Canadian Forestry Association: Report.
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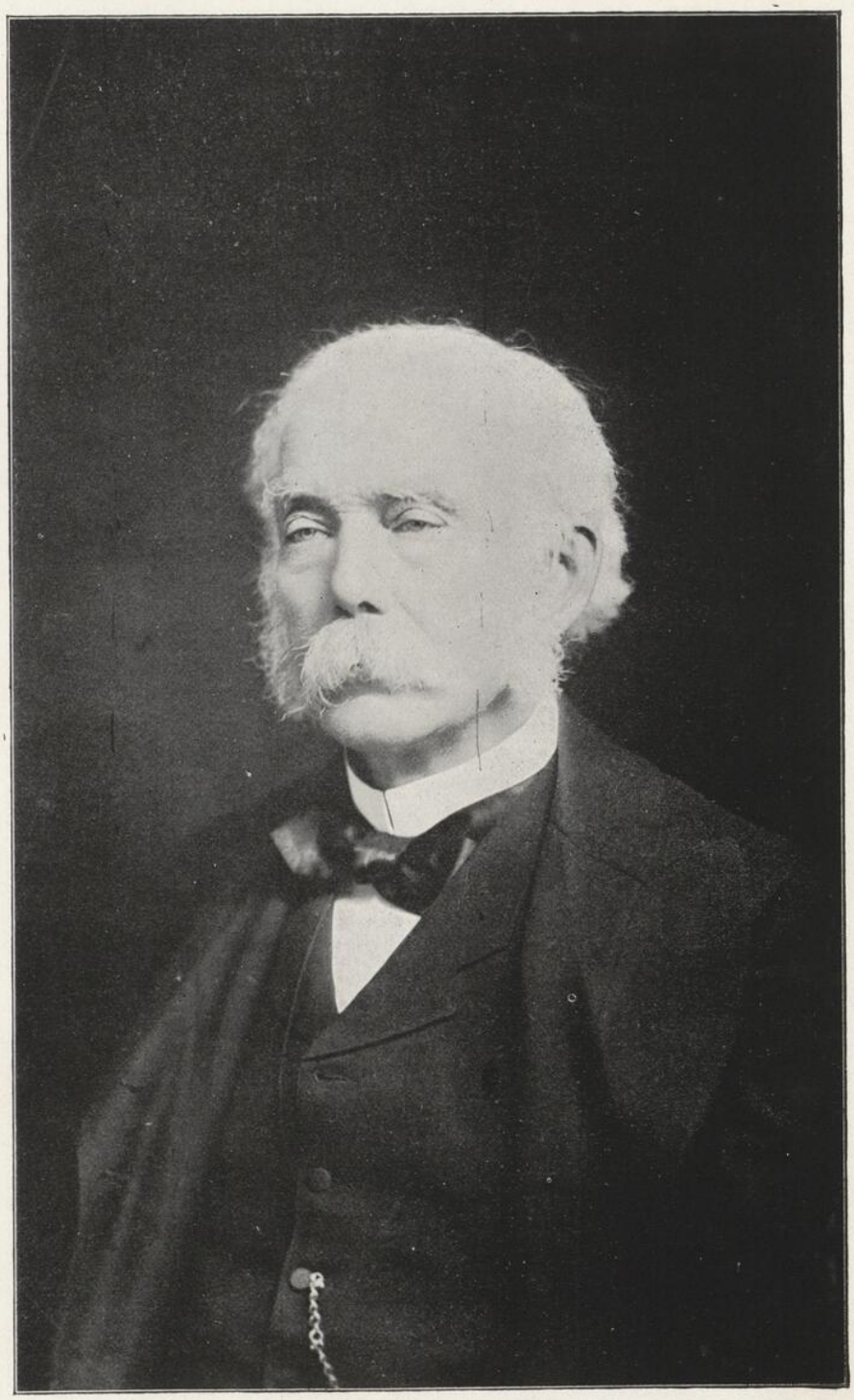

HIS HONOUR SIR HENRI JOLY DE LOTBINIÈRE, K.C.M.G.
Honorary President of the Canadian Forestry Association.

offset by windfall. Then we believe that in the future better stumpage can be had on the smaller classes of timber. But certain of its tracts the Berlin Mills Company cuts as closely as any one can cut, and if ever in the future the question comes up whether to shrink the volume of manufacture or to maintain it for a time longer by cutting the lands down to the lowest practicable point, that will be a new question to decide. Speaking for myself and as a forester, I feel like felicitating you Canadians on having retained so much of the timber land of Canada under government control.

Dr. FLETCHER—The specimens sent by Mr. Cary illustrate the manner in which destructive insects operate in the spruce and pine forests. The first is the bark beetle, which attacks trees after they are injured by fire or bruises, or put under conditions not most advantageous to them. For instance, the spruce trees in a thick grove are seldom injured by these insects, but once there is an opening made, they attack the trees, and the yellowing of the leaves is the first indication of their operation. In New Brunswick large areas first showed a yellowish tinge, and then a rusty, and it was found that the beetle was at work in apparently healthy trees. They were apparently, but not actually, healthy. The first indication that something is wrong with the spruce tree is the presence of the spruce bark beetle beneath the bark. Another specimen shows the work of another beetle which operates in the same way, but with the difference that there is a mating chamber where the eggs are laid. The bark beetles work not only in the bark, but immediately under it. There is another beetle which eats a hole into the wood and in that burrow cultivates mushrooms, on which it feeds. The habit has only been found out recently, though the insect has been known for years. The discoloration of the wood in this specimen shows that the holes have been used for a long time, probably a year. There is a borer, the round-headed borer, which sinks its burrows right into the wood, and the grub bores into the heart of the tree. The two large borers, the long-horned borers, directly the tree is injured by fire or by abrasion of the bark, lay their eggs in the opening and the grub hatches and for a few months feeds under the bark. Later it bores into the heart of the tree, and by the next spring it has gone through a big pine tree three or four feet in diameter. It comes out in the spring at the breeding season, and the same process is repeated. There is a hymenopterous insect, belonging to the same family as the bees and wasps, which destroys these beetles. There is also a small insect with two white stripes which destroys the timber. I have mentioned the small bark beetle which is so very numerous in New Brunswick and the province of Quebec. The usual treatment is to cut the timber as soon as it is found to be affected. Much of it could be saved that way, but it frequently means a large expenditure. Some years ago in the Upper Ottawa timber limits, after a fire, it became necessary for our lumbermen to cut a great deal of timber in a year in which they would rather not have done so, but it was the best policy, because if they had left it until the next winter it would have been destroyed. I find in the pamphlets sent by Mr. Cary reference made to the saving of tracts of timber in that way. By knowing the nature of those insects, and what their habits are, the danger of leaving timber that has been attacked is understood better, and great saving may be made by knowing that it is not safe to leave the timber over the winter. In the case I mention, our Ottawa lumbermen cut a great deal of timber that otherwise they would have left, and had they not done so, there would have been an enormous loss, because the borers would have destroyed, or greatly diminished, the value of the timber.

The CHAIRMAN—Before proceeding to a further discussion of those papers, I would call upon Mr. Joly to read his paper, and then the three papers can be discussed together.

THE DANGER THREATENING THE CROWN LANDS FORESTS OF THE PROVINCE OF QUEBEC THROUGH THE CUTTING OF PULP WOOD AS AT PRESENT SANCTIONED BY THE REGULATIONS CONCERNING 'WOODS AND FORESTS.'

By E. G. Joly de Lotbinière, Quebec, P.Q.

Mr. Chairman and Gentlemen,—I feel convinced that all those who have given the subject serious consideration will agree with me that the manufacture of pulp wood on our Crown Lands, as at present sanctioned by the Regulations concerning Woods and Forests, constitutes a serious menace to the continuous supply of timber from that source.

It is also a matter of notoriety that the revenue derived from our Crown Lands is by far the most valuable of our provincial assets, and consequently, all those who have at heart the prosperity and welfare of our province, should unite their efforts towards securing such legislation as will safeguard our most important heritage, and so secure for future generations the same advantages we now enjoy.

The great and steadily growing expansion of the pulpwood industry renders it imperative to draw public attention to the condition of things which now prevails in the province, in so far as pulp wood making on the Crown Lands is concerned.

Let me assure my hearers that I fully recognize the importance of this great industry to the province. We have an enormous supply of the raw material on our Crown Lands, and it is but right that it should be turned to profit, but, in doing so, should not every possible care that science and experience can dictate be taken to preserve our forests for future generations, for whom we but hold them in trust.

When one takes into consideration the enormous area of forest land destroyed every year by fire, the extensive and much to be deplored waste of forest land, absolutely unfit for cultivation, which is going on under the specious pretext of colonization, as well as the inroads of the lumbermen, doubly dangerous nowadays, when the manufacture of pulp wood has given him an incentive to cut timber which a few years ago would not have paid the cost of production, it is manifestly our duty to give the subject of 'forest preservation' our most serious consideration, and not allow ourselves to be lulled into fancied security as to the inexhaustible condition of our forest wealth.

And now comes the question: Do the existing Rules and Regulations affecting 'Woods and Forests,' of the Department of Lands, Mines and Fisheries of the province of Quebec afford such necessary protection to our forest lands as will guarantee, for the future, a continuous and inexhaustible supply of timber fit for pulpwood.

In my humble estimation they do not, for I consider that license holders are permitted to cut spruce and other timber fit for pulpwood at too low a standard.

Denuded or depleted tracts of forest land can be restored in two ways, either by 'artificial reforestation' or 'natural renewal.' I do not propose to deal with the first method, though it is of vital importance at the present moment in certain treeless sections of the country, such as, for instance, the prairie lands of Manitoba and the Northwest Territories and no doubt in many sections nearer home. It is gratifying to see that the Federal government appreciates this fact, and that the Department of the Interior is prepared to assist farmers and others residing in the above sections in the growing of forest plantations and shelter belts. One notices with pleasure that the local government has also taken the matter up, and that it offers certain inducements to proprietors and those in possession of land, to encourage them to utilize the unproductive portions of their properties, by planting forest trees. The day will come, and perhaps sooner than we expect, when 'artificial reforestation' will have to be resorted to on our Crown Lands, but, for the present, 'natural renewal,' if nature is only permitted to do her work, should be sufficient to ensure us a lasting supply of timber for all purposes.

Now to assist 'natural renewal,' to allow nature to repair the ravages of man, what is necessary?

The answer to me seems evident.

Stringent regulations should be made and strictly enforced by the Department of Crown Lands, so that a sufficient crop of young timber of proper dimensions be left on a tract, to replace that which has been removed, and sufficient time should be given such timber to attain a proper growth before the limit holder be permitted to take off a new crop.

Now what are our Crown Land Regulations as to the cutting of white spruce and other timber fit for pulp wood?

Paragraph 12 of the Regulations concerning 'Woods and Forests' for the province of Quebec is as follows:—

'Licentiates are forbidden to cut on Crown Lands pine trees measuring less than 12 inches in diameter; spruce trees less than 11 inches in diameter; and trees of other descriptions measuring less than 9 inches at the stump; but they are permitted to cut black spruce, balsam, poplar, hemlock and other small timber intended for the manufacture of paper pulp at a diameter of 7 inches at the stump.'

The idea is generally prevalent that a tract of timber land, denuded of timber, such as license holders are allowed to cut, renews itself naturally in from 15 to 20 years at the outside.

Let us for instance take a tract of land where all the white spruce has been cut at 11 inches on the stump (such a tract, where pulp wood making has been going on would, I fancy, be hard to find, for I question whether the lumberman pays much attention to the diameter restriction in such a case) the tamarack, black spruce, aspen, hemlock and balsam at 7 inches on the stump. We will, however, suppose that what remains of the above mentioned varieties average, for the white spruce, 10 inches and less, tamarack, black spruce, aspen, hemlock and balsam 6 inches and less, now, would this tract under the best of conditions be able to stand another crop in 15 or 20 years, if spared by fire and wind?

Professor Fernow, at one time Chief of the Bureau of Forestry at Washington, and now Director of the New York State College of Forestry, whose opinion carries the greatest weight, gives me his views on this question, as follows:

'The idea of "renewal" in 15 to 20 years, where the cut is down to 7 inches, is ridiculous. What is meant is, that after 15 or 20 years some and enough of the left over trees will have attained a diameter which it pays to cut. This was perhaps true under some conditions, when the diameter to which the cut was made did not go below 12 inches, but even then it was not renewal. It stands to reason where spruce is culled and hard wood left, it is hard wood that renews and not spruce. Your government, having control of the forest, should certainly limit the diameter to which trees may be cut, but the size must be variable according to local conditions, for even 9 inch trees would not stand up under the winds, if left standing singly without the support of neighbours. The time is ripe for something better than diameter restrictions.'

It is, of course, a well-known fact that where a crowded stand of timber has been judiciously thinned, the trees that remain grow more rapidly than they did before; as the survivors have a greater amount of nourishing material at their disposal; the sun's rays reach the smaller timber; the circulation of the air is better, and the tree has more room to spread its roots and branches; consequently, trees in a virgin forest are of slower growth than those on tracts that have been cut over with discrimination.

Henry S. Graves, in his work on 'Practical Forestry in the Adirondacks,' has come to the conclusion, after most careful study and investigation, that it takes an average of nine years for spruce to grow one inch in diameter on lands that have not been cut over, and seven for timber on 'cut over' lands.

No hard and fast rule can be laid down for the growth of spruce in our province, as our forests cover such a vast area that the conditions of soil, site and climate are necessarily most varied. As a natural result, the growth of timber cannot be absolutely uniform in all sections.

The differences in the rates of growth, however, are not likely to be such that a fair general estimate may not be arrived at by selecting a centre for one's observations where

spruce is generally conceded to thrive well. I consider the seigniory of Lotbinière such a centre and my observations have been made there. The fact that we have steadily cut spruce on this property for the last half century, and that we hope to continue doing so for many years to come (with due regard to the principles of 'natural renewal') should be accepted as a proof that I have selected a favourable section of country for my observations.

I lately measured 100 white spruce (*Abies alba*) in order to find the number of years required to grow one inch with the following results :—

1	grew 1 inch in	4	years.	23	grew 1 inch in	9	years.
1	"	5	"	18	"	10	"
8	"	6	"	8	"	11	"
12	"	7	"	4	"	12	"
24	"	8	"	1	"	13	"

The average rate of growth of these 100 trees to gain 1 inch diameter would therefore be 8 years.

Leaving average growth aside and taking individual growths, it would follow from the above, that on a tract from which all the 11 inch spruce had been removed, a tree 10 inches on the stump, growing 1 inch in 6 years would take 18 years to attain 13 inches diameter.

One growing 1 inch in	7	years would take	21	years.	
" "	8	"	24	"	
" "	9	"	27	"	
" "	10	"	30	"	
" "	11	"	33	"	
" "	12	"	36	"	
" "	13	"	39	"	

Taking for granted that the above statements as to the growth of spruce are fairly correct, it will be readily admitted that the regulation allowing spruce to be cut at 11 inches on the stump is most hostile to the scheme of 'natural reforestation,' as at least 65 per cent of our spruce takes from 8 to 10 years to grow 1 inch in diameter.

The cutting of spruce should therefore be absolutely prohibited under 13 inches on the stump.

A spruce cut at 11 inches diameter on the stump, if converted into logs 12 feet long, would give two logs, the first having a diameter of 9 and in some cases 9½ inches at the small or culling end, the second a diameter of 7 inches. These two logs would together contain, according to the table of contents of saw logs, upon which the Crown Lands collect their dues, 52 feet B. M. A tree cut at 13 inches diameter on the stump, made into logs 12 feet long, would also give two logs, the first of 11, and the second of 9 to 9½ inches diameter, at the small end. These two logs, according to the tables I have already alluded to, would give together 84 feet B. M., or 32 feet more than the contents of a tree cut at 11 inches on the stump.

Logs 9 and 7 inches in diameter are hardly the kind a mill owner hankers after for sawing into deals and boards, and, as a result, a large percentage of this small timber is cut into pulpwood. On the other hand, a tree felled at 13 inches on the stump gives at least 1 fair sized log of 11, and a second of 9 inches. The 11 inch log is suited for deals and boards, and the 9 inch, should it pay better, can be converted into pulp wood. The benefit to our Crown Lands of a change in the felling diameter of spruce from 11 inches to 13 inches on the stump is so manifest that it is needless to insist any further on the subject.

Black Spruce (*Abies nigra*).—This tree, which is generally considered the most valuable for pulp and paper making, hardly ever attains a large size in the province of Quebec. A tree from 10 to 12 inches diameter on the stump is a rarity. Its growth is also very slow, taking an average of about 15 years to grow 1 inch in diameter. Under the circumstances, the diameter at which it may be felled, 7 inches, is not too low, were

it not for the difficulty, when piled and corded, of distinguishing white from black spruce, and, consequently, the opportunity afforded unscrupulous pulp wood makers to cut white spruce below the government's restriction of 11 inches.

TAMARACK (*Larix Americana*).—Under favourable conditions, that is, when found on slightly elevated ground and not in swamps, the growth of tamarack is about equal to that of white spruce, and the tree attains a very large size. When found in the vicinity of swamps and low damp soil, its growth is exceedingly slow, and the tree never attains a large size.

I have measured tamarack found on moderately elevated ground that grew as much as 1 inch in dia. in 6 years. The swamp tamarack takes from 20 to 24 years to grow 1 inch.

I regret to say, that as far as tamarack is concerned, the government might as well withdraw all diameter restrictions for this valuable wood (alas! that its commercial value was not appreciated sooner), in most sections of the province is now dead or dying, and is found in various stages of decay, due to the persistent ravages for many years past of the 'saw fly grub.'

Under the circumstances all tamarack which may yet be fit for any industrial or domestic purpose, should be made use of irrespective of any dia. restrictions.

HEMLOCK (*Abies Canadensis*).—It is generally conceded that hemlock, when properly and economically worked, is as valuable as white spruce. It is one of our few forest trees that can be thoroughly utilized, horns, hoof and hide. The bark commands as a rule, a high price; the boards and deals find a ready market at remunerative figures; ties are made from that part of the tree unfit for logs, and cordwood from log buttings whenever the rate of transport to the nearest market allows a margin of profit. And yet our Crown Lands Regulations allow the felling of this valuable timber at a diameter of 7 inches on the stump, classifying it (one of our largest forest growths) among the 'small timber' intended for the manufacture of paper pulp.

The measurement of 25 hemlock trees gave the following result:—

No. of trees.							
1	grew 1 inch in	7	years.	3	grew 1 inch in	12	years.
1	"	8	"	5	"	13	"
1	"	9	"	5	"	14	"
3	"	10	"	1	"	15	"
4	"	11	"	1	"	19	"

From the above measurements the average growth of hemlock would be 1 inch dia. in 12 years.

A 7 inch felling restriction for hemlock is ridiculous, as a tree at that diameter cannot yield sufficient bark to pay the peeling, let alone the handling, loading, freight and other expenses. The timber is not fit for logs or ties, and could only be utilized for pulp wood. The marketable value of this tree, when of sufficient size, at least 13 inches on the stump, entitles it to the same measure of protection as that which should be afforded white spruce.

BALSAM (*Abies balsamea*).—Among pulp woods balsam comes next in value to spruce. Under favourable conditions it takes from 5 to 7 years to gain 1 inch in dia. Notwithstanding its satisfactory growth, the cut should be limited to 9 inches on the stump. Were this wood only fit for pulp, measures should be taken to assure a continuous supply, by increasing the diameter at which it might be felled, but apart from its value for pulp manufacture, balsam logs, fit to be cut into boards, deals and other merchantable timber, command a price on the market equal to that of white spruce.

ASPEN AND POPLAR.—Aspen and poplar, under favourable conditions are of rapid growth and take but from 4 to 5 years to grow 1 inch in diameter. I measured an aspen, 24½ inches dia., which only took 55 years to attain this respectable size. Were it not for the damage resulting to contiguous growths by felling large timber and only leaving unprotected pole wood, which falls an easy victim to the winds, no great objec-

tion could be found to cutting aspen and poplar 7 inches on the stump, but for the protection afforded the young growth, aspen and poplar should not be cut at a smaller dia. than balsam, viz.: 9 inches.

The result of my investigations, such as they are, lead me to conclude that if we are to secure a continuous supply of pulpwood, and at the same time give our forests a proper measure of protection so as to permit of 'natural renewal,' paragraph 12 of the Regulations concerning 'Woods and Forests,' should be amended by prohibiting the felling of white spruce and hemlock under 13 inches and that of black spruce, balsam, aspen and poplar under 9 inches on the stump. Tamarack, whenever it is dead, dying or suffering from the ravages of the 'saw fly grub' should be cut irrespective of any diameter restrictions.

If, however, I am wrong in my views as to the time necessary for a forest to recover from the ravages caused by the ill-regulated cutting of pulp-wood, if a forest after 20 years can offer the lumberman a second crop of a remunerative nature, well, let us be thankful; but, on one point, which I now wish to mention, I confidently expect to have the support of all those who take an interest in the developments of our forest resources, and that is, 'the absolute prohibition of the export of pulpwood, in its raw or unmanufactured state.'

If nature has supplied us with a vast quantity of this valuable wood, infinitely more than we need, or may ever need, for our own use, by all means let us dispose of our surplus; but in doing so, let those who need it come to the province of Quebec to get it. Let them purchase their limits, erect their mills and manufacture the raw material here. Their millions should be spent on Canadian soil. By adopting such a policy, we will, at least, derive the largest possible benefit from the impoverishment of the provincial domain. We have a right as Canadians and inhabitants of the province of Quebec, to protest in every legitimate way open to us against the export of our pulp wood; nay, more, it is our duty to do so, and we should never rest satisfied until the manufacture of our raw material takes place on our own soil.

On January 18, 1900, the government woke up to the fact that measures should be taken to check the export of our pulpwood, and a charge of $1.90 per cord was imposed on all stuff destined for export. Had this wise provision been adhered to, foreign capital, to a very large extent, would have been already invested in the province, and thousands of Canadians now earning a living in the United States would have returned to their homes with the assurance of finding constant and remunerative employment in their own country. But it was not to be. The government's wise and conservative policy was evidently regarded with disfavour by parties possessing large political influence. The welfare of the province had to give way to private interests, for on June 1, 1901, the charge was reduced from $1.90 to its present rate of 65c., which is hardly of a nature to discourage export.

Ontario has been far wiser than Quebec in the management of its pulp wood lands. In 1900, upon the report of the Honourable Commissioner of Crown Lands for Ontario, an Order in Council was passed absolutely prohibiting the export of pulp wood cut on the lands of the Crown. From the 30th day of April, 1900, every license or permit to cut spruce or other soft wood suitable for manufacturing pulp or paper on the Crown lands, was issued, subject to the condition that all such timber be manufactured in Canada, into merchantable pulp or paper, or into sawn lumber, woodenware, utensils, or other articles of commerce or merchandise, as distinguished from the said spruce or other timber in its raw or unmanufactured state.

As a result of this wise restriction, several large American companies have already taken up Crown pulp lands, and have spent vast sums in the erection and working of their mills.

The province of British Columbia has also been wise enough to insert the following clause in all timber leases of Crown lands:

'Provided further, that all timber cut from the said land must be manufactured within the confines of the province of British Columbia; otherwise the timber so cut may be seized and forfeited to the Crown, and the lease cancelled.'

Why should not Quebec be able to do what Ontario and British Columbia have done?

This question is one of importance, not only to the province of Quebec, but to the whole of Canada, and the earnest efforts of this association and of all those who take an interest in the prosperity of the country should be directed towards opening the eyes of our provincial government to the advantages which will accrue, not only to the Provincial exchequer, but also to the working and industrial classes at large, by the absolute prohibition of the export of our pulp wood in its unmanufactured state.

This much needed reform could be brought about by the insertion in all timber licenses and permits of a clause forbidding the export of pulp wood, or by raising the dues on wood for export to a practically prohibitive figure. Should the province of Quebec refuse to take action in the matter, pressure should be brought to bear on the federal government, to impose an export duty on the unmanufactured article of such a nature as would render the export impossible. Efforts, I am aware, have already been made in this direction, so far without success, but that is no reason why the agitation should not be continued and more earnestly than ever, until the desired end is secured.

I have translated into English a letter written by my father in 1894, on the pulp wood industry. My father at that time was completely opposed to the cutting of pulp wood on the Crown Lands. Since then his views have become somewhat modified, for the cutting of pulp wood on proper economic and scientific principles need not necessarily endanger the existence of a forest to any greater extent than would any other form of lumbering. May I be permitted to read a portion of this letter, which bears directly on the subject I have the honour to address you on to-night:

QUEBEC, November 17, 1894.

TO ERNEST PACAUD, Esq.,
Proprietor of *l'Electeur*, Quebec.

MY DEAR SIR,—I have just read in yesterday's edition of *l'Electeur* an article on the pulpwood industry, in which you give extracts from a most interesting letter written by Mr. J. H. Lefebvre.

He speaks of the advantages which will accrue to the settlers from the establishment of pulp mills in the regions lately thrown open to colonization, as the settler now, when clearing lands, after taking off all timber fit for logs, is obliged, in order to prepare his land for cultivation, to burn all small spruce and balsam, whilst, should a pulp mill be in his vicinity, he could sell such timber, as pulpwood, at a profit.

I strongly approve this project, provided the lands thrown open to colonization, by the government are really fit for agriculture, and not as too often has been the case in the past, poor and sterile lands, whose value consists chiefly in the timber which they may produce, lands which settlers are compelled to abandon after having wasted on them, all to no purpose, the best and most precious years of their lives.

But what I really object to is that the government should allow the cutting of pulp wood on the Crown Lands. Our forests are our principal source of revenue, apart from the annual subsidy that the province receives from the federal government.

By destroying the young trees, which in a few years would replace the mature wood fit for log making, one condemns a forest to a speedy death, just as a nation would be swept out of existence if every child that was born was done away with whilst in its infancy.

If, at least, the country derived from this pulp wood all the profit that it should—were the pulp manufactured in Canada, it would be but half an evil, but the greater part being exported to the States, to be there converted into pulp, Canada not only loses the legitimate profit she should make by manufacturing it at home, but our working population, from lack of employment in Canada, has to go to the States to find work there in the American pulp manufactories and other branches of industry.

The provincial government appeared to appreciate this fact, when, this summer, an Order in Council was passed increasing the stumpage on pulp wood on Crown Lands when not manufactured in the province. Unhappily after a few weeks the government, giving way no doubt to the pressure brought to bear against it by the pulp wood exporters, cancelled this Order in Council.

If England, instead of working her own coal and iron mines that providence has so liberally endowed her with, had invited the nations of Europe to come and work them for her, and carry off the raw material to be used and manufactured in their own country, she would have acted with as much madness as Canada is now doing by permitting our neighbours to cut and carry away our forest wealth ; to grow rich at our expense, manufacturing it at home, with the aid of our fellow-countrymen, who are obliged to exile themselves so as to find a living in a foreign land, &c., &c.

Believe me, sir,

Your devoted servant,

H. G. JOLY DE LOTBINIERE.

In conclusion I wish to draw the attention of this association to the thoroughly unreliable data furnished the public by the provincial government as to the quantity of pulp wood manufactured annually on the Crown Lands.

It would appear by the annual statement of spruce and pulp wood manufactured on Crown Lands that in

1895—213,237,200 ft. B.M. spruce were cut and 7,111$\frac{7}{16}$ cords pulp wood.
1896—270,156,800 ft. B.M. spruce were cut and 11,778$\frac{3}{4}$ cords pulp wood.
1897—276,482,200 ft. B.M. spruce were cut and 4,015 cords pulp wood.
1898—371,628,571 ft. B.M. spruce were cut and 4,451$\frac{1}{2}$ cords pulp wood.
1899—303,393,832 ft. B.M. spruce were cut and 3,806$\frac{3}{8}$ cords pulp wood.
1900—308,914,039 ft. B.M. spruce were cut and 6,926 cords pulp wood.

Now these returns are clearly erroneous, as far as pulp wood is concerned, and there is but one rational explanation of these misleading and insufficient statements.

The department evidently only keeps account of whatever timber is made into pulp wood on or near the spot where it was cut, piled and measured. All spruce and other wood destined for pulp, which is floated to the mills in logs, and there cut into pulp wood, is completely left out of its calculations. This condition of things should be remedied at once, for not only the Department of Lands and Forests, but the public as well, should be in a position to know how many cords of pulp wood are annually made on the Crown Lands, how many find their way to foreign markets, and how many are manufactured at home.

The government should take the necessary steps to oblige limit holders to declare what proportion of their cut was converted into pulp wood, what used at home and what exported. In no other way can a true and accurate account be kept of the annual cut of pulp wood on our Crown Lands.

The CHAIRMAN—The whole question of the three papers is open for discussion.

Mr. DRUMMOND—I think we can all congratulate ourselves that the papers read this afternoon have been eminently practical. Mr. Joly and Mr. McGibbon have brought before us one principle which I think should be of intense interest to us, and one which, it has occurred to me, has been neglected for many years. Of course, in the earlier days of the country, when there was very little capital here, it was possible to view without any anxiety the raw material going to the lake ports and over to the United States or being taken down to Montreal and Quebec, and exported to Great Britain. But it seems to me that day has gone by long ago. Here we have been adopting a policy for some years which has been apparently of great interest, of trying to get the back country opened up. For what purpose? To bring in raw material to pass through these towns. Bonuses are given to railways, and what is the result? If the raw material were brought to these towns to be manufactured, and the profit which we at present give to our neighbours on the other side remained with us, then there might be no objection. But these raw materials, pulp wood, and so on, were simply brought to a

frontier town, put on vessels and carried to the United States. Of course we boasted that this material was passing through these places, but what good did it do? It did no good, except the little handling putting it on board the ship. I have spoken against this time and again and it appears to me that we have been viewing the matter in a wrong way, but I am glad that Mr. Joly and Mr. McGibbon have put the matter in regard to pulp wood in such a way that we should have these large profits which Mr. McGibbon estimates as the difference between three dollars and a-half in the one case and forty dollars in the other, that were actually given away—that we should have this thirty-seven dollars which we could give our merchants, but which goes elsewhere, simply because we do not make an effort to manufacture the raw material into articles that would produce these profits. It applies not only to pulp wood, but to all the raw materials of Canada. I think it is time if the country is becoming richer, as our bank deposits in the last few years indicate, that we might put a little of our capital into these enterprises, and retain a little of the profit which we have been handing to the manufacturers on the other side. I speak with due regard to Dr. Fernow, and I think he will be glad to know that a principle which has been adopted so universally on the other side, will be adopted, to some extent, here.

Mr. Cary brings another matter to my mind, which I will refer to. He says he is a trained forester, employed by one of the pulp companies in Maine. That is one of the things we need in connection with forestry. In the past in this country we have been looking at the forestry question very much from a theoretical point of view, but it is time we should look at it from a practical point of view. How can we utilize our great resources here in such a way that they will be not merely a source of present revenue to the government and present profit to ourselves, but will be a source of profit for all time to come? It strikes me that that is one of the matters that we might take up in this country. The time is coming, and coming soon, when every large lumberman, every pulp manufacturer, every large company engaged in any enterprise connected with this lumbering or pulp manufacture, will require to have a trained forester as one of the employees of the company, who is considered a necessary part of the equipment of the company, one of those men who will look after all their forest preserves, to see that the lumber is cut in the proper method, that every saving that can be made shall be made, and that all the interests that we for years have been fighting for in the matter of forestry shall be looked after. It seems to me it is a question which every man in that line should find extremely profitable. I am not without hope that the matter may be taken up by at least one of our colleges. It has been discussed, and I hope our friend Dr. Fernow, who has been the pioneer in taking up the matter, will find in another year that we have been following in his footsteps, and at least trying to conduct the operations efficiently here.

There is one other suggestion I have to make, and it is in connection with the value of our goods. It is merely a suggestion, because I cannot say that I have gone into the question in such a way that it affords me any proof that it is so. The matter was first drawn to my attention by the fact that in one place, one of the woods, poplar, which has been regarded down here for all time past as a poor indifferent wood, excepting that it has been used for pulp wood, has been found up in the North-west—at least, so far as I have been able to make inquiries—to be of a better quality apparently arising from climatic conditions there. Then again, we know that the Manitoba wheat is of superior quality, owing to the climatic condition. I refer to our No. 1 hard. Then the melons produced here are highly esteemed, on account of the climatic conditions, and the hotel

keepers to the south get them and demand them in preference to their own, and in the case of fruits too, our own apples, on account of climatic conditions, are of a superior kind. So that it occurs to me that probably our lumbermen could, on investigation, find that in the actual use of our different kinds of woods, they are really of a better quality than those grown to the south of us, those conditions to which I have referred having the effect of producing a better quality of wood. This is merely a suggestion, but it seems to me it will be found to be true. Those who are actually in the business of making furniture, for instance, and all those other uses to which wood is put, will be much more able than I am to have opportunities of testing that. It is merely a sugges tion that I offer as worth investigation.

Mr. THOS. SOUTHWORTH—We should all like to hear Dr. Fernow.

Dr. FERNOW—I am grateful to the association for having such confidence in me—more confidence apparently than my people at home. I should like also to express my gratification at hearing so much good, practical common sense. I have been attending forestry meetings for twenty years; I have not had a year without one, and sometimes half a dozen, and I have not attended one at which I have heard so much good, common sense and practical issues, as it were, with none of that sentimentalism in the air, none without a definite point. That feature has struck me, both in the forenoon and afternoon sessions, and I hope that by saying so it will encourage gentlemen to stand by the practical questions that are involved, and let the sentimentalism be taken care of by the ladies.

United States forestry at the present time suffers from sentimentalism, especially in our little practical beginning in the Adirondacks. We find now that we are expected not only not to cut down to given distances, but not to cut trees at all. Why? If the foresters cut the trees down at all we will not have any trees!

As a good American citizen, I hope that Messrs. Joly and McGibbon will not press the matter which has been referred to, but as a cosmopolitan philosopher, and as a simple student of political economy, I think there can hardly be two sides to the question. It is one of those things which has always struck me as one of the most remarkable pieces of—

Professor MACOUN—Stupidity.

Dr. FERNOW—Is that the name for it? My command of the English language is not always ready. Of course, no country will be so foolish as to export the raw material with which to carry on its manufactures. Mr. Johnson showed me this morning that Germany is importing sixty million dollars of wood material over and above its exports, which proves, first of all, that they do not have forest land enough, in spite of all their conservative management. The population has been growing, and so have the imports been growing. We want, however, to look not only at the amounts imported and exported, but we must consider what they mean. Do not count the hogs and dogs alike, but find out what the value of each is. I have no memory for figures to state precise data, but if you examine the character and value of these exports and imports you will find that the wood that the Germans export and the wood materials manufactured, translated into cubic feet of wood—and their statistics show them in that way—is worth two or three times as much per cubic foot as what they import. In other words, they export the manufactured article to which they have applied their skill and

their capital in making it into useful articles, and they import the raw material, because the other nations are like the province of Quebec—

Mr. GEORGE JOHNSON—These sixty millions are an overplus, over and above the exports.

Dr. FERNOW—I understand.

Mr. GEORGE JOHNSON—The manufactured articles exported are included in the exports, and still there is an overplus of sixty millions.

Dr. FERNOW—But the point is that the exports are made up of things into which they have put value by skill and labour, and the imports raw material—the less valuable article.

I did not know that Mr. Joly would use my letter, and I evidently must be careful in future as to what I write, because I have been quoted twice from letters which I dictated off-hand to a stenographer, not thinking they would be used in that form. What I wanted to impress upon Mr. Joly is that a diameter limitation is merely a makeshift for something better, and I wanted to caution him against accepting any such limit as a real forestry measure; it cannot produce what you want to produce, namely, a new stock of timber—it is not silviculture. When a lumberman says that the reproduction is such that in twenty years he can go back, he means that in twenty years some of the trees which he did not cut have grown up, but the young crop that starts without a diameter may not be there; the diameter limit does not assure any reproduction of young seedlings.

It may interest you to know how we have gone to work on our college tract. We cut timber, because we are harvesters as well as planters. We reap as well as secure a new crop. We know the various methods that might be employed to secure this new crop, not the additional diameter growth of the trees we found already on the ground planted by nature, but a new crop which is to secure the succession. One method is to secure the young crop from seed fallen from the old crop. When you are operating in mixed woods you can see that in this method the new crop is beyond your control to a very large extent. You find that the very kind of trees which you do not want to reproduce are the ones that sow their seed. Nature seems to take a delight in reproducing weed trees rather than the good trees. This is especially so where the valuable species are in the minority. So that finally I have come to the conclusion that where we have culled woods—that is, the good species already taken out—we would prefer, if financially able, to cut away the entire old crop and replant; when we know exactly how many trees we set per acre, and we know what we reproduce. We do not yet practice this method, but we combine artificial planting with natural regeneration, leaving some of the natural growth to reproduce itself. When we give instructions to our man to mark out the trees to be cut, he has, to be sure, a diameter limit to guide him, from which, however, he is allowed to deviate above or below in any particular case that requires the deviation for the sake of the future crop. Such discretion, of course, cannot be given to a wood chopper, but only to a man who is instructed how to use that discretion; in other words, to a forester. And I think the proposition of Mr. Drummond is a proper one, namely, that it is useless to put a diameter limit on paper unless an inspector enforces it in the woods, or else there will not be any obedience to your rule, and there will be mischief otherwise.

As Mr. Cary has pointed out, there may be conditions in your spruce woods such that if you cut only to the twelve inch diameter you do more mischief than if you had cut down to a seven inch diameter. My very first experience on the college tract was in that direction. We too were struck by a gale, seemingly at the same time as Mr. Cary's woods, and the nice seed trees that we had allowed to stand for a future generation, and for reproducing themselves were blown down by the gale, all we had was the extra expense of going over the same ground again and removing this blown down material. So that we find it under certain conditions desirable to cut down to a much lower diameter than the one I had set as a rule, twelve inches, simply because it happened to be the favourite diameter; but we found out in this case that a twelve inch diameter was a failure, and we now cut down to what nature intended we should cut to. Wherever there is a dense spruce woods, and it is likely that the younger trees cannot stand up, if the culling removes the older, it may be preferable to remove to a lower diameter. Wherever there is hardwood, and you do not cut the hardwood, your diameter limit may work another mischief from the standpoint of securing a fair reproduction of the spruce. I throw out these suggestions, so that you may not run away with the idea that by having established the rate of growth of diameters you have come to a sylvicultural measure; that is, one that will by necessity secure a future crop. There are many cases in which there would not be any satisfactory result in this direction from the diameter limitation, which again points out the necessity of having educated foresters direct the work of marking and cutting the trees. Beside Mr. Austin Cary, who is employed by a company owning about 300,000 acres of spruce land, I know of only one other company employing a forester, a product of the Cornell College of Forestry, to direct their woods work. Otherwise lumbermen have not found out the desirability of utilizing these young men. Nor are these young men, just from college, lacking in judgment and experience, perhaps the best guides, without years of training and practice, hence if you intend to employ foresters, you will have to begin their education early enough; it will take at least ten years after you have started before you have men who are capable of directing such operations with sufficient judgment.

I do not know that I can add any further light on any point, excepting to once more point out the general aspect of matters, that there are many things which we know to be the right things to do, and yet we are unable to do them, because of financial limitations. I was put in charge of the college tract in the Adirondacks, and was enjoined by the law 'to cut timber and to sell it and reproduce it and sell it, and earn a revenue therefrom.' This was an experiment to see whether forestry could be conducted on business lines. There was no market where we were. We had to create the market; that is to say, we had to induce a manufacturer who would use our hardwoods to locate a mill which might cut up the logs, and use the cordwood. I found the main trouble—and that is so in Canada just as in the United States—was to utilize the cordwood, the debris, and the tops, which do not go into logs, and I found that in our hardwoods in the Adirondacks the cordwood part represents between two and three times the amount of material that you find in the logs. If you have a thousand cubic feet of logs you will have two to three thousand cubic feet of cordwood to handle, and that, therefore, is the more important question. If you leave it on the ground you invite, first of all, the danger from fire, and secondly, you prevent the reproduction of your crop.

Mr. E. STEWART—You are cutting clean in that case?

Dr. FERNOW—We are not yet cutting clean, but I come to the conclusion now that denudation is the much better and cheaper method, and then replanting; and we have nurseries producing two million seedlings a year, so that we can plant quite a large area, and probably if we are allowed to continue our work, that will, in many cases, be the best method, although not so everywhere. I can only encourage you in the direction that is indicated by the two papers which have been read on the pulp wood question, first to revise your tariff, and secondly, to revise your diameter limitations.

Mr. E. STEWART—I beg to suggest, as we have a good deal of business yet to transact, without pretending to interfere with any who wish to speak, that it will be necessary to curtail discussion, or we will require to hold another day's session.

The CHAIRMAN—It is very encouraging to think it is so.

Professor MACOUN—There was one matter that was brought up that was not emphasized enough, I think. Dr. Fernow just threw it out as a suggestion, and that is complete denudation. There is not the slightest doubt that in years we will come to it. When the pulp wood is taken out of a tract of land, picture to yourselves the appearance of the forest, and ask yourselves whether anything will grow there with these tops piled eight and ten and fifteen feet, and a fire coming six or seven years after, and sweeping the whole thing out. Why not cut it all down as he says, and clean off the ground with a fire or two fires, and then let it alone, and you will get a new forest and a valuable one. I am quite sure that we will come to it, and we will agree that complete denudation is the only hope.

Mr. THOMAS SOUTHWORTH—At the risk of wasting the time of the meeting to some extent, I would like to refer to one or two points raised by Dr. Fernow. One point is that he referred to the lack of sentimentality and the common sense nature of the papers delivered to-day, and I may say that I believe that a very great deal of the elimination of sentimentality on the forestry question in Canada is due to the writings of Dr. Fernow. He was one of the first men in the United States to convince business men, both here and there, that the advocates of forestry were not, as they are frequently called, fanatics, but were looking at forestry from a purely business standpoint. I know that was the case here at that time, that any man who advocated anything like a rational system of forestry, was a man who merely looked at the esthetic value of trees, and that aspect of it only. Dr. Fernow refers to denudation as the best method in the Adirondacks, and Professor Macoun is of the opinion that that will be eventually followed here, but they seem to differ in their methods of denudation. Dr. Fernow proposes to denude completely and replant, and Professor Macoun says to burn off the rubbish and let nature do the rest. Is Dr. Fernow not of the opinion that artificial planting would be impracticable from our point of view? He has established on the Adirondacks a local market to use up the débris, which we cannot do here, and I am of the opinion that it would be utterly impossible to plant, owing to the large expense. Conditions vary, of course, and I would like his opinion as to whether he thinks in the first place, it would be possible to destroy some of the débris left in ordinary lumbering operations where we cut only the pine timber without destroying the rest of the forest, and if he thinks it would be possible in areas even moderately near a market, to replant and have a result in crop of sufficient commercial value to pay the cost of planting and compound interest for the length of time necessary for the crop to mature.

Dr. FERNOW—If it is not possible to destroy the débris resulting from a logging operation—and sometimes it would probably be a dangerous use of fire—it is at least possible to lop the tops so that the brush falls to the ground, when it is less dangerous. We are burning brush in our operations in the Adirondacks, piling the brush; the only objection we find is the expense.

The question of profits is a difficult one to answer, but I am convinced that our planting of white pine in the Adirondacks—provided the fire is kept out—will pay a good interest. Let the cost of planting per acre be as much as $10—we plant at less. In sixty years this would be at 4 per cent—which is a high rate to compound with—$105. Even if the stumpage prices sixty years hence should not be more than $5, this would mean that 21,000 feet per acre must then be grown, while in German forests a yield of double the amount is not rare, and prices are sure to rise.

To be sure, this is a long time investment, which means present expenditure for the sake of a benefit in the distant future. Hence the state alone is able and competent to undertake such planting; or else a company of long life. For most private concerns it would hardly appear desirable to go into such planting, and it will be some time before governments in good earnest will undertake it. Yet finally it will have to be done.

I may recall in this connection what I wrote to the Rev. Mr. Burke: 'When you have a dilapidated house, you cannot use it, unless you spend the capital to rebuild it.' This is the condition in Canada and in the United States of large areas from which the valuable species have been culled, or extirpated, the weed trees being left. It is just so much waste land; the trees are only an encumbrance, preventing the regrowth of valuable species. They must be removed and the better kinds planted, as we do in the Adirondacks.

Mr. E. STEWART—I think that we might perhaps reverse the order of business and get through with what motions there may be, and then proceed with the election of officers.

Mr. THOMAS SOUTHWORTH—That would be best.

The CHAIRMAN—I think that is the practical thing to do, and if you have exhausted the subject that has been before us, we will now proceed to take any motions or resolutions that may be made.

Mr. E. STEWART—I beg to move, seconded by Dr. Fletcher—

'That this Association desires to place on record its appreciation of the great loss that it has sustained by the death of Hon. Senator Allan, one of its directors. Senator Allan took a most active interest in all matters pertaining to the welfare of our forests and woodlands, and this association takes this its first opportunity of conveying to his family its regret at the great loss which they have endured. That a copy of this resolution be forwarded to Mrs. Allan.'

I have only to say that the executive, at its first meeting after the death of Senator Allan, passed a similar resolution, but I think it is quite in accord with the feelings of the association to pass such a resolution, knowing the eminent services that Senator Allan has performed for the interests of forestry long before this association was in existence.

Dr. FLETCHER.—I will second the motion. Every one knows the great work Senator Allan did for a great many years in Canada.

The motion was adopted.

Mr. E. STEWART—There is a notice of a motion that the constitution be changed by adding a Patron to the list of officers and reducing the quorum of the Executive Committee. Clause 4 will read as follows :—'The officers shall include a Patron.' The word 'Patron' is inserted between the word 'include' and the word 'an' in the first line, and clause six will be amended by substituting 'three' for 'five' in the second line. I move that these changes be made.

Prof. MACOUN—I second the motion.

The motion was agreed to.

Mr. E. STEWART—I have much pleasure in introducing to the association a gentleman who has come all the way from the North-west to attend this meeting. He came in a little late yesterday and wished to say something on the paper I read this morning, but unfortunately happened to be out at the time. He informs me that he has a motion to make now, and I beg to introduce Mr. Thompson.

Mr. THOMPSON—The secretary has informed you that I have come a long distance to attend this meeting. I came from very nearly two hundred miles west of Winnipeg, but I do not regret it, I am delighted that I came. I had no idea I should have such an immense treat as I had last night in hearing the lecture and also hearing the papers read yesterday and to-day. They have been of a practical nature, and the motion that I am going to submit to the meeting is of a practical nature. More than a year ago Mr. Stewart came up to Manitoba, and we had a meeting in Winnipeg, and also meetings through the country districts on the forestry question. Before that time, some of the farmers had been trying to grow trees, but without a proper knowledge of how to do it, and a great many of the trees died. But the impetus Mr. Stewart and the gentleman that went around with him gave to those meetings was very great, and interested the farmers at that time, so that a great many are preparing ground to have trees planted, and I understand quite a number of them have already planted trees. The proposition was that the farmers should get the ground ready and the government should furnish about five hundred trees to each man. This is going to be a great work and it is going to take a great many trees, because the interest is growing now, and as so many farmers will get ground ready and the trees planted, and they begin to grow up, other farmers will see them and observe the improvement in the appearance of the farm and will also want trees. We have about fifty thousand farmers in the North-west, and we expect that next year there will be two thousand or perhaps more, applying for trees, and that means about three million small trees. If there were three or four thousand farmers it would be so much more. The idea that some of us have up there is that there should be small tracts of land, say perhaps, twenty or twenty-five acres taken at different places, good for growing trees, arranged for by the government and a stock made in this way so as to get a supply of trees for the farmers. I will not take up very much time of the meeting. I am not one of those accustomed to speaking, but when I go back I will make some of them regret that they did not come down, and I hope if we are here another year that some other gentlemen will come down. There is one thing I would like to say. I do not know whether it is the practice of this association to print the papers that are read at the meeting, but I think it would be a great advantage if that were done. The motion that I make is as follows :—

Whereas the Canadian Forestry Association was organized with the view of furthering certain primary objects as set forth in its constitution, prominent among

which were, first, the proper management of the Crown forests and, second, the encouragement of forest tree planting in the prairie regions of the North-west, the said association at this its third annual meeting desires to express its gratification that the government of the Dominion is moving in the direction indicated, but considering the extent of the work devolving on the forestry branch it would respectfully call the attention of the government and parliament to the obvious fact that the appropriations hitherto voted for the purpose are inadequate to carry out properly a work of such extent.

The association begs to point out that while the forests under the federal government of the United States are of much less extent and value than those under the control of this Dominion, the appropriation made by congress last year for forestry purposes was increased from $88,520 to $187,240, while the amount voted by the Dominion for the same purpose was only $15,000.

The great extent of forest under the Dominion demands careful attention not only for the value of the timber, which will undoubtedly prove in the future one of its greatest assets, but in order that a sufficient area be perpetually maintained in timber for climatic reasons, and to regulate the water supply of the country, and the association urges the necessity of dealing with this phase of the subject both promptly and energetically.

Resolved, that a copy of the above resolution be presented to the Dominion government.

The resolution was adopted.

Mr. McWilliams—Referring to the matter which we were considering yesterday afternoon with regard to exploring lands before sending in settlers, I beg to submit the following resolution:—

In view of the enormous loss of timber by fire, this association, embracing a membership from all parts of the Dominion, having at this its annual meeting had under consideration the great mistake that has been made in the past by opening up for settlement land unsuitable for agricultural purposes but adapted for the growth and production of timber, would respectfully urge on the governments of the country, both federal and provincial, the necessity of greater attention in the future to this important subject.

The association would further urge in order that this may be intelligently done that the newer and unsettled portions of the country should be explored in advance of settlement.

That the executive committee of the association be instructed to bring this important matter to the notice of the different governments, and that the lumbermen's associations be requested to appoint a strong committee to act with our executive committee in asking that settlement be prohibited on ungranted land unfit for agricultural purposes.

Professor Macoun—I second the motion.

The Chairman—Perhaps the matter could be discussed. It was suggested that a committee should be appointed.

Mr. McWilliams—The executive committee of this association would confer with a committee of the Lumbermen's Association. After your officers are elected you have your committee.

Mr. STEWART—You do not state the number of lumbermen who would be asked to assist.

Mr. MCWILLIAMS—The more the better.

Mr. GEO. JOHNSON—I understand Mr. McWilliams proposes that when the new committee comes into office, this shall be an instruction to them to appoint a committee of certain of their number to meet a committee of the lumbermen's associations to discuss this question with the practical purpose of presenting to the governments of the different provinces a conclusion as to whether it is desirable to work in those lines or leave things as they stand.

Professor MACOUN—And an equal number of each association should be on the committee for this reason; a lumberman's committee might consist of ten, and the executive committee of our association might consist of three, and it would not give our society a fair show. I think we should have the same number in each case.

Mr. J. R. BOOTH—I think the motion is in the right direction, and I should like to know from this meeting if that is endorsed by this whole meeting. If it is we could send a copy of that to the several governments of the provinces and ask them to appoint a committee to carry out such ideas as are suggested in that motion.

The CHAIRMAN—That is covered by the motion.

Mr. GEO. JOHNSON—Mr. Booth proposes that the government shall appoint a committee, that the lumbermen shall appoint a committee and that the foresters should appoint a committee, and that the three committees shall discuss the question.

Mr. MCWILLIAMS—I suppose they would refer it to the Commissioners of Crown Lands in the local governments, and the Minister of the Interior in the Dominion government.

Professor MACOUN—I think that could be arranged by the committees themselves. By doing it now we might do it imperfectly, but if the two committees are appointed they can act.

Mr. THOS. SOUTHWORTH—I think that resolution restricts the scope of the work to be done by the committee merely to the separating of agricultural from non-agricultural land, and the exploration of territory previous to that being done. There are several questions concerning the tenure of lumbermen, in the province of Ontario particularly, (I am not so thoroughly conversant with the conditions in the province of Quebec,) that are equally pertinent. There is the question of squatters, and when lands should be cancelled and withdrawn from timber licenses, to be opened for settlement. Those are cognate subjects and just as important as this. I do not think the work of the committee should be restricted, but that the whole question of colonization and timber exploitation should be taken up, and I think if the request came from this association, asking the government to appoint a commission to meet with them, that it possibly might be done. I do not know that they would do that. That is Mr. Booth's suggestion.

Mr. STEWART—Which government?

Mr. THOMAS SOUTHWORTH—Each government. This is really one of the most difficult problems, as far as Ontario is concerned, and one of the most difficult problems to handle with reference to the exploitation of land, and the government appreciates the difficulty quite as fully as the lumbermen. I happen to have to do with the colonization of new lands as well as being connected with forestry matters, and I know just how difficult the matter is, and there are really two sides to the question, and I think the motions should be expanded so that it will allow a little more latitude and I agree with Mr. Booth that it might be arranged in that way.

Dr. FLETCHER—Is it not better to take one thing at a time, to attend to this part of the business first and then take the other afterwards?

Mr. THOS. SOUTHWORTH—It is the same thing.

Mr. MCWILLIAMS—This question came up with respect to preventing forest fires. It was admitted that the settlers going into lands unfit for settlement, was the cause of a good many fires, and the thing was to have something done to stop the settlement, and if we did that we would do away with the forest fires to a great extent. That was the object of the resolution, and I think in a general way it covers what Mr. Southworth refers to, because if the land is unfit for settlement, they would not permit them to settle. With reference to the land under license not fit for settlement, it will be closed.

Mr. THOS. SOUTHWORTH—But if it is fit for settlement?

Mr. MCWILLIAMS—I would not agree for a township to be opened for settlement, unless you could get sufficient land for a good large settlement, because a great injury is done by crowding in settlers even if you have four or five hundred acres of land fit for settlement.

Mr. THOS. SOUTHWORTH—Your resolution simply implies a recommendation to the government that lands that are not fit for settlement should not be allowed to be settled. I think that should also include the question of lands under license that are fit for settlement. You exclude that from the resolution entirely, and it seems to me to be just as important as the other.

Mr. STEWART—I do not think it limits it at all. They are instructed to bring this matter to the notice of the government. The resolution seems to include licensed lands as well as other land.

Mr. THOS. SOUTHWORTH—That does not affect Ontario, because it is the policy of the government of Ontario, at present, and it has been for the last two years. Lands that are to be surveyed are being explored now before being surveyed into townships, and land that is found not to be suited for settlement not being surveyed. But if we are going to ask the government to meet with us, I think we should go further.

Mr. E. STEWART—Would you go further and ask that it be set apart for forest reserves?

Mr. THOS. SOUTHWORTH—No, not so far as Ontario is concerned, because that is settled.

Mr. STEWART—The resolution says :

'That the executive committee of the association be instructed to bring this important matter to the notice of the different governments, and that the Lumbermen's Association be requested to appoint a strong committee to act with our executive committee in asking that settlement be prohibited on lands unfit for agricultural purposes.

Mr. GEO. JOHNSON—Mr. Booth's suggestion—I do not know that he has pushed it to the point of an amendment—is that this association take such measures as will bring into active co-operation the lumbermen's association and the several governments of the country with a view to settling this question.

The CHAIRMAN—Would it not be well to preface this resolution by a short preamble to say 'owing to the great destruction of timber by forest fires, that this association'—a sort of preamble to show what we are aiming at—fire protection. There is nothing said about fire protection. This would give us a reason, and that is the real reason—to protect our forest from fires.

Mr. MCWILLIAMS.—I have no objection.

Mr. SOUTHWORTH.—I have no objection to the resolution carrying as it stands. But if Mr. Booth's suggestion is adopted, I think it should be embodied in the motion.

Dr. FLETCHER—They are to meet the government and it is no use our dictating to the government how they shall meet us. It may be a committee, and it may be their Commissioner of Crown Lands.

Mr. MCWILLIAMS—I will put it in this way : 'In view of the enormous losses by fire.'

The motion was carried.

Mr. MCWILLIAMS—I ask that our Secretary be instructed to send our reports to Mr. Fitzpatrick. Some years ago Mr. Fitzpatrick who was a student at Queen's College, started reading camps among the lumbermen in the northern territory, and I visited two at Victoria Harbour and another place, and I was so pleased that I asked for an appropriation to assist him in his work. Since that time he has succeeded in opening quite a number of reading camps, and it is quite a help to the lumbermen. They have camps built separate, where they meet in the evenings. They have small organs, and the men spend a few hours in the evenings. I think these reports will be interesting to these men, and it would be well to have our secretary send a number of the reports to Mr. Fitzpatrick to be distributed in the lumber camps.

The CHAIRMAN—It does not require a resolution for that.

Mr. E. STEWART—The number generally printed would hardly admit of that.

Mr. MCWILLIAMS—Twenty-five might do.

It was moved by Mr. E. Stewart, seconded by Dr. Jas. Fletcher and resolved that the association desires to express their thanks to the Railway Companies for their kindness in furnishing free return passage to those attending this meeting of the association, and that a copy of this resolution be forwarded to the manager of each company.

It was moved by Mr. Geo. Johnson, seconded by Mr. R. H. Campbell and resolved that the thanks of the association be extended to the press for the interest taken by them in the meeting and the reports of its proceedings which they have so kindly published.

A resolution was also passed thanking the Minister of the Interior for the assistance to the association rendered by the Superintendent of Forestry.

The election of officers resulted as follows :—

Patron, His Excellency the Governor General ; Honorary President, His Honour Sir Henri Joly de Lotbinière, Lieutenant-Governor of British Columbia ; President, William Little ; Vice-President, Hiram Robinson ; Secretary, E. Stewart ; Assistant Secretary and Treasurer, R. H. Campbell ; Board of Directors, Professor John Macoun, C. Jackson Booth, W. C. Edwards, M.P., C. E. E. Usher, E. G. Joly de Lotbinière, Thos. Southworth, Dr. Wm. Saunders.

An evening session was held on Thursday evening at eight o'clock, in the lecture hall of the Ottawa Normal School, at which a lecture entitled 'Evolution of a Forest Growth' was given by Dr. B. E. Fernow, Dean and Director of the New York State College of Forestry, Cornell University. The lecture, which was illustrated by over one hundred magnificent views, was greatly enjoyed by the large audience present, and at the conclusion a very hearty vote of thanks was passed to Dr. Fernow.

THE PRESERVATION OF OUR FORESTS.

J. R. Anderson, *Deputy Minister of Agriculture, Victoria, B.C.*

At the suggestion of His Honour, Sir Henri Joly de Lotbiniere, I have undertaken with much trepidation, and many misgivings of my ability, to treat the subject in the manner which I feel is due to one of the magnitude and importance of forest preservation. I can but hope in the short paper I now present to direct attention to what is unquestionably a subject of the greatest commercial importance to Canada, to say nothing of its sentimental aspect ; and so perchance to elicit ideas how the object of this paper can be best attained. It is only by united effort that we can hope to attain what I am sure is the heart's desire of all of us, viz. : to conserve the forest wealth of the country for the general good, not only of the present generation but those to follow, and to preserve for posterity if even a vestige of the glories of the primeval forests.

Let me first try and picture to you a forest in whose bounds are included, towering snow-capped mountains, pellucid lakes, streams fed by the glaciers above, thundering down the dizzy precipices of the mountain sides, and anon finding resting places in the still, forest-protected pools, then rushing on to their destination, through pebbly reaches between moss and fern-covered banks, and above all the grand giants of the forest, standing like the sentinels that nature has created them ; guarding the stores of precious life-giving water. This is a true picture, one of many to be witnessed, and one in which my good friend Dr. Fletcher shared with me during a trip up Mount Arrowsmith last year. But what of this picture which I have so feebly attempted to describe ? How long will it last ? Any time we may see the ruthless hand of man despoiling it of its sylvan beauty, or the devasting forest fire consuming alike its beauty and its value. Then consider the picture of ground denuded of vegetation, the vegetable mould burned away leaving the blackened roots and bare rock or gravel subsoil exposed, trees, veritable monarchs of the forest, lying in blackened ruins forming an impenetrable embarras,