

THE PRESERVATION OF FORESTS AND THEIR ECONOMIC RESULTS.

If any Canadian were asked whether it was a desirable thing to preserve old forests and cultivate new ones, he would without a doubt assent. Strange to say, everybody would agree with him, and yet when we come to apply the proposition with some very practical test, as many votes are found objecting to what ever is advanced to conserve of our forests. Last year an attempt was made in Montreal to awaken public interest by holding a Forestry Congress, which was addressed by many able men, including the ex-Prime Minister of Quebec and the American Commissioner of Agriculture. The instruction which the Congress diffused was valuable and was disseminated over a large area of the country. Whether it will accomplish anything more than the planting of a few thousand trees may be doubted. The subject is becoming serious, and mere individual effort will not be sufficient to meet the requirements of the case. Whatever improvements have been introduced, and however much manufacturers may economize their use of wood, the fact remains that the resources of the country's forests are yearly becoming less. Hitherto the doctrine of private property in land and all that pertains to it has been cherished here and in the United States with a vengeance. It does not seem to have occurred to our legislators that there were other claims upon them than mere socialistic or communistic ones, which merited attention. The theory and practice of all European legislation has long been based on the principle that the State is but the trustee for unborn generations of the human race. There are all sorts of limitations restricting the use of land and its products in France, Germany, Russia and England. Among these are the Agricultural, Mining and Forest laws. The object of these laws is to ensure the largest aggregate production, and to reduce waste to the very smallest limits. The cutting of wood is regulated in such a manner that the area and quantity of wood of forests never becomes less, but rather shows a tendency to increase. The teaching of forestry as a subject of education, is practised just as engineering and chemistry are. Not only so, but France, Germany, Russia and Switzerland have separate schools where forestry is the chief subject of study. In all of these countries, there are, of course, State Forests, without which complete instruction would not be practicable. The schools form a part of a department of forestry presided over by a State Commissioner. The teaching is conducted in intimate connection with the forests. As no statistics are at hand it is impossible to form any correct estimate of the value of the work done by these schools, the number of students turned out, or the precise character of the effect which these schools have had on the conservation of European forests.

We, however, are still young, and our future is all before us; forest land is yet abundant in all the provinces of the Dominion. It is not a very serious matter to urge the appropriation of a sufficient number of acres of forest as a state reserve for the teaching of forestry, and the creation of a fund for its support. Now, there is no need of doing anything in the way of money doles, as a vote of about four townships, or a block of woodland of twelve miles square, would meet all the requirements of the case. An establishment might be begun for twenty students, which would steadily expand to one hundred. Taking the capitalized value of the 92,160 acres at as many dollars, the endowment would be nearly equal to one thousand dollars per head on a hundred students. Worked on the plan of a high timber productive forest, an area equal to 600 acres could be cropped annually. As fast as the wood was harvested the bare places would be reseeded for a new crop. Several systems might be adopted by which the relative merits of each plan could be practically tested. Although the land would not perhaps need to be kept under crop for a longer period than 150 years, many portions could be cultivated so as to yield a crop in periods varying from 35 to 120 years. In the course of a generation every part of the plantation would exhibit new crops under growth, and a convention held in a tent in such a forest would speak with an authority greater than any institutions of a

smaller character thousands of miles away over oceans. Boys at the forest school would see trees in all stages of growth from one to one hundred and fifty years; they would see operations for keeping the land clean, and the up-growing crop of trees vigorous, analogous in every respect to the weeding of farm crops. Not only so, they would learn to bear their part in the work, and when in after life they found themselves engaged as lumber merchants or farmers, they would know how to crop and plant land, so as to avoid waste, and increase the revenue of their country. What farm of 100 acres is there that would not be better for having upon it at least four per cent. of wood land which might become the preparatory training ground of the future forester? The value of such little scraps of wood on a prairie soil is great, apart from any direct commercial result from sales of wood. In the hot summer suns cattle love shade; and their influence in the storm and the wind is none less valuable. In the older Canadian settlements a very large percentage of the agricultural land is wooded, and all that is necessary is to preserve by replanting and judicious cutting what remains.

What is needed most is a forest law for every province, for regulating the cutting of timber. Every lumberman should be required to hold a license to cut under well defined conditions of cropping and replanting. The law need not be vexatious either in letter or spirit, but just and liberal in all its provisions. There are even now ample woodlands in Canada, but at the present rate of slaughter they could not remain to us long. Five years' experience would develop an immense amount of interest in the new system. The forests of Quebec might be made to yield a revenue large enough to emancipate her from the enormous burden of debt she carries. In India the revenue in 1870 from forests was £357,000, giving a net income of £52,000, or 14 1/2 per cent. In 1880 it was £545,000, with a net revenue of £215,000; that is, the revenue had increased 56 per cent., while the charges increased to only eight per cent. India has 9,820,000 acres of state forest reserved, 2,493,000 acres of which are protected from fire, and from cattle and sheep grazing. They are now in a condition to reproduce themselves under the natural system.

Australia is fully alive to the importance of the subject, for ten years ago an act was passed authorizing the payment of £2 per acre to land-owners in certain districts of South Australia to form plantations of trees. In 1875 a Forest Board was constituted, and certain districts of the colony were formerly defined as forest reserves. In 1878 a Forest Act was passed, and a Conservator of Forests was appointed. Last year a quarter of a million trees were planted out, and the forest revenue amounted to £6,517—of which £1,380 was for timber sold—against an expenditure of £6,200. A profit of only £317 is not to be sneered at; it is something that a department of State should pay its way. India did not move in the matter till 1867, and it is only ten years ago that legislation was attempted in South Australia, a colony one-eighth the population of Ontario. Not only do the Forest Department in each case pay their way, but manage to make a revenue. Any one visiting Baden-Baden cannot fail to be struck with the great beauty of the valleys of the Oos and the Murg, and the forests in the immediate neighborhood, which furnish a splendid example of the successful working of forest culture as carried out in Germany. As an example of private forests, which are managed in much the same way, those of Prince Furstenburg, near Rippoldsau, may be mentioned.

Our neighbors the Americans are waking up to the importance of this matter, and in 1881 Dr. Hough visited the forest schools of Europe, with a view to establishing a similar institution on this side of the Atlantic. We are accustomed to flatter ourselves that we are ahead of the Americans in educational matters and also in public spirit. The Americans have never very seriously disputed the claim, but if the forest country of Canada allows them to take the lead in this matter the claim will certainly not be strengthened. Under any judicious system of management the annual yield of Canadian woods can be increased without any actual restriction on the just rights of any. The soil

of a country is not for a generation, nor for a century, but for all that are yet unborn. The theory and practice of all systematic management in Europe is that the annual yield of the forest should represent the earning of the year only, and not any portion of the capital.—*Canadian Manufacturer.*

THE MIDLAND AND LUMBER.

The Orillia *Packett* says that at a special meeting of the Town Council, held on Friday evening, June 8th, the Mayor read the following letter he had received from Mr. Cox, manager of the Midland Railway:—"We have been in communication with the Messrs. H. & G. Strickland in reference to the removal of the Bradford Mills to some point on the Midland. We have suggested to them Orillia, and they have pointed out to us difficulty in bringing logs from the Black River to Lako Couchiching over the Portage Company's tramway. If this difficulty were removed Mr. Strickland says all their timber on the Black River, about 150 million feet, could be brought to Orillia, which would be the best point to manufacture at. They suggest that the town of Orillia, and ourselves ought to take steps to connect Lako St. John with Lako Couchiching, by a canal, which would at once open a water highway for all the productions of the forest on those waters, which are reported to be very extensive. It seems to me that the idea is a good one, and it is strange that Orillia has not taken action in the matter before, instead of allowing all the forest produced to go past them, by way of the Severn River to Georgian Bay; and Muskoka River to Gravenhurst. Messrs. Strickland think, to accomplish this end the outlay would not exceed \$30,000. My object in writing is that if you think it advisable, I would meet a committee of your Council, and would invite the Messrs. Strickland to attend, who are now the holders of the Dominion Bank limits, Thompson Smith limits and Hilliard limits, which are all tributary to the Black River, and if the mill was moved to Orillia they would pay out annually from fifty to sixty thousand dollars, and give employment to a large number of men."

His Worship said he had been speaking of the matter to Mr. Scadding, had told him the mills would be larger than those of the Longford Lumber Company; Orillia would also be made the distributing points for the shanties. In reply to Councillor Miller, he said the Council could grant no aid beyond the corporation limits; but the Council had power to remit taxes for ten years, and, with the sanction of the freeholders, of granting a bonus. Councillor Jupp said the Railway was interested in the matter. The Reeve did not care who was interested, so long as it was for the benefit of the town. He would not vote bonus for anything; but favoured appointing a committee to confer with the applicants as to what encouragement might be given them. It would not be for Mr. Tait to remit taxes to a new enterprise and continue to tax him. Councillor Thompson said the new mill would not interfere with the home market of Mr. Tait, except for slabs, and the latter could not meet the demand for them. It would be better to receive their proposal, before discussing what could be given. Councillors Miller and Mainer thought it would be preferable to have them meet the whole Council, but the other members thought the smaller the committee the better. On the motion of Councillor Thompson and the Reeve, the Mayor was requested to name a committee and communicate their action to Mr. Cox. His Worship named the Reeve, Councillors Miller, McKay, Thompson, and himself.

BI-PRODUCTS OF LUMBER MILLS.

The *Canadian Manufacturer* says:—"To Messrs. H. B. Rathbun & Sons, of Deseronto, belongs the credit of being the first, in Canada at least, of practically solving the problem of how to utilize the waste from saw mills, and turn the refuse into bi-products that have a marketable value. They have established chemical works adjacent to their mills, and we give a condensed account of the visit of a correspondent of the *Napanee Bearer* to the works:—"It is now admitted these experiments are about to be crowned with success, and that

the solution of the important problem of the utilization of waste material has at length been reached. It has been demonstrated that from the sawdust of the big mill can be extracted acetic acid, wood alcohol and tar; that the charcoal can be disposed of for the manufacture of gunpowder, and that as a bi-product, sufficient illuminating gas of an excellent quality can be produced to light the village and its factories. The chemical works are now being enlarged for this purpose, an excavation is being made for a gas-holder and main, and it is expected that the whole will be in operation early in August. This department is under superintendence, and the whole of the experiments have been conducted by George Walker, formerly of New York." The article on "Bi-products," to be found on front page, treats of many more instances in which so-called refuse matter is capable of utilization, and the subject is on well worthy of consideration."

"Lumber mills have many bi-products which run to waste for want of some cheap and ready mode of converting them into useful and saleable articles. Such are sawdust and shavings. It may be confidently predicted that in the near future uses will be found for all the surplus shavings and sawdust now made. It is only a year or so since car wheels were made of paper mache, and why may not sawdust be so changed by mechanical and chemical manipulation as to become equally useful. A few years ago a great cry was raised at Minneapolis on account of the accumulation of sawdust. Notwithstanding that much has been used for packing, stable bedding and other absorbent purposes, there is a large quantity yet to be utilized. Converted into charcoal by the addition of sulphuric acid, it would be a valuable accessory to the farmer's stable manure heap, as tending to convert the free ammonia of the litter in sulphate, and the charcoal itself has a decided value as a fertilizer."

THE MINNESOTA SITUATION.

St. Paul, Minn., June 4.—The logging situation has not materially changed during the last week for the drivers, and prospects have grown worse rather than better, but the lumbermen do not yet despair of getting some of the logs out that are now reported hung up. The logs are pretty sure to come out of the Rum river, except those on the West Branch and Hillman Branch. The West Branch logs have moved down only about six miles, but heavy rains will bring them all right. The logs are reported hung up on the Willow, at Prairie, Platte and Swan rivers. The local mill owners liable to be most incommoded by the prevailing situation being Morrigan, Barrows & Co., and Camp & Walker. The logs which have got out into the main river are moving slowly. A big jam fully four miles long is reported at Aitkin, and another quite unusual is reported at Grand Rapids. There are probably 80,000,000 to 100,000,000 of the whole cut of 500,000,000 that stand a chance of not getting out. There is no apprehension, however, that the crop will not be ample for every demand of the mills. The cut was an unusually large one, and for the present some of the lumbermen are willing that the logs shall be hung up. The sawing season commenced fully three weeks later than a year ago, and even with the aid of three new mills, two of the three thoroughly equipped and capacious mills, the season's cut of lumber does not promise to be larger than a year ago. Logs in the drives tributary to Duluth are hung up still. Before the water grew so low a few millions got out, as follows: On the Nemadji, 5,000,000 to 10,000,000; on the south shore streams, 5,000,000; on the St. Louis below the rapids, 5,000,000; above the rapids, none. About 15,000,000 have been towed to mills from the north and south shore camps, and more will follow. About 17,500,000 feet are hung up. Advice from the Chippewa River, in Wisconsin, say the general outlook for the drives is about the same as in former years, if anything a trifle better. Most of the drives on the tributaries are hung up, except on the Yellow river, where they are doing fair work—and have the run down to within sixty miles of the mouth. There is a lack of water on the Deer Tail, Brule, and north and south forks of the Flambeau. Several of the log-drivers of the St. Croix and its trib-