

FORESTRY IN CANADA.

The following paper by A. T. Drummond appears in the proceedings of the Montreal Horticultural Society:—

Perhaps no trade question has around it at the present time so much interest as that of the conservation of our forests with a view to the continuance of the lumber industry. This industry has once more revived, and very large demands are now being made on our timber supplies. Public attention cannot, however, be too strongly directed to the fact that these timber supplies are not unlimited. The drain which has been going on for thirty years past on the resources of our forests has been so vast and so continued that the questions are now being forced on us—for how long a time can these resources be depended upon, and what efforts are being made to provide for that supply being continuous? It is perfectly clear that under the present system of farming out the public lands, the time is near at hand when the supply of merchantable standing timber will not equal the demands made upon it, and it is imperative that at once means should be adopted to preserve and recuperate these timber lands. Those who are familiar with the localities—each year extending farther northward and westward—where the lumbermen obtain their logs, cannot be blind to the fact that the area in which the pine may be expected to be found of merchantable size and in fair abundance, is not so extensive but that another few years of working the timber limits to the extent done in the past, must result in a marked diminution in our exports of white pine. It is not with timber as with other agricultural products. Reproduction cannot take place in a year or a decade. It must be recollected that not until the pine is from seventy-five to one hundred years old is it of good merchantable size for square timber, and that thus at least three-quarters of a century would be required to make these timber limits what they were. And what has been the experience in Maine and Michigan? The pine forests of both these states were thought to be inexhaustible, and gave employment to many thousands of men. Bangor, on the Penobscot, was one of the busiest spots in New England—so many mills lined the river banks, and so many vessels frequented the port for lumber. Now the scene is largely changed. The pine lumber manufactured there has fallen from 102,000,000 feet in 1850 to 63,000,000 feet in 1866, and to 14,000,000 feet in 1877, whilst the total production of pine, spruce and hemlock boards was not in 1877 one half in amount what it was in 1866. Again, in Michigan, the Saginaw Valley is being rapidly depleted, and to supplement the supply to its numerous mills, whose capacity is 600,000,000 feet, logs have to be brought from other large rivers long distances away. But most important of all is the fact that the lumber journals of the Western States admit that in the three States of Michigan, Wisconsin and Minnesota—the main sources of lumber supply in the West—there does not, with the present demand, remain of standing pine timber sufficient for ten years to come.

Even greater destruction has resulted from forest fires, not only by reason of the immense areas through which the fires sweep, but because both large and small trees are alike destroyed. Another incidental but most important result arises in the fact that after forest fires, the first growth always consists of poplar, birch and other trees, though whether the pine, which is of slower growth, gradually in the course of long years, asserts its position and overshadowing these, in turn replaces them, is a question which observation has not yet had time to settle.

True planting has not yet impressed itself on the people of Ontario and Quebec as an idea necessary to carry out. Hitherto, the ambition of most farmers appear to have been to clear the land as soon as possible, and to be content if enough of wood suitable for fuel and farm use is left. Whilst lumber was cheap and the supply appeared almost inexhaustible, it would not appear necessary to most land owners to provide for the future. Besides, men are selfish, and are disinclined to go to labor and expense in regard to what does not promise immediate results, the advantage of which they will not themselves reap. And yet if we revert to the

condition of the Ontario Peninsula, as it was fifty years ago, abounding in splendid walnut, whitewood, pine and oak trees, nearly all of which have been cut down long since, and when we remember the greatly increased value which, especially walnut, lumber now has, we cannot help seeing of what immense benefit to the rising generation it would be had the trees, as cut down, been at once replaced by young trees of the same species. Already many of these young trees would have been of fair marketable size. The Maine Board of Agriculture in a memorial presented to the State Legislature, very pointedly refers to the duties of individuals on this question. "Men need to be taught," says the memorial, "that we have no moral right to follow blindly an instinct that leads only to present personal advantage, regardless of widespread future evils as a consequence; that we are but tenants of this earth, not owners in perpetuity; and that we have no right to injure the inheritance of those who succeed us, but rather a duty to leave it better for our having occupied it the allotted time. Men need to be taught to plant trees and their children to plant and love them. Owners of good lands in Maine or elsewhere will in the future learn that their bleak fields, if judiciously planted with wood to the extent of 40 per cent. of area, will produce on the remaining 60 per cent. more in all kinds of crops than the whole now does or can be made to do under any other possible course of treatment. Lands well sheltered can and do produce winter wheat in Maine as well as in New England or on the new lands in the West." In accordance with this memorial, the State Legislature provided for exemption for twenty years from taxation of all cleared lands on which forest trees had been successfully cultivated for three years, and maintained in a thriving condition thereafter. Nearly all of the Northern and Western United States have in this way statutes to encourage the planting and growing of timber trees, and the effect of encouragement in this respect has in the Western States been most valuable.

Prof. Sargent, of Harvard University, tells us that "as moderators of the extremes of heat and cold, the benefits derived from extensive forests are undoubted, and that our climate is gradually changing through their destruction, is apparent to the most casual observer. Our springs are later; our summers are drier, and every year becoming more so; our autumns are carried forward into winter, while our winter climate is subject to far greater changes of temperature than formerly. The total average of snowfall is perhaps as great as ever, but it is certainly less regular and covers the ground for a shorter period than formerly. Twenty years ago peaches were a profitable crop in Massachusetts; now we must depend upon New Jersey and Delaware for our supply; and our apples and other orchard fruits now come from beyond the limits of New England. The failure of these and other crops in the older States is generally ascribed to the exhaustion of the soil; but with greater reason it can be referred to the destruction of the forests which sheltered us from the cold winds of the north and west, and which, keeping the soil under their shade cool in summer and warm in winter, acted at once as material barriers, and reservoirs of moisture."

The influence of belts of trees on local climate is, in fact, very marked. They form obstructions to and ward off, on the one hand, the cold winds from the north which would lower the temperature and, on the other hand, the parching winds which would unduly raise the temperature and equally injure vegetation; they break the effects of storms, and in the winter time cause the snow to be equally distributed over the fields, forming thus a uniform protective covering to the ground; and if generally distributed over the western prairies they will promote the more equal distribution of the rain fall, and will prevent the streams from being dried up, as they usually become after mid-summer. Observing agriculturists have found that fields protected by belts of trees yield crops much more prolific than those not so sheltered.

In our timber regions the replanting of the pines can be to some extent left to nature, but there is every reason, since the timber limits belong to the Government, and a large annual revenue is derived from them, why the Govern-

ment should, especially in the lands which have been burnt over by forest fires, institute a regular system of tree planting. There is all the greater reason for this because of the fact that after a forest fire, trees of different species from those which were previously there, usually spring up. The expense would be comparatively trifling, and certainly insignificant, when placed beside the results which posterity would derive from it. To individuals there may seem little inducement to plant pineries which may not be available to the fullest extent for towards three-quarters of a century, but governments can have no such feeling, considering that what would be done by them would be for the future benefit of the country and a source of revenue in that future as well. What the governments can and should also do is to, as far as possible, by legislation and the insertion of clauses in their leases of timber limits, prevent the occurrence of forest fires and preserve the younger trees from injury at the hands of the lumbermen. The experience which we are yearly realizing of gradually diminishing areas of timber supply and the now nearly exhausted condition of the United States pineries, make this matter a subject of pressing national importance which, if our legislators do not now take up, they will probably find twenty years hence that it is too late.

The question of tree planting must arise in our Northwest, and the sooner it is grappled with the better for the welfare of the future millions who are expecting to people the vast prairies west of Winnipeg. In the matter of fuel alone, its importance may be estimated from the fact that there are extensive tracts of western territory where the farmers journey from ten to twenty miles by waggon or sleigh in order to obtain fuel, or where they have to rely solely on the wood train which at intervals supply them; and such farmers are often exposed to positive suffering when extensive snow blockades take place. The prairie farmer, indeed, very soon understands the value of a belt of trees on his farm, not merely as a source of fuel and fencing, but even more as a wind-break, warding off the fierce blizzards in winter, and in summer sheltering his growing crops, fruit trees and stock from the strong prairie winds which, developing into storms, cause almost every season vast injury.

It is not at all improbable that the planting of forests on the prairies in Manitoba, Dakota and Iowa, will be the solution of that most embarrassing problem—the grasshoppers—by affording obstructions to the high winds which bring these insects from their habitats in the farther west, and by furnishing suitable homes for myriads of birds which would keep the grasshoppers in check.

The planting of forests will also probably solve the question of the successful growth of fruits in Manitoba and the Northwest. Fruit trees need protection alike from storms and from parching winds, and especially in our western prairie country is this necessary. It has been laid down as almost an axiom in the Western States, that the forest trees must precede the fruit trees in order to afford such protection.

In Minnesota an earnest effort has been made to encourage the planting of trees. A State Forestry Association has been organized, and annually offers premiums for the largest number of trees planted on a day in May, denominated Arbor Day. It is estimated that in the spring of 1877 there were 5,290,000 trees planted in Minnesota, and of these over half a million were put in on Arbor Day. During the entire planting season of that year it is believed that about ten millions of trees were planted, and of these, that about seventy per cent. have lived.

The question of tree planting is one which should be actively taken up at once in our Northwest. The Government of Manitoba could not grapple with a more pressing subject for legislation, unless it be drainage. The greatest drawbacks against which the Northwest has to contend, from an agricultural point of view, are wet lands, scarcity of timber, and liability to high winds, and, in some localities, to summer frosts. Dakota and Minnesota have equally these drawbacks. The Manitoba Legislature has taken up the question of drainage, and ac-

tive efforts are now being made in some parts of the country to reclaim the wet lands. To cope with storms and frosts seems hopeless, and yet experience has found the great value of belts of trees around each farm as affording effective shields against these. What the Government there should do is to promote Forestry Associations, and to, in every way, encourage tree planting by exemptions from taxation or by direct premiums or bonuses. Any such encouragement successfully followed up will be returned one hundred fold in the larger and more certain crops, the store of wood for lumber and fuel created by the growing timber, the relief from the monotony of the prairie landscape through the belts of trees dotting the scene on every side, and not least, in a more contented and prosperous community of farmers.

ON THE UPPER ST. JOHN.

The St. John, N.B., *News* says there is plenty of snow in the woods on the Upper St. John and its branches, and the lumbermen are now fairly at work. There have been one or two days of soft weather since the heavy snow fall of a fortnight ago, which has rendered the country roads about and above Grand Falls almost impassable, but in the woods the snow was not removed to any great extent. This is a great advantage to operators in enabling them to distribute their supplies early and rapidly. The choppers are now making the frost-bound forests ring with their strokes, and the bean-pot sends forth its fragrance in daily incense offering to the powers that have smiled on the efforts of the lumberman.

Robert Connors, operator for Wm. Murray on the Allegash and St. Francis streams, this winter, has put in men and horses sufficient to handle 10,000,000 feet of spruce. Last year his operations in the same locality reached 18,000,000 feet. Mr. Connors made an effort to strike out a field for himself on Lake Temiscouata, but the high water in the streams kept the prospecting party from finding what could be done. Mr. Connors' operations are thus largely decreased. W. F. Fowler, of Fredericton, annually cuts from 10,000,000 to 20,000,000 feet for A. F. Randolph. This year his operations on the Salmon River and Tobique will not exceed 8,000,000 feet. Walker Stevens, lumberman on the main St. John River for E. D. Jewett & Co., of St. John, this year, to the extent of about 10,000,000 feet. Messrs. Page & Mallett have a number of parties scattered along the main river and on the Allegash, whose combined operations will likely amount to 5,000,000 feet. W. H. Canliffe will cut 4,000,000 feet on the Allegash; W. B. West, 2,000,000 feet, on the Quisibis; Jarvis Hayward, 4,500,000 on the Fish River; Hopkins & Grant, 2,000,000 on the Wallagash for Hayford & Stetson. It is thought parties working for Miller & Woodman in the vicinity of VanBuren will cut about 20,000,000 feet all told. The estimated total of the lumber on the Upper St. John this winter is thus 65,500,000 feet. This, however, does not include the operations on the Aroostook and Tobique, which are properly on the Upper St. John, and which will swell the aggregate to not less than 90,000,000. This is about three-fourths of the amount usually obtained. As soon as convenient the *News* will furnish an estimate of the lumber to be cut on these rivers.

Quebec Culler's Office.

The following is a comparative statement of Timber, Masts, Bowsprits, Spars, Spaves, &c., measured and culled to date:—

	1879.	1880.	1881.
Waney White Pine.....	1,599,273	2,235,500	3,065,274
White Pine.....	2,507,720	4,214,285	6,029,041
Red Pine.....	741,499	1,050,107	1,915,720
Oak.....	835,993	1,700,230	2,094,477
Elm.....	336,401	937,283	1,027,070
Ash.....	47,101	215,490	408,798
Basswood.....	250	363	3,049
Butternut.....	70	645	3,033
Tamarac.....	4,691	30,889	27,150
Birch and Maple.....	121,224	585,464	151,774
Masts and Bowsprits... 50 pieces		4 pieces	51 pieces
Spars..... 20 pieces		23 pieces	
Std. Staves.....	1715.3.7	1957.1.1	4189.2.20
W. I. Staves.....	100.2.2.20	487.7.0.8	695.7.2.10
Br. Staves.....		10.9.2.10	

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