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CONTENTS:

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WINNIPEG CONVENTION.

By the time this issue of the Canadian Forestry Journal reaches our members the final preparation for the Winnipeg Convention, July 7, 8, 9 will be in full swing. In order that there may be no mistake the details of the railway arrangements are repeated in this issue. (Page 92.)

While it is still impossible to give the program in detail, it is evident from the names that have been already received that the most important subjects in regard to forest conservation in Canada will be fully dealt with by those who are able to speak with authority. This will be particularly true of all subjects relating to the forests of Western Canada and of the three prairie provinces, and of farmers' tree plantations on the prairies. From the returns already received it is expected there will be a large attendance from both east and west, but particularly from the prairies.

The Call to Convention was sent out before this issue so that it is doubtless now in the hands of all our members, and we shall be glad if those who are intending to go to Winnipeg will send a note to that effect to the Secretary.

While the Secretary will be leaving in a few days to arrange the final details of the convention at Winnipeg, letters addressed to him at the Canadian Building, Ottawa, will be carefully attended to as arrangements have been made either to have correspondence dealt with promptly in Ottawa or forwarded at once to him in the West.

There is no reason why this should not be one of the best conventions ever held by the Association, and

there is no hesitation in urging all who can do so to attend and take part. Aside from the convention itself there will be the opportunity of seeing Winnipeg and the Central West under the best conditions.

Make up your mind to come and notify the Secretary of this fact.

OBITUARY.

The Canadian Forestry Journal has this month to chronicle the sad news of the death of two of its oldest members—Dr. G. U. Hay of St. John, N.B., and Mr. Maurice Quinn of Saginaw, Mich.

Dr. Hay.

Dr. Hay was known for many years as one of the educational leaders of Eastern Canada. His home was at St. John, N. B., where he had been successively teacher, Superintendent of Education for the Province, and Editor of the Educational Review. Never a very robust man he had not only lived out the appointed three score years and ten but had also accomplished more than most men of robust physique. He was a member of many learned societies and was specially devoted to the study of nature. Many years ago he became convinced of the need of forest conservation and was one of the earliest members of the Canadian Forestry Association. He continued closely identified with its work up to the time of his death. Dr. Hay was particularly active in the work of arranging for the forestry convention in Fredericton in 1910, and the success of that convention was due in no small measure to the assistance which he gave the Secretary and the program committee. In the pages of the Educational Review he devoted a great deal of space to judiciously bringing before the teachers of the Maritime Provinces the need of forest conservation and the incalculable loss which the country would sustain in every way should its forests disappear. His death leaves a sad gap in the ranks of the foremost leaders in Eastern Canada.

Mr. Maurice Quinn.

Of an entirely different type was Mr. Maurice Quinn of Saginaw who died suddenly on May 23 when on a visit to New York. Mr. Quinn was born in the Province of Quebec and lumbered in that province and in Ontario before moving to Michigan. Here he had a most successful career as a lumberman, and later acquired limits in the big timber at Alberni, B. C. Strong and sturdy, Mr. Quinn was the embodiment of the active, shrewd, kindly race of men who have developed the lumber business under conditions of difficulty in regard to transportation and markets. He was not a theorist as that term is usually understood, but the rugged native eloquence with which he warned those who attended the British Columbia convention of the danger that lay before British Columbia unless she handled her forests better than had Michigan, showed how deeply the practical teachings of conservation had sunk into his mind. He told of how men had laughed at him when he talked of conservation when he went to Michigan thirty years ago, and how he had lived to see one great river, from which billions of feet of timber had been cut, become entirely denuded so that today not a log floats upon it. In his practical way Mr. Quinn was a strong worker for conservation, and his loss will be keenly felt by supporters of the cause.

WOOD PRODUCTS LABORATORY.

Important Step Taken by the Government of Canada.

The Dominion Government has decided to institute a new department in connection with the Forestry Branch which will undertake the work of investigating the possibilities of conserving our forests by reducing waste in manufacture, by prolonging the life of forest products used in construction, and developing uses for products now wasted for the lack of knowledge as to how they may be employed.

To take charge of this work Hon. W. J. Roche, Minister of Interior, has selected Mr. A. G. McIntyre, at present editor of the Pulp and Paper Magazine and acting secretary of the Pulp and Paper Association. Mr. McIntyre is a graduate of Acadia University, and he also graduated from McGill University in chemical engineering. He was chemical engineer of the Jonquiere Pulp Company where he had charge of the water power, water discharge measurements, etc., and he put in a bleaching system of his own design saving in the value of the paper. He was also engineer in charge of construction for Price Bros. at Kenogami, Quebec, and did the investigation for the new sulphite mill. His special qualifications for the work should assure the successful carrying out of the project. The work will be carried on at present in co-operation with McGill University.

The various classes of investigation to be carried out will be as follows: Wood tests, timber physics, wood preservation, wood distillation and wood pulp. This is an advanced step on the part of the department of the interior. The Forestry Branch is one in which Dr. Roche has been particularly interested and this new step is along the lines of modern scientific forestry work in Germany and other European countries.—Ottawa Citizen.

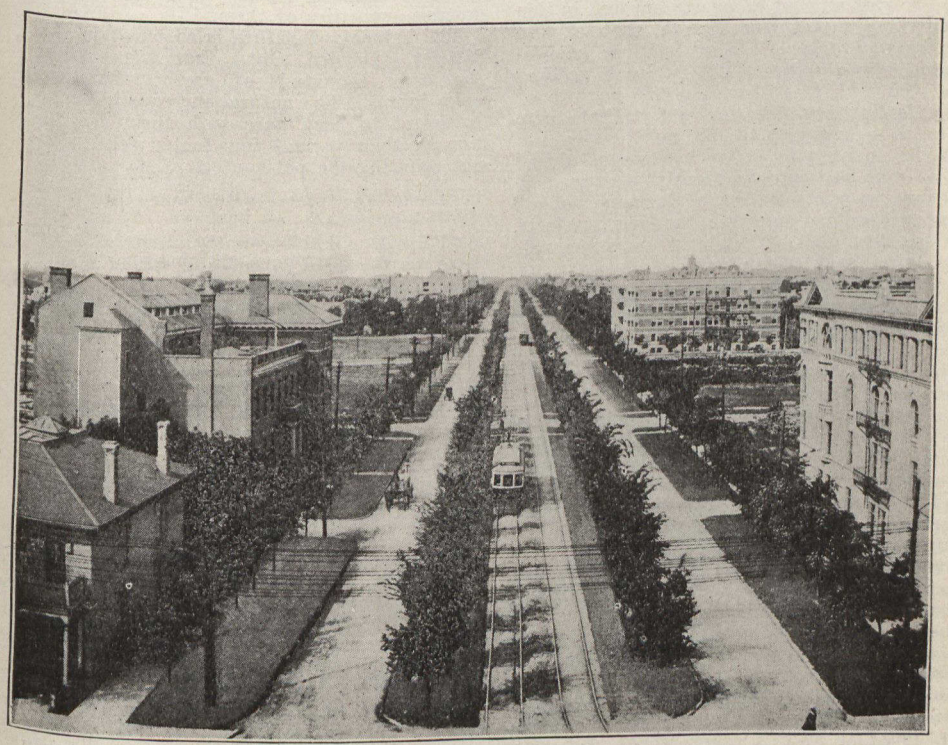
Forest Conservation.

A. Edye de Hurst, Dennyhurst, Dryden, Ontario.

The existence of the Canadian Forestry Association is evidence that Canada is at last awakening to the awful losses she has suffered during the last few years through the destruction of her fast-diminishing forest resources. It is probable however that few of those in whose hands the Government of the country at present rests fully realize the real magnitude of that loss, the mere figures as to the devastated acreage convey so small an idea when placed alongside the square mileage of the Dominion of the regions still believed to be under growing timber. Nature is given the credit of being capable of making good that loss in years to come. If every generation looks at it in this light I would not give much for the forest assets in the near future. Nature is not getting half a chance at present. I am no pessimist, I believe she is going to get her opportunity; but it will be in the face of strong opposition. This will arise because of the indifference of many of the people to anything beyond their own immediate interests.

That Canada will always be more or less liable to forest fires through unavoidable occurrences must be accepted as a foregone conclusion; but not half the present losses can be said to be occasioned in this way. It is perfectly fair to base this estimate on observation in a given district and the demeanor of settlers in the matter.

In theory few will oppose forest conservation; they do not wish to stand in the way of Tom or Dick getting 75 a month as rangers. True, neither may know the difference between a white and black spruce; but 'that does not affect their suitability for the berth.' Besides, the rangers are occupied on Crown lands and will not molest people. If the losses were only those started on the last named—allowing for unavoidable accidents—there would not be so much to complain about; but in a vast number of cases fires originate on settled lands and



Broadway, One of Winnipeg's Beautiful Streets.

here is where the people's indifference so often shows itself. A sense of the beauties of nature and the capabilities of making those beauties add to the comfort of the home and the protection of crops, does not occur to them, or if it occurs, there is the thought that it will entail a little extra work for which the dollar may not be immediately forthcoming. They may not want certain trees burnt; 'but there—the land has to be cleared, let it run.' 'Destroys the humus, what is that? Nothing better for the land than wood ashes.' Fire has run into A's land, 'Well, A wants his land cleared up also.' Fire reaches B's and burns a few cord of wood. B rather resents this; but as it has cleared a few acres for him, 'does not want to be unneighborly.' Reaches unsettled land, 'well, that will not hurt anybody.' If Crown officials should ask questions—nobody knows anything. If these people want to be free of trees, why in all conscience do they not go to the prairie? Why should the welfare of those who are seeking to make their farms what every farm in the country is capable of being made, a place of beauty, a home, a centre of associations, be constantly threatened? Why should these be perpetually confronted with the dread of having all on which their hopes are fixed swept away?

The vast amount of liberty enjoyed in this Dominion as compared with that of the country of origin of many settlers, has developed into license. The future is nothing to men with this idea—there is no love of the land; they live for self. That these are in a minority, I do not doubt; but is the country to suffer because of them? However we may incidently occupy ourselves, we are a nation of farmers, yet we cannot confine ourselves to farm subjects. A greater spirit of patriotism must prevade us and thought for others.

If those who are causing this annual loss to the Dominion will not realize their duties and obligations, those who are in the majority and can make them, must enforce the observation of greater care in respect of fires. Instead of fire rangers we want an efficient gendarmerie the personnel of which should, besides their other duties, take cognisance of every fire possible and report every case where the same be not under proper control. The mere knowledge amongst settlers that they are under observation, would cause greater care to be taken. A force of this kind should be permanent, formed of picked men, and no party matter. Recruited from the right sources a body of this kind would form a valuable nusceus for defensive organization and would be more highly thought of than some militia units, officered by men leading a town or village life instead of by yeomen. I doubt if such a corps would cost more than the present rangers; but if it did, the results obtained would, in my humble opinion, justify the expenditure.

It will take many a day yet before the fertile farms of this northern district can be thoroughly safeguarded from fire. How many of those men buoyed up with hopes for the future, will ever attain their object unless the powers-that-be put their foot down and not only say that this wanton destruction must cease; but see that it does cease. The political support of those who would thwart the honest endeavors of a party determined to enforce the very moderate demands of those who say that the fire danger has got to stop, is not worth relying on. The system also of giving appointments to party heelers (one side is as bad as the other) instead of selecting the best men, militates against the proper enforcement of the law. Few can count on holding a berth beyond the life of a Parliament, that appointment is coveted by half a dozen other village Solomons of the same party, so the holder rests and is thankful and is careful to look the other way when there is much smoke about.

The Canadian Forestry Association will have the hearty backing of all true Canadians in any scheme it may undertake for the conservation of the forest areas.

There is one point that must not be overlooked in this question and that is the birds. These constant fires often at breeding time, destroy quantities of them.

The balance of nature is so upset in this district, (Dryden, Ont.) that where there should be thousands of grouse, there are only dozens. The natural increase is barely sufficient to keep pace with their destruction by their various four-footed foes, without counting the pot-hunters.

Give me the trees with hoary frost in winter-time
And I will call this country mine.
Give me the trees in budding spring
And I will all their beauties sing.
Bid me to stay where fire has swept and all must die,
And I will spread my wings and fly.

EFFICIENCY IN THE CIVIL SERVICE.

Civil service reform, in Canada, has usually been taken to be synonymous with the problem of eliminating party patronage . . . .It is well to put an end to the filling of government offices by irresponsible patronage committees, but this is only a negative reform. It will not of itself ensure an efficient service, and an efficient service is urgently required. In a country like Canada where the tasks assigned the central government in the development of our resources are so great, it is of the first importance to attract men who can measure up to their work, to reward them fairly with kudos or with cash, and to organize them to secure the best results.—*Queen's Quarterly.*

British Columbia Forest Branch.

Outline of the Organization of this New Service and Results of the First Year's Work.

The establishment of the British Columbia Forest Branch under the Forest Act, framed by Sir Richard McBride and his confreres, after the investigation held all over the Province by the Royal Forestry Commission appointed to look into the matter of existing forest conditions, was received a little over a year ago with the greatest enthusiasm by forest conservationists in all parts of the country. Now that the Forest Branch is approaching its first anniversary it is interesting to note the advances which have been made by the executive staff appointed by the Hon. W. R. Ross, Minister of Lands.

From the middle of last summer continuously without a break up to the present time Chief Forester H. R. MacMillan and his board of four lieutenants, have been devoting themselves unstintedly to the work in hand, and it may be said that the results achieved are in keeping with the enthusiasm with which they addressed themselves to their task. Whereas under the administration prior to the establishment of the Branch there were only two departments which concerned themselves with the management of the forest resources of the Province, with an executive staff of perhaps twenty men, there is now an executive force of about fifty exclusive of the the two hundred fire rangers appointed for the dangerous season.

The organization is divided as follows: under the Minister there is the Forest Board of five members, viz., the Chief Forester, in whom final authority under the Minister rests, the Chief of Management, to whom falls the carrying out of the 'timber sales' which have taken place of the old 'special license' established in 1907 and discontinued in 1909, when the Government of the Province placed complete embargo upon the alienation of timber; the Chief of Operation, with whom rests the work of fire protection; the Chief of Surveys, who has charge of the various reconnaissance and other surveys and land classifications under the Forest Branch; and the Chief of Records on whom devolves the collection of revenue and the maintenance of statistics in the Branch.

For the purposes of proper administration the Province has been divided into eleven geographical districts. These are as follows: In the south from east to west, Cranbrook, Nelson and Vernon districts. North of these is the Railway Belt, administered by the Dominion Forestry Branch. North of this from east to west are the districts of Tête Jaune Cache, Kamloops, Lillooet and Vancouver. The districts farthest north from east to west are Fort George, Hazelton and Prince Rupert. The remaining district is Vancouver Island.

The location of each of these districts is fairly well given by its name. The areas in acres embraced in these districts are as follows: Cranbrook, 7,325,000; Nelson, 5,259,000; Vernon, 6,963,000; Tête Jaune Cache, 4,698,000; Kamloops, 6,619,000; Lillooet, 11,431,000; Vancouver, 15,755,000; Fort George, 28,785,000; Hazelton, 13,786,000; Prince Rupert, 18,723,000; Vancouver Island, 6,463,000.

With the enormous quantity of timber which the Province possesses (it is estimated that fully three hundred billion board feet of merchantable material, or half of that standing in the Dominion is within the borders of British Columbia) the main problem is that of protection from fire. To this end every possible precaution is being taken by the Forest Branch to keep down this item of loss. The constant effort is to secure as forest rangers men of ability and experience in order that the system of patrol will work with the regularity of a machine in the dangerous season. Great anxiety is being felt on all sides lest the great growth of grass which was the result of the unusually wet spell at the close of last summer may produce conditions of unusual danger to the forest growth. This year will certainly be one of the most difficult in the history of the Province.

One of the advanced means of protecting the forest from fire adopted by the Branch is that of placing eight power launches on waters adjacent to large bodies of timber. On the coast, there are to be four 36 ft. launches and two 54 ft. launches with a power calculated to give ample speed in cases of emergency. In some cases it would be impossible to reach by land a fire in some of the rocky districts near the sea. Rapid water transportation, however, is expected to solve the question of getting men and supplies quickly to the point of danger.

The Chief Forester notes in his annual report that the scarcity of trails, telephone lines, and other permanent improvements for the use of the fire protective force will greatly hamper the movements of those to whom is entrusted the work of keeping down fire. In many parts of the country where the timber is largest and the fire risk greatest, there is, as yet, no means whereby a large force of men can be placed

in the field upon short notice. With the development of the Branch and the application of even a small part of the moneys which come into the public coffer from the forest resource every year, a thorough system of patrol equipment may be established and maintained, to the very great advantage of all those who have with them at all times the anxiety of a forest fire.

So far only a very small part of British Columbia has been accurately described for topographical and economic features. The work which was carried on by the Branch under twelve parties of reconnaissance men, as result of which five thousand square miles were accurately plotted on maps, was a remarkably good start upon an enterprise which will be greatly developed in the course of the next few years.

The timber sales which have been instituted have already brought to the Government approximately $200,000 without having alienated any other rights than that to cut the standing crop of timber. The method of proceedure adopted by the Government is to cruise for sale blocks of timber in various parts of the country whenever application is made by an operator. A value is placed upon the timber and bids are called in order that the Government may receive the highest amount over the upset price. The successful bidder has to comply with all the regulations of the Government with regard to cutting, and after the tract in which he operates has been cleared he has no further interest in the area. The timber which once belonged to the Government, is now deemed sold and the operator, if he chooses, may go to another location and buy timber in the same way again. As market conditions become improved and the demand for British Columbia timber increases, the great part of the timber now in Government hands will be disposed of in this way. Of course, all the product, of the fourteen thousand special licenses which were issued between 1907 and 1908 from which the Government at the present time is receiving approximately $2,000,000 annually, will be dealt with as the licenses provide.

The institution of the new methods of administration have caused a large increase in the staff necessary for the compiling of statistics and returns in connection with the timber sales and the moneys from licenses throughout the Province. The Chief of Records, therefore, has had a large office staff installed, and a thorough double-checking system has been devised which will ensure the accurate handling of all that part of the provincial revenue which comes through the Forest Branch.

Chief Forester MacMillan has happily combined the scientific knowledge of the twenty technical foresters whom he has secured for the service of the Branch with the practical experience of the timber cruisers, fire rangers and other executive officers, to the end that the whole force can deal with conditions in the best possible way. The technical men have been drawn from all parts of the Dominion of Canada, and it is evident that a strong force of scientific foresters is already within the borders of this country. The majority of the school trained men are engaged in survey and timber cruising work. As time goes on other branches will be developed, particularly those connected with the careful utilization of the products of the forest after they have passed the sawmill. Co-operation with the lumbermen of the province in securing an expert of standing as the head of this particular branch when established is looked upon with great favor in all parts of the Province. It is expected that the lumbermen and the Forest Branch will work together in almost every detail of the administration of the forest resource to the end that the greatest possible amount of value shall be returned to the people of the Province.

One of the most notable achievements of the Government, the Railway Commission and the railways now under construction in the Province is the adoption of a system of fire protection which involves careful patrolling by the Government rangers and at the same time advanced measures by the railroads for eliminating the sources of danger from construction and locomotive fires. All brush which is being created by those cutting the right of way and those making ties near the line is to be piled and left to the orders of the District Forester. This and the further fire preventive measure of burning this slash upon the right of way are being carried out in the Tête Jaune Cache district where the line of the Grand Trunk Pacific is being constructed. That which was thought impossible and utterly unpractical a few years ago is being shown to be reasonable and thoroughly economic. It is a following out of the principle which is becoming generally recognized, that slash which is created in the forest is bound to burn at some time, and it is well to do away with it when its burning can be controlled than to wait and have swept away by a large fire originating in this timber a great part of the forest resource.

There were but few amendments to the Forest Act proposed in the last session of the Legislature. All were passed with the exception of those dealing with the royalties and the use of the Doyle rule. These questions have been left over until the session of 1913-14.

Where the Forestry Convention will be Held—The Winnipeg Industrial Bureau.

Should New Brunswick Forests Be Thinned.

John D. Howe, St. John, N.B.

In a paper read before the New Brunswick Natural History Society, Mr. John D. Howe, of St. John, N.B., who has for many years taken an active interest in forestry, urged the making of an experiment in 'thinning' to promote growth in the 'thicket' spruce forests of that Province.

Mr. Howe recalled in opening a discussion at the first meeting of the Canadian Forestry Association in 1900, between Sir Henri Joly de Lotbiniere, Dr. Robert Bell, Dr. Wm. Saunders, Hon. W. D. Perley, Mr. Wm. Little and Sir William Hingston. Sir Henri Joly and Sir Wm. Hingston contended that the estimates placed on the growth of spruce were too high, the former saying that in his experience he had not found a more favorable average than one inch in diameter in five or six years. It was also pointed out that while old field spruce grew rapidly they branched out from the bottom and were therefore largely useless as timber trees. Mr. Little pointed out that it was the rate of growth of the whole forest, not of a single tree growing in a garden that was important, and Sir Wm. Hingston said that even in the same acre of forest some trees would grow as much in three years as others in twelve years.

Mr. Howe said he had measured large quantities of spruce, and though people argued that the growth, owing to greater humidity, was greater in New Brunswick than in Quebec, he had not found the average greater than Sir Henri Joly had stated.

This examination disclosed that trees grow, not regularly, but fitfully. Some trees would grow rapidly for twenty years and then scarcely make any progress for another twenty years, and then suddenly break into vigorous growth again, putting on as much wood in two years as they

had in the preceding twenty. Different trees of the same species taken from the same tract would show a totally different variation.

After discussing all the possibilities of soil and elevation and climatic conditions, Mr. Howe gave it as his opinion that these could not explain variations so great and so complex. There remained but one other possible cause the variation of light area for the crown of the tree.

People interested in spruce reproduction maintained that the natural spruce forest could be cut over every ten or twenty years, the large trees taken out and the young ones allowed to grow, thus in the end arriving at a perpetual yield.

This system appeared very alluring at first, but the original clear boled trees rapidly disappeared with each cutting. The only trees to take their place were those which grew where clearances had been made sufficient to let the sunlight reach the ground and these trees were usually branched to the ground, producing very rough timber.

Nature's Plan.

Mr. Howe then described the natural growth of a spruce forest after a fire had cleared the ground. The trees came up by millions, ten or twelve seedlings to a square foot. The ground was completely shaded and all other forms of plan life killed. Then the survival-of-the-fittest struggle commenced and the weaker ones died by tens of thousands each year. In a period varying from thirty to sixty years the survivors reached three or four inches in diameter, and were then twelve to eighteen inches apart. The others had died and crumbled to dust. These saplings fifty feet high with no side branches, straight as rushes, with a small plume of foliage at the top, might be called the foundation of the tall timber forest. This was what was known as 'thicket growth' throughout the Maritime Provinces.

On examining this stand twenty-five or thirty years later it would be found that the trees now reduced in number to one for each four square feet had increased in size to five or six inches, or at an average rate of one inch in ten or twelve years.

The experiences of a number of investigators were here cited to show that often at this stage, where the forest was very even, the light proved insufficient to support the trees and millions of them died or they became so weakened that they became a prey to insects, fungi or wind. Up to two or three inches in diameter it might be deemed best to leave this small growth to natural thinning, but after reaching this stage if uniformity of size conditions existed suspended growth resulted. Mr. Howe then called attention to some specimen sections of spruce. One section showed that the tree took eighty years to reach five inches, and then it suddenly put on heavy growth and in forty years expanded to sixteen inches. This was not an exceptional case, but such specimens were to be had in large numbers from cut over woods, showing that when the tree received increased sunlight it rapidly put on timber.

Mr. Howe argued that the full growth of foliage was reached at a very early age, and it could be shown that as large an amount of wood material was growing on an acre at an early stage as when larger sizes were reached. What then became of all these years of growth between, say, the three inch and twelve inch sizes? Mr. Howe had prepared a table showing what would occur if the growth was not too even. This table indicated a twenty-five per cent death rate of trees for every inch increase in diameter. This he said would give only sufficient increase to allow expansion and the number of dead trees would show what went to waste while the big trees were reaching maturity.

Was there not here an opportunity to assist nature in hastening the growth of the forest? It would be a most interesting experiment to try the process of thinning on some of these tracts of over three quarters of a century of suspended growth, working judiciously so as not to destroy the forest fringe or bulwark which protects the trees from being thrown over by the wind. With younger trees larger gains could be made and enormous waste prevented. The present plan of cutting the best trees would soon make large clear timber a thing of the past. It was not the 'survival of the fittest' but the survival of the unfit, the forest growing constantly worse from the removal of the best trees. He would be a bold projector to change present methods, but unless this were done from whence would good timber be obtained in a few years?

AN ECONOMIC WASTE.

A correspondent writing in the Haileybury *Haileyburian* claims that all along the shore of Lake Timiskaming and tributary streams, there are millions of dollars' worth of fine logs rotting because under present conditions and owing to their scattered character it will not pay to 'water' them, that is, to drag them to the water. They have escaped from drives and been left on the shore by the receding spring freshets. He claims that the Dominion Government should enact legislation to compel the gathering and the floating of these logs to the mills as a matter of forest conservation.

How the United States Lost an Opportunity.

Why the Southern Half of the Turtle Mountain is not a National Forest.

Some time ago before the matter was understood as it is today there was an agitation for the throwing open of the Turtle Mountain Forest Reserve in Manitoba for settlement. It was pointed out by a number of authorities that the land was unsuited to agriculture and that to throw open the reserve would result in the stripping off of the timber and the settlers would soon find they could not make a living. There would then follow, as in similar cases in Ontario and Quebec, the abandonment of these farms. The settlers would have to begin over again in some other part, and the Government would have to do, as Ontario and Quebec are now doing—plant up these light, hilly lands with seedlings at the expense of many thousands of dollars in order to get them back into timber. It was also pointed out that if well handled the Turtle Mountain Reserve would be in shape in a comparatively few years to supply sufficient timber year by year to keep ten sawmills of the average Ontario size running in perpetuity, besides supplying the surrounding district with fence posts and cordwood.

The Turtle Mountain lies partly in Canada and partly in the United States, and one thing that has puzzled a good many people is this: Why did not the United States reserve their portion for a National Forest? The Editors of *The Canadian Forestry Journal* therefore wrote to Mr. H. S. Graves, United States Forester, Washington, D. C., asking him if the Forest Service had ever had the district examined and if so, why was it not constituted a National Forest. The reply of Mr. Graves is virtually to this effect; that when the district was examined in 1902 it was found that while it was well suited to form a National Forest only one twenty-fourth of the area remained Government land. It is therefore fair to assume that had the United States Forest Service been on the ground a little earlier all the Turtle Mountain both north and south of the International Boundary would have been a permanent forest. Mr. Graves letter is as follows:—

Your letter of January 7 is received.

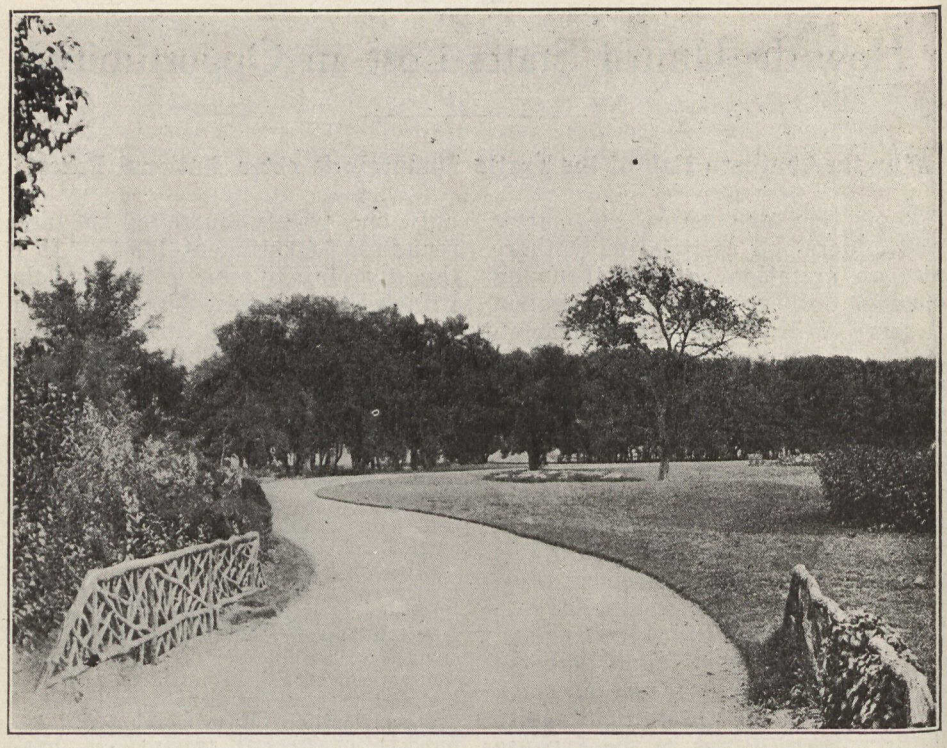
I am glad to inform you that a report is on record in this office covering that portion of the Turtle Mountains lying within the State of North Dakota. This report was prepared in 1902 by Mr. J. H. Hatton of the Forest Service. From the report it appears that that portion of the mountains within the United States is similar topographically and in cover to the portion lying in Canada, with which you are familiar. It will probably, therefore, be unnecessary to dwell in detail about the topography as given in the report.

The report indicates that a more or less dense growth of timber and underbrush once covered all of that portion of the Turtle Mountains lying north of Township 161 North and between Ranges 70 to 75 West, excepting the foothills on the south of the mountains and the southern portion of the Indian Reservation.

As a result of fires and cutting, the extent of the heavy green timber was, at the time of the report, confined to about one township, and this was being rapidly removed. The report states that it would be but a matter of five or six years until all the heavy timber would be destroyed or consumed. Reproduction is good on the fire-killed areas. The types consist of oak, popple, ash, birch, elm, willow, box elder, and many varieties of undergrowth.

The need of a forest cover to protect the mountains from erosion is also set forth in the report. The absence of erosion at the time of the report is ascribed to the density of the cover and it is evident that the generally hilly character of the region will render erosion liable should it be removed. No large streams flow from the mountains, however.

The principal industry of the region was wood cutting, as this supplied immediate revenue and resulted in clearings for growing vegetables and small crops. After the clearings had been made wood cutting became a secondary industry.



A Drive in City Park, Winnipeg.

Six portable sawmills having a capacity of from 4 to 12 M feet per day were reported to be operating during the winter in the region known as the 'heavy green timber.' In order to effect rapid clearings settlers would sometimes hire a sawmill and pay the owner $4 to $5 per M to saw their logs. Lumber sold for about $15 per M.

Grazing was a minor industry. No large herds were reported to be in the mountains, though a majority of the older settlers at that time possessed a few head of cattle.

It was reported that many of the settlers found it difficult to make a living. It was found impossible to subsist entirely on what could be gleaned from wood cutting and small garden patches. Nearly all settlers are reported to have spent from 4 to 6 months at some other employment outside of the mountains.

The dearth of good hay meadows through the heavily timbered region made it difficult to winter stock. The hay raised was an inferior quality.

In discussing the practicability of setting aside a Forest Reserve in the mountains, the report states:

'There are not enough vacant lands lying contiguous in the region that would be suitable for reserve purposes.' Only about one-twenty-fourth of the area between Ranges 70 to 77 West, north of Township 160 North, was vacant. Nearly all of the unentered lands were found in the foothills where timber had never grown to any appreciable extent.

The report concludes with a recommendation that a certain described area be established as a Forest Reserve, provided an exchange of lands could be effected with the settlers owning the lands within the area suitable for Forest Reserve purposes.

From this review of the report it will be observed that an area (approximately 560,000 acres) embracing the Turtle Mountains might well have been included within a National Forest except for the heavy percentage of alienated land within the region and the impracticability of attempting to solidify the government lands of the area.

TWO CONSERVATIONISTS.

'Nothing lost here but the squeal,' declared the pork packer. 'Are you as economical in conducting your business?'

'Just about,' answered the visitor. 'I'm in the lumber business. We waste nothing but the bark.'

The Problem of Sable Island.

F. W. H. Jacombe, M.A., M.F.

The Dominion Experimental Farms report for 1910 contains an interesting reference to the results of the planting done some twelve years ago (May and June, 1901), described at length in the report for the year referred to. Unfortunately the final report is an unfavourable one, only a few of the trees and plants then planted having survived.

Sable Island is one of the most dangerous spots on the eastern Canadian coast-line. It is formed entirely of white sand, and lies about ninety miles from the nearest point on the Nova Scotia coast, and about 153 miles from Halifax.

Its area has been considerably reduced by the action of wind and water on the sand. The present length of the island is about twenty-one miles, and its width, at its widest point, somewhat over a mile. Early surveys gave the length of the island as forty miles and its width two miles and more. Dangerous shoals and sand-bars extend on all sides, and the strong currents from north and south often carry vessels out of their course, while, in addition to this, fogs are frequent; naturally wrecks are many. The planting was undertaken, at the request of the Marine Department, chiefly with the object of preventing the damage done to the island by the wind. Naturally, the further the destruction of the island is carried, the greater becomes the danger from the shoals and sand-bars.

No trees grow naturally on the island. The choice of species to be planted was based largely on observations made by Dr. Wm. Saunders (then Director of Experimental Farms) on a visit to Brittany, France, where much work in the reclaiming of sand-dunes has been done.

The species and numbers of each species planted on the island were as follows: Pinus pinaster (maritima), (cluster pine), 10,000; Pinus sylvestris (Scotch pine), 10,000; Pinus sylvestris rigaensis (Riga pine), 10,000; Pinus laricio nigricans (Austriaca), (Austrian pine), 10,000; Pinus montana (Mountain pine), 5,000; Pinus montana mughus (Dwarf mountain pine), 2,500; Pinus strobus (White pine), 2,500; Picea excelsa (Norway spruce), 10,000; Abies balsamea (Balsam Fir), 2,500; Picea canadensis (White spruce), 2,500; Picea mariana (Black spruce), 1,000; Juniperus virginiana, (Red cedar), 1,000; Juniperus communis, (Common juniper), 1,000; Thuja occidentalis, (Eastern Arbor-vitae), 500. Of the broad-leaved species there were used the following: Manitoba maple, (Acer Negundo), 500; Acer platanoides (Norway maple), 500; Betula alba (European white birch), 2,000; Gleditsia triacanthos (Honey locust), 2,000; Salix longifolia (Long-leaved willow), 1,000. Planting was started on May 18th, the trees being found in good condition, in spite of having been packed up for six weeks.

The first plantation was made on a sandy bluff near the north shore, fairly well covered with the common sand-binding grass (*Arenaria ammophila*), the trees being planted two and a half to three feet apart each way in a soil composed of pure sand.

One considerable area, to which the name of Gourdeau Park was given, was found to be covered to the depth of several inches with a black, peaty soil, mixed with sand and underlaid with pure sand. On this were growing common juniper (Juniperus communis), cranberry (Empetrum nigrum), wax myrtle (Myrica cerifera), blueberry (Vaccinium), wild rose and other plants. The planting was completed on June 17. Artificial fertilizers were used to some extent, these comprising nitrate of soda, muriate of potash, superphosphate of lime and quicklime. Sea-bird droppings were plentiful all over the island. In 'Gourdeau Park' the soil was ploughed.

The climate of the island is not extreme. During the years 1898 to 1901 (inclusive) the highest temperature registered by the thermometer was 78 degrees Fahrenheit and the lowest 5 degrees Fahrenheit . The winds, however, are very high and constant and gales are frequent.

At the End of the First Season.

From August 13 to October 3 the weather was very dry, and from September 21 to September 26 a continuous gale blew, ranging in direction from southwest to north, which 'burned' the leaves off the deciduous trees. All the pines, however, except the white pine, looked well and had made a good growth. Some of the spruces survived but few looked promising.

A memorandum prepared by Mr. Boutellier, the superintendent of the island, for the Director of Experimental Farms, on March 23, 1910, summarized the result of the plantations: At 'Station No. 4,' where 2,000 trees and shrubs were planted, he found alive but fifteen Austrian pine, five mountain pine, sixteen Scotch pine, twelve maritime (cluster) pine, two Norway spruce and one black spruce. 'They were all spread out on the ground,' the memorandum runs, 'and were about one foot high. In summer they run up to the top of the rank grass that grows around them, perhaps quite two feet.' At 'No. 3 Station,' where 5,000 plants and shrubs were planted, the only one mentioned in the report is a

specimen of matrimony vine (Lycium europaeum), this being in the shelter of a five-foot board fence. At 'Gourdeau Park,' where the greater part of the trees were planted, all that remains is a few specimens of the Scotch broom (*Genista scoparia*), while in the little garden at the main station, where there is some shelter, there remained of the trees planted, one pine (probably *Pinus cembra*), one American elm and one Manitoba maple. The two last mentioned were less than two feet high and were in the habit of growing up rapidly each summer, killing back each winter. The pine was about six inches high and two feet broad.

A danger to be apprehended is that the surface of the island may be wholly swept away (as has already happened in the case of a large part of the original island), leaving an immense area of submerged shoals. In that case the danger to passing vessels would be as great as now, and the possibilities of rescue of shipwrecked persons, (with the life-saving station gone) would be reduced to a minimum.

Is not such a danger worth the spending of many thousand dollars to avoid? On similar plantations (similar, at least, as regards the problems presented by natural conditions) France has spent several millions of dollars, and the single state of Massachusetts some hundreds of thousands.

In the problem presented by Sable Island not only do property considerations enter, but considerations involving the saving of human life. At the least the subject is worthy of continued and persistent experiment, and it is to be hoped that the authorities will not rest satisfied, or torpid, in consequence of the failure of this one attempt.

THE WINNIPEG CONVENTION.

Railway Arrangements.

Owing to the fact that the Convention will be held on the day preceding and the first two days of the Winnipeg Exhibition, delegates attending from points within what is called the 'Winnipeg Exhibition District' will not be required to secure certificates. They will purchase railway tickets at the special rates in force during the Exhibition. It will be necessary, however, that those travelling on these tickets give their names and addresses to the Secretary for the purpose of compiling the railway returns. The Winnipeg District extends from Fort William on the east to the Alberta-British Columbia boundary. (On the Canadian Pacific Railway these rates extend to Golden and Cranbrook, B.C.)

From Eastern Canadian Points.

Delegates attending from points in Canada from Port Arthur eastward can secure single fare rates (plus 25c) on the convention certificate plan. To secure these rates delegates will purchase one way first class tickets which will be sold them at the lowest one way first class fare, plus 25c. When purchasing these tickets they must secure a standard certificate which the agent will furnish upon request, and this certificate when signed by the Secretary in the Convention at Winnipeg as showing that the party was a delegate will be honored for ticket through to original starting point free.

Going Dates.—Tickets for going trip by all rail routes will be sold July 3 to 6 inclusive; days of sale via lake and rail routes to be announced later.

Returning. — Standard convention certificates properly filled in and signed by the Secretary of the Canadian Forestry Association will be honored at Winnipeg up to and including July 24 for tickets to original starting point free, except that where lake routes are used addtional payment will be required as follows:

Lake Arbitraries. — The following additonal amounts to be paid at Winnipeg when certificates are honored for return journey if passengers elect to travel via lake routes, viz.:—(Via C.P.S.S. line or Sarnia N. N. Co., and Port Arthur). Going all-rail, returning lake and rail, $9.00 additional. Going lake and rail, returning all-rail, $4.00 additional. Going lake and rail, returning same route $13.00 additional.

From British Columbia Points.

Rate: Certificate plan arrangement; one way first class tickets and standard convention certificates to be issued from starting point to Winnipeg at the lowest one way first class fare plus 25 cents.

Going Dates: July 4, 5 and 6.

Return: Certificates signed by Mr. Jas. Lawler, Secretary, Canadian Forestry Association, to be honored at Winnipeg up to and including July 12th for free return tickets back to starting point with a transit limit of 10 days.

NEW USE FOR SAWDUST.

'Son, why don't you play circus? It's great fun. First you make a sawdust ring.'

'Where'll I get the sawdust, dad?'

'Here's the saw. Just saw some of that cordwood into stove lengths. You can have all the sawdust you make.'

These, then, are a few of the problems to be solved by the forest engineer and I think you will agree with me in stoutly maintaining that he may well be proud of his profession, and that in the practise of it he will find abundant opportunities for the exercise of all the engineering skill he is possessed of.

DOMINION FOREST PARTIES.

A number of the officers of the Dominion Forestry Branch left Ottawa during May for summer field-work in various portions of the West. The plans for work outside of the regular work in connection with the Forest Reserves will take the men through a large area of country which has not been previously traversed by men trained to look for matters pertaining to forestry.

The most important trip will be that of Mr. E. H. Finlayson, Inspector of Fire Ranging. This was briefly referred to in a previous issue of *The Journal*. Mr. Finlayson left Ottawa during the latter part of May and will be engaged for a short time in administrative work connected with the fire-ranging organization which is under his supervision. About the middle of June, however, he will leave Prince Albert on his way north. Travelling by canoe from the end of the Big River branch of the Canadian Northern Railway, he will follow water routes until he reaches the Beaver River. This river is one of the main streams at the head of the Churchill river which flows into Hudson Bay at Fort Churchill. A number of large lakes lie in this district, and some of them will be traversed by Mr. Finlayson's party. They include Lac Dorè, Lac la Plonge, Ile a la Crosse lake, Clear lake, Buffalo lake and La Loche lake. A portage over a low height of land leads to the Clearwater River, which will be followed for about one hundred miles until the Hudson's Bay Company's Post at McMurray is reached. This is situated at the confluence of the Clearwater and Athabaska rivers. The balance of Mr. Finlayson's trip will lie along the regular routes of travel of the Mackenzie river valley. Mr. Finlayson plans to go as far north as Fort Simpson, situated at the point where the Liard joins the Mackenzie river. The route of travel follows the Athabaska river to its mouth at Lake Athabaska, down the Slave river to Great Slave lake, and from there down the Mackenzie river proper.

The main object of Mr. Finlayson's trip is to obtain information in regard to the country which will make it possible to organize a staff of fire-rangers for the protection of the timberlands of the region. The present organization in this connection provides only protection along the river, although, of course, that covers the area most travelled. There will be this summer two fire-patrol boats, of which one will operate northward from Fort Smith and the other in a southerly direction from that point.

Another matter that will engage Mr. Finlayson's attention is the herd of reindeer, which was transported by the Dominion Government from Labrador. The herd was secured from Dr. Grenfell, who has done much to encourage the introduction of this useful animal into Labrador and Newfoundland. The Dominion Government herd is at present located at Fort Smith and is under the supervision of the Forestry Branch. The reindeer have in the summer been troubled a great deal by the mosquitos and flies, and it is proposed to transfer them to an island in Great Slave Lake.

The reconnaissance survey parties left for the various districts assigned to them during the month of May. Mr. J. A. Doucet with Mr. R. M. Watt as assistant were the first to start off. This party will be engaged in an examination of lands in the valley of the Peace river. This season's work will complete the examination of lands connected with the Rocky Mountains Forest Reserve upon which men have been engaged for the past three seasons.

Messrs. Donald Grieg and T. A. Trebilcock will be working between Lake Winnipeg and Lake Manitoba. Mr. A. B. Connell, with Mr. A. M. Thurston as assistant will examine the Pasquia Hills in the province of Saskatchewan. Mr. G. P. Melrose, of the

University of New Brunswick, with Mr. R. A. R. Campbell as assistant, and Mr. R. K. Shives with Mr. G. S. Laughlin will be working in the vicinity of Battleford and Prince Albert, respectively. The men assigned to this kind of work in the Railway Belt in British Columbia are Messrs. F. B. Robertson, C. R. Mills, E. B. Prowd and H. A. Parker. The two first-named will be the men in charge of the parties.

Mr. W. N. Millar, District Inspector of Forest Reserves for the Province of Alberta, has outlined extensive trips in connection with his inspection work in the Rocky Mountains forest reserve. Mr. Millar spent a very large proportion of his time last summer in the field, but he was able to cover only about half of the very large area under his jurisdiction. The trips that he has planned for the present season will complete his personal inspection of all the Rocky Mountains forest reserve lying south of the Grand Trunk Pacific Railway. The most extensive single trip will be a journey with pack train from Laggan to Fitzhugh.

Prof. R. B. Millar, of the University of New Brunswick, Dept. of Forestry, has accepted an appointment to do consulting work with the Canadian Pacific Railway forest service during the summer.

CROSS TIES PURCHASED IN 1912

A very interesting report on the cross ties purchased in Canada in 1912 has been issued by the Dominion Forestry Branch. Statistics were based on reports received from 51 steam railways and 36 electric railways operating in Canada in 1912.

The total number of ties, 21,308,571, were valued at $9,373,869. Part of these were imported, but the bulk of the ties used on Canadian railways were cut in Canada. The imports of ties in 1912 reached approximately $1,697,431, which would indicate that less than one-fifth of the ties purchased in 1912 were imported.

There were purchased in Canada in 1912 a total of 21,308,571 cross-ties; this was an increase in actual numbers of 6,919,347 or a 48.1 per cent. increase over 1911. This increase took place on almost all the railways in Canada and was especially noticeable on transcontinental lines.

Nineteen different kinds of wood were used with jack pine still leading. The use of each material increased from 1911 with the exception of Eastern spruce and red pine. Balsam fir and Western spruce were added to the list of 1911 and poplar and black ash were dropped.

The use of the cedar tie has varied greatly from year to year. In 1908, 1909 and 1910 cedar ties headed the list although the numbers purchased showed decreases each year. In 1911 cedar ties formed only 10 per cent. of the total and fell back to fourth place on the list. In 1912 the use of this material increased by some 1,898,710 ties and this wood moved up to second place on the list, forming 15.6 per cent. of the total.

Douglas fir has steadily increased in use since 1909, when data concerning its use were first obtained. Oak and the other five hardwoods—chestnut, beech, maple, birch and elm—have also increased remarkably. There seems to be a tendency on the part of the management of older established steam railways to reduce the use of soft, light material for cross-ties, especially where fast trains and heavy rolling stock are used. Some of the Eastern roads have ceased to purchase cedar, pine, hemlock and tamarack ties and use only the hardwoods. The use of imported hard pine has increased with the hardwoods and was used in making 3.1 per cent. of the ties purchased in 1912. Western larch formed 5.6 per cent. of the total number, over a million ties of this wood having been purchased.

The average value of ties, at the point of purchase, increased from 39 to 44 cents in 1912.

It is interesting to note the increased use of hardwoods by steam railway companies. In 1911 woods such as oak, chestnut, beech, maple, birch, elm and black ash together formed only 1.8 per cent. of the ties purchased. In 1912 this percentage increased to 6.7 per cent. through increased purchases of 1,148,578 hardwood ties.

Many Canadian railway companies are now beginning to realize the value of preserving at least a part of their tie material from decay and insect injury. The practice of chemical treatment of railway ties has been carried on by railways in the United States for some years with apparently satisfactory results.

The practice in Canada is just beginning, but it is increasing rapidly with the increasing cost of tie material and the constantly decreasing supply. In 1910 practically no treated ties were used by Canadian railways. In 1911 some 206,209 ties received chemical treatment before being placed in the roadbed. This number, while forming only 1.4 per cent. of the

total number of ties used, was, nevertheless, an indication of the increase in this particular form of conservation. In 1912 1,818,189 ties were chemically treated. This number forms 8.5 per cent. of the total number of ties purchased. Steam railways used 1,798,189 of these treated ties and electric roads used 20,000.

The treated ties were mostly hardwoods, as it has been found more economical to treat the heavier, stronger woods than those which are liable to fail from mechanical wear before they have time to decay. The greatest actual saving by preservative treatment is found in the use of the so-called 'inferior woods,' provided that these are properly protected from mechanical wear. Until the price of the durable woods become excessive the railway companies will not resort to expensive treatment of inferior woods on account of this cost of protecting them from mechanical wear.

ALPINE CLUB OF CANADA.

The extent to which the work of the Alpine Club of Canada has grown is shown in the issue of a hundred page special issue of the Canadian Alpine Journal, the organ of the Club. The Club, of which Mr. Arthur O. Wheeler, F.R.G.S., is the energetic director, has its headquarters at Banff, Alberta, and the permanent address of the Secretary, Mr. S. H. Mitchell, from whom further information may be obtained, is Sidney, B.C. This issue contains the reports of the party from the Smithsonian Institute of Washington, D.C., which collaborated with the Club in its 1911 expedition to the Mt. Robson region of British Columbia and Alberta in the vicinity of the transcontinental line of the Grand Trunk Pacific Railway. Those who represented the Smithsonian Institute were Mr. N. Hollister, who studied the mammals; Mr. J. H. Riley, who reported on the birds; and Mr. Paul C. Standley, who was the botanist of the expedition. The issue contains a large number of half tone engravings of photographs of scenes and specimens and a map by Mr. Wheeler of the region traversed. Every year the work of the Alpine Club extends and Canadians are thus being made better acquainted with their great mountain heritage.

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