

FORESTRY IN ONTARIO.*

BY EDWIN SOUTHWORTH

PRACTICAL scientific forestry has no existence in Ontario—a land of forests. We have no trained foresters, and, so far as I know, there has been no attempt made to apply the principles of correct forestry practice in this country. As a rule when we use the term we are apt to refer only to that incidental phase of the science which relates to the influence of forests on climate and soil and water supply, as well as the loss, from an æsthetic point of view, resulting from the removal of trees from the landscape. These are but minor factors in the science of forestry proper, important in themselves, but not constituting the chief aim of its exponents.

Forestry is a business just as farming is a business. It is the art of growing and harvesting crops of the most valuable sorts of trees in the cheapest and quickest manner, but having regard at the same time to certain incidental effects of masses of woodland vegetation on soil, on climate and on water supply, and consequently on the health and prosperity of the community. The pioneer settlers of Ontario were confronted with a vast tree-covered wilderness, the extent of which was unbroken except by the labors of the industrious and ingenious beaver. Aside from these few and small "beaver meadows," each pioneer, in order to build a home, had to begin his battle with the forest, and soon the sound of the white man's axe and the smoke of his wasteful but necessary log heaps were apparent along the frontier from the Ottawa to Lake Ontario. After a time of struggle and hardship, when communication had been opened with the sea by way of the St. Lawrence, a market was found in Britain for some of our giant pine trees. From this time the lumberman reinforced the farmer in the onslaught upon the trees, and much of the reckless waste of the burning log heaps was avoided. When we consider the conditions surrounding the early settlement of this country, we need not be surprised that the pioneer came to regard a tree as his enemy. Nor is it very much to be wondered at that the man of that day, whose horizon was limited by the solid wall of trees surrounding his cabin, could not be brought to believe that there would ever come a time when he would have to use coal for fuel or send beyond our own immediate neighborhood for timber for barns or houses. Yet that time has arrived, and it has taken but a short time to bring this state of affairs about in many parts of Ontario.

The history of settlement and of lumbering in Ontario has been similar to that of other wooded countries. In every case the forest has had a battle against odds. The tree is the king of the vegetable world, as man is the undisputed monarch of the animal kingdom. They have both struggled for existence in their upward march, and when they meet in combat who can doubt the result of the issue between these two "survivals of the fittest." In the first place, the forest has had to battle with a reluctant and sterile soil created for it, in great part, by lower forms of vegetable life. The algae, lichens, grasses that cultivate the rock and gravel, taking most of their nourishment from the air, live out their brief existence, die and decay, thus adding to the scanty soil, which is still further augmented by the action of the rocks, of the gases generated in their dissolution. These vegetable pioneers create and fit the soil for the occupation of the forest monarchs and trees "go in and possess the land."

When man appears on the scene he takes issue with the trees and the conflict is begun again. Wheat cannot grow in the forest, nor will the latter produce sustenance for large numbers of human kind. Ground must be cleared for crops of grain and for pasture, so the battle must go on and man must win. It involves much and continuous effort, though the victor must not relax his vigilance. The forest is most persistent, and upon any cessation of man's fight with axe and fire and plow will re-occupy the abandoned position and is soon in full possession, as the abandoned farms of New England testify. The warfare with the forest is so severe that he is apt not to be satisfied with mere conquest, but proceeds to extermination, realizing, when too late, that it would have been wiser to convert the erstwhile foe into an ally, making the conquered forest a protector from other enemies and a contributor to his welfare and comfort. When the discovery is made, when only a remnant of the vigorous foe is left, man proceeds to expend much treasure and labor to encourage the presence of a tribe no longer regarded as an enemy, but valued as a friend. This has been the history in the old world and history is repeating itself in the new. In the Republic to the south of us the evils that follow in the train of denudation of forest lands are already seriously felt in many places. Michigan, Minnesota, Pennsylvania, once great pine

states, are no longer. The mills of Michigan are now supplied from Ontario forests. Vast sums of money are being expended in various states in restoring from individual hands to state control large areas of land that are the sources of streams, in an attempt to preserve the water powers so essential for industrial improvement.

In Ontario, however, our smaller population and the great extent of our forest resources have tended to postpone the evils of forest destruction. The factors that have so far caused our safety in this regard make all the more difficult the task of bringing our people to realize the gravity of our present position, and the necessity of taking steps now to prevent the disastrous effects that have everywhere resulted from the reckless extermination of the forests, and that will inevitably follow the same course here. "Experience teaches," but it would seem that experience must needs be personal to have the desired effect. The history of forest destruction in France, Germany, Switzerland and other European countries, followed by expensive attempts at reforestation when the disasters caused by the destruction became painfully apparent, is well known to all students of forestry or of history. Yet this history failed to teach the people of the American republic that there was danger in the indiscriminate and reckless waste of their forest wealth. They know it now, but it took a personal experience to instill the lesson, which has been a very expensive one. It is stated that the State of New York will appropriate one million dollars this year to add to their forest area in the Adirondacks. Other states, notably Minnesota, Pennsylvania and Wisconsin, are moving in the same direction.

In Ontario there are two problems for the forester to solve problems quite diverse in their character and requiring radically different treatment. The first and most important is a forestry problem pure and simple, and refers to the management of the forest lands of the Crown. The other is incidentally a part of the forester's work, and refers to the necessity of replanting or reforesting on lands held by individuals, lands that have been too closely stripped of their timber, with the resultant ill effects on climate and water supply. Despite the fact that this is a young country, only a fringe of which is at all well settled, we have arrived at the stage early in our history when this latter problem confronts us, a question by no means easy of solution. A great many people are disposed to regard as cranks and alarmists those who make the statement that we in the settled part of Ontario have passed the danger line and cut away our forests beyond the safe proportion of wooded to cleared land. They drive through the country and see in the distance what appear to be extensive woods, and conclude we have more trees than are necessary for fuel or timber or for climatic protection. They fail to notice how these supposedly extensive forests degenerate into non-productive and valueless copse of stunted and shrub bushes as we approach them. Their attention is then directed to other extensive forests still in the distance. I must confess to have been at one time numbered among those who thought the people who cried danger were disturbing themselves needlessly. My personal observations had been largely confined to a county which, though an old one, is still fairly well wooded, and I found it hard to believe so small a percentage of woodland existed anywhere in Ontario, as I now know to be the case in many counties.

I think it may safely be assumed that in a country such as this, depending upon rainfall for its water supply, and where there are so great demands for wood as fuel and in the arts, the proportion of woodland to the whole area should not be less than 25%. Even in the more densely settled portion, where farming is more intensive than in the newer sections, 26% is little enough for protection and for the local needs of the farming community as fuel and building timber. What makes it all the more imperative that this proportion of wooded to cleared land should be maintained is the fact that that percentage may be said to fairly represent the proportion of the non-cultivable land, or more strictly speaking, land on which it will pay better in financial returns to grow trees than any other crops.

If the countries in Europe the proportion under forest in Russia 40%, Norway and Sweden 34%, Austria 29.1%, Germany 26.1%, Turkey and Roumania 22.2%, Italy 22%, France 17.3%, Greece 14.3%, Spain 7%, Portugal 5.1%. Great Britain there exists only 4.1%, but in spite of the great value of land there and the humidity of the atmosphere from other causes, the forest area is being increased. In Germany and France, where forestry has reached its greatest perfection, the Governments are increasing the forest areas under their management and exercise a restrictive control to some extent over the forest lands of private owners. Taking this province as a whole the proportion of wooded to cleared land is much greater than in European countries, greater even than Russia, yet in many of our older counties the proportion is very low, despite our comparative youth as a nation.

In trying to arrive at an estimate of the proportion of woodland in settled parts of the province, I had recourse to the returns of the township assessors to the Bureau of Industries. I found, however, that the assessors were somewhat careless in their classification, including in the term woodland a great deal of waste and barren land that was not tree-covered. A circular was issued directing their attention to this matter, and in the next assessment greater efforts were made to accuracy in this regard. From the last assessment returns to the Bureau of Industries I find many of the older counties have less than 25% of woodland, and others would also come under this limit

except that, like Hastings and Addington, the excess into the northern regions not yet well settled these returns the following table is compiled:

County	Per Cent
Elgin	21
Bruce	21
Grey	21
Leeds	14
Dundas	14
Grenville	14
Lanark	20
Kent	18
Norfolk	18
Haldimand	18
Carleton	18
Halton	18
Welland	18
Oxford	18
Perth	18
Dufferin	18
Lincoln	18
Waterloo	18
Northumberland	18
Durham	18
Wentworth	18
Huron	18
Prince Edward	18
Wellington	18
Brant	18
Peel	18
York	18
Victoria	18
Essex	18
Lambton	18

If the front group of townships in each be taken account, in Frontenac, Peterborough, Lennox and Addington, and Hastings, the same condition will be found to exist. This indicates a serious state of affairs, only must we call a halt in the work of deforestation, we need to in some measure repair the injury done, by increasing our woodland areas. How this is done is a problem not easy to solve. The solution is in the hands of individual and small owners, men engaged in farming. If you can convince individual farmer that it will pay him financially to plant trees instead of grain or stock, he will very soon pay to plant trees. You cannot well do this for forcible reasons. In the first place, except so far as otherwise uncultivated land is concerned, it will pay to grow trees instead of other crops, and second place, farmers in this country, where the large land-holding class, where we have no families and estates, look with small favor on the of a crop which they are not likely to live to reap, lose sight entirely of the value of the crop as an investment, and fail to see that the very presence of it, though only partly grown, would greatly increase the selling value of their farms. So far we have no crops of trees in Canada or in America to show actual profit in the operation, and in the absence of a demonstration of results, theories cut very figure with the Ontario farmer. If you point out that the absence of trees on his farm deleteriously affects the climate, he naturally thinks his farm is too small to have much effect, and besides, the general public is no immediate concern of his, hard to make him see that the cutting away of the woods around the pond at the head of the creek on his farm, injure his neighbors by lessening the flow of water away on this creek, and he is not disposed to let much over it if he does. I am afraid this matter will be settled satisfactorily by appealing to the pride or the altruistic sentiments of the land-owner. The remedy must be applied by the owners, but I have grave doubts of the necessary reforestation being accomplished without the aid of form of governmental encouragement, perhaps in the way of financial assistance, but at least by government interference.

Much may be accomplished in this direction by cultivation of a public sentiment in favor of trees and the newspaper press of the province is nobly in that work. Various local influences tend to growth and preservation of trees for commercial purposes, and in some ways this can be fostered. United counties of Leeds and Grenville, in 1870 woods were at one time in danger of total extinction feed the locomotives of the Grand Trunk Rail Road still comparatively well wooded because of the culture of maple sugar. Of the 5,665,000 pounds of sugar made yearly in Ontario, according to the census returns, over one-sixth, or 981,147 pounds made in those counties, hence there is still 19% of land there, largely maple. I am afraid, however, we cannot cultivate a public sentiment in favor of planting fast enough to keep pace with the destruction of our woodlands or to restore soon enough the denuded areas. For the general benefit of the province as a whole there must be considerable replanting. If a direct financial profit to the planter cannot be shown, the farmer is apt to say when urged to plant cannot see any profit to me in the operation, you say, the presence of the trees would be of general community, why, the general community contribute towards the expense of planting. The factor of the general benefit of forests to the people of Europe caused governmental interference in the of exercising a control over private forests, and

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