south-western portion, in North Latitude 52° and West Longitude 92°, and from this high land as a centre the streams radiate in all directions, northward, southward, eastward, and westward, but no

matter in what direction they start, their waters eventually reach Hudson Bay. The main rivers, beautiful large streams, are as follows with their respective length: Albany 610 miles, Attawapiskat 465 miles, Wenisk 400 miles, Severn 420 miles, and English or Winnipeg 330 miles, the latter of which drains a portion of the district south-westward into Lake Winnipeg before its waters are carried by the Nelson River into Hudson Bay.

The district naturally divides itself into two portions, namely a Littoral portion, which adjoins Hudson Bay and extends 100 miles or more inland from it, with a total area of 60,000 square miles, and an Interior Upland portion, including the higher land already mentioned, with a total area of 90,000 square miles, or nearly 60,000,000 acres.

The Interior Upland Country is underlain by old Archean rocks, chiefly red and gray gneissic granites. Their surface is undulating or lumpy, with few level areas of any considerable extent, but at the same time the crests of the lumps or undulations are low and rarely rise into hills with heights which would need to be expressed in hundreds of feet.

#### *Agricultural Soil.*

This rocky Interior Upland may again be divided into two main subdivisions, a Northern and a Southern, though sufficient information is not available to determine their relative areas. The Northern subdivision comprises that portion which has an average slope northward and north-eastward, and is drained into Hudson Bay. On it the underlying granite is mostly covered by a mantle of recent hardpan or sandy clay containing an abundance of boulders. Doubtless this covering is thinner on the hills than in the valleys, but nevertheless the rocks of the hills are usually hidden, while the deeper depressions in the original rocky surface are

mostly filled with a stony clay. A few rock-basins remain and are occupied by clear lakes, such as Trout Lake, but most of the lakes occupy shallow basins in the loose

belts along the banks of the streams. Between the hills are more or less extensive mossy swamps, from the surface of which rise a few small scattered spruce and tamarack.



J. B. T. Photo.

**Rocky Country at the Head of Cat River.**

surface deposits, with low sandy or stony, rather than rocky, shores.

When the country is opened for settlement much of the loose surface clay will form excellent soil for the growth of farm crops, for where Indian hunters can grow potatoes, white farmers can grow very many other things.

Here and there, sand hills rise above the general level and form conspicuous objects in the landscape. On the tops of the stony knolls or of the sandy hills Banksian pine up to 10 inches in diameter is often growing, while on the sides of the hills, where the slopes are not too gentle, are groves of white spruce up to 12 inches in diameter, while similar spruce trees also form

*Signs of Burning.*

Along the course which I travelled in 1912 from Trout Lake up tributaries of Severn River to the headwaters of Cat River about half of the timber had been burnt a few years before, and was still standing as blackened or bleached tree trunks. On this route the timber, counting both burnt and unburnt trees, would probably average, over hills and swamps, about ten cords to the acre. I cannot say definitely whether this estimate would hold true for the country on the Wenisk and other rivers east of the route which I followed, but judging from a careful examination of the reports of Messrs. Bell, McInnes, Dowling and other explorers, I should think that it would.

The Second, or Southern, Sub-division of the Upland Country sloping to the south end is mostly drained into the Albany River. On it there is little soil of any kind over the rocky hills. The lakes are irregular bodies of water filling larger and smaller depressions in the rock itself, and cover a much larger portion of the surface than in the country farther north. Swamps are not so numerous or extensive as in the northern country, their places being generally taken by the lakes which fill the depressions. Clay or clayey soil is almost absent, for instance, at the Trading Store on Cat Lake there is nowhere in the vicinity enough clay to chink the cracks between the logs.

The trees are mostly small black spruce, tamarack and poplar. Banksian pine is not abundant, but there are a few groves of white spruce here and there on the hills and on

the banks of the streams. Where trees are growing on the hills they seem to be supported either by the matting together of their roots, or by sending these roots down into the cracks in the rock. In some places such trees as were standing presented the appearance of growing out of the smooth bare rock.

*Few Cords Per Acre.*

Where the timber is so irregularly distributed as it is in this rocky country it is difficult to make a rational estimate of its quantity, but taking the whole surface area into consideration I think that it might average from 3 to 5 cords to the acre.

The Littoral Plain extends from the border of the Interior Rocky Upland down to the shore of Hudson Bay. In some places it is underlain by granite and other rocks of Precambrian age, and in other places



J. B. T. Photo.

White Spruce on the bank of the Fawn River in the Archudsonian Swamp.



J. B. T. Photo.

**Burnt Timber on one of the branches of Severn River in the Interior Upland.**

by flat-lying Palaeozoic limestones, but such rocks, whether granites or limestones, are almost everywhere buried beneath a thick deposit of clay and sand representing the old bottom of Hudson Bay when the land stood four or five hundred feet lower than it does at present. The ancient sea bottom had been composed of a very even floor of sand and mud, and as it rose in comparatively recent times, geologically speaking, it formed a vast and apparently level plain, with old beaches left as sand and gravel ridges on it at various elevations, formed during periods when there were pauses in the process of land elevation. The present shore of Hudson Bay, on the margin of this plain, is marked by a gravel beach six to twelve feet high. From this beach the land continues the same gentle slope northward and eastward out beneath the tidal waters of the Bay, so that at ebb tide it is

possible to walk for long distances along the tidal shore.

*A Gigantic Swamp.*

The Littoral plain has an average slope towards the Bay of five feet to the mile, and a width of about one hundred miles, so that at its inner border, where it joins the rougher Interior Upland, it has an elevation of from four hundred to five hundred feet above the sea. Several large and many small streams flow down this slope from the rock Interior Upland to the sea, and in their courses have cut channels, sometimes a hundred or more feet in depth, through the soft superficial clays and sands, to the underlying rock, but these channels have nowhere been widened to any considerable extent by lateral erosion, and have not been converted into maturely sloping valleys. This great plain, with only two or three hills breaking the monotony of its sur-

face in the whole District, is covered everywhere, except on some of the more prominent parts of the old gravel beaches, by a layer of bog mosses from two to five feet deep, and is thus one continuous swamp, broken only by the narrow channels of the streams which flow across it. In no case was any such great depth of moss discovered as is found in many of the rock basins in the forest country farther south.

This great swamp covering the Littoral plain has an area of 60,000 square miles within the District of Patricia, and if the adjoining areas to the west, in Manitoba, and to the southeast, in Ontario and Quebec, are taken into consideration, it has a total area of about 120,000 square miles. This is undoubtedly the largest continuous swamp in America, and it is possibly the largest in any country in the world. In order to designate it with greater accuracy I would propose that it be known as *Archudsonian Swamp*, signifying that it was within the confines of the older and larger representative of Hudson Bay.

#### *Small Pine and Spruce.*

The gravel beach which extends along the shore in front of it, within the limits of the district of Patricia, is devoid of trees, while behind the beach there is usually a wet marshy belt, or perhaps a series of long shallow ponds. Farther back is another older beach, and on the second or third of these beaches the coniferous forest begins as a belt of white and black spruce of medium size. Behind this narrow coastal belt of timber the mossy plain begins and extends inland to the rougher upland country. Lakes are almost entirely absent, and the few that are said to exist are probably shallow ponds dammed up behind the old abandoned sea beaches. The absence of lakes, and the consequent scarcity of fish, makes it difficult for Indians to live in this swamp, so that the native population of Patricia is confined almost entirely to the

Interior Upland Country. The lower layers of moss, and doubtless also the underlying ground, are frozen throughout the year, while the upper layers are in summer completely soaked with water, so that travel over it at that season of the year is practically impossible. From the surface of this soaking bed of moss small isolated black spruce and tamarack stick up like big bristles, while here and there, on small areas that for some reason or other are drier than those adjoining similar trees are collected together in small groves.

#### *Absence of Real Timber.*

On the banks of the streams which flow through or across this swamp the land is better drained than elsewhere, and here are usually narrow belts of tall straight timber, some of which may be 16 or 18 inches in diameter. There are other trees, such as the aspen and balsam poplar, on the river banks within this swamp, but nevertheless the only tree of any importance as timber is the white spruce. Although this Littoral belt, to which we have applied the name Archudsonian Swamp, must be classed as a forest country, the total quantity of valuable timber in it is small, and the average of the whole country would probably not exceed one or two cords to the acre.

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The friends of Mr. J. Douglas Moir of Wm. Whitmer & Sons, Inc., will be glad to hear that he passed the crisis in a very acute attack of pneumonia on Monday, January 24th, at St. Luke's Hospital, Ottawa, Ont. Mr. Moir left New York on the sleeper on Sunday, January 16th to attend the 8th Annual Meeting of the Canadian Lumbermen's Association and was taken ill suddenly on the way up. He was conveyed from the Chateau Laurier to the hospital by ambulance shortly after his arrival. It will be the middle of February before Mr. Moir will be able to return to New York.



# Private Timber Owners and Fire Protection

Better Allow Saw Mill or Paper Mill to Burn Than Neglect Insurance of Raw Materials.

By

Ellwood Wilson,

Forester, Laurentide Company, Limited.

Imagine the manufacturer with his whole stock of raw material for his lifetime piled up in one store-house. Would he have it insured? Would automatic sprinklers be installed? Would he have a watchman or so on the premises? Would you if you were that manufacturer? Let me carry the parallel a little further, and ask what you would do if you knew that the destruction of your stock of raw material meant the destruction of the elements from which it could be reproduced and the supply for your children and grand children.

The forest is such a store-house and on it depends our most important industries, the stability and continuity of our water powers, the welfare of our agricultural population, the comfort of our daily lives. The private timberland owner is just as vitally interested in fire protection for his woodlands as any manufacturer. He might far better let his saw-mill, his sulphite plant, his paper-mill go uninsured and spend the money in protecting his forests. In a year or two he can rebuild his mill, he can easily borrow the money for the purpose and go on just as before. But he cannot reproduce his forests. After a bad fire the soil itself is partially or wholly

destroyed and if the fire has been of any extent the distance from the nearest source of seed may be too far away for natural reforestation to take place. Gentlemen, I have seen a tract of land of about ten square miles in extent which after fifty-six years has not a stick of merchantable timber on it although covered with a growth of small birch and aspen, which is already past its prime, and not only is there no merchantable timber but on this whole tract there are but 1,280 spruce and balsam trees not over three inches in diameter. The average percentage of burnt over land which is not reproducing in Quebec is 16% or about 10,597 square miles and that on which reproduction has begun is 12.9%. These figures are based on actual surveys over a large area and when applied to the areas under license rather under than over-state the amounts.

## *Piling and Burning.*

One of the most important questions to be considered by lumbermen for the protection of their forests is an efficient and economical method of slash disposal. Top-logging on operations where large amounts of timber are cut has proved in my experiments to be too ex-

pensive for the measure of protection it gives and I think the only solution will be in brush piling and burning. The cost of this will be very little more than for simple lopping as the brush has to be piled in any case, and the protection will be absolute. In my experience the great majority of fires originate in slashings and such fires cause the most damage and are the hardest to fight. If all woods operators are required to dispose of their slash it will be no hardship as it will put all on the same basis and the cost will be added to the finished product.

Would a farmer set fire to his wheat crop? What a question! Would he burn his seed wheat for years to come? Would he let his employees smoke if it endangered his crop? Would he allow hunters, fishermen and campers to freely travel over his land, making fires and scattering lighted tobacco from their pipes? Would he let his neighbor light bonfires where the fire would spread to his standing grain? He would not. Is he wiser, more practical, more hard-headed than the lumberman? Is he a keener business man? You will say no. But I can point to dozens of men whose bread and butter depend on their supply of raw material from the forest who do just such things and worse. I could multiply instances enough to make a volume.

Fire protection is not forestry any more than it is logging or milling, but is the foundation, the absolute essential of all these. Without it they cannot exist. If we are not prepared to protect our forest, in heaven's name, as practical men let us cut them down and use them up before they are burnt.

Fire protection is not a matter of cost, it must be done as cheaply as possible but it must be done at any cost.

#### *The Interest of Stock-holders.*

Remember, in Canada we are not dealing with privately-owned for-

ests but with government owned ones; they are the property of the people; every man, woman and child has a direct interest in them which extends to generations yet unborn. It is the duty of our public servants to see that they are protected and that the licensees, who are but tenants, should not be allowed to shirk their responsibilities. Quebec is the only province in Eastern Canada to fully realize this and its fine of \$5.00 per square mile for the licensee who fails to properly protect his limits has done much good. The average man does not realize how closely fire protection touches him. Every stock-holder of timber-owning companies should take an interest in fire-protection and see that his directors are taking care of their forests. Bond-holders are vitally interested, as a good part of their security may be wiped out in one large fire. Banks should not loan money on timber limits as collateral until they have investigated the fire prevention provided by the borrower. Don't trust any concern which does its own fire protection, unless it is done by a department which has no other duties. The timberlands departments have too many other duties, they have men they want to "take care of" from one season to the next, from the end of the drive to the beginning of the fall cut. They leave their patrol to cache-keepers, dam-keepers, and if there is any exploring, any repairing or other odd jobs, fire rangers are taken off to do them. Then too it runs up the logging cost and you all know what a terrible thing that is. Fire protection is a business by itself. It requires special knowledge, special training and special tools and methods and the man who is killed in logging or driving is not necessarily a good fire discoverer or fighter, rather the reverse. The same thing applies to railroad fire-fighting which is usually left to section crews. These men have other work to do and many of them do not take

any interest in the fire protection work. It would pay the railways and be far more efficient to have special fire patrolmen under a separate department head. The reduction of damage claims would pay for the expense many times over. Just as volunteer fire-fighting is out of date, so is amateur forest fire protection. A maintenance-of-way department grudges every cent spent on fire protection and this attitude filters down to the section men.

#### *Waiting for Rain.*

All your work for conservation of our timber resources is wasted if we cannot conquer the fires. When I first went into the woods in Quebec, I was told one day that there were fires all along a river. "Why don't you put them out or prevent them," I asked. "Oh, you can't help having fires, it is impossible to put them out. We'll get rain pretty soon." But this attitude has changed and the outlook is very hopeful. The first real attempt at fire protection was made in 1908 and now after eight years we have 38.5% of the licensed area of the Province under efficient co-operative protection, and this protection is becoming more and more efficient each year. Co-operative fire protection is not only more efficient, but it is much cheaper than individual protection. It is costing the larger members of the association only two-thirds of what it cost them to protect their own limits and has wiped out the menace of the small limit-holder who never used to protect his territory. If a man owns fifty square miles, it would require two men for six months with their outfit of canoe and tent and provisions at a minimum of \$500, to patrol it, or 1.6 cents per acre, and he gets much more efficient service for  $\frac{1}{4}$  of a cent per acre.

The Quebec Department of Lands and Forests, under Hon. Mr. Allard, Mr. Dechene and Mr. Hall, deserve the highest praise for the work they

have done in helping along this movement, showing thereby their board-mindedness and their sense of responsibility for this great provincial asset placed in their care. In every way they have helped, often at political inconvenience to themselves from members of Parliament trying to save their constituents from punishment for infraction of the fire laws and others who did not want to spend any money in protecting their limits. Mr. Allard is now at work on amendments to the Provincial fire laws which will bring them up to date and make them easier of enforcement and do away with some abuses. The settler and the woodsman living so in the wilderness has naturally become ignorant of the law and contemptuous of it, but this condition is rapidly changing for the better.

#### *The Government Loses.*

Of the 70,000 square miles of timber limits under license in Quebec about 10,000 square miles are burnt and have not yet commenced to reproduce themselves. At an average of 2,500 board feet per acre, this means a loss to the government of \$15,000,000 in stumpage dues and for the 8,500 square miles reproducing, but which will not be ready to cut for 50 years, a large loss of revenue due to the interest for this long period. When licensees awake to the fact that they are paying the Government \$5.00 per square mile per annum for lands from which they cannot get a cut, or at least not for fifty years, and release these limits to the Government, the loss of revenue will amount to \$90,000 a year.

The agitation for better fire protection has also resulted in closer utilization. Burnt timber never used to be cut but now the larger companies cut all the trees on burnt-over land and the Government encourages this by a reduction in the stumpage dues, thus saving a great waste.

*Education Needed.*

The great necessity is education of all classes of our people—the man in the street, the government officials, members of parliament, lumbermen, business men, woodsmen, farmers, settlers, and hunters, and above all the children, for they will be the men of the coming generation; and often the only way is to educate the children. The church in the Province has done splendid work. His Eminence, Cardinal Bégin, Archbishop Bruchesi, and Monsignor Laflamme have for years sent special notices to all their parishes to impress upon their people the necessity for care. The Department of Education, through their inspectors, have distributed leaflets to the schools in both languages, showing by pictures and by simple sentences the danger of forest fires. The reduction in the number of settlers' fires has been remarkable and once the laws are enforced they will be a thing of the past. Members of parliament are especially in need of instruction, for several times they have encouraged their constituents to fight arrest and have influenced the magistrates, tried to use their influence at Quebec, and have even paid the fines themselves. The magistrates have been very remiss in their duty in some districts, discharging offenders in spite of clear evidence and imposing fines of \$1.00, making thus a mockery of the law they are sworn to administer.

*Menace of N. T. Railway.*

The railways, with one notable exception, have had a decided change of heart and railway fires of any seriousness are rapidly becoming a thing of the past. The N.T.R. and I.C.R. are an exception to this and are to-day a menace to the forests of the Province. Although the Honourable Minister of Railways and Canals promised to put into effect the same regulations as those in force on the railroads under the railway Commission and issued an

order to that effect, his heads of departments have not enforced his orders in Quebec and have as yet made no provision for adequate protection. Since these lines run through country which will give them no other freight but timber, they should, even from a selfish standpoint, protect these sections. The Quebec Government has done all in its power to get this matter settled, but has had no satisfaction.

Workers in the woods are still in need of education, as ten per cent. of the fires are still set by drivers. Woodlands Departments are getting more strict, and setting a fire is now in the most progressive companies cause for instant discharge of the man and punishment for the foreman.

*Stricter Laws Coming.*

The proposed amendments to the present law approved by Mr. Allard, and the better enforcement of the fire laws, will be a great step in advance. These changes will require permits to burn clearings at any time during the summer, will require all persons called on by a fire-ranger for help in extinguishing fires to respond under penalty of a fine, will fix minimum fines for infractions of the laws so that a magistrate cannot make the law ridiculous by letting a man off with a one dollar fine, and will punish by imprisonment any deliberate setting of fire to get employment in extinguishing it.

There is a great need for better methods of slash disposal and I believe that the only right method is the piling and burning of the branches and tops as soon as the trees are felled. A fire in a slashing is terribly destructive and almost impossible to fight, and if there was no inflammable material of this kind, fires, except in unusually dry seasons, could never assume dangerous proportions and could be easily extinguished.

The greatest advance in fire prevention methods will probably come

in a year or two, through the use of aeroplanes or hydro-aeroplanes. One of these was used last summer by a volunteer fire-fighter, Mr. Vilas, with great success. The initial cost is high, about \$7,500, or, with the duty, about \$10,000, but two men with one machine could patrol 10,000 square miles and, being able to see a fire in its first stages, they would be able to extinguish it without calling for extra help.

*"All Were for the State."*

We have still much ignorance and inertia to overcome, but the advances in the past few years have been varied, and if our people will but realize that there is a patriotism of peace as well as of war, and that slackers in peace time are as contemptible as in war, and when we shall realize our full duty as citizens and impress on government officials that they are but public servants and their offices are offices of trust, when we realize the words of Macaulay, "None were for the party but all were for the state," then we shall look back on forest fires with wonder at the civilization which tolerated them.

The foregoing paper was read before the Commission of Conservation at their annual meeting, January 18th.

### *B.C. Market Prospects*

Hon. W. R. Ross, Minister of Lands: "With our timber supply, sawmill capacity, rapidly improving Canadian markets and a foreign market shown by recent investigations to be full of promise, there is little room for pessimism in regard to the future of our lumber industry. There are, however, serious obstacles to be overcome before permanently prosperous conditions can be secured, and strong co-operative effort is essential. A good beginning has been made in 1915, systematic advertising of our forest

products having been undertaken and a commercial service in the Prairie, Eastern and United Kingdom markets having been initiated. There has been considerable development of the spirit of co-operation among the lumbering interests of the Province.

The year 1916 will see the great problem of ocean transportation attacked with vigor. I look forward to remarkable progress being made by the lumbering industry before this time next year."

### *Trees for Soldiers' Graves*

To Editor, Canadian Forestry Journal:—I should like to "air" the following suggestion. The war has now lasted seventeen months, and during that time, side by side with other Empire troops, Canadian soldiers have performed immortal deeds. It is not a good sign of appreciation, however, that not a single city of the Dominion has yet come forward with proposals for commemorating such deeds. If they ever do, it will be something in cold stone, bronze or iron!

It is timely to suggest, through the medium of the Association the planting of maples for Langemarck, and other species for Neuve Chapelle and Ypres, also Festubert. Such a suggestion may draw attention to the sad neglect of tree planting by municipalities who in the West destroy rather than create, the smaller bodies being the chief offenders. A typical business section, with gaunt stores and office blocks, devoid of a single tree to break the monotony is a sad sight, especially when one remembers that in all probability shade trees were cut down to make room for business houses. Yet in London (Eng.) the trees are prominent, except in the heart of the city itself, and even then there is an occasional oasis, some open space planted, and much appreciated by men and birds.

Victoria, B.C. A READER.

# The Success of Co-operation in Forest Protection

In Past Four Years, the St. Maurice Association of Limit Holders  
Has Made Splendid Record.

By

*S. Lawrence de Carteret,*

*President, The St. Maurice Forest Protective Association of Quebec Province.*

Preparatory to discussing the work of the St. Maurice Forest Protective Association a short summary of the conditions existing previous to its formation will not be out of place.

Formerly each limit holder obtained appointments as fire rangers from the Department of Lands and Forests, for such men as he deemed necessary for the patrol of his limits. Naturally he desired to protect his timber but at the same time wished to eliminate any avoidable expense, hence the majority of the men appointed as fire rangers were woods and drive foremen, woods clerks, cache keepers and dam tenders, improvement gang foremen, scalers, &c. To the most of these men fire ranging was a secondary occupation which they considered of minor importance, consequently an efficient patrol was a minus quantity.

### *Individual Efforts Fail.*

With the location of a new Transcontinental railway through the heart of the territory came the menace of fires resulting from construction gangs, steam shovels and work trains. Settlers located in and near the limits had long been a source of danger, and as new townships were opened up along the new railway their number increased. Disastrous

fires resulted from all these sources, Some of the limit holders affected thereby increased their efforts to cope with the increasing fire danger, others took their losses as inevitable, and the inadequacy of scattered individual action was plainly evident.

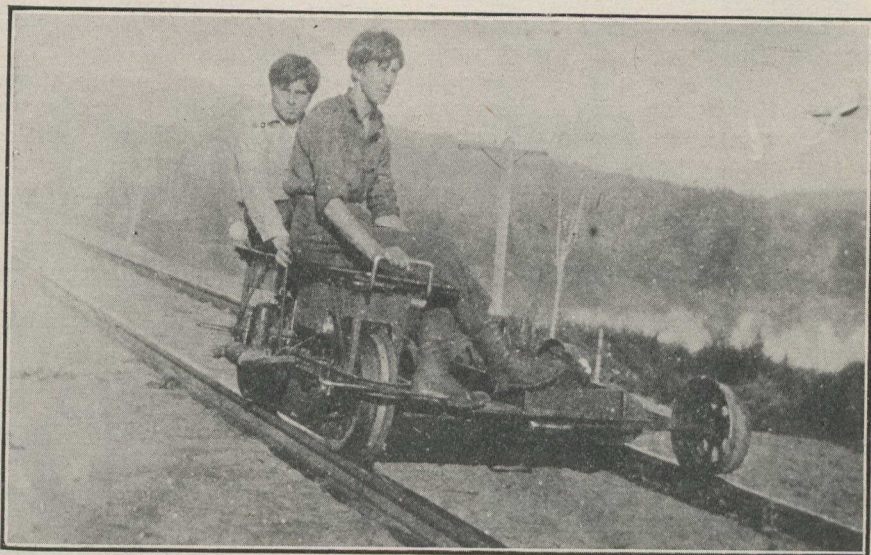
Since 1903 the lumbermen of the St. Maurice Valley had driven logs on a co-operative basis and between 1908 and 1911 some of the owners of limits along National Transcontinental Railway had conducted a successful patrol of the right of way, so the co-operative idea was not new.

These then were the conditions leading to the desire for better protection for the limits as a whole regardless of ownership lines. In the latter part of February, 1912, a number of the limit holders in the St. Maurice Valley decided to invite all the owners in the Valley to join together in the formation of a co-operative forest protective association.

### *Association's Objects.*

This was consummated when on March 2nd, 1912, sixteen timberland owners, whose holdings totalled over seven million acres, united in organizing the St. Maurice Forest Protective Association, its chief objects being as follows:—

To organize and establish an efficient system of fire protection, em-



Motor-Speeder Railway Patrol in the territory of the St. Maurice Forest Protective Association, Quebec Province.

bracing all the timberlands of the St. Maurice Valley and adjoining territory; to fight and extinguish fires; to construct look-out stations, telephone lines, trails, &c., necessary for efficient patrol and the apprehension of fire; to prosecute transgressors of the fire laws; and to promote legislative and educational measures advocating the conservation of forest resources.

On the 20th of March a manager was appointed who submitted a working plan and estimate of cost to the Directors of the Association on the 6th of April and the fire patrols commenced actual operation during the first week of May.

Thus in the short space of nine weeks an Association comprising 16% of the lands under license in the Province was organized and its work started over the entire territory.

The affairs of the Association are controlled and managed by a Board of Directors, and the funds necessary to defray the expenses of the Association are raised by assessment which is based on the acreage holdings of the members.

The Association assumes for its individual members all the obligations of fulfilling the fire protective regulations of the Government.

It also carries on the fighting of fires occurring on the lands covered by its operations and the expense incurred in so doing is assessed pro-rata on all the members of the Association in proportion to their acreage holdings.

*Over 12,000 Square Miles.*

The present area patrolled, exclusive of Government lands not under license and settled districts, is 12,332.46 square miles, or 7,892,776 acres.

This area is divided into six divisions each in charge of an inspector, these divisions being further sub-divided into thirty-two districts or patrols, seventeen of which are patrolled by men in canoes, seven by men on horseback, three by men on foot, one by man in look-out station, and four railway patrols by men on motor cars.

During the past season eighteen special rangers were put on the drives and with construction crews.

It is the duty of each inspector to keep in close touch with each ranger in his division and to give him personal assistance when necessary.

The size of the districts is determined by taking into consideration the nature of the country, the extent of logging operations and the number of settlers therein, and the consequent liability of fires resulting therefrom.

The rangers are required to make out reports of work done each day. During wet periods they cut trails and portages where necessary.

While on inspection trips the inspectors collect the rangers' weekly reports and forward them with their own to the office of the Association, and from these reports are compiled the statements required by the Government.

In 1915 the distance travelled by forest patrols was 67,563 miles.

#### *Five Motor Cars Used.*

The Association patrols 167 miles of the National Transcontinental Railway. In this part of the work five motor cars are used, four in continuous service on regular beats, the fifth being kept in case of emergency.

This method has been found far superior in efficiency as well as in cost to the old system of patrol with hand velocipedes. Engine screens and fire pans are regularly inspected and necessary repairs called for. The distance travelled by railway patrols in 1915 was 41,390 miles.

#### *Joining Hands with Settlers.*

During the season of 1914 an endeavor to govern the burning of settlers' clearings with a permit system was made and with such success in certain districts that early preparations for the same procedure were made in 1915.

During the month of March letters were sent to the Cures of the different parishes asking them to announce from the pulpit that the Association wished to co-operate

with the settlers in disposing of their slashings.

Early in April, while there was still snow in the woods rangers were sent through the settled districts to issue burning permits to those whose slash was ready, and to encourage the others to prepare their slashings for burning under the supervision of the rangers through the permit system.

During the season 628 burning permits were issued and not one of the burnings started under the system got beyond control.

That burning permits and the attendant supervision by the rangers have greatly reduced the number of settlers' fires in the Association's territory is evidenced by the fact that in 1913 there were 151 fires from this source, 1914, 80, and in 1915 only 41.

#### *Lookout Towers.*

The topography of the country is such that in general it is difficult to locate observation points of range extended enough to warrant permanent watchmen. However twen-



One of Manager Sorgius' experienced fire rangers setting forth on his patrol.



ty-three lookouts have been erected, the majority of which are frequently used by the rangers when in the vicinity on their regular beats. Good trails have been cut to all of them with the idea of connecting them with the nearest telephone lines. At the present time there is over four hundred miles of telephone line in the territory the greater part of which has been constructed by the individual members of the Association.

Tools for fighting fire have been deposited in thirty different locations, each set averaging about three dozen implements composed of axes, mattocks, shovels and pails.

In the past four years 63,000 fire notices and signs have been posted and 22,000 leaflets and booklets distributed.

In the same period over 800 fires were extinguished, over 80% of which were put out by the rangers themselves without outside assistance or extra expense, all of which is proof of the excellent work of the manager and his organization.

Opportunities are numerous for the formation of similar Associations, particularly in the Upper Ottawa and on the Saguenay waters and it is sincerely hoped that in the near future the number of protective Associations will multiply in this and the other Provinces.

The paper, which is partially reproduced in the foregoing, was read at the annual meeting of the Canadian Forestry Association.

### *Ruining the Trees*

(Ottawa Free Press editorial referring to a protest against civic vandalism in which an Ottawa woman lost several fine elm trees):

In the light of knowledge of the way in which such things have been done in the past, we are inclined to accept the statement of Mrs. Butler, in preference to the contradiction of



Ranger posting fire signs.

civic officials, that there was no necessity for the cutting down of the elm shade tree in front of her home in Kent street. Also, on the assumption that the man who will needlessly destroy a shade tree in a city street will do other uncouth things, we are prepared to believe the assertion that the "city gardener" met Mrs. Butler's protests against the tree vandalism with rudeness and impertinence. City Engineer Askwith must have a sense of humor when he refers to the man whom he sends about the city to cut and hack the fine old trees lining the streets as a "gardener." Judging from the way in which great limbs have been ruthlessly hacked from the maples along Metcalfe and other streets, "butcher" would be a more fitting terms.



(Published in Collaboration with Canadian Society of Forest Engineers.)

*"There are foresters whose vision sticks in the woods and does not pierce through to the fact that the welfare of the people, not the welfare of the community of trees, must be the aim of the forester's endeavor. Forests are only the medium through which he works. The most successful forester is the one whose life and work contribute most fully to the necessity, convenience and pleasure of the greatest number of people, not necessarily the one who grows the most wood per acre in the shortest time."—DuBois.*

The annual meeting of the Canadian Society of Forest Engineers was held in Ottawa on Tuesday evening, January the eighteenth, at the Laurentian Club. Mr. R. H. Campbell entertained the members of the Society at dinner after which the business meeting was called to order by the President, Mr. Clyde Leavitt. The guests of the evening were: Messrs. Bates and Kynoch, of the Dominion Forest Products Laboratories at McGill University, and Robson Black, Secretary of the Canadian Forestry Association. Mr. A. G. Gutches, Director of the New York State Ranger School at Wana-kena was one of the American members of the Society present.

The members attending the meeting were, Dr. B. E. Fernow, Dean of the Forestry School of the University of Toronto; R. H. Campbell, Director of the Dominion Forestry Branch; E. J. Zavitz, Provincial Forester of Ontario; G. C. Piche, Chief Forester of Quebec, and Head of the Laval Forest School; Clyde Leavitt, Chief Fire Inspector to the Dominion Railway Commission, and Forester to the Conservation Com-

mission; Messrs. Finlayson, Dwight, Cameron, Wallin, Roberts, Dickson, of the Dominion Forestry Branch; L. M. Ellis, of the C.P.R. Railway; Prof. W. N. Millar, of the University of Toronto; Prof. R. B. Miller, of the University of New Brunswick; N. M. Ross, Dominion Forest Nursery Station, Ellwood Wilson and Arnold Hanssen, of the Laurentide Co., Limited.

The Secretary's report showed the Society to be in a growing and flourishing condition; eighteen new members have been added in the past year, Quebec and Maritime Provinces showing the greatest number of new members. The total membership is now eighty-seven.

The Society lost a valued member by the death of Mr. Abraham Knechtel, Forester of the Dominion Parks Branch. It was decided to issue a monthly news-letter to the members and also to publish a history of the Society. A new caliper for measuring trees, the invention of one of the members, was shown. R. H. Campbell was elected Chairman of the Ontario Executive. Two members of the Society were honored this year, George Chahoon, Jr. was elected President of the Laurentide Co., Limited, to succeed the late Sir William Van Horne, and P. A. Sabbaton was elected Vice-President of the Laurentide Power Company, Limited.

An informal and very interesting discussion on the Forestry Situation

in New Brunswick, was the feature of the evening, expert opinions being given as to what the needs of the Province were and how they could be carried out in the most practical and economical manner. The announcement was also made that Mr. P. Z. Caverhill, a member of the Society, had been chosen as Director of Forest Surveys for the Province. Discussion of the best methods for such a province-wide survey and the ends to be attained were carried on by Messrs. Leavitt, W. N. Millar, R. B. Miller, Dwight, Ellis, Roberts and Wilson.

It was reported that about fifteen per cent. of the Society's membership was either at the front or had enlisted, a showing which probably cannot be equalled by any other profession.

After a very enjoyable evening and a vote of thanks to Mr. R. H. Campbell, the meeting adjourned.

### *University of New Brunswick*

Dr. Jones and Prof. Miller were in Ottawa, January 18th, 19th and 20th, the former attending the sessions of the Conservation Commission and the latter the annual meeting of the Canadian Society of Forest Engineers and the Canadian Forestry Association.

An interesting letter has been received from Robert K. Shives, of the class of 1913, who is now with the Royal Flying Corps, Panmure Barracks, Montrose, Scotland. Shives is enjoying the work and is getting to be an expert in the plotting of sky topography, cruising, and taking elevations with the aneroid.

Hayward Kinghorn, of the class of 1911, formerly Forest Assistant at Hazelton, B.C., was here during the holidays, leaving in company with Bruce Dixon to enlist at Montreal, probably going from there to take a qualifying course in artillery at Kingston. Harold C. Belyea, also

of the class of 1911, was here on January 3rd on his way to New Haven where he will this spring complete the work for his Master's degree in Forestry at the Yale Forest School.

Mr. James Smart, lately from Kamloops, B.C., of Lachine, Quebec, is taking a special course in Forestry to more fully equip himself for work with the Dominion Forestry Branch with which he has been engaged for the past three years in the construction of trails and telephone lines, and other practical work.

The Junior class suffers in the loss of Miles Gibson and Chris Armstrong who are taking a qualifying course at Kingston.

C. E. Maimann, R. D. Jago, James Burns, Leland Webb and J. Edwin Hall, of the Senior class in Forestry, spent the Christmas vacation in office work with Mr. Reginald R. Bradley, of St. John. Robert Melrose, a special student of last year, was also in the same party.

### *Use Canadian Woods Only*

In order to encourage the use of Canadian hard-woods for interior decoration, Lord Shaughnessy has issued instructions to use nothing but Canadian forest products in the sleeping, parlor, dining and observation cars in the offices and hotel buildings of the Canadian Pacific Railways.

This decision was made only after careful consideration and experiment. Lord Shaughnessy has had samples of all Canadian hardwoods treated at the Angus Shops in Montreal, where selected specimens were tested with polishes, stains, etc., and the results showed that Canadian woods compared very favorably with imported varieties.

# The Annual Meeting

450 New Members Joined—Revenues Increased—"Contributing Memberships" Added to Constitution—Excellent Addresses on Variety of Topics.

Lt.-Col. J. B. Miller, President of the Polson Iron Works, Toronto, elected President of the Association for 1916; Hon. Sydney Fisher, Vice-President. New Directors: Alex. MacLaren, F. C. Whitman, and Albert Grigg, Deputy Minister of Lands and Forests for Ontario. New Territorial Vice-Presidents: Hon. T. C. Norris for Manitoba, and Hon. Walter Scott for Saskatchewan.

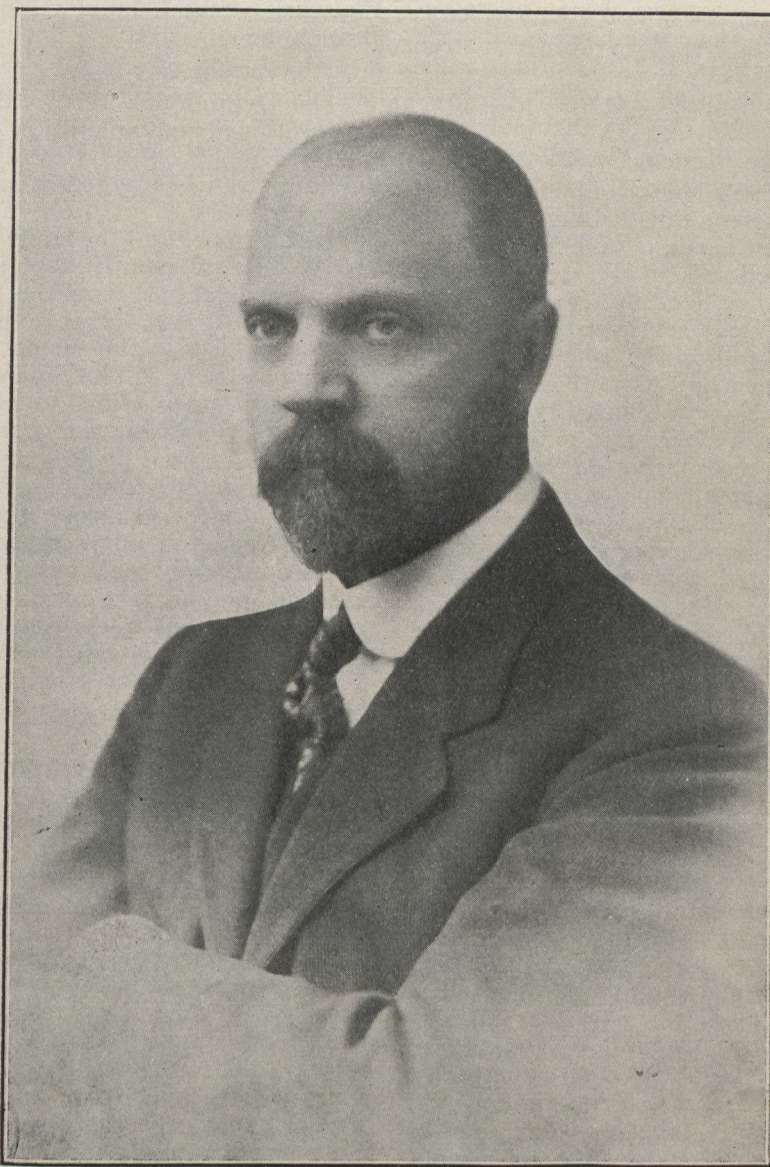
The Constitution of the Association was amended to permit of a new classification of membership, known as "Contributing," the annual fee for which was placed at five dollars. The Annual Membership retains the same status as formerly, the fee being one dollar. The Life Membership was raised from ten dollars to twenty-five dollars.

The attendance was large at both morning and afternoon sessions.

An illustrated lecture on "Closer Utilization of Forest Products" was given during the afternoon by Hon. W. R. Brown, President of the New Mampshire Forestry Commission; "The Work of the St. Maurice Forest Protective Association" by S. Lawrence de Carteret; "Forestry and the Future" by R. H. Campbell, Director of Forestry; "Forestry Work in Ontario" by E. J. Zavitz, Provincial Forester of Ontario; "Forestry and the Lumber Industry" by W. T. Van Dusen, of the B. C. Forest Service.

A Joint Banquet was held with the Canadian Lumbermen's Association, Commission of Conservation, and Canadian Society of Forest Engineers at the Chateau Laurier, January 19th and was regarded as a highly successful event.

While not assuming the dimensions of a convention, the annual gathering of the directors and members of the Canadian Forestry Association on January 20th, at Ottawa, extended the usual brief programme of business into an all-day session, with several special addresses on important topics. The meetings proved of keen interest to the audiences which throughout the day were uniformly of good size. The large convention room, loaned for the occasion by the Chateau Laurier, proved ideal for the purpose. About the walls were built up special exhibits by the Forestry Branch, including an elaborate display by the Forest Products Laboratories, by the Entomological Branch, the U. S. Forest Service (which kindly loaned a set of model forests illustrating "good and bad lumbering"), and exhibits of other organizations. These



Lt.-Col. J. B. Miller, Toronto,  
President of the Canadian Forestry Association, 1916.

provoked uncommon interest, and no less with the lumbermen who held their annual meeting in the same room on the previous day.

All the provinces were well represented in the attendance when the President, Mr. F. C. Whitman, called the meeting to order at 10.30 o'clock.

#### *The President's Address.*

The President's address referred to the series of disturbing influences upon the Canadian lumbering and allied wood-using industries during 1915. They had felt keenly the general business sentiment of extreme caution, and on the other hand were not singled out, as with some other industries, for a temporary boom on war orders. The state of the market for our wood-using industries was of the utmost concern to the cause of forest conservation. Radical reforms in lumbering customs would be deemed impracticable until stumpage values were increased, and that could come only through higher prices for the finished product or decreased costs in logging.

Mr. Whitman spoke of the probable effects of the war on the demand for Canadian forest products. Destruction was proceeding in the belligerent countries at a pace quite regardless of future needs. Military necessities had superseded every other consideration. Without doubt, the close of the war would force European countries to look to North America for a great part of their wood supplies. The war and its visible effects, therefore, constituted an irresistible argument in favor of forest conservation in this country. If we are to take full advantage of the national opportunity and responsibility coming after the war, it could not be done by the present policy of throwing into the bon-fire several times the amount of timber we cut annually for our use.

The President referred briefly to the lightness of the fire risk in 1915 in Eastern Canada and on most of

the Pacific Coast, and spoke of the losses caused in Manitoba by carelessness on the part of the builders of the Hudson Bay Railway. Of the work of the Dominion Forestry Branch, he observed:

#### *Exploration Works.*

"The Dominion Forestry Branch has continued its exploration of the timbered areas of the western provinces under its jurisdiction in order to ascertain the location of the bodies of timber and the lands which should be permanently kept in forest. I understand that this work has progressed so far that within another year or two the whole of the forested districts will be covered and that it will be possible to make a general survey of the timber resources and make final plans for protection. The information obtained so far adds to the evidence that the mature timber in our northern forests is not by any means continuous in stand, and in fact forms only a small proportion of the stand, and that the protection of the young growth is of the greatest importance if our timber supply is to be kept up. The past season varied very much in different parts of the west. In the southern agricultural districts of the prairie the rainfall was regular but in the northern range of the forest the season was particularly dry, resulting in very many fires and some loss of timber.

"The organization of the Dominion forest reserves is being improved steadily and the efforts of the staff at protection are very much assisted by the scheme of improvements which has been laid out and is being constructed on the reserves. A few more years will have completed the work sufficiently to give almost a complete control of the fire situation.

#### *Tree Planting on Prairies.*

The farmers in the prairies in the West are showing their appreciation of the value of the planting of trees on farms by making application in

increasing numbers each year for trees, from the Dominion Government nursery, and the success of the plantations is generally remarkably good. It is understood that a stock of trees is also being grown at this nursery station for the re-planting of the denuded areas of sand lands which occur at places throughout the western prairies and which have recently been almost all included in forest reserves. The value of a stock of timber in the middle of an open prairie country is almost beyond computation.

"It is a matter for congratulation

that the Dominion Government has established a division for the investigation of Canadian timbers and their uses. The investigations of this division will give information that will make possible developments in industries using wood products which should assist Canada materially in making and retaining her proper place as one of the great wood producing countries of the world.

The success of the two co-operative forest protective associations in Quebec was, said Mr. Whitman, a matter of gratification.

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## *Directors' Report for 1915.*

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The work of the Canadian Forestry Association in 1915 was carried on during the months of January, February, March and half of April by Mr. Lawler, and during the eight and a half remaining months by the new Secretary, Mr. Robson Black.

In the belief that aggressive publicity in the cause of forest conservation fulfills one of the first objects of the Association, the Secretary began on April 15th a campaign through Canadian newspapers and magazines which gradually extended in scope until at the close of the year most of the publicity measures that can be used in the conservation cause were already in effect or in process of inauguration. The Association is now allied with several hundred newspapers and magazines, with picture theatres, Boards of Trade, farmers' clubs, women's institutes, educational institutions, banks, railways and other channels for reaching the general public, and this alliance is in the truest sense a working one, and already found to operate satisfactorily.

It is particularly worthy of note that wherever the Secretary has asked for an opening for the presenta-

tion of the claims of forest protection and conservation generally the response has been invariably hearty. This applies with equal truth to editors, educationists, club officials, society organizers, theatre owners, church authorities, etc., in all parts of the country. The campaign conducted by the Association may have an enormous amount of public ignorance and indifference to overcome but it is not additionally handicapped by any resentment or widespread prejudice.

A forward move was made on November 1st by the engagement of new and larger offices in the Booth Building and the securing of additional office assistance. These new facilities give the Association an up-to-date equipment which is showing its value in the work from day to day.

As to the character of the publicity matter, a few words may be said. Probably two-thirds of the articles and illustrations dealt with the evils of forest fires and traced their damage back to the pockets of the individual reader. Forest fires were made a matter of personal loss in nearly all newspapers and magazine material, and wherever possible

statistics were given to demonstrate the point. Another line taken was to connect the revenues from forest operations with employment and wages and supplies. These and other practical and popular reasons for forest protection were freely circulated.

#### *Growth of the Journal.*

Another channel of publicity has been the Canadian Forestry Journal. This was enlarged from 16 to 32 and recently to 48 pages, and although the cost of the latter sized issue was in excess of the 16 pages, the assurance of new advertising for the larger magazine justified the expense. The monthly contents now consist of eight or nine articles specially written by competent authorities and are quoted freely by many of the two hundred editors included in the mailing list. The enlarged Journal has been found of excellent value in attracting new members to the Association.

In order to inform himself at first hand, the Secretary made journeys to Lachute and Berthierville, Quebec, St. Williams, Ont., Montreal, Toronto, the limits of the Lower Ottawa Forest Protective Association and other places where information was secured.

Plans were completed early in the Fall for the distribution of special forms of illustrated literature to classes of people whose co-operation the Association desired. Thus, all the Canadian Banks, the Railway Companies, Forest Branches and other organizations undertook at the Secretary's request to allow the services of their branch managers, agents, and other officers to deliver special booklets direct to settlers, river drivers, section men, farmers and others. So faithfully were these arrangements carried out that scores of local officials reported direct to the Association or to their head offices that books and bulletins had been handed to persons for whom they were intended and in some

cases enclosed a detailed list of the recipients.

#### *Reaching Special Classes.*

In development of this plan, 20,000 booklets bearing on the cover a colored imprint of the forest ablaze were printed in English and French and sent to most of the forested districts of the Dominion and there distributed. The Quebec Government printed a further edition of this booklet at its own expense.

Ten thousand illustrated booklets for school teachers and young people, called "Twenty Canadian Trees" were issued and carefully distributed, the demand from school children showing no abatement even months after the first newspaper comments.

Sixteen thousand small books of thirty-two pages, sixteen of the pages containing photographic illustrations, were issued for the Boy Scout Movement under the title of "The Boy Scout Forest Book" and these will be delivered to local scout masters from the central executive in Ottawa. This booklet told boys about the forest from the angle of its industrial and other importance, showed them what the water-shed forests mean to the rivers, how forest fires are started, how fought, and other information calculated to stir up a new sort of interest in timber areas.

Circuits of motion picture theatres were lined up for a 1916 campaign with forest fire lantern slides. A trial was made of these slides in Ontario, Manitoba and New Brunswick during 1915 with very favorable reports from local persons.

The newspaper cartoon has been another device adopted by the Association for its purposes. Nothing conveys a point in such short time or so forcefully as a good cartoon. During December, eighty of these were distributed by the Association to newspaper editors and, if the finances permit, the cartoon will be used regularly as a part of our campaign machinery.



The lecture programme of the winter of 1915-16 was commenced by the Secretary at Shawbridge, Quebec, and will be continued at other points. Requests from distant communities for lectures on forest questions brought about a scheme of ready-prepared lectures in which authoritative material in lecture form will be sent to local speakers together with fifty lantern slides, illustrating the subject sufficiently. Many demands for this ready-prepared lecture have been received and sets will go out before the end of January. The idea has been further extended so as to cover simple stories for school-children which will be sent out to teachers with small albums of photographs to pass about the class-room.

#### *Co-operating with Boards.*

Seventy Boards of Trade in Ontario have been brought into touch with the Association through an effort to interest them in the forest protection policies of that province and to secure their endorsement of the most modern laws and administration that can be introduced. The Board officials and their members were given information as to the importance of protecting the raw materials for forest industries in that province, and these matters with formal resolutions will be brought up at many of the annual meetings in 1916. This plan of interesting powerful public bodies in campaigning for specific points is capable of great extension and will be used in other parts of the country as freely as opportunity offers. Women's institutes and clubs, farmers clubs, etc., have been interested by the Association in the same department of work and results may shortly be expected.

Another form of co-operation has been with the Cardinal-Archbishop of Quebec who has given the Association's proposals kind consideration and has responded with assurances that the clergy in the parishes

would further instruct the people in the facts of forest protection.

The Association has also endeavored to be of use to the two co-operative forest protective associations in Quebec by arranging through their managers for the prompt reporting of all prosecutions of settlers. These prosecutions were made into newspaper articles, French and English, and circulated through the large dailies and weeklies in most sections of Quebec province. In this manner the effect of the prosecutions was greatly increased.

#### *Adding New Members.*

A continuous effort was exerted to bring in new members. The result was that 450 Canadians joined the Association and practically all of this gain came between the first membership campaign at the first of August and the close of the year. Forty-five members were lost to the Association during the year, mostly through death or enlistment for the war or removal from localities without trace of their new addresses. Undoubtedly the efforts to secure new members would have added a much larger number had it not been for the disturbance of normal public interest through war conditions.

The funds of the Association, although subjected to new expense by reason of the enlargement of the programme were increased by the additional membership of \$450 within the year. In addition to this, the Secretary commenced the organization of a new fund in December for the support of the Association's work and at the present time is able to report that amounts have been paid in or promised by individuals and corporations reaching \$600 in hundred-dollar contributions. The development of this new fund will be carried on during 1916.

## The Treasurer's Report

1915	RECEIPTS.	
Balance from 1914.....	\$ 606	19
Membership fees . . . . .	2271	44
Advertising . . . . .	207	35
Interest . . . . .	48	19
Manuscript . . . . .	3	00
Grant from Dominion Gov- ernment . . . . .	2000	00
Grant from Quebec Gov- ernment . . . . .	300	00
Grant from Ontario Gov- ernment . . . . .	300	00
Pamphlets sold . . . . .	7	25
Refund . . . . .	4	00
Cuts . . . . .	3	00
Publicity subscription . . .	100	00
Compensation for moving office . . . . .	35	00
	\$5885	42

1915	EXPENDITURE.	
Salaries . . . . .	\$1873	60
Journal . . . . .	1162	32
Secretary's Expenses . . . .	260	00
Postage . . . . .	240	00
Commission on cheques... .	13	46
Printing and supplies . . . .	564	27
Miscellaneous . . . . .	18	00
Publicity . . . . .	27	38
Services . . . . .	248	75
Telegraph . . . . .	4	58
Office . . . . .	11	75
Lantern lectures . . . . .	21	79
Balance . . . . .	1439	52
	\$5885	42

Ottawa, December 31, 1915.

### Election of Officers.

The Nominating Committee, composed of Messrs. Wm. Power, M.P.,

R. H. Campbell, and G. C. Piché, reported as follows:

President: Lt.-Col. J. B. Miller, Toronto; Vice-President: Hon. Sydney Fisher, Ottawa; Secretary: Robson Black; Treasurer: Miss M. Robinson.

Territorial Vice-Presidents: Ontario, Hon. G. H. Ferguson; Quebec, Hon. Jules Allard; New Brunswick, Hon. Geo. J. Clarke; Nova Scotia, Hon. O. T. Daniels; Manitoba, Hon. T. C. Norris; Prince Edward Island, Hon. J. A. Matheson; Saskatchewan, Hon. Walter Scott; Alberta, Hon. A. L. Sifton; British Columbia, Hon. W. R. Ross; Yukon, Geo. Black, Commissioner; Patricia, Sir D. C. Cameron; Ungava, His Grace, Mgr. Bruchési, Archbishop of Montreal.

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

## Enlarged Classification of Membership

The Secretary introduced the question of amending the Constitution of the Association so as to admit a new classification in the membership and the annual fees. It was explained that in order to accommo-

date those members who desired to give more than one dollar yearly to the Association's work, a "Contributing Membership" at five dollars annually would probably add to the funds without disturbing in the

least the relations of the large majority who would prefer to continue the established Annual Membership at one dollar a year. By a motion of Mr. Clyde Leavitt, seconded by Mr. Ellwood Wilson, and carried by a two-thirds vote of the members pre-

sent, the Constitution was altered to read: "Its membership shall include all who pay an Annual Fee of \$1.00 or a Contributing Membership fee of \$5 or a Life Membership fee of \$25." The Life Membership fee is thereby increased from \$10 to \$25.

## RESOLUTIONS

Amendments in Quebec: "Resolved: that as this Association hears that Quebec lumbermen have drawn up some suggestions for necessary amendments to the forest fire laws and that these have received the hearty endorsement of Hon. Jules Allard and his assistants with the assurance that this would be introduced as a Government measure, this Association heartily endorses these amendments and congratulates the Honourable Minister and urges the Quebec Legislature to pass them." Moved by Mr. Ellwood Wilson, seconded by Mr. J. B. White, and carried.

### *Civil Service Reform.*

Moved by Mr. Clyde Leavitt, seconded by Mr. Ellwood Wilson, and carried, "That the President be authorized to appoint a Standing Committee of three to take up with the Dominion Government the matter of extending the scope of the Civil Service Act to cover the outside service of the Dominion Forestry Branch."

### *Forest Fire Statistics.*

Moved by Mr. Clyde Leavitt, seconded by Mr. J. B. White, and carried, "That the President be authorized to appoint a committee of ten to take up with the Provincial Governments of Eastern Canada the matter of the collection and publication of uniform statistics of forest fire losses."

A meeting of the Directors was held at the close of the general meeting.

The afternoon session which was well attended was occupied with the

delivery of addresses by Hon. W. R. Brown, President of the New Hampshire Forestry Association, and General Manager of the Brown Corporation of La Tuque, P.Q., on "Closer Utilization of Forest Products," which was illustrated with many lantern slides; Mr. S. Lawrence de Carteret on "The Work of The St. Maurice Protective Association"; R. H. Campbell on "Forestry and the Future"; E. J. Zavitz on "Forestry in Ontario," and W. T. Van Dusen, of the British Columbia Forest Service, on "Forestry and the Lumber Industry." Interest was added to the reading of the papers by a lively amount of discussion in which members and friends of the Association from many parts of Canada took part.

Several of the papers are given in this issue and others will be published in the March number.

### *The Banquet.*

The annual banquet of the Association was held this year in conjunction with the Canadian Lumbermen's Association, the Commission of Conservation, and the Canadian Society of Forest Engineers. Nearly 150 took their places in the handsome dining room of the Chateau Laurier, the occasion being graced by the presence of a number of ladies. Of the quality of the speeches following the repast, too much cannot be said. Without exception, they struck and sustained a high level of eloquence, the guests giving the most implicit attention to the keenly human reminiscent incidents recounted by Sir George

Foster, the concise and interesting references to the conservation work of the Forest Products Laboratories by Hon. Dr. Roche; the eloquent charm of Sir Wilfrid Laurier, who asserted that were he given his way every forest in Canada would be state-owned and administered and that any man who cut down a tree should be obliged to plant one. Dr. Michael Clark, M.P., for Red Deer, Alberta, delivered a stirring and vi-

tal appeal for recognition of the great issues involved in the European war. Dr. Adams, Dean of the Faculty of Applied Science of McGill University, spoke on the activities of the Commission of Conservation. Mr. Gordon C. Edwards was chairman of the banquet in the absence of Senator Geo. Gordon, and was assisted by Mr. F. E. Whitman, President of the Canadian Forestry Association.

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## Taking New Tolls From the Wood Crop

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Economy in Modern Forest Operations as Practised From the Logging Camp to the Factory.

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By

*Hon. W. R. Brown,*

*General Manager, The Brown Corporation, La Tuque, P.Q.; President, New Hampshire Forestry Commission.*

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(A paper read before the Annual Meeting of the Canadian Forestry Association at Ottawa, January 20th, of which the following are excerpts):

I am going to speak to you on close utilization, the steps taken to secure it, and some of the unusual products it creates. Close utilization is the first point of contact between scientific forestry and commercial lumbering, and a durable bond of mutual interest, highly essential to forestry and profitable to business. Whether a forest is considered a mine to be mined, or a crop to be raised; whether it is considered a matter of private or public concern; whether it is considered profitable or unprofitable, is a matter largely of judgment based on the conditions presented, but there is no question of the desirability of preventing waste on the one hand, and

securing the largest returns from every portion of the product on the other; so that my paper will treat of the practical problems in saving from actual experience, leaving the debate as to the policies of the profession and its technicalities to more expert hands.

### *A Market for Hard Woods.*

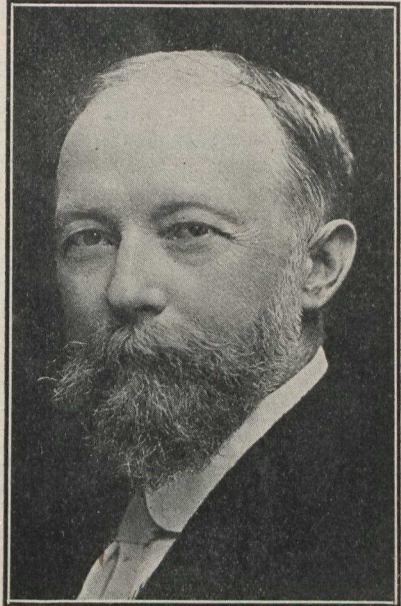
First of all we will commence with the uncut timberland, pre-supposing that there has been a plan made, such as a diameter cut; a selected area cut; a strip cut, or a clean cut, for the removal of such species of trees as are required for a specific purpose. Our first problem of close utilization is what can be done with the uncommercial portions of the tree which are commonly left in the forest, and what, if any, use can be

made of the other less valuable species, in order that by marketing them the cost of logging the whole may be reduced. In our region where we log the drivable soft woods, the problem resolves itself into what market can be found for the hard woods capable of being turned into lumber, bobbins and novelties of all kind. Can we find a manufacturer who will use our rock maple for shoe lasts? Or one who will use our white birch for tooth picks, spool wood, or peg wood? Can we find a jobber to cut white ash for axe-handles or shovel-handles; a tannery using hemlock bark; soda or excelsior mills using poplar wood? Can we sell cord wood to the neighboring villages at a profit? Will it pay to put in alcohol plants or charcoal burners to utilize the limbs and inferior portions of the trees? All of these questions present problems of cost, transportation and marketing too complex to go into here, but a practical knowledge of their possibilities and ability to extract a small profit will make possible the logging of a tract formerly considered merchantably inaccessible.

#### *Waste in Logging.*

The next problem presented is the reduction of waste in logging. This necessitates frequent inspections and an inspection report which is sent in each week to the main office by an experienced employee whose sole duty is to travel about among a certain limited number of operations and make sure that the specifications and conditions called for in each jobber's individual contract, are lived up to.

Then comes the reduction of waste on the drive. Dynamite is now used on rocks and obstructions in a river before driving commences, instead of on the logs during the progress of the drive. This avoids a large breakage. A stream properly improved will have one or many storage dams and all of the larger



Mr. Charles Lathrop Pack, of Lakewood, N.J., and Cleveland, Ohio, who was elected President of the American Forestry Association at Boston, January 17th.

rocks will either be blasted out or abutments built over them, and shear booms constructed in order that there may be a continuous and unobstructed passage for the logs to the mill. The use of telephone men and telephone boxes at critical points has been the common practice for some time. A clean rear is insisted on, as logs left back over a year abrade themselves and waste against rocks in the river or against the shore of a lake as they are beaten about by wind and wave. In some instances logs are left in the still waters of a mill pond from one season to another in order that the bark may be softened and drop off, thus saving the cost and waste of rossing, it being estimated that the saving in wood wasted by the barking knives is greater than the interest on the investment. In such plants however as have the modern rossing drums, this is unnecessary, as the bark is completely removed

without any appreciable loss in wood.

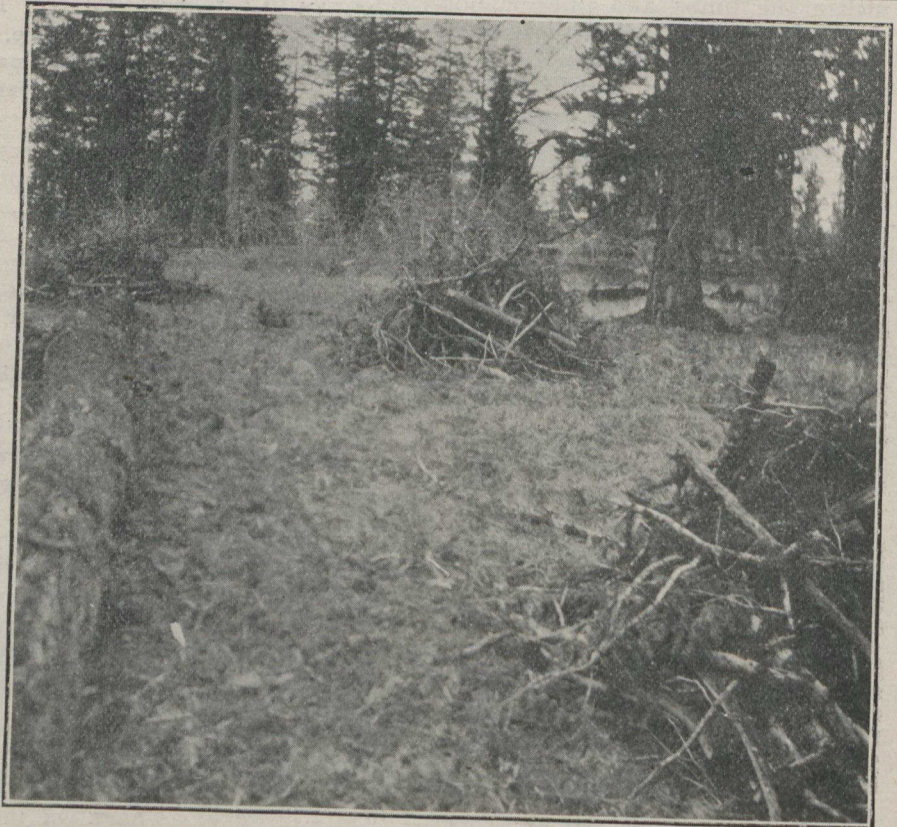
*The Log in the Mill.*

Coming to the mill, the logs are divided into size and quality, those most suitable for saw logs going into lumber and the smaller unsound or crooked logs going into pulp blocks and then ground into wood pulp by means of grinders or cut into chips to be cooked by chemical means into pulp. The sawing of the logs into either lumber or pulpwood is done with 3/16" band saw instead of the quarter inch circular saw formerly used, which saves in the width of the saw scarf, enough wood to represent many cords per day. A band saw also leaves a smooth cut and instead of a rough abraded end, which is an advantage

and saving when the pulp blocks are cut into chips. In the saw mill all spruce, fir and hemlock waste in sawing, such as slabs, edgings, and butt ends, are run through a hogging machine which converts them into chips. The remaining waste from pine and cedar together with the saw dust and bark is carried by conveyors into the boilers as fuel.

*Cooking Oil Produced.*

In the changing of logs into lumber and paper many by-products of unusual forms appear. The spruce, fir and hemlock lumber either goes into house frames, clapboards, piano stock, cross-arms for telegraph and telephone poles chemically treated to prevent their rotting, piling and timber for wharfage soaked in corrosive sublimate as a



Brush carefully piled on Timber Sale at Clinton, B.C., in the Dry Belt, in readiness for burning.

preservative, and into many other forms. The cedar is commonly manufactured into shingles and fence posts; the pine at our plant goes to a sash and door mill exclusively; the ground wood goes into newspaper; chips are converted by the sulphite cooking process into pulp, chiefly distinguished by its long and strong fibre, and this sulphite pulp in turn is sold as a raw product to form an integral part in newspaper making, at the ratio of about one part of sulphite to two parts of ground wood. Sulphite also goes to form the principal ingredient of writing, wrapping or book papers. All of the sulphite pulp which we manufacture is bleached, and this calls for a large electrical bleaching plant to manufacture the necessary chlorine liquor. As a by-product from this bleaching plant caustic soda is manufactured in considerable quantities and sold principally to soap manufacturers. From the chemicals set free in the caustic process, chloroform and muriatic acid are obtained. We are also able to hydrogenate vegetable oils and manufacture a cooking fat which we are now placing on the market, called Kream Krisp and Vream, which is purer in composition, superior to, and more economical than pure lard. From the pulpwood chips also, through a soda ash process, called the sulphate process, sulphate pulp is produced, which is characterized by its long and strong fibre, and this in turn is manufactured into a strong wrapping paper which is known as Kraft paper, dark brown in color, and most commonly wrapped around magazines, papers or bundles. Many new and useful articles are being manufactured out of this paper which may interest you on account of their unusual character, as they represent reduction in the cost of living and the close utilization of forest product.

#### *New Uses of Kraft.*

Large quantities of Kraft paper



Slash well piled for burning along new government road, Fort George, B.C.—A good example to settlers.

are used in department stores, particularly in large mail order houses in the West who ship by Parcel Post. It is especially suited for envelopes such as are manufactured for heavy documents and money, in place of leather containers. Strips of Kraft paper are used in binding corners of cardboard boxes, particularly shoe boxes. Strips of gummed Kraft paper are used in the same manner as twine about boxes and packages and are much stronger and do not slip off. Even coal is now being delivered in bags made of Kraft paper in place of canvas bags, which had to be emptied and returned, the paper bags being merely burned up with the coal. With a light backing of cloth fibre and a filler to protect against dampness, Kraft paper, called "watershed," is used for covering automobile tires in the place of burlap. "Watershed" paper is also used

for the oversea shipment of dry goods and groceries. Kraft cardboard is used in making dress suit cases. Embossed Kraft paper is used for wall papers, book covers and the covering for fancy boxes.

#### *Imitation Leather.*

Very good imitation leather is made from Kraft paper. Stripped into narrow rolls  $\frac{1}{8}$ " wide it is run through a machine which gums one side. The gummed side is then spread with a fine lint of cotton or linen. These strips are run in a spinning machine and twisted into threads, the cotton and linen fibres protruding as a thin fuzz. These threads are afterwards woven into various fabrics, such as imitation burlap used in wall paper, heavy cloth for upholstering furniture, grain bags, tailors' linings for suits of clothes, cotton and linen towels, webbing, straps for surcingles, etc. By the introduction of colored threads, pleasing designs are worked into the fabrics. It is sometimes stamped in colors in the same manner as cotton cloths. Small twine made of twisted Kraft paper is used in tying up bundles; for weaving into coarse matting; and as a warp for rugs and carpets. Twisted into many strands it is woven into all sizes of rope, particularly laundry and window rope and binder twine for harvesting machines. To add strength it is sometimes spun on a hemp core.

#### *Even Water Pipes.*

By a new patented process our company is now producing paper pipe wound over cores of various diameters and made in various thicknesses, which is thoroughly permeated with a tar compound, forming a strong compact paper pipe, capable of taking a thread and lighter and less expensive and more durable than iron pipe. This is used for various purposes, such as underground conduits for electric wires and for resisting the action of vari-

ous corrosive acids, especially in coal mines.

#### *And Baby Carriages.*

Kraft paper could be easily adapted to the same use discovered by a Japanese during the Russian war who invented a soft, tough and waterproof paper. They also made it into paper sheets which could be folded into a small package and which would keep out dampness. There are other uses for this paper, such as for napkins, handkerchiefs, paper plates, cups, pails and other articles too numerous to mention, but the most surprising use it has been put to is that one-eighth inch strips shellaced and twisted are used in manufacturing articles of furniture in the place of, or in conjunction with, rattan, such as chairs, tables and baby carriages. So that it would appear that there was a profit in changing wood into pulp, making the pulp into paper, and turning the paper back again into wood.

#### *Chloroform and Cloth.*

From these illustrations you may see that the process of the utilization of the by-products during the progress of the tree from the forest to the consumer is carried on at every step in its manufacture, producing such widely different articles as chloroform and cloth, iron pipe and lard, and yet the possibilities inherent in the ingredients of wood have hardly been scratched, when it is borne in mind that in each chemical process nearly one-half of the actual weight of the wood is thrown away as irreclaimably valueless.

Mr. Punch's Charivari in the last number to hand says: "A Berlin professor, lecturing on the use of trees as fodder, stated that experiments have already been made in feeding dogs with beech-wood. It is hoped that in time these intelligent animals will be trained to subsist upon their own bark."



# Forestry and the Future

## Canada Must Wake Up to the Opportunities From Sane Forest Management—Preparedness and Production.

By R. H. Campbell, Director of Forestry.

Two words or ideas have come prominently to the front in discussions of national affairs since the war burst upon us. These words are "preparedness" and "production." In the years before the war and in the first few months of the war we were inclined to think but little of the preparedness, the efficiency, the "Kultur" of Germany, but as the fierce struggle continues in intensity and the strength of the enemy shows no outward sign of waning there has been borne in upon the mind a misgiving whether the British policy of "muddling through" may not be too wasteful and dangerous, and the conviction is forced on us that the triumph of democracy we feel this country is fighting for will have to have infused into it some of the national organization and the efficiency of our chief enemy. And though we hope and pray that this war may be the last of its kind—so terrible, so widespread—and that we may not have to look to a future of warfare and strife among the nations, still, whether in war or peace, the demand for national organization and efficiency will remain if the varying and manifold needs of the future are to be met.

The preparedness of Germany was a preparedness not only on the strictly military side but in industries, in trade, in agriculture and in the management of all her natural resources, including the forests. All of these were developed to a high state of efficiency, they were pushed to larger production by careful man-

agement and use, and the methods of development and utilization were the subject of thorough and scientific investigation.

### *Forests in Europe.*

But what I wish to draw attention to is that the creation and management of forests was an integral part of the programme and that the modern increase in Germany and other European countries in population and industry has meant not the destruction of the forest but an increase of the area under forest and a larger production and better utilization. The attitude of the railway station agent at Niagara, who, when a European coming across from the United States for a few days, asked him for information as to the location of the forests, replied, "This is a civilized country, we have no forests," is perhaps characteristically Canadian and is indicative of our thoughtlessness and immaturity.

The following table shows for the leading European countries the population per square miles and the percentage of the land in forest:

	Population per square mile.	Percentage of land in forest.
Belgium . . . . .	652	18.3
Germany . . . . .	310.4	25.9
Austria . . . . .	247	32.5
Switzerland . . . . .	234.8	22.7
France . . . . .	189.5	18.7
Russia (in Europe) . . . . .	64.6	31.0
Sweden . . . . .	32.4	47.8

Taking Belgium as an example it will be seen that, although the population is 650 to the square mile or

over one person to the acre, as compared with two to the square mile in Canada, though on an area of 11,373 square miles, as compared with 3,729,665 square miles of Canada, a population of 7,423,784 is supported, as compared with a population of 7,206,643 in Canada, 18% of the area of the country is kept in forest.

The conclusion seems clear then that a state densely populated and highly organized agriculturally and industrially, does not show its civilization by destroying the forests but by preserving them and working them into the national economy.

#### *Canadian Forest Products.*

The value of the forests to Canadian industry and development is already large. The report of the last census shows that there were 4,999 establishments engaged in making timber or lumber or in its manufacture, that the capital invested in them was \$260,000,000; that there were 110,000 employees receiving \$39,379,000 in wages, and that the value of the product was \$185,000,000, and this does not include manufactures such as paper, vehicles, boats, agricultural implements and others in which large quantities of wood are used. The export of forest products and manufactures of wood (not including those only partially made of wood) was \$53,344,616. The revenue received by the different governments of Canada directly from the forests during the year 1913 was \$7,433,770.

There is therefore strong reason from the history of older countries and the past and present contribution of the forests to Canadian prosperity, to decide that a policy of preparedness and production should be applied to Canadian forests and to ask how it should be applied.

#### *"Preparedness" for Canada.*

Preparedness implies a knowledge as thorough as possible of what has to be dealt with. For the forest this

involves a system of timber surveys, general at first but steadily increasing in intensity, until the whole field is thoroughly covered. Such surveys will give information as to the total stands of timber, their distribution and their condition, and will show whether they are in general located on agricultural or non-agricultural lands. The information at present available in regard to the timber resources of the Dominion is indefinite and is based on theoretical estimates from very general information. All the governments in Canada are gathering such information, some regularly and on a definite plan, some spasmodically and without any plan, but the work should be pushed forward on some definite scheme in which the Dominion might very well consider assisting in a large measure.

#### *Setting Apart Forest Land.*

Preparedness involves the handling of the forests the general body of which is on non-agricultural lands in a different way from those forests which are on agricultural lands. Wheat and timber cannot be grown on the same land at the same time, nor can they be grown on the same land in alternate years. One or other must yield place, and it seems clearly the duty of the state to decide upon and definitely set apart the lands that are to grow timber, whether they be called forest reserves or simply forests, or whatever name they may be called by, and no agricultural entries for such lands or clearing of such lands for agriculture should be permitted until an official and expert examination decides that the lands can be so more profitably used, and even then they should be opened only under such restrictions as will adequately protect the surrounding timber. The determination of the best economic use of land is of great importance and is something which should not necessarily be settled by lumbermen and foresters alone but in which the co-

operation of the agricultural and soil experts of the departments and colleges of agriculture should be secured.

#### *New Uses for Wood.*

Preparedness involves the development of uses for wood so that they may contribute to the growth of industries using wood, and may assist other industries using its products indirectly. When we have grown a forest we really do not know what we have. We have a product varying in qualities generally known as wood. We have small and uncertain knowledge of its qualities, structure and composition. We have used wood in the condition of wood, or we have separated some of its component substances, but we have not as yet real or thorough knowledge of what we are dealing with. Research must be carried on so that we may market our products with a statement of their qualities guaranteed by the results of scientific investigation; so that the best processes may be followed in our industries, such for instance as that of pulp and paper in which Canada may fairly aspire to first place in the world. The attention given at the present time in America to the use of pine oil, a product of wood distillation, in ore flotation is an indication of the uses which may develop from a more thorough knowledge of our woods and their products. Not the natural richness of the country but scientific research and thorough development of its resources gave Germany the place in industry and commerce which she held before the war and might have continued to hold if she had been content with peaceful development. It was in order to begin the organization of such research work in regard to wood that the Forest Products Laboratories of Canada were established by the Department of the Interior in co-operation with McGill University. It is hoped that the beginning thus made will grow into an impor-

tant auxiliary to the development of the country.

#### *Wood Production.*

Production means the growing of more and larger crops of wood. The experience of older countries and the information obtained from a careful examination of our own should give the necessary indication of how this should be brought about. The timber surveys show that the mature forest bears but a small relation to the forest area in general but that the reproduction in young growth is general and on the whole satisfactory. There is mature timber and to spare for the moment, but the main hope of the future is in the protection of the immature stands that will be merchantable at no distant period. This is a crop already sown and half matured without cost to the country and will be the cheapest crop of timber that will ever be grown here. Protection for this crop must be given if our production is not to fall. There is no thoroughly adequate system of protection yet in force anywhere in Canada, and neither government nor timber owners can afford to stop at the stage which has been reached. Better organization, better equipment, greater efficiency in men, more thorough education of the public must be had if the future is to be secure.

#### *The Duty of Planting.*

Production means the planting of forests. In old settled districts in Ontario, Quebec, and other provinces, and here and there throughout the western prairies are sandy or rocky tracts of land that have been bared of forest, and not now used for agriculture, and which must be replanted with trees if they are to be made productive. Belgium, France, Germany, Scotland, replant such lands at a cost of \$10 to \$20 per acre, and it has paid to do so. Both Quebec and Ontario have begun planting and a beginning has been made in the prairie provinces by the

Dominion Government and though costly it is essential if any crop of wood is to be produced at all on some lands and if we are to do our utmost in wood production. It is to be hoped that we will not so treat our remaining areas of forest that this expensive method will have to be resorted to generally.

Production must be improved by being placed on a permanent basis. The speculative phase that we have passed through and are passing through in Canada was based too much on disregard of the future or on blind optimism. Optimism is good but should be founded on knowledge not on ignorance. When a mill for manufacturing lumber, pulp, paper or whatever it may be is established, when a community grows up dependent on it, it should have behind it the necessary supply of raw material to make it permanent, not only that business may prosper but that homes may be secure. Trade depression can probably not be avoided but every effort, public and private, should be made to see that industries that are established should as far as possible have reasonable expectation of permanency and that every means should be taken to secure the preservation of the supply of raw material necessary for such permanency.

(From a paper delivered before the Canadian Forestry Association Annual Meeting, 1916.)

### Forester for N.B. Firm

The latest lumber company to engage the services of a professional forester is J. B. Snowball & Co., Ltd., Chatham, N.B. This company has employed Mr. J. R. Gareau, a graduate of the Quebec Forest School, Laval University, to have general supervision over the woods operations on the company's limits. He will also make a map and timber estimate of these limits, as well as enforce close utilization of all merchantable material. Cutting operations will be regulated with a view to ensuring the perpetuation of the forest, and particular attention will be paid to fire protection. Other companies in eastern Canada employing professional foresters are the Laurentide Company, the Rior-dan Pulp and Paper Company, the New Brunswick Railway Company, and the Canadian Pacific Railway.

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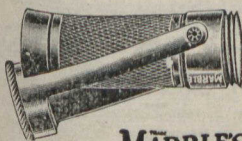
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*Forest News and Photos*

The Editor of the Journal requests members of the Association to send in interesting items or short articles dealing with any phase of forest conservation. Good pictures are also of importance.

The Journal is the common property of the membership and aims to represent all sections of Canada and to discuss a wide variety of topics. The practical co-operation of the members in the work of securing good material is growing rapidly.



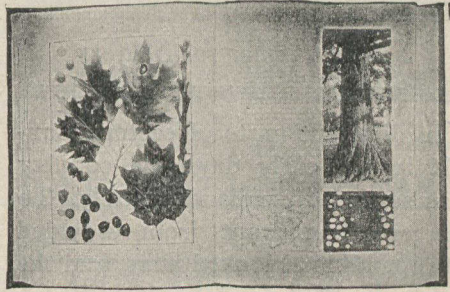
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**AMERICAN WOODS**

By Romeyn B. Hough.

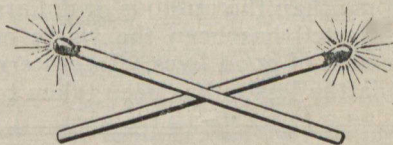
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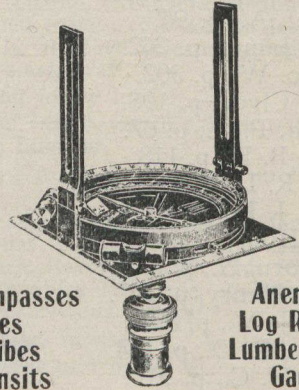
### Saving Timber for Settlers

In different parts of eastern Canada in the early days the country was settled up indiscriminately. To the poor immigrant from crowded Europe all land looked alike, and the result was that much land not fit for agriculture was cleared. After working this land for perhaps two generations it became so poor as to be utterly useless and the family have had to remove to other land. Unfortunately in the meantime all the good land had been taken up, and, as the people on the poor land were practically driven off through poverty, they had no money to buy good farms and, consequently, became hewers of wood and drawers of water to the rest of the community. Sentimentally the scenes in the abandonment of these poor lands were and are very pathetic, while economically the Dominion of Canada has lost the labors of two and perhaps three generations wasted in rocky, sandy hill-sides; which labor if expended on good land would have made the workers well-to-do and would have produced abundance of real wealth to feed and clothe the community.

Worse than the millions of dollars thus wasted has been the waste of thousands of good lives. In eastern Canada the lesson has been taken to

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heart and settlement is now being directed into fertile areas, while the unproductive lands are being got back into forests.

In western Canada the effort is to profit by this knowledge and to avoid the mistakes of the past. Once people were ashamed of admitting that there was any forest land in their district. Now they realize that to have a good piece of virgin timber, which is being properly protected as it is being cut, is to have something like a perpetual gold mine.—(Edmonton Journal).



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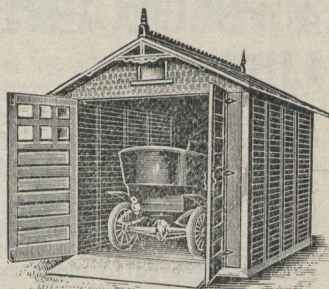
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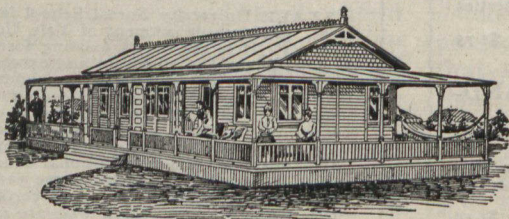
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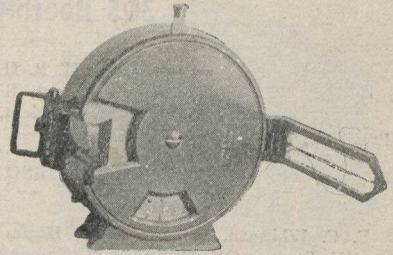
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