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# Canadian Forestry Journal

Vol. VII.

SEPT.-OCTOBER, 1911

No. 5



[Photo A. Mitchell.]

Plantation (Manitoba Maple and Ash) in Central Saskatchewan, Showing Result of Four Season's Growth.

**ANNUAL CONVENTION:**

**Ottawa, Feb. 7 & 8, 1912.**

OTTAWA, CANADA.

# Canadian Forestry Journal

## 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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## QUEBEC CONVENTION REPORT.

(French edition.)

Various causes have delayed the publication of the French report, but the printing of the volume is now well under way, and it is hoped that it will shortly be ready. The secretary will be pleased to receive requests for copies of the report, which will be filled as soon after receipt as possible.

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
.....	.....
.....	.....
.....	.....
(Signed) .....	.....

## CHANGES OF ADDRESS.

The secretary would be grateful if members of the Association would promptly notify him of any change in their addresses, so that the addresses on the mailing list of the *Journal* can be kept correct. Persons removing from one place to another should give both the old address and the new; this will greatly assist in the corrections.

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VOL. VII.

OTTAWA, SEPTEMBER OCTOBER, 1911

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Single Copy, - - - 25c

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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.

Advertising rates on application.

EDITORIAL COMMITTEE:— F. W. H. Jacombe and Jas. Lawler, Editors; G. C. Piché, Associate Editor; Thos. Southworth, R. H. Campbell, J. M. Macoun, A. Bédard.

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## THE 1912 ANNUAL MEETING.

At the meeting of the Directors of the Association, a full account of which will be found elsewhere in this issue, the date for the next regular annual meeting of the Association was fixed for

FEB. 7 AND 8, 1912.

This meeting of the Association promises to be one of special interest. Topics of immediate and vital importance to foresters, lumbermen and the public generally are on the roster for discussion. Besides many of the most prominent men connected with the movement in Canada, it is hoped that several well known authorities from the United States and even from England will be present and assist in the discussions. The convention will assuredly be worth making a great effort to attend.

The date for the meeting follows immediately on that of the Canadian Lumbermen's Association, and it is proposed to have a joint banquet of the two associations on the evening of Feb. 7.

Further particulars will be given in the next issue of the Journal.

# Directors Meet.

Date of Annual Meeting Fixed for February 7 and 8, 1912, at Ottawa.

A meeting of the Directors of the Canadian Forestry Association was held on the afternoon of Oct. 20th at two o'clock in the office of the Director of Forestry, Ottawa. Mr. G. Y. Chown, of Kingston, president of the association, was in the chair, and there were also present Messrs. Wm. Little, H. M. Price, R. H. Campbell, Ellwood Wilson, J. W. Harkom, J. Lawler, secretary, and F. W. H. Jacombe, assistant secretary.

The chief business before the meeting was the setting of the date and place for the 1912 annual meeting of the association. It was decided that the annual meeting should be held at Ottawa on February 7 and 8 next. This is immediately subsequent to the meeting of the Canadian Lumbermen's Association, which convenes on Tuesday of the same week. Mr. Campbell was appointed as a representative of the Forestry Association on a joint committee of the two associations to make arrangements for a joint banquet on Wednesday evening and other matters to be arranged in common.

A committee of three, consisting of the President and Messrs. R. H. Campbell and Gordon C. Edwards, was appointed to arrange the programme of the annual meeting.

The following resolution of regret at the death of the late E. G. Joly de Lotbiniere and appreciation of his work for the association was passed:—

Moved by Mr. Herbert M. Price, seconded by Mr. R. H. Campbell, and resolved:

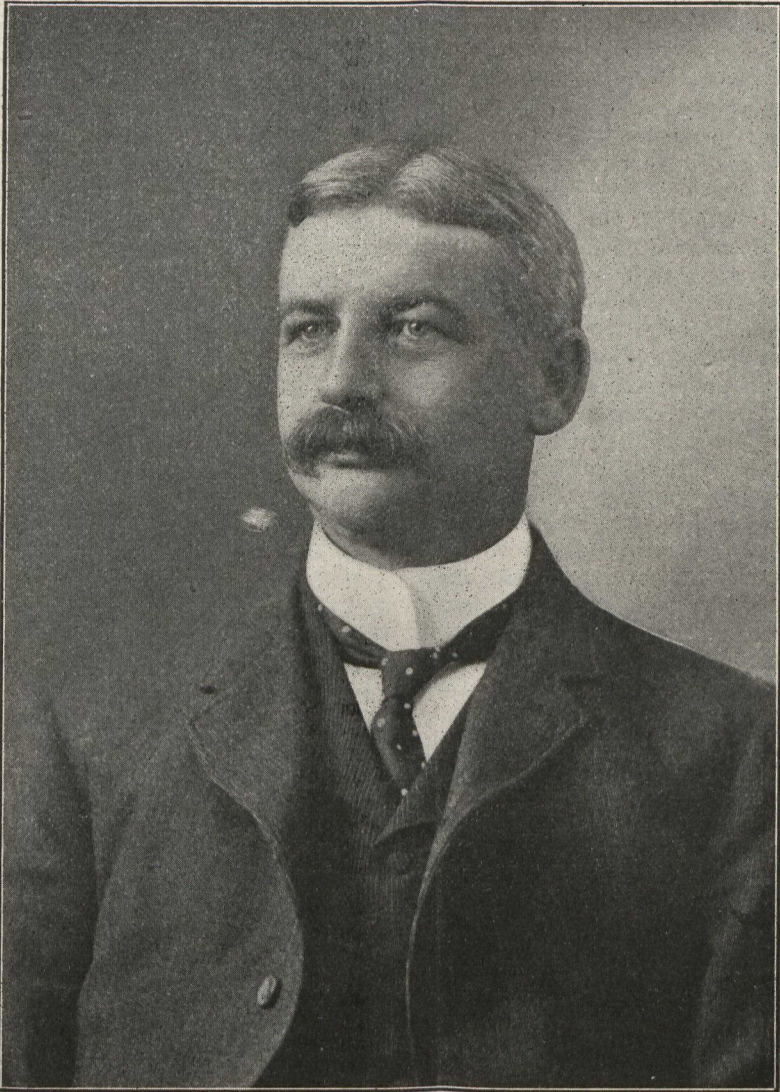
'That the Directors of the Canadian Forestry Association desire to place on record their sense of the

great loss sustained, not only by this Association but also by the friends of forest conservation in Canada, by the death, at the comparatively early age of fifty-one years, of Mr. Edmond G. Joly de Lotbiniere. Like his father the late Sir Henri de Lotbiniere, one of the founders and first president of this Association, he always took the deepest personal interest in its work. For a number of years he was a Director and filled the office of President in 1906 on the occasion of the first National Convention in Ottawa. His efforts assisted in making that great meeting the success it was.

As a member of the Local Committee he worked hard and with great efficiency in arranging all the local details for the Quebec Convention of 1911, particularly in regard to the outing at Montmorency Falls. At all other times he gave unsparingly of time and thought for the advancement of the Association and the cause it represents, and on his seigniorship of Lotbiniere through a number of experiments, endeavoured to ascertain the most practical methods of protecting and developing the forests of Quebec. Besides this, the Directors desire to record their sense of the loss to his province and country of a citizen whose loyalty, integrity and consideration for the rights and feelings of others were always beyond question and who "ever bore without reproach the grand old name of Christian Gentleman".

To his family and relatives the Directors of the Canadian Forestry Association offer their heartfelt appreciation and sympathy.'

After the close of the meeting the president and a deputation of the



**G. Y. Chown, Esq., B.A., President Canadian Forestry Association, 1911-1912.**

directors waited on the new premier, Hon. R. L. Borden, in his office, in order to present to his consideration the work and objects of the association, and were given a cordial reception.

#### **Changes in Constitution.**

Notices of motion for any change in the constitution of the association should be in the secretary's hands not later than Dec. 31st.

# Must Move Forward

Forestry in Canada has now arrived at that dangerous stage when all men speak well of it; as one leader recently remarked, 'If there was only some expressed opposition to forestry we could more readily make real progress'. Ten years ago Forest Conservation in its now generally accepted sense was practically unknown. Today everybody knows of it and has an idea, in a general way, that it is a good thing. But the difficulty is that now there is so much spoken, written and printed about conservation that far too many people believe that the work is progressing satisfactorily and that the volume of talk represents work done. In fact, public opinion is by the very frequency of the mention of conservation being lulled into false security. People believe that all governments, institutions and persons connected with forestry are alive to the dangers of deforestation, and have taken protective measures accordingly. As a matter of fact, as everyone knows who has looked beneath the surface, we in Canada are just about ready (or ought to be) to begin to do something.

People who read in the papers these days a great deal about Conservation imagine that all is well with Canada in this respect, and that, since the watchmen are awake, they can sleep comfortably in their beds. On the contrary, if they will take up the report of the Minister or any other official in charge of the public forests, they will see that instead of there being cause for complacency the situation is actually critical. From every one of these comes the same report, that at present he is concentrating what men and means he has on the problem of fire protection, but, in spite of this, fires are constantly destroying the

best timber areas. Even where the officials have for years been able to keep out fire, the cutting of the best species of trees is giving opportunity for the growth of inferior trees, so that the whole character of the forests is undergoing a steady change for the worse, and the result will be that from a timber-producing standpoint they will in a few years have little or no value at all.

This is not intended to be an alarmist article, but simply to emphasize the point that, whereas the average good citizen believes that Canada is doing all that is required to protect and even increase her timber resources, the plain fact of the matter is that in this regard we are doing nothing at all. As stated before, the responsible authorities tell you they can only endeavor to protect what remains of the virgin forests from fire, and that for this they have very inadequate means. In regard to the re-stocking with valuable timber of lands unsuited for agriculture, however, there is practically nothing being done from Nova Scotia to British Columbia. There are millions of acres of lands belonging to the state which are fit for no other purpose than to grow trees. They bear no timber trees today and in fifty years, if present methods continue, they still will be lacking in merchantable timber. The great Miramichi fire took place in 1825; today after eighty-six years that once magnificent pinery has scarcely a timber tree on it, while pine has practically disappeared, not only from that district, but from the rest of New Brunswick and from large sections of Quebec. Now, if the other millions of acres of cut-over and burnt-over lands in Canada are not to be in the same useless condition at the end of another eighty-six years, then we must take warning and see

that some means are adopted for stocking them with the kind of timber trees best suited for the region.

Practical Forestry has now been conducted on professional and profit-producing lines for a long time in Europe; the statistics regarding forest production under rational management date back over a century. It is not suggested, however, that the time has come when in America, and (to bring the matter closer home) in Canada, we should put into force European methods. We shall probably never use these methods, certainly not in their entirety; conditions are different and so methods must necessarily be different.

On this continent forestry has been practiced long enough to give us the data to show what it costs and what profits it can be made to pay. There is no necessity for us in Canada to go to Europe in order to study forestry methods; much more useful would be found a tour of the United States National Forests, whose methods of management are being based to an ever increasing extent on the studies carried on by the Forest Service for years past, supplemented by whatever of European practice has been found serviceable under present American conditions.

Much more is already known of proper methods of managing Canadian forests than has ever been put into practice; what is needed is the chance to do what we know ought to be done. More money and more faith in the future are needed. The expense of organizing the immense forest areas of our country and of initiating the proper methods of management on them must necessarily be great. For years the forest reserves cannot reasonably be expected to return more than a fraction of the money spent on them. There can be no reasonable doubt that they will do so eventually, and the government can afford to wait

that time as no private individual could.

This fact is clear from the experience of all times and of all continents that in forestry, just as in agriculture and in everything else, in order to get profits an investment must first be made. If cut-over and burnt-over areas are left to themselves they will not produce any profits from wood-crops or afford any protection to agriculture and stream-flow. If they are given a little protection they will produce a small crop of inferior wood; and if the matter be taken up in a rational way as a man would take up farming, profits will be obtained in proportion to the judgment exercised and the money expended.

It pays and pays well, to spend money on the forests. The countries which deal most generously with their forests have the handsomest returns. Saxony, as mentioned elsewhere in this issue, spends an average of \$3.46 per acre on her forests every year, and gets, as return for this expenditure, a profit, over and above the expenditure, of \$5.32 per acre. Wurtemberg, spending approximately \$3.25 per acre per year on her forest land, makes a profit of approximately \$8.00 per year. France, in return for an expenditure of \$1.00 per acre on the forests, obtains, over and above this, a revenue of \$1.72 per acre. When we come to forests less intensively managed, Austria, spending some 72 cents per acre per annum on her woodlands, makes therefrom a net profit of 28 cents. Sweden, spending one cent per acre on the forests, gets a profit of 6 cents, (part of it, probably, paid out of capital) while Russia, with the same expenditure, gets three cents per acre. India spends six cents per acre per year, and gets a return of four cents above her expenditure.

To mention reforestation brings up in the minds of many people the

vision of the forester as the man with a spade who goes out to plant one tree at a time. Now, as a matter of fact, at the present prices of lumber, labor and land, the denuded areas of North America are not going to be restocked by planting. Where trees of a desirable species have completely disappeared so that none are left for seed, there will have to be some planting, but to let things go until planting becomes a necessity will be to spell ruin, will be to bring in a state of affairs from which this country will not recover for a century or more. The forester is the man with the axe. The forester is, in fact, the lumberman working under improved conditions, and there is no time when these conditions can be improved so cheaply and with such good results as at the present.

To say all this is not to imply that the various Crown Lands and Forestry Departments of the Dominion are not alive to their duty, or that the lumbermen are all blameworthy, or that governments have not made, according to the state of knowledge, considerable provision for this service in the past. We believe that for years those directly responsible for the forests have been doing their duty as well as circumstances permitted. They have been more concerned, and are

more concerned today, than anyone else in the country, but they have been, according to the old fable, expected 'to make soup out of stone'. The territories in their charge have produced a large part of the revenue which carried on the administration of affairs in this country, and we, the public, have not heeded their constant statement that if they were to be expected to provide a continuous revenue they must be given the means and the men to lay out a rational system by which the various forest areas would be restocked and allowed to grow without being burnt up.

As we have said, the public believe that forestry work in Canada is completed, that everything is in hand and that nothing more remains to be done, whereas in reality we have not yet started. It is therefore proposed to take up in the *Canadian Forestry Journal* from time to time specific cases of lands suited only for timber, to show their present state, what will happen if they are allowed to remain as at present or grow worse, and on the other hand what could reasonably be expected if they are properly handled, and to state as nearly as possible what will be the cost and what the profit, both direct and indirect, of rational treatment.

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## The Turtle Mountain Forest Reserve.

The Turtle Mountain Forest Reserve is one of the smallest of the Dominion forest reserves, but it is situated in very close proximity to a flourishing and prosperous farming community and to that section of Manitoba is of much importance.

The reserve consists of a tract of some 70,000 acres of land situated in Township 1, Ranges 19 20, 21

and 22 west of the principal meridian. It is thus in the very near vicinity of a number of flourishing towns, among which are Deloraine, Boissevain, Waskada, Ninga and Killarney. It is distant only about sixty miles in a direct line from the city of Brandon and forty miles from the town of Souris.

The land is from 300 to 500 feet



higher than the surrounding prairie. About 15,000 acres of it are occupied by lakes and 'sloughs', and so are under water, either permanently or for the larger part of the year. The soil is an impervious clay and the tops of the hills are sprinkled with boulders.

In the summer of 1904 a thorough forest survey of the reserve was made by a party under the direction of Mr. R. D. Craig, B. S. A., F. E., then Inspector of Forest Reserves, and the report of the Department of the Interior for 1906 includes Mr. Craig's report on the reserve as a result of this survey.

#### **Not Suited For Farming.**

Why should not the land be occupied for farming? is a question that naturally strikes one. For several reasons the district is not naturally suited for agriculture. To begin with, the land lies at such an altitude that crops would always be subject to early and late frosts. The soil is a very heavy, cold clay and could be worked only with difficulty. The drainage of the tract is very poor, as evidenced by the large number of lakes and sloughs, and the hilly topography makes it out of the question to use the land for any other agricultural purpose except for grazing. 'The soil in the reserve is mostly a clay loam with a few boulders', Mr. Craig says in his report on the reserve in 1905, 'but the configuration is so rough and so much of the area is in muskeg and sloughs that it is unsuitable for agriculture.....Attempts which I saw to produce grain were failures'. The conformation of the country results in the formation of many 'pockets', in which the frost would be almost sure to cut down crops except in favorable seasons. With hundreds of thousands of acres of desirable farming land of the highest fertility surrounding it, it seems little likely that anyone would desire such a tract for agriculture.

#### **Possible Production.**

Deducting the 15,000 acres of the reserve that are under water, there remain 55,000 acres of land suitable for growing trees. Up to the present the revenue derived from the timber and other resources of the reserve has been negligible.

From the data secured by the survey party from their strip surveys and tree and stump analyses, Mr. Craig found that the average annual growth per acre on the reserve might be conservatively estimated at one cord. Even if stocked only with the species of trees at present growing on it, cut on a forty-year rotation (that is, if the trees were allowed to grow to an average age of forty years) the reserve would produce a supply of 55,000 cords of wood per annum, or, in other words, the new wood formed every year on the entire reserve would be the equivalent of that quantity of timber. This could be obtained with little or no more expense than that of adequately protecting the reserve from fire and having the cutting properly regulated; and this result could be brought about through the expenditure of only a few thousand dollars annually. Thus, at the price of \$1.00 per cord on the stump (surely a reasonable price in these days of scarcity of fuelwood) the reserve would produce an income of \$55,000 per year. Of this amount, if but \$15,000 per year were spent on its upkeep, there would still remain an unexpended balance accumulating at the rate of \$40,000 per year. As a matter of fact, whether this amount be actually realized by the cutting and sale of the wood or no, the wood is still accumulating just as surely as bank interest and the value of the wood in the reserve is increasing by this amount.

The experience of European countries establishes the fact that the larger the amount spent on the cul-

tivation of the forest the greater is the return from it after all the expenses of management are paid. Saxony, for example, obtains from her forests an average return of some \$8.78 per acre, gross, but of this amount an average of \$3.46 (over three eighths of the total) is spent on the administration of the forest, leaving a net profit of \$5.32.

The calculation of growth just quoted, moreover, is made on a very low basis. Poplar, useful as it is where no other timber is available, is a wood of comparatively little value. There are other trees of much higher value which can be used for stocking the reserve.

Many stumps remain even now on the reserve which show the size attained by the oak and elm which once grew there. Oaks up to a diameter of 22 inches were found and 16 to 18 inches in diameter was not an uncommon size for this species to attain. The management of these may, for the present, be of the simplest kind, as they sprout readily, and coppice management would be satisfactory. No expense would be entailed in this except that for protection and occasional thinning. It is estimated that the reserve, if properly stocked with oak, would yield some six million feet of timber of that species per year—a quantity not lightly to be passed over when it is remembered that all the oak used by the woodworkers of Manitoba (the agricultural implement and vehicle manufacturers of Manitoba alone used, in 1910, 1,835,000 feet of oak) had to be imported.

#### **Administration of the Reserve.**

The objects of administration must be several in number. First of all must come the protection of the reserve from fire. Then will come the regulation of the cutting of the remaining timber. An ideal arrangement would be the regulation of the cutting so that a fixed amount could be cut annually, the same for every year, and probably time will bring

this about. For the present the aim must be to restrict over-cutting, to regulate cutting methods so as to minimize waste (e.g., avoiding the cutting of high stumps, making it compulsory to use the tops down to as small a diameter as practicable, the clearing up and destruction of debris, etc.) and, above all, protection from fire. After that will come the question of the re-stocking of the reserve, whether by natural regeneration, or by planting.

For many reasons a system of roads and trails throughout the reserve is a primary necessity. In order to get a force of men and supplies quickly to the place of a fire, roads are imperative. In order to open up the reserve, to make it possible for the timber in the central parts of the reserve to be cut and taken out and to render accessible to the public those parts of the tract that are fit for summer-resort uses, the roads are equally necessary.

The necessity of roads for adequate fire protection is emphasized by Mr. Henry S. Graves, Chief Forester of the United States, in his recent work, 'Principles of Handling Woodlands', and also in his Bulletin (No. 82 of the U. S. F. S.) entitled 'The Protection of the Forests from Fire'. He writes: 'An ordinary dirt road ranks as one of the best of all fire-lines. The wider the road is, the more effective it is. A forest well cut up with roads is, therefore, much more easily protected than one with few or no roads.' And again, speaking of trails, he writes: 'The first object of trails is to open up a forest and make it accessible for patrol and for fighting fires. In the National Forests this work of trail construction constitutes the first step in organizing for fire protection.....The trails in the National Forests are permanently constructed, and are designed for saddle and pack-horse travel. While their first purpose is to facilitate

patrol and access to a fire, they may be used as starting points for back firing, and will often check or actually stop a small surface fire.'

The construction of telephone lines from point to point within the reserve is a measure of great importance, primarily for the sake of fire protection and also for the great help it would afford in its general administration. In the bulletin already referred to Mr. Graves writes: 'One of the great difficulties in extensive forest districts is to secure the necessary help in fighting fires. The telephone is the greatest aid in fire patrol. It enables the man who discovers a fire to call for help and to give directions as to the number of men and the equipment needed. By the use of the telephone on the National Forests millions of dollars have doubtless been saved. The Forest Service has since 1906 built 4,850 miles of telephone line and it is extending the lines as rapidly as Congress furnishes the funds for the work.'

To make all parts of the Turtle Mountain reserve easily accessible by a system of roads would not be an expensive matter. About 30 miles of new road would suffice, and road-building within the reserve can be done at a cost of about \$40 per mile.

The installation of a telephone line is not so expensive a matter in a forest as in a cleared country, where poles must be provided, transported and set up. It is estimated that the telephone line can be built for \$40 per mile. Only about 30 miles would be necessary, making the cost for this item some \$1,200.

### **Benefits of the Reserve.**

At this moment the fuel question has reached an acute stage throughout the prairie provinces, owing to the labor difficulties in the Alberta coal mines. Consequently, the advantage of such a constant, dependable supply of fuel needs only to be

mentioned to be conceded. It is not the first time in recent years—even within the past five years—that the same question has come to the fore. Is it worth nothing to the people of this district to have at hand at all times a plentiful supply of good fuel to mitigate the rigors of a western winter? The annual production of fuel wood on this reserve would give to every one of the 29,427 inhabitants of the electoral district of Souris (according to the returns of the census of 1906) nearly two cords of wood per year.

Out on the plains of Saskatchewan, in an entirely treeless land, timber has to be freighted hundreds of miles and the settler there can readily appreciate (as who, indeed, cannot?) the advantage of having a supply of timber practically at his door. Poplar is a poor timber, someone may object. With the growing scarcity of timber of all kinds, however, species formerly regarded as inferior are coming more and more into use, and many an Ontario man who, twenty years ago, would have nothing but the finest white pine, will today accept without question the erstwhile despised hemlock. Moreover, if poplar will not fulfil the requirements entirely, there are better kinds of timber that can be grown on the reserve.

The 55,000 cords of wood would, at the low ratio of 300 board feet of lumber per cord, amount to 16,500,000 feet of lumber per year. Now, the average annual cut of lumber per mill in Ontario in 1909 was somewhat less than 1,600,000 feet, so that the lumber thus produced would keep busy ten saw mills of the average size of those operating in Ontario during that year.

The question of the value of the reserve as a summer resort has also to be considered.

### **If Settled, What?**

If, on the other hand, the tract is thrown open to settlement, what is

the likely consequence? The experience of older provinces and of foreign states and countries (e.g., Wisconsin) furnishes some idea of the probable result.

Ontario, the most advanced of the older provinces, can suggest an answer. Thirty years and more ago, through a mistaken policy, the district of Muskoka was thrown open for settlement. Many went into the district with fond hopes of establishing comfortable homes, making good livings and acquiring competencies, and, years afterwards, many of these persons would gladly have sold out for a song, had they been able, and left for more fertile fields. But who would buy?

Some of Ontario's older countries furnish additional examples. Years before the settling of Muskoka, settlers went on the sand lands in Norfolk and other counties in the southwest part of the province. For a time things went well. But ere long the humus of the soil was exhausted and its fertility disappeared, the crops were restricted to the rough grains like barley and buckwheat, and the farmer of a couple of hundred acres found that the results of his year's work gave him little more than the same number of dollars. He gained a bare subsistence and his farm grew worse and worse.

Not the least lamentable consequence is the moral deterioration that frequently comes to people so situated. Few in Ontario can have forgotten one revolting case that happened recently, in which the fact of people having settled on, and tried to make a living off, forest land has undoubtedly a bearing. And not all such cases come to trial.

In his report on 'The Reforestation of Waste Lands in Southern Ontario', Mr. E. J. Zavitz, speaking of this social aspect of the question, writes: — 'Many estimable and worthy families have mistakenly settled in these non-agricultural dis-

tricts. The tendency, upon realizing the hopelessness of farming under such conditions, is to sell out or abandon the farm. Too frequently, however, it is impossible for them to sell the land and find means with which to better their conditions. This last state of affairs presents a sad problem. The most serious situation, however, is that in which the settler makes no struggle to improve his surroundings, but simply drifts, and gradually degenerates along with the land. It is not advisable to describe in these pages conditions such as actually exist in some parts of Ontario. A knowledge of the social conditions in these non-agricultural areas would itself be a convincing argument that such lands should be managed only for forest growth. These districts under attempted agricultural management cannot properly support social organizations, such as schools and churches. The state cannot afford to allow citizens to live and develop under the enforced conditions existing in many of these waste areas'.

Canada wants no 'poor white' element among its citizens.

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#### FORESTRY IN SCOTLAND.

The secretary for Scotland in the British parliament has appointed a committee to consider and report on certain questions relative to forestry in Scotland. The terms of the reference to the committee are as follows: 'To report as to the selection of a suitable location for a demonstration area in Scotland; the uses, present and prospective, to which such area may be put (including the use that may be made of it by the various forestry teaching centres in Scotland); the staff and equipment required for successful working; the probable cost; and the most suitable form of management. To report as to any further steps following upon the acquisition of the said area which, in the opinion of the committee, it is desirable should be taken with a view to promoting sylviculture in Scotland, due regard being had to the interests of other rural districts.'

# Hudson Bay Timber Survey.

Work of Dominion Forest Service Along Proposed Route of Hudson Bay Railway in 1911.

By F. W. Beard, B.S.F.

During the past summer a party under the writer's charge continued the timber survey of the Hudson Bay line from the point where Mr. Dickson's party discontinued its work in 1910. This was at the Manitou rapids, where the proposed railway line crosses the Nelson river.

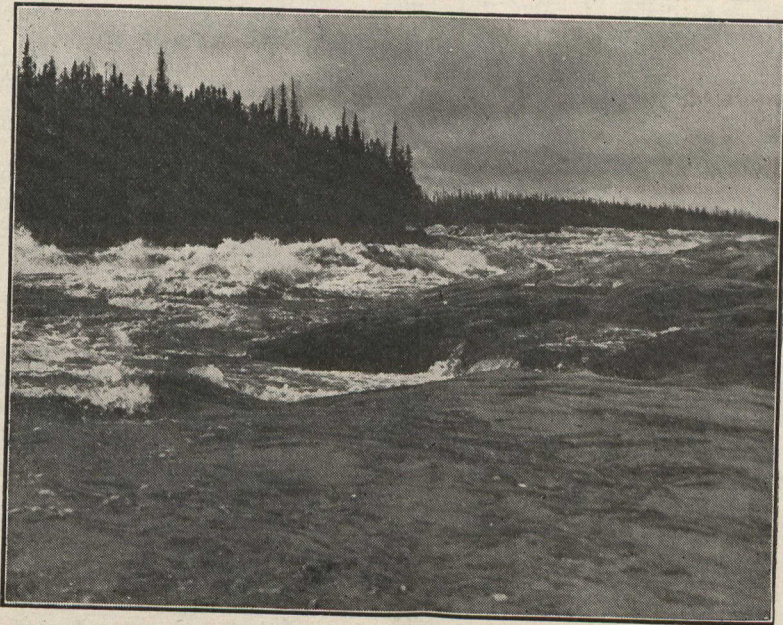
The 1911 party went into this district by way of Lake Winnipeg on the SS. Wolverine, by which they were conveyed to Norway House (a Hudson Bay post situated at the north end of Lake Winnipeg). From here the journey was continued by way of the Nelson river, the party travelling in canoes. The proposed

line of the railway was picked up where it crosses the Nelson river, at Manitou rapids.

The line of the railway, as projected, follows the Nelson river to Hudson Bay (a distance of 160 miles), so the party was able to keep parallel with the railway line by using the Nelson river and its tributaries as a means of transportation.

## The Topography.

The absolute elevation of the country surrounding the Manitou rapids is 500 feet above sea-level. The surface of the total area covered varies from undulating to nearly level. The territory surrounding



A Typical Scene along the Nelson River.



### **Ascending a Rapid on the Kettle River.**

the Manitou rapids is composed of areas of occasional granite rock outcrop, worn down to the general level of the country by the glaciers of the glacial period.

Further down the Nelson river towards Hudson Bay the country is practically level, with a slight northern exposure. The divides between river courses are very low, and it is not uncommon to find a muskeg situated on the divides.

There is a moderate slope down toward the Bay, and it occurs in east and west undulations, so that there is no drainage except by the Nelson river down to the Bay.

#### **The Work of the Party.**

The work of the party was of the nature of a reconnaissance survey, with the object of determining the nature of the forest cover, especially with regard to the suitability of the timber for railway ties.

#### **The Forest Growth.**

The type of the tree-growth is spruce-tamarack-poplar-pine. Black spruce predominates, associated with tamarack on semi-muskeg areas.

Aspen and jack pine occur in mixture with the spruce on ridges and along water courses.

Black spruce is primarily a swamp tree, and is a common inhabitant of cold poorly-drained muskegs, so is a typical tree for this country. It occurs in pure, dense stands producing trees small in diameter and stunted in growth.

Jack pine and aspen occur on very limited areas and in small quantities throughout the territory. The type disappears entirely 100 miles from Hudson Bay.

#### **Fire and its Work.**

Fire is the greatest destructive agent in this country at the present time. Nearly the whole area covered, it was found, had been burned over within the last fifty years. The spruce forests are peculiarly exposed to the danger of fire in dry seasons. The trees are small in size and of coniferous species and grow in dense stands. This combination of qualities renders the forest especially subject to fire. A fire sweeping through a stand of black spruce, if it does not completely destroy the

trees, burns the moss away from the roots, thus leaving the trees unsupported, and kills the individual trees by scorching the foliage and injuring the cambium.

It is very difficult to protect this region at present, as it is so remote from any means of transportation, but the country is, and should be, protected, as far as it is economical to preserve the present stand for the

protection of game and fur-bearing animals. The watershed of the Nelson river should be protected by keeping the forest-cover established.

Although the supply of ties is rather limited, the possible supply of cordwood, fence-posts and mining props is enormous. On account of its remoteness from settlement, however, it has little commercial value.

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## Forestry Branch Field Work, 1911

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The work of the parties throughout the west has been considerably hampered in nearly every case by continued wet weather. Of the two parties under Mr. Edgecombe, the northern party reached Hay River about the middle of August and continued the work until they tied in at the junction of the fifteenth base line and the sixth meridian, when a number of the members had to leave the party to return to college. The southern party was also considerably delayed on account of rain and consequent floods in the rivers. Of the eastern boundary of the reserve from the eleventh base line to the Grand Trunk Pacific Railway line some forty or fifty miles were left uncompleted by the party, but it is expected that these will be covered before the end of the season.

Mr. D. R. Cameron, who is engaged in the timber survey around Lesser Slave Lake, also reports very bad weather. On the whole the results of the survey are rather disappointing, although it was feared that, as the result of fire, no great amount of mature timber would be found. The country has been explored to an average depth of twenty miles around the lake. For the most part, only small patches of large timber have been found, most of the country south of the lake being waste land with only scattered

reproduction, and that mostly popular. Some good timber, however, has been found. Some of the country is very difficult to travel in; along the north shore of the lake, which is covered with large boulders, men and horses must make their way as best they can over these.

The work of Mr. Van Dusen's party in the Porcupine Hills, Sask., has been considerably hampered by the wet weather. A considerable area, however, has been examined, which is bounded, roughly, by the Canadian Northern Railway on the north and east, the present northern boundary of the reserve on the south, and on the east by a line drawn north from the western boundary of Township 42, Range 28, west of the first meridian.

The party under Mr. E. G. McDougall has completed its examination of the Porcupine Hills, Alta., and has found a considerable area suitable for setting aside as a forest reserve. As a result of the work it is expected that a tract of some one hundred and ninety-six square miles adjoining the Rocky Mountain Forest Reserve is likely to be added to the Dominion forest reserves. Mr. McDougall is now engaged on an examination of lands proposed to be added to the Nisbet and Pines Reserves.

Mr. Curry on August 28th report-

ed having finished his examination of the country east of the Hudson Bay Company's post at Lac Seul, the Trout Lake watershed, and the Wenesaga River. His associate, Mr. Moodie, was then working Red Lake and Gull Lake watersheds, Mr. Curry being on the point of leaving for the Medicine Stone and Long Lake Rivers. A tract of country between the Wenesaga River and the Hudson Bay post at Lac Seul was still to be covered but would probably be finished about the end of October.

Mr. F. W. Beard concluded his survey of the timber along the proposed route of the Hudson Bay Ry., having traversed the Nelson river down to Hudson Bay and reached Ottawa about the middle of September. An article descriptive of his work will be found elsewhere in this issue.

Further work in the Rocky Mountain Forest Reserve was undertaken this summer in the direction of silvicultural studies on the Reserve, these investigations being entrusted to Mr. T. W. Dwight, a graduate of the University of Toronto in Forestry in 1910, who this spring finished a graduate course at the Yale Forest School. Instructions were given to Mr. Dwight to devote his whole time to the collection of silvicultural data in regard to the forests of the southern part of the reserve, especially those affecting the administration of the reserve. Special subjects of study were to be the old burns, old cuttings and the mature forests, and the factors influencing the reproduction and character of the forests. These were to be such as might determine the species of trees to be encouraged and how this should be done. He was then to visit the Deerlodge National Forest, which is included in District No. 1 of the U. S. National Forests and to study their methods of handling Engelmann spruce and lodgepole pine forests.

From July 1st to July 29th Mr. Dwight remained in the neighborhood of Coleman, Alta., chiefly in the valley of the Crownsnest River. Most of the time was occupied with studies of sample plots in various types of virgin forests in order to ascertain the relations of associated species and of volunteer growth, and the conditions of timbered areas. Strips were also run to determine the average amount of reproduction on certain areas. The first two weeks of August Mr. Dwight spent on the southern branch of the Sheep River near Okotoks and the latter half of the month near Banff, chiefly on the Spray River. A few days at the beginning of September were spent in the holdings of the Eau Claire Lumber Co., on the Ghost River. Attention was also given to the effects of clearing and damage caused to pine by the dwarf mistletoe and to spruce by the rust.

Mr. Dwight then proceeded to Missoula, Montana, and spent some time in the Deerlodge National Forest studying especially timber sale methods, the nursery, the creosoting plant, and reconnaissance methods, yield table work, marking and brush disposal.

The most of October has been taken up in the making of growth studies on the Maclaren Lumber Company's limits near Coleman.

#### BEECH FOR RAILWAY TIES.

A writer in a recent number of the German 'Forst und Jagd Zeitung' gives interesting particulars regarding the use of beech for railway ties. Beech ties are all, of course, treated with preservatives. Thus treated, they are said to be more durable than oak and to hold screws better. The wood must be perfectly sound and well seasoned. It is first treated with thirty to forty pounds of a weak solution of mercuric chloride, after which, by the recent methods of injection, some thirty-five pounds of tar oil (creosote) suffice to render it immune from disease. After injection a beech tie will weigh about 260 lbs., an oak tie about 220 lbs., and a pine tie about 150 lbs.



## Le traitement préservatif des traverses de chemin de fer.

Notre provision de bois n'est pas ce qu'on la suppose généralement. Il se fait un grand gaspillage de bois dans nos manufactures et dans l'usage qu'on fait habituellement des traverses. A peu près un huitième des traverses sur les voies ferrées au Canada doivent être remplacées chaque année à cause de leur altération. Voici, la durée moyenne de la vie des traverses de nos bois importants, telle que rapportée par les compagnies de chemins de fer à vapeur: cèdre 9 ans; tamarac 8 ans; pruche 7 ans; sapin de Douglas 7 ans; pin gris 6 ans; épinette 6 ans.

C'est un fait connu et acquis par l'expérience des compagnies des voies ferrées de l'Europe et de plusieurs des Etats-Unis que si les traverses des essences ci-dessus mentionnées, ou même d'autres moins durables, étaient imprégnées de quelque préservatif, comme la créosote, le carbolineum, le chiste ou le chlorure de zinc, autant de matières qui retardent ou empêchent la détérioration du bois, on retirerait d'elles un bien plus long et satisfaisant service. A la dixième convention annuelle de l'Association d'Entretien des Voies, (American Association of Maintenance of Way) un comité rapporta que les traverses bien traitées à la créosote assurent un service de 15½ à 19 ans; traitées au chlorure de zinc de 10 à 14 ans; traitées au créosote au zinc de 12 à 18 ans. Encore, si les traverses étaient protégées contre l'abrasion mécanique, la durée de leur service serait prolongée d'autant.

L'introduction de quelque traitement antiseptique diminuerait grandement la demande annuelle qu'on fait à la forêt. Nous avons à

part les cours des gares et les voies d'évitement, à peu près 28,300 milles de voies ferrées en opération et en construction au Canada, demandant 85,000,000 traverses. Dans les présentes conditions un huitième de ces traverses (10,625,000) demandent d'être renouvelées annuellement. Si le traitement préservatif était général, prolongeant la durée moyenne des traverses à 16 ans, le renouvellement annuel serait réduit de la moitié et il serait d'un seizième; par conséquent, une économie de 5,300,000 traverses chaque année. En supposant, maintenant, que nos limites forestières du Nord seraient parfaitement protégées contre le feu et traitées avec la meilleure prudence, ce que nous ne pouvons espérer, il faudrait de 2,000,000 à 5,000,000 acres pour produire 5,300,000 traverses de cèdre, de pin gris et de tamarac annuellement. Est-ce que cette seule raison n'est pas assez importante pour que le gouvernement, par des expérimentations, ou des démonstrations, encourage l'usage des traitements préservatifs du bois?

Est-ce que les compagnies elles-mêmes ne bénéficieraient pas de l'usage des traverses ainsi traitées? En supposant que la moyenne de la durée du service pour les traverses de n'importe quelle essence soit ce qu'il a été dit plus haut, (si nous ajoutons, aux prix moyens pour l'année 1909, 20 cents pour frais de transport et le travail de mettre ces traverses en place), nous verrons que le cèdre donnera 9 ans de service pour 65 cents, le tamarac 8 ans pour 59 cents, la pruche 7 ans pour 53 cents, le sapin de Douglas 7 ans pour 54 cents, le pin gris 6 ans pour 50 cents, l'épinette 6 ans pour 45 cents.

A un taux de 4 p. c. le coût annuel d'une traverse à l'état naturel des bois canadiens les plus importants, est, selon qu'elle représente l'épinette, 8.59 cents; le Douglas 9.00 cents; le pin gris 9.54 cents.

L'épinette et le cèdre sont des bois à fibres tendres, employés à faire des traverses, qui sont aisément détériorées par les vibrations et le poids des rails, que lorsqu'elles pourrissent elles se trouvent déjà-usées. Un traitement préservatif rendrait ces essences à même de résister aux causes détériorantes du temps pendant 15 ans et plus. Cependant, les traverses d'épinette et de cèdre, sous les lourds fardeaux qu'on leur inflige, ne dépasseraient pas la durée ordinaire de leur existence, à moins qu'on les aurait protégées contre l'usure mécanique par des pièces de métal.

Les autres essences canadiennes, le tamarac, la pruche, le sapin de Douglas et le pin gris peuvent mieux se passer de ces pièces de support. Mais il serait économique de leur faire subir un traitement préservatif. Quoique ces bois soient plus difficiles à traiter que les bois poreux, ils peuvent être imprégnés de créosote, et de plus être fournis d'une plaque de métal convenable, le tout au prix de 25 à 35 cents la traverse, ce qui leur assurerait un service de 15 ans et plus sur la voie ferrée.

Si nous allouions 30 cents pour imprégner une traverse de créosote et l'équiper d'une pièce métallique, de sorte qu'elle durerait 15 ans, le coût annuel par traverse sur la voie, à 4 p.c. d'intérêt, serait comme suit selon l'essence: l'épinette, 6.74 cents; le pin gris, 7.19; la pruche, 7.47 cents; le sapin de Douglas, 7.55 cents; le tamarac, 8 00 cents; et le cèdre, 8.54 cents. Ce serait une économie annuelle sur chaque traverse comme suit; de pin gris 2,35 cents; d'épinette 1.85 cents; de sapin de Douglas 1.45 cents; de

pruche 1.36 cents; de tamarac 0.76 cents; et de cèdre 0.20 cents.

Ce traitement préservatif rapporterait une épargne annuelle dans le coût de l'entretien de chaque mille de voie ferrée, relative aux diverses essences de bois employé: de \$10.50 sur le pin gris; de \$55.50 sur l'épinette; de \$43.50 sur le sapin de Douglas; de \$40.80 sur la pruche; de \$21.80 sur le tamarac et de \$5.00 sur le cèdre.

Cette réduction des dépenses régulières dans l'entretien annuel des voies ferrées représente les gains obtenus, à 4 p. c. d'intérêt, sur \$1,762.50 pour chaque mille de ligne où l'on emploie des traverses de pin gris; \$1,387.50 pour l'épinette; \$1,087.50 pour le sapin de Douglas; \$1,020.00 pour la pruche; \$545.00 pour le tamarac; \$150 pour le cèdre.

Ces chiffres sont conservatifs. Il est tout à fait possible que les grandes compagnies de chemins de fer canadiens pourraient traiter leurs traverses et les pourvoir de cette plaque de support à moins de 30 cents pour chacune d'elles. De plus, il semble que parfaitement traitées elles dureront plus que 15 ans. M. W. F. Sherfese, dans le bulletin n° 78 du Service forestier des Etats-Unis, estime que les traverses parfaitement créosotées dureront au moins 17 ans aux Etats-Unis, où, tout considéré, le climat est plus détériorant qu'au Canada. Les traverses de pin gris créosotées devant durer 16 ans coûteraient 6.86 cents par année; si elles duraient 17 ans, ce qui peut être raisonnablement espéré, le coût annuel ne serait que de 6.58 cents. Si l'on tient compte de la méthode actuelle dans laquelle on se sert de traverses non créosotées, on verra que si les traverses étaient traitées et pouvaient durer seize ans, on réaliserait une économie d'entretien de la voie de \$79.50, et une économie de \$88.80 si elles duraient dix-sept ans. A 4 p. c., le capital investi dans l'entretien des voies serait de \$1,987.50, ou \$2,220.80

de moins pour chaque mille qu'il est maintenant.

Pour faciliter toutes comparaisons nous résumons dans le tableau suivant une partie des chiffres que nous venons de voir :

Tous les taux sont à 4 pour cent d'intérêt. Nous avons ajouté 20 cents au prix d'achat pour transport et placement sur la ligne, et 30 cents pour traitement préservatif et plaque métallique. Bien traitées, les traverses doivent durer plus que quinze ans.

De telles incitations financières devraient pousser fortement les grandes corporations canadiennes des voies ferrées à entreprendre le traitement préservatif des traverses. Sans aucun doute, si le gouvernement se mettait de la partie pour coopérer avec les compagnies et démontrer qu'il existe, là, une réelle économie à tous les points de vue, l'adoption générale de cette politique serait hâtée de beaucoup.

Ce traitement préservatif encouragerait à se servir pour les traverses de chemins de fer du bois qui se perd maintenant ; il donnerait de la valeur à du bois qui n'en a pas ou presque pas. Nous trouvons dans différentes régions du Canada des surfaces boisées, comparativement grandes, où le bois a été tué par le feu, et celui-ci reste debout. Ce bois est sec, léger et fort et on peut se le procurer à bon marché.

Il est fendillé et ne peut servir pour bois de construction. Il ne lui manquerait que la durabilité pour lui permettre de devenir propre aux traverses. Ce bois est si bien sec qu'un traitement préservatif est, règle générale, facile et efficace.

Maintenant, l'adoption d'un traitement antiseptique empêcherait la perte générale d'une très grande quantité de ces matériaux, et en ferait des traverses de première valeur. C'est la croyance unanime au Canada, qu'à moins que ce bois tué par le feu ne soit coupé dans un intervalle de un, deux et trois ans, il

est perdu comme bois de sciage. Cependant, aussi long temps qu'il restera sain, il pourra faire de bonnes traverses, si on lui donne le traitement préservatif qu'il requiert.

Dans l'ouest des Etats-Unis on a su utiliser, pour faire des traverses, de l'épinette d'Englemann et du pin de Murray (lodgepole pine) que le feu a fait mourir, il y a cinquante ans ; imprégnées d'un préservatif, elles donnent de très satisfaisants services.

L'introduction de ce traitement chimique des traverses rendrait encore avantageux l'usage d'autres bois qui ne sont pas employés à cause de leur manque de durabilité ; parfaitement assaisonnés, ils résisteraient à la détérioration aussi longtemps que les bois canadiens les plus durables. Ces essences qui sont, aujourd'hui, d'une si petite valeur, mais qui rendraient, avec un traitement chimique, des services adéquats comme traverses, sont : le peuplier, le liard, (cotonnier), le bouleau, l'érable rouge et le hêtre. Le peuplier et le bouleau particulièrement sont répandus avec une grande profusion par tout le Canada ; ils croissent rapidement et bien. Ils croissent, surtout, et d'une manière très dense, sur les grandes surfaces de terrain qui ont été balayées par le feu, ou, après qu'on a enlevé le bois d'une forêt pour des fins commerciales. Ces essences, bien qu'elles soient très promptes à pousser et bien qu'elles soient des plus productives du Canada, ont un bien pauvre marché pour partage. Prouver que ces essences sont propres à faire des traverses serait résoudre le problème de leur trouver un marché et pourvoir aux besoins des chemins de fer, en substituant aux essences de valeur naturelle qui menacent de disparaître une immense provision de bois jusqu'ici inappréciée. Nous ferions d'une pierre deux coups, ce serait un double bénéfice.

Tout devrait être mis en jeu pour encourager l'usage de ces essences inférieures. Le cèdre, le tamarac, le sapin de Douglas sont des bois d'une telle valeur technique, qu'ils sont pour ainsi dire gaspillés quand ils sont employés à faire des traverses de chemins de fer. Le cèdre, le tamarac et le chêne deviennent

rare au Canada, et, comme leur croissance est lente, les arbres qui partent ne se remplacent qu'après bien des années; l'usage de ces derniers bois, ainsi que celui du sapin de Douglas, devrait être restreint aux localités seules où on ne peut leur trouver aucun substitut.

## Planting Trees.

By Peter McArthur, Ekfrid, Ontario.

[Mr. McArthur, from whose series of articles on country life in the Toronto Globe the following is clipped, is a well-known Canadian journalist and author. A little over two years ago he took up his residence at Ekfrid in Middlesex county, Ontario, and since then, in addition to his other literary work, he has written a good deal on rural life in that part of Canada. There are no suggestions to make in connection with the following except that he makes a mistake in thinking the trees he planted came from the farm of the Ontario Agricultural College at Guelph. Trees distributed by the Ontario Department of Agriculture to the farmers of Ontario came from Guelph for many years, but three years ago the nursery was moved to St. Williams, in Norfolk county, in regard to which an article appears in another part of this issue.—Ed. C. F. J.]

One thousand and eighty trees — all planted. The last two words of that sentence give me much satisfaction. There were times during the past week when I thought I would never be able to write them. When I started on this work of reforestation I had no idea how many trees there are in one thousand. Now I know, for I have planted one thousand and eighty. The Ontario Department of Agriculture agreed to send one thousand, and they gave good measure. Each bundle had one or two extra, which made an overrun of eighty. There were times when I did not feel duly thankful for this liberality, but now that they are all planted I feel differently

about it. But before going farther I wish to thank Professor E. J. Zavitz for his consideration. After looking over the ground and finding that I was going to do the planting myself, he said quietly:—

'I shall send you a thousand trees.'

I had been figuring on getting two thousand five hundred, but now I am glad that I didn't. If I had got that number I would have deserted the country for the city, where the tree-planting is practised with more moderation and where the work is done by visiting princes and notables of that kind. Let it be understood, however, that planting a tree is not especially hard work. It is planting trees, a thousand of them, that makes a man feel like a horny-handed son of toil. The largest number I planted in one day, with a boy to help me, was three hundred. That was quite enough. I understand that the men employed by the Forestry Department plant about five hundred trees a day. If so, I am convinced that there is one branch of the civil service that really works. A man who plants five hundred trees in a day has no political snap. He earns his wages.

\* \* \*

The trees came by express in a neat crate made from old lumber, which shows that they do things

economically in Guelph. Evidently no one has a fat contract to supply them with nice new lumber. They knock together a crate from any old boards that are lying around, just as any farmer would do it. That shows a praiseworthy spirit. I was particularly charmed when preparing to open the crate by finding a bent nail. That showed that they are not all scientists at Guelph. They evidently have some men there who cannot drive a nail into a pine board without bending it. That made me feel that I was dealing with men in my own class, and I was less afraid of the work before me than I would otherwise have been. Following the instructions I had received, I 'heled, healed or heeled in' the trees. 'Hele' is a good old English word, meaning to 'cover,' which I never before met with in print. You may spell it any way to like and it will still be right. As a dabbler in words, I am thankful to the foresters for reviving it. I also noticed that Professor Zavitz spoke about the 'boles' of the trees, and I was thankful for that. I had never before heard 'bole' used in conversation. But this is wandering from my theme. Only men who occasionally write verses know what a treasure a stranger word sometimes is in a language so barren of good rhymes as is the English.

\* \* \*

The whole trouble about the work of reforestation is the number of trees that must be planted. They use from twelve hundred trees upward on each acre. That means many days of persistent work to make any showing at all. And is the work worth while? Ever since announcing that I intended doing it I have had to bear the tolerant smiles of people who looked upon it as one of the whims of an impractical man. I am not going to rehearse the reasons for planting trees. They are many and sound, and have been placed before the public so often that everyone knows whether

he is convinced or not. If trees are not planted, and what remains of the forest protected from pasturing cattle, this part of the country will soon be 'as bald as a campaign lie.' The present state of affairs is not so much due to the fact that the pioneers were rapacious as that they did not know how to take care of the woods. I remember hearing the older men talk about leaving part of the land under trees. They seemed to think that the right way to put a woodlot in order was to cut the underbrush and clear out the fallen timber. But I never heard one of them speak of the need of keeping out the cattle. When the woodlots began to die off they said it was because the forests around had been cleared away and that the trees could not live in the open country. If they had been told the right method to use in taking care of their trees I am convinced that many of them would have done their part properly. But now if we are to have trees we must plant. Though fencing in the woodlots has given good results in some cases, in many cases the new growth is largely made up of ironwood and blue-beech and similar 'weed trees.'

\* \* \*

It is quite true that I shall get no returns from this work of tree-planting as returns are counted. But what of that? Having done many days work from which I expected returns that I did not get, I do not mind doing five days' work from which I expect no returns. And yet it is hardly true that I shall get no returns. Already I feel a sort of glow of philanthropic satisfaction over my work. Someone in the distant future will profit by it, and will perhaps feel grateful. They say it takes three generations to make a gentleman, but it takes more than that to make a tree. Many generations of men will pass before the walnuts I have planted will be fit to use as timber.

(Concluded on page 138.)

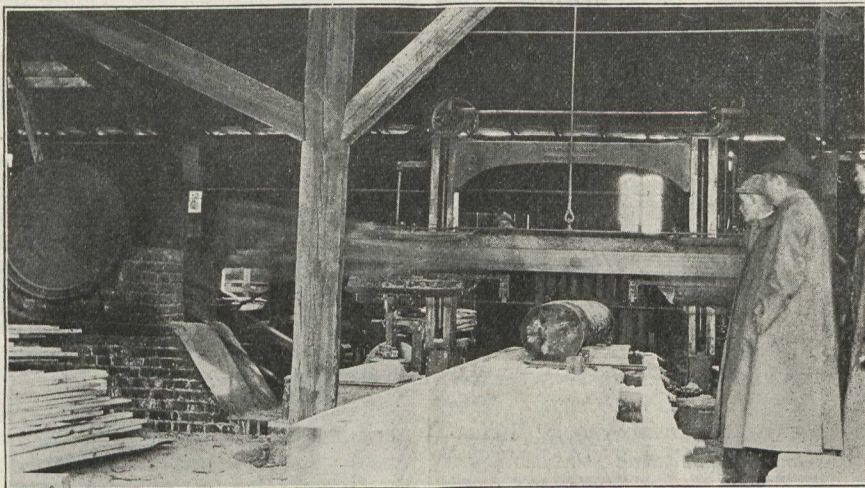
# Saxony's Forest Practice.

Its Results and Its Applicability to Conditions in America.

By H. L. Sullivan and E. F. Jennings in American Lumberman.

The state of Saxony is best fitted, geographically and climatically, for the growing of spruce. Hence spruce rules supreme. There is a splendid market for it

within the woods, the creeks and rivers being utilized to the utmost for every inch of their fall to drive the wheels of saw-mills, pulp-mills and paper-mills. The



Typical German Saw Mill. Gage of Saws, 21. Feed of Carriage Two Feet a Minute.



Biltmore Students in 80-Year-Old Spruce Forest Being Clear-Cut in a State Forest of Saxony.

manufacture of pulp being the major industry, large trees are not necessary; hence a rotation or growing period of eighty years is strictly adhered to. The matured stands are cut clear and the clear-

are taken a large amount of windfall will occur, causing the local market to be overstocked. This difficulty is overcome by what is known as a cutting series, an arrangement of the stands and age classes in consecutive order. The forests have, as a consequence, the appearance of a flight of stairs.

Saxony is particularly famous for its efficiency in forest finance. Complete records have been kept of the forests since 1816, so that statistical material is available in Saxony better than anywhere else in Europe. The value of the forest has increased in the course of the last century at a compound rate of 3 per cent per annum, thus doubling every twenty-four years, while the woods were furnishing a surplus cash dividend of  $2\frac{1}{2}$  per cent on an annual average.

The famous Black Forest, situated in the highlands of Baden and Wurtemberg, presents an entirely different plan of management, though the species are practically the same as in Saxony. Spruce and fir predominate.

Owing to the absence of the pulp industry in this vicinity the trees are left to grow to a larger size, requiring a rotation varying from 100 to 120 years. Very little planting of seedlings is done, as reforestation is obtained by natural seed regeneration. This method of propagation, known as the shelterwood compartment type of regeneration, was originated by George Louis Hartig, and is in vogue in many parts of Germany.

The idea is simple, and consists merely in removing a stand in three different cuttings, two partial and a final, within a regeneration period of twenty years. The first cutting is a preparatory cutting to obtain proper soil conditions, the second is a partial cutting to give more food to the oncoming seedlings; the third, or final, cutting takes place after the regeneration is well under way. The result is a close approach to the primeval forest. The average acre's yield at maturity is 25,000 feet, board measure, which sells at an average price of \$20 a thousand.

In the show forest of Count Bergheim, at Weinheim, is a plantation of sequoia (California big tree) fifty years old. Judging from the wonderful results of this plantation, it is surprising that this species is not cultivated on a larger scale. An accompanying picture shows one of the trees in the plantation which calipers thirty inches at breast-height.



**Eighty Year Old Spruce in a Saxony State Forest. Smaller Second Growth in The Background.**

ed areas are planted up immediately with about 3,000 seedlings per acre, at a cost of \$8 to \$10. Of these 3,000 seedlings, only about 130 will reach maturity, the rest having been removed from time to time by way of thinnings, thus furnishing additional revenue.

The prices obtained from the sale of the different wood products seem to us phenomenal. Fifteen dollars a cord is paid for pulpwood and from \$25 to \$35 a thousand for spruce sawlogs in the woods. The logs are all peeled immediately after cutting and the brush and debris scattered over the ground, enriching the soil by their decomposition.

It is interesting to note the measures that are taken to minimize the damage by wind. Spruce is a flat-rooted wind-weak species, and unless preventive measures

The questions naturally arise, To what can the success of German forestry be ascribed? and Are not the same principles applicable in America?

The answer to the first question lies in the following factors:—

First. Steady increase of stumpage prices.

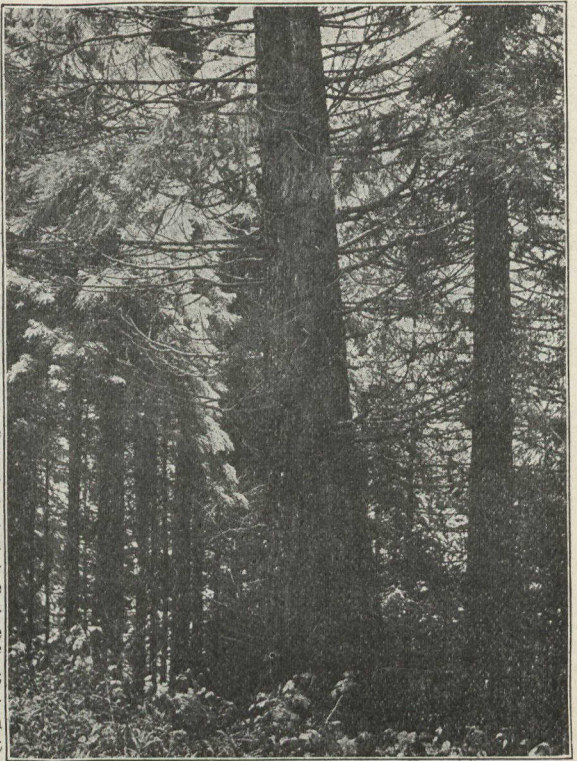
Second. Limited amount put on the market.

Third. Protection from foreign competition.

Fourth. Dense population.

The steady increase of stumpage prices is the all-important factor; without it there can be no conservative forestry. Nowhere in the world does timber increase in mere volume at a rate exceeding two and a half per cent, and a rate as low as this does not offer enough inducement to warrant the raising of timber. There must be some additional source of revenue to make it profitable. This is furnished by the steady annual increase of stumpage prices which adds to the possible net surplus revenue of two and a half per cent, a latent dividend approximating in Germany three per cent. A high price of stumpage alone is not sufficient and does not involve a high rate of revenue. What is best is relatively, and not absolutely, best. The interest charges against the investment made in high-priced stumpage tend to counter balance, the surplus returns from high-priced stumpage.

The limited amount of lumber placed annually on the market is far from supplying the demand. The various state governments keep in touch with each season's demand and work together in controlling their output so as not to overstock



Sequoia 50 Years Old Near Darmstadt, With White Fir, also Planted, in the Background.

the market. Imagine that John D. Rockefeller, J. P. Morgan, B. L. Duke and Elbert H. Gary would combine in America to cut a limited number of trees per annum!

Protection against foreign competition is effected by a tariff and by freight rates so high that the various wood products cannot be imported more cheaply than they can be grown at home.

#### ENGLISH FORESTRY ASSOCIATION.

The English Forestry Association has recently been formed, with the following officers: President, Lord Clinton; Honorary Secretary, Mr. Duchesne; Council, the Earl of Shaftesbury, the Earl of Chichester, Lord Hastings, Mr. G. L. Courthope, M.P., Mr. Chas. Bathurst, M.P., Colonel E. J. Mostyn, Mr. S. H. Cowper-Coles, Mr. F. G. Burroughes, Mr. Arthur Arnold, Mr. W. Anker Simmons, and Mr. Gerard H. Morgan. The objects of the association are to encourage the demand for English timber and generally to be of service to English producers of timber.

#### WILL USE CRUDE OIL AS FUEL.

The Canadian Pacific Railway has decided to use crude oil as fuel on their locomotives running through the timber country in the mountains of British Columbia. This announcement was given out by Sir Wm. Whyte, vice-president of the road, recently after a trip through the region. Two reasons are given for the decision: first, to reduce the danger of forest fires, and second, to make the work of the locomotive firemen less laborious.



# 1910 Forest Statistics of Canada—I.

## Lumber, Square Timber, Lath, Shingles, Pulpwood.

The publication of the statistics of wood consumption in Canada for the year 1910 has been somewhat delayed owing to the press of work at the Printing Bureau resulting from recent events in the political world, but the bulletins containing these are now all in press, and will appear shortly. In addition to the statistics of foreign products so far published, a bulletin has been compiled on the use of wood by industries which use, as their raw material, wood already manufactured to some degree; this will appear as Bulletin No. 24, and treats of wood used in the manufacture of agricultural implements and vehicles, furniture and cars, and veneer. The names and numbers of the bulletins are as follows:

Bulletin No. 21—Poles Purchased.

Bulletin No. 22—Cross-ties Purchased.

Bulletin No. 23—Timber Used in Mining Operations.

Bulletin No. 24—(Wood Industries of Canada), Agricultural Implements and Vehicles, Furniture and Cars, and Veneer.

Bulletin No. 25—Lumber, Square Timber, Lath and Shingles.

Bulletin No. 26—Pulpwood.

Bulletin No. 27—Cooperage.

### Lumber.

The number of sawmills from which reports have been received has increased by 32.6 per cent (2763 firms operating nearly 3,000 mills sending reports) and the lumber out-put by 28.5 per cent, or 1,086,707,000 board feet. The average cut per mill reported in 1908 was 1,774,000 board feet.

The consumption of lumber per capita in Canada was 653 board feet, which is 170 feet more than the per capita lumber production of the United States for 1909. Ontario still holds the first position among the provinces in lumber production; it still produces over one third of the quantity of lumber cut in Canada. The 1910 cut shows an increase of 7.5 per cent over that of 1909.

British Columbia is again second in lumber production, and its 1910 cut was only 45,000,000 feet less than that of Ontario. Quebec again comes third and the other provinces, in order of importance, are New Brunswick, Nova Scotia, Saskatchewan, Alberta, Manitoba and Prince Edward Island. There is a very large increase in the number of small mills which have reported from Quebec this year, and to this, no doubt, is due the fact that this

province has the smallest annual cut per mill of any of the provinces, i.e., 71,400 feet. In British Columbia, at the other extreme, the average annual cut per mill is 7,297,000 feet—over 100 times that of Quebec.

The average price of lumber in Canada in 1910 was sixty cents per thousand less than in 1909, being higher only in Nova Scotia and Prince Edward Island. The average value in Ontario is nearly \$3 per thousand greater than in any other province, owing largely, no doubt, to the large cut of white pine, which constitutes over 50 per cent of the province's cut. Spruce decreased in price \$1 per thousand and Douglas fir \$1.14 per thousand. Almost all other woods have increased in price. Birch shows the largest decrease, namely, \$1.49 per thousand.

Spruce is the most important lumber wood in Canada, over one quarter of the total cut being of this species. The cut of white pine in 1910 was four per cent less than that of 1909, the decrease amounting to 42,163,000 feet. Several western species show remarkable increases. The increase in the cut of hemlock amounts to 51,000,000 feet and the increase in the case of Douglas fir to 47,000,000 feet. The cut of cedar has increased by 217,430,000 feet, or 114.8 per cent. Almost six times the quantity of yellow pine was cut in British Columbia in 1910 as in 1909; this increase makes it the sixth wood in quantity of cut for the year. The increase of 100,000,000 feet (140 per cent) in the larch cut in British Columbia brings that species to eighth place.

Softwoods comprise 94.3 per cent of Canada's lumber cut, the cut of hardwoods being only 5.7 per cent of the total. The total value of hardwood lumber produced in Canada in 1910 was \$4,958,450 (\$952,930 more than in 1909), and the value of the hardwoods imported into Canada, was more than fifty per cent greater than this.

The lumber production of the Dominion is also taken up by species used, twenty-six in number. The first six of these are spruce, white pine, Douglas fir, hemlock, cedar and yellow pine. New species reported this year are cherry, chestnut, tulip, sycamore and alder. Among the twenty-six species Ontario leads in the cut of seventeen, British Columbia in five, and Quebec in four.

### Square Timber.

During 1910, 3,480 tons less of square

timber were exported than in 1909; the average price, however, increased by \$2.03 per ton. The total value of the timber was \$6,236 less than in 1909. White pine comprises 57 per cent of the total export of square timber, birch and elm having, respectively, second and third place. The foregoing three species make up 95 per cent of the exports. Over 97 per cent of the square timber exported goes to the United States.

#### Shingles.

The total number of shingles made in Canada during 1910 was 1,976,640,000, their total value being \$3,557,211. This is really larger than the quantity manufactured last year, though, owing to an error, the total for last year was somewhat larger than it should have been.

British Columbia cuts, approximately, half of the total amount. Quebec takes second place, producing over one quarter of the total. These two provinces, as also Nova Scotia and Saskatchewan, increased their cut this year, while New Brunswick, Ontario, Alberta, and Manitoba cut considerably less than in 1909.

The average price of shingles was \$1.80 per thousand, six cents less than in 1909 and twenty-seven cents less than in 1908. Cedar is by far the most important shingle wood, 93.5 per cent of Canada's shingles being made of this wood. Spruce, white pine, hemlock, balsam fir, Douglas fir, jack pine, tamarack and red pine are also used. The last-named two species are reported this year for the first time as shingle woods.

Cedar shingles cost on the average \$1.79. Balsam fir shingles are the cheapest at \$1.48, and tamarack most expensive at \$2.49.

#### Lath.

851,953,000 lath were manufactured in Canada in 1910, the value being \$1,943,544. The increase in the number of lath manufactured was \$29,829,000 (3 per cent), but the value decreased \$35,490. Of the total number, Ontario cut two fifths, increasing its cut over that of 1909 by almost 57,000,000—nearly 20 per cent. New Brunswick cut one quarter of the total, the increase in that province being 62,597,000. Quebec and British Columbia also considerably increased their production.

The average price for the whole Dominion in 1910 was \$2.28. The average price in British Columbia was \$1.66 and in Prince Edward Island \$2.67.

Spruce and white pine lath comprise almost 70 per cent of the total. About one million and a half more cedar lath were cut this year, but Douglas fir, hemlock, balsam fir, and jack pine showed the

greatest increases, ranging from 14,000,000 to 29,000,000 pieces each. The prices range from \$1.25 for yellow pine to \$3.18 for poplar.

The 4,901,649,000 feet of lumber were worth \$77,503,187; the 37,962 tons of square timber exported were valued at \$985,255; 1,976,640,000 shingles were worth \$3,557,211 and the 851,953,000 lath \$1,943,544. The total value of the products treated in Bulletin No. 25 was thus \$83,989,197.

#### Pulpwood.

Fifty-one pulp mills sent in reports in 1910 and these used 598,487 cords of wood. In addition to this, 943,141 cords of pulpwood were exported in an unmanufactured state. For the first time, imports of pulpwood were reported; these were valued at \$49,322.

Over 95 per cent of the Canadian mills cut the pulpwood used by them from their own limits. The total value of the pulpwood used was \$3,585,154, the average value being thus \$6 per cord. From this pulpwood 474,604 tons of pulp were produced.

The total quantity of pulpwood used was 23,642 cords (3.8 per cent) less in 1910 than in 1909, but owing to a higher average price the value of the pulpwood was \$121,074 greater than in 1909. There was in 1910 also a striking increase in the amount of pulp produced per cord of wood, the average amount being about 145 pounds greater per cord of wood than in 1909.

Quebec easily leads the other provinces in the consumption of pulpwood. It has practically half the mills in Canada (25 out of 51), and these consumed 57 per cent of the total amount of pulpwood used in Canada. Ontario, with 15 mills, consumed over one third of the total amount. Nova Scotia ranks third for 1910 in the consumption of pulpwood with 29,606 tons to its credit, and New Brunswick used 15,134 cords of wood, little more than one-sixth as much as in 1909.

In the province of Quebec the average price of pulpwood per cord fell to the extent of 35 cents per cord, but in all the other provinces, except British Columbia, the price increased, that increase amounting in the case of Ontario to \$1.30 per cord; the 1910 price for pulpwood in Ontario was \$7.02 per cord. The cheapest pulpwood in the Dominion was purchased in Nova Scotia at \$3.00 per cord.

Spruce is still far in the lead as a pulpwood; it furnishes over three quarters of the total pulpwood consumption, or 78.6 per cent. Balsam fir is steadily increasing in importance as a pulpwood. In 1910 twenty per cent of the total con-

sumption was of this species. The quantities of poplar and hemlock were each about six tenths of one per cent of the total. Hemlock was reported as a pulpwood for the first time in 1909, and in 1910 was used to a greater extent than poplar. Jack pine has not been reported as a pulpwood for the last two years.

The cost of pulpwood varies very greatly, some big mill-owners having all their own limits and the cost to them being merely the carrying cost of their limit with transportation charges added. Other manufacturers have to buy in the open market, and add transportation charges to this price. Spruce was the most expensive species at \$6.05 per cord, an increase of sixty-four cents over the 1909 price. Balsam fir fell fifty-five cents, the average price being \$5.71 per cord. The price of hemlock was practically the same, and poplar increased eleven cents during the year.

The Quebec consumption was made up as follows:—Spruce, 70 per cent; balsam fir, 28 per cent; and the rest hemlock and poplar. Nova Scotia also cut these four species, but Ontario used only spruce, poplar and balsam fir, and New Brunswick and British Columbia used spruce only.

Almost four fifths of the pulpwood manufactured in Canada in 1910 was manufactured by the mechanical process, one fifth by the sulphite process and only 2 per cent by the soda process. Quebec leads in manufacturing mechanical pulp, but Ontario produces the greatest quantity of sulphite pulp. Quebec makes over three quarters of the pulp made by the soda process.

Spruce is used in all three processes, and leads in all. Balsam fir is used only in the mechanical and sulphite processes in nearly equal quantities. Eighty-four per cent of the hemlock was manufactured by the soda process and poplar by the sulphite and soda processes. Nova Scotia used only the mechanical process and a small quantity only of sulphite and soda pulp was produced in New Brunswick.

The average amount of pulp produced per cord of wood by the mechanical process during the year was 1,908 pounds, while the sulphite process gave 997 pounds of pulp per cord, and the soda process 987 pounds of pulp per cord. Seventy per cent of the wood used in the sulphite mills was spruce and 29 per cent balsam fir. Spruce, poplar and hemlock were used in the soda process.

The Ontario pulp mills have the highest average consumption, viz.: nearly 14,037 cords per mill. The average consumption per mill in Quebec was 13,710 cords, in Nova Scotia 4,934 cords and in New Brunswick 3,783 cords. For the whole

Dominion the average consumption per mill was 11,735 cords.

The export of pulpwood from Canada is steadily growing greater—an unfortunate fact, as the wood would yield greatly increased returns if manufactured in Canada. While pulpwood production was less in Canada during 1910 than in 1909, exports of wood-pulp increased by 48,233 tons, an increase of some 6 per cent. Eighty-eight per cent of the export was mechanical pulp, while only 78 per cent of the pulp manufactured in Canada was mechanical. The export of chemical pulp also shows an increase.

The average value per ton of the pulp exported in 1910 was \$14.67 for mechanical pulp, and \$36.35 for the chemical pulp. This is an increase of seventy cents over the 1909 price for mechanical pulp, but the price of chemical pulp has decreased \$2.64. The average price for all wood-pulp exported was \$17.31, or fourteen cents less per ton than the 1909 price.

Of the wood-pulp exported during 1910, three-quarters went to the United States, this country taking 74.3 per cent of the mechanical pulp and over 99 per cent of the chemical pulp exported. Exports to other countries decreased.

All the pulpwood exported in an unmanufactured state went to the United States.

About 4,000 cords more wood were cut for pulp in Canada in 1909 than in 1910. The total quantity of pulpwood cut in Canada was 1,541,628 cords, and of this over three-fifths was exported. The amount paid for this wood exported was \$6,210,042. If this wood had been manufactured into pulp in Canada the amount received for it, at the average prices paid in 1910 by the United States importers of wood-pulp, would have been \$13,528,481—over twice as much as was received for the pulpwood.

The pulpwood exported from Quebec, it is calculated, was sufficient to supply material for a year to fifty-six pulp mills of the average size of those operating in the province. Ontario's export would have kept running five mills of the average size of those operating in that province, while, had the 90,000 cords shipped from New Brunswick been manufactured in that province, twenty-four mills of the average size could have been kept running and five times the number of mills operating there would have been busy.

The average export of white pine square timber from Canada for the decade 1871-1880 was about fifteen times the quantity exported in 1909.



The above is a group picture of the forty-two students in attendance at the Woods Camp of Yale Forest School at Trinity, Texas, during the spring of 1911. This picture, which has been lent by the *Southern Lumberman* of Nashville, Tennessee, is of special interest to Canadians in that the tall student in the centre of the back row is Mr. T. W. Dwight, a graduate of the Faculty of Forestry of the University of Toronto, who took a year's graduate course at Yale. Mr. Dwight is now on the staff of the Dominion Forestry Branch, and during the past season has been located on the eastern slope of the Rocky Mountains where he is making a study of the conditions of reproduction in that region.

(Concluded from page 131.)

The pine, ash, cedar and butternut will also require their generations, and the world will see many changes before the work I have been doing is undone again by the axe of the lumberman. In looking at the work in this way, and in feeling that with these trees I am uniting myself with a future age, I am getting a return that is not to be entirely despised. Men do many things to make their work live, but I doubt if many do anything more certain to achieve that result than planting trees. A man may write a book that will 'walk the town awhile, numbering good wits,' but it will not be many years before it is as dead as the book about which Milton wrote that line. You may write a song, speak an oration, put a new law on the statute book, but they will all be forgotten before a tree that is planted to-day

has reached its growth. As a matter of fact I am not afraid to enter my trees against any thousand and eighty books that will fall from the presses this year. It will be strange if the trees do not outlive them all. They will also probably outlast the fame of any thousand and eighty statesmen, financiers and much-admired public men. Before their term is fulfilled Canada may be the true seat of Empire, or our civilization may have gone down before the yellow races. It is vain to speculate what may happen before those trees arrive at maturity. Anything may happen. It is even possible that some future owner of the land where they are planted will clear them off or turn the cows to pasture among them. After all, their fate depends on others who are unborn. Still, I have done my share.

## PRINCIPLES OF HANDLING WOODLANDS.

*The Principles of Handling Woodlands, by Henry S. Graves, Chief Forester, Forest Service, United States Department of Agriculture. New York, John Wiley and Sons; London, Chapman and Hall, Limited. Price \$1.50, net.*

In the literature of American forestry, the name of Prof. H. S. Graves has taken a prominent place. His "Forest Mensuration" stands at the head of its class and now he has again laid the forestry world under obligation by his venture into the field of silviculture in his later work.

The book is not, however, simply a treatise on silviculture. The topic of the regeneration, or renewal, of the forest is not taken up at any length, but rather treated incidentally.

The first chapter has a general discussion of silviculture, and in it the author defines forestry and silviculture, states the object of the latter, notes its cost, and gives some general considerations of silvicultural method. The four chapters that follow are devoted severally to the selection system, the clear-cutting systems (sub-divided into clear cutting with artificial reproduction and clear-cutting with natural reproduction), the shelterwood system and the coppice systems. A chapter on "Improvement of the Forests", treating of thinnings and cuttings, follows these.

The protection of the forests from fire has up till now loomed large in the handling of American forests, and the last third of the book is taken up with the discussion of this topic along the line of the same author's bulletin on "Protection of Forests From Fire", (U.S.F.S. Bulletin No. 82). The protection of the forests from other destructive agencies (insects, fungi, etc.) is also discussed.

The work is simple and untechnical in language and clear in style, and the owners of woodlands looking for knowledge as to their treatment will find no difficulty in understanding it. To the forestry student, hitherto confined in the study of the subject to more or less elaborate treatises on European methods, the book will be of great value as indicating the extent to which these will apply to conditions in North America. To the practicing forester it will be a convenient work of reference.

The book is illustrated with sixty-three half-tone cuts, mostly from Forest Service photographs, and is provided with a good index.

About 63 per cent. of the wood pulp produced in Canada is exported.

## THE FORESTER'S LAMENT.

Anon.

I long for the land of the pinus palustris  
Where the liriodendron is bursting to bloom,  
Where taxodium distichum faithful, industrious,  
Is waving in sadness o'er Clementine's tomb.

'Twas under the spreading hickoria pecan  
We pledged our fond love by the light of the stars;  
'If any be faithful,' we whispered,  
'then we can,'  
While leaning at eve o'er the fraxinus bars.

A fruit of the Psidium Guaiava (the guava)  
She pressed in my hand as I bade her farewell;  
But her love, hot as lava, grew cold as Ungava,  
And my hopes, like the frost-bitten autumn leaves, fell.

They planted catalpa, the fair speciosa,  
They planted the bush and the tree and the vine,  
They planted a sprig of robinia viscosa,  
And, underneath these, planted poor Clementine.

## RAILWAYS AND FOREST FIRES.

At a meeting called by the State Forester of Wisconsin fifteen officers of the operating departments of the railways in the state, after discussing oil-burning locomotives and other remedies for preventing the setting of forest fires by railways, finally unanimously adopted the following resolutions:—

1. That the right of way be cleaned of all combustible material under the direction of the fire wardens.

2. That the burning of all debris on the right of way be controlled by the fire wardens.

3. That under special conditions there be a regular patrol properly equipped with fire fighting apparatus following each train.

4. That all freight train crews keep a lookout from the top of the caboose, and that they be required to stop and put out fires when discovered.

5. That some means be devised to keep a strip 100 feet wide adjacent to the right of way free from slashings.

6. That there be as much improvement as possible in the mechanical construction of locomotives.

## WHAT DOES CONSERVATION MEAN.

'What does conservation mean? It means preservation, not waste; efficient development, not locking up these resources; the reasonable uses of them, having regard to the nation's interests; and last, but not least, the participation by the people in all the advantages and benefits of our natural resources.'

Hon. R. L. Borden, Premier of Canada.

### ONE FARMER'S WOODLOT.

Forty years ago George L. Pillsbury, of Boscawen, New Hampshire, bought forty acres of land for \$1,000 and set it aside as a wood lot. Even at that date he believed that timber could be made a profitable farm crop. The conditions were somewhat favorable to the success of the experiment, as Mr. Pillsbury was a builder and required native timber in his operations. During the forty years he has practiced conservative forestry he has converted the timber that decayed or developed serious defect into cord wood and the mature timber into building material, shingles, etc. Of exact figures none are at hand. It is known, however, that this forty yielded twenty cords of wood a year, aside from building material. Thus far in 1911 the lot has produced one car of spruce pulpwood which totalled eight and nine-tenths cords and brought \$8 a cord f. o. b. station. In addition, 1,500 feet of hemlock sleepers were taken out this year and they brought from \$16 to \$20 a thousand. The wood output this year was thirty-five cords at \$4.50 a cord, the 1911 production being a little heavier than usual. A few years ago Mr. Pillsbury sold seventy-five trees for \$13 a thousand on the stump. They scaled 51,420 feet and brought him \$668.46, more than two-thirds the price of the original forty.

The coniferous forest of Besancon, France, yields an income of about \$16 per year per acre.

The forester of British East Africa estimates the Government timber area at 2,000,000 acres; this area is about equal to the woodlands of England. There are nine nurseries, with two branch nurseries. During the fiscal year 1910, ended March 31, 355,000 young trees were set outside, leaving in the nurseries more than 800,000 trees. An increased quantity of native timber is being used locally; nine saw-mills employ some eighty Indian pit sawyers, who are engaged in this work. No exportation has yet been made.

## FOREST DESTRUCTION IN ITALY.

The British Consul at Naples, reporting on the attitude of the Italians toward the forests, writes: 'There appears to be little popular regard for the value of forests in the national economy. One of the worst evils which this important asset of the country suffers from is that of fires, many of them undoubtedly wilful; during 1908 no less than 6,000 hectares (14,820 acres) of forest were destroyed by fires, of which at least a third were known to be due to incendiarism. The point is that the maintenance of the forest is to the general interest, whereas its destruction is to the individual interest of the proprietor, as he can then at least cultivate the land for some years and use it as a pasture later. An example is cited of state forest administration in the Abruzzo. During the years 1907 and 1908 no less than 19,000 hectares (46,930 acres) of forest were destroyed by fire; while in forty years, at the expense of millions, the government has succeeded in reafforesting only 27,000 hectares (66,690 acres). One of the remedies suggested is the exemption of forests from all taxation. At present the proprietors are prohibited from cutting down their woods, and yet have to pay taxes on them to government, province and commune.'

### THE LOSS OF A TREE.

A Chicago newspaper says that foresters are interested in a recent New York court decision affirming a claim for \$500 as the "going value" of a tree cut down by a construction company. Nor was the award based on sentiment or granted merely as an exemplary matter. The tree alive had been a thing of growing value; cut down, the greater value to which it might in time have attained was forestalled. Consequently the measure of damage sustained in its present loss was not complete, but partial. It may be that to estimate its possible later value would entail a draft on the imagination as to definite amount, but the doctrine laid down by the court was sound.

The Worcester (Massachusetts) Woman's Club, one of the largest clubs in the general federation of woman's clubs in the country, with a membership of 600 and a waiting list, is one of the staunchest supporters of forest conservation in this state. There is a strong committee, which follows every state and national move in the interests of preserving the forests; and, wherever possible, legislators are approached by this committee to help along the good work.