QUEBEC FORESTS.

The Montreal *Gazette* says:—There are some interesting features in the last report of the Commissioner of Crown Lands of this Province with which some of our readers will be glad to be made acquainted. The result of the financial transactions of the Department for the year 1881 1882 is highly satisfactory. The amount realized from the sale of Crown Lands, Clergy Reserves, Gold Mines, Woods and Forests, and other resources, together with certain fees and deposits, attain a total of $818,283.11, an increase of $148,094.85 over the receipts of the preceding year. On operations so favorable it fell to the lot of no previous Commissioner since Confederation to report. They took place during the tenure of office of the Honorable Mr. Lynch's predecessor, and it is to be hoped that the satisfactory state of things which he has had the pleasure of announcing will go on improving (as they have begun) under his own administration. This large income was mainly derived from the sale of Crown Lands and, more especially, from the collections on account of woods and forests. The increase of ordinary revenue from timber dues and ground rents was $230,930.63. Of this sum the greater part arose from the additional dues imposed by the order in Council of November 12, 1880. The beneficial effect of this order began to be apparent during the last fiscal year and to what extent it is likely to affect the future receipts of the Department may be gathered from the statement that from the branch of woods and forests the figures for the last six months were $600,000. A sale of timber limits of comparatively small extent in October, 1880, produced $26,921, and though, greatly exceeded by a previous sale in the fall of 1880, which brought the handsome amount of $132,774, its success, with other indications, gives reasons to hope for good returns hereafter from this source of revenue. The limits thus leased by auction covering an area of 715 miles, situated for the most part in the eastern portion of the province (in the counties of Montmagny, Rimouski, Bonaventure and Chicoutimi), brought to the treasury an average bonus of $36.58 per square mile. This is more than double what has been hitherto obtained for limits of similar situation.

The Commissioner recognizes the obligation that presses on the Government, in view of the rapid denudation of timber areas in Canada, as well as elsewhere on this continent, of taking measures for the preservation, by judicious working, and, where possible, for the renewal of our forests. Mention is made of the evidence that the persons most concerned by business and associations in that branch of economy have taken the matter into earnest consideration, and have seen at last the expediency of atoning, as far as practicable for the waste and neglect of the past. In this connection the Forestry Congress, which met in this city in August last, was an event of no slight importance, as significant of a determined purpose to utilize experience and combine effort in that direction. Of the good influence of the Congress, the recommendation of the Commissioner to adopt its resolutions, as far as circumstances permit, is itself a proof. The Hon. Mr. Lynch gives a pithy interpretation of one of the most important of the resolutions, whose force he acknowledges as a neutralizing of so-called colonizing movements, whose real object is the pillaging of our forests. To effect that object, to distinguish between land that is fit only for forest-bearing and land that may be advantageously cultivated, he points out that it is necessary to have minute and detailed inspections of our vacant lands, and he promises that those already commenced (to ascertain the manner and extent in which surveying operations should be carried on) shall be prosecuted with renewed vigor. He is already able, he adds, through the sustained conscientious inspection of Mr. Joseph Bureau, Forest-ranger, to exercise control over all the region between the Du Lievre in the west, and the line dividing Ottawa and Argenteuil counties in the east, and from the 46th parallel towards the south to the limit of Ottawa County in the north-west. As to forest fires (the prevention of which formed the subject of the other recommendation of the Congress) Mr. Lynch is of opinion that, in addition to existing legislation, measures more energetic than any hitherto adopted must be undertaken, if the law is to be, as in the past, more than a dead letter. It is satisfactory to know that Mr. Lynch has held conferences with some of the chief lumber merchants, who are owners of limits and equally interested with the Government in the preservation of the forests from destruction, for the purpose of arriving at some plan of common action. It is to be hoped that the result will be such a system of supervision as will prove efficacious. Of course, if the organization approved of should turn out to be futile as an agency of fire-protection, there would be no use in wasting money on it. But, on the other hand, if it is possible to apply protective measures on a plan and scale which would prove largely preventive of such holocausts as have ravaged our forests in past years, the expense would be a trifle, compared with the good accomplished. At any rate, it is well to know that the Commissioner is directing his known capacity and energy to the object in question and, with all who are interested in the safe-keeping of our forests, we trust that his efforts will be successful.

ELM BARREL HOOPS.

The *Lumberman's Gazette* of Bay City, Michigan, says:—The manufacture of barrel hoops from elm timber dates back some 20 years. The pioneer in this new industry received the usual encouragement that was meted to inventors, who were in advance of the masses. The new hoop (made by a machine) was regarded with distrust, and those few who engaged in its manufacture were considered foolhardy and and only a few removes from a lunatic asylum.

The drummer of those days who attempted to place the hoops was no sinecure. He was the inventor and manufacturer as well, and his reception on the market may be imagined, when few hoop dealers would take them as a gift. However, continued perseverance and enterprise, guided by a seeming prophetic vision of the necessary wants of the near future has won, and we see in the elm hoop of to-day, one of the most important staples of the country.

The first conception of the manufacturer of elm hoops was to saw the logs into planks of the required thickness to make the hoop the required width, then by cutting from the edge of the plank into strips, the necessary thickness required for hoops.

This seemed to be the only way that could be devised, and all the new and improved hoop machinery that were subsequently invented arrived at the original result. The log had to be cut into plank, increasing labor and cost, and decreasing value and quality by making two-thirds of the hoops bastard. With all these attending difficulties and imperfections the hoop has steadily grown in favor and the consumption is rapidly increasing.

Two years ago F. L. Wilson realizing the importance of the cut hoop and noting the growing local demand in the Saginaw Valley, conceived the idea of cutting hoops direct from the log, adapting the machine to the natural growth of the timber, and not the timber to the machine, uniformly converting the log into perfect legitimate (not bastard) hoops without the aid of saws, and so well has he succeeded that to-day may be seen at the Wilson Hoop Company's works, West Bay City, the most perfect automatic hoop cutting machine in the World.

The mechanical construction of this machine has no complicated parts to get out of order, and considering the unerring work it performs makes it one of the wonders of ingenuity, simplicity and durability.

The motor is a 10x18 engine—directly attached—no belts used.

The feed is automatic and consists of two distinct motions, viz: A rotatory, revolving the log on its axis which produces the thickness of the hoop; a horizontal, moving the log on horizontal ways by means of racks and pinions on a plan with its axis which produces the width of the hoop.

The feed of mechanism is so perfect in construction and accurate in action, the thickness of the hoop can be varied at will the one-hundredth part of an inch.

The logs are cut the required length and placed in large vats, where they are steamed from 36 to 48 hours. The bark is then easily removed before being placed in the machine. Then, after being firmly clogged, the log commences to revolve, and the hoops are removed one by one, at the rate of 90 per minute. When the log has been reduced to a given diameter it ceases to cut, and the spalt, or heart, is replaced by another. This change of logs only requires 30 seconds time. Although elm hoops have been used for a number of years, their strength and durability has never been demonstrated to such an extent as to give them a place and preference over the split or racked hoops until this system of cutting direct from the log was perfected, giving to each and every hoop uniformity of width, thickness and grain. The use of these hoops is no longer an experiment but has been fully tested, not only scientifically and theoretically, but practically by scores of our best coopers and business men throughout the valley.

This newly developed industry gives employment to upward of thirty hands, eight girls are included in this number, who find the work agreeable and give reasonable satisfaction.

Business has been prosecuted by the company with unusual vigor and energy during the winter months, and they have now on hand a large stock from which to draw during the coming salt-packing season.

They have also secured in their boom and on the bay shore sufficient timber to enable them to supply customers throughout the year to come.

This industry has opened up to the farmers of this valley a new source of revenue—the timber that for years has been consigned to ashes in the log heap. As civilization and improvements have advanced, it has suddenly been discovered to have a value, and a ready market, giving to them a chance to contribute something more towards the wealth and prosperity of themselves and their surroundings.

This invention is a credit to the city as well as a permanent and lasting reality, the product filling a long felt need. The enterprise should be encouraged, and to that end we urge our patrons who use barrel hoop to examine for themselves.

FOREST CULTURE.

In view of the immense consumption of lumber in the United States and the rapid annihilation of the great forests, the importance of growing timber wherever it may be done advantageously cannot be too strongly emphasized. To many the first attempts at growing trees is often discouraging, and they give it up as an unprofitable business. This is especially true on the prairies, where the young trees are exposed to the full weight of the winds which sweep over them, bending, breaking and dwarfing them. Another difficulty in the west is that fencing is expensive, and too often the land set apart for growing trees is not as well protected as it ought to be from the destructive feet of cattle, which do more damage by breaking down the trees and cropping the foliage than is done by the winds. One hungry steer in a very young forest will do more injury than a full-grown hurricane. Many are too economical of their seed, fearing that they will get the trees too thick. There is not much to be feared on that score. The closer the trees are the better; the strong will make room for themselves by killing and feeding upon the weaker whenever the later are no longer of any service as shields to the bodies of the strong against heat and cold, men, beasts, insects and other foes. All the forces of nature will contribute to the "survival of the fittest."

One great mistake, especially in the prairie states, is that of appropriating the bits of timber land, after the timber on them is cut off, for agricultural purposes. If these "clearings" are let alone after the old timber is cut and removed, a new growth will spring up which will develop much more rapidly than any hand planted forest, and the second growth will be better than the first. We have seen in Kansas dense growths of young hickories, which in six to ten years after the original timber was cut, would be from thirty to forty feet high, the bodies long and straight and from six to eight, often ten, inches in diameter one foot from the ground. These young forests would produce per acre many cords of stove wood, for which they would almost invariably be cut—the owners considering the present needs of more importance to them than any investments for their children, if perchance they had any of their own to provide for.

Perhaps it is not worth while to urge upon the railroad companies the advantages that might accrue to them from scattering walnuts, acorns and seeds of other forest trees on their land bordering their tracks. The stockholders rely more largely upon the net earnings of the roads to boost the quotations of their stock on Wall Street than upon the present or prospective intrinsic value of their plant. Nevertheless there is a speculation in this suggestion of more value than may at first sight appear. The time is coming and is not far distant when wooden ties will be comparatively scarce and expensive, and iron will be worth much more per ton when the supply of wood is exhausted. The seed may now be readily secured; when the trees are consumed the supply of seed is destroyed. While it is still possible to get the seed it ought to be used. In fifteen or twenty years almost every railroad in America might have all the timber it would need to replace decayed and decaying ties. The benefits of such belts of timber would be manifold, and no more useful than ornamental. The interlacing roots would prevent the washing of the soil into cuts; the branches would afford windbreaks and shade; they would increase the moisture and check the sparks from locomotives which in dry seasons consume the fences and pastures of the farmers. Of course there would be some dangers to guard against, such as result from the accumulations of dry leaves and falling trees, but such contingencies are slight compared with the advantages to be secured.—*The Industrial Monitor.*

HOW TO TAKE OUT SCREWS FROM WOOD-WORK.

The following practical hints on this subject are from a long article in the London *Builder* on "The Use and Abuse of Screws in Wood-work," and may save our readers much vexatious effort, not to say profanity, in the extraction of old and obstinate screws:—

A difficulty is often experienced by persons who wish to withdraw a screw, by finding that though it will turn round under the application of the screw-driver, yet it will not unscrew out. In this case a well-grounded suspicion may be entertained that the screw in question was driven, or nearly driven, home originally by the hammer, instead of gradually by the screw driver, and that no regular thread corresponding with the screw exists in the wood. Under such circumstances it becomes necessary to wrench off the hinge or hinges by force, at the risk of their breaking, and this often happens. When hinges have lain undisturbed for long years on old doors or other framings, perhaps for a quarter of a century or double that time, it becomes difficult to extract the screws, although they may have been originally properly driven. This arises from the screws rusting in the wood, and sometimes from other causes. Workmen themselves often fail to withdraw a screw, and are forced to break the hinge to enable them to get under the head of the screw, and wrench it out. They often split, and break too, fancy and delicate wood-work articles, in their efforts to take off hinges, locks, mountings, and other finishings, despite that simple methods exist for extracting screws that have rusted in the wood. One of the most simple and readiest methods for loosening a rusted screw is to apply heat to the head of the screw. A small bar or rod of iron, flat at the end, if reddened in the fire and applied for a couple or three minutes to the head of the rusted screw, will, as soon as it heats the screw, render its withdrawal as easy by the screw-driver as if it was only a recently inserted screw. As there is a kitchen poker in every house, that instrument, if heated at its extremity, and applied for a few minutes to the head of the screw or screws, will do the required work of loosening, and an ordinary screw-driver will do the rest, without causing the least damage, trouble, or vexation of spirit. In all work above the common kind, where it is necessary to use screws, and particularly in hinge work and mountings, fancy fastenings and