

FORESTS SACRIFICED TO LEATHER.

One of the handsomest trees in California, is generally known by the common name of chestnut oak. It is a tall, slim tree, having limbs like the chestnut tree; it is evergreen, and never grows in open grounds. Its habitat is nearly limited to that of the redwood, or more accurately to that of the madrono. It is the only oak in that vicinity which furnishes a bark suitable for tanning leather. At least, it is the only oak bark that has ever been used in that state. Now, the leather business has been unusually good in that state for the two or three years last past. Over large districts this beautiful chestnut oak is slashed down for the bark. The trunk is peeled and then left to decay; great openings are made in the forests and the sun is left, evaporating the moisture so rapidly that these trees do not propagate. The result will soon be that this immense waste will terminate with the destruction of this tree, and decay of the fallen timber.

What will the tanners do when the tree disappears, or is so remote and inaccessible that it cannot be reached? In the Eastern States hemlock is extensively used for tanning, but the latter is not found in California. For at least a quarter of a century experiments have been in progress to find some substitute for the tanning of leather. Various chemical processes have been introduced. But none of them have taken the place of bark, either because they were too expensive, or did not make a good quality of leather. There are many barks and many drugs which have astringent properties, but the discoverer has not yet hit upon the cheap and satisfactory process by which bark can be dismissed, and the chemical can be substituted. When all the chestnut oak of the Pacific coast has disappeared, as it will within a dozen years at the present rate of destruction, what are the tanners going to do? Will they find a new and satisfactory process? Why not find it now, and so let a few of the trees stand over for the benefit of another generation?

The price of tan bark in the coast counties has advanced more than fifty per cent in the last three or four years. It is still advancing. The barkmen now go twenty or thirty miles from the coast, or from the nearest railroad. They climb almost inaccessible mountains, strip the bark and draw it out on sleds, or chute it down the mountains in troughs. With the greater labour of getting it, of course, the price must advance. But when there is no more, then will necessity become the mother of invention? Surely, a satisfactory preparation for tanning leather ought not to be beyond chemical discovery. That it has not yet been reached is evident from the fact that tanners in California are paying the largest price for bark ever paid, and that they have not yet adopted any one of the chemical processes which from time to time have been introduced. The chemist is now wanted at the front who can show tanners how to make good leather without the use of tan-bark. — *The Lumber World.*

FOREST PRESERVATION.

At the recent meeting of the American Forestry Congress at Montreal, the following paper entitled "The Preservation of Forests from Wagon Destruction, and Tree planting," was read by Mr. John Duggan, editor of the *New York Witness* —

The greater part of the North American continent was covered with forests when first invaded by Europeans. These forests had stood for many ages undisturbed, except by the slow decay of one generation of trees, if we may so speak, and the slow growth of another. These operations had been going on simultaneously since the creation, or since the last great convulsion of nature, and the annual falling of leaves and the gradual decay of branches and trunks had covered the earth with a vegetable mould of considerable depth.

A UNIVERSAL MINE OF WEALTH.

This mould, possessing all the elements of fertility, was an immense treasure, everywhere abundant, and tempting the settler to clear away the trees and reap the benefit of the virgin soil. When trees were cut down, a crop, which had probably required several hundred years to grow was reaped in a few weeks or years, there

by leaving the earth bare, and the vegetable mould was used up in a few years by continued cropping in wheat, corn and potatoes. The settler knew an excellent bush-plot which produced great crops at first to be reduced in less than ten years to mere rocks and stones. And this process of exhausting the vegetable soil went on everywhere as fast as settlements advanced. Of course where the subsoil was good and turned up in part to mix with the vegetable mould fertility continued much longer, but, in course of time, all, except prairie lands, were reduced so much in fertility as to require the application of fertilizers at great expense. Had the soil at first required these fertilizers the progress of settlement would have been exceedingly slow or more probably there would have been no progress at all.

WAR AGAINST TREES AND ITS EFFECTS.

The labor of cutting down great trees, cutting them into short logs, and piling them up in log heaps to burn, was, however, so great, that a feeling of dislike to trees as the settlers' natural enemy became general, and the vengeance against them so great that in extensive regions the land was completely barred, and thus rendered not only unsightly but unsheltered. Bleak winds had full play and droughts parched the earth. What was even worse, the clearing on the hills and mountains by the settlers, the lumbermen and forest fires left the snow of winter exposed to the spring sun; and the sudden melting and running off of this accumulation of frozen water made dangerous floods in the streams in early summer and left those streams nearly dry in the hot season.

CALLING A HALT.

At length the evil results of indiscriminate cutting down of trees began to be perceived. The improvidence of previous generations was lamented, and efforts to conserve what forests were left and to plant trees gradually became popular. The first class of efforts was directed to preserving a few acres of the original forest in each farm where that still could be done, and merely thinning the trees for firewood, fencing, etc., thus leaving the smaller trees room to grow more rapidly. The grove thus preserved became one of the most necessary and valuable portions of the farm, and that without any labor of ploughing, sowing or cultivating. It also afforded a delightful shade in hot weather for man and beast.

FORESTS IN THE TERRITORIES.

The preservation of the vast forests in the Territories belonging to the nation attracted attention also, and laws were enacted to protect them from wanton waste. Secretary of the Interior Schurz distinguished himself for endeavoring to enforce these laws, which was very difficult of execution on account of the opportunities lumbermen have in an almost uninhabited region for cutting trees on Government land, and the frequency of forest fires kindled by careless Indians, hunters and trappers, lumbermen and settlers. These fires often do more damage to forests in a few days than lumbermen could do in as many years, and how to prevent them is yet an unsolved problem.

FOREST LAWS.

The only remedy and that only a partial one that can be suggested, for the wanton destruction of forests is a national system of Forestry laws somewhat similar to those of France, Germany, Austria, Norway, and other European countries, which prohibit under severe penalties the injury or destruction of trees by unauthorized persons; and also the kindling of fires, or even smoking in the woods. A forest police was created to see to the execution of these laws, and at the same time providing for the utilizing of forests by gradual thinning out and selling the largest trees, so as to leave more room for the smaller ones. In this way the public forests are an annual source of revenue, and after centuries of such management they are in as good condition as they were at first.

JUDICIOUS THINNING.

In passing through Plattsburgh, N. Y., once the writer saw the Saranac thickly covered with sawed lumber, and he asked an old gentleman if that river was not yet lumbered out. The reply was "I have known it for sixty years, and the quantity of lumber coming down has been pretty much the same all the time. There is as much now as there was sixty years ago." This

shows the result of a judicious system of thinning forests.

A COMMISSIONER OF WOODS AND FORESTS.

If the United States, and each State had a department of woods and forests with a suitable head and the necessary subordinates, much could be done, not only for the preservation of forests belonging to the public, but to persuade settlers to leave a suitable portion of their farms in wood; and to counsel from time to time in public documents, not only care in husbanding present forests, but some general system of tree planting by States, corporations, and individuals, so as to provide a supply of timber for the future.

TREE PLANTING.

The second branch of this great subject is tree planting, and here credit must be given to the U. S. Government for its encouragement of this necessary work in the prairies. The law giving 160 acres to anyone who will plant and maintain for a few years 40 acres of trees, has had a great effect already in providing for a future supply of timber in the prairie States, those groves will also break the terrible prairie blizzards, and, probably, to some extent, attract rain-clouds to mitigate prairie droughts. A fine spirit of tree planting has also been manifested in many cities and villages; and "Arbor Day," or a day set apart in spring for tree planting, has become, in some parts of the country, an institution for the purpose of beautifying streets and public and private grounds.

PLANTING TREES ON PUBLIC ROAD-SIDES.

The public roads should be lined on both sides with trees, which, when grown, would do something towards sheltering and beautifying the country everywhere; but along the railroads there should be something more than isolated trees. There should be a rather broad belt on the windy side, thickly planted with the various kinds of trees needed for repairing the roads. This belt would shelter the railway from storms, catch and retain the winter's snows which give us so much trouble, and, before many years, supply much useful timber when the supply from other sources might be exhausted.

TREES-PLANTING ON FARMS.

Every farm should have a belt of timber planted all along its windy side, this belt, not less than fifty feet wide, should be planted thickly with the various kinds of trees that grow best and fastest in the neighbourhood, the thinning of which for useful purposes would soon be valuable, whilst the shelter it would give from prevailing winds would be invaluable. All swamps not covered with trees should be planted with red and white cedar and tamarac, all of which grow best in damp ground, and produce most excellent timber for various purposes. The leaves also of these trees would absorb the unwholesome air which swamps generate.

STONY GROUND.

There is on many farms more or less of ground so rocky that it will not repay the expense of cultivation, and all such spots should be planted with trees. These may be got out of the woods or farm nurseries; or what would be easier, cheaper and probably more effectual, the seeds of various kinds of trees could be sown, imitating as nearly as possible the natural processes which have produced all the forests of the country. The seeds of different trees should be gathered in the woods just at the time that they fall naturally, and they should be immediately planted in little shallow holes among the stones, and covered with a little earth. There the rains of autumn, the snows of winter, and the sunshine of spring would bring up quite a crop of young trees, which should be fenced in from cattle and left to themselves. They would require no labor after the first sowing and fencing except subsequent thinning out from year to year of those that were too crowded or most valuable for economic purposes. If hickory nuts, black walnuts, butternuts, chestnuts, and the seeds of sugar maples, pines and spruces were any of them or all of them sown every here and there over the place intended for a grove the most valuable kinds and those that thrive best could be ultimately let to become great trees. After ten years the annual thinnings of this grove for wood, fencing, hop poles, railroad ties, etc., would probably make it as valuable a part of the farm as any other, and when the black

walnut and butternut trees become large enough to be sold to cabinet-makers the value of the grove would be very great. The present race of farmers may say they would not live to see the trees become fit for the cabinet-makers, but none the less would the growth of that grove increase the value of the farm every year and that whether the owner sold it or left it to his children.

A FORESTRY COMMISSION.

What is very much needed as a preliminary to the covering of a considerable portion of the land with these groves is the advice of scientists and experts as to the kind of trees suitable to different soils, the rapidity of their growth and the relative value of their wood. This information could be collected and scattered by a judicious commissioner of woods and forests in each state, just as the fish commissioners now give information about fishes. To plant or sow millions of trees is just as necessary as to hatch and distribute millions of food fish.

THE DOMINION.

With respect to the Dominion of Canada there is great need for tree planting in the fertile valley of the St. Lawrence for a considerable distance around Montreal, and still more need in the prairies of the North-West. In the latter region of vast capabilities, to which much attention is now turned, a system of granting land on condition of planting trees might be most advantageously introduced now, as every year will render such an arrangement more difficult. The other provinces of the Dominion are still well supplied with timber, and the system of selling "timber limits" to lumbermen is conservative of the forests, but there is need for great precaution against forest fires or wasteful uses of valuable timber. A capable commissioner of woods and forests for the Dominion would therefore prove a very valuable functionary, if he were not only an expert, but an enthusiast in Forestry, as otherwise his appointment would merely add another salary to the expenses of Government.

THE GREAT NORTHERN FOREST.

The *Toronto Globe* says:—The great forest which bounds Hudson Bay on the east and extends up the interior of East Main and Labrador to Ungava Bay and Hudson Straits, six hundred miles north of Moose Factory, attains its greatest characteristic development just south of James' Bay, which lies nearly midway between the northern and southern limits of the peculiar trees which compose the great northern woods. Some trees, such as the Banksian pine and the spruce, which along their southern limits in Central Ontario are almost valueless commercially, here become giants of the forest, and are valuable for timber. The list of trees which flourish at James' Bay or in its drainage basin includes, according to Professor Bell, the spruce (two feet or more in diameter), the tamarac, balsam poplar (luxuriant), Banksian pine, silver fir, arbor vitae, elm, white pine, and red pine, and of lesser importance the poplar, mountain ash, and mountain maple. As James' Bay is as near to Liverpool as is Quebec, the future of the district as a lumbering country looks hopeful.

STEAM OR SAIL.

The *London Timber Trade Journal* says:—With the absorption of the Atlantic wood carrying trade by steamships we shall get the colonial goods here at a freight charge that will bring them much nearer to those from the Baltic. The fact that large steamers can partly load up with other commodities in addition to deals much readier at the North American ports than they can in the Baltic will influence the rates in that direction considerably. The great drawback to low quality deals from the westward has been the heavy freight charge on them, but with this reduced to a trifle more than from the north of Europe ports a great impetus will be given to the consumption, and we shall see fresh sources of supply developing in every direction. Places that are now too remote to cut from, owing to the heavy cost of carriage, will be brought within paying distance of Quebec and the other ports when the Atlantic freights are some 40 per cent. less than now rule, which will probably be the case before many seasons pass over our heads.