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# Canadian Forestry Journal

VOL. VII.

NOV.-DEC., 1911

No. 6.

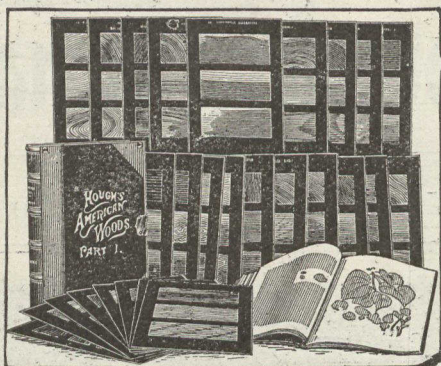


A Good Stand of Timber on an Ontario Timber Limit.

## ANNUAL CONVENTION, OTTAWA, FEB. 7 AND 8, 1912

A large and enthusiastic meeting is expected at the Capital on the above dates. The sessions of the meeting will be held in the Railway Committee room of the House of Commons. H. R. H. the Duke of Connaught has graciously extended his patronage to the convention. It is expected that the Premier and the leader of the Opposition will be present and give addresses. The railways have granted special rates for the meeting. For further information see page 141.

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**ROMEYN B. HOUGH, :: Lowville, N. Y.**

#### THE CANADIAN FORESTRY ASSOCIATION.

is the national organization for the informing of public opinion in the effort to secure a rational development of the Canadian Forests through the co-operation of national, provincial and municipal organizations and private enterprises. The objects of the Association are:

- (1) The exploration of the public domain, so that lands unsuitable for agriculture may be reserved for timber production.
- (2) The preservation of the forests for their influence on climate, soil and water supply.
- (3) The promotion of judicious methods in dealing with forests and woodlands.
- (4) Tree planting on the plains, and on streets and highways.
- (5) Reforestation where advisable.
- (6) The collection and dissemination of information bearing on the forestry problem in general.

To promote these ends the Association publishes the *Canadian Forestry Journal*, issues bulletins, arranges for the delivery of free illustrated public lectures, and holds conventions in different parts of Canada.

The Association desires as members all (both men and women) who are in sympathy with this work. The membership fee, which entitles the member to the *Journal*, the annual report and other literature issued, is one dollar per year, (life membership \$10). Applications for membership or requests for information may be addressed to the

Secretary, Canadian Forestry Association, Canadian Building, Ottawa, Canada.

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# Canadian Forestry Journal

VOL. VII.

OTTAWA, NOVEMBER-DECEMBER, 1911

No. 6

THE official organ of the Canadian Forestry Association. A magazine devoted to the interests of forestry and in general to the advocacy of the wise and conservative use of the natural resources of Canada.

Annual Subscription, - \$1.00  
Single Copy, - - - 25c

Literary Contributions and communications regarding editorial matters should be sent to Mr. F. W. H. Jacombe, Canadian Building, Ottawa. Communications regarding subscriptions, changes of

address, and advertisements should be sent to the Secretary Canadian Forestry Association, Canadian Building, Ottawa, Canada.

The Canadian Forestry Journal is a good advertising medium.

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## The 1912 Forestry Convention.

Ottawa, February 7 and 8, 1912.

Arrangements are now well under way for the Forestry Convention in Ottawa, Feb. 7 and 8, 1912. His Royal Highness, the Governor General, has graciously extended his patronage to the Convention, which will open in the Railway Committee Room of the Parliament Buildings at 10 a.m. of Feb. 7. The program is now in process of completion, and it is expected that among those who will attend will be: Hon. R. L. Borden, Prime Minister of Canada; Rt. Hon. Sir Wilfrid Laurier; Hon. Robert Rogers, Minister of the Interior; Hon. Martin Burrell,

La treizième convention annuelle de l'Association Forestière Canadienne, sera tenue les 7 et 8 février 1912, dans la salle du comité des chemins de fer, édifice du Parlement, à Ottawa. L'assemblée, qui est sous les auspices de S. A. R. le duc de Connaught, sera ouverte à 10 h. a.m., le mercredi 7 février. L'Hon. R.-L. Borden, premier ministre du Canada, y prendra la parole, ainsi que le Très-Honorable Sir Wilfrid Laurier; l'Hon. Robert Rogers, Ministre de l'Intérieur; l'Hon. Martin Burrell, Ministre de l'Agriculture; l'Hon. Gifford Pinchot, de

Minister of Agriculture; Mr. Gifford Pinchot, President of the National Conservation Association of the United States; Mr. Henry S. Graves, Chief of the United States Forest Service; Hon. W. R. Ross, Minister of Lands, British Columbia; Mr. R. H. Campbell, Director of Forestry, Ottawa; Dr. B. E. Fernow, Dean of the Faculty of Forestry of the University of Toronto, and Mr. E. A. Sterling, Forester of the Pennsylvania Railroad Company. Other acceptances are being received daily.

In regard to the program it is the endeavor to make it as practical as possible, and among the subjects to be discussed will be: the separation from politics of the various forest services of Canada by placing them under civil service regulations; the consideration of what constitutes a fair appropriation for the maintenance and development of forest reserves in Canada; federal versus provincial control of forest lands; and the most effective forms of legislation for the suppression of forest fires in organized and in unorganized territory and along railway lines. Discussion on the last named will arise upon the presentation of the Report of the Committee on Forest Fire Laws. This Report was prepared for submission to the Quebec Convention of 1911, but owing to lack of time it could not be reached. It was published in the appendix to the Annual Report of 1911, and members who desire to consult it in advance may turn it up in the Report. Should members have mislaid their copies of the Report or should any persons desire to have extra copies of the Report on Forest Fire Legislation it may be stated that a supply has been printed and that copies will be sent to any one applying.

### The Banquet.

On Wednesday evening, Feb. 7th, there will be a banquet which will be participated in by the members of the Canadian Lumbermen's Association as well as the members of the Canadian Forestry Association and the friends of both. It has been decided to put this on a ticket basis so that all desirous of attending may have an opportunity of so doing. The price of the tickets will be three dollars (\$3). Tickets may be obtained from the Secretary. It is requested that applications for tickets be made as early as possible so that full accommodation may be provided in advance.

### Annual Business Meeting.

The annual business meeting of the Canadian Forestry Association for the passing of accounts, election of officers, transaction of business, etc., will be held in the Railway Committee Room on the afternoon of Thursday, Feb. 8th.

Notice is given of two motions, one to increase the number of Directors and another to place the decision as to place and date of holding annual meetings and conventions in the hands of the Directors.

Washington; M. H.-S. Graves, chef du service forestier des Etats-Unis; l'Hon. W.-R. Ross, ministre des terres de la Colombie Anglaise; et d'autres personnages éminents et experts en sylviculture.

Le mercredi soir, il y aura banquet. Le prix des billets sera de \$3.00; on pourra s'en procurer en s'adressant au Secrétaire, qui les délivrera. Les personnes désireuses d'assister audit banquet devraient demander leurs billets aussitôt que possible, afin que l'on puisse aviser convenablement au côté matériel des préparatifs.

Une entente a été conclue avec les chemins de fer pour que les personnes qui viendront assister à la convention n'aient à payer qu'un seul passage qui leur donnerait droit à l'aller et au retour, et ce du 3 au 8 février inclusivement pour l'arrivée, et jusqu'au 12 février inclusivement pour le retour.

Les délégués devront donc acheter un billet de première classe, simple, pour Ottawa, et se faire délivrer un reçu sur la formule de certificat établie pour de telles circonstances, ce qui pourra être obtenu de l'un quelconque des agents de chemins de fer. Ces certificats seront signés, par la suite, par le secrétaire de l'association, à Ottawa, ce qui donnera droit à tout délégué d'obtenir, gratis, un billet de retour: sur simple présentation dudit certificat, et remise de 25 cents au représentant du chemin de fer auquel il s'adressera. Pour plus amples informations, et pour avoir un programme détaillé, prière de s'adresser à

JAMES LAWLER, Secrétaire.

Association Forestière Canadienne, Canadian Building, Ottawa.

### Railway Arrangements.

Arrangements have been made with the railways which enable the Association to promise a rate of a single fare for the round trip to all attending the Convention from all points in Canada east of Port Arthur. This rate is, of course, open to ladies attending the Convention.

In order to participate in this reduced fare, delegates must purchase first class one-way tickets to Ottawa, and secure certificates to that effect on the Standard Certificate form from the railway agent selling the ticket. Railway ticket agents are supplied with these certificates and are instructed to issue them on application.

These certificates will be presented to the Secretary at the meeting, and after being signed by him will entitle the delegate to a free return ticket upon the presentation of the certificate with a fee of twenty-five cents to the railway representative who will be in attendance. Tickets will be good going Feb. 3rd to 8th inclusive, and returning until Monday, Feb. 12th.

(See page 168, second column.)

# Reforestation in Manitoba.

What will be easily the largest reforestation project in the Dominion of Canada, and, indeed, one of the largest on this continent, is being entered upon by the Forestry Branch of the Department of the Interior, the area to be reforested being the Spruce Woods Forest Reserve, in Manitoba.

## **The Spruce Woods Forest Reserve.**

The Spruce Woods Forest Reserve, as determined by the *Dominion Forest Reserves and Parks Act, 1911*, comprises a total area of some two hundred and twenty five square miles (144,000 acres) of light, sandy land lying to the south of the main line of the Canadian Pacific Railway from about the middle of Range 12 to the western boundary of Range 16, west of the principal meridian, or, approximately, from Panser to Hooten sidings on the railway.

The western boundary of the reserve thus approaches within fourteen miles of the city of Brandon, while the extreme easterly boundary is located some eighty miles west of Winnipeg.

It is traversed also at the extreme northwest by the Canadian Northern Railway line from Brandon to Portage la Prairie, the station at Onah being within the reserve. The reserve is protected along the line of the railway by plowed fireguards.

The soil is light and sandy and unfit for farming. The only branch of agriculture which can be carried on with any degree of success at all is grazing. Many attempts have been made in past years to farm it and homestead after homestead has been taken up only to be abandoned.

Included in the reserve is quite a large area of swampy land in which a good growth of tamarack is found.

The problem of the reserve is essentially one of reforestation. The

sand hills bear a sparse growth of white spruce of good size, the existence of which is proof positive of the suitability of the region for the growth of a coniferous forest. In 1904 and succeeding years, up to 1908, a large number of two-year-old Scotch pine were planted. Owing to unfavorable weather at the time of planting, the first planting of some ten thousand trees was only partly successful, and in the spring of 1907 it was burned over. Small sowings of Scotch pine, jack pine and lodgepole pine were made at the same time, but the sowing has not met with very good success. A total of about twenty five acres has been planted with the two-year-old stock. Further and more extensive planting was done in 1905, 1906 and 1908, the total number of trees planted being about seventy thousand. The soil in which the trees were planted was almost pure sand.

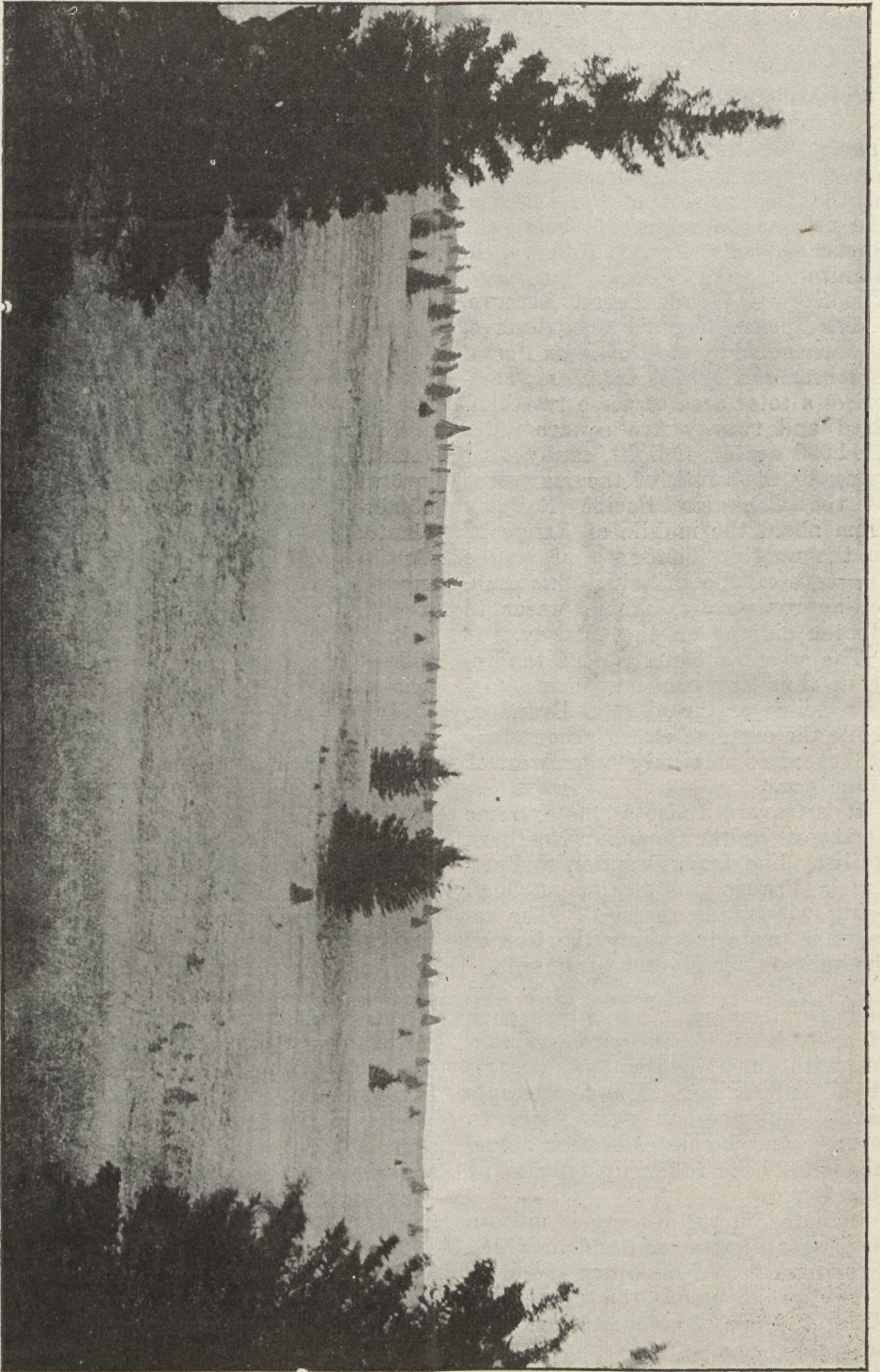
Mr. Kirkwood, who has been put in charge of the nursery work in the reserve, reported under date of September 9th last, that this plantation is doing well and is of the opinion that this species will succeed.

The average cost of the planting has been about \$5 per acre. The two-year seedlings used cost considerably less than \$1 per thousand, dug and ready for planting.

Scotch pine was used, not because it was considered especially suitable for planting, but for the sole reason that it was most convenient to obtain the seed and raise the plants. White spruce is native on the reserve. Seed can now easily be obtained and the plants seem to be very hardy and suitable for planting.

With the idea of entering upon extensive reforestation work on the reserve the Forestry Branch has established forest nurseries at Onah

Typical View of Territory to be Reforested in Spruce Woods Forest Reserve.



and Shilo, on the Canadian Northern Railway. These nurseries have been put in charge of Mr. J. D. Kirkwood, who is a native of Scotland and had seven years' experience in forestry work in Scotland, England and Ireland. He has had charge of the nurseries for some months, after having spent some time at the Indian Head nurseries of the Forestry Branch in order to familiarize himself with conditions in the prairie provinces.

In the planting operations white spruce and jack pine will be used for the most part, and bull pine, lodgepole pine, black spruce, Norway spruce and Douglas fir will also be experimented with.

A detailed plan of planting is being arranged and further announcement will shortly be made.

It is somewhat hard to predict just what the rate of growth on this reserve is likely to be, as no systematic measurement of the growth has been made. On the sandy soil of the Pines Forest Reserve near Prince Albert, Sask., white spruce, under unfavorable conditions of soil, moisture supply, etc., attains a diameter of 10.2 inches in seventy years and it is entirely safe to assume a growth of that amount for spruce on the Spruce Woods Reserve where conditions for the growth of spruce are favorable as shown by the fact that spruce is practically the only tree that grows on the reserve.

The risk of fire may be minimized (in fact, practically eliminated) almost without expense if the arrangement of the planted area is studied at the beginning, roads provided, etc.

A spruce tree ten inches in diameter can be depended upon to give fifty feet, board measure, of lumber. Calculated at two hundred trees per acre—a low rate—there will thus be in seventy years at a very conservative estimate ten thousand feet of

timber per acre on the reserve. Even now, the timber will sell at \$6 on the stump, so that at the end of seventy years the value of timber per acre on the stump will be \$60, a total for the reserve of \$8,640,000.

Since the above was written it has come to the knowledge of the JOURNAL that efforts are being made by the Militia Department to obtain the western part of the reserve as a camping ground. This is the larger part of the reserve and that which, since the institution of the reserve in 1895, has been held by the Department of the Interior as a forest reserve. It is that, too, in which experiments up to the present have been made. Needless to say, the institution of a camping ground on the territory would bar all further attempts at growing trees thereon. It must be the hope of everyone who has at heart the welfare of forests in Canada that the efforts of the Militia Department may not be successful.

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Senator Smith, of Maryland, a lumberman of many years' experience, and a member of the National Forest Reservation Commission, has introduced in Congress a bill providing for the appropriation of \$500,000 annually to acquire lands along the Potomac river adjacent to Washington, for a national park and forestry purposes. The provisions of the bill in regard to the acquirement of the land and other legal phases are similar to those of the Weeks' bill. Five per cent. of the receipts from timber sales are to be paid to the States in which the forest may be located.

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Press reports indicate that serious insect devastations are occurring in the spruce forests of Maine, the damage being caused by the sawfly, which destroyed most of the tamarack in Maine in the early 80's. It is reported that the present outbreak is confined to spruce, and for this reason it was not believed that the insect could be the sawfly. The State Department of Agriculture, however, has identified the insect as the sawfly, claiming that the damage is due to slits made in the smaller twigs by the female insect in preparing a place to deposit her eggs.

# Ontario Should Reforest.

[The article which follows comprises a number of excerpts from 'Ontario's True National Policy in Regard to Black and White Coal', a pamphlet by Mr. W. K. McNaught, M.P.P., now a member of the Ontario Hydro-electric Commission. In regard to his views on reforestation, as well as his emphasizing of the importance of Ontario's water-powers which depend so largely on her forests for their equalization and maintenance, the pamphlet is of much interest to foresters.—*Ed.*]

It has been often asserted by the opponents of the Ontario Government's hydro-electric power policy that, while it might perhaps be all right for the manufacturer, it would be of little or no value to the ordinary citizen.

\* \* \*

I need not do more than point out that, although the manufacturer may primarily be the greatest gainer by this enterprise, it will also beneficially affect every citizen residing in any of the districts where cheap hydro-electric energy is supplied.

\* \* \*

## The Coal Situation in Ontario.

The Province of Ontario is unfortunate in respect of its fuel supply. Although it has an almost illimitable supply of pulpwood and other valuable timber, it is entirely without any coal of its own. True, Canada has magnificent coal beds in the Maritime Provinces, as also in the Western Provinces, but these are of little or no value to the Province of Ontario, inasmuch as the charges for transportation would practically put it beyond the reach of our citizens, except as a makeshift during a fuel famine. Practically every pound of coal used in this province comes from the Pennsylvania coal mines, and, unfortunately, the corporations that own the

coal also own the railways over which it has to be transported. With this double-headed monopoly it is self-evident that the citizens of both the United States and Canada have to pay all that the traffic will bear.

## The Future Looks Dark.

But bad as is the present condition of affairs in regard to the coal situation, it might be, and indeed it will surely be, very much worse, unless we become alive to the situation and conserve our natural fuel resources.

As I have already pointed out, although we have an almost inexhaustible supply of pulpwood and other valuable commercial timber, our supply of hard wood has been wasted to such an extent that it cannot be counted on in the older settled portions of the Province except as a '*dernier ressort*' during a period of fuel shortage, so that, after all is said, the citizens of Ontario are really dependent for their fuel upon a foreign country, and the supply of this vital necessity may be cut off at any time from any one of a number of causes.

## The U. S. Need All Their Coal.

That the people of the United States are becoming thoroughly alive to the coal situation, is evidenced from their appointment of a Conservation Commission, which is now making exhaustive enquiry into the natural resources of the United States and how they can best be dealt with for the benefit of their own people.

But, says some one, if even what you say were true, there is little danger of an exhaustion of the coal supply of the United States for thousands of years to come.

In this, however, I am afraid that



the wish is father to the thought. Some years ago (May, 1908) a meeting of State Governors and other distinguished and scientific men was called at Washington by President Roosevelt to discuss the conservation of the national resources. Amongst others who attended this meeting was Andrew Carnegie, and in his address he made the statement that the United States was even then within measureable distance of the exhaustion of their supply of anthracite coal, and he placed the life of the Pennsylvania coal fields at less than fifty years, even at the then present rate of consumption. This statement has since been confirmed by scientific authorities.

Preservation is the first law of nature, and it is therefore probable that long before the coal in the United States becomes exhausted, the entire supply will be taken over by their Government and conserved in every possible way for the national benefit. One thing is certain, not a single pound of it will be allowed to be exported from the United States.

### **What Can Ontario Do?**

This being the case, what remedy will the people of Ontario have? So as far as I can see, their remedy can lie only in three directions:

First, the application of scientific methods to our great virgin forests and the reforestation of cleared lands which are unsuited for agriculture. The application of scientific methods to our existing forests could be quickly brought about, but, unfortunately, only a small proportion of our standing timber is suitable for high-class fuel, and could never take the place of coal, either for heating purposes or for the production of power. In addition to this, the supply is situated far from our present commercial centres, and, even were it suitable, the freight would enhance the price so much as to make its use almost prohibitive.

The reforestation of old Ontario,

especially with hardwoods suitable for fuel, would be a very slow and expensive process, but it could be done with profit to the community generally, and the sooner such a policy is entered upon by the Government, the better it will be for the future of the province and for those who will come after us. For not only will such forests produce valuable commercial timber as well as fuel, but they would materially help our farmers by increasing the rainfall, diminish the danger from spring floods, and increase and equalize the flow of our rivers so as to render them more valuable for the development of hydro-electric energy.

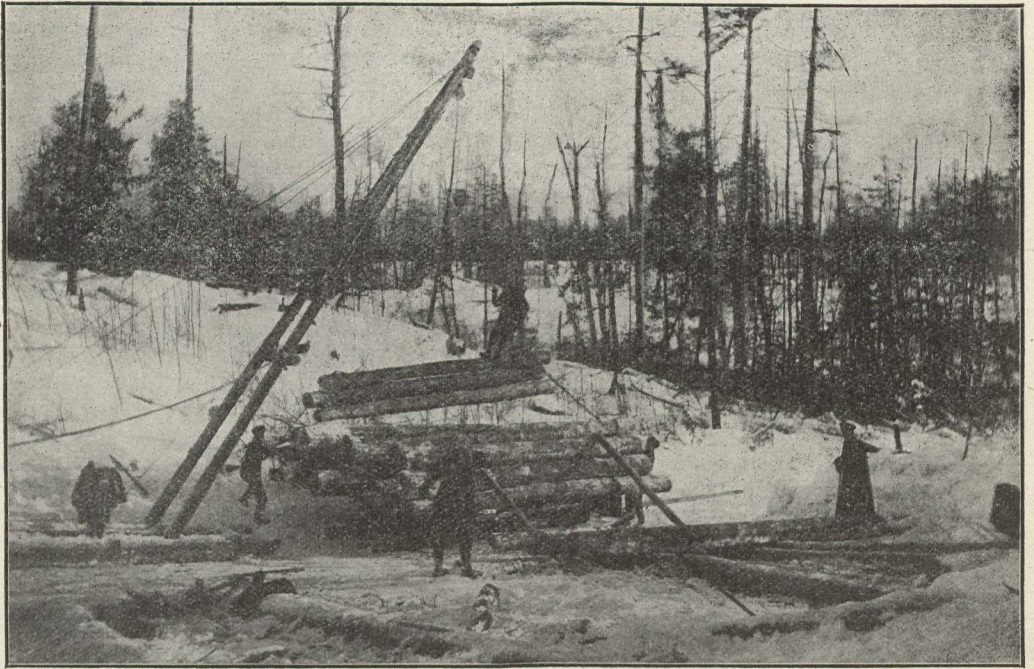
Second, the exploitation of the immense beds of peat fuel to be found within the boundaries of the province.

Third, the nationalization and development of our water powers. This has already been taken hold of by the government of Ontario, under the management of the Hydro-electric Commission, and they are at present endeavoring to supply the people of Ontario with power as near its actual cost as is commercially possible. This is not only a new but a true national policy, which will ultimately be of advantage to every man, woman and child in the province of Ontario.

[Mr. McNaught here gives a detailed estimate of Ontario's water-powers, which total as follows: Niagara River, 3,000,000 h.p.; Central Ontario, 2,201,187 h.p.; Northern Ontario, 2,030,600 h.p.; total, 7,231,787 h.p. In order to be on absolutely safe ground he assumes that they would have a minimum development of 3,000,000 h.p.]

### **Value of Ontario's Water-powers.**

On the assumption, therefore, that we can always depend upon our water powers for a development of 3,000,000 h.p., what does this really mean to the people of this province?



**In the Woods: Loading the Sleigh.**

[Courtesy "Sunshine," Montreal.]

Translated into coal and taking 20 tons of coal as the amount necessary to produce one horse-power of energy for 24 hours per day for one year (a very low estimate), it would mean that our water-powers are as valuable to Ontario as coal mines capable of producing 60,000,000 tons of coal per year.

Translated into dollars and cents, it means that, taking coal at \$3.00 per ton, we would have an annual development of power from our waterfalls which, if produced from coal, would cost us \$180,000,000 in cash per year.

It must be remembered, also, that these returns would not be for one year, or even for fifty years, but as long as water follows nature's law to seek the lowest level, which will be for all time.

But some one will at once say that the saving to our people would not be the entire amount of the cost of power, but only the difference between the cost of steam generated and hydro-electric power. This

is quite true, and this difference has been placed by Professor Fessenden at an average of \$20 per horse-power per year, which would amount to \$60,000,000 per annum, if estimated on the 3,000,000 h.p. which our water-powers are capable of producing.

These figures are so large as to make it difficult to realize just what they mean, but perhaps their importance can be better understood if the actual value that could be realized from the proper utilization of our provincial water powers is compared with the output of the farms of this province. The official report of the Department of Agriculture for the province of Ontario gives the market value of the crops for the year 1908, consisting of fall wheat, spring wheat, barley, oats, peas, beans, rye, buckwheat, corn for husking, potatoes, carrots, mangel-wurtzel, turnips, sugar beets, mixed grain, corn, hay and clover, as having a total value of \$164,077,282, which is considerably less than the actual cash

value which could be obtained from our water-power development were it utilized to its full capacity. We boast of the wonderful wheat crop of our great and ever-expanding West, but in our provincial waterfalls we have a Golconda capable of producing each and every year, for all time, an amount of power worth nearly double the present annual value of our western wheat crop, enormous as that now appears to us.

#### **Present Saving to the Province.**

The figures given above are, as already stated, based upon the full development of our water powers, and the objection may be raised that at the present time but very few of them are developed, and that therefore the estimate of the amount of power which may be obtained from them is merely theoretical and of little practical value.

\* \* \*

As I have already pointed out, the greater part of the power at present used in this province is generated from steam, produced from coal imported from the United States at an annual cost of over \$16,000,000 in good Canadian money.

Even if the utilization of all of our water-powers could not produce more electric power than would offset this \$16,000,000 now paid for steam coal, would it not be a wise as well as a patriotic policy to try to keep this vast amount of money in Canada, where it would be used for the purpose of paying our own artisans and engineers in order to utilize water powers which would otherwise go to waste, instead of sending it to swell the pay roll of United States coal miners or fill the coffers of the coal barons of that country?

As I have already pointed out, the potentialities of our provincial water-powers are so great as to eventually effect a saving ten times larger than our present coal

consumption, large as that may look to us just now.

In my opinion, the day is not far distant when hydro-electric energy will be generally used throughout this province for every purpose for which power is required. Even our present steam railways will be transformed into electric roads, and thus become the largest customers for hydro-electric power instead of being the largest consumers of imported coal, as they are at present.

#### **Power Must Be Publicly Owned.**

The effect upon the province of Ontario when the government's policy of cheap hydro-electric power becomes fully realized, must be very beneficial to the great mass of our citizens. Not only will they have cheaper light for domestic and public use, cheaper water, cheaper street car service, purer and healthier air in their dwelling places and workshops, but we will have cheaper power for our manufacturers, which will mean more work and higher wages for our artisans.

The future of Ontario as a manufacturing province is largely bound up with the power question. If we are to maintain our present position as the manufacturing centre of the Dominion, let alone improve our lead on the other provinces in this respect, we must not only utilize our splendid water-powers to their utmost capacity, but we must also take full advantage of the Government's policy of publicly-owned power, power owned by the people and distributed amongst them at as near its actual cost as possible.

The importance and value of our great water-powers is strikingly emphasized by the efforts that promoters and monopolists are making to secure them before the people become alive to their real value and importance.

On every hand, from the St. Lawrence to the extreme west of Ontario, we find groups of capitalists endeavoring to get their grip upon



[Courtesy "Sunshine," Montreal.]

### In the Woods: Starting for the Dump.

our water powers, the same as they have already secured upon those of the Niagara River. If this is once permitted, it will mean that, so far as price is concerned, the monopolists will charge all that the traffic will bear, and the people will for all time have to pay just as much for hydro-electric power as they would have to pay were the power generated by steam, and as a result of the possession of these natural monopolies the millions of dollars of saving that will be effected by utilizing our water powers would go into the pockets of private individuals instead of being distributed amongst the people generally. The only relief that they could ever hope to obtain from such a state of affairs would be to buy back, at enormous prices, franchises which they had parted with practically for nothing.

#### Don't Export Hydro-Electric Power.

Just here it might be pertinent to point out that, so far as the true interests of the people of Ontario are

concerned, not a single horse-power of hydro-electric power should ever have been allowed to be exported from this province to any foreign country. Unfortunately in years gone by, charters were granted to corporations which not only gave them a practical monopoly of power development on the Niagara River and at Fort Frances, but allowed them to sell a large proportion of it for export; so that even with its broader outlook and larger recognition of its responsibilities to the people, the present government on taking office found itself confronted by hydro-electric monopolies and trammelled by agreements for export, which abuses they have only been partially able to remedy by the adoption of a national and public-spirited power policy which has been emphatically endorsed by the people of this province irrespective of party.

#### The Present Power Situation.

We are to-day confronted with

the fact that at Niagara Falls we have a present export to the United States of 91,000 h.p., and agreements to allow the export of 200,000 h.p. The time is coming, and perhaps it is not so far distant as some people imagine, when we shall need all of this hydro-electric power for our own use. Will we then be able to secure its return without commercial or actual warfare? I am afraid not, and it looks to me as if in this case we had, metaphorically speaking, parted with a large portion of the people's heritage for a mess of pottage.

Before leaving this phase of the subject, it might be pertinent to point out that a great mistake was made by the Ontario government when, in 1887, they granted a charter for the development of power at Niagara Falls. They should have forced its development at Queens-ton Heights or Jordan, where, on account of the extra fall, practically double the amount of power can be developed from the same amount of water as at Niagara Falls where it is now developed. It is quite possible that in the perhaps distant future, this power policy will be forced upon the people of this province and they will find it not only profitable but necessary, to abandon the present great hydro-electric enterprises at the Falls and locate them where nature evidently intended them to be.

What has been done at Niagara Falls, private monopolists have also been trying to repeat on the St. Lawrence, as well as in Western Ontario. It is true that these attempts have temporarily failed, but our people may rest assured that the United States capitalists who desire possession of these great natural monopolies have not given up the fight, but that they will be heard from again, and that in the near future, although probably in a different way.

### Timber in the Hudson Bay District.

The following press bulletin was recently issued by the Forestry Branch:—'An interview with an engineer given recently in a western paper to the effect that there is abundant timber on the line of the Hudson Bay railway is an illustration of the misapprehension in regard to this matter that exists in the public mind. Because there are large areas of land in the north on which there is timber of some kind, the conclusion is reached that it is all of present value and that the country has an unlimited supply. As a matter of fact, a careful inspection of the timber along the line of the Hudson Bay railway made in the years 1910 and 1911 by the Forestry Branch of the Department of the Interior, shows that there is not enough mature timber along the line of that railway to build the road. There are no prairie districts of any extent along the route. There are trees everywhere, but, owing to repeated fires, the forest is, except on the merest fraction of the area, too small for commercial purposes and, unless it can be protected from fire until it reaches maturity, will never be of any use to the country. Explorations in other parts of the northern forested districts tell the same tale. Everywhere fire has worked havoc, and the forest is a mere wreck of what it might have been if fires could be prevented. Unless adequate measures are taken now to protect the young and immature forests, which form the major part of the land, the outlook for the future is none too good.

If the northern forests are to continue to be a permanent source of wealth to the country, it is absolutely necessary that the fire ranging system should be extended and that proper methods of management of the forest should be applied, and public education to the value of the forest is even more necessary.

Sweden, which has large tracts of northern forest, practically uninhabited, similar to those in northern Canada, has about eliminated the fire danger in such districts mainly by educating her people to the value of the forests.'

It is interesting to note that the report of the Director of the Geological Survey in regard to the country along the proposed route of the Hudson Bay Railway, traversed last year by the then Governor General, Earl Grey, and his party, confirms this view of the forests of the region. In addition to the extract from this report given elsewhere in this issue, a further note says:—

'Only the southwestern and southern portions of the district tributary to the bay are likely to furnish timber of economic importance.'



[Courtesy "Sunshine," Montreal.]

In the Woods: On the Road to the Dump.

## Cost of Forestry in different Countries.

(By H. S. Graves Chief Forester, U. S. Dept. of Agriculture, in the Report of the U. S. National Conservation Commission.)

A comparison of the expenses of forestry in different countries is necessarily unsatisfactory, because the forests differ in character and there is a very wide difference in economic conditions. In Europe systematic forest management was introduced many years ago. The forests are thoroughly organized, and the expenses of administration represent their maintenance, protection, and operation. In this country the work of forest organization has only just been started. Even our National Forests have only been roughly explored, and we have only estimates of the standing timber growing in them and its value. There are almost no roads, only a

few satisfactory maps, insufficient demarcation of boundaries, very few fire lines, and the work of construction of headquarters, ranger cabins, telephone lines, etc., remains as yet to be carried out. Almost no working plans have been made for our National Forests, and the life history of the trees must be more completely studied before satisfactory methods of silviculture can be devised. Practically all of the work of organization of the forests remains to be done.

Other conditions enter in also to affect a comparison of expenses. In America and India there is great danger from fire, and large sums of money must be spent on providing

adequate fire protection. In Europe, on the other hand, the danger from fire is very small in most places, largely because of a dense population, an enlightened public sentiment, and an organization of the forests which is the result of many years' work.

Again, the market conditions affect the kind of forestry which can be practiced. With constant good markets, as in Europe, it pays to use more intensive methods of forestry than where only certain classes of timber can be sold. For this reason the Germans can afford to spend on cultural operations proportionally larger sums than the Americans. In the same way the total expenses of forestry in a country are influenced by the methods of timber sales. If timber is sold on the stump the outlay is less than if the government does its own logging. The last system involves a large annual expense for logging which does not appear in the budget of a country which sells its timber standing.

These facts must be borne in mind in the study of the forest budgets of Germany, France, India and the United States, which are discussed in the following pages.

A comparison of expenses in these different countries shows some astonishing differences. Prussia, with its forest of a little over 7,000,000 acres, spends each year about \$14,000,000; India, with about 65,000,000 acres (including only reserved and protected forests), spends only about \$4,000,000. The United States, with about 168,000,000 acres of national forests, spends only about \$3,400,000. If these data are expressed in terms of the amount per acre, it is seen that the expenditure by Prussia is over \$1.90 per acre as against that of the United States of about 2 cents per acre. In this connection it must be borne in mind,

however, that Prussia did not expend so large a sum on forestry at the beginning of its work of organization. With the development of forestry and the increased demand for timber and the resulting high prices, it has been profitable to use more and more intensive methods and invest greater sums each year in forest cultivation. This is well illustrated in Prussia, which in 1849 spent for regularly recurring expenses about \$2,000,000 each year, compared with \$12,500,000 at the present time.

In other words, the expense of administration increases with the development of forestry. This is possible only when there are increased returns as a result of the increased initial expenses. This principle is illustrated in Prussia, where the net income has increased from less than \$7,000,000 in 1848 to about \$14,000,000 at the present time.

To carry out further the comparison of expenditures in the different countries, Prussia spends for salaries, including both administrative and executive forces, 52 cents per acre; France, 38 cents; India, a little over 2 cents; and the United States, a trifle over 1 cent. The average area in charge of a supervising forester in Prussia is about 10,000 acres; in the United States it is over 1,000,000 acres. While our western forests will not require a division into so large a number of administrative units as those of Prussia the contrast is nevertheless exceedingly instructive.

Although the Prussian forests are already thoroughly organized, nevertheless the work of constructing and extending roads and bridges, dams, etc., is being pushed each year with an expense of over \$500,000, and that is about the sum which is now being expended on all kinds of construction work in our national forests. In other words, for con-

struction work, including buildings, telephone lines, etc., Prussia spends about 16 cents per acre and the United States about 3.5 mills. In reality the comparison ought to be reversed, for construction work constitutes an exceedingly important part of the first organization of a forest.

The great yield of timber and large returns in money from the European forests are the result of careful, intelligent forestry. Not only are the forests protected, but they are constantly improved; they are properly thinned to obtain the best possible conditions of growth, and open areas are planted with trees when reproduction cannot be secured naturally. All of this involves expenditure of money. Such improvement work costs in Prussia \$1,700,000 each year, or 23 cents per acre. Even in India there is an expenditure of over \$173,000 a year for cultural operations. The expenditure in the United States is only about \$50,000 for this item, a sum so small that it can hardly be

expressed in terms of expense per acre.

One of the great problems in the United States is the training of men to handle the work of the national forests. At the present time the number of trained men available for the administration of the forests is entirely inadequate. The country is fortunate in having private schools which are educating men for federal service. The United States Forest Service is aiding these schools to a small extent, but the total amount expended is probably not over \$1,000. This may be compared with \$50,000 spent in Prussia, \$37,000 in France, and \$26,000 in India.

It is obvious from this brief comparison of expenses in different countries that the amount of money spent on the administration of the National Forests in this country is exceeding small, and it is perfectly obvious to anyone who knows the conditions that a very much larger amount is required to accomplish the purpose of the people of the United States in managing their government forests.

### Expenditures for Forestry in Prussia, France, India, and the United States.

#### PRUSSIA.

(From the budget of 1908).

| Recurring Expenses :                            | Amount.                | Per acre.    |
|---|------------------------|--------------|
| Superior staff .....                            | \$1,433 590.00         | \$0.19       |
| Subordinate staff .....                         | 2,468,9 1.00           | .33          |
| Rents and expenses of offices .....             | 870,085 00             | .12          |
| Scientific work and education .....             | 96,750.00              | .013         |
| Extraction of forest products .....             | 3,682,750 00           | .42          |
| Cultural work .....                             | 1,710,500.00           | .23          |
| Construction and maintenance of buildings ..... | 593,750.00             | .08          |
| Construction of roads, dams, etc. ....          | 571,500 00             | .08          |
| and purchase .....                              | 262,500.00             | .04          |
| Administration of communal forests .....        | 492,000.00             | .07          |
| Other expenses .....                            | 683,914.00             | .09          |
| <b>Total .....</b>                              | <b>\$12,521,250.00</b> | <b>.....</b> |
| Extraordinary expenses .....                    | 1,149,450.00           | .16          |
| <b>Grand total .....</b>                        | <b>\$13,670,700.00</b> | <b>.....</b> |
| Average .....                                   |                        | 1.823        |



FRANCE.

(From the budget of 1907.)

| Recurring expenses :          | Amount.               | Per acre.    |
|-------------------------------|-----------------------|--------------|
| Superior service .....        | \$500,000.00          | \$0.17       |
| Subordinate .....             | 614,000.00            | .21          |
| Service and expenses .....    | 145,400 00            | .05          |
| Education .....               | 37,200.00             | .01          |
| Cultural and protection ..... | 243,900.00            | .08          |
| Construction work .....       | 675,200.00            | .23          |
| Exploitation .....            | 83,000.00             | .02          |
| Hunt .....                    | 15,200.00             | .005         |
| Special taxes .....           | 420,000.00            | .15          |
| Miscellaneous .....           | 52,400.00             | .02          |
| <b>Total .....</b>            | <b>\$2,876,300 00</b> | <b>.....</b> |
| <b>Average .....</b>          |                       | <b>.945</b>  |

INDIA.

(Expenses for 1907-8.)

| Recurring expenses:  | Amount.             | Per acre.    |
|--|---------------------|--------------|
| Superior staff .. . . . .  | \$774,884 00        | \$0.012      |
| Exchange compensation allowance .. . . . .   | 28,083 00           | .0004        |
| Subordinate staff (including rangers foresters and guards) .. . . . .                        | 704,218 00          | .011         |
| Office establishments (including contingencies) .. . . . .                                   | 347,171 00          | .005         |
| Extraction .. . . . .  | 1,478,176 00        | .027         |
| Roads and buildings .. . . . .   | 287,668 00          | .004         |
| Fire protection .. . . . .   | 192,596 00          | .003         |
| Cultural operations .. . . . .   | 172,763 00          | .003         |
| Live stock, stores, and plant .. . . . .   | 169,384 00          | .002         |
| Working plans .. . . . .   | 28,914 00           | .0004        |
| Rent for leased forests .. . . . .   | 285,979 00          | .004         |
| Miscellaneous .. . . . .   | 69,660 00           | .001         |
| Expenditure on realization of revenue from forests not managed by the Government .. . . . .  | 7,121 00            | .....        |
| Forest science and education (including all "A" and "B" charges of forest school) .. . . . . | 26,656 00           | .0004        |
| Extraordinary expenses .. . . . .  | 179,664 00          | .003         |
| <b>Grand total .. . . . .</b>  | <b>4,138,691 00</b> | <b>.0762</b> |

UNITED STATES.

Expenses for 1907-8.)

|   |                       |             |
|---|-----------------------|-------------|
| Administration (for the general administration of the Forest Service) .. . . . .  | \$162,703 38          | ....        |
| Use (for the use, maintenance, and protection of the National Forests) .. . . . .   | 2,363,394 64          | ....        |
| Improvements (for the construction, and repair of permanent improvements upon the National Forests) .. . . . .  | 592,169 19            | ....        |
| Studies (for studies necessary for the use and protection of the National Forests and of other forests in the United States, and to promote economy in the use of forest products and the distribution of their results) .. . . . . | 297,840 40            | ....        |
| <b>Total .. . . . .</b>   | <b>\$3,416,107 61</b> | <b>....</b> |



(From photos by J. J. Kelso. Courtesy Commission of Conservation.)  
**Rural Slums. Does the City Offer Much Worse?**

These illustrations depict scenes in a district of Eastern Ontario. They represent graphically the conditions which arise when people are allowed to settle on land not fit for agriculture, and where their unavailing efforts to make a decent living for themselves and their families result in their utter discouragement and surrender to all sorts of vices. It is good to know that the Ontario government has of late become more alive to the dangers of this policy of opening for settlement land which is unfit for that purpose and that hence such scenes as the above are not likely to be duplicated.

# The Future of British Columbia Lumbering.

By Judson F. Clark, Ph.D.

British Columbia is still distinctly in the pioneering stage, the stage when the disproportion of natural resources to population intoxicates the mind and holds out opportunities for the capable and energetic which are but dreams and memories in the older provinces and states.

In no department of industry are the opportunities for men with brains and capital, or even with brains without the capital, greater than in the line of forest products.

In the development of the lumber industry in the neighboring state of Washington we see the promise of the future of the industry in British Columbia. In 1880 the value of the product of the lumber industry of Washington was \$1,700,000; in 1890, \$17,500,000; in 1900, \$30,300,000; in 1907, \$100,000,000. The value of our forest products will be about \$18,000,000, or equal to that of Washington in 1890. In seventeen years (1890-1907) Washington increased her lumber output sixfold and rose from a very minor position as a lumber-producing state to a position at the top of the list as the greatest lumber-producing state in the world, a position of distinction which she has since retained and is likely to retain until displaced by British Columbia about ten years hence.

British Columbia's advance to a pre-eminent position among the lumber and paper producing countries of the world is assured by its forest resources and by the development of its markets and transportation facilities. These same considerations also assure a much more rapid development than was realized in the State of Washington.

## Important Commercial Woods.

British Columbia's resources in

standing timber, taken in all three aspects of quality, quantity and price, defy competition. As in Washington, the Douglas fir is the most important tree on the southern portion of the coast. It frequently exceeds two hundred and fifty feet in height and reaches fifteen feet in diameter. In general, however, it runs from three to six feet in diameter and cuts from one hundred to two hundred lineal feet of logs. In quality of wood it resembles the southern yellow pine, but, of course, gives much larger dimensions and a much larger proportion of clear lumber.

Next to the fir in importance is the giant arbor-vitae, or red cedar. It reaches a height of about one hundred and seventy feet, and averages three to six feet in diameter, though occasionally much larger. Already it supplies about seventy per cent of the shingles consumed in Canada and the United States.

The spruce, which replaces the Douglas fir on the northern coast, is at least equal to the best spruce elsewhere for pulp purposes, and, on account of its large size, gives a very much larger proportion of clear lumber. The Western hemlock and the balsam fir are trees of great size and beauty, and further excel their eastern cousins, the former by an entire absence of shake and brashiness of grain and the latter by its uniform soundness.

The sixth and only other important tree of the coast forests is the cypress or yellow cedar. It has all the good qualities of the cedars, including great durability and evenness of texture, and possesses, in addition, a degree of strength and elasticity not to be found in any

cedar. It is also a very beautiful wood. Without doubt it is the coming canoe and boat builders' wood of the continent.

### **Markets and Transportation.**

But forests, no matter how magnificent, must await the development of markets and of transportation facilities before a great lumber industry may arise. British Columbia has been waiting in this sense for many centuries, but her day has now come. The lumber consumption of the world is rapidly decimating its resources in standing timber. North America, east of the mountains, is by far the greater lumber market, consuming, in fact, more than all the rest of the world combined. Nor has this enormous demand shown any tendency to decrease with advancing prices; on the contrary, it has more than kept pace with the increase in population, and the latest statistics indicate a per capita consumption in North America of about four hundred cubic feet of wood, including five hundred feet board measure of sawn lumber. On the other hand, the diminishing of the forest resources of Eastern America has reached an acute stage. Three fourths of the remaining forest resources of the continent lie west of the Rockies, while nine tenths of the markets lie to the east.

So much for the vast and growing hunger for wood products in the East and the wonderful forest resources of the West. A word as to transportation developments. Already the products of the British Columbia forests — notwithstanding our limited rail facilities and a freight cost of all the way to \$25 per M—reach every important market. With the advent in the near future of the Grand Trunk Pacific, the Canadian Northern and other projected railways, our rail facilities will be at least trebled and perhaps more than quadrupled, while a veritable revolution will be wrought by the completion in 1914 of the Pan-

ama canal. The canal will reduce the distance from Vancouver to New York by water from nearly fourteen thousand miles to less than six thousand miles. It will also convert it from a sailing to a steam route, cheap coaling being available, thus reducing the time in transit, which is now from four to seven months, to less than thirty days, with a corresponding cut in interest and a still larger cut in insurance cost. More important still, perhaps, it will enable Eastern builders and other lumber users to have orders for special purposes shipped by water with a much greater certainty of prompt delivery than can be hoped for by rail. Many hope to see the present freight rates of from \$12 to \$16 per M around Cape Horn cut in half when the canal is opened. A saving of one fourth of the present rates would revolutionize the lumber industry of the British Columbia coast.

### **Opportunities for Investment.**

The opportunities presented by present conditions in the development of the British Columbia lumber industry are such as should interest (1) the large investor who desires a field for investment, giving large returns with small risks; (2) the investor of moderate means who wishes to conduct a business which will give profitable employment for his capital and, at the same time, ample scope for his own activities; and (3) the man of brains and energy who has no financial backing, but who has a lot of capital in the way of confidence in himself and in the country.

For the large investor British Columbia timberlands present at the present time one of the safest and most profitable fields. British Columbia tidewater timberlands are unusually safe in regard to the only serious risk, the fire hazard. This is due to the heavy rainfall, ranging from sixty-four to one hundred and twenty inches annually, and the

almost eternal dampness of the dense forests. The topography, too, presents barriers to the running of fires over large areas. Furthermore, the durability and large size of the Douglas fir and the red cedar, together with the comparative absence of injurious boring-insects on the burned-over lands, make it possible to log these timbers for many years after they have been killed by fire.

The red cedar is especially good in this respect, and is sawn into the finest of lumber and shingles fifty years after being killed by fire. It is bound to be profitable, as for half a century the increasing value of standing timber has made its ownership about the most consistently profitable of all lines of American investment.

Standing timber has been increasing in value for half a century without a set-back. At present the world's supply of timber is being cut some threefold faster than it is being renewed by growth. The stumpage values of the leading timbers of North America east of the mountains have increased from thirty to ninety cents or more per thousand feet board measure per annum during recent years, the average for all softwoods being more than fifty cents per M per annum. What has become history east of the mountains will certainly become fact on the Pacific Coast upon the completion of the Panama canal. This indicates an enormous return for stumpage at \$2 per M, but first-class stumpage may still be secured for \$1, or even less, a figure which may well be regarded as nominal when the high quality of the timber is considered.

The doubling, trebling and quadrupling of the logging and manufacturing facilities during the coming decade will also offer large scope for the investment of capital. This will be an especially attractive field for far-sighted men who will have earlier secured a suitable reserve of raw

material. An earnest of what is to come along these lines is the completion last year of one of the largest sawmills in the world on the Fraser river, and the present building, at a cost of several millions, of a very large and strictly up-to-date paper mill at Powell River.

But the door of opportunity is open not alone to the investor of large means. The British Columbia coast is peculiar in the amazing length of its coast line and the wonderful series of protected inside channels which admit of cheap towage of logs to central points for manufacture. These waterways are bordered with timber tracts, many of which are of small size and therefore available for the men of moderate means who are looking for a start in business. Advantage has been taken of these favorable conditions, and the coast is already dotted with small logging outfits. Opportunity in this direction will be open for some years to come, but all the easy logging opportunities will eventually have been worked, and logging will have passed into hands financially strong enough to build railways and other expensive developments. Another opportunity for the man of limited capital will have come when imminent exhaustion of their own cedar resources will have forced the United States to come to British Columbia for their shingles. If this has not already come before the Panama canal is completed, it will then be assured, and small shingle mills will presently be found dotting the coast, utilizing the vast quantities of cedar now left as waste on the slashings.

But the great future of the lumber industry of British Columbia will assure large opportunities for the man of brains and energy, although without capital other than confidence in himself and the country. The opportunities will range from that of logging camp foreman or sales agent to that of

*(Continued on page 163)*

# Burned-over Country.

Found by Many Geological Survey Explorers in 1910.

The summary report of the Geological Survey for 1910, like so many reports of the Survey already published, gives evidence of the widespread prevalence of forest fires throughout the Dominion. Reporting on the country traversed by the late Governor-General, Earl Grey, and his party, the Director, on page 17, writes:—

'The whole country from Lake Winnipeg to York is timbered, but, as the route followed had been the boat route from York, used for almost a century for a large part of the entire trade of the northwest, the forests have suffered repeatedly from fires, so that practically all is second growth and no sizable timber was seen. Where the original forest is preserved, merchantable sizes may be expected in the upper portion of the district, and pulpwood for some distance down, but, what with forest fires, muskeg and climatic conditions near the bay, it seems unlikely that the timber of that particular district will prove of great value, except for local purposes. Around the southern end of the bay, conditions, of course, are different, and the forest is of greater economic importance. The trees are principally spruce, poplar, and tamarack; canoe birch disappeared on the lower part of the Hayes.'

Mr. D. B. Dowling, reporting on the Coal Fields of Jasper Park (Alberta), writes as follows:—

'The largest area of green forest, containing timber of marketable size, occupies a triangular stretch of country lying to the east of Brûlé lake. The wagon road to Prairie Creek runs along its southeastern margin. Along the Athabaska burnt country extends from the east to a point nearly half-way between the lake and Prairie creek. Other fairly large areas of unburnt timber are found within the mountains, on the flat lands through which wind the many channels of the Athabaska river. Another area of green forest, consisting of patches only, extends from the head of Drystone and Prairie creeks to the western sources of McLeod river. Although throughout the district there are, here and there, small patches of living trees, the greater part of the original forest has been burnt.'

Mr. W. McInnes reports on his exploration of a tract of country lying

north of the Saskatchewan river, in the eastern part of the province of Saskatchewan. The following is an extract from his report (page 171):—

'There are areas still standing of good white spruce, both in the region of the Saskatchewan valley, and in the higher land to the north, though forest fires have denuded much of the region of what valuable timber it once supported. Several tracts of considerable size were burnt over last summer. Could the fires be prevented or checked, large areas would within a measurable period become reforested, since the rate of growth in favourable situations is fairly rapid. Two white spruces growing in Cumberland lake were cut into for the purpose of ascertaining their rates of annual growth. It was found that the added growths for the past three years, deduced from the rings of growth, were three fourths of an inch and half an inch respectively, rates that compare favourably with those of many a much more southerly locality.'

Mr. J. D. Trueman writes of the Gunflint district, Ontario, his work having comprised the exploration of the country around Gunflint and Saganaga lakes (situated on the International boundary some seventy-five miles west of Port Arthur and Fort William). Treating of the timber, he reports (p. 184) as follows:—

'Owing to its rocky character, the value of much of the country near Gunflint lake as a national resource must lie entirely in its mineral and forest wealth. Over considerable areas valuable timber is still standing, the principal varieties of trees being red pine, jack pine, spruce, balsam and tamarack. White pine occurs, but is not common. Birch and poplar are quite abundant.

'Forest fires during the summer season of 1910 proved unusually destructive over a large section of country west of Lake Superior. A long period of dry weather made conditions very favourable for the spread of fires, so that during the latter half of June and the earlier part of July a dense cloud of smoke remained almost continually in the air.'



[Courtesy "Sunshine," Montreal.]

**In the Woods: Ten Minutes for Refreshments.**

## 1910 Forest Statistics of Canada.—II.

The total number of cross-ties purchased in Canada in 1910 was 9,213,962, and these cost \$3,535,628. Compared with the purchases of cross-ties in 1909 there is a decrease of 4,964,279 (35 per cent). Cedar furnished forty per cent of all the ties used, jack pine 23.5 per cent, and hemlock 13.8 per cent, these three species thus supplying 77 per cent of all the ties. Douglas fir furnished 9.6 per cent of all the ties and tamarack 7.1 per cent, the five species mentioned thus making up ninety-four per cent of the total number. Other species used were oak, spruce, cypress, chestnut and white pine. About seventy per cent of all the ties purchased in 1910 were hewn and thirty per cent sawn. Of the oak ties ninety-five per cent were sawn, but of the other species the great majority were hewn. The average cost of all ties was thirty eight cents; sawn ties on the average cost thirty six cents, hewn ties thirty nine cents. These values range from seventy four cents for a sawn oak tie to twenty three cents for a white pine sawn tie.

Steam railways used ninety six per cent of all the ties used. The total number used

by them was 8,909,422, at a total cost of \$3,412,227, and an average cost apiece of thirty eight cents. The electric railways used only four per cent of all the ties purchased during the year specified. The total number used was 302,540, at a total cost of \$123,401, and an average cost per tie of forty one cents; almost fifty per cent of these were cedar, the next wood in point of number being Douglas fir which furnished thirty two per cent of the total.

A small number of cypress ties were imported by both steam and electric railways. The average cost of ties used by the electric roads decreased six cents in 1909. With the electric railways 61.4 per cent of the ties purchased were hewn. Of the sawn ties fifty per cent were Douglas fir and thirty four per cent were cedar, in the case of hewn ties fifty seven per cent were cedar and 20.7 per cent Douglas fir. The species which are chiefly used sawn are cedar, Douglas fir and oak; the species chiefly used hewn are hemlock, tamarack, cypress, spruce and jack pine. Progress has now been made in the chemical treatment of railway ties in Canada.

### Mining Timber.

Reports were received from one hundred and thirty six coal and ore mines in the various provinces. Of these, fifty nine were in British Columbia, twenty seven in Ontario, twenty in Alberta, fifteen in Nova Scotia, nine in the Yukon Territory, four in Saskatchewan, and two in Manitoba. A great many Canadian mines do not use timber in their operations.

The mining timber has been divided into two main classes, viz., round timbers and sawn timbers. The round timbers are those used underground to give artificial support for roofs or walls, and to protect shafts, drifts and gangways. The sawn timber reported is mostly lumber, together with a small quantity of square timber, and is used principally for breakers, tipples, washers, trestles, and mining buildings generally.

The total value of the timber used in the mines was \$827,337, composed of 52,848,000 linear feet of round timber worth \$523,339, and 22,305,000 board feet of sawn timber costing \$303,998.

Three provinces of Canada consumed 98.6 per cent of the timber used in mining; these provinces are British Columbia, which used fifty five per cent (29,047,000 linear feet), Nova Scotia, which used thirty per cent (15,653,000 linear feet) and Alberta, which used fourteen per cent (7,484,000 linear feet). The average cost per thousand linear feet ranges from \$37.90 in the Yukon Territory to \$7.01 in British Columbia. The mines of Nova Scotia pay on the average \$10.74 per thousand linear feet, and those of Alberta \$17.75.

Of the twelve species of wood used, 53.8 per cent was Douglas fir, the total quantity used being 28,268,000 linear feet, at a cost of \$198,776. Over a quarter of the wood (27.5 per cent) is spruce, the quantity consumed being 14,417,000 linear feet and the cost \$179,734. Of jack pine, the third species in importance, 4,455,000 linear feet were used, costing \$66,751; this includes both the eastern jack pine and the lodgepole pine.

These three species furnished ninety per cent of the round timber used. Other species used were balsam fir, hemlock, tamarack, pine, birch, poplar, cedar, maple and beech.

The largest part of the round mining timber used ranged from five to nine inches in diameter. Thirty one million, nine hundred and sixty seven thousand (31,967,000) linear feet of the total of 52,848,000 feet falls into this class. The average cost of timber of this size was \$12.63 per thousand linear feet. Over one third of the total consumption (19,046,000 feet) was less than five inches in diameter and cost but \$2.66 per thousand linear feet. The timber under five inches in diameter was practically all Douglas fir used by the large coal companies of British Columbia.

Of sawn timber 22,305,000 board feet were used, the total value of which was \$303,998,

an average value of \$13.63 per thousand. Of the total amount, British Columbia used over fifty per cent, Alberta twenty five, and Nova Scotia fifteen per cent. Douglas fir constituted over one half (56 per cent) of the total quantity used, spruce almost twenty one per cent, and tamarack 8.6 per cent, the three woods together forming over eighty six per cent of the total quantity.

### Poles.

The total number of poles purchased in Canada during 1910 was 782,841, the increase over the number reported for 1909 being 434,586 (118 per cent). The total value at the point of purchase was \$1,043,874, an increase of \$546,882 over the value in 1909. The average cost of poles was \$1.39 in 1909 and \$1.33 in 1910.

Cedar poles form over ninety nine per cent of the total; it is practically the only Canadian wood growing to a convenient pole size which is cheap, easily handled and durable. A few chestnut poles were reported from the United States.

Seventy five per cent of the total number of poles used are from twenty to twenty five feet in length. The cheapest poles are chestnut, with cedar a close second.

In 1910, reports were obtained from five hundred and fifty nine companies, almost ninety per cent of the total number operating; of these two hundred and ninety one were electric light and power companies, one hundred and sixty one telegraph companies, sixty two steam railway companies, forty one electric railway companies and four telephone companies. Two hundred and eighty three operated in Ontario, ninety-four in Quebec, thirty nine in Nova Scotia, thirty five in Saskatchewan, twenty seven in Alberta, twenty three in New Brunswick, twenty three in British Columbia, seventeen in Manitoba, and ten in Prince Edward Island; eight were United States companies operating in Canada.

Interesting tables are given comparing the prices of cedar and spruce poles in Canada and the United States in the year 1909. These show that up to thirty feet cedar poles are more expensive in Canada than in the United States; above that length they become cheaper. As seventy five per cent of the poles used in Canada, however, are thirty feet or less in length, the Canadian companies pay more for them than do United States companies. Spruce poles, on the other hand, are cheaper in Canada than the United States up to twenty-five feet in length, but poles of greater length than this are more expensive.

### Cooperage.

Reports as to cooperage production in Canada in 1910 were received from one hundred and thirty three firms, of which one



hundred and twenty six were in operation. The value of the products of this industry has decreased one hundred thousand dollars during 1910, owing to a great decrease in the price of slack cooperage.

The total value of the products of the cooperage industry in Canada for the year was \$1,740,709. Slack cooperage comprised \$1,395,545 of this, which was \$200,000 less than in 1909. The value of the tight cooperage was \$345,164, an increase of \$100,000 over the 1909 value. There were, however, five hundred thousand pieces more of slack cooperage produced in 1910 than in 1909, the total number of pieces of slack cooperage turned out in 1910 being 152,925,000. In tight cooperage 8,716,000 pieces were used; this is 780,000 pieces less than in 1909. The increase in value of tight-cooperage stock is probably due largely to fuller reports rather than to a greater demand or growth in the trade.

In quantity, slack cooperage forms 94.6 per cent of the total and in value forms four fifths.

In slack cooperage, elm, spruce, poplar, and basswood are by far the most important woods of the fourteen kinds of woods used. The total of the manufacture of slack cooperage for the year was as follows:—104,821,000 slack staves valued at \$736,960; 9,860,000 sets of slack heading valued at \$330,480, and 38,244,000 hoops valued at \$328,105.

Elm continues to be by far the most important wood, but spruce is slowly becoming more important as a stave wood. These two species supply over four fifths of the entire stock. Balsam fir seems to be coming into greater favor, this species, as well as poplar and ash, being used to a much greater extent than in 1909.

In all items the average value of slack cooperage shows a decrease in 1910. Elm is the most expensive wood employed in large quantities, being worth \$7.78 per thousand. Basswood is next at \$7.37, and balsam fir cheapest at \$4.26. For headings basswood constituted almost half of the wood used. Poplar and spruce are the cheapest woods used. Prices for heading in 1910 fell off considerably, the average value of \$33.53 being \$18.50 less than the price in 1909.

For hoops over twenty times as much elm was used as of any other woods. Over one million hoops each of spruce and poplar were also used. Hoops also show a decrease in price for 1910, having fallen off \$1.29 per thousand. The most expensive hoops are those of basswood at \$9.86; elm hoops cost \$8.78 per thousand, spruce only \$5.38, ash, birch and maple about \$9.10.

Details of tight cooperage manufacture for 1910 were as follows:—8,379,000 staves worth \$272,924, and 337,000 sets of heading, valued at \$72,240.

The chief wood used in this industry is oak, which is imported from the United States, either as staves or in the log. Twelve species altogether are used in the manufacture of tight staves, spruce, gum, ash, basswood and birch being used next to oak. The number of sawed staves reported in 1910 was twelve hundred thousand less than that reported in 1909. The total value of sawed tight-cooperage for 1910 was \$53,590 more than in 1909. Of the total number of staves, 7,137,000 (85.1 per cent) were sawed staves, 923,000 (11 per cent) were ale and beer staves and 319,000 were bucked and split staves. The quantity of ale and beer stock reported in 1910 was seven times the amount reported in 1909. For the last two classes of staves, only fine-grained white oak can be used, and, as the white oak supply is rapidly decreasing, the production of these staves is falling off.

Of tight heading 337,000 sets were made having a total value of \$72,240 and an average value per set of twenty one cents. Of the tight heading manufactured in Canada in 1910, eighty six per cent was sawed, and fourteen per cent was ale and beer. Oak was used in the manufacture of three quarters of the sawed heading, and cost on the average twenty five cents per set. Spruce, Douglas fir, ash and basswood were also used, ranging in price from seven cents for ash and basswood to eleven cents for Douglas fir.

## THE FUTURE OF BRITISH COLUMBIA LUMBERING—Continued.

manager of large enterprises. A field which has as yet hardly opened, but which must in future grow large and ever larger, is that of forest engineering. Undoubtedly the time is at hand when the Provincial Government will employ technically trained men to look after the public forest interests. Private owners and operators will follow suit just as soon as they see that it is profitable to do so. Without doubt the course of events will follow closely the story of developments in the United States, where serious inroads have been made in the staff of the United States Forest Service by the lumbermen east, south, and west, who are willing to pay more liberally and advance more rapidly capable forest engineers than is practicable in the government service.

# Forestry and the Lumber Business.

By J. E. Rhodes, Secretary Weyerhaeuser Lumber Co.

[The writer of this article is associated with one of the greatest lumber concerns in the United States. While portions of the article refer especially to conditions in that great republic, these contain a moral for Canadians also, and the greater part of the article applies to conditions in both countries.—*Ed.*]

Forestry in its larger sense means the preservation of the forests for use. Using the forests involves lumbering; therefore forestry and lumbering must eventually become one consideration. Forestry which does not contemplate the use of the forest is not practical forestry and will not appeal to practical men. It is, therefore, necessary that the forester should know something of the conditions and necessities of the lumber business.

While I do not speak with authority, I am more or less familiar with the views which are held by many of the progressive men of the lumber industry upon the subject of forestry. It is not strange that the generation of lumbermen now passing had but little patience with the theoretical forester. The evolution of economic conditions is only just now beginning to make possible the consideration of the application of scientific forestry principles to lumbering operations with any hope of financial gain. While it is true that forestry methods are adaptable to lumbering in a small way in certain localities and in certain species of timber, it is impossible to apply them to the large lumbering operations in the Lake States, in the Southern States, and in the States of the Pacific Coast.

## Development of Lumber Business.

The lumber business has gone through several stages of development. Like everything else, it has proceeded along the easiest and most natural lines. Up to 1897 it was not considered more profitable than the majority of manufacturing industries—indeed, not as profitable as the average. Up to that time the views of our fathers still prevailed to the effect that the forests should be cut as rapidly as possible in order that the land might be opened for settlement.

With the prosperity and expansion of the nation, which began in 1898, the consumption of lumber increased beyond all precedent, and continued in a large way up to the close of 1907, when it was checked by the panic. During the ten years from 1898 to 1907 the abnormal demand for lumber was at times beyond the ability of the

mills to supply. This resulted in the development of new fields of timber in the South and West, gave a value to many kinds of timber which had been previously considered almost worthless, and stimulated the building of many new mills. This exploitation and development of the lumber industry did not cease until the producing capacity far exceeded all reasonably possible demands for lumber.

With the increased wealth of the people the demand for lumber increased per capita. From 1900 to 1908 the increase in population was estimated at 22 per cent., while the increase in the consumption of lumber was 65 per cent. The consumption of lumber per capita has been figured as 360 feet in 1890; in 1900 it was 460 feet, and, on the basis of the census of 1910, it was practically 500 feet.

## The Advance in Stumpage.

Answering to the law of supply and demand, the price of lumber advanced considerably during the period between 1898 and 1907. It was during these years that the public generally first came to realize that the timber resources of this nation are not inexhaustible. This realization marked the second stage in the development of the lumber industry in this country. Together with the extraordinary demand for lumber, it caused the value of standing timber to advance sharply. In 1890, Northern pine stumpage (the estimates of which included only the very best white pine) was sold for from 75 cents to \$4.00 per thousand feet, depending upon its location and character. To-day it sells from \$6.00 to \$14.00 per thousand feet, and the estimates cover everything on the land, including white and Norway pine, tamarack, spruce, balsam, fir, jack pine and anything that will make a sawlog. Yellow pine timber in the Southern States was considered of very little value and twenty five years ago sold for 50 cents to \$1.00 per thousand feet. To-day the production of yellow pine constitutes nearly one half the total lumber output of the United States, including the hardwoods. Yellow pine stumpage has risen from practically nothing to from \$3.00 to \$5.00 per thousand feet.

In 1890, the total production of lumber in the Lake States was over nine billion feet, while in 1910 it was only about two billion. More than five hundred mills which were at one time or another sawing northern pine in Minnesota, Wisconsin and

Michigan, are no longer operated, because there are no more logs to saw. While the output has declined in the Lake States, it has rapidly increased, because of the building of new mills, in the South and West, so that the aggregate production of the country has been growing. The census reports show the following lumber production of the United States in recent years:

|            |                      |
|------------|----------------------|
| 1904 ..... | 34,135,139,000 feet. |
| 1906 ..... | 37,550,736,000 "     |
| 1907 ..... | 40,256,154,000 "     |
| 1908 ..... | 33,224,369,000 "     |
| 1909 ..... | 44,585,000,000 "     |

### The Panic of 1907.

The decline in the production during 1908 was due to the financial depression following the money stringency of the last quarter of 1907. The entire lumber industry has been marking time since that panic. It is one of the very few businesses which have not fully recovered from the effects of the decline in prices suffered at that time. But it is significant that while the prices of lumber declined, the prices of standing timber did not. Partly as a consequence of the completion of new mills under way, the total production of lumber in 1909 was the largest in the history of the nation.

### Conservative Lumbering.

There is every reason to believe that the lumber production of the country has about reached its maximum. If generally favorable business conditions are to continue for a few years, it is evident that, with the decline in the output, the lumber business will soon enter upon the third stage of its development, namely, the adoption of conservative methods of handling timber. It is, therefore, easy to see why lumbermen are coming to realize that something must be done if their business is to be prolonged indefinitely. As long as the prices of lumber have barely covered cost of production, as has been the case with the great majority of manufacturers since 1907, no thought whatever can be given to forestry methods. Lumbermen know that timber products are indispensable to our civilization and that they can continue to be manufactured and consumed in the present volume but a few years at best.

When in the course of natural events prices of stumpage have risen to the proper basis, other conditions being favorable, scientific forestry will surely be adopted by lumbermen. They are too intelligent business men not to undertake those methods which will perpetuate their supplies of raw material and prolong their business. If forestry cannot be undertaken with profitable results it cannot be considered at all by private individuals, as they cannot be expected to conduct a work of this kind at

a loss to themselves, no matter how much they may be prompted by sentiment or regard for future generations. The price of lumber must reach a point where it will pay to grow trees or forestry cannot be thought of. The time when forestry can be seriously considered as a business proposition, therefore, depends entirely upon the development of economic conditions. It is to help them hasten these conditions that lumbermen will appeal to the foresters. Hence, the interests of the lumbermen and the foresters in working to this end are mutual.

### First Steps in Forest Management.

Aside from the present inadequate value of stumpage, the two great obstacles to forestry are, as you know, fire and taxation. When these problems are solved, the field for forestry will be open in America. If the professional forester is looking toward a vocation in economic forestry, outside of the Government service, he must first address himself to the task of subduing forest fires.

A field which promises some opportunities for trained foresters in the immediate future is in the service of the States. A number of the State Legislatures are at this time considering the establishment of State forestry work which will require the services of technically trained men. This work will be confined very largely at first to fire prevention, particularly in the Lake and far Western States. These states themselves own vast areas of timber, for which improved protection from fires will be demanded as it increases in value.

The first concern of the State foresters will be the organization of efficient patrol systems, with all that that involves, namely, securing the co-operation of private timber owners, educating the public by word and pen with regard to its interest in the forest—the fact that forest wealth is community wealth—impressing every citizen with the fact that every tree which burns is a direct loss to him. The work of creating a healthy public sentiment in favor of larger State legislative appropriations for the protection and management of forests will devolve upon the foresters. The enormous losses by forest fires in the past year have put the public mind in a more favorable attitude for advanced work along this line than it has ever been before. It has become recognized that the State should not only insure its own property from loss, but that it owes its citizens the protection of their lives and property as well. No one can do more to impress this fact upon people than the foresters, because when the timber owner announces any such propaganda his motives are immediately questioned. The people will recognize the forester as a man qualified to speak and speak unselfishly.

After they have reduced forest fire losses to the minimum, the next stage of the State foresters will be the inauguration of conservation methods in the handling of State timber, just as the Federal Forest Service has done. This will also include reforestation, which only the state and the nation alone can afford to undertake. State foresters will also be called upon to assist in the classification of lands suitable for the growing of trees as distinguished from agricultural lands. People are beginning to realize that it is a crime to put deluded settlers upon lands from which they reap misery and starvation instead of wealth and happiness. Hence, there will be a field for the professional forester in State work before there is an opening for him in private undertakings.

#### **The Forest Taxation Problem.**

Some timber owners are beginning to ask if it is not possible to put the forest upon a permanently paying basis by utilizing its productive power. In endeavoring to figure out what must be done in order that timber may be handled upon scientific forestry principles, lumbermen are confronted with the fact that the present system of taxation is an absolute barrier against the adoption of any forestry methods whatever. And here I will make a distinction between reforestation and conservative lumbering. Lumbermen believe that cut-over lands and lands not suitable for agriculture must be planted, if at all, by the State and National Governments. It is a work which cannot be considered by the present generation of business men as a profitable enterprise or investment, simply because in most species of timber the returns to be expected are inadequate and wholly problematical. The length of time required to plant and mature a crop of trees is too great to interest Americans. The State lives on, while individuals perish. The State can borrow money at two per cent., while the individual must pay five or six per cent., and while the individual must pay taxes in some form or other, the State is exempt. The actual planting of trees, therefore, is for the benefit of future generations, and must be done by the State.

Conservative logging, as lumbermen understand it, means the cutting of virgin timber so that the forest may perpetuate itself. This may involve the cutting of trees of certain species by diameter limit, the leaving of seed trees, leaving stands of young trees where under certain conditions their increase in size will be an element worth reckoning, the protection of watersheds, the cutting of timber for the creation of fire lines, ascertaining the rate of growth of different species in different localities, knowledge of the exact relation between the forest growth and timber consumption, etc. All these will have to be worked out by the technical forester. These

conditions vary in every locality and with every kind of timber and with the changing conditions of the lumber market.

In consulting the forester about conservative methods of logging, lumbermen find that the cost will be very greatly enhanced over present costs, and they are confronted with the question of what kind of tax they can pay and still leave a reasonable margin for the investment and risk. Scientific forestry must present some inducement as a business investment or it never will be undertaken. It is useless to expect men to look at it in any other light. It is evident that there will have to be a radical change in the present methods of taxation, and here again the public must be educated by the forester. He alone can show the people that there can be no real progress toward conservation so long as the present system of taxation remains in vogue. It is the most important question before the lumbermen to-day and will some day be one of the most important before the nation.

While many thinking people recognize the truth of this statement, it is to be regretted that up to this time the public generally has opposed any change in present methods of taxing timber lands. If the enthusiastic conservationists expect lumbermen to preserve their trees they must meet them on their own ground and show more of a spirit of harmonious co-operation than has so far been manifested. It is plainly to the interest of the foresters to show the people that so long as the forests continue to be taxed on the basis of an annual crop, holding young trees until they reach maturity means financial loss to anyone who attempts it. Such methods of taxation are in the end ruinous to the community also, for they encourage devastation and abandonment to the State of lands that thereafter yield no revenue either in the form of products or taxes.

At the present time the important matter of the taxes to be levied against timber lands rests entirely in the hands of the local assessors, whose only ambition seems to be to get the largest amount of money they can collect from the owners of timber in their counties. They hold that the more taxes lumbermen are required to pay the faster they will cut their timber, hence, the larger operations they will conduct, the more men they will employ, and the more quickly will the country be opened for settlement.

Timber is now taxed under the general property tax system, the same as most other forms of wealth. Assessments are usually made by men having no special qualification for the work. In some localities efforts are made to cruise or estimate the timber, but knowledge as to the amount and value of timber on certain pieces of land is generally gained from second-hand evidence or by very superficial examination of

the property. The increase in the values of forest lands for the purpose of taxation has been from four to five hundred per cent in many sections within the past few years. The rate of taxation varies according to the township or county in which the timber is situated, and widely different assessments are made by different tax assessors residing in the same towns so that there is no uniformity in either the rate or valuation. There is nowhere in the United States any uniformity for levying assessments on timber or cut-over lands.

The results of such haphazard methods are frequently surprising. It is utterly impossible to make anything like a definite statement in regard to these matters because of the great variation in assessments and rates upon the timber in the same localities and of apparently the same value. The system of taxing timber as other property is taxed was long ago abandoned by every other progressive nation. To ascertain what the actual burden of taxation on timber lands in this country is today will require an exhaustive study covering a long period of time.

I do not know that excessive taxation has as yet prevented the adoption of forestry methods by lumbermen, for the reason that other conditions have not been propitious. The price of stumpage has not yet reached that point where such methods can be applied even if there were no taxes. It is significant that in the localities and species where timber prices are the highest taxes have correspondingly risen. This is true in the white pine of the Northern States where the taxes are much higher than upon timber in other sections. Conservative methods might be undertaken in logging white pine if there were no annual taxes, were it not for the fact that physical and climatic conditions are far more favorable for securing natural reproduction in yellow pine of the Southern States, and in the fir of the Pacific Coast States. This is, of course, due to the more rapid growth of the latter two species. I believe that the pine forests of the North will have to be sacrificed before Southern and Western timber has reached a value which will make it possible to log it in a way to secure successive crops. All but a remnant of the northern forests will be gone under present conditions inside of fifteen years. I do not believe that the Northern States will present a field for the activities of the forester, except in State and Federal service, to be compared with the opportunities in the Southern and Western States. Private forestry will offer very little inducement to the owners of Southern and Western timber inside of ten to fifteen years, and it never will be much of an inducement until the tax is made to follow the saw.

A tax upon the timber crop when it is cut would make it unnecessary for the owner to put up additional capital to sus-

tain his property as is necessary under the increasing annual tax. A tax on the yield would make it an object for the timber owner to hold his property for future speculative values as it would entirely eliminate the principal element now entering into the carrying charge when considering what the final cost may be of holding a tract of timber. The problem of how best to tax timber wealth in such a way as to encourage forestry, while at the same time making it bear its just burden of the expense of government, is one in which the foresters can very properly interest themselves.

#### Private Work.

The question now arises in your minds as to what there is for the forester to do until that time when conditions are favorable for the adoption of private forestry upon a large scale. The foresters who are looking to the immediate future need not despair, although I am free to confess that the opportunities outside of State and National work are not as promising as many have doubtless been led to believe. The foresters will find a limited field with the operators who take contracts to cut timber off Government land which require more or less forestry regulations. In a short time, the States will demand the same requirements of those who log timber upon State lands. If the young foresters desire to spend a few years in living in the woods, a limited number of men can even now find employment as timber cruisers. As stumpage increases in value, the old-fashioned haphazard methods of estimating timber are found to be unsatisfactory. Lumbermen, especially those operating in white pine, have found that trained foresters can estimate the amount of timber on a given tract of land much more closely than can the old-fashioned cruiser. A trained forester consumes considerably more time in estimating timber than does the old time woodsman because he calipers trees, but his increased accuracy is worth far more than the difference in cost. The forester who seeks employment with lumber companies must be skilled in work of this kind, and the time is not far away when those dealing in timber lands will require that the estimates of standing timber be made in a careful and scientific manner, to include accurate map work and detailed reports of topography, species and the general physical conditions of the country covered. This work requires men of good physique who are willing to live in the woods for months at a time. It is about the only branch of the lumber industry, as it is at present conducted, in which the scientific knowledge of the forester can be especially serviceable. There are other departments of the business in which the forester can engage, but they will only make a partial demand for his knowledge of forestry.

There are but a very few lumbering operations of any size in this country today, outside of New England, where trees are logged with an idea of obtaining a second crop. In some regions a greater precaution is taken to prevent fires than in others, which, of course, gives natural reproduction a chance.

**Summary.**

The history of European forestry is repeating itself in the United States. We are progressing along exactly similar lines. The price of standing timber abroad averages about as much as the price of manufactured lumber in this country at the point of production, and long before stumpage here has reached a valuation equal to that in Europe, our forests will be protected, conserved and most carefully managed. As soon as there is a sane system of taxation of timber lands, and adequate protection from fire, we shall begin to practice forestry more extensively. It will accompany and be in proportion to the increase in the value of timber. For this reason there will be no timber famine in America.

In seeking to solve the question of fire risks and taxation, the foresters will not only hasten the day when their own services will be in demand but they will be at the same time performing a service of benefit to mankind.



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(Continued from page 142.)

**Ottawa Attractions.**

The Canadian Capital has many attractions in February. Parliament is in session and all business, manufacturing and social activities are in full swing. Winter sports, including hockey, snowshoeing, skating, skiing and curling are at their height. The Mint, Archives, Museums and Experimental Farm are open to visitors. The Canadian Lumbermen's Association meets on February 6th, and the Canadian Seed Growers' Association on February 8th and 9th.

**Hotel Accommodation.**

In order to give visitors to Ottawa who are not acquainted with the city assistance in regard to accommodation, the names of several of the leading hotels with their rates are given below. Accommodation may be secured by writing or wiring in advance.

- The New Russell, European Plan, \$1 to \$2; with bath, \$2.50 to \$3.50.
- The Grand Union, American Plan, \$2 to \$2.50; with bath, \$3.
- The Windsor, American Plan, \$2 to \$2.50; with bath, \$3.
- Hotel Cecil, American Plan, \$2 to \$2.50; with bath, \$3.
- Alexandra Hotel, American Plan, \$2 to \$3; with bath, \$3.

Further information concerning any details of the Convention will be gladly furnished by the Secretary, Canadian Forestry Association, Ottawa, Canada.

The largest quantity of square white pine timber ever exported from Canada in any one year was that exported in 1868, when 37,954,788 cubic feet were exported, valued at \$2,467,629.

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The title page and table of contents to Vol. VII. (1911) have been printed and may be obtained on application to The Editor, Canadian Forestry Journal, Canadian Building, Ottawa.

To the Secretary, Canadian Forestry Association,  
Canadian Building, Ottawa, Ont.;

I hereby suggest the names of the following persons as likely to become members of the Canadian Forestry Association:

| Name. | Address |
|-------|---------|
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