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ARBORICULTURE IN CANADA.

At the meeting of the British Association in Montreal Professor Brown, of Ontario, read a paper on "The application of scientific and practical arboriculture to Canada." Agricultural countries all complain of want of trees. There is now no question of the value of trees in rural economy; how best to secure full advantage in all their bearings is the question with advanced nations. All nations should have clear ideas of the work to be done before attempting anything. What can Canada do? Two things are necessary to a scientific and practical work in Canada, namely the conviction of the farmers of the necessity of conserving and replanting, and empowering of the Government to reserve tracts for these purposes. The first would, through self-interest, be the most thorough; second, most immediate. Government as a company will have to become foresters. The slowness of the return is the great barrier to replanting. In Europe large tracts are in the hands of one man, whose interest enables him to take wide measures; here, land is so subdivided as to preclude all idea of profitable work. It is harder to re-clothe than to plant for the first time, the chief cause of which is the fact of successive cropping. Trees are not only necessary for shade and shelter, but the climate, temperature, rainfall, moisture and evaporation are influenced by trees. The third great reason for tree cultivation is that the culture is more profitable than agriculture year by year. Fifty per cent. of the cultivated portion of Canada is wooded, as against twenty-five per cent. in the United States. In Canada our need is not for more trees, but for better distribution. Outside of lumbering—a taking without system—there is no preserving, controlling or conserving in any but in an individual ownership here in Canada. The amount of smothering and robbery which goes on in a Canadian forest is great. Our forest should be dealt with in different ways, but on some principles as in Europe, as only 25,000,000 of acres had been cleared for agricultural purposes it may be said that the whole country is still under trees with these exceptions. There are four fields for Canadian forestry. 1st. The untimbered land, such as prairie. 2nd. The older cleared portions. 3rd. The recent forest settlement. 4th. The untouched forest. The proportion of forest to farm land necessarily varies in countries, climate, altitude, latitude, aspect, soil, etc., and can only be settled by practice. The need of shelter should be supplied first, and may be taken as the first measure. That of climate is an unknown one. Everything considered, one-fourth of the surface of Canada should be covered by trees. As this is just one-half of what is at present covered, it is apparent that what we need is regular distribution. Tree planting should not be confined to poor lands, and not merely to

high lands. We have soils and climate suitable for all kinds of tree life—from the pine of the north to the walnut of the South. What is advanced in this paper is founded upon an experience of sixteen years' control of the formation, the planting and subsequent management of something like twenty million of trees on the Seafield estates in Bauff and Inverness shire. With regard to prairies of the Northwest, men need never hope to gather wealth by agriculture without the help of trees. There is no such example in the world. There is no great future for Manitoba and the North-West unless preceded by an extensive system of forestry. Trees are needed for roadside shade, shelter for dwellings, crops, for open grangings and enclosed grangings, wind-breaks and climatic ameliorations. A prairie farm of 160 acres should have 30 acres of timber, 125 acres under cultivation and five acres of orchard, garden, buildings and roads. The roadways of farms should be lined with shade trees, while dwelling-house and orchards should for climatic purposes. Head water plantations must surround or be in the immediate neighborhood of sources of streams. Great wind breaks being needed to fend the smaller plantations as well as districts, have to be carefully outlined, of considerable extent, and must command an exact position. Lesser wind-breaks are planted where larger are difficult to establish. In climatic plantations area is of more consequence than form, as it requires a great field of leaves to effect a climatic amelioration. This address was illustrated by a large map showing exact position form and extent of increasing plantations.

FOREST PRESERVATION AND THE TARIFF.

We repeat the following article from the N. Y. Sun because much of it will be interesting to our readers, though of course we do not endorse all the opinions expressed:—

"Serious fires, set for the most part by sparks from locomotive engines, have recently devastated considerable areas of forest in the upper and lower peninsula of Michigan and in Pennsylvania. In commenting upon this fact some of the special organs of the lumber manufacturing industry have made the assertion that such fires are, and always must be, inevitable, and that therefore the collection of the duty by the Government of the United States upon lumber entering this country—inasmuch as it hastens, as they acknowledge, the destruction of our pine and spruce forests, by stimulating the manufacture of lumber of these kinds—is a wise and economical measure. A correspondent of the Tribune of this city, in an argument against the removal of the lumber duty, states some pertinent and important facts. "I believe," he says, "It is generally conceded by those who are familiar with the subject, that the lower grades of pine lumber are now pro-

duced in most cases without profit. As lumbering in Michigan is now conducted, the forests are practically cut clean of every tree that will produce marketable lumber. A further reduction in the price of lumber consequent upon the removal of the tariff would make the cutting of coarse grades of trees impracticable, except at a loss."

The real reason why the duty upon lumber should be removed, and why Congress has thus far utterly and shamefully failed in its duty to the country in failing to consider this great public question upon its merits, is that free lumber will prevent the needless destruction of young and growing trees in accessible forests like those of Michigan or Wisconsin, or of remote mountain forests like those which cover the slopes of the Adirondack Mountains, the chief value of which is found not in the logs which they can furnish to the mills, but in their protective influence upon important water sheds.

The danger of destructive fires in forests in which lumbering operations have been commenced is very great, especially in regions penetrated by railroads; but this danger is not so great as many persons suppose, and it is certainly possible through legislation to greatly reduce it. The lumberman's theory that no forest is really safe from fire until it is piled in a lumber yard is as absurd as it is short-sighted. Forests are successfully protected from fire in other countries, like the foot hill region of India, where the danger and the opportunity for forest fires are infinitely greater than they are in many of our States; and the popular belief, fostered by interested persons who make use of this argument to induce Congress to retain the duty upon lumber, that all our forests must sooner or later fall a prey to devouring flames, will work incalculable injury upon the country. Our forests, unless they are to cease producing valuable timbers, must be worked upon some principle which will tend to continue the growth of the most valuable trees, and so perpetuate their productive capacity. The pine forests of the North are valuable to the country for the pine which they produce, and which the soil and climate of that part of the country are admirably adapted to develop. The other trees which are associated with the pines in these forests are of much less general value. In other regions of the country they attain greater growth and excellence. It is the preservation and perpetuation of the pine, therefore, which offers the principal forest problem to the people of the pine states, like Michigan and Minnesota. In Maine and in the Adirondack regions of this State it is the preservation of the spruce which should receive peculiar attention.

The first steps towards forest protection in this country are only difficult in the careless disregard of the American people upon all questions relating to their forests—a disregard

born of the very immensity and wealth of the forests which once covered the whole of eastern America. What is necessary to be done if our forests are to continue indefinitely producing timber as the forests of Europe produce their annual crop with as great regularity as other crops are produced, is to stop the spread of forest fires, to limit the annual cutting to certain fixed regions and the care of such trees as it is desirable to perpetuate to individuals only of a certain size. In northern pine forests the whole stand of pine, big and little, should not be cut off at once, as is now the universal custom. The young half grown trees and tough old ones, to restock the cleared land with seed, should be left to develop. If such a policy of cutting can be inaugurated, and then if the young seedlings and the half grown trees can be protected from fire, which not only destroys the trees, but the best quality of the soil, our pine forests can be made to yield a regular crop every year for all time. The first thing necessary in order to make such a general system of forest management possible, is to remove the false and dangerous stimulant to improper lumbering afforded by the import duty, and so take away what little profit, if any, exists in cutting down half-grown trees and saplings, which would be immensely more valuable could they be allowed to grow to maturity. If there is no longer a profit to be made, however small, in cutting half grown trees, owners will allow them to stand; and that point being gained, it will be less difficult to induce them to wisely guard and develop the growth of such young trees. The first step is to remove the duty upon lumber. No system of forest management, however general in its provisions or crude in its application, can be successfully inaugurated in this country as long as the Government pays a premium to the owners of timber land to so manage their property as to insure sooner or later its total ruin.

When it is remembered that the saw logs alone produced annually by the forests of the United States are worth fully two hundred millions of dollars, and that wise and sensible measures have nowhere yet been adopted to maintain this great crop, it is not unreasonable to expect that Congress should take up and consider this whole subject broadly and comprehensively, or, at least, clear the way for the inauguration by individuals or by States of systems of forest management by the removal of the pernicious duty now collected upon imported lumber.

The Rainy Lake saw mill has resumed operations. The mill is now in first-class working order, and will cut about 30,000 feet of lumber daily. The owners intend to put on a night gang of hands, when the output will be nearly doubled. —Winnipeg Commercial.